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University of Northumbria at Newcastle
Department of Information and Library Management

PROCEEDINGS

of the

2nd NORTHUMBRIA INTERNATIONAL CONFERENCE

on

PERFORMANCE MEASUREMENT in LIBRARIES and INFORMATION SERVICES

7 to 11 September 1997

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INTRODUCTION

The 2nd Northumbria International Conference on Performance Measurement in Libraries and Information Services attracted over 130 people from 24 different countries worldwide. The papers that follow come from all sectors and raise important issues that not only continue the concerns of the first Conference of 1996 but also point to the ongoing need for such discussion in raising new issues.

Papers covering such topics as the collection and use of statistics, performance indicators, setting standards, and benchmarking continue the interest in and need for debate on methods of measurement and evaluation. However, more in evidence this year is research into evaluation of electronic, digital and networked environments, and Lancaster's paper on evaluating the digital library here perhaps points to the future.

Exciting trends in the use of qualitative research are represented in such papers as those on the use of focus groups, client satisfaction, feedback from a captive audience, and investigation on the impact of local government reorganisation on public library users. These highlight the concern within the profession that quantitative methods need to be complemented by interpretation and strategic vision.

The use of performance indicators in strategic planning was an underlying theme of many of the papers, and so the next Conference will focus to a greater extent on the outcomes of performance measurement: the use of the information generated in making services more effective in the long term. Can improved effectiveness be linked to performance measurement? Is there a need to question the level of resource invested in the performance measurement exercise? Is performance measurement worth it? Roswitha Poll's paper asked many of these interesting questions in 1997 and these will move the next Conference firmly into the field of strategic management.

The 3rd Northumbria International Conference will be held from Thursday 26 to Tuesday 31 August 1999. Optional visits are being planned for the first day. The provisional title for the Conference is "Performance Measurement - Value and Impact", and the Call for Papers will go out on 1 July 1998.

It is to be hoped that the 3rd Conference will attract the participation of more of those involved in the public library sector which, in the last two Conferences, has not been so well represented as the academic library sector or special information services. There is a great need for effective strategic planning in the fast moving world that we occupy. The Conference has certainly proved once again that internationally there is an enormous amount of valuable work being undertaken that is relevant to all of us.

Pat Dixon
Sandra Parker

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KEYNOTE PAPERS

Does Performance Measurement Improve Organisational Effectiveness? A Post-modern Analysis

Rowena Cullen

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This first keynote address of the conference addresses the fundamental question "Does performance measurement improve organisational effectiveness?" by examining past and present approaches to performance measurement in libraries and placing them in a conceptual framework. Library performance and library effectiveness are defined as multi-dimensional constructs. Some of the factors necessary to improve the application and adoption of performance measurement in library and information service management are identified. Employing a post-modern perspective, the paper concludes that with a better understanding of the nature of the various paradigms of performance measurement and of the multidimensional nature of library performance and measurement, libraries can position themselves on the three axes of a Values/focus/purpose matrix to ensure that performance measurement leads to library effectiveness.

INTRODUCTION

Does performance measurement improve organisational effectiveness? As a profession we have been grappling with this question for a quarter of a century. Responses have focused on the semantic, the practical, the theoretical and the dogmatic. But in recent years they have focused mainly on the practical. Papers from the first Northumbria Conference describe and explore new ways of evaluating services, new services to be evaluated, new issues to be considered when implementing a system of performance measurement. Few questioned the value and effectiveness of the process of measurement itself. Today, I have been asked to do so, and the question is timely.

It is also a very difficult question, because it is self-referential. If we could answer yes, and simply get on with ascertaining the best ways in which to measure and evaluate what we do, that would imply that we know what an effective library is, and can measure it. We would therefore be finding it easier to define and adopt library performance measures, and they would be telling us yes, measuring performance leads to more effective performance and therefore more effective libraries. The fact that so many of us are here debating these issues again suggests that we have not reached that point. In fact, the question we must ask is: are we really any closer to knowing whether performance measures lead to library effectiveness than when the debate began 25 to 30 years ago? This is the approach I have taken in this paper, and I hope that it will help to bring together the many themes of the previous Northumbria Conference and provide a bridge and a conceptual framework to the many exciting papers we will hear this time.

It is essentially a post-modern approach, which analyses the discourse of evaluation, and deconstructs the certainties of the past. In doing so it frees us to select and choose the system of performance measurement that suits the individual organisation and best reflects its fundamental purpose and its environment. A library is a social construct, devised for a range of societal purposes and to meet a number of needs; library effectiveness is therefore dependent upon the insubstantial and fluid concept "library", a concept which has become even more insubstantial in the age of the "virtual library". The attempt to discuss the notion of performance measurement in libraries is therefore both frustrated because of its complete dependence on such relativistic foundations, and necessary, because in the midst of such uncertainty we must attempt to create some meaning. The discourse of performance measurement is one way to establish that meaning.

The paper therefore addresses the question by :

- examining past and present approaches to performance measurement in libraries;
- putting past and present practice into a conceptual framework;
- defining effectiveness as a multi-dimensional construct;

- identifying the factors necessary to improve the application and adoption of performance measurement in library and information service management.

PAST AND PRESENT APPROACHES TO PERFORMANCE MEASUREMENT

Origins of Measurement in Libraries

Performance measurement or evaluation has historically been used by library and information services in two ways. From the Great Library at Alexandria up until the present day, libraries have judged themselves and each other in terms of their collections and their curators. The pride taken in the early years of this century in the size and quality of the collection, focused often on the number of rare and valuable items it contained, and the distinction of the staff as scholars and luminaries in their own right, have dominated much library history. This view was challenged by the documentalists of the 1930s and 1940s, applying the mathematics of stochastic processes to the circulation of books and information in library systems. They began to shift the focus from the collection to the processes going on within the collection and to the interaction between the collection and its users. The science of bibliometrics and the understanding it brought of the library as part of the cycle of the creation, organisation and dissemination of knowledge, changed the concept of the library as a self-contained entity to a dynamic system in constant interaction with its environment.

As this understanding developed, and as the library became a more sophisticated operation, standing apart from the community of scholars or readers which it served, it became recognised as a social institution rather than a collection of materials. Principles of management, and principles of evaluation developing in the management literature, were now perceived to be applicable to libraries. Performance measurement in library and information services has since kept pace with the range of methodologies used in the profit, and not-for-profit sectors - Strategic Planning, Systems Analysis, Management Information Systems, Management by Objectives, Total Quality Management, Business Process Re-engineering, ISO 9000 and its offshoots, and the Baldridge National Quality Award. We have flirted with them all and engaged seriously with some.

More recent developments reflect the role of government and the impact of developing principles of "accountability" in government on libraries, a large proportion of which are owned by national, state, or local government or government agencies. The New Zealand government, for example, currently declares its social and financial goals as Key Result Areas and Strategic Result Areas and reports annually on the extent to which these are achieved. It has become an international leader in the development of methodologies for measuring the effectiveness of government, and on ways to define the services it purchases on behalf of the community from provider agencies, such as universities and libraries (Boston, 1996). We will need to see where such developments fit into our analysis.

What does emerge from these various approaches to measurement and evaluation is a set of fundamental premises about measurement. The methodology is of less significance than the fact that some organisational endeavour is given over to the measurement of performance. Two key principles then can be seen to be:

- that the organisation seeks feedback on the impact of its main endeavours, ie. that the feedback loop is closed;
- that the measurement of performance is tied to decision-making and resource allocation.

Within these parameters there is a large element of choice, and an organisation may focus its measurement on a range of activities.

But this still begs the question: What is effectiveness? How do we measure it? If we do, do things improve? The debate in our profession, I would suggest, has focused too much on semantics and process, and too little on outcomes. The questions we should therefore be asking are:

- what performance measures are libraries and information services using?
- what are these measures actually measuring ?
- can libraries and information services demonstrate changes and improvements in procedure and resource allocation as a result of using these measures?

Recent Studies Indicate some Negative Correlations

Two recent publications suggest that research

would throw up rather negative responses to these questions: Ellen Altman and Allan Pratt recently carried out some simple analyses of the statistics in the US Public Library Data Report for 1996 (Pratt and Altman, 1997). They compared inputs with outputs reported by the 24 library systems serving US cities with over 1 million citizens. Altman and Pratt observed that none of these 24 library systems is in the top quartile for output measures for all five of the outputs (taken from *Output measures for public libraries*, American Library Association, 1987. 2nd ed. [Van House, 1987]) listed in the data report. The outputs are: per capita figures for: circulation, reference transactions, registration, turnover, and holdings[1]. Per capita expenditure varies in this group of 24 library systems from $8.33 to $33.17 even for those six libraries which make it into the top quartile for three out of the five output measures.

This simple analysis focuses, as does much of Altman and Pratt's recent work, on unravelling the inherent difficulties of using library statistics as any reliable measure of library activity or output, and it is worth examining - its simple common sense approach throws a new light on past approaches to performance measurement. In their analysis, Altman and Pratt revealed a dramatic lack of correlation between inputs and outputs, between expenditure and performance, far beyond anything the most experienced researcher in the field would have predicted. This alone ought to be cause for concern. And yet all these libraries will be using some form of performance measurement. Can they not demonstrate some improvement in performance? And what kind of performance are they measuring, if not the standard output measures endorsed by the ALA? And if these outputs are not measuring performance, why are they reported?

A similar investigation could be made of the performance measures and statistics gathered and published in the compendium of public library statistics issued in 1995 by the Library and Information Statistics Unit (LISU), which pulls together statistics from LISU, the book trade, and local authorities' research (England, 1995). But thorough as this is the data is still not sufficiently standardised to allow for much meaningful meta-analysis or enable any correlation between inputs and outputs, between process and outputs or between outputs and desired outcomes. In particular, substantial issues of user satisfaction with their library/information services are touched on by only a small percentage of studies included here, although the authors comment in several places that further analysis is possible and indeed, desirable. A brief analysis[2] along the lines of Pratt and Altman of the few tables which permit such an approach suggests that the same discrepancies could be observed, if we had data for a larger number of libraries, and more rigorous definitions of the data itself[3]. And we would need to ask why some libraries servicing communities of the same size have significant variations in book stock, cost per capita, and issues per capita, and whether these relate to internal or external factors (such as types of community), and how well such figures correlate with what are commonly called "fill-rates" and "satisfaction rates".

One study that suggests a more positive response to this question is Annabel Stephens' 1991 survey of 255 libraries using the *Planning and role setting manual* (Public Libraries Association [PLA], 1987). A majority of the libraries surveyed reported positive changes in nine out of 13 output categories (Stephens, 1995) which included: increase in reference questions, increase in circulation, increase in registered borrowers (three of the output measures covered in the Statistical Report of the PLA). The changes noted included increases in statistical counts of activities, changes in policy, etc. However, the results of this study, and the difficulty of assigning *meaning* to the changes noted by the libraries doesn't really help us resolve the question of whether there is any correlation between agreed output measures and library effectiveness, and the extent to which statistics can measure the value of a library to its community.

But the questions that really need to be answered remain largely unaddressed. And I come back to them. Does measuring inputs, process, outputs tell us anything about how to make the processes work in a more uniformly successful way? What evidence is there of any real benefit from more than two decades of research and experimentation with

[1] It is worth noting that these are the same as some of the output measures required in the UK for the Citizen's Charter, also often used for international comparison.

[2] For example, of the data provided for East Essex libraries (England, 1995, p.186-187).

[3] How are "costs" assessed - do they include a proportion of all local body costs, building rentals, depreciation, etc.?

performance measurement? What are the outputs of output measurement itself?

Landmarks of the Past

One way of answering these fundamental questions may lie in a more clearly defined conceptual framework for the process of output measurement, the measurement of outcomes, and the evaluation of services.

In order to develop such a framework we need to go back to some of the landmarks of the past 30 years, 30 years of an extensive literature to which we have already briefly referred. Here are some notable pieces of work, glimmerings of real knowledge in the research literature, in monographs, in conference proceedings, in handbooks and manuals - a "massif" with some named peaks - research, methods, and insights, which have added to the debate, changed its direction, made some significant impact on thinking about the issue (see Appendix). This is not by any means a definitive list, even of the acknowledged seminal papers, or "landmarks". It is used simply to point out some trends. But most names of note are included, especially those of Kantor and Orr, two key figures who made significant conceptual breakthroughs that are only beginning to be fully explored. And some are briefly mentioned who are far more prolific than this list suggests, especially major figures such as Buckland and McClure.

Of note in this list is a progression from the early documentalists, using statistical methods to analyse patterns of use in library collections, developing concepts of measurement, early applications of the "systems" approach, identification of need for "objective" measures, linkage of planning (and goals and objectives) with measurement, the concept of "goodness" and whether statistics can measure goodness or not, the emergence of "effectiveness", Management Information Systems (MIS) and Decision Support Systems (DSS), and finally the introduction of concepts of quality, ISO 9000, the distinction between satisfaction and service quality, and the definition of the attributes of service quality.

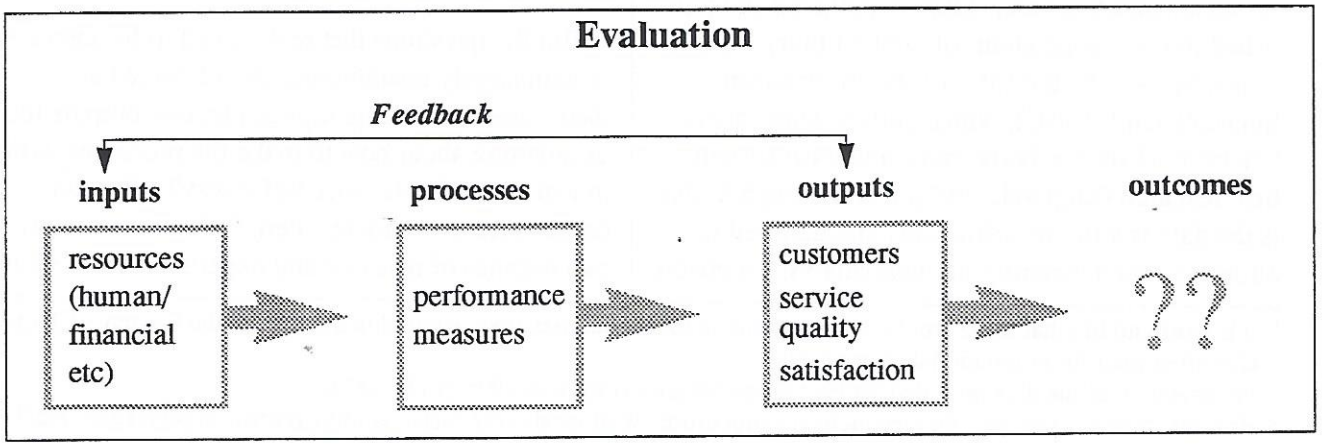
During this period (the past 25-30 years) we have learned a lot about library performance and measurement. We have learned to distinguish between inputs and outputs, to understand the difference between measuring processes and measuring products. We learned about the need for feedback. We have learned also that outputs may not equate with outcomes, and that to find out how well we are doing we really need to determine what impact library and information services have on the immediate community we work in and on society at large. And then we learned that these outcomes are more difficult concepts to measure than inputs or outputs or even processes. They are fuzzy, contradictory and often unquantifiable. Our state of knowledge might be simply expressed as in Figure 1.

A CONCEPTUAL FRAMEWORK FOR EVALUATION

A Typology of the Performance Literature

A more sophisticated typology which has been used in our discipline provides some insights into why there is such a range of evaluative methodologies, and how they relate to each other. Advantages and

Figure 1
The three aspects of evaluation



disadvantages of each can then be assessed and choices made as to which method is the more appropriate.

This typology, as it is used in Library and Information Science and other educational and quasi-governmental industries, is generally attributed to Kim Cameron. Although it is usefully applied to the not-for-profit sector, since it provides other ways than profit for measuring organisational effectiveness, it originated in the for-profit sector and is found in a number of management textbooks, with various attributions. It was used by Van House and Childers (and subsequently by Calvert and Cullen) in a series of studies which now amount to a substantial body of replicable research on dimensions of library effectiveness.

In Cameron's typology (Cameron, 1986) there are four models which describe the ways in which organisations tend to measure their "effectiveness". They are referred to as:

- the goal attainment model
- the systems resource (or external systems) model
- the internal processes, or internal systems model
- the multiple constituency, or constituency satisfaction model.

In the **goal attainment model** the organisation assesses its effectiveness in terms of the extent to which it achieves its goals and objectives. These may be focused on acquiring resources from the environment, increasing outputs, or establishing new services. Reporting and measurement, and resource allocation are concentrated on the extent to which these goals are achieved. Goals may also be focused on achieving pre-determined standards or benchmarks. Heavy reliance on output measures usually indicates that much of the organisation's endeavours are focused on increasing outputs, and therefore on goal achievement.

In the **systems resource (or external systems) model** the organisation measures its effectiveness in terms of its ability to gain resources from its environment. These are input measures. Traditionally, as we observed above, libraries have concentrated on, have measured themselves and reported in terms of: the size of the budget, number of staff, number of qualified staff, staff publications, the size of the collection, strengths of the collections, etc. Successful libraries have been considered to be those which secured more extensive resources from the environment, and translated them into these ostensibly desirable inputs. Library statistics, and benchmarks of minimum staffing levels for a particular population, building standards and area per capita for users, staff qualifications, collection size etc., reflect this model.

In the **internal processes**, or **internal systems model**, the emphasis is on the organisation's internal communications systems, and the efficiency with which it converts inputs into outputs. A feedback loop is an important component of this model. Measures which report ratios of transactions per staff member, number of items added to stock per staff member, and early work on the use of library statistics for decision-making focus on this model. TQM and the use of the quality standards (ISO 9000/9001, etc.), because the focus is as much on internal as external transactions, can also be identified with this model.

In the **multiple constituency**, or **constituency satisfaction model**, the organisation looks outward to its different constituencies or stakeholder groups and measures its effectiveness in terms of the extent to which the needs of these different constituencies are met. The competing demands of these various groups must then be managed. Goals and objectives, and all other ways of measuring performance are constrained by the need to demonstrate to the more powerful constituencies the extent to which their desires are met. This is essentially a marketing model, and one that recognises the need for marketing to the internal as well as the external customer.

Organisational effectiveness can therefore be seen to be a mental construct of many dimensions. Although organisations may not identify or articulate the model they have chosen, their choice can be inferred from their behaviour. Organisations may of course employ one or more of these models, in that the measures they select for use, or the way in which they report reflect more than one of the models outlined. The corollary is that as some of these models are mutually contradictory, effectiveness measured according to the dimensions of one model may not be compatible with effectiveness as measured according to the dimensions of another.

We can now map the range of methods of performance measurement used in the examples in our

Figure 2
Systems of evaluation used in LIS mapped on to Cameron's typology

Evaluation	
Goal attainment model:	goals and objectives benchmarks standards output measures citizen's charter
Systems resource model:	input measures library statistics benchmarks standards
Internal systems model:	Management Information Systems Decision Support Systems TQM - Total Quality Management ISO 9000/9001 etc.
Multiple constituencies model:	service quality customer satisfaction Total Quality Management ISO 9000/9001 etc. gap reduction marketing

"landscape" on to this typology. It would be preferable at this stage not to use terms like "measurement" and "effectiveness" because these are semantically compromised by their previous usage. The term "evaluation" is used for the typology, because it is sufficiently broad to encompass all the models that have been used. Figure 2 represents an initial and tentative mapping. It is not our final model.

There are some caveats relating to the use of this typology which must be mentioned here. The four models do not deal very adequately with the notion of outcomes (or impacts), as distinguished from outputs. This is problematic for me in that the notion of outcomes has dominated much of the New Zealand government's thinking in the past decade - a cost/benefit approach, or an attempt to measure the benefits of social service agencies in terms of social outcomes that is still in its infancy. Although, if the government could precisely define the social benefits it desired, and were willing to fund these, it is possible that ways could be identified to deliver and measure them.

Cameron's typology also does not deal well with the concept of leadership, which I will argue may be essential to the implementation, if not the conceptualisation of measurement. It should also be noted that there are some recent evaluative paradigms which straddle a number of the models here, and which bring a more sophisticated multi-focused approach to performance measurement, being both internally and externally focused. The Baldridge Award and its framework of criteria would be one such. It does not yet appear to have been adopted by any libraries or information services.

As we move towards building a new conceptual framework that will accommodate the various endeavours of measurement of the past, and the Cameron typology, it is salutary to look at one other model. Hernon and Altman, in *Service quality in academic libraries* (Hernon, 1996) distinguish five dimensions of evaluation: extensiveness, effectiveness, efficiency, costing, and quality. These can also be mapped on to the four models of effectiveness that we have already looked at (Figure 3).

Figure 3

Cameron's typology mapped on to Hernon and Altman's model of evaluation

Dimensions of evaluation		Fit with "Models of effectiveness"
Extensiveness	---------->	Internal processes External systems Goal attainment
Effectiveness	---------->	Goal attainment
Efficiency	---------->	Internal processes
Costing	---------->	Internal processes External processes
Quality	---------->	Multiple constituencies

In this paradigm, extensiveness, eg. the "extent" or "amount" of inputs, of users, of time taken to process materials, or of services provided, is a quantitative not a qualitative measure. It relates to both the internal processes, or systems model, and to the external resources model, since it covers both the efficiency with which an organisation can convert inputs (staff, funding etc.) into outputs (reference enquiries dealt with, etc.), and it also measures the organisation's ability to secure more such resources from the environment. If an organisation chooses to focus its planning activities on measurable objectives, it will be focusing its evaluation around the "extensiveness" dimensions, rather than choosing to focus on other dimensions.

Hernon and Altman focus on quality - the extent to which an organisation meets the needs of its primary customers as defined by a range of service attributes - as the most significant dimension of evaluation to which libraries should currently direct their energies. However, the Hernon/Altman typology, like Cameron's, reveals that an evaluative methodology which reflects only one dimension will ignore many other dimensions of effectiveness, or evaluation, which must be taken into account to give a true picture of how a library or any other service organisation is performing. This "fore-shortened", unidimensional view may be a factor in the reluctance of libraries to whole-heartedly endorse measures proposed to date, an instinctive desire for a more "holistic" approach to measurement that captures something closer to a true picture of that complex social construct, the library.

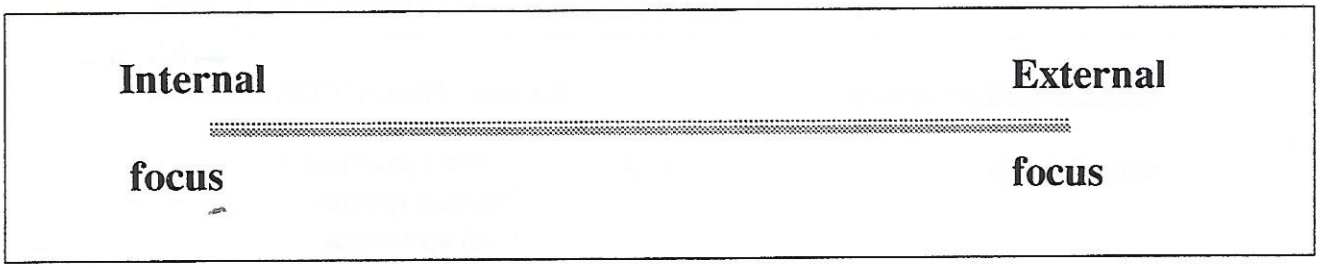
A Proposed New Model of Organisational Effectiveness: A Focus/Value/Purpose Matrix

The real value of Cameron's work, and that of Van House and Childers, is to demonstrate the multi-dimensional nature of performance measurement. Studies carried out by Childers and Van House investigating dimensions of effectiveness in public libraries, further explored by Calvert and Cullen in public and academic libraries, and by McDonald and Micikas in university and college libraries, all tend to produce the same broad range of results - that library performance can be shown to have a range of about 12 dimensions, covering management procedures, technical processes, physical plant, information/customer services etc. each of which is important to the whole picture, and each of which fits within one or other of the models of effectiveness outlined by Cameron[4].

The four models, however, can also be seen as an expression of a number of different poles or axes.

[4] A second important characteristic of this research, again demonstrated by both Van House and Childers, and Cullen and Calvert, is the potential to select with confidence a single measure from each dimension as a "surrogate" for other measures in the same dimension. This means that a parsimonious set of measures can be selected which still covers all dimensions of library activity and evaluation (Cullen and Calvert, 1996).

Figure 4



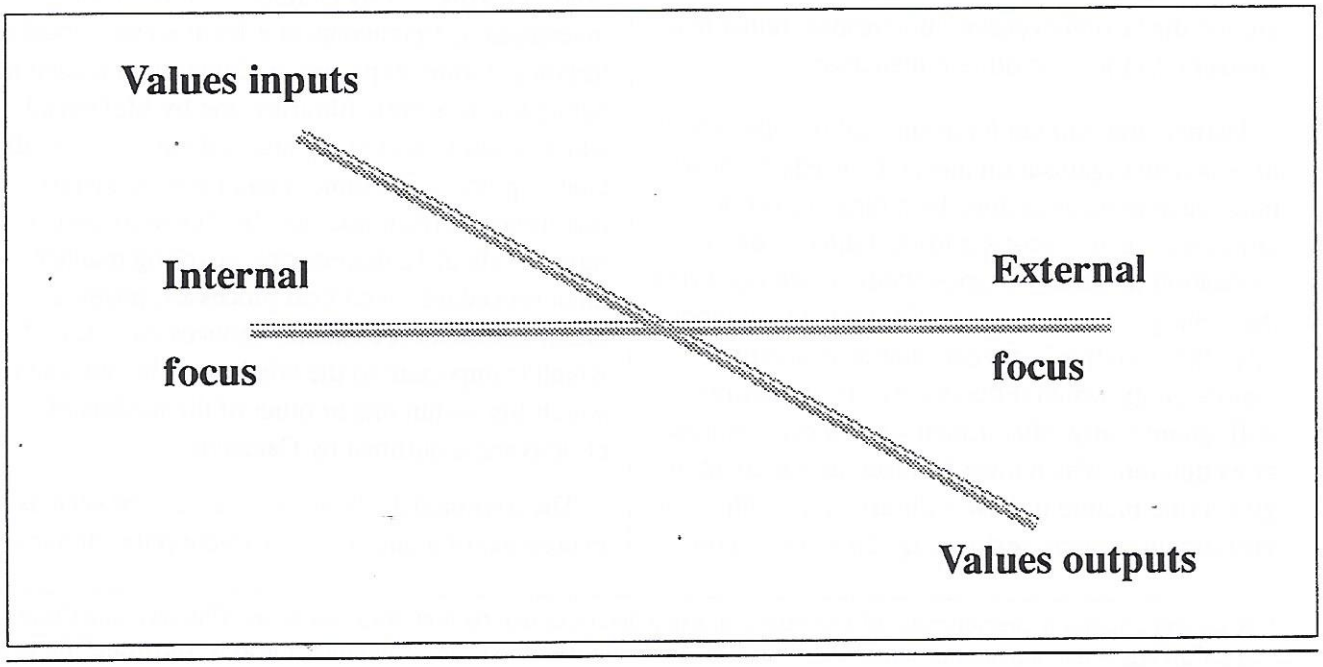
One dimension, representing a set of organisational attributes (such as "customer focused", "client-centred",[5] or conversely "unresponsive") is clearly the internal/external focus of the organisation. This axis is an expression of the degree to which the organisation focuses on and interacts with its environment. An organisation with an internal focus will look at its internal processes, and measure its efficiency in converting inputs to outputs, but will pay less attention to defining these and to their relevance to its ultimate purpose.

This, then, is our first axis (Figure 4). A second axis reflects the value system of the organisation (Figure 5). The attributes on this axis reflect the extent to which the organisation places value on its inputs (ie. its size, and the extent of the resources it attracts), or its outputs (the services it provides) to a range of customers. Despite our profession's focus on the measurement of outputs for the past 15 years, many organisations continue to report inputs and clearly place great store by them. Even organisations striving to be more customer focused are still reporting and valuing inputs, suggesting that these two axes measure different sets of organisational attributes.

However, organisations with a strong sense of their value in terms of outputs, and a strong external focus, are likely to be highly sensitive to political issues in the environment, and to favour models of effectiveness which reflect their multiple constituencies. They are likely to adopt a marketing model.

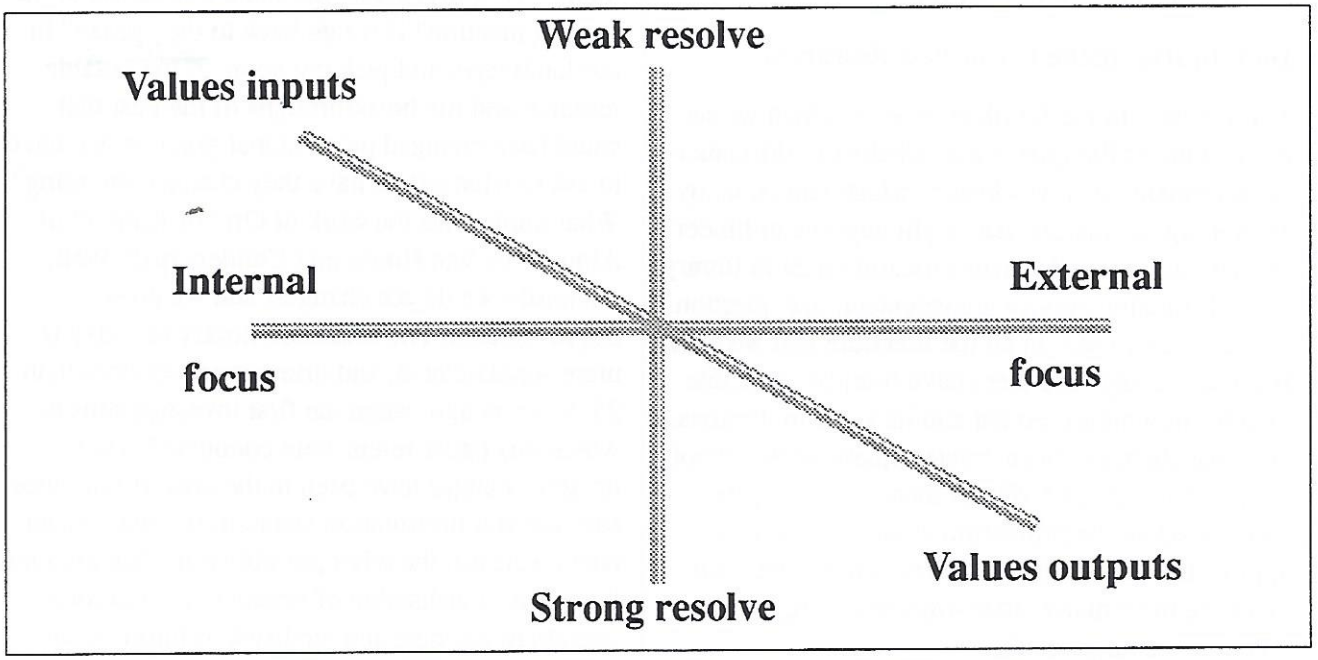
We commented earlier on some organisational attributes that the Cameron models deal with less effectively. These are attributes such as purpose and leadership. We can add a third axis therefore which measures the extent of the organisation's resolution. Resolution is here defined as that aspect of organisational culture which reflects organisational unity, a sense of common purpose and movement towards

Figure 5



[5] Of course many organisations may continue to be unresponsive to client needs while claiming to be client-centred. In such a case "client-centred" remains an aspiration not an attribute.

Figure 6



that purpose. It is also a measure of the strength of leadership within the organisation, leadership that encourages change, and that shifts resources to defined goals. Organisations weak in resolution will tend to maintain the status quo and resist change. Their performance measurement is likely to be focused on existing activities and outputs. Feedback loops may exist but the information they provide will not be the major input in decision-making and resource allocation. Strong leadership, and a change in organisational culture is needed to re-orientate such an organisation to new goals. A third axis, relating to the strength of organisational purpose, is therefore added to our matrix which now represents a triaxial figure which may be labelled a Values/ focus/purpose matrix. This third axis is critical to the successful implementation of performance measurement (Figure 6).

The distinction between the three axes is important. An organisation which is strong on resolve and has strong leadership might still not have a very strong customer focus. It might focus on its inputs, its collections, its buildings and on gaining yet more resources of this kind, while neglecting to examine and increase its outputs. Conversely, an organisation with a strong customer focus may fail to pay attention to, and fail to succeed in gaining the resources which will enable it to meet its customers' needs. A third organisation might value its outputs, report on all its transactions, eg. circulation statistics, reference enquiries, interloans, online searches, etc. and set goals to increase these each year, and yet have little notion of whether these transactions are meeting the needs of its primary client groups, nor indeed have defined its primary clients or customers.

Where an organisation sits on each of these axes is as much a matter of choice as a function of its history and organisational culture. But while some libraries are reinventing themselves, and refocusing energy on a range of service outputs, others seem almost to be trapped by their own histories. It is in the end a matter of choice. And for an organisation which wishes to shift where it sits on the axes representing values and focus, the axis representing purpose becomes critical.

Like the typology employed by Cameron, the Values/focus/purpose matrix helps us to see the relationship between various systems of performance measurement and evaluation. It emphasises the complex and multidimensional nature of organisational effectiveness, and therefore of the task of performance measurement itself. But the Values/ focus/purpose matrix demonstrates even more clearly than the Cameron typology the element of *choice* that is fundamental to performance measurement. Every organisation can reposition itself on each of the three axes as it determines its relationship with its environment, its focus and its values and selects a methodology, a set of terms as a "discourse" to analyse its effectiveness.

FACTORS AFFECTING THE USE OF SYSTEMS OF EVALUATION

Do Libraries make Use of Past Research?

Turning now to the fourth avenue by which we set out to address the question of whether performance measurement improves library effectiveness, ie. by examining the factors that might improve or hinder the adoption of performance measurement in library and information service management, one question immediately arises. In all the literature that we have been discussing here there have been considerable insights into measurement and its value to libraries. Why has there not been greater uptake of this scholarship and research? Why is there so little agreement amongst the profession at large of the best approach to take to this problem, when library services are in so many other ways becoming more and more standardised?

There has, in fact, been some uptake of researched-based management methodology within our profession in the past. From the first ALA manual (De Prospo, 1973) through to the last (Van House, 1987) the methodologies have been well based on previous investigation and research, even if this was not entirely empirically based. Those libraries that have employed these or related methodologies report detectable increases in a range of output areas (Stephens, 1995) and some satisfaction with evaluation as an activity. But total commitment in the profession to the task seems to be still falling far short of what we might expect after such a lengthy gestation. In most institutions, it seems, measurement is still not feeding into the planning process; many libraries have little understanding of the measurement process, pay little heed to research, and few are able to document improved outcomes from their evaluation.

Compared with other disciplines, it could be said, we do not make enough use of research to improve services or practice. A revealing comparison might be made with medicine. Despite political issues surrounding the delivery of medical care, medicine is a highly professional discipline that uses its research and its literature to inform practice - there is a lot at stake, and the health professionals can't afford not to use the best information available.

What is different about library service, and about information services generally? Do we see the same uptake of information from research? the same focus on improvement? the same awareness of the risks of inaction? If we go back to the "peaks" in our landscape, and pick out some of the notable research and the breakthroughs of the past that could have changed professional practice, we have to ask to what extent have they changed anything? What impact has the work of Orr? of Kantor? of Altman? or Van House and Childers had? Well, obviously we do see changes, and we do see improvements. The academic library of today is more sophisticated, and offers more services than 25-30 years ago, when the first investigations to which this paper refers were conducted. Two notable changes have been in the area of reference services and information technology (one we can take credit for, the other possibly not). But are these the result of utilisation of research, a conscious attempt to use data and feedback to improve services? It seems that many of our improvements are ad hoc rather than empirically based; they are reactive, ie. responding to changes in the environment, or they originate with vendors driven by the need to get a competitive advantage, rather than being proactive, and led by the profession itself.

Why? There are two possible reasons :

1. The incentives aren't strong enough - information management and services are rarely matters of life and death; they don't have to make a profit, satisfy shareholders, and until recently rarely had to prove their value.
2. In attempting to measure library/information service performance we are dealing with some very imprecise outcomes/impacts - it is not always clear what is the "best book" especially for a particular client, the "best information" or even the most up-to-date - no research will tell us this. The outcomes we talked of earlier, the social impacts, have not yet been defined adequately. Only in the business environment has there been any attempt to define the cost/benefit of the information service to the organisation. Our profession involves a complex area of human behaviour, we are uncertain of the benefits and, unlike medicine, we can't measure the value of our work - or the negative impact if it is done badly.

In sum, as a profession, we have not embraced performance measurement in the decisive way that we have adopted technology. Clearer benefits might

provide clearer incentives, and the combination of inadequate incentives and fuzzy outcomes has led to a level of uncertainty and indecisiveness in action. But it is the first that interests me most for the time being, the question of incentives.

What Motivation is there to Adopt Performance Measures?

If the urgency of the situation, if liability for inadequate or negligent performance, or the rewards for good performance are not strong enough to encourage the adoption of a broad range of performance measures in library and information services, then what motivation is there? What leads those who have consciously adopted measures to do so, and to what extent are they aware of the benefits of doing so? What drives organisations to start measuring their activities? And how do they select the measures they will use? Do they use performance measurement, rather than staff appraisal, to reward good performance within the organisation? Do they align reward systems for staff with their organisational objectives? And as a result of their measurement do they refocus resources on areas of activity which are shown to be falling short of a desired result?

Anecdotal evidence (and substantial research is need to confirm or refute this evidence) indicates that two strong motives lead most libraries to introduce some form of measurement, albeit clumsily, and with little understanding of the real nature of what is being measured[6]. The first motive is a desire to implement good management practice. The second is stronger and external to the organisation. In New Zealand, for example, there is an increasing expectation that in any state-funded enterprise, the government will define the outputs it wishes to purchase from the organisation. The government defines desired outcomes it is willing to fund as Key Result Areas (KRAs), and as Strategic Result Areas (SRAs) which will lead over time to the benefits defined in KRAs (Boston, 1996), and builds these into performance agreements with chief executives of governmental and quasi-governmental organisations. This applies to government departments and ministries, hospitals, and educational institutions such as universities and colleges. The organisations themselves are then encouraged to "purchase" necessary services and outputs from other organisations, or from units within their own organisation.

This ethic filters down through organisations until it reaches the level of the library/information service. University libraries are not at this stage required to define and negotiate the outputs they can supply to their parent institution, but they are not far off it, and libraries which are not preparing their record-keeping systems and defining their performance in anticipation of the need to comply with such demands place themselves in a potentially very difficult situation. Annual reporting in standard categories covering inputs, and a small number of transaction-based outputs, which look very like those from the UK, reveal little of the real value of these institutions and their contribution to the core business of teaching and research which they are intended to support. Alternatively those institutions which report annually against defined objectives, generally outside their core business, to indicate new developments and services they intend to introduce, tell us little more. All the signs are that this level of reporting will inevitably change as a culture of "accountability" and transparency through cost attribution hits the New Zealand tertiary sector.

Similarly at local body level, a higher level of public accountability (Boston, 1996, p.195) has led to the introduction of a variety of ways of measuring and reporting performance achievement in New Zealand public libraries. These have varied in the past from intensive "bean-counting" exercises to more traditional input measures. Public statistics are reported nationally through the New Zealand Library and Information Association. These cover inputs, total expenditure, occupancy and overheads, operating and staff costs as well as staff numbers and qualifications, training budgets, enquiries and issues. Hours open, total bookstock, and some per capita ratios permit further analysis. But this data, like data gathered in the UK, is bedevilled by poor data definition and control, and even for the four library systems in the "cities" which make up Auckland alone, there is no consistency in the way overheads and occupancy costs are assigned, which makes comparison of input/output ratios, again, as we saw earlier with local authority libraries in the UK, somewhat meaningless. Change is clearly on

[6] I note that this is also the view of John Willemse, expressed at the first Northumbria Conference (Willemse, 1995)

the way, and most public libraries acknowledge the impetus of new systems of public management as a driving force behind their current renewed interest in performance measures.

CONCLUSIONS

There would seem to be three critical factors influencing the positive outcome of performance measures in libraries. The three factors are inter-related, and form a useful framework for a final discussion of the issues.

1. Measurement is a Political Activity

Performance measurement is a highly political activity, and must be seen as such, at the macro and the micro level. We must look outwards to social and political expectations made of our institutions and ensure that they meet the needs and expectations of our significant client or stakeholder groups; we must use our planning and goal-setting activities in a meaningful way, incorporating appropriate measures, to demonstrate our response to this external environment, and our willingness to align our aspirations to broader corporate goals. But we must also look within and seek to promote an organisational culture which acknowledges the political nature of measurement. This means using performance measurement to:

- indicate the library or information service's alignment with broader organisational goals;
- demonstrate the integration of information services with the key activities of the organisation, or of the community;
- support the library's position as the organisation's primary information manager and service providers.

Selection of the terms of performance measurement, the axis, the "discourse" are, in effect, politically driven.

2. The Multidimensional Nature of Performance Measurement

The application of Cameron's four models to existing modes of measurement and the Values/focus/purpose matrix have demonstrated that performance measurement is fundamentally multidimensional in nature. A library or information service that wishes to really understand how it is performing will examine both its environment and its constituencies, investigate the needs and expectations of its constituencies, examine its inputs and effectiveness in gaining resources, set goals which will allocate resources to respond to its various constituencies, measure efficiency and effectiveness in using resources, incorporate feedback into planning, revise goals in dialogue with various constituencies identified. You might describe this as the old systems model. It is far more than that. All four models outlined by Cameron must all be reflected in the evaluative procedures employed by the institution. It must recognise where it sits and consciously position itself on each one of the axes of the Values/focus/purpose matrix.

3. Rewards and Incentives

Finally, we will not see informed performance measurement in libraries until we have got the right incentives in place. Again, these are both external and internal - they include the incentives and demands made by governments, local bodies, funding agencies, and parent organisations to provide evidence that the organisation is setting appropriate goals, meeting the expectations of a variety of stakeholders, and efficient in its conversion of inputs to outputs. And they include the incentives offered internally to reward good performance that is in line with the organisation's objectives. In too many of our institutions poor performance is inadvertently rewarded, and good performance goes unacknowledged. An organisational culture is ideally attuned to the organisation's purposes, and reflects the resolve of the organisation in whichever direction that takes it in. Again the organisation must consciously place itself as an organisation of strong resolve on the purpose axis of the Values/focus/purpose matrix.

The Question Reput: A Post-modern Analysis

We began this discussion by observing that the concept of "library" and therefore the concept of "library effectiveness" is a social construct, which demands a post-modern analysis which allows us to impose a discourse with which to define and discuss the concept. And it was suggested that the question of whether performance measurement improves library effectiveness is essentially unanswerable, because it is self-referential. But perhaps in this exploration of past and present approaches to

measurement, and in the two multidimensional conceptual frameworks we used to define the problem, we can find an answer of sorts. This exploration has shown that just as a library is a social construct, and performance measurement is a consequent social construct, we are then free to adopt a system of measurement which best serves our purpose. The numerous dimensions of performance measurement encompass a range of methodologies and paradigms. Each has its own perspective on what a library is about to bring to the task. Each has its own internal principles, and imposes its own discourse.

Libraries, and other organisations for that matter, in choosing between these various paradigms, are able to determine their placement on the three axes of the Values/focus/purpose matrix, are free to do so and must choose where and how to do so. There are no absolutes, no gurus to follow, no guarantees. If they choose to focus their energies and their measurement on improved client satisfaction and define effectiveness in these terms, then that is likely be the outcome.

We have known all this for the past decade. As Chuck McClure said in his 1986 "Report from the trenches" what is needed are reliable methodologies, but even more so the professional leadership and organisational development to make measurement an effective tool for libraries (McClure, 1986). A decade later we are still looking for new paradigms, testing new methodologies when they are already there. Performance measurement is an essential management tool that may be implemented in a variety of ways. Each brings some desirable outcomes and comes with some disadvantages. Understanding the nature of each paradigm, and the underlying concept of the organisation which it implies, will help us to make more effective choices from this range of methods. With this understanding, and with the leadership and organisational resolve to use measurement as a tool to increase organisational effectiveness, the possibilities are endless. If libraries define effectiveness in terms of resource gathering and efficiency in processing, then that will be the outcome. Possibly only the two key principles remain, and even they can be called into question: that there is some feedback on performance, and that resource allocation responds to this.

The question may be self-referential. The answer I have outlined will, I hope, help to shed some light on our deliberations this week.

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Appendix

A chronological list of 'landmarks' in the literature of performance measurement

1945-1960

1948. Bradford. Documentation

1961-1970

1965. Clapp and Jordan. Quantitative criteria for adequacy of academic library collections
1967. Trueswell. Some behavioral patterns of library users: the 80/20 rule
1968. Pizer and Cain. Objective tests of library performance
1968. Morse. Library effectiveness
1969. Fussler and Simon. Patterns in the use of books in large research libraries
1970. Hayes and Becker. Handbook of data processing for libraries
1970. Buckland. Systems analysis of a university library

1971-1980

1972. Hamburg, Clelland, Bommer. Library planning and decision-making systems
1973. De Prospo, Altman, and Beasley. Performance measures for public libraries
1973. Orr. Measuring the goodness of library services: a general framework for considering quantitative measures
1975. Childers. Statistics that describe libraries and library services
1976. Altman et al. A data gathering and instructional manual for performance measures in public libraries
1976. Kantor. Availability analysis
1977. Lancaster. The measurement and evaluation of library services
1978. Chen. Quantitative measurement and dynamic library service
1979. Du Mont and Du Mont. Measuring library effectiveness
1979. Kent. The use of library materials (the Pittsburgh study)
1980. Palmour, Bellassai, De Wath. A planning process for public libraries
1980. McClure. Information for academic library decision making
1980. ALA pre-conference. Library effectiveness

1981-1990

1982. Zweizig and Rodger. Output measures for public libraries
1982. Bommer and Chorba. Decision-making for library management
1982. McClure. Planning for library services
1982. Du Mont. A goal typology for library effectiveness
1984. Kantor. Objective performance measures for academic and research libraries
1986. Brophy. Management information and decision support systems in libraries
1986. Hernon and McClure. Microcomputers for library decision making
1987. Van House, Lynch, McClure, Zweizig, Rodger. Output measures for public libraries. 2nd ed.
1987. Harris. Management information systems in libraries and information services
1987. McClure. Planning and role-setting for public libraries
1990. King Research. Keys to success
1990. Van House and Childers. Public library effectiveness study
1990. Hernon and McClure. Evaluation and library decision making

1991-

[1992. Cullen. Bottom up from down under: management information in your automated library system]
1992. Performance indicators for university libraries (SCONUL)
[1993. Cullen and Calvert. Further dimensions of public library effectiveness: a parallel New Zealand study]
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1995. The Effective academic library: a framework : . .
[1996. Cullen and Calvert. Stakeholder perceptions of academic library effectiveness]
1996. Poll and Boekhorst. Measuring quality: international guidelines for performance measurement in academic libraries
1996. Hernon and Altman. Service quality in academic libraries
1996. Brophy and Couling. Quality management for information and library managers

Discussion

Mike Heaney (University of Oxford): I was intrigued by your multidimensional graph and by your implying that, whether or not it's good to be at one end or not, a library has to be at a single point in that space. Are there grounds for thinking that this is not necessarily so, that it might occupy a plane, or even some moving blob in the space? The reason I ask is that, as you said, some libraries value inputs, others value outputs, and certainly when at the Bodleian we were discussing mission statements and the like, we were very aware of both inputs and outputs - and should our emphasis be on preserving inputs or concentrating on outputs, even though that means the destruction of the inputs, physically? I don't think we resolved it; we left contradictory statements, but I was thinking then that our mission ought to be to reconcile these conflicting aims that we recognise we have to have. Do you not think that one does not have to be at a point; you can have something that is balanced somewhere in the middle but is heavy at either end; does it have to be a point, or can it move about, or be some other shape described in the three-dimensional space?

Rowena Cullen: If I've got my axes right, one has to sit somewhere, possibly in the middle, because what you've described is a conflict that many important libraries share with you, ie. that desire to respond to the modern impetus, to be customer-focused, but at the same time you have immense treasures and buildings that must be cared for. Yes, it's an unresolvable question; you might feel more comfortable if you stopped trying to be at both ends of that axis and saw that you might perhaps value your inputs enormously because they are particularly valuable ones, and then regard yourself as having external focus - and the Bodleian does, because it does like to share its treasures with the world. That might be a way to philosophically resolve the problem. There is no solution in management terms: there is only one pool of money to be spent.

Mike Heaney: What we might have would be an oscillating focus?

Rowena Cullen: This year we'll do this and next year we'll go back to looking after the treasures? Have a look at the second axis, the external focus, which might philosophically help you through the problem.

Steve Thornton (DERA): Would you not accept that with the majority of the statistics that were being analysed in the study of American libraries, the 24 that you looked at, and as in your example of public libraries in New Zealand, those data elements are collected because they are easy to collect and therefore easy to analyse, rather than being significant data elements? The elements we tend to get thrown at us in national reports are those that are easy and therefore relatively easily compared, and probably have notionally the same basis. As you pointed out, they don't necessarily have to.

Rowena Cullen: I've tried not to come to any judgements but to just look at the situation and give a framework for the conference. I might have an instinctive personal answer to that question: myself I don't find such input measures particularly meaningful; they don't tell you enough. But I can see that performance measurement is very political: if that is required, one does it, but one tries to change the political situation and to develop a better understanding of what library and information services are all about. So the answer is yes and no!

Peter Brophy (University of Central Lancashire): Congratulations on a very interesting paper which rings bells for me, particularly in connection with *Tomorrow's company*, an initiative in the UK by the Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA). This looks at the multi-constituency model and the idea of stakeholders and at organisations in a much broader framework than has been the habit, particularly at commercial organisations and the recognition of the inadequacy of looking at just the shareholders' interests. Similarly, as librarians, we do tend to be very internally focused - even when focused on impacts, it's the impact of the *library*. We don't seem to spend a lot of time looking at the library as part of the larger organisation. And yet, that is where many of us are, in a library that is part of a university or of a local authority service as a whole. As the boundaries start to get fuzzy between what is the library and what is the rest of the organisation, do you have any thoughts as to how we might address that larger perspective in terms of the effectiveness that the organisation as a whole is trying to achieve?

Rowena Cullen: That's one of the things I was thinking of when I developed my first axis of the internal or external focus. I personally might believe it's important to have an external focus. I think the ideal library is bang in the middle of the intersectable three axes. It's an important issue but, going back to Cameron's typology, you would look at the multiple constituencies and the goal-attainment models as

being the ones you should probably go down the road of, leaving the systems models behind. But you can't do everything; you have to make choices, and it's better to understand the nature of the choices you are making than to make them naïvely.

Roswitha Poll (University and State Library, Münster): Regarding the post-modern development of performance measurement, many libraries have come to a *pre*-modern performance measurement, and you ask why isn't anyone applying those sets of measures and methods that have been developed. And then you said that post-modernism is multidimensional, with everyone doing just what suits their own library best, and yet you say it is dependent on our getting some reward for what we are doing. As the only reward we can think of comes from the outside, eg. often resources coming from ministries, so we cannot just say everyone should do what they want to do. In many countries, libraries try to set up a set of methods of measuring, of comparing, of benchmarking, in order to be able to apply, to say what they are doing, to get some financial reward for what they are doing. So, post-modernity will not do in every case: if everybody applies their own measures, nobody will believe them, and nobody will give them resources for that.

Rowena Cullen: My use of post-modernity is to analyse what we are doing; I'm not suggesting that libraries themselves should try to apply a post-modern approach to performance measurement. In many cases, you describe situations where too few resources have been put into libraries; benchmarks and standards are enormously important in developing countries and in countries trying to sort out the role of library in society and what the library can do, and that's why I've tried not to say that input measurement is wrong; it certainly has a very important place in some societies, but there might be other societies where we have been too assertive as a profession and not looked at our constituencies - and we need to think about that.

I would still say that you cannot do everything, you can't use all models, you must choose, and I've tried simply to provide a tool to help you in your choice.

Beverly Lynch (University of California at Los Angeles): Thank you for a very stimulating and provocative paper, going back to 1948 in terms of the beginning of this movement. There are three variables that you raised but did not expand on: first, that of size: Ellen Altman took 24 public libraries in the USA; does she have any plan or interest in looking at libraries of, say, 50,000 population and under, where she might predict something different, since the variable of size is quite important?

Second, on organisational culture, I wonder if you have thought much about that; and third, there was the issue of leadership which came up in your first case study.

Rowena Cullen: In terms of Ellen's work, I don't know what her thinking is; she and Allen Pratt have found this profitable as a research method just to look at data, don't do more surveying: look at the data and see what can be read from them. When I looked at British figures to try to find data that weren't contaminated and that I could analyse, focusing on Essex County, with large and quite tiny townships, I didn't find anything very different from what she had found.

On organisational leadership and culture, I tried to suggest there is an axis that is quite important about that. I don't think that sense of resolve and leadership necessarily is the only way of interpreting organisational culture. If you want to define organisational culture as well as performance measurement, you can look at those axes, too; they tell you a lot about the thinking within each library, and if you think back to your own institution, you'll have some sense of where people are, in their heads, how they've built their own construct of your library and of what pride they take in it and for what reason and how they imagine it: their thought patterns. In a purposeful organisation, it's all pulled together; in an organisation that's pulling in different directions, it's sitting all over the place.

Note: The following note was contributed after the conference by *John Sumsion (Loughborough University)*.

The points made by Rowena about UK Public Library Statistics deserve some further comment.

At LISU (Library and Information Statistics Unit, Loughborough University) and in the CIPFA Committee on Public Library Statistics (Chartered Institute of Public Finance & Accountancy) we have spent the last five years working away to get individual authorities' statistics more complete and consistent - with a fair measure of success - so that at LISU we are in a position to offer the "Tailormade Statistics" service with figures that in most cases provide a meaningful base for comparison with other authorities over several recent years. [See David Spiller's paper, page 431.] But of course these will

not be found in the LISU Annual Library Statistics since that report only goes down to country and broad regional level; they are published annually by CIPFA in their Public Library Actuals.

For non-financial statistics we have, I think, got to the point where major inconsistencies are fairly easy to recognise as exceptions to the general pattern. The caveat has always to be there, but now only applies in exceptional cases. With the financial statistics, the series on staff expenditure and on materials spend are pretty reliable: the series involving central authority overheads and capital spending are not. But it is not too difficult for those who live with the figures to recognise where the comparisons are reasonable and where they are definitely not.

One can hope that, when our Audit Commission's Value for Money[7] report comes out this autumn, and when the government's call for Annual Library Plans[8] is implemented, major accounting improvements will follow.

What is certainly true is that the more ratios you produce the more idiosyncrasies and inconsistencies come to light and cry out for correction. Performance ratios can play a major role in getting the statistics more reliable, and this effect is not sufficiently emphasised in the literature. Our recent improvements to the CIPFA *Public library actuals* include more ratios which are now positioned next to the basic results to which they refer. And in CIPFA the financial figures have always been expressed "per 1,000 population".

Generally book fund figures are consistent. An annual National Book Committee report uses them for comparisons and for book lobbying. It is interesting that a strong criticism in the September 1997 *LA record* (vol 99 [9] p.476) refers mainly to questionable methodology in selecting authorities to be pilloried and does not query the base statistical data. That letter called for a more formal correlation exercise for which the data are sufficiently robust to be meaningful.

These points do not affect the main thrust of your argument and there is an obvious and urgent need for realistic functional cost estimates. But the use of the LISU figures quoted to illustrate the UK public library position needs qualifying.

The position with the SCONUL (UK and Ireland university library) statistics is broadly similar. For many of their variables most of the data published are good enough for useful comparisons - at least to kick off a benchmarking exercise, even if not to complete it.

[7] Audit Commission (1997) *Due for renewal: A report on the library service*. London: Audit Commission
[8] Department for Culture, Media and Sport (1997) *Annual library plans: Guidelines*. London: DCMS

Performance Measurement and Management Strategy: A Public Library Perspective from France

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The public library of Fresnes has been developing a total re-management strategy. Starting from clearly defined missions, goals and objectives, a general strategy embraces the action and techniques of all the functions of the organisation. By giving concrete examples, the author shows how the control and evaluation process is integrated into the operations and procedures (collection development planning, cataloguing, management of human resources, etc.).

1. AIMS, ACTIVITY AND RESULTS

A librarian who is engaged in the process of managing a public library sooner or later has to make choices and to evaluate the relevance of operations and procedures.

In this task, the main difficulty is to base the management process on concrete missions and goals. All public libraries refer to some written or non-written established formulas. But these statements are mostly too ambitious to be realistic and too general to be operational. The main reason for such a situation is probably the reluctance of politicians and librarians to make explicit choices, due to the fact that each choice will involve some degree of risk (in disappointing those hoping for other choices) and constraint (not mentioning choices is a convenient instrument of power).

This policy has its drawback: it is impossible to build a coherent general strategy and an evaluation system without a clear set of aims and goals. This is probably why the confusion between activity and results, between technical abilities and management strategies, is so widespread in the library world.

French state and local administration (most of the libraries are public services, and academic and public librarians are civil servants) have been improving new tools of analytic accountancy and management control. The claimed goals are to optimise the resources of state and local administrations and to reduce (which is quite another issue) public expenditure.

The outcome is that librarians have had, more than ever, to justify their missions and to provide results. Nobody can contest the principle of so reasonable a requirement, but it requires that everybody (community, politicians, librarians and users) should be clear about missions and expected results.

2. PUBLIC POLICIES AND GENERAL STRATEGY

As with all public services founded by a local or a state authority, a public library is both an expression of and a means of achieving one or several "public policies"[1]. The promotion of knowledge in professional life and in leisure is generally considered, in our democratic countries, a necessity, and of public interest in terms of freedom, progress and prosperity. For a library, these policies belong to the field of "education, information and culture", as recently stated in the *UNESCO manifesto* (UNESCO, 1995).

From this point of view, public library services could be precisely defined as a coherent set of documentary resources (from books to virtual data), human mediation, and equipment, contributing to public policies in the fields of:

- reading development;
- formal education (today a mass phenomenon, university included);
- continuing education (more than ever, knowledge and skills need to be updated);
- information and documentation (helping people

[1] With the same meaning as in the political sciences which study the process and the results of national and local government actions.

Figure 1
System of objectives
(Draft)

STRATEGIC LEVEL		TACTICAL LEVEL	
MISSIONS (Policy)	GOALS (Target)	OBJECTIVES (Aimed at results)	INDICATORS (Anticipated results)
Encourage reading and development of the book and literature	1. Familiarise pre-school children with books	1.1 Provide distribution points in nurseries with picture books for children under 6	1.1 Percentage of target institution served
		1.2 Encourage parents to borrow books for their children under 6	1.2 Percentage of target population under 6 registered in the Library 1.2 Number of books borrowed per user under 6
		1.3 Organise promotional events in the year	1.3 Achievement of objectives in %
	2. Support, stimulate and extend school work in reading training	2.1 Attract largest possible number of 6-14 year olds and raise reading frequency	2.1 Percentage of target population of 6-14 year olds registered in the library 2.2 Number of books borrowed per user of 6-14 years old
	et cetera...	et cetera...	et cetera...

to select relevant data from an unlimited information resource);
- personal development (in other words: information and learning considered as a leisure or an education asset).

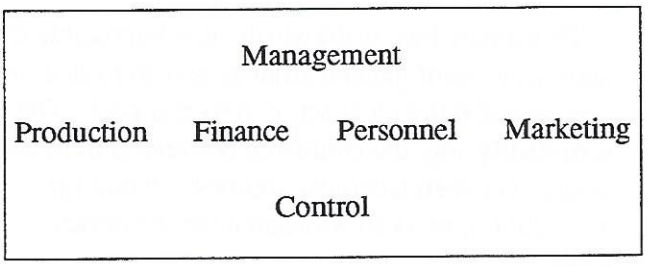
To achieve these aims, the choice of operational goals depends on:
- the study of the environment (what are the real needs of the population?);
- political options (using this knowledge, what kind of service is considered by those responsible to be required and what financial priorities can be afforded?).

Once the answers to these questions are given, it is possible to build a system of objectives ranging from political goals to anticipated results such as in the case of "development of reading" (see Figure 1).

3. GENERAL AND OPERATIONAL STRATEGIES

The aim of strategic management is to reach the objectives set by the mission statement and goals of the organisation through best use of its resources. In "classical management" the resources of the organisation are generally employed according to six principal functions, shown in Figure 2.

Figure 2
Management functions as a component of library strategy



The five subordinate functions need operational strategies, in other words, strategies linking general strategy and action. The aim is to orientate the process of tactics and techniques so that they fit in with the needs of the general strategy. In the case of a library:

Production could be defined as the production of a service for which Eiglier and Langeard proposed the term "servuction" (1994). It generally has two aspects:

- a "front-line service" (collections, equipment and any other material support which makes a service possible and, last but not least, staff in contact with the public);
- a "behind the scenes service" (acquisitions, cataloguing, document processing, maintenance).

An efficient output can be assessed with indicators such as "loans per capita", "median time of document retrieval from open stacks", "median time of document processing", etc. (All examples of indicators come from ISO/FDIS 11620, 1997.)

Finance could be defined as (except financial business strictly speaking, which is not the case in France) a tool for management control and of effective grant requests. It is essential to enable the organisation, using methods of analytic accountancy, to get reliable and convincing results with indicators like: "cost per user", "cost per library visit" or "cost per title catalogued".

Personnel could be defined as the management of human resources (recruitment, training and staff development, work organisation and evaluation). Most human resource management tools (like tools of "differentiation", tools of "integration" etc.) already exist outside the library world. Indicators such as "loans per employee" are better designed to evaluate the efficiency of the organisation and lending processes than the output of the staff.

Marketing could be defined as the adjustment of the service offered to the needs of the population to be served (needs obviously related to the missions and goals of the library). Marketing mix is more especially an operational strategy of study, definition, co-ordination, and updating of policies of Product, Price, Place and Promotion.

Indicators like "user satisfaction" (with a precise quality goal) can be linked to marketing effectiveness. Generally speaking, any good result, for example, performance indicators in respect of "facilities availability" can be considered as a response to the population needs. Therefore, from a marketing perspective, the availability of facilities is not only theoretical, but the result of research. First, by conducting an environment study to check that the target population really needs the provision of the planned facilities, then by carrying out surveys to see which facilities are more or less meeting these needs.

Control plays a full part in each function. However, "control" is a specific function dealing with all kinds of evaluation which must be co-ordinated and harmonised in a coherent operational strategy of control.

Management is the key function. Managers in charge of each of the previous functions might develop specific and logical practices or operations successfully. But the risk of losing sight of fundamental and general objectives still remains. An operation, as good as it may seem, still does not always lead to the achievement of the aims of the organisation. It is the function of management to order all these methods or actions into a general strategy. That means to take care of the fact that all the specific subordinate strategies "stay the course". That also means to forecast and to carry out changes in the general prospective view (which has been recently referred to in the literature as "vision").

- From the effectiveness point of view, the main general strategic objectives are usually the best possible "percentage of target population reached", and "library visits per capita". However, the proportion of population reached is not significant in itself. How far can we tell that "reading development", "formal education" and "continuing education", etc. were actually increased by library successes? The authorities, the community and the library staff can really appreciate the social significance of the library activity only if the library offers a system of reference capable of stating the contents of information and services. The value of a quantitative result depends on the qualitative content of documentary resources.

- From the efficiency point of view, a good "cost per user" is a key indicator in general strategy. If we accept that efficiency is supposed to serve the effectiveness of the organisation, "cost per user" is closely linked to the ability to get the best outputs with social results. Best service for the common interest with best management of the common good is no doubt an essential strategic goal in a public management process. What's more, "cost per user" prevents any misunderstanding between "optimising" and "reducing" public expenditure.

Figure 3
Strategic management key indicators

Users	Cost
↑	↓
Identification of high use (effectiveness)	Identification of low cost (efficiency)

- **A user** is a person using at least one of the services once a year (borrowing a document, sitting at a working place, etc.). The most unbiased measurement is supposed to register the total number of users and to count the total number of services given. As a matter of fact, we know that a large number of users and of services given are not usually quantified.
- **A cost** is a calculation of expenditure according to criteria considered relevant, its goals supposedly pre-defined.

ing in the 1980s. The objective was to simplify and strengthen lending operations and to reduce cataloguing. It is only recently (after a long process) that we have managed to reduce cataloguing by capturing such data as acquisition and updating of bibliographic records and authority records from the Bibliothèque Nationale de France. With the reduction of cataloguing (especially indexing and index maintenance) "cost per title catalogued" fell from about 76 FF to 16 FF. For this low cost, we have bibliographic records linked to authority records, in other words a bibliographic control created by the French bibliographic agency. This wealth of information proved both useful and reliable for the acquisition process, collection control and the OPAC. This change led to another. At the first stage of computerisation, clerical and intellectual tasks were merged. From now on, clerical staff are doing clerical tasks (at less expense, by the way!) and librarians are freer than they were for front-line services and quality of collection development.

Collection development. The objective is now to use fully and correctly the time gained by this reorganisation. Starting from the main trends of our library policy we divided collection and other resources into about 30 domains. Each of them covers an intellectually coherent field targeting precise subjects (for example law, economic and management sections aiming to serve the needs of professional, primary and continuing education, as well as more generally information and education for economic development). At this stage it is possible to define the specific aims and targets of the domain. The detailed content (in other words "information depth") is indicated under a validated shelfmark number (about one shelfmark for 30 items). For each shelfmark the objective of "information depth" is indicated on a scale from one to four. Each person responsible has to estimate the cost of updating of his or her domain (set of shelves and CD-ROMs in the future intranet network of the library). The aim of this organisation is:

- on the one hand, to entrust the person responsible for acquisitions with his or her own budget, quality of service, marketing . . . and results. To track the activity there is a "control panel" adapted to the task;
- on the other hand, it is now possible to value the cost of the collection development so as to make choices and ask for grants and, by the way, control the conformity between practices and objectives (no title ordered without the referenced shelfmark).

Building and facilities. The opportunities offered by the new building enabled a new library management policy: first, because it is easier to make changes alongside the new perspectives; then, because the architect took into account functional demands. I am sure you will not be surprised to learn that these functional demands aimed to reduce running costs (such as supervision, lending, shelving, etc.) and to deploy front-line staff to match the flow of users (between two and nine people are required according to the number of users). The building is not only functional and well adapt-

ed to missions and goals (spaces and facilities, possibilities of a relevant use of modern information techniques), but fitted with data collecting equipment (number of visitors, who borrows what, what sort of people for what working places) (Giappiconi, 1996). The point of collecting such data is strategic, because the goal is not to open a new library just for its own sake, but to show that it fulfils the aims of public policies.

5. BUILDING THE EVALUATION AND CONTROL FRAMEWORK

That is is why management policy and evaluation work together. There is no effective management without concrete results reflecting goals and objectives. The process of change still goes on (and staff should be carefully made aware of it!), for its success greatly depends on staff willingness, on technical realities, grants awarded and unforeseen circumstances. We are testing several approaches before launching into a completely new organisation for the opening in March 1999.

The evaluation framework is in process. It will be the result of a dialogue between the local politicians and the library manager (in close agreement with the staff), about the best indicators to be retained. A set of pre-tested indicators is thus strongly needed. That is why the progress of performance measurement in libraries and information services is so important for library managers.

The point in our experiment at which we have arrived is shown in Figure 4. The choice of operational management indicators is also debated with the local administration and the staff as shown in Figure 5.

Figure 4
General evaluation framework
(Draft)[3]

Authorities, population and all staff

Effectiveness:

General
- Percentage of target population reached
- Library visits per capita*

Reading development
- Loans (of books) per capita*
- Percentage of target population reached registered as book borrowers
- Number of loans per book borrowers

Help to formal education
- Percentage of target population reached registered per age
- Percentage of target population reached registered per school
- Teachers' satisfaction with co-operation with the library?
- Teachers and parents of school children's satisfaction with the library role as a complement to education?
- Students' satisfaction with facilities for study (working places, collections and information services in the domains offered by the library)?

Help to continuing education
- Percentage of aged 25-60 population using education software at computerised working places
- Percentage of aged 25-60 population using working places in reading rooms
- Percentage of aged 25-60 population using materials for management, and clerical training (law, economics, management sections).

Information
- Percentage of target population reached using the information service
- Local companies, artisans and shopkeepers' satisfaction with the information service
-

Help to cultural development
- Percentage of target population reached
-

Efficiency:
- Cost per user compared with other local services and comparable libraries

Relevance:
- Gap between grants and established costs and required services

[3] Indicators already standardised in ISO/FDIS 11620 are marked *

Figure 5
Organisational control framework
(Draft)

Domains of control	**Levels of control**		
	General → **direction**	**Operational** ← → **direction**	**Execution** ←
Finance	Relevance of resources	Disposability of resources Valuation of organisation's needs Cost studies	Expenses and receipts control
Personnel	Cost of staff Quality of services	Achievement (after definition and negotiation) of personal objectives: - effectiveness - efficiency - education and training	Achievement of personal objectives: - effectiveness - efficiency - education and training
Production (front-line)	Quality of services	Cost per loan Median time of retrieval of document Cost of user registration Average time of user registration	Efficiency in tasks
Production (behind the scenes)	Quality of document processing Cost of document processing Speed of document processing	Quality control Cost per title catalogued Cost per document bound Cost per document prepared	Control panel of bindery preparation or binding development - average time per document prepared - average time of processing - average time of preparation processing
Production (collection development and information resources)	Quality of development Valuation of updating of collection development and information resources	Quality of collection and information resources Median time of document acquisition Cost of document acquisition and of information resources	Control panel per domain of collection: - budget used, invoiced, remainder - average document cost - number of copies - circulation - borrowers - age of collection - profile of borrowers - user satisfaction with the collection - etc.
Marketing	Knowledge and use of services (see evaluation indicators, Figure 4) Cost of marketing Users' satisfaction with services	User satisfaction (product/price/place) Facilities use rate Seat occupancy rate Achievement of marketing actions Cost of survey Cost of public relations Cost of advertising	Achievement of marketing actions

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Discussion

Roswitha Poll (Chair; University and State Library, Münster): I'm struck by the problem of making choices if politicians don't tell us what they want. In academic as well as public libraries, deciding on priorities is a political question that librarians need to raise with the political decision-makers.

Joan Stein (Carnegie Mellon University Libraries): Is the collecting of performance measurements that you have described unusual in France? Is it expected of all public libraries?

Thierry Giappiconi: It is unusual, but increasingly librarians are considering such a process. One problem is that specialist librarians tend to lack library management skills. For example, specifications for computerisation are technical and often very lengthy but they overlook the goals of computerisation. Technical skills are important, but it's also important to identify firstly your objectives. Public libraries in France have no clear goal, and no public library legislation; in recent years their main focus has been leisure and they have tried to develop all kinds of services, but are now unclear as to their priorities. As a public servant, the librarian needs the politician to take responsibility. This is difficult because politicians do not always like to say explicitly what are their choices. They do not want to disappoint anybody. For the librarian to deal effectively with these issues needs psychology, political sensitivity and lots of work. Also it is not always possible, ie. in towns where the Front National has been elected. Therefore I believe that the librarian's task is to establish a dialogue with politicians, to understand their role and their priorities, and to contribute to their decision-making.

Geoffrey Ford (University of Bristol): Congratulations on your paper and for clarifying that we have a lot to learn about putting politicians on the spot. I also noted two performance indicators: you have reduced the cost of cataloguing by 80 per cent, and have persuaded your professional staff to stop doing clerical tasks. How have the staff reacted to your very logical and detailed system of performance measurement? Did they need a lot of persuasion, or did they see it as the answer to all their prayers? Did you hold many training sessions?

Thierry Giappiconi: There were strong reactions and I had to believe strongly in what I was doing. This was not easy because I was the only one in France, for example, to do this with cataloguing. I don't know why, but I am for the moment the only one to capture authority and bibliographic data fully as a whole and in the most simple way. Now staff see what has to be done and what they are going to do and they trust me more.

Regarding training, it was more a discussion, day after day. Sometimes I would take a lot of time to discuss things, sometimes not, and I'd say it's my decision, you have to do it. This was not easy but possible because there are only 16 staff members and I know each one, their weak points and good points, and I have discussions with them all. However, it will take time, about six to eight years, to achieve such changes.

After all, what most librarians really like is to go to a bookshop and choose books for their best users, take plenty of time to catalogue and classify these books, to create order out of disorder - it's a quiet occupation without stress. I had to change the usual process, item by item, and the staff have to select books to meet specific goals and they don't catalogue any more. It's a very difficult change, but now I say to the librarian "I need your intellectual capacity, I need the best from you; I don't need you to do clerical tasks, with no consideration for why the task is being carried out. Your duty is to serve the whole popula-

tion of Fresnes, your pride is to be a civil servant who is really useful to the community". If everybody can see that my management is leading this way, it is difficult to disagree.

Roswitha Poll: I have a practical question regarding the cards that identify people coming into the library. You explained that, perhaps to assess the use of the library for continuing education, you collect data on, say, a 60-year old female using the children's library or the law section, and on the proportion of the 25-60 age population using reading room places, computer places or materials on management. How are they asked?

Thierry Giappiconi: For the reading room with study places, users will insert the smartcard before opening the door, and when they leave there will be an electronic count outside, so we shall know how many enter and leave and how long they spend in the room, and we will have an indicator of the use of the study places. The barcodes of the cards will be connected with the data file of readers (including age, district of residence etc.). We will also be able to do surveys in the library by using data collection equipment which counts people crossing from one part of the library to another. From such surveys, done in the same week of the same month each year, the difference will be revealed from year to year. However, I want to be selective as to which indicators we gather data for, and to keep only what is really relevant. It would be easy to have too many indicators but, for good management, one must decide which indicators are really strategic, really useful.

Amos Lakos (University of Waterloo): How do people get these cards? Do first-time users have to fill out a form and the information you need is fed into the magnetic strip, so that you can collect statistics on what percentage of the population is using the library, etc.? And they agree to do this, without any problems?

Thierry Giappiconi: We ask only for the information that is authorised by law in the users' registration process. There are certain personal questions that cannot be asked, but we do ask for age, profession, address. But it would not be legal to cross-reference certain kinds of information. I have, for example, no right to know or to divulge exactly what kind of books someone is reading. To oversee such matters there is in France a very watchful body called the Commission Nationale de l'Informatique et des Libertés (CNIL). However, it is possible to collect most statistics that we really need if we respect the anonymity of data.

The Use of Service Level Agreements in the British Library

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Service Level Agreements (SLAs) have been a fact of life at the British Library (BL) for a number of years. This paper defines and describes SLAs as used at the BL, provides guidance as to what they should contain in the library and information services environment, identifies advantages and disadvantages and discusses their relevance. The paper concludes by applying the experience of using SLAs gained within the BL to the wider library context.

INTRODUCTION

No self-respecting conference such as this, dealing with the topic of performance measurement in libraries, would be complete without some discussion of the role and usefulness of Service Level Agreements (SLAs) in the information services environment in which we work. Information is now recognised as a significant corporate resource and the performance of the information management function in all types and sizes of organisations is being scrutinised more closely than ever.

The impact of new technology in the workplace has meant that there is an increasing level of interdependence between units, sections, and departments. Responsibilities are becoming ever more specialised with a concomitant need to rely on others for support services; SLAs make providers accountable for the quality and the cost of the support services which they deliver. It is important to stress at the outset that such agreements must be underpinned by a level of long-term commitment, appropriate training and regular reviews.

The British Library (BL) is the national library of the United Kingdom, and as such it is one of the largest and most comprehensive. With more than 2,000 staff, 11 directorates and two main sites, in London and at Boston Spa in Yorkshire, and serving users and customers both nationally and internationally, it is crucial that the organisation operates as effectively as possible to meet the needs of its very diverse customer base: business people, scientists, academics, researchers, engineers, people in the media, industrialists and inventors. Measurement of performance, at individual staff member level, at section and department level, and at directorate level, is now a fact of life at the BL.

The BL has been using SLAs for a number of years and their use has developed as the Library has restructured itself along function based directorate lines (Figure 1). Increasingly the 11 directorates that comprise the BL are reliant on services provided internally amongst and between themselves. It is this internal use of SLAs that I shall concentrate on, while acknowledging that there is also a role for SLAs with external customers and suppliers.

Increasingly too, the BL is involved with Total Quality Management (TQM), with Codes of Service and the measurement of customer satisfaction. TQM highlights the concept of the internal customer and this emphasis has gained widespread acceptance within the BL. SLAs enable us to measure the cost and quality of our internal service relationships and help us to achieve higher levels of efficiency and effectiveness.

DEFINITION

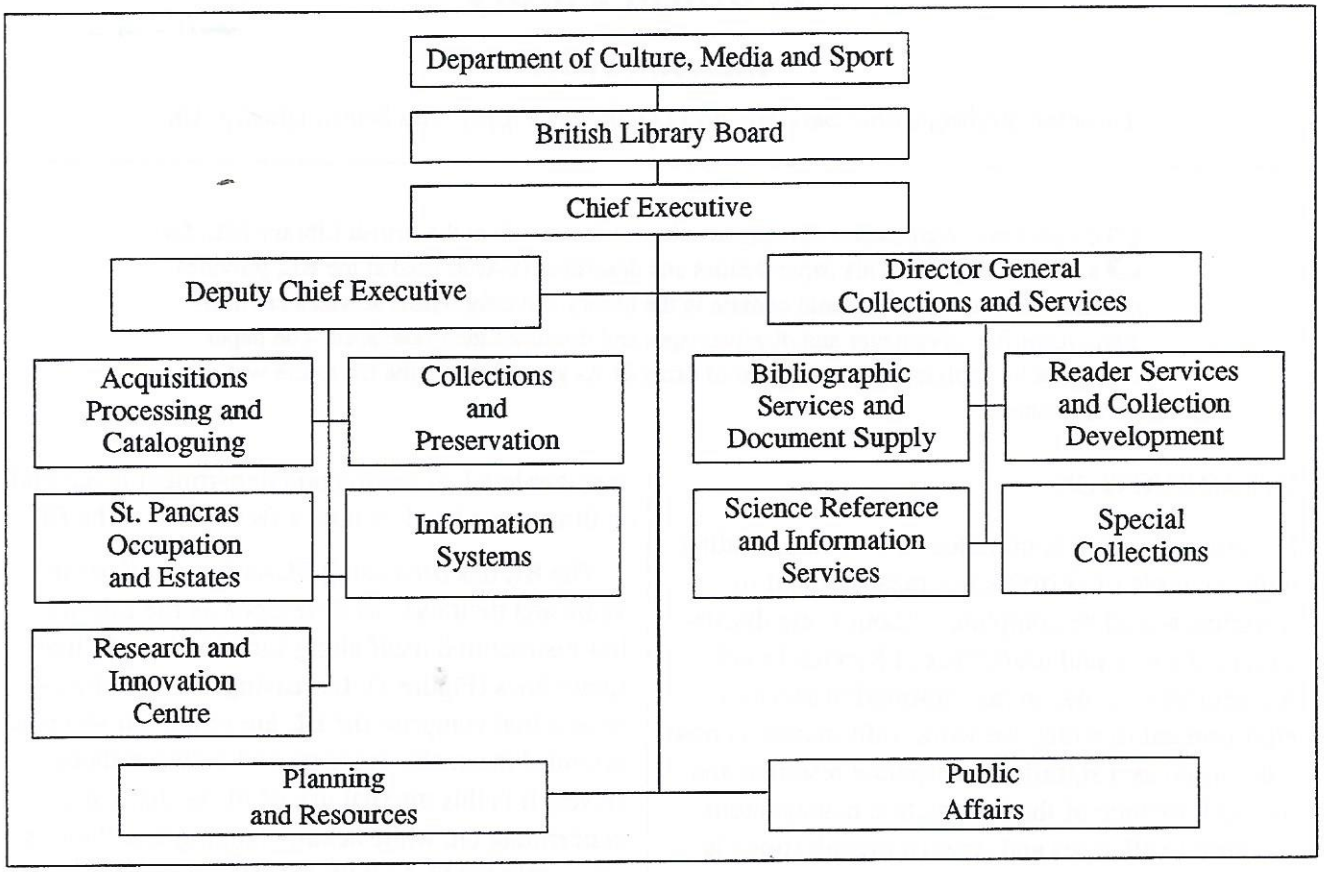
It is always a good idea to define one's terms in a such a relatively new area. So what is an SLA? Definitions abound in the professional literature:

> "A Service Level Agreement is a formal document agreed between the providers of a service and the client group." (Ford, 1996)

The following is a rather more precise definition:

> "An SLA is an agreement between the service provider and its customers quantifying the minimum acceptable service to the customer." (Hiles, 1993)

Figure 1
The British Library: organisation chart



but note that SLAs need not restrict themselves to the minimum - they can define the optimum.

The definition I prefer is the following:

"An SLA is a working 'contract' document which establishes the relationship between the provider of a service and its clients." (Revill, 1994)

The first SLA pioneers were those organisations in the computing services industry, keen to establish precisely their service responsibilities. From there, SLAs have begun to permeate organisations of all kinds and sizes. SLAs differ from "pure" contracts in that, while contracts concentrate primarily on the legal and commercial aspects of service provision, they cannot effectively manage the day to day delivery of the service quality in the way that SLAs do. SLAs are regarded as more effective in preventing major problems arising between supplier and customer, since, if they are used properly, there is regular and constructive contact between the various parties.

In terms of performance measurement, SLAs are part of a framework of tools for managing the organisation. In the BL we have Forward Job Plans, which all British Library personnel have, and which are an agreed set of activities and targets for the coming year. At the other end of the scale the BL has, for example, two main agreements with the government department to which it is responsible, now the Department for Culture, Media and Sport (DCMS), previously the Department of National Heritage (DNH): the Funding Agreement, which year by year lays down what the BL will provide in return for its funding from government, and the Financial Memorandum, which regulates the way in which the Library is managed and is reviewed only at irregular intervals.

WHY ARE SLAs RELEVANT TO LIBRARIES?

Libraries usually obtain their funds from external sources such as central or local government or some other form of parent organisation. They therefore have to account for their activities and justify the money spent on them. SLAs serve a useful political function, showing that the library is very aware of the balance between inputs and outputs and is particularly conscious of the quality of its

services. Secondly, managers within libraries find SLAs useful when defining services as part of the process of determining requirements and obtaining resources in line with expected service targets. Traditionally, libraries serve a whole range of internal and external customer groups and SLAs provide a formal mechanism for establishing user requirements and monitoring performance. Libraries are becoming more fragmented into specialist areas; it is in these circumstances that SLAs can play a significant role. SLAs are also particularly relevant in larger organisations which of necessity are broken up into various specialist departments.

ARE THERE ANY ALTERNATIVES TO SLAs?

One can of course rely on informal "gentlemen's agreements", which appear simple to set up but which are in reality too vague, with no agreed review procedure. Some organisations use letters or memoranda of understanding, which are in reality a half-way stage - formal, yet with insufficient detail to be really effective. Performance indicators, benchmark checks and customer satisfaction surveys can all be used to supplement SLAs, but used on their own they are unlikely to create a true meeting of minds between customer and service provider and will not promote a service culture as effectively as the SLA culture aspires to.

WHAT SHOULD AN SLA CONTAIN?

There is no standard formulation for a Service Level Agreement. SLAs do not need to be particularly lengthy, although experience shows that there is a tendency for such documents to be on the long side.

They can contain some or all of the following:

- description of the **general features** of the service to be provided;
- scope of work;
- quantity and volume;
- method of service provision;
- quality and performance targets;
- monitoring and management of arrangements for the SLA.

In addition they should:

- identify the providers and the users of the service;
- state how long the SLA is to be in force;
- make clear the period of notice for cancelling the SLA;
- describe the procedure for settling disputes;
- state the penalties for non-performance;
- identify what help and information the user has to provide and when;
- list contact points for both parties.

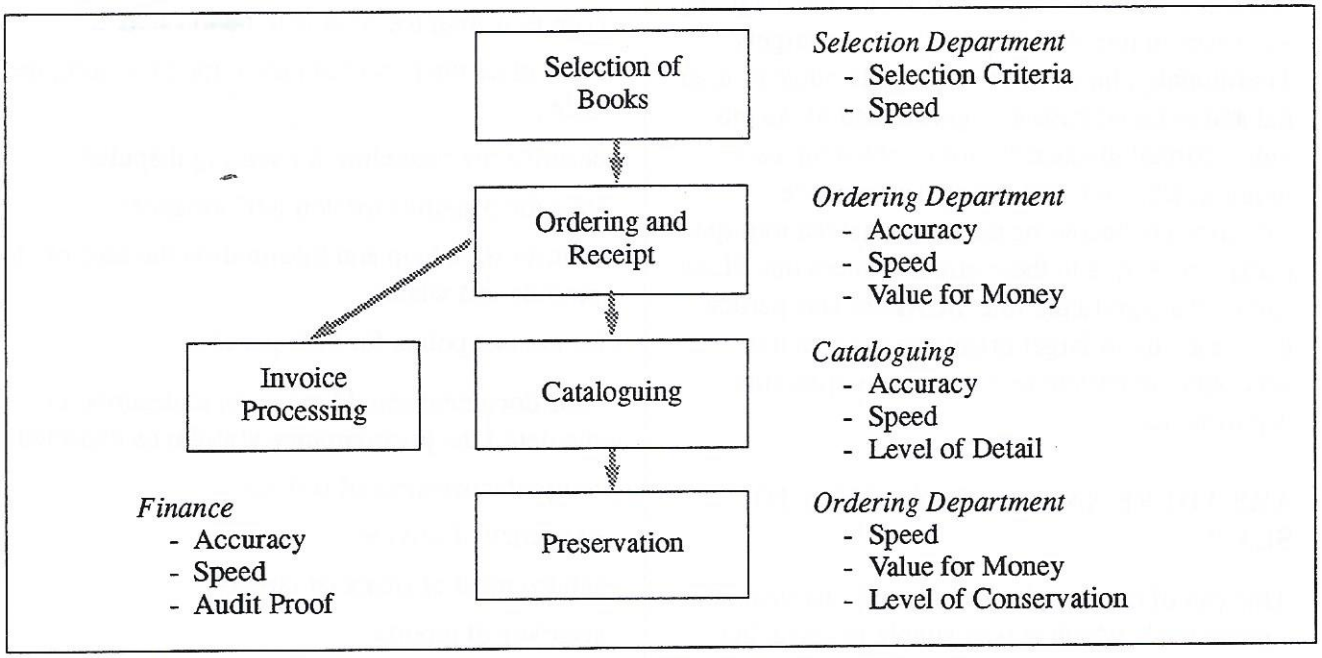
The document should move on to describe in more detail the **performance standards** expected:

- comprehensiveness of service;
- frequency of service;
- achievement of financial targets;
- accuracy of reports;
- response times;
- waiting times;
- turnaround time;
- availability;
- complaints mechanism.

HOW AND WHERE THE BL USES SLAs

As I said at the beginning, the BL is currently using SLAs in a number of areas covering the relationship between our support directorates and with those providing external services. We have SLAs between our Information Systems directorate, which provides computing and IT services to the rest of the Library, eg. directorates such as Bibliographic Services and Document Supply (BSDS). This SLA is one of the most important for BSDS as it governs the provision of computing and telecommunications services to support our Automated Request Processing (ARP) systems, which we use to receive, process and respond to the c.4 million requests for documents sent to us each year. We have SLAs between our Acquisitions, Processing and Cataloguing (AP&C) directorate - which acquires, processes and catalogues the material acquired by the BL on legal deposit, by purchase or by exchange arrangements or donation - and all the collecting directorates of the BL. BSDS relies on AP&C to acquire the material it needs to support and underpin its remote document supply

Figure 2
Book acquisition: internal SLAs



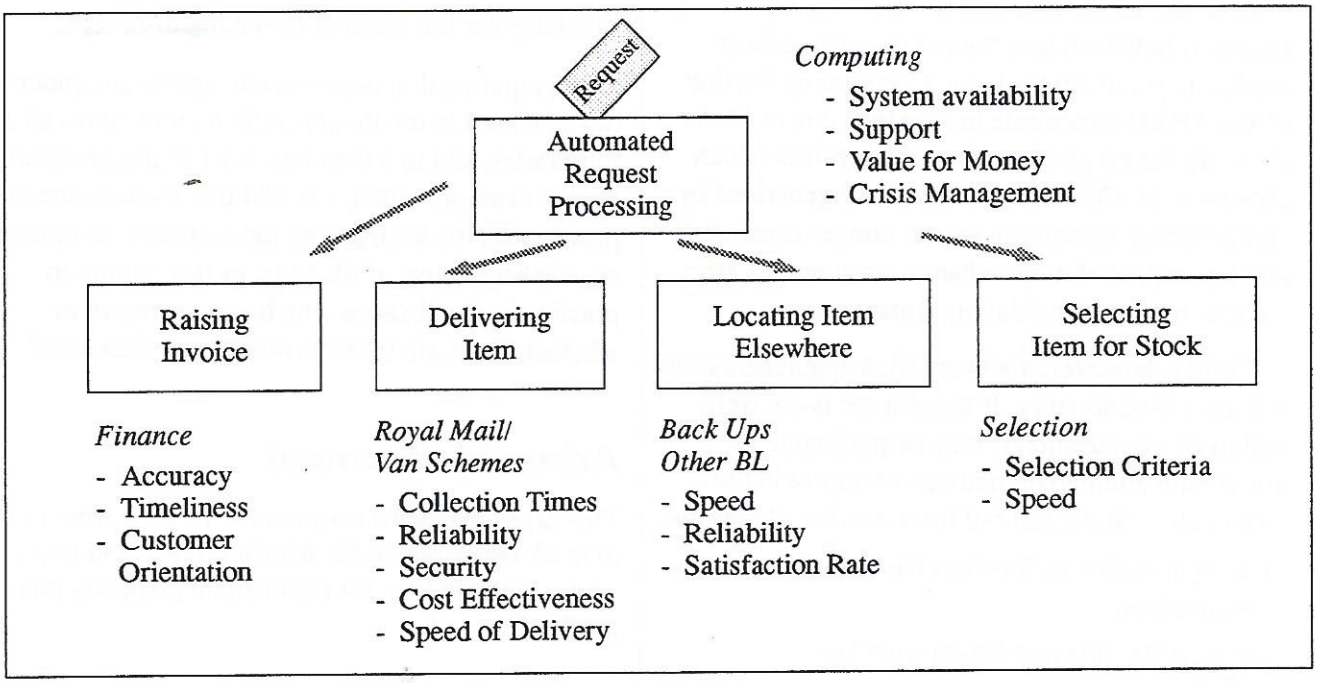
responsibilities. Figure 2 illustrates the process and demonstrates the departmental boundaries which SLAs can be used to govern. You can draw up a similar diagram for your own organisation's acquisitions process. The Library also has an SLA between the directorate responsible for preservation activities throughout the organisation and those areas acquiring material for addition to stock. In addition, there is an SLA for typing services between Planning and Resources, which is responsible for a range of common services, and the rest of the Library.

It is fair to say that each of these SLAs is different in some way from the others - there is no uniform template which the BL uses, although the areas and points covered tend to have a certain similarity. Some SLAs are clearly much more detailed than others: the SLA with the Information Systems directorate for processing incoming requests is twenty pages long; the SLA with AP&C, however, is much shorter, but even so it contains a fair amount of detail: sections cover responsibilities, workloads, turnaround times, use of suppliers, order processing, budget management, monitoring performance targets, committee representation, and procedures for amendments to the SLA.

This flexibility is important - insisting on a rigid adherence to a formal model is not the best way to encourage commitment to the concept of SLAs. The subsequent use of SLAs within the BL, once the wording has been agreed and the documents signed by representatives of both the supplying and receiving departments/directorates, does however follow a similar pattern: regular meetings are held - sometimes as frequently as monthly, sometimes only every six months - attended by staff involved in both supplying and using the services and systems under discussion. These meetings address issues such as instances where service standards have not been achieved and the reasons for this, as well as identifying remedial action to ensure there is no further recurrence of the problem. Such meetings also provide a forum for the exchange of information and for the early identification of new or changed user requirements.

I have already referred to one of the most important SLAs affecting the directorate for which I am responsible, BSDS, namely that with the Information Systems directorate (IS) for the provision of computing and telecommunications services to support our ARP system. It is only one part of the overall picture of service provision. Figure 3 shows the situation involving parties outside the BL, eg. Royal Mail and back-up libraries on which we depend for the quality of the service as seen by our customers, just as much as the internal departments of the BL. At present we are exploring the scope for using SLAs to manage these external relationships more effectively. There is also a role for SLAs between external customers and the BL.

Figure 3
Request handling: internal and external SLAs



So far we have tried this approach with a few major customers who have special requirements, and a typical agreement will include the topics as listed in Figure 4.

ADVANTAGES AND DISADVANTAGES

It is true to say that the work involved in drafting and redrafting the SLA with our Information Systems Directorate has not been insignificant, and there are times - especially when systems crash, or at other moments of crisis - when we wonder if all the debating over the nitty gritty detail of the precise wording has been worthwhile in the face of major and immediate problems. Do we really reach for the SLA at such times to check out what we should do? If the SLA is not used, it is a meaningless and ineffectual document. In spite of these occasional doubts, the BL is generally convinced that it is better to have SLAs, however imperfect and potentially bureaucratic, than to have nothing at all. A more important concern within an organisation such as the BL is that, unlike contracts with external organisations, SLAs with internal departments tend to have no "teeth" and are therefore weakened in their effectiveness as a result, especially when things go wrong with the customer/ client relationship. In an ideal world, of course, it would be good to think that all departments would be of one mind, pulling together very amicably and energetically to serve the needs of internal and external customers. In such an environment SLAs could possibly be redundant. Experience shows, however, that departments or directorates can have different priorities and it is possible for misunderstandings to arise without the support of a formally agreed document. BSDS has certainly learnt that, before handing over responsibility for certain activities to another area, it is wise to have a mutually agreed SLA from the outset.

Figure 4
External customer topics

- Service provision
- Document ordering
- Delivery of requested items
- Billing
- Key contacts
- Confidentiality

BENEFITS

The BL's experience with SLAs shows that there are benefits to be gained from having a signed agreement. Developing such agreements can be an educational and informative experience for the staff involved. SLAs help to open up channels of communication with staff in other areas and to ensure a more regular exchange of information. Small teams

of staff from a number of diverse sections meet regularly to discuss relevant issues of service provision, to share concerns and solve problems. I have to admit, however, that my directorate has been unable as yet to persuade the Cataloguing Section of the AP&C directorate to sign the suite of SLAs covering the range of cataloguing services which they provide. Continuing uncertainty generated by restructuring, resourcing issues, budget constraints and the impact of major change programmes are cited as reasons for delaying signature.

Clearly, however, not every SLA implementation will be a success story. If the climate is not right within an organisation it may be preferable to investigate alternative methods of improving service quality. SLAs can fail for a number of reasons:

- the organisation or business has no clear mission or direction;
- the SLA has no clear aim or direction;
- service definitions are too vague;
- the SLA has not been tailored to meet business needs;
- the SLA does not specify clear targets;
- the targets are too vague, or unachievable;
- service level management is inadequately resourced;
- management is insufficiently involved;
- no sanctions are applied for missing targets;
- problems are not followed up.

CONCLUSION

The BL is committed to using SLAs in many areas of its activities. There is still a lot to learn about formulating and using SLAs successfully, but we hope we are improving all the time. It is important to remember that SLAs are a means to an end and not an end in themselves. SLAs have a lot of good points - they can be used to:

- increase accountability;
- develop a quality chain between internal departments;
- achieve objectives across a range of areas of management;
- introduce the concept of negotiation between departments;
- create a customer-oriented culture;
- raise awareness of policy objectives;
- identify the full costs of providing a service.

In preparing this paper I came across a number of references to the theory of SLAs and their value to libraries, and to a lesser extent I found practical library examples cited. I would like to conclude my presentation by asking you, the audience, to consider whether the use of SLAs is, in fact, common practice in the libraries which you represent or whether SLAs are more written about than used?

Acknowledgement

This paper represents my personal views. I would like to thank colleagues at the British Library, and in particular Stella Pilling, for their help in preparing this paper.

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Discussion

John Blagden (Cranfield University): We had an interesting debate at Cranfield about SLAs: our tentative conclusion was that there's a danger they can become set in concrete; this, and the notion of minimum acceptable standards, caused us not to go for formal SLAs, but to set targets for our services - and we were open about this with our customers - within a framework of continuous improvement of quality. We felt that formal SLAs can lead to bureaucratic arguments such as "it's more than my job's worth" or "it's not in my contract".

Malcolm Smith: The cultural issue of how an SLA is regarded once it's agreed is very important, and many BL colleagues would agree with that view: the process can become too formal, too bureaucratic, leading to uncertainty as to whether the effort is worthwhile. But then the key question is: what if you don't have SLAs, especially if the organisation is

involved in change or restructuring? It's good to have a document that sets out expectations by one department of another. It's a question of approaching it in the right spirit and ensuring that monitoring is effective, which is where the meetings I spoke about come in. Performance is an important aspect of all this - response times, for example - and it's easy orally to say what you mean, but codifying and putting in writing has proved to be difficult. Things have become easier as Information Systems have become more effective; whatever you do, there's a need to have some way of measuring it. For waiting times in reading rooms, for example, a regular survey process of snapshots is in place.

Roswitha Poll (University and State Library, Münster): How many SLAs does the BL have? If every internal department negotiates agreements with the others, there must be about 30 SLAs, and about the same for external customers? Is there a single general document that collects them all and provides a general SLA for the Library, and do you have an example?

Malcolm Smith: I'd be happy to send an example of an SLA to anybody interested. Perhaps I gave a more organised impression than I intended. The BL has a number of SLAs governing relationships in certain areas, and practical experience of their benefits is growing. There could be more SLAs but, eg. we are unable to agree one at present with the cataloguing department. The BL has between ten and 20 in total. There is no general framework document, but there is some similarity in the SLAs between, for example, Information Systems and information-providing departments, and SLAs with the cataloguing department have some similarity.

Amos Lakos (University of Waterloo): In the units using SLAs has there been any impact on the development of cultural factors in assessment and measurement? Do SLAs have any impact on the levels of trust within an organisation?

Malcolm Smith: The areas where SLAs have been agreed have tended to be those where trust is good, and so possibly not where SLAs are most needed. That's human nature in many organisations. If there's a strong push from top management that the key relationships between departments will be governed by SLAs, you would still find that some SLAs would be successfully agreed and monitored, and relationships would improve and prosper, and other cases where, despite the central imperative - and we don't have this in the BL - no progress is made. Where we have SLAs in the BL, we have had to think carefully about what a department's requirements are, and to identify them in measurable ways. Initially there have been many generalised expectations which, when it came to formalising an SLA, had to be carefully thought through so that both parties can understand what is being defined. Where we do have SLAs, there is more measurement of performance than where we don't, and - more importantly - the measurement is within an agreed context, using information that is solidly based and which both parties accept when performance is reviewed. Where there is no SLA, perceptions of performance differ between the receiving and supplying departments, leading perhaps to a lack of common ground on which to discuss how to improve the situation.

Michael Havener (University of Oklahoma): Might there be a relationship between the size of an organisation and the value of having SLAs? In the USA, consortia with multiple institutions, working together, need some kind of Agreements that everyone understands; and the BL, with its 2,000 employees might well need such Agreements. But are they equally valuable for small institutions?

Malcolm Smith: It would be difficult to suggest that every small institution can benefit from an Agreement, and many library and information managers work on their own, where SLAs might have limited applicability. But even when working on your own in a large organisation you are dependent for your infrastructure on other parts of the organisation which can be vital for your operation, so there would be some sense in having a clear statement of what the organisation is providing to a small information unit. But SLAs become more useful the larger the organisation and the more specialist the library or information unit. The current structure of the BL is very functional, and it's in that kind of structure that SLAs are important. Sometimes the BL has been more *service* based, eg. ten years ago the Document Supply Centre at Boston Spa had responsibility for its own administration, personnel, computers etc., and SLAs with other departments were less important.

Danuta Nitecki (Yale University): How do you work on SLAs with external services that don't have an organised forum or representatives with whom to negotiate and where there may be a difference in expectations? Where does this fit in the BL's cycle of Agreements?

Malcolm Smith: The BL has two major user groups: one is for the library and information units that use the Document Supply Centre. The BL has a contract with them: they purchase the supply of a service and we publish what we expect to supply through that service, and increasingly we get involved in variations where customers' needs differ from the norm. The other major group we serve is people coming individually to the reading rooms or accessing us via the OPAC or the Web; we haven't developed the same kind of dialogue, nor such a representative forum for agreeing levels of service. Nevertheless, having been dominated for several years by work for the new St. Pancras site, we are doing more in this area. One of our major initiatives is to study user satisfaction (Lorraine Marshall is responsible for user satisfaction in this context); we have become aware that we need to do more to improve the dialogue with readers and, once in the new building, we'll be able to pursue this more effectively.

Joyce Friesen (University of British Columbia): What about problems and disagreements arising from SLAs? Is there a mechanism to resolve them? Are sanctions used?

Malcolm Smith: These situations are often a problem of resources: perhaps two parties have agreed something that they both expected to be able to achieve, but in practice it has turned out to be not possible without more resources than were originally budgeted for. It's then a question of having jointly to make a business case for additional resources. The application of sanctions is not something we've pursued in the BL; I'd be interested in the experience of other organisations which have done so.

Stuart Brewer (Pat Wressell & Associates): John Blagden referred to the sort of detail that can arise in drawing up an SLA and how this can involve the detailing of the duties of a section. This could cross over to the existing job descriptions of individual employees and lead to some interesting discussions?

Malcolm Smith: Yes, where there's an obligation on a department, say, to process a certain piece of work within a number of hours, that's quite likely to be part of an individual's Forward Job Plan and may feature in the job description. Where there's a target to make an improvement, it may be a specific job objective for that individual to work out how to achieve the improvement and to implement it.

The House that Jack Built: The Consequences of Measuring

Dr. Roswitha Poll

University and State Library of Münster, Germany

Seven easy steps to establishing a performance measurement culture in your library and some of the consequences which will undoubtedly result: the paper gives invaluable advice on how to avoid the least desirable consequences and on how to maximise the most beneficial.

Like many other speakers at this conference, I start with a quotation. It is neither Goethe nor Shakespeare, but I think quite appropriate to the theme:

This is the farmer sowing the corn,
That kept the cock that crowed in the morn,
That waked the priest all shaven and shorn,
That married the man all tattered and torn,
That kissed the maiden all forlorn,
That milked the cow with the crumpled horn,
That tossed the dog
That worried the cat
That killed the rat
That ate the malt
That lay in the house that Jack built.

The House that Jack Built

The nursery rhyme tells about connections and consequences - and my story is about consequences too: the consequences of measuring.

This is a story that might have happened to any library. If you decide that it would not apply to you at all, that the events described are quite unprecedented, I have at least the advantage of telling you something new.

The story is about the consequences of meddling with topics like performance measurement or quality management. Probably many of you know such consequences. You are experts on performance evaluation in libraries, and writing or speaking about such methods will force you to act as such - everybody will suppose your library lives up to those high standards that you preach. They will ask you for details and statistics and come on a pilgrimage to see that well-managed library. You will more or less be forced to go some length along the way you recommended - and nobody knows what that may lead to.

So I advise you to keep your hands off such new-fangled organisational tricks. But if it is too late, and you have already involved yourself, this can show you how to avoid the worst consequences.

There are always some small first steps that imperceptibly lead you on:

STEP 1: You merely want to evaluate one single service of your library

It is book processing speed that you want to measure. The performance indicator is as simple and practical as possible, and here is the result: 28 days for a user to obtain the book.[1]

It could have been worse, but even so the result is not splendid. If you do not inform the public about your experiment, no harm is done. But if, probably in hopeful expectation, you do actually tell somebody, this is serious:

- your public (the users, the institution, the library committee, or others) will need an explanation for the results;
- they will suddenly feel that the length of book processing time has always been a serious vexation to them;
- they will want to know what can be done to quicken the process;
- and they will even expect a repetition of the measuring in due time, in order to see whether there have been improvements.

[1] Examples given are of course fictitious.

Thus, even the first little step will entangle you in a continuing process, although you wanted only to measure book processing speed. (By the way, "book processing speed" is always the indicator that people want to test first, if you show a list of performance indicators to academic staff or other user groups, probably because it is the one indicator that all easily understand.)

STEP 2: Evaluating one service will doubtless spread to others

All handbooks tell us that using only one indicator does not give reliable results. But even if you want to restrict yourself to evaluating just one service area, it will not do: measuring is a process that grows by itself. If you publish the results of "book processing speed", your clientele will get interested and will start asking questions:

> Now, a book needs four weeks "procession" through the library; how long for an interlibrary loan (ILL) request? Or delivery of books out of the closed stacks? And why did I see an important new book at the bookseller's, when the library had not even ordered it?

So what you will have to measure next might be:

> interlibrary loan speed
> acquisition speed
> delivery speed
> availability . . .

This means a lot of measuring procedures, even if one does not go into the nice differentiations of the ISO standard (ISO/DIS, 1996) that measures the availability of titles asked for and never asked for, of documents inside and outside the library, and of everything mixed up, which is called "extended availability" (it takes rather long). The worst is that, having evaluated a service once, you will have to do it regularly. This is going to be a system now.

At this point, you might consider introducing a **DSS** (Decision Support System) or **MIS** (Management Information System) - a nice, helpful instrument, combining all your data in clear structures, showing graphs of the growing success, doing all the statistical procedures . . . But: a DSS is a staff member who continually demands new (topical) data, and who will regularly remind you that you have not measured "book processing speed" for at least one year. Are you sure you would like that?

STEP 3: Formulating mission and goals

Having engaged in a series of evaluation processes, you will need a responsible person for this business. He or she, starting fresh, finds out that you have not begun at the beginning, and that evaluation until now has been like groping in the dark:

> how can you say your library is doing well if you do not know **what** you are supposed to do?

It's no use saying that everybody knows what a library is meant for. You started the questions and called attention to problems; now everybody - the library committee, user groups, your staff - will insist on something fundamental in written form.

Take the opportunity to slip in all those tasks that the academics of your institution might deem unnecessary, or that your institution would not like to fund, or that other institutions - computer centre, public relations office - think they could manage better than the library. Some instances:

- cultural tasks (exhibitions, publications, lectures);
- co-operation with other libraries;
- teaching information literacy;
- furthering research in the region outside your institution (if possible, without fees);
- preserving the rare collections;
- publishing.

You stand a solid chance of getting all that accepted, as probably nobody in your institution will read the mission statement to the end.

This step is generally harmless and might even prove beneficial, as before mentioned. But proceeding from the general mission to specific goals demands great care. You are on the safe side if you restrict yourself to general hazy statements, eg.:

- to apply given resources **in a cost-effective way**;
- to provide information **according to users' needs**;
- to provide documents **as quickly as possible**;
- to care for **adequate storage** of stock;
- to offer **competent, friendly** reference services.

In this case, the library can itself decide what service would be called user-friendly, cost-effective, competent, or quick.

It might also be possible to go into measurable details, if the goals are such as probably nobody

would - or could - control:

- cataloguing data **99%** correct (what is "correct"?);
- user education increased by **30%** (you can count either hours, groups, or persons - and you can change your statistical procedures);
- shelving accuracy checked for **300,000 volumes** a year (this is dangerous of course, if 300,000 is nearly your whole collection);
- ILL delivery to other institutions within **two days** (your own institution will not be interested in this question).

But for all the topics that your clientele is really interested in, and could control, beware of converting general hazy statements into clear concrete measurable goals, with distinct levels of what to reach and with what time limit, and writing them down - perhaps even as **service level agreements**:

- document delivery within **30 minutes** (everybody can consult the watch);
- ILL delivery within **two days** (this is the worst possible statement, as it means promising what others will do);
- shelving accuracy of **99%** (you cannot lay the blame for every missing book in the 1%);
- online system available 24 hours a day (it will never be!).

The first opposition will come from your staff: How could we ever manage all that? The library committee, on the other hand, will think the goals too low and will propose doing things quicker and better. And, above all, if you say

> "The library will reduce book processing time from four to two weeks",

some people at least will believe you, and they will ask for the results in due time. That means reporting and controlling and planning anew. So, every year you now have:

- repetition of evaluation processes
- overhauling of goals
- reporting and controlling.

STEP 4: User satisfaction surveys (or interviews, focus groups . . .)

If you perceive that your library plan has narrowed down your choice of free action, or if you find that you would not like to carry out what two years ago you said you would, there is an effective way of eluding that straitjacket: be guided by your clientele; ask his majesty the user (which probably means students; but don't forget to ask the pope: academic staff).

This is a popular, democratic way of proceeding: draw up a questionnaire, carefully choose the right questions and possible answers, and in all probability you will be able to elude those traps that you have set for yourself in the goals.

> **Example:** You promised to provide ILL delivery in two days, and you see it does not work? Ask the users what priority speedy delivery has compared to cheap delivery.

With good luck and skill a user survey will yield some good marks for services, which you can publicise effectively.

> **Example:** Friendliness of staff (users are generally polite).

You can, on the other hand, avoid dissatisfaction with problems which cannot be laid at your door; and you might even get convincing votes for some improvements that your institution has so far not been funding.

Here are some useful hints on **how to question users**:

give them a choice

- between cheap or good service
- between different opening times (not just longer opening times);

give much space for dissatisfaction with "other people's faults"

- heating, air conditioning
- space
- cleanliness;

make them ask for services you could not get funded up to now

- retrospective conversion of catalogues
- more staff for user education;

give prominence to services that you know you are going to provide in any case

- more copying machines
- a coffee corner.

Guidelines for surveys tell us that the answers depend on the clear, unequivocal wording of the questions (which is undoubtedly true).

Example: You want a vote for funding quick retrospective conversion.

You should not ask your user:

- Did you encounter problems in differentiating between card, microfiche, and online catalogues? (Users generally do not know the reason for not finding titles.)

The question should be:

- What sort of catalogue do you prefer?
  - card
  - microfiche
  - online

  (They are sure to tick "online".)

But if on the one hand the results of a user survey may be harmless or even helpful, you may also be sure that your users will identify some urgent needs that nobody could have expected (eg. certain databases they tested in another library). You will have to publish the results, and thenceforth everybody concerned will expect:

- that you do something concerning all the problems that were named in the survey;
- that improvements are reported;
- that there will be another survey in due time in order to assess whether satisfaction went up.

So add "user survey" to the yearly list.

STEP 5: Staff satisfaction survey

And now, if not before, it is high time to have a satisfaction survey for your staff. They have been busy assessing the users' opinions; of course they would prefer to tell their own. Designing a staff survey is a much more complicated matter than a user survey. Staff surveys must be discussed on a broad basis, the staff representatives must be informed, and the institution wants to know whether you are not committing yourself to a dangerous precedent.

Here are some important rules for "staff surveys":

- they must be strictly **anonymous.** Everybody wants to give a piece of his/her mind, but not to be identified;
- leave out criticism that points to **individual persons**: persons in leading positions should not be exposed to anonymous accusations that they cannot answer;
- the survey must be short and simple enough to allow **quick evaluation.** If the results are not published quickly, people might suppose that something is being hidden;
- the questions ought to bring home that there is a **personal responsibility** to solve problems;
- there are always **fashionable topics** that everybody thinks alluring without quite knowing what they mean. The survey should show consequences.

Examples:

Topic	Question
Flat hierarchy	What leading position in your department could be deleted?
In-house public relations	What have you done to be better informed?
More time for further education	What money or time would it be worth to you?
Reward for high performance	Deduction from salary for bad performance?

A staff survey should try to assess staff's opinion of the library. If you propose "nice" adjectives on a five-point-scale, people can of course tick "I don't agree at all", but at least you get nothing worse.

Example: The library is

- user friendly
- innovative
- beautiful
- well known
- cost-effective
- clean . . .

There is one problem in staff surveys: staff opinion might go against users' wishes. As to opening hours, it surely will. The solution: put the user survey first. Of course, staff satisfaction cannot be assessed only once. Put it on the yearly list.

STEP 6: Cost analysis

After evaluating the state of the library's performance, and reconciling that state with the library's mission and goals (fixing the goals **after** evaluation makes this possible), and after assessing everyone's satisfaction with the library, you demonstrate all these fine results to your institution, hoping to be applauded. They are quite interested in quality, of

course, but what interests them most is the costs of the library services.

After all, they are right. It is comparatively easy to achieve high quality with high costs. But performing well and economically at the same time would be the best practice.

But before now diligently engaging in a comprehensive cost analysis of the library, just consider the danger of that procedure:

- for the first time, the total costs of the library will be published. Probably they are higher than expected, and this might lead to serious considerations in your institution;
- all costs not directed to collection building or direct service will probably be questioned;
- benchmarking as to costs will become possible, and there is always a library which does it for less.

Of course, there are some costs or cost-driving processes that probably nobody will question:

- more books (journals, CD-ROMs . . .)
- staff for reference service
- ADP-costs (can be nearly any amount).

But there are other cost factors and activities that will surely be regarded with mistrust:

- general administration of the library;
- cataloguing costs (but the online catalogue must of course be up-to-date);
- preservation of the collection;
- weeding (this ought not to appear at all, as members of academic staff are very much against "throwing away books").

What your institution wants to know is probably not only the total costs of the library per year but also the library costs per student and the costs of separate services:

- cost per issue
- cost per document catalogued
- cost per reference answer . . .

As most libraries do not manage all costs themselves (eg. operating costs), calculating the total costs of the library per year will involve you in interesting contacts with various departments of your institution who show their surprise at your asking for separate heating, waste disposal, or gardening costs. After assessing the total costs for the first time, you will probably begin to turn off the lights in order to save money - the sum is very high indeed.

Staff costs are of course the highest factor; therefore the costs for a product or service of the library depend very much on the staff time used to produce them. It seems an easy procedure:

- you divide the library into cost centres (eg. text book collection, reference service, or mailing department);
- now calculate the yearly costs of each cost centre as to operating costs, building maintenance, ADP, depreciation of building and equipment etc. (One of the problems will be to define the m^2 for each centre.)
- you ask staff for all activities of their job (they love to draw up the lists);
- you ask them to note down for a certain period the time spent on each activity (eg. time spent on cataloguing, but not the number of titles catalogued, as it would mean measuring individual performance);
- then take the percentage of staff time altogether for each activity, extrapolate to a year, and allocate the general costs of the cost centre to the activity's costs at the same percentage.

And by this elegant and simple procedure, you get the costs of each product.

Example: Cost per document acquired and catalogued

- costs occurring in the cost centre "book processing" (staff costs + other costs) $105.00
- cost drivers (documents processed) 5.265
- cost per document processed $19.94

It will take you nearly a year to analyse the costs of all services for the first time. And now: **What can you really use this cost data for?** (You will probably not be allowed to sell your services at the full-cost price.)

You can try **benchmarking**, but take into consideration

- differences in depreciation rates;
- different calculation of staff costs (using standard or real staff costs);

- whether background costs (general administration, ADP department) have been allocated to the "products";
- whether the "product" can be compared with other libraries (book processing with or without subject indexing).

You can calculate the advantages of outsourcing. You can fix prices for services that you want to sell.

Above all: you now know definitely where the resources are going and, combined with the results of performance measurement, you should now be able to assess whether resources are spent in the right direction, or whether too much money goes into services that users rate unsatisfactory or unimportant.

So all the steps mentioned before and their results will in all probability lead you to:

STEP 7: Process re-engineering

In the literature you find several inviting-looking procedures for reconsidering the processes in the library:

- you could start with the chaos theory (you don't need to, you will get chaos anyway);
- you could try TQM (quality manager, handbooks, all processes documented, quality circles, and that famous climate of continuous improvement): the literature says it takes just a few years;
- or you might proceed step by step (which of course can come out wrong, as in reorganising individual services, you might lose the overview).

Probably you will drift into process re-engineering quite unsystematically and even unintentionally, instigated by all the little hints you gained in the procedures beforenamed.

Example: Book processing speed

The performance indicator assessed:	it's too slow (though benchmarking shows that some libraries are even worse)
Goals said:	as quickly as possible
User satisfaction:	they think it takes too long
Staff survey:	they need more PCs for the processing department
Cost analysis shows the reason for slowness:	too many persons involved in the process

Beginning to reorganise book processing will naturally involve other processes, so that finally you might as well at once revise the whole concept of the library.

At this point you might consider having an **audit** by external specialists. The advantage is: it will give you some time for reconsidering all decisions.

SUMMARY

The house that Jack built has now grown to quite a substantial size. Your yearly procedures now comprise:

- systematic evaluation of the services
- user satisfaction survey
- staff satisfaction survey
- cost analysis
- benchmarking
- reporting
- revision of goals
- process planning.

What has come out of all that?

Just imagine: you come into the book processing department. Book processing speed has been measured again and is beginning to deserve its name: it is three weeks (instead of four). Just sit down and celebrate the result with the staff. Don't remember the fact that funds were scarce and fewer books were bought: it is a thing to enjoy. And what is more: the staff has an idea how to do it still better - a real, practical, feasible idea. That is the important issue:

- continued, self-renewing workload is not inspiring;
- a target to reach gives the impetus to try;
- measuring results can give the feeling of success.

So what has changed after all?

- tediousness has gone;
- imagination is set free;
- transparency helps planning;
- responsibility is acknowledged; and
- book processing time has gone down by one week.

Maybe you are even coming near that "climate of continuous improvement"? Though I wonder

whether it is a healthy climate for a long-term stay. And if all that is not enough, just consider:

There is much pleasure to be gained from useless knowledge. (Bertrand Russell)

Reference

ISO/DIS (1996) *Information and documentation - Library performance indicators.*

Discussion

Joan Day (Chair; Department of Information and Library Management, University of Northumbria at Newcastle): With a paper containing such serious messages, it's as well that Roswitha is speaking on the last morning of the conference: would we ever again take seriously any report on a performance measurement experiment seriously!

Roswitha Poll: Regarding the cost accounting projects, a piece will be published in English in a journal soon, but we'll be putting it on a list of the University Libraries and Other General Research Libraries Section of IFLA, so some information will be available there, and we'll keep the Section informed, so if you are interested please apply to that Section.

Joan Day: It would be interesting to hear if anyone has experienced the dire consequences that Roswitha has warned us of in publishing their own performance measurements?

Amos Lakos (University of Waterloo): As part of my work in the long process of setting up a Management Information System, which takes a long time, I set up a whole bunch of Excel files and have five years of data on processes and activities and costs in the library. The problem is that staff at all levels don't really want to look at them. It's an interesting exercise to try to bring staff to look at the numbers and try to discuss what does it mean, what does it do or not do, does it make sense or not. Two weeks ago I gave a workshop, showing them what is available: we have it here, it's in this format, if you have questions, I will help. I've been doing this for two years! One has to ask: how can we advance the culture of using data for decision-making? All libraries have lots of data but they are not used very well.

Roswitha Poll: I think sometimes it is our own fault: we make staff report the statistics but we don't talk to them about the statistics. We should always discuss with our staff whether the statistics have gone up or down, whether they are questionable, or whatever. If staff are in the dark about the data collected, they won't think about them themselves.

Amos Lakos: A lot of this has to do not so much with staff resentment at collecting and talking about the data, but with what kind of trust and culture there is in the library and how open staff think it is in terms of what they say being taken seriously or being shut down. The issue of trust, and the type of administrative trust, is a big part of this issue.

John Sumsion (Loughborough University): In the spirit of Roswitha's talk, a story comes to mind about a County Librarian who produced a very successful strategic plan, with lots of statistics. The basic assumption was that the number of branch libraries was going to prove insufficient, and the question being addressed was which branch should be replaced, restored, improved, and in which years, and should this library be replaced in two or ten years time; and the statistics were produced to support the case. But the masterstroke was that, on the front page of the document, the author of the document was described as the Chairman of the Library Committee and his Committee while, at the bottom of the page, they expressed their grateful appreciation of the assistance they had received in producing the document from the County Librarian and his staff.

Evaluating the Digital Library

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The paper suggests a similarity between the modern digital library and the old closed access library: both, to be usable, require a high level of intermediation. The digital library is defined as one maintained by an entity to serve a particular community of users; its objectives are the same as those of a conventional library. Levels of access to electronic resources in an academic setting are visualized. A model of filtering levels in a digital environment is illustrated. Changes must be made to traditional evaluation criteria in order to build an acceptable model for evaluation in a digital library environment. Differences are outlined between traditional and digital libraries in terms of uses, services and evaluation criteria. Attention is drawn to a decline in the service ideal in libraries. It is suggested that technology and professional education are largely to blame, and that users will evaluate the digital library on the quality of the *human* service provided.

I began my professional career very close to the site of this conference, at Newcastle upon Tyne Public Library. Thus I had the distinction of working, for at least a period of some months, in what was, I believe, the last closed access public library in the country.

Some people might consider this a dubious distinction. But let me tell you a little about what a closed access public library was really like. First, a library of this kind represents "intermediation" in its most fundamental form. Readers could not even retrieve books from the stacks for themselves but had to rely on staff members for this basic service. Indeed, the library was very much like several of the great research libraries of today, where a user must fill out some type of form to request materials from closed stacks.

Closed access brings with it other requirements. Clearly, since users cannot browse the shelves, the catalog must be a very effective access tool. When I began my career, centralized or cooperative cataloging was not the normal mode of operation. Consequently, we tried to tailor the library's catalog to the needs and interests of local users. We wrote annotations, sometimes quite lengthy ones, to go on catalog records. Moreover, we classified a book in a way that seemed most appropriate locally. That is, we put it where we thought that our users would be most likely to look for it. We did not care much where the Library of Congress or the British Library might classify it (and indeed the British Library, at least in its present form, did not exist, and the *British national bibliography* was in its newborn infancy).

Of course, the ability to write locally useful annotations, and to achieve locally useful classification, implies a rather good knowledge of users. By and large, we had this knowledge. Public service was very important to us; it was face-to-face and personalized. We knew quite well the interests of at least our frequent readers and would not hesitate to tell Colonel X that a new book on golf had arrived or Mrs. Y that several exotic cookbooks had recently been added to the collection. In modern jargon, we provided a significant value-added service for library users.

In some ways, the modern digital library reminds me of the closed access library of fifty or so years ago. To be usable, it requires a high level of intermediation.

Clearly, this statement gives some indication of how I am defining "digital library" for the purpose of this paper - neither the one extreme of a personal library of information resources maintained by an individual in electronic form nor the other extreme, namely the totality of resources in digital form that can be accessed through networking capabilities, but a digital library that is more like a traditional library, at least conceptually; it is a library maintained by a university or other entity to serve a particular community of users.

The objectives of such a digital library are no different from those of a conventional library: to make available to users the information resources they need at the time that they need them and to help users exploit these resources effectively and efficiently. In the digital library, however, most, if not all, the resources will be in electronic form, and the great majority will be in a form that is "accessible" rather than "distributed."

Some see the library of the future as not having any "collection" of its own. It would be a mere switching center, referring users to potentially appropriate points in the vast network of resources accessible through the Internet or its successors. Others see the library as *primarily* a switching center but having important value-adding functions: creating guides, indexes, annotations and other tools tailored to the needs and interests of the library's own community of users and designed to improve the intellectual accessibility of those network resources likely to have greatest relevance and value to this community. Note here the similarity to the closed access library.

More farsighted observers (notably Atkinson, 1990, 1993) recognize that the library cannot survive as a mere switching center, even a value-added switching center. To justify its existence in the electronic world, the library must continue to perform one of the most important functions it now performs in the print-on-paper world: to organize the universe of resources in such a way that those most likely to be of value to the user community are made most accessible to this community, physically and intellectually. This implies that the library must act as an information filter, selecting the most relevant resources from the universe of network resources and downloading these to local storage/access facilities. Moreover, the downloaded resources will need to be organized intellectually and themselves made available to users at different levels or tiers of accessibility. In a recent paper, Atkinson (Atkinson, 1996) makes an important distinction between a "control zone" of network resources extracted and controlled by the library community and an "open zone" of everything else.

One library that has already gone a long way

Figure 1

Levels of access to electronic resources identified at the Mann Library, Cornell University. From Demas et al, 1995, by permission of the American Library Association.

TIER 1
Delivered over the campus network via the Mann Library Gateway. Anticipated high demand and need for quick response and manipulation time dictate the use of media and software which will provide very fast response time.

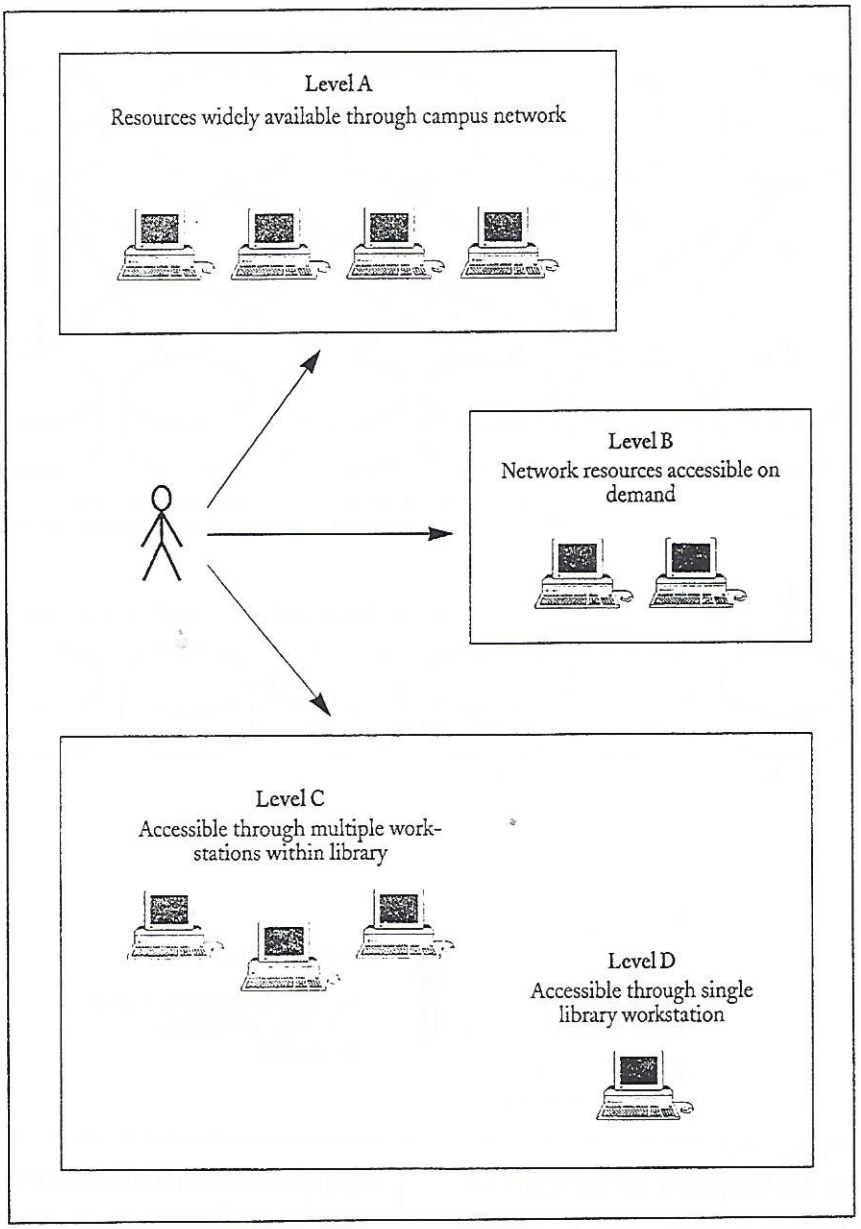
TIER 2
Delivered over the campus network via the Mann Library Gateway. Must be interactively available, but a relatively low number of simultaneous uses is expected and slower retrieval time acceptable. Therefore a slower storage medium, such as optical platter, may be acceptable.

TIER 3
Resources that can be delivered online via the Gateway on demand, but are not continuously available online. Tier 3 resources may be mounted on request for Gateway access or may be used in the library at any time.

TIER 4
Resources that are available in the library only (ie., not delivered over the campus network), but that are available from many public access workstations within the library over a local area network.

TIER 5
Resources that are available in the library only, at single user stations.

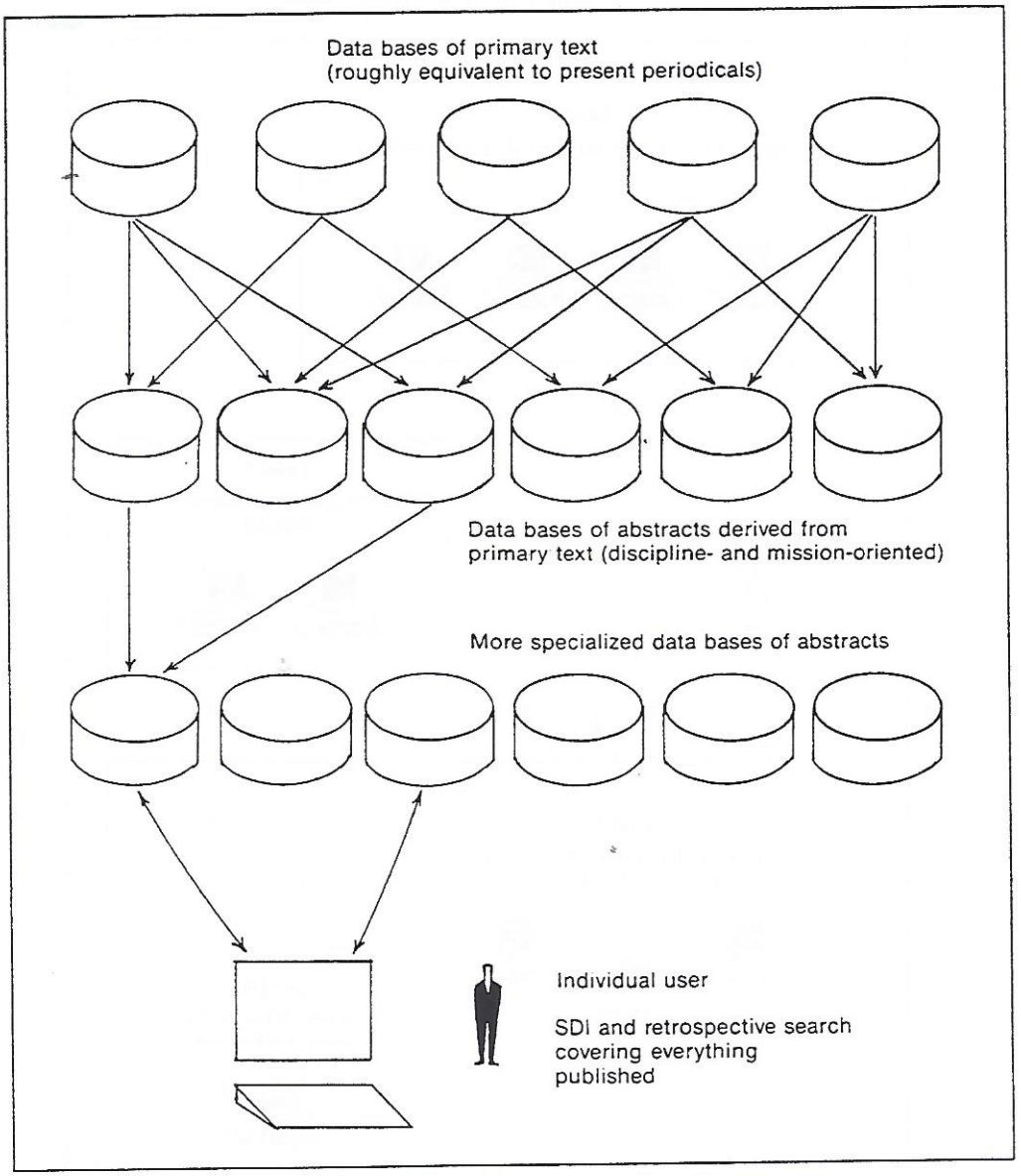
Figure 2
Possible levels of access to electronic resources provided by the library in an academic setting.



toward the adoption of collection development policies for electronic resources is the Mann Library at Cornell University (Demas et al, 1995). They identify various levels or "tiers" of access, illustrated in Figure 1. Note that some high-demand items may be downloaded from the national network to the campus network while others are merely accessible from the national network on demand (possibly through the aid of "pointers" provided locally).

Based largely on this model provided by the Mann Library, one can now visualize the academic digital library as one providing various levels of access to electronic resources, as illustrated in Figure 2. Electronic resources in great demand (level A) are made permanently accessible through a campus network, while others (level B) can be accessed remotely via the campus network when needed (eg. through the Internet). These are strongly linked to the library because the library may have been responsible for selecting the level A resources from the international network and downloading them to the campus network. It may also have been responsible for building the indexes or providing the pointers that draw attention to the level B resources. Alternatively, the level B resources may be brought personally to the attention of individual users by reference librarians con-

Figure 3
Filtering levels in a digital library environment



sulted face-to-face, by telephone or through electronic mail. The level C and D resources are not available through the campus network but must be used within the library through a local area network or a single dedicated workstation.

Some 14 years ago, in writing about the future of indexing and abstracting services, I visualized an online filtering system that would eventually bring relevant journal articles and other sources to individual users (Lancaster and Neway, 1982). The conceptualization is shown in Figure 3. It assumed that, given that journals exist in electronic form and include abstracts, acceptable "accessing databases" could be built directly from the primary literature. A series of filters (really subject profiles) would be necessary to form major discipline-oriented and mission-oriented databases from all items newly added to all databases (ie. not restricted to a particular set of journals). More refined filters would form more specialized databases from the first level databases. User interest profiles could then be applied to the second-level databases. An individual user, then, could log on to some system and be informed that X items, matching his profile of interest, had been published since last he used the system. The user may then view abstracts and, if required, get online access to the complete item. Rather than "subscribing" to any one electronic journal, the filters would keep him informed of everything matching his interest wherever published. At various levels, databases of abstracts would be available for searching when specific information needs arise.

The model of Figure 3 is highly appropriate to the present information environment made possible by the Internet although, as suggested earlier, it is probably the library community that should be most heavily involved in building the necessary filters, especially those that are closest to the individual user. Moreover, libraries will be concerned with filtering all types of resources and not just those that are the equivalents of the present journal articles.

Evaluation Concerns

Traditional models for evaluating library services are largely based on whether or not the library, its resources and its tools can assist users to find the items or information they need. Technology has enabled libraries to expand access to information resources beyond the physical walls, both for library staff and for users. In some cases this has meant that the library no longer plays the role of intermediary in the delivery of information. As the locus of information resources traditionally associated with a trip to the library becomes increasingly decentralized and remotely accessible, the role of the library in providing these services will inevitably change. So too will the library's ability to directly evaluate its performance. How will the traditional model change as we move increasingly into a digital and networked environment, where users have direct access to remote information, and rely less often on the library and its resources for answers to their questions? What will become the role of the library as we now know it, with its quantifiable resources and collections? How can the library use technology to better understand the needs of library users, both in the traditional and the evolving digital library setting?

Some changes must be made to traditional evaluation criteria in order to build an acceptable model for evaluation in a digital library environment. First, it is clear that user groups will change, as will the library's ability to monitor their needs and behaviors. Since users will no longer need to come to the library to obtain access to library materials, they will be more remote, and more anonymous. It is likely that the group of users may widen to include previous non-users. This could occur because the library may provide convenient or cost-effective electronic access to information that formerly was not available in the library, or because the resources are now perceived to be more accessible than they were before.

Secondly, the purposes for which users seek information may change in the digital library environment. Users will have access to the electronic tools needed to build and organize their own databases of information, to create new documents incorporating or referring to that information, and to find people to communicate with or to collaborate with on future projects.

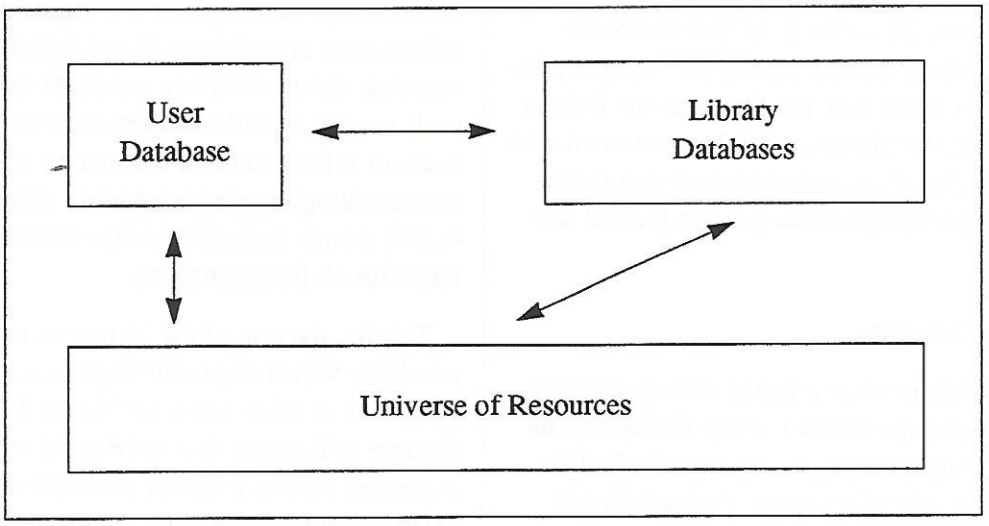
Thirdly, the role of the library in information provision will change, although it is too soon to determine in what ways, and to what degree these changes will occur. In a networked environment, as suggested earlier, a library may become primarily a database builder, selecting electronic information of greatest interest to users and building databases incorporating that information.

Lastly, and perhaps most obviously, the nature of the library's "collection" will change. Resources are becoming more dispersed and intangible as the concept of a collection beyond the library's physical walls is extended. The nature of the library's "control" over the contents of these collections is also changing. Items in collections, once considered discrete packages of information, are developing fuzzy boundaries, due to the ability of authors and users to provide hypermedia links among textual and other items in a networked digital environment. Documents can now be dynamic and interactive in nature, and may not be printable. The content of collections, or items within collections, may also change rapidly.

It is clear that such yardsticks as size of collection or number of items acquired annually have little meaning for the digital library. Also of little meaning are all output measures that relate to ownership of physical items, "shelf availability" being perhaps the most obvious example. Presumably, "items accessed" replaces "circulation" as a quantitative measure of use. However, if the actions of users can be monitored through some form of transaction logging, finer measures of use become possible: how much text is accessed, how much is merely viewed, how much is downloaded to personal databases, and so on.

The fact that many users will be "remote" and "anonymous" makes evaluation more difficult. The

Figure 4
Interacting components in a digital library network



fact that some of their actions are susceptible to monitoring makes some types of evaluation easier to implement.

If the digital library is used for the same purposes as the traditional library - to find a particular item, to find the answer to a question, to find information on a particular subject - the evaluation criteria also remain more or less the same. Nevertheless, the digital library may present special problems in evaluation, as suggested earlier; eg. "items" may have rather fuzzy boundaries and some text may lack stability (databases, and perhaps even individual items, may be updated frequently).

If the digital library is used for other purposes - eg. to build composite documents from several sources scattered throughout the network, to locate people with similar interests, and so on - different evaluation criteria will be needed.

In a highly developed digital information network, one can visualize a situation in which a scholar builds a personal database by downloading from network resources the text and graphics of most direct interest. This scholar may be supported by some form of institutional library (maintained perhaps by a university, college, or company) which has also downloaded from the broader network the text and graphics most likely to be of value to the institutional community. The situation is depicted in simple form in Figure 4. If an important role of the institutional library is to "feed" the personal databases of its users in a dynamic way (eg. through some form of profile matching), the most obvious evaluation criterion would relate to the frequency with which an individual needs to go beyond personal and institutional resources to satisfy a particular need. Presumably, if the institutional library was doing an excellent job, most of the individual's needs would be satisfied from his/her own database, some from the institutional database, and very little from the wider network resources.

In the discussion so far, I have suggested some ways in which the digital library may differ from the more traditional library. Figure 5 attempts to identify possible differences in terms of major uses made of the library and major services provided to library users; it also includes evaluation criteria. Some (but not all) of the evaluation criteria associated with the traditional library are widely accepted; those associated with the digital library are put forward as seemingly appropriate.

The major uses made of the traditional library - to find particular items, to find items of a particular type, to find answers, to perform literature searches, to keep current in some field - are presumably some of the major uses made of a digital library. Perhaps not surprisingly, the evaluation criteria for these services remain more or less the same for both types of library. In some cases, however, the digital library situation offers more precise measures relating to the criteria. This is especially true in the case of *use* of materials. The digital library may also differ from the traditional library in terms of sources used to achieve some goal. For example,

Figure 5

Differences between traditional library and digital library in terms of uses, services and evaluation criteria

Traditional library		**Digital library**	
Uses/services	*Evaluation criteria*	*Uses/services*	*Evaluation criteria*
Find particular item	Obtain in time (availability and delivery time). Cost. Use (circulation)	Find particular item	Access in time. Cost. Use (access, time spent with item, downloading)
Find items of particular type	Availability of good selection Use (circulation) Shelf bias	Find items of particular type	Locate a selection from one or more remote sources. Locate in time. Cost
Find answer to question	Obtain complete and correct answer. In time?	Find answer to question	Same as for traditional library
Find items dealing with. . . (literature search)	Enough? In time? Are they the best (eg. most reliable, most current)? Amount of irrelevancy Cost	Find items dealing with. . .	Same as traditional library
Keep current in some field	Completeness. Novelty. Amount of irrelevancy. Cost. Self-sufficiency of personal collection	Keep current in some field	Same as for traditional library
		Locate individuals with similar interests	Number of useful contacts. Number of discussion groups to which individual belongs. Value to individual. Replacement for more traditional methods/sources. Cost
		Build composites	Value to individual. Cost

obtaining answers to questions, and even locating particular items, may often be achieved through use of network resources to contact individuals rather than through direct contact with databases.

But, when we look at evaluation criteria at the level of detail represented in Figure 5, we are looking at the trees rather than the forest. Our major concern should be the fact that the Internet, and its

successors, allow more and more individuals to perform more and more library-related functions for themselves. Of course, some library users are already largely independent of library staff in performing all of the traditional library activities represented in Figure 5. Nevertheless, while independent of the staff, they are still, to a very large extent, dependent on the physical resources of a particular library. Network-accessible electronic resources reduce or even eliminate dependence on an institutional library. Nevertheless, the sheer magnitude, diversity and complexity of the electronic resources, while reducing dependence on the library as a facility, may actually increase dependence on the skills that good librarians have always been able to offer.

The ultimate evaluation criterion for the library as an institution, then, and indeed the ultimate justification for its continued existence in a largely digital world, is the extent to which it can make life easier for members of its community of users. "Save the time of the reader" were Ranganathan's words. This applies not only to the traditional services but also to new information-seeking activities that might emerge in a network environment. As suggested earlier, value-added services provided by the library would include the building of better, locally-relevant tools for exploitation of electronic resources as well as the provision of expert personal assistance when it is needed.

I began this paper by referring to the value-added services provided to users in a closed-access public library. My main impression of the Newcastle Public Library, looking back these many years, is that it had a strong commitment to a "service ideal." As a library user for more years than I have been a librarian, I have witnessed a very considerable decline in the service ideal within libraries. How else can I explain the following incidents, all occurring in my recent experience as a library user:

1. Being told that what I was looking for almost certainly didn't exist - but that I should check the Internet.

2. Being told that, if I wanted to know if a particular copy of a book was on the shelf, I should come in and check it myself.

3. Being told that, since the circulation system was "down," it would not be possible to tell me if a particular book was on the shelf or not. Apparently, walking to the shelves was not a viable option for this staff member.

4. Being told by a staff member that she could not check something in the current issue of a journal for me. She was the only staff member present and was not allowed to leave the desk.

All of these incidents occurred in legitimate telephone inquiries made to departmental libraries within a large university system. Even more disturbing is the lack of general knowledge displayed by many staff members. When I call the main reference desk of a large university library, is it unreasonable to expect that the staff member I speak to should have some idea at least of what UNICEF is? When I call a public library in the United States, is it unreasonable to expect the librarian I speak to to be able to pronounce the name of a city in California correctly, even if it is of Spanish origin?

I am convinced that few, if any, of these types of service failure occurred in Newcastle 50 or so years ago. Why, then, do they occur today?

I believe that, to a very large extent, technology is to blame for this situation. There are several reasons for this. First, I believe that many librarians have become mesmerized by the technology itself and have convinced themselves that, the more they can automate, the better their image and the better their services. Further, more and more of the time of professional librarians is spent learning new technologies, updating their technological knowledge and skills, and participating in meetings of committees and task forces charged with making decisions relating in some way to technological change - all of this taking them increasingly away from direct interaction with users and putting more and more of the public contact on the shoulders of various forms of support staff. Our value systems have changed. Today it seems more important to have knowledge of new databases, new search engines, new word processing systems, new communications protocols, new gizmos than to have knowledge of what is happening in the world around us.

A lot of this situation can be traced to our professional education. When I went to library school - a

long time ago!! - computers were hardly even mentioned. When I first began to teach at the University of Illinois, in 1970, there existed only one course that was clearly technological and one other that was partly so. Now technology permeates and dominates the curriculum. How much of our curricula today deal with more human concerns? How much with professional ethics? How much with the service ideal?

We are living in a world that is becoming increasingly dehumanized. Personally, I prefer to reach a person rather than an answering machine, I prefer to deal with an operator instead of an automatic switchboard, and I certainly prefer a bank clerk to a cash machine. Unfortunately, it is becoming less and less likely that we can actually interact with other human beings.

The same trend applies to libraries. Technology allows - perhaps forces - library users to do more and more for themselves. I can still use my telephone to reach a professional librarian once in a while, but my chance of doing this seems to decline on almost a daily basis. Certainly, my chance of receiving personal, human service of any degree of quality is declining daily.

As every other institution becomes ever more dehumanized, perhaps our best chance of survival as a profession lies in going in the opposite direction. Perhaps the people we exist to serve will evaluate the digital library not on its technological sophistication but on the quality of the *human* service and assistance they are able to receive.

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Discussion

Joan Day (Chair; Department of Information and Library Management, University of Northumbria at Newcastle): Your provocative paper suggests that, although you may be retired, it sounds like we now have the user from hell! There was certainly food for thought, and lots of nods when Wilf talked about the time that is now taken up in attending committees to talk about IT.

Ian Winkworth (University of Northumbria at Newcastle): Having enjoyed your provocation, I'm sure that you would like some retaliation! I'm not sure that it really *was* such a golden age: I remember a university librarian who catalogued according to the real name of the author; never mind if nobody - apart from the cataloguer - knew the real name of the author, that's where we hid it, and we felt virtuous about doing our duty, straightening out the world of knowledge and getting it right. So, if someone had deliberately written books under three names, we would bring them together so that they were collocated - assuming the searcher ever found them at all!

We do have difficulties to do with resources, to do with the fact that we all pay ourselves so much, and therefore we cannot afford lots of staff. So I would put it to you that, yes, there may be a degree of hell in this technology but, if we don't use it, we will still not be able to get back to the golden age. We will simply have an ever poorer service, with over-stressed staff who cannot do it all.

Wilf Lancaster: I must admit that, as I get older, I become less a librarian and more a user. Personally I would rather see money spent on people than on machines. As an academic faculty member, I always said: give me a good graduate assistant; I don't need a super computer, I'd much rather have a good assistant, who would be more useful to me than any computing resources you can put in my office. I've always believed this, and believe it still today. There are situations in some large academic libraries in the US where there is a freeze on hiring: no new professional staff positions will be filled in the next *x* years; and yet substantial amounts of money are being spent on the technological infrastructure. I'm not sure that this, in the long run, is going to benefit library users.

Joan Stein (Carnegie Mellon University Libraries): Since you have a long perspective, and have been doing research in the field since the beginning of all these changes, are there any real surprises to you in the way things have evolved? Has anything turned out

completely differently from what you thought it might?

Wilf Lancaster: When I began doing research in the field of information retrieval in 1963, I was very optimistic that we could design systems that would effectively retrieve information from large databases, etc. After many years in that area, I now believe that we can't and that, if you want to know what to read on some subject, the best thing to do is to ask a subject expert, and that there is absolutely no substitute. So, if I want to know the best things to read about censorship in Russia today, I go to a faculty member of the University of Illinois who is an expert in that subject, and in two minutes she can tell me of materials I should read that I would never otherwise find, because they are not labelled in any way that indicates they are about censorship in Russia.

So, I am pessimistic. I do not believe, in fact, that we have better access to information today than we had 50 years ago, because the growth and the diversity of information has compensated for the fact that we have built better tools. I firmly believe in something which I haven't been able to prove yet, and probably never will, and that is what I refer to as "the constant accessibility of information". That is to say, the tools that we develop just about keep us at the same level of accessibility but, because so much more is published, and is fragmented, and so many more languages and documentary forms are involved, and so on, we just stay in the same place.

This is why I think that the human resources, whether they are the librarian or the scholar, are by far the most important thing. We cannot substitute technology for scholarship. We cannot substitute technology for good reference librarians. Unfortunately, there are so many people in the profession, and outside it, who believe that we can, and that we can develop "expert systems" to replace the expert reference librarian. It's just not true, but I believe that the truly expert reference librarian is a dying breed. In library schools we are teaching people how to use an expert system; an expert system can help really bad librarians become better, but it will never make them experts, just as with medical diagnosis systems: they rarely rank the correct diagnosis towards the top of the list, in spite of medical diagnosis systems having been worked on for 30 years or so.

I am very pessimistic about technology doing more than making things physically more accessible - but intellectually more accessible? Absolutely not.

Amos Lakos (University of Waterloo): I wonder if what you are talking about is a kind of catch-22, no-win situation, because it seems to me that there's a direct relationship between technology and the level of service. The worse the technology was, the better was the human service, by necessity. The better the technology becomes and gives more equitable access to more people, the more the human service has to be replaced in resources. So, we are talking about a balance. It's not a question of better or worse, but a question of whether this balance is going to be somehow worked out over the next ten very chaotic years.

Wilf Lancaster: I prefer to think that technology is being used to compensate to some extent for the fact that human service has declined, rather than the other way round. I think human service in all fields has declined, not just in libraries. The chance of getting real service from any institution, any degree of personalised quality service, has declined radically. What is happening is that we are willing to accept things that we would never have accepted before. Try calling the British Consulate in Chicago to get information on a visa, and going through their automatic switchboard; nothing I ever want falls into its categories. The only possible solution is to claim that you don't have a touch-tone telephone: it's the only way you can reach a human being.

I don't know what we can do about this. Maybe we are too far along the technological path to do anything, but I think it's extremely unfortunate. I positively refuse to use automatic cash machines; and only the strongest pressure from my family persuaded me to spend money on an answering machine. When I hear answering machines, I frequently leave rude messages. Basically, I don't like technology.

Rowena Cullen (Victoria University of Wellington): To go further back in your paper, I take your point about intermediation, and I understand your fears and anxieties, but some of us are still teaching, still working out there, still delivering service, and we have to find solutions to these problems. It seems to me that intermediation is the way to go and, in our own reference courses, we not only still train students - and I sometimes think we are one of the few library schools still running traditional reference courses - but we also assist students to develop web pages, sometimes in conjunction with subject experts in order to bring subject expertise into the kinds of structured routes through the electronic jungle that we are now living with. I wondered if you had thought about how you evaluate these kinds of services in libraries?

Wilf Lancaster: The short answer is "no", but the fact that you are emphasising traditional values in reference service is very good. I would like to see courses dealing with professional ethics, and the ethical aspects of service provision permeating the curriculum in the same way that technology has begun to permeate the curriculum. We are forgetting the service responsibility sometimes in our rush to get better machines.

Joan Day : Speaking as the Head of another library school, I think my colleagues would agree that we have tried very hard to make service ethos and professional ethics central to curriculum design. We would also be the first to admit that technology seeps through the curriculum like nothing else. This issue is one of trying to maintain a balance and getting students to go out having the knowledge and skills that Wilf wants, to exploit the technology, and at the same time retaining this very strong service ethos. How did you do that at Illinois?

Wilf Lancaster: I don't think it exists at Illinois, and I'm not claiming it does. In fact, just the reverse: we have gone to far extremes in embracing technology and have forgotten basic values.

Joan Day: We certainly have a challenge in this respect: at the library school we are about to do a major review of our undergraduate courses, and this is a key issue for us.

Thank you, Wilf, for giving us in our final paper some very fundamental thoughts, not only about how we are going to measure the performance of the increasingly electronic library. What you are also selling to us is the question as to whether there will be anything there for us to measure, and will we be there to measure it? Hopefully, I would say "yes", in a couple of years' time when colleagues will be bringing to us here some of the challenges being faced in applying performance measurement in the electronic environment.

SEMINAR PAPERS
and
POSTER SESSIONS

GENERAL ISSUES

The ISO Standard on Library Performance Indicators (ISO 11620)

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The work of the International Organisation for Standardisation (ISO) in the library and information sector is outlined, particularly the Subcommittee for library statistics and performance evaluation. The progress of its Working Group on a standard for library performance indicators is detailed. The standard, intended for all types of libraries, has now reached the level of a Draft International Standard. Only indicators that are well documented are included. The ISO 11620 list of indicators is appended.

INTRODUCTION

Is there a need for a standard in the field of Performance Indicators for Libraries? And if so, is it possible to produce one? These were the two main questions for a small Ad Hoc Group, set up in 1991 by ISO. Today, six years later, such a standard exists, or at least almost exists, since it is waiting to be finally approved by ISO, the International Organisation for Standardisation.

This paper will try to give a picture of what happened during those six years, from 1991 to 1997. But first I will give a brief introduction to standardisation in general and to the standardisation activities that are going on in the library and information sector.

STANDARDISATION

An international standard is issued by ISO. National standards are issued by national bodies such as NISO (National Information Standards Organization), BSI (British Standards Institution), AFNOR (Association Française de Normalisation), or DIN (Deutsches Institut für Normung). There are also examples of regional standards, such as those issued within the European Union, the CEN (European Committee for Standardisation) standards.

ISO is a large non-governmental organisation. It started its work shortly after the Second World War, and the first ISO standard was published in 1951. To start with, the focus lay on technical and mechanical items, but today the scope is not limited to any particular sector. There are now more than 9,300 different international standards. The ISO 9000 standard (BS 5750 in the United Kingdom) is one of the most well-known.

ISO is organised in more than 180 Technical Committees (TCs). A number of subcommittees (SCs) are attached to each TC. The standardisation activities within the library and information sector fall within TC 46: Information and Documentation.

TC 46 has the following subcommittees:

- SC 2 Conversion of written languages
- SC 3 Terminology
- SC 4 Computer applications
- SC 8 Library statistics and performance evaluation
- SC 9 Presentation, identification and description of documents
- SC 10 Physical keeping of documents.

Today, SC 8 has four standards under its wing. The one most used is ISO 2789 for library statistics, which is adopted in a number of countries. The primary purpose of this standard is to ensure that international comparisons are possible. The standard was issued in 1991, but will soon be revised in order to accommodate electronic media and services.

Apart from ISO 2789, the following three standards are the responsibility of SC 8:

- ISO 9230:1991: Determination of price indexes for books and serials purchased by libraries;

- ISO 9707:1991: Statistics on the production and distribution of books, newspapers, periodicals and electronic publications;
- ISO/FDIS 11620: Library performance indicators.

HISTORY OF ISO 11620

Initially, the question of a performance indicator standard was raised at SC 8's meeting in Washington in 1989, by the Danish representatives. In 1991, an Ad Hoc Group, led by Charles McClure from the United States, was set up to conduct a feasibility study. Their task was, in short, to answer the following questions: Was there a need for an international standard in this area and if the answer was positive, would it be possible to produce one? The Ad Hoc Group's answer to both of these questions was "yes".

At its meeting in London in May 1992, SC 8 decided to proceed. A working group was set up with national experts from eight countries:

- Charles McClure (USA), chair
- Geoffrey Ford (UK), co-chair and chair
- Niels Erik Wille (Denmark), co-chair
- Pierre Carbone (France)
- Thierry Giappiconi (France)
- Jakob Harnesk (Sweden)
- Roswitha Poll (Germany)
- Libena Vokac (Norway)
- John Willemse (South Africa), corresponding member.

(Dr. M. C. Cuturi [Italy] and Mrs. S. D. Kolegaeva [Russia] joined later.)

SC 8 has also had a representative present at most of the meetings, Alan MacDougall from Ireland, who has been the chair of SC 8 for the last seven years. The working group held its first meeting in November 1992 and, as early as February 1993, it had written its first draft.

From the beginning of the work, it was clear that a number of questions had to be answered before the working group could make any substantial advances, questions like:

- Should the working group aim for a standard that could be used by all kinds of libraries, in any country?
- In what way would the standard differ from various performance measurement manuals, such as the ALA manuals for public and academic libraries, the coming IFLA manual for university libraries, etc.?
- Should the working group try to achieve a standard which would make international comparisons of performance possible?

Another key area was of course terminology and the definitions that were to be used. Standardised terminology is one of the key areas of standardisation and, naturally, that was seen as a crucial part of the work. Initially there were long discussions as to whether to use the word "indicator" or "measure". The working group finally decided to change the title from "Library Performance Measures" to "Library Performance Indicators". The reason for this is that the word "measure" implies that something can be measured in a direct way, while "indicator" is more relevant in the context of performance and evaluation. The IQ test, for instance, is not a *direct* measure of a person's intelligence. It is merely an aggregation of test scores, which may or may not be used as an indicator of the intelligence of the person being tested. The same goes for library evaluation: if a particular library scores well on a user survey, it doesn't necessarily mean that the library is actually performing well. We can only say, with more or less certainty, that the results from the survey *indicate* that.

The first draft of the standard was revised and re-written a number of times. The first draft has very little similarity to the final draft. In 1996, the working group had reached the DIS (Draft International Standard) level. The document was sent out on an international ballot early in 1997. Since the voting showed that a clear majority (92%) accepted the draft, it was decided in May 1997 that the work should proceed to the next level. It is expected that the standard will be finally approved and published sometime in the beginning of 1998[1].

THE CONTENT OF ISO 11620

The standard consists of two parts. The first one is the actual standard, and the other one contains the

[1] ISO 11620:1998. *Information and documentation - Library performance indicators*. ISO Central Secretariat, 1 rue de Varembe, CH-1211 Geneva 20.

three annexes that are attached to the standard. Out of these annexes, the one in the middle comprises the 29 indicators meeting the criteria that were set up in the standard.

In the scope note it is stated that the standard is intended to be used by all types of libraries, in all types of countries.

DEFINITIONS

Definitions are a crucial part of almost every standard. The terms defined serve as the base for the rest of the text. Here are some examples of definitions used in the standard:

- *Performance indicator*: a numerical or verbal expression, derived from library statistics and other data used to characterise the performance of a library.
  French term: indicateur de performance.
  Note: Includes both simple counts and ratios between counts as long as they are used to characterise the performance of a library.
- *Effectiveness*: measure of the degree to which given objectives are realised.
  French term: efficacité
  Note: An activity is effective if it maximises the result it was set up to produce.
- *Efficiency*: measure of the utilisation of resources to realise a given objective.
  French term: efficience
  Note: An activity is efficient if it minimises the use of resources, or produces better performance with the same resources.

All terms are translated into French. There is also a French translation of the standard as a whole.

WHAT CONSTITUTES A "GOOD" PERFORMANCE INDICATOR?

The standard sets up certain criteria which indicators must meet in order to be included in the annex. It is planned to add new indicators on an ongoing basis. To achieve this, SC 8 is planning to set up a Maintenance Agency, which can evaluate new indicators as soon as they are developed.

The performance indicators included in the standard have all been tried against the following criteria:

- *Informative content*: the indicator has to be informative, so that it can be used as a tool for measuring an activity, for identifying achievements, and for identifying problems and shortcomings. It should also provide information for decision-making, eg. goal-setting and budget allocation.
- *Reliability*: the indicator has to be reliable, so that it produces the same result, or at least a similar result, if the measurement is repeated.
- *Validity*: the indicator must be valid, which means it must measure what it intends to measure, and not something else.
- *Appropriateness*: the indicator must be appropriate. The units and scale must be suitable, and the operations necessary to implement the process of measurement should fit in with the library's procedures, physical layout, etc.
- *Practicality*: the indicator has to be practical. It shall use data that can be made available with a reasonable amount of effort and resources.

If the indicator is intended for comparisons a sixth criterion applies:

- *Comparability*: this criterion has been heavily debated during the last decades of performance measurement development. Do we measure in order to compare ourselves with other libraries? Yes, of course, say some. No, say others, claiming that it is only possible to compare the results in one library over time; local differences make it impossible to compare with libraries other than one's own. It can also be claimed that since one of the characteristics of performance evaluation is finding out how well a library is performing in relation to its goals and objectives, it is simply out of scope to compare the scores with other libraries.

In the working group, the view was taken that comparisons *are* possible to make, but that they should be made with great caution, taking into account each library's goals and objectives, user groups, governance, structure, etc.

Personally, I believe that comparisons are inevitable as soon as something is expressed in figures and real numbers. Even though we know that maybe we shouldn't compare ourselves with others, we do it anyway. Figures create a feeling of exactness, and therefore we tend to believe that 47 is always better than 45.

But there are more limitations to using performance indicators than comparability. In the standard, there is a discussion about other possible shortcomings, eg. user skills versus library performance, and the question whether performance indicator results should be related to the allocation of resources.

DESCRIPTIVE FRAMEWORK

After setting out the criteria, the working group took on the task of finding out what indicators actually met the criteria. It was decided at an early stage that the working group should not invent any new indicators, but include only those that were well tested and described in the literature.

The indicators are categorised according to basic library services, eg.:

- User perception
- Public services
- Technical services.

These areas are subdivided into more narrow categories. The category "Public Services" is divided into the following library services:

- General
- Providing documents
- Retrieving documents
- Lending documents
- Document delivery from external sources
- Enquiry and reference services
- Information searching
- User education
- Facilities.

To each of these categories mentioned above, with the exception of "user education", at least one performance indicator is attached.

The indicators are described in the annex in a standardised and uniform way, following a descriptive framework set up in the standard.

According to this framework, each indicator has:

- a unique and descriptive *name;*
- an *objective*, ie. what it intends to evaluate;
- a *scope*, which states the types of libraries the indicator is suited for. It also states if the indicator can be used for comparisons;
- a clear and concise *definition* of the indicator;
- a description of the *method* used to produce the indicator, both in terms of data collection and calculation;
- wording about the *interpretation* of the result and of the *factors that might affect or bias the result;*
- *references to the literature* where the indicator is described;
- *references to other related indicators* in the annex.

The working group is very well aware that there are some shortcomings in the standard. One is that for some traditional library services, eg. user education, it wasn't possible to find an indicator that met the criteria. Another shortcoming is that the standard, with one exception, lacks indicators for electronic library services. However, there are interesting R&D projects going on, in the United States, Canada, and in the UK, in order to develop performance indicators for the digital library. Therefore, let us have good hope that it will be possible to include indicators for those areas within a reasonable amount of time.

Appendix

LIST OF LIBRARY PERFORMANCE INDICATORS (ISO FDIS 11620)	
Service area	*Performance indicator*
USER PERCEPTION	User Satisfaction
PUBLIC SERVICES	
General	Percentage of Target Population Reached Cost per User Library Visits per Capita Cost per Library Visit
Providing documents	Titles Availability Required Titles Availability Proportion of Required Titles in Collection Required Titles Extended Availability In-Library use per Capita Document Use Rate
Retrieving Documents	Median Time of Document Retrieval from Closed Stacks Median Time of Document Retrieval from Open Access Areas
Lending Documents	Collection Turnover Loans per Capita Documents On Loan per Capita Cost per Loan Loans per Employee
Document Delivery from External Sources	Speed of Interlibrary Lending
Enquiry and Reference Services	Correct Answer Fill Rate
Information Searching	Title Catalogue Search Success Rate Subject Catalogue Search Success Rate
User Education	No indicator described in this International Standard
Facilities	Facilities Availability Facilities Use Rate Seat Occupancy Rate Automated Systems Availability
TECHNICAL SERVICES	
Acquiring Documents	Median Time of Document Acquisition
Processing Documents	Median Time of Document Processing
Cataloguing	Cost per Title Catalogued
PROMOTION OF SERVICES	No indicator described in this International Standard
AVAILABILITY AND USE OF HUMAN RESOURCES	No indicator described in this International Standard

Use and Interest in Performance Measures: Differences between Library Sectors

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To date much of the research in the use of performance measurement in libraries has concentrated on large libraries, in the public and academic sectors, towards the development of a standard set of performance indicators applicable to all libraries. However, small to medium size libraries are the focus of research conducted for the DECIMAL Project and reported in this paper, particularly the examination of cultural and sectoral differences in the use of performance measurement. Semi-structured interviews, using Critical Incident Technique and undertaken as a preliminary to data collection through questionnaires, are described. The differences in use and value of particular performance indicators between countries were not found to be significant, whereas those between libraries in different sectors were. The findings represent the best information available for small to medium sized libraries.

1. OVERVIEW

Two major concerns of current performance measurement research are large library systems, in the academic and public sectors, and the development of a standard set of performance indicators which would apply to all libraries. The focus of the research conducted for the DECIMAL Project (LIB-DECIMAL/43012), supported by the Commission of the European Community (CEC), initially reported at the 1st Northumbria International Conference on Performance Measurement (Oulton et al, 1995), has been rather different. The target population has been defined as small to medium size libraries, and a key focus has been the examination of possible cultural and sectoral differences in the use of performance measurement.

The differences in use of particular performance indicators between countries were not found to be significant. Those between sectors, however, were. For example, only four measures were reported as already in use by 50% of libraries across all sectors. These were: materials spend; current periodical titles received; number of items in stock; number of loans. Only one indicator (ie. derived ratio) was rated as of interest to all sectors: "Information success rate". Per capita ratios were also of limited interest to the respondents to this study.

The aim of this paper is to present commonalities and differences between countries and sectors, based on survey data supplemented by data gathered from other areas of the research. Of particular interest is the Critical Incident Study which was undertaken as a preliminary to the quantitative data collection.

2. BACKGROUND AND CONTEXT

The DECIMAL research project was a two-year project partially funded by the CEC Libraries Programme (Third Framework, Action Line IV, Theme 18 bis). Theme 18 bis supported research in, and development of, models and tools to support decision-making in libraries. Other related Projects under this theme were DECIDE (co-ordinated by Carpenter Davies Associates, now Education for Change [UK]), EQLIPSE (co-ordinated by the University of Central Lancashire [UK] and MINSTREL (co-ordinated by De Montfort University [UK]). These four projects have now entered into a further Concerted Action, CAMILE, a series of workshops and related activities to encourage the use of Management Information in Libraries throughout Europe.

The Department of Library and Information Studies (now Department of Information and Communications) at Manchester Metropolitan University was the Co-ordinating Partner in the DECIMAL research project. Other partners in the project were Inheritance Systems Ltd, Oxford (UK), developers of the Heritage library management system; University College, Oxford (UK); and library schools at the Escola Universitaria J. Rubio i Balaguer di Biblioteconomía i Documentación, Barcelona (Spain) and the Università degli Studi di Parma (Italy).

The primary objectives of DECIMAL (DECIsion-MAking in Libraries: the development of a decision support module for integrated library systems) were to identify decision-making processes, determine the information needs of library managers, and to design and develop a decision support module. It was decided that the target population of the DECIMAL Project should be the small to medium size library sectors, eg. college, school, government, commercial, medical libraries. The reasons for this were: i) this population represented a significant market for the Decision Support Module to be produced (approximately 70,000); ii) the majority of previous research is focused on large systems.

This paper draws on the findings from the research phase of the Project, specifically focusing on the differences in use and value of performance measurement in different sectors.

3. METHODS

The DECIMAL research was conducted in three countries (Italy, Spain and UK), and was focused on small to medium sized libraries. In each of the three countries primary research for the purposes of the study was carried out on a stratified sample based on six sectors: medical, commercial, school, college, professional and government. The research phase of the Project had a number of stages: interviews and questionnaire surveys of library managers and a series of interactive dissemination workshops, in each member state, where the findings were discussed with local professionals.

Semi-structured interviews were conducted in each Partner state using Critical Incident Technique (Flanagan, 1954). Librarians from 16 organisations in the UK, 14 in Italy and 13 in Spain, from a variety of sectors, were interviewed. The limited size of the interviewed sample makes it difficult to assert sectoral differences from interview alone, but when combined with the quantitative data achieved through questionnaire sample, the interview results add breadth to the research results obtained.

The semi-structured interviews involved presenting nine decision situations (Figure 1). Each interviewee was asked to select two situations to discuss in more depth, and was asked to reflect on relevant decisions which had occurred in their libraries within the previous nine months. They were then asked briefly to comment on the remaining seven decision situations. The interviews were analysed following a common framework to allow comparison between the sectors and states.

Figure 1
Critical Incident questions

Thinking back over the last 9 months can you remember a time when:

1. you changed one (or more) of the goals of the service?
2. you had a decision to make which seemed a very difficult one at the start?
3. you had a problem to solve and subsequent events proved you had made the correct decision?
4. you were faced by a situation which was different from normal?
5. you had clear goals, but were uncertain how to achieve them?
6. you were considering the introduction of a new service or mode of operation?
7. you made an evaluation of some part of the service?
8. you felt you did not have sufficient information to solve a problem?
9. you were given an unexpected sum of money to spend in a short time?

The semi-structured interview also provided a platform to pilot the questionnaire design. From this process it became apparent that there were two issues for investigation: a) decision-making in libraries and b) information for decision-making. It was decided to compile two questionnaires, one to focus on the process of decision-making and one to investigate the use of performance measurement techniques. An overview of the general findings of the questionnaires has already been presented (Oulton et al, 1995). Questionnaires were distributed to a random stratified sample selected from appropriate directories in each member state, ten libraries from each of the six sectors, for each of two questionnaires (ie. 2x3x60). The final response rate for the questionnaire on performance measurement was UK - 53%, Spain - 40% and Italy - 10%.

This paper concentrates on the results of the use of the performance measurement techniques, with particular emphasis on the similarities and differ-

Figure 2

List of performance measures and indicators, in library management categories. Adapted from Ward et al. (1995)

LIBRARY CONTEXT
1 Target population
2 Gross current expenditure
3 Net current expenditure
4 Income generated
5 Capital expenditure
6 Net current expenditure per capita
7 Capital expenditure per capita

STAFF
8 Expenditure on staff
9 Expenditure on staff by main function
10 Number of staff
11 Staff time spend on main function
12 Total expenditure on staff per capita
13 Expenditure on prof. staff per capita
14 No. of staff per capita
15 No. prof staff per capita

SERVICE POINTS/OPENING HOURS
16 Number of service points
17 Service point hours open
18 Weighted average hours open per week
19 Floor area occupied by library services
20 Total library floor area
21 Library floor area per capita

LIBRARY USERS
22 Number of registered library members
23 Number of active library users
24 Number of active borrowers
25 Users by category
26 Active library users per capita
27 Active borrowers per capita
28 Analysis by demographic features

LIBRARY USES
29 Library visits
30 Remote uses of the library
31 Programme/activity attendances
32 Library visits per capita
33 Remote uses of the library per capita
34 Activity attendances per capita

LIBRARY MATERIALS
35 Materials spend
36 Prices indexes
37 Spend on binding/conservation
38 Number of items added to stock
39 No. titles added to stock
40 Current periodical titles received
41 Books requested and anticipated
42 Updated reading lists
43 Number of items in stock
44 Number of loans
45 Number of issues from closed access
46 Number of items on loan
47 Items not borrowed over a period of time
48 Items borrowed over a period of time
49 Number of titles lent
50 Reservations on titles
51 In-library use
52 Materials spend per capita
53 Spend on binding per capita
54 Materials spend per capita
55 Items added to stock per capita
56 Titles added per capita
57 Copies added per title added
58 Items in stock per capita
59 Age of items in stock
60 In-library use per capita
61 Loans per capita
62 Title issues per capita
63 Items on loan per capita
64 Issues per item in stock
65 In-library use per item in stock
66 Proportion of items on loan
67 Proportion of reading list material provided
68 Needs fill rates
69 Expert check-lists
70 Mis-shelving
71 Speed of acquisitions and processing
72 Speed of delivery from closed access
73 Overall speed in satisfying requests
74 Speed of obtain. recalled/reserved items
75 Speed in satisfying requests for material at another site
76 Users' satisfaction with library stock

ENQUIRY SERVICES
77 Information visits
78 Number of reference transactions
79 Reference transactions per capita
80 Reference satisfaction survey
81 Information success rate
82 Proportion of queries satisfied in unobtrusive test

ILL
83 External cost of ILL service
84 ILL requests made on other libraries
85 ILL received from other libraries
86 ILL items sent to other libraries
87 Time taken to satisfy ILL requests
88 Proportion of ILL to total loans
89 ILL per capita

LIBRARY FACILITIES
90 No. readers' seats in the library
91 Seat occupancy
92 No. users per reader seat
93 No. items of equipment in the library
94 No. of items of equipment per capita
95 Proportion of time equipment is in use
96 Facilities use rate
97 Services used
98 Users' satisfaction with lib. facilities
99 Types of catalogue record added
100 Accuracy of catalogue record
101 Direct cost per item catalogued
102 Total cost per item catalogued

ences in the use of performance measurement in different cultural and sectoral contexts.

The questionnaire on the use of performance measurement techniques covered the types of performance measures and indicators used during library management processes, and the use of management information in the library. The performance measures and indicators included in the study were based on the 102 measures (counts) and indicators (ratios) identified in the PROLIB/PI study (Figure 2) carried out for the CEC by De Montfort University (Ward, 1995). The measures and indicators were organised to represent nine areas of library management.

The key questions asked respondents to rate each of the 102 PROLIB/PI elements under one of the following categories:

- already use
- available but do not use
- would use if available
- do not use and would not use.

Each respondent was also asked to assign themselves to their most appropriate sector category (medical, commercial, school, college, professional and government); these responses were used in the analysis.

The data from the questionnaire were collated and analysed using SPSS for Windows.

The responses for each category were subject to analysis at various levels:

(i) calculation of percentage of responses for each measure or indicator under each category (already use, available but do not use, would use if available, do not use and would not use);

(ii) addition of the responses for "already use" and "would use if available" to indicate level of interest in particular measures and indicators;

(iii) aggregation of percentage data for measures and indicators within each category of library management, by averaging percent responses for each performance measure/indicator within that category;

(iv) performing "threshold analysis" to indicate pm/pi's of "high interest" (70% or above) or "low interest" (30% and below). This approach was taken as the sample sizes for analysis were small in each individual category.

Figure 3

Measures and indicators of high (70%+) and low (30%-) interest, overall

	Measures	Indicators
High Interest	1. Target population 22. No. of registered library members 23. No. of active library users 24. No. of active borrowers 29. Library visits 35. Materials spend 38. No. of items added to stock 40. Current periodical titles received 43. No. of items in stock 44. Number of loans 51. In-library use 77. Information visits 78. No. of reference transactions 84. ILL requests made on other libraries	68. Needs fill rate 76. Users' satisfaction with library stock 80. Reference satisfaction survey 81. Information success rate 98. Users' satisfaction with library facilities
Low Interest	9. Staff expenditure by main function	7. Capital expenditure per capita 12. Total expenditure on staff per capita 13. Expenditure on prof. staff per capita 21. Library floor area per capita 34. Activity attendances per capita 72. Speed of delivery from closed access 89. ILL per capita 94. No. of items of equipment per capita

4. RESULTS

Including all respondents (all countries, all sectors) there were 19 measures and indicators which were of "high" interest (Figure 3).

CATEGORY ANALYSIS

Using the categories of library management activity as the initial basis for comparison we find that sectoral differences (Figures 7, 8 and 9) are much more pronounced than cultural (country) differences (Figures 4, 5 and 6).

Countries

Generally there is seen to be little difference between the countries. The biggest difference is in "Service Points" and "Opening Hours" (22%), where Italy is more interested than the other two countries; also in "Library Context" (14% difference) where the UK shows more interest than Spain, which shows more interest than Italy.

Ranking areas of highest to least interest also generally points to similarities between countries with all three having highest interest levels in the "Enquiry Services" category to lowest and next to lowest in "Staff". Again there are some differences, most strikingly the joint highest interest in Italy in "Service Points/Opening Hours", with low rankings (8 and 9) in Spain and UK. "Library Context" ranks 4 in UK, but 7 and 8 in Spain and Italy.

Considering individual measures and indicators we find that six measures and indicators are of high interest in all three countries and a further seven measures/indicators are of high interest in two countries. A further 15 measures/indicators were of high interest in one country only. The Spanish libraries in the survey rated approximately twice as

Figure 4

Aspects of library management: interest - use and would use, by country (calculated from averages of % for individual performance measures, using PROLIB/PI categories)

Category (PM/PI item numbers)	Italy	Spain	UK
Library Context (1-7)	38.1	45.2	52.3
Staff (8-15)	35.4	32.3	37.9
Service Points/Opening Hours (16-21)	55.6	43.1	33.4
Library Users (22-28)	47.6	55.4	61.6
Library Uses (29-34)	47.2	50.7	50.0
Library Materials (35-76)	48.8	57.9	53
Enquiry Services (77-82)	55.6	66	62
ILL (83-89)	54.8	55.3	48.7
Library facilities (90-102)	48.7	55.4	48.1

Figure 5

Aspects of library management: interest - use and would use, by country
Ranked 1-highest to 9-least interest

Category (item numbers)	Italy	Spain	UK
Library Context (1-7)	8	7	4
Staff (8-15)	9	9	8
Service Points/Opening Hours (16-21)	**1**	8	9
Library Users (22-28)	6	3	2
Library Uses (29-34)	7	6	5
Library Materials (35-76)	4	2	3
Enquiry Services (77-82)	**1**	**1**	**1**
ILL (83-89)	3	5	6
Library facilities (90-102)	5	3	7

Figure 6

Measures and indicators of high interest by country [X]
Indicating where "low interest" is shown in another country [0]

Measures and Indicators		Italy (13)	Spain (22)	UK (12)
In all 3 countries (6)				
35	Materials spend	X	X	X
40	Current periodical titles received	X	X	X
43	No. of items in stock	X	X	X
44	Number of loans	X	X	X
76	Users' satisfaction with library stock	X	X	X
98	User satisfaction with library facilities	X	X	X
In 2 countries (7)				
1	Target population	X	X	
23	No. of active library borrowers		X	X
29	Library visits	X	X	
41	Books requested and anticipated	X	X	
49	No. of titles lent	X	X	
80	Reference satisfaction survey		X	X
81	Information success rate		X	X
In 1 country (15)				
2	Gross current expenditure	X		
10	No. of staff			X
22	No. of registered library members		X	
24	No. of active borrowers			X
37	Spend on binding/conservation	X		
38	No. of items added to stock			X
68	Needs fill rates		X	
69	Expert checklists	0	X	
71	Speed of acquisitions and processing		X	
78	No. of reference transactions		X	
84	ILL requests made on other libraries		X	
85	ILL received from other libraries		X	
86	ILL items sent to other libraries		X	
90	No. of readers seats in library	X		
97	Services used		X	

many measures/indicators of interest as those in the UK and Italy.

Sectors

Examining similar tables constructed from the results from the six sectors we get a quite different picture (Figures 7-11).

The differences between popularity levels (highest and lowest interest) are here much more evident, ranging from 12.5% for "Library Materials" to 76.9% for "ILL".

Interest was seen to be fairly high and common areas were found across all sectors, for example "Enquiry Services" and "Library Materials". Differences were particularly evident in the case of:

- "ILL" (0% School - 76.9 % Medical)
- "Staff" (12.5% School - 43.2% Medical)

Figure 7

Aspects of library management: use or would use if available
(calculated from averages of % for individual performance measures, using PROLIB/PI categories)

Category (item numbers)	COLL	COMM	GOV	MED	PROF	SCHOOL
Library Context (1-7)	42.9	48.6	31.7	57.2	67.9	42.9
Staff (8-15)	43.2	42.5	30.5	46.2	50	12.5
Service Points/Opening Hours (16-21)	48.5	30	24.0	52.6	8.3	36.1
Library Users (22-28)	66	57.1	42.9	71.4	53.6	52.4
Library Uses (29-34)	51.5	53.3	35.2	59	75	22.2
Library Materials (35-76)	60.7	55.7	55	59.1	48.2	49.6
Enquiry Services (77-82)	65.1	73.3	59.2	70.6	66.7	66.7
ILL (83-89)	58.5	54.3	54	76.9	28.6	0
Library facilities (90-102)	52.5	43.1	44.4	68.7	44.2	39.8

- "Library Context" (31.7% Government - 67.9% Professional).

Colleges have a moderately high level of interest in performance measurement in all of the library management categories.

Commercial libraries have a high level of interest in "Enquiry Services", but low in "Service points".

Government libraries have a fairly low level of interest in performance measurement, particularly in "Service Points/Opening Hours".

Medical libraries have a relatively high level of interest in performance measurement, particularly in "Library Users", "Enquiry Services" and "ILL", showing highest, or next to highest, levels of interest for all categories, when compared against the other sectors.

Professional libraries have a high level of interest in performance measurement in "Library Uses" and a low level of interest in "Service Points/ Opening Hours" and "ILL".

School libraries have a relatively low level of interest in performance measurement, particularly in "Staff", "Library Uses" and "ILL", ranking in the bottom half of interest on almost all categories, when compared across the sectors.

Hence, different sectors have different needs (Figure 8).

Figure 8

Aspects of library management: use or would use if available: rankings of interest in PM/PI for each sector
(calculated from averages of % for individual performance measures, using PROLIB/PI categories)

Category (item numbers)	COLL	COMM	GOV	MED	PROF	SCHOOL
Library Context (1-7)	9	6	7	7	2	4
Staff (8-15)	8	8	8	9	5	8
Service Points/Opening Hours (16-21)	7	9	9	8	9	6
Library Users (22-28)	**1**	2	5	2	4	2
Library Uses (29-34)	6	5	6	6	**1**	7
Library Materials (35-76)	3	3	2	5	6	3
Enquiry Services (77-82)	2	**1**	**1**	3	3	**1**
ILL (83-89)	4	4	3	**1**	8	9
Library facilities (90-102)	5	7	4	4	7	5

Rankings

1st for 3 (Commercial, Government and School) - "Enquiry Services"
1st for College - "Library Users"
1st for Medical - "ILL"
1st for Professional - "Library Uses".

Last for 3 (Commercial, Government and Professional) - "Service Points/Opening Hours"
Last for Colleges - "Library Context"
Last for Medical - "Staff"
Last for School - "ILL".

Considering individual measures/indicators by sector we find only one of high interest to all six sectors, and a further nine measures/indicators of high interest to five sectors (Figure 9).

Examining individual performance measures and indicators which are of "High Interest" to one or more sectors, and "Low Interest" to one or more sectors, gives us a table which highlights differences between the sectors (Figure 11).

5. CONCLUSIONS

Data relating to the use and potential use of 102 measures and indicators identified in the PROLIB/PI study were collected during the Research Phase of the DECIMAL Project from six library sectors in three EU member states, primarily by questionnaire. Responses were analysed for differences between countries, representing all sectors, and between sectors, representing all countries. Analysis focused on categories of performance measures/indicators and on individual items.

The data indicate that interest in categories of pm/pi was not significantly different between countries. Differences in interest in categories between sectors were noticeably greater.

Figure 9

Measures and indicators of "High Interest" by sector, indicating where a "Low Interest" is shown in another sector

Measures/indicators		COLL	COMM	GOV	MED	PROF	SCHOOL
"High Interest" to all 6 sectors (1)							
81	Information success rate	X	X	X	X	X	X
"High Interest" to 5 sectors (9)							
23	No. of active library users	X	X	X	X		X
35	Materials spend	X	X	X	X	X	
40	Current periodical titles received	X	X	X	X	X	
43	No. of items in stock	X		X	X	X	X
44	Number of loans	X		X	X	X	X
76	Users' satisfaction with library stock	X	X		X	X	X
77	Information visits	X		X	X	X	X
80	Reference satisfaction survey	X	X	X	X	X	
98	User satisfaction with library facilities	X		X	X	X	X
"High Interest" to 4 Sectors (5)							
10	No. of staff	X	X	X		X	
29	Library visits	X		X	X	X	
38	No. of items added to stock	X	X			X	X
51	In-library use	X	X	X		X	
83	External cost of ILL service	X	X	X	X		0

Figure 10

Measures and indicators of "Low Interest" by sector [0] indicating where a "High Interest" is shown in another sector

Measures/indicators		COLL	COMM	GOV	MED	PROF	SCHOOL
"Low Interest" to all 6 sectors (0)							
"Low Interest" to 5 sectors (2)							
13	Expenditure on professional staff per capita	0	0	0		0	0
34	Activity attendances per capita	0	0	0	0		0
"Low Interest" to 4 Sectors (1)							
89	ILL per capita	0		0		0	0

In the individual item analysis, there were found to be six items of common interest in all three countries and a further seven of high interest in two countries, out of a total of 28 items in which respondents in one or more country had expressed high interest. In the analysis by sector, only one item was of high interest in all six sectors, with a further nine commonly being of high interest in five sectors, and five in four.

The findings indicate that differences between countries are less significant than those between sectors. Obviously these findings must be treated with a measure of caution since only three countries were surveyed and the response rate was less than 100%, although reasonable with regard to Spain and UK for a postal survey. It is of course desirable that further work be conducted on the target population. However, the findings do represent the best information available for small to medium sized libraries and consequently were used in the development of the DECIMAL Decision Support Module.

Application of Findings to Practice

These findings were operationalised in the development of the DECIMAL Decision Support Module (DSM) in giving precedence to a quite limited number of performance measures/indicators for generation from a library management system, database of management information, and user survey data. The measures and indicators can be presented in numerical and graphical form. The prototype DSM incorporates the facility for defining groups of measures and indicators for a particular sector and the facility for individual libraries to develop their own.

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Figure 11

Table showing performance measures and indicators which are of "High Interest" (70%+) to one or more sectors, and of "Low Interest" (30%-) to one or more sectors

Measure/indicator		COLL	COMM	GOV	MED	PROF	SCHOOL
4	Income generated			0		X	
5	Capital expenditure	0	X			X	
17	Hours service points open	X	0	0		0	
28	Analysis by demographic features	0		0		X	0
30	Remote uses of the library		X			0	0
31	Programme/activity attendance			0	0	X	
32	Library visits per capita			0		X	0
36	Prices index		0			X	0
37	Spend on binding/conservation					X	0
41	Books requested and anticipated	X	X			0	X
45	No. of issues from closed access				X	0	
46	No. of items on loan		X			0	
47	Items not borrowed over a period of time	X				0	
50	Reservations on titles	X				0	
67	Proportion of reading list material provided	X	0			0	
69	Expert check-lists		0			X	
71	Speed of acquisitions and processing	X				0	
73	Overall speed in satisfying requests			X	X	0	
79	Reference transactions per capita		X	0			
83	External cost of ILL service	X	X	X	X		0
84	ILL requests made on other libraries	X		X	X		0
85	ILL received from other libraries	X			X	0	0
86	ILL items sent to other libraries	X			X	0	0
91	Seat occupancy		0	0	X	0	
92	No. of users per reader seat	X	0	0			0
93	No. of items of equipment in library	X		X		0	
96	Facilities use rate		0		X		
97	Services used		X		X	0	
100	Accuracy of catalogue record	0				X	

High [X] and Low [0] interest

Performance-Related Pay - Increasing or Decreasing Performance?

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The adoption of performance-related pay schemes is discussed, with particular reference to the Danish public sector. Increasingly salaries are negotiated locally, with greater focus on individual qualifications and performance. Some Danish schemes are outlined. An example of performance pay for library directors is highlighted. The context of the schemes is analysed; principles and technical aspects are described. Positive and negative effects are discussed. The paper suggests that performance-related pay schemes can be applied in a way that is responsive to professional viewpoints, but the problem remains of *proving* their impact.

There is quite a lot of talk of relating pay and performance, in libraries and elsewhere, and much of it is critical of the idea of performance-related pay. At first this is a little surprising when you consider that the amount of money involved so far is quite small. In fact what makes performance-related pay interesting and important is not the amount of money, but something else. In the discussion about performance-related pay schemes you find in concentrated form many of the challenges and problems which we face in libraries and information services. How do we respond to increasing demands for efficiency and quality services without abandoning professional values? In my view performance-related pay is one of several means to meet this challenge, but it is a means which should be used very carefully.

THE DANISH PERFORMANCE-RELATED PAY SCHEME

As in other Western countries performance-related pay in Denmark was introduced in the late 1980s as part of the modernisation of the public sector. In the beginning the sole aim was to increase efficiency by copying private sector pay mechanisms. More recently there has been a shift in perspective. There is now more focus on development of the public sector, and performance-related pay is seen as one of more incentives to engage staff in the development process. Performance-related pay is not universally accepted in the professions, but the idea that pay should in some way or to a certain degree be related to performance is gaining ground. A new pay system for a large section of the Danish public sector will begin to function in 1998, and performance-related pay is an option within the new system.

The basic pay scheme in the public sector is the traditional system where increase in pay is based on seniority. There is an adjustment of wages in the public sector to the wages in the private sector (increase in private sector will increase wages in the public sector). In addition there is performance-related pay, or locally negotiated pay, as it is called. The system is the same for all state institutions, but it permits of some variation. There are three kinds of increase in pay: permanent, temporary and a one-off bonus (Figure 1). In almost every case some element of individual performance is involved. In the State and University Library the average increase in pay is five to ten per cent of basic salary. Less than one per cent of pay costs is used for performance-related pay. In these respects the situation in our library resembles the situation

Figure 1

State and University Library: performance-related pay 1991-97

Permanent salary increase	Temporary salary increase	Bonus (one-off)	Total
667.486	258.043	562.373	1.487.902

Amount paid in DKK. 1 GBP=11 DKK.

Pay increase to senior management not included. Total wage costs 1996: 55 million DKK.

in many public institutions in Western countries (cf. *Private pay . . ,* 1993).

Within the Danish system there is no standardised approach to performance appraisal, and no appraisal system. All salary increases within this scheme are negotiated with the local union representative. The union representative and the library have to agree if money is to be paid. This means that quite a lot of time is used to discuss the allocation of quite small sums. In fact, one of the standard objections to the whole system is that it is time-consuming. But if you want to develop a performance culture and have permanent change in attitudes of staff, you need a dialogue. Discussion of pay is one of more themes around which to organise this dialogue. And if you have introduced some element of performance-related pay, and thereby made clear that differences in performance have consequences, you can have very productive discussions about performance and conditions for increasing performance.

DIRECTOR'S CONTRACT

In some parts of the public sector there has been reluctance to accept performance-related pay. It is seen solely as another management device. To overcome the scepticism a performance-related pay system for senior management has been introduced: the director's contract. A director's contract is a one-year contract between a director of a state agency and the permanent secretary of the ministry which the agency comes under. By attaining specified results in one year the director will have an increase in salary. The maximum increase in salary is 15 per cent (but in special circumstances it is possible to have an extra of maximum ten per cent). Targets are negotiated in three areas: results of the institution (basic operations/services); strategy and development; human resources. There is a detailed system for performance appraisal (point scale from -50 to +100).

The director's contract is used more and more in the Danish public sector. So far only one library director, the director of the State and University Library, has a contract. Examples of targets from these contracts give an impression of how this concept can be applied in the library world:

1996 contract:

- increase number of loans per staff member involved in circulation (increasing productivity);
- set up development programme for middle management;

and examples from 1997 contract:

- digitisation (formulation of strategic plan; implementation projects);
- staff survey (to uncover job satisfaction and need for training);
- performance-related pay for senior management ("sub-contracts").

EFFECTS

In the case of the director's contract and the sub-contracts with senior management effects are evident. One of the great problems in our library is the negligence of deadlines: you have one till you get a new one. It is a sign of slackness in decisions on work and development priorities. The pay scheme has improved performance in this respect.

Performance has also been improved in other areas. Less resources per loan are used, less resources per book acquired, and a user survey made in 1996 was quite satisfactory. But it is difficult to tell to what degree performance-related pay has contributed to this.

Motivation is the main reason for applying performance-related pay. But the great question is, is performance-related pay motivating or demotivating? In our library we do not know this for certain. Perhaps we will know a little more after we have conducted the staff survey prescribed in the director's contract for 1997! But there are studies of this. There is a study of the system used in the English Inland Revenue (Marsden et al, 1992), and a study of the system used by the Danish Civil Aviation Administration. Both studies show that performance-related pay as applied in these organisations was not motivating and that there was no positive effect on performance. What is emphasised in the two studies is the importance of the appraisal system. When staff members do not trust the appraisal system or the way it is applied there is no motivation or, even worse, there is demotivation. However, the system used in our library and else-

where is based on negotiation. Performance-related pay in the form of a negotiated contract has the advantage of giving the persons involved a say in the formulation of targets and criteria, and that is important as regards motivation. Applied in this way, performance-related pay makes it possible to pay due regard to professional viewpoints, which is an important motivational factor (cf. Davies et al, 1995).

It is of course important that it is known in the organisation what criteria are applied. In the beginning we had some problems with this, as individual effort was singled out for reward post factum, so to speak. Now we try to point out in advance which efforts in which areas are nominated for reward. The contracts with senior management are one example of this.

The importance of pay in general has been studied in the Danish public sector. A study conducted by the Ministry of Finance shows that pay is not the most important factor. Asked "what is most important, if you had a free choice of job?", high salary was not rated at the top. Rated most important were interesting and developing tasks, followed by understanding and respect by management, the possibility of doing a good job, and a supportive environment. On the other hand, the union of clerical workers has made a survey which included questions on pay systems. A majority of clerical workers think that individual qualifications and performance should carry greater weight than they do today.

I think it would be fair to say that a good pay system does not motivate a lot, but a bad one is subversive. A good pay system is a necessary but not a sufficient condition to have a performance culture. A good pay system today is a system which takes account of individual effort. Equality in the strict sense is no longer what is valued. What is important is equity. When everyone has a decent salary and equal opportunities, it is accepted that some get more, if they make an extra effort.

ADVERSE EFFECTS - RELATED BENEFITS

Another important question is: does the introduction of performance pay result in narrowing focus to measurable output to the neglect of less measurable quality aspects? It may be one of the effects, but it is not necessarily so. It is possible to have measurable output as regards strategy and development. We have measurable targets in this area in the director's contract and the subcontracts with senior management. In appraisal of individual effort it is also possible to rate co-operative values, and it is important that we train ourselves in rating this. Like other people library staff want to be treated as responsible individuals, and one way of practising this is to let differences in performance have consequences in pay - not great consequences but enough to have symbolic value.

In much of the literature on performance-related pay the application of performance-related pay in the public sector is seen as obvious in view of its effectiveness in the private sector. However, it is important to stress that the use of performance-related pay in the public sector is not, or is not necessarily, a way of making the two sectors converge. The public sector cannot work on the same principles as the private sector. To put it briefly, the difference between the two sectors is founded on the fact that need and demand are not identical. As regards pay systems this means that what is most important in performance-related pay schemes in the public sector is not its resemblance to private sector wage systems, but the elements which are often treated as "related benefits", ie. the effects on development of services, skills and the organisation.

In discussions of research evaluation you find a distinction between two kinds of evaluation: one supportive, aiming at developing quality and organisation, the other evaluative, aiming at rating or grading the unit in focus (cf. Foss Hansen and Borum, 1995). You could apply the same distinction in discussing performance-related pay: performance-related pay can be used as one of more means to develop the organisation, or as a way of rating people. And, as with research evaluation, some performance-related pay schemes do work as incentives to professional development, whereas others do not.

Still, there is the problem of *proving* the impact of performance-related pay. In our organisation we think it has the effects we want. That is enough for practical purposes, but probably not enough to convince the sceptic. But what kind of proof could you produce? The words "performance measurement" have a scientific ring, and perhaps induce us to

expect unattainable standards of proof in these practical matters. Is it "scientific management" we are looking for? If so, perhaps we should recall the discussion of information retrieval in the early days of computers in libraries. Quite a few tried to convince us that the work of librarians could be performed better by intelligent machines. Today most will agree that computers are indispensable but also that they cannot replace the skills of an experienced librarian. Likewise, in library management, measurement and other "scientific practices" are now part of the toolbox, but discernment, sense of direction and values, and the ability to choose the appropriate tool in the organisational context are still indispensable qualities in management.

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Performance or Measurement?

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The paper questions the current framework for library performance measurement. Libraries traditionally have concentrated on process or activity measures rather than qualitative measures relating to customers and staff. Current concerns with quantitative data collected to meet the needs of a limited group of stakeholders may be harmful to quality improvement and irrelevant to the needs of a digital environment. The paper examines the philosophical basis on which performance measures have been developed and the gap between the measures and current environmental requirements. Using three different models of the academic library (TQM, the digital library and an educational role) an expanded framework of new performance measures is proposed, and concludes that the philosophy of performance should come before the science of measurement.

INTRODUCTION

I believe that current systems of library performance measurement, particularly those in use in academic libraries in the UK, are becoming less immediate to the concerns which face their library managers. This paper seeks a model to explain the gap between the performance of performance measures and the objective for which they were designed; that is, to demonstrate good performance and identify success. In my opinion the gap arises from two main areas: the current data collection methods and structures which both obscure rather than illuminate performance and provide a misleading picture of what performance is or should be; and the implicit model of academic librarianship which informs the choice of current measures. I believe that if we are to perform effectively in the future we need to change our performance measurement system. In effect we can choose between future performance or the current approaches of measurement. Hence the question posed by the title: performance or measurement?

If the current model of measurement is wrong, what is it about it that is wrong? If we need a new model or system how can it be developed? To answer the first I will attempt to use an analysis drawing on philosophy of science; to answer the second I will use three hypotheses relating to the future of libraries which might help to provide a better framework for performance measurement.

PHILOSOPHICAL ORIGINS OF CURRENT LIBRARY PM MODELS

Scientific reasoning might operate in a number of ways, and philosophy of science explores, amongst other issues, how scientific theories are formed (Hempel, 1966). Typically two types of reasoning are thought to be employed in the formation of theories:

Inductive

Inductive reasoning is based on observation of the world leading to the formation of theories; for example, the observation that all swans seen are white leads to the development of a theory that all swans must be white.

Hypothetico-deductive

Hypothetico-deductive reasoning is based on an a priori assumption which can then be used to deduce consequences; for example, for many centuries medical treatment was based on the assumption that illnesses were caused by an imbalance of the four humours, and all treatments were based on correcting this imbalance.

It seems to me that library performance measurement is based very much on the former method of reasoning. We count everything we can and then attempt to construct a performance measurement system based on the observations. Thus library measures concentrated firstly on collections, then

activity associated with collections, and then on users and usage. Finally financial issues impinged. This implicit order of significance can be seen clearly from the order in which the elements follow each other in the UK SCONUL Statistics (SCONUL, Annual).

Apparently a change occurred with the publication of *The Effective academic library* (hereafter EAL) (Joint Funding Councils' . . , 1995). But this publication suggests to me a third type of reasoning in creating performance measurement systems:

Inductive Posing as Hypothetico-deductive

EAL appears to start from a hypothesis based on quality theory. However, the prior existence of collected statistics seems to have influenced the final product away from the logic of the original hypothesis and back towards counting what we can count or have always counted. The effects of this were the area of "effectiveness" being replaced by "delivery"; "customer satisfaction" being deemed unworthy of national collection; and "integration" being relegated to a set of qualitative statements. The result is that a complex set of non-intuitive indicators based on traditional counting assumes precedence. Thus it seems that new rationales for performance measurement do not replace the former primarily inductive observations, but sit somewhat uncomfortably at the margins. I believe that, because of this, what we are now collecting and publishing as library performance measures are becoming increasingly divorced from the needs of practitioners in demonstrating performance to our various stakeholders. The following is a collection of personal influences and environmental factors which lead me to this conclusion.

CONVERGENCE

Working in a converged service requires a broader perspective on performance measurement. Whilst libraries have traditionally been much more active in statistical collection than university computer centres, there is much to learn from both sides. Computer centres can teach libraries about project management and associated measures, and also about a more rigorous approach to help and enquiry work data through use of help desk software. Some of the activities which led to the creation of converged services (Internet access and gateways, the Web, and campus information systems and intranets) require performance measures to be created for them. The majority of UK university library services now fall within some sort of converged situation. This is not adequately reflected in national statistics.

COMPETITION AND CONTRACTING

I work in a competitive environment and have described the background elsewhere (Town, 1987). I have a main client, and customers who are paid for by that client. Both must be satisfied. Customer satisfaction is critical, so is the ability to deliver that satisfaction at a competitive price. This tends to concentrate the mind on performance rather than measurement.

ACCOUNTABILITY AND SUCCESS

Partly because of the point above, I seek clarity on how to account for what I do, and how to define success. It seems to me that we all need to account for the investment made in our libraries to both national and local stakeholders. One of the difficulties encountered in our benchmarking exercise with 20 other UK academic libraries was choice of partners (Town, 1995). The published national statistics did not provide us with much help in seeking excellent libraries. It seems to me therefore that what we currently collect and publish nationally does not provide a simple and transparent account for the investment made in academic libraries. Nor does it provide adequate information for presenting to local stakeholders.

When I meet my line manager to review the performance and progress of my department, the meetings are structured around finance, staff and projects. I am happy with this approach because it matches the first three areas of my time management system. The data for discussing all three are not available from traditional library statistical collections. Whilst the historical trend data from the mass of quantitative data we collect are useful, this information has become an increasing irrelevance in our Annual Report. Qualitative data from surveys and student feedback, and the number of developments and improvements made in response to customer demands, provide a much clearer and more acceptable account for local stakeholders.

PERFORMANCE ASSESSMENT IN UK UNIVERSITIES

UK universities are required to account for their performance in teaching and research by various mechanisms. These mechanisms involve both quality assurance and traditional patterns of peer review. The Research Assessment Exercise is an example of the latter; Academic Audit and Teaching Quality Assessment of the former, although as a score is given for Teaching Quality it also begins to look like peer review. The question arising from this is why UK academic libraries have developed and retained a performance measurement system based on batteries of performance indicators when the standard methodologies of the higher education enterprise now take a different approach?

DECISION SUPPORT

How many of us now employ the figures we collect for SCONUL statistics for decision support? In my recent experience of looking for serial cancellations, there was a need to develop a completely different database of information to help support our final decisions. This included information on usage of titles, cost by subject, academic judgements of serial quality, and electronic availability. Little of this data is routinely collected, despite the fact that this is our largest area of acquisitions expenditure. Counting use of serials is difficult; counting loans of books is not. The logical balance of effort in assessing usage should surely be towards the largest expense items. This is not the case at present.

STAFF ISSUES

The key issue in my experience in running a successful service is the performance of staff. There are obvious reasons why there is a reluctance to share data on staff performance; but how are we then to account for what is often our largest area of expenditure?

CURRENT PROBLEMS WITH LIBRARY PERFORMANCE MEASUREMENT

W. Edwards Deming (Deming, 1986) suggested that one of the "Seven Deadly Diseases" of Western industry was "Management by use only of visible figures, with little or no consideration of figures that are unknown or unknowable". This criticism could be levelled at the current state of library performance measurement generally, at least as it appears from national and international approaches to data collection and performance measurement. Visible measures in industry are short-term financial, and ignore customer satisfaction, employee morale, or community impact. Library measures, whilst not being solely focused on the former, have certainly neglected the latter. The problem with not adjusting our measurement systems is put succinctly by Elizabeth Ingold: "If you always do what you've always done, you'll always get what you've always got". Dixon suggests that "Performance measurement should be geared towards embracing change that will enable organisations to reach competitive supremacy".

Another problem with performance measurement is that the measures chosen implicitly begin to define what is important. G. L. Smith points out that "The reality of measuring unconstrained human behaviour is that the act of measuring a particular indicator will induce behaviours which have as their objective maximising performance of the indicator, virtually regardless of its effect on the organisation as a whole". In other words, "measures don't track behaviour, but rather behaviour tracks measures". Oakland (Oakland, 1993) criticises the performance measures used by industry: "Typical harmful summary measures of local performance are purchase price, plant efficiencies, direct labour costs, and ratios of direct to indirect labour. These are incompatible with quality improvement measures such as process and throughput times, delivery performance, inventory reductions, and increases in flexibility, which are first and foremost non-financial".

If we analyse the kind of measures suggested by Deming and Oakland and assess the data collected in SCONUL statistics and the measures suggested in EAL, we can see the mismatch from Figure 1.

THREE HYPOTHESES

In order to try to develop a new framework for academic library performance measurement in the UK employing a hypothetico-deductive approach, I would offer three different hypotheses which might assist in defining measures. These are:

Figure 1
Mismatch between measures

	Deming/Oakland	SCONUL statistics	EAL
1.	Satisfaction	X	QA & local only
2.	Morale	X - Staff numbers	X - Efficiency
3.	Impact	X	X - Delivery per student
4.	Throughput time	X - Process numbers	X
5.	Delivery performance	X - Delivery numbers	Local service standard? X - Economy
6.	Inventory reductions	X - Inventory size & increase	X
7.	Flexibility	X	Local development targets?

- Total Quality Management
- Digital developments
- Library 'Development Stage'.

Hypothesis 1: Total Quality Management (TQM)

TQM provides a ready-made framework for performance measurement. Tenner and DeToro (Tenner and DeToro, 1992) suggest that TQM consists of three activities: Customer Focus, Process Improvement and Total Involvement of staff which lead to Continuous Improvement. Customer Focus and Satisfaction might depend on successful identification of customers, understanding customer expectations, and understanding customers at a deeper level through techniques such as designed surveys, "mystery shopping" and benchmarking. All have been tried in libraries, but with little impact on national and international performance measurement approaches.

Critical Success Factors (CSFs) provide one basis for defining performance measures in a TQM organisation. At RMCS our current CSFs are as follows:

- Understanding and defining customer need
- Meeting current and anticipating future customer need
- Gaining, planning and using resources
- Leadership
- Competent and committed staff
- Competent users
- Reliable systems
- Effective help
- Satisfying customers.

They are all designed to be equally understandable and applicable in all areas of a converged service. The statistics we collect in the library as a supposed aid to performance measurement are of little help in assessing if we are achieving success in these areas.

TQM and related philosophies can provide a number of other suggestions for performance measurement. The work of Zeithaml, Parasuraman and Berry (Zeithaml et al, 1990) and their SERVQUAL approach to measuring service quality is now being used in some academic libraries. The main result of drawing on a TQM hypothesis for performance measures is the inescapable conclusion that customer satisfaction is the critical measure, as exemplified in the following quotes:

- "For all quality management systems customer satisfaction is the central concern"
- "Only customers judge quality"
- "Service quality is ultimately where the customer says it is. . . "
- "Service quality consists of a bundle of experiences weighted by customer expectations"
- "The most important and relevant data will be that provided by library users".

Hypothesis 1: Measurement Conclusions

Thus the measures, or the activities which produce measures, suggested by this hypothesis are:

- Satisfaction surveys

- Designed surveys for improvement
- Benchmarking
- Customer care, involving measures of
  personal service
  materials service
- "Mystery shopper"
- SERVQUAL
- Process throughput times.

Hypothesis 2: Digital Developments

My second suggestion for a hypothesis on which to base a future measurement system is the recognition of an increasingly digital future for information services. Three areas suggest themselves for consideration:

Information Strategies

There is a current demand by UK Funding Councils for UK Universities to have an "Information Strategy". This demand is a further development of the trend in which there have been previous fashions for IT strategies, then IS strategies. The third phase arises from the recognition that University "information" resides in other places than libraries and IT centres and particularly in MIS data. This perhaps rather obvious observation has provoked expense of time and effort in trying to define, develop and pilot information strategies. The conclusions for measurement are however straightforward. Strategies are designed for change, therefore measures of change achieved are going to be important. Secondly, the strategy should be based on the information needs of those working within the institution; therefore measures and methods of assessing need are critical to a successful strategy.

Virtual Library

The Virtual Library is already quite rightly beginning to generate its own subfield of performance measurement. Irrespective of what model of the future we ascribe to in terms of Michael Gorman's visions of "Dreams, Madness, or Reality", the shift of focus from the university library to the user's desktop will have a profound effect on information services and the performance measurement thereof. Firstly the extreme view of complete "demediation", with all information freely available on the Internet and the consequent death of libraries, books, and literacy, would also clearly result in the death of library performance measurement. Network activity measurement might need to replace it, but it seems to me that current efforts to produce counts of electronic document use across networks are being undertaken merely as an extension of the current forms of statistical collection. To a director of a converged service it seems inappropriate for the library element to be seeking or demanding very complex counting of the use of certain types of electronic information just because they are replacing information formerly held in hard copy in the library, while no effort is made to count the mass of other information use happening over the network. Work done in acquiring, storing and lending traditional forms of information may have been worth recording in the past when this involved effort; counting use in an interim stage may be interesting for various reasons; counting this activity in a mature electronic future seems pointless, when the library is contributing nothing to the supply chain and no longer "owns" the service in any realistic sense. The collapse of the supply chain may also of course destroy the need for throughput measures. Future performance measurement will then need to be focused on the areas in which the future library service is actually active. "User education at distance" measures may be all there is to measure.

Teaching and Learning Developments

Management of collective learning systems employing multimedia programmes may become a future role for libraries; if so, appropriate performance measurements will need to be developed.

Hypothesis 2: Measurement Conclusions

This hypothesis suggests the need for:

- Project management measures
- Supply chain shortening measures
- The abandonment of all collection and document delivery measures
- Help desk software based measures (outcome)
- "User education at distance" measures
- Collective learning system measures.

Hypothesis 3: Library 'Development Stage'

Both the above hypotheses hint at the need for libraries in higher education to think more broadly

about themselves, their role and philosophy, as well as about their systems of performance measurement. This point was made by Lancour as long ago as 1951 (Lancour, 1951), and reiterated by James Thompson more recently (Thompson, 1991). The latter's *Redirection in academic library management* is based around a historical analysis of what is often the main vehicle for accounting for a university library's activity: the Annual Report. Lancour suggests that there are three stages of academic library development:

- "Storehouse" period
- "Service" period
- "Educational function" period.

That Hypothesis 1 above is not widely considered as a basis for library performance measurement reinforces Thompson's conclusion that, over 40 years after Lancour wrote, our libraries have still not fully progressed to stage two. The conclusion for performance measurement of moving to stage three is an acceptance that we must measure the educational impact of our activities. Previous authorities have suggested that "higher order" or "impact" effects are difficult to measure, interpret or act upon (Abbott, 1994). In a digital future there may be little else to fall back on. Cyert suggested that "the critical educational aim is ensuring that students learn to learn"; therefore perhaps we should set about demonstrating that our activities have had this effect on students by quantifying how their "information literacy" has improved. This might involve measuring competence on arrival within the institution and competence on departure.

A stronger educational role also demands closer organisational fit, and like Hypothesis 1 therefore suggests a stronger marketing activity and a greater importance for measures of "integration". Juliet Williamson has created an approach in industry called "integrated marketing" which seems relevant to libraries here. This suggests the marketing of the organisation (or library) as a "Master Brand" both within the organisation to staff as well as to the marketplace. This is intended to achieve a situation where products and services match the behaviours and attitudes of staff, the measure of excellence being when "employee motivation matches customer satisfaction". The idea of a library brand may seem foreign, but in reality most academic libraries have an implicit brand which their customers could readily define for them. In the digital future when we no longer have a monopoly on the supply of information and we cannot rely on buildings or staff to reinforce our value, a recognisable brand for the information we supply may be the guarantee of survival. "Our" information may be differentiated from competitors', and customer confidence can be built in our conduits or value-added services, resulting in a continuing partnership.

Hypothesis 3: Measurement Conclusions

The following bases for measurement are suggested:

- Impact
- "Competence improvement" -based user measures
- Market segmentation:
  - all financial measures
  - all collection measures
  - relationship and activity measures
- Brand definition and performance
- Message penetration:
  - customers
  - staff.

STAFF

Finally a word about staff in relation to performance measurement. All three hypotheses suggest that staff and staff development are critical to the future of libraries. This applies in a TQM environment where total involvement of staff is required to achieve excellence; in the digital future where staff will retain a role only if they continue to add significant value and remain in "high touch" with their customers; and in a library in the "educational function" stage of development where the library staff will be as critical to the educational process as academic staff. Our current performance measurement systems and statistical collections treat staff merely as snooker balls of different colours, where type and notional value are the main considerations. A more sophisticated approach is clearly required.

Leadership, teamwork, staff involvement in improvement, staff competence and commitment, morale and culture, and staff development are all critical to a successful library. There is currently no

agreement on appropriate or common measurement systems in these areas within libraries. There are however measurement systems and standards in existence, for instance the Investors in People (IIP) award scheme in the UK, which can provide suitable frameworks. At RMCS the experience of gaining IIP, in taking up Blanchard's Situational Leadership II model, and assessing staff views of departmental quality through a standard indicator have all been very significant factors in our organisational development.

Staff Measurements: Conclusion

Thus, measures or systems which might assist in the area of staff:

- Leadership model and penetration
- Leadership audit
- Departmental indicators
- Staff appraisal and development systems
- Team performance
- Cultural analysis
- IIP
- Time management, allocation and key result areas.

NEW FRAMEWORK

In order to provide some positive synthesis from the three hypotheses I would offer the following:

Integration

The key to the future of information services in any scenario will be the ability to match services very closely to what their customers require. Funding models will almost certainly be increasingly linked to precise university activities, and the degree to which central services demonstrably play a role in supporting those activities will determine their share of the resources. Measurement of integration therefore becomes the primary dataset required for survival. The logical conclusion therefore is that all library measures should be presented from a subject perspective, as this is how universities are obliged to present the bulk of their data. All current approaches tend to be based on statistics for the overall library situation.

Improvement

In order to develop towards the digital future, change is self-evidently necessary. Both customers and paymasters want improvement. This means libraries and information services must demonstrate effective management of development and improvement projects. The significant qualitative differences amongst UK university libraries are not usually apparent from published statistics, although hints may be drawn from trends. The qualitative differences may often stem from the willingness of the library to engage positively with change, and the degree to which the organisation can gear itself not just to coping with "business as usual" but to achieving successful developments. These may be either practical service improvements or significant strategic or service developments. We need to develop measures which can be used to show both this responsiveness and the ability to manage and complete projects.

Customers

I do not believe that it is satisfactory to leave customer satisfaction measures out of national collections, or indeed for libraries to ignore customer-related data altogether. It could and should be one of the most powerful datasets in our armoury. In comparison to many other services and industries our general satisfaction ratings tend to be very high. Rather than questioning the validity of this or blurring the results by discussions of comparative expectations we should perhaps be taking some pleasure from the achievement. Integration and customer-related data together demonstrate "effectiveness" in the academic setting. They can show, much more clearly than the general activity and usage data we currently collect, that we are doing the right things and that what we do is satisfying our customers.

Staff

Staff provide the key competitive difference in universities generally. Customers of universities often make their choice on teaching and research excellence, and those aspects are delivered by people. Libraries could share this approach by measuring and presenting staff performance more openly; in some areas, for instance staff development, we may often be ahead of our colleagues.

Value Added

We operate an information delivery chain. That

chain may be open to much greater competition in future, and we need measures to reflect the value we add. This cannot be done by simple quantitative counts of items selected, processed, indexed or catalogued. We need to develop systems to measure precisely what value these activities add for the customer.

Value for Money

Despite criticisms above of financial measures, we all have stakeholders who require efficiency, value for money or simply low costs. Current published measures often obscure rather than illuminate comparisons of unit costs. It is an unusual business that cannot say precisely how much it costs to deliver any of its products, and I do not believe we will continue to get away with it. Work is obviously needed to reach agreement on how these unit cost measurements might be derived and standardised.

Learning?

Finally we need some measures which directly link our activities to learning. We need to demonstrate the contribution that we make to the enterprise, even if the enterprise itself finds it difficult to define outcome measures.

CONCLUSION

The philosophy of performance should come before the science of measurement.

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Report on the Workshop for University Librarians in Africa on the Collection and Use of Library Statistics, Harare, Zimbabwe, August 1997

J. Stephen Town

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The background, objectives, programme and outcome of the five-day Workshop are reported. The support of the Swedish International Development Co-operation Agency is outlined. Details are given of participants, exercises to discover local context, the resulting statistical datasets developed, and some real-life case study questions used.

BACKGROUND

"African university libraries seem to have remained on the sidelines of debates and action on library statistics . . . there are no discernible results in the collection of comparable data in Africa's libraries, or more specifically in the university library sector . . . no guidelines have been written, either at the national or wider African level.

"A recent report (Rosenberg, 1996) has underscored the need for urgent action to improve library statistical collection . . . statistics were not collected regularly or in a systematic way . . . those collected were said to be inaccurate . . . many estimated . . . records subsequently lost. Statistics were rarely used for decision-making . . . libraries did not have access to expenditure figures. Definitions differed, making comparisons impossible.

"The aforementioned report recommended that training at the postprofessional level be provided in the area of statistics - what to collect, how to collect, how to use in decision-making, how to compare. It is therefore proposed that a Workshop be held for librarians from Sida: SAREC-supported university and research libraries in Africa, both to raise awareness of current developments in library statistical collection and to devise guidelines appropriate to African countries."

Diana Rosenberg (Rosenberg, 1996)

[Sida: SAREC is the Swedish International Development Co-operation Agency (Sida) department for research co-operation with developing countries (SAREC).]

AIM

To provide university librarians in Sida: SAREC-supported libraries with the knowledge and skills:

- to collect statistics which are appropriate to their needs, whilst being compatible with international standards;
- to collect statistics which are comparable with those produced by other libraries;
- to use these statistics in library management.

LONG-TERM AIM

- the acceptance and application by all university libraries in Africa of the statistical guidelines agreed at the Workshop;
- the establishment of mechanisms to compile and publish statistics initially of Sida: SAREC-supported libraries and ultimately of university libraries throughout Africa.

SPECIFIC WORKSHOP OBJECTIVES

In the context of Sida: SAREC-supported university and research libraries in Africa:

- to explore the value and purpose of library statistics and their collection;
- to develop guidelines on the categories to be collected, according to local requirements;
- to develop guidelines on the procedure for data collection, with specific reference to realities in African university libraries;
- to offer guidance in methods of statistical analysis, interpretation, presentation and comparison;
- to identify uses of statistics for library management and decision-making;

- to discuss appropriate mechanisms for the compilation of statistics on a national, regional and all-Africa basis.

Sida: SAREC

The task of the Swedish International Development Co-operation Agency's (Sida) department for research co-operation with developing countries, SAREC, is to support research efforts that contribute to the development of third world countries. The ultimate aim of Sida: SAREC's library support programme is to facilitate the building of national research capacity and research activities through providing adequate tools for research. The programme started in 1984 and now encompasses 15 scientific libraries in eight countries.

Within the library support programme provision is made to support one technical workshop a year.

PARTICIPANTS

Countries represented included Eritrea, Ethiopia, Mozambique, Tanzania, Zimbabwe, and Sri Lanka and Vietnam. Diana Rosenberg was the Workshop Co-ordinator, and the University of Zimbabwe provided local support.

WORKSHOP PROGRAMME

The aim of Day 1 was to get all participants to the same point with respect to theory, definitions and a quality management framework for the consideration of statistics, drawing heavily on recent UK developments.

Day 2 focused on local context: institutional environment through assessing how much power each group of stakeholders has, and library context through Critical Success Factor development. These defined the areas of measurement for which statistics would be required.

Days 3 and 4 were the workshops to debate and define statistics and collection methodologies. This involved group work by participants, with plenaries to finalise each area.

Day 5 attempted to take participants beyond counting to accounting, comparing, benchmarking and presenting, using some "real" case study exercises to practise analysis and synthesis of statistics to aid decision-making.

STAKEHOLDER POWER MATRIX

The object of the exercise is to plot the various library stakeholders on the matrix according to their power to influence the library and their degree of interest in doing so, by assigning a "high" or "low" score to each factor. Participants were then asked to use this to assess the meaning of this for library performance measures and to decide what to do about it.

A consensus largely emerged from the three working groups on the scores for similar stakeholders, and a mapping of the correspondence between particular types of measures and stakeholders was made. Conclusions were also drawn about how measures and their publication might be used to increase the influence or interest of some stakeholders and reduce or neutralise the excessive influence or power of others.

CRITICAL SUCCESS FACTORS (CSFs)

The object of the CSFs exercise is to develop a framework for library performance measurement. Participants are asked to brainstorm all factors affecting the library's mission, to group these, generate and agree a small set of "we must" statements all of which are necessary to the organisation's success and which together are sufficient to encompass all the library's activities. The set of CSFs stand between the more general mission of the library and its operational activities and provide a broad message to staff about what is important, and lead directly to defining the key performance measures.

A consensus emerged here around the following factors and possible resulting measures: staff, funding, materials, management and policy, collections and retrieval, communication, physical facilities, IT and infrastructure, user education, and service.

RESULTS OF THE STATISTICAL DATASET WORKSHOPS

Key issues which emerged included the problems of reliance on non-automated methods of data collection, the need to move away from "storehouse" measures which fail to reveal the lack of currency of many collections, realism in stocktaking, throughput and delivery times, access to financial information, and the increasing need to measure customer satisfaction.

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- to develop guidelines on the procedure for data collection, with specific reference to realities in African university libraries;
- to offer guidance in methods of statistical analysis, interpretation, presentation and comparison;
- to identify uses of statistics for library management and decision-making;

It is not possible to provide the full set of elements decided upon here. Synthesis of the work produced by the two working groups is not yet complete. Each group produced a set of data elements under the following general headings:

- physical facilities
- collections
- clientele
- use and services
- staff
- finance
- satisfaction.

Definitions and collection rules were also provided, together with comments on practicality, inclusions or exclusions, and when to take sample counts. Discussion followed to pick up differences between the two groups' recommendations, to resolve differences arising from institutional variation, and then take into account the international dimension. Decisions were then assessed against the results of the Stakeholder and CSFs exercises.

The final document for data collection will be produced in the immediate future. It will then be assessed and approved by the Workshop participants, further comments incorporated, and a final version will be issued to Sida: SAREC-supported libraries for piloting over the next academic year.

CASE STUDIES OF PRESENTATION OF USE

Three "real" case studies were used to practise analysis, investigative collection, comparison, presentation and decision-making from statistical data. All were based on UK experience but were chosen for relevance to African situations. Question 2 was based on data obtained in a benchmarking exercise between Cranfield University's RMCS Information Services and Surrey Institute of Art and Design (SIAD), and I am grateful to Marion Wilks, Director of Information Services at SIAD, for permission to use the data.

CASE STUDY QUESTIONS

1. You have the SCONUL statistical return for a university with three campuses. Use it to try to tell the story of the three campuses - what are the main differences and what anomalies can you detect? Why is the aggregation unhelpful? What is missing which would enable you to describe the libraries and their service completely?

2. Your university President wants you to prove that your library is competitive with other similar libraries. What method would you use to provide the proof and what statistics or measurements would you need to do so?

3. You need to cut the number of serials you take because your budget is not keeping up with inflation. You believe that some serials are no longer used because those subjects are no longer taught. What data do you need and what action would you take to achieve the cuts whilst keeping both academic staff and senior management happy?

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Making Performance Measurement Influential

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This paper explores the purposes of performance measurement and the factors which make performance measurement influential. It considers the influence of UK public and academic library measures and of international standards, before drawing some conclusions and making some proposals for future success.

INTRODUCTION

How many of you, like me, have toiled away producing lovingly crafted performance measurement data, only to find it disregarded and ignored by our colleagues, our masters and our customers. I am aware of at least three formal "Library Review" Panels which were presented with hard data reasonably well expressed but steadfastly refused any serious consideration in favour of reliance on personal judgement. This paper aims to address the reasons why this happens.

THE PURPOSE OF PERFORMANCE MEASUREMENT

People provide:

- the performance which is measured
- the data collection and analysis
- the target audiences
- the resulting actions.

The key purpose of performance measurement, sometimes forgotten, is therefore to influence people - their behaviour and their decision-making. Meeting "scientific" or statistical criteria of validity is only a secondary consideration. Numbers are used for narrative effect. As Nancy Van House said at this conference in 1995:

> "We make sense of the world by telling one another stories . . . We cannot do evaluations simply with anecdotes . . . the numbers are the evidence that supports the story" (Van House, 1995, p.7).

This fundamental point has the immediate corollary that it is no use expecting the numbers to tell you what the story is or how to tell it. What the story is depends on our own perception and judgment. How to tell the story should be based on what influences people. We need to consider:

- our assumptions about people
- styles of thinking
- the context of current concerns of the projected audience
- and to identify clearly which audience.

To avoid diverting into a treatise on human and social psychology, we might exemplify the point about assumptions by reference to the well-established notions of "Theory X" - people need to be tightly controlled to achieve work output - and "Theory Y" - people can be motivated positively towards work by suitable management. Different assumptions would point to different performance measures and different presentations. We need also to bear in mind the different styles of thinking predominant in different cultures and different occupational areas.

	Styles of thinking
Science	numbers, equations, graphs
Social Science	scales, percentages
Humanities	narrative, reasoning
Arts	pictures, objects.

An audience of artists would be totally unimpressed by reams of statistics; an audience of scientists might be less influenced by purely visual images; and so on.

It will also be unhelpful to ignore the current contextual concerns of the parent organisation of the library - something librarians have perhaps too often done. To apply Maslow's hierarchy of needs, from bodily needs through to esteem, if organisational survival is at stake, comparisons arguing the need for more library resources will be more effec-

tive when related to organisational survival than to external library league tables. In different contexts performance measurement may be more or less worthwhile. In a context of:

- explicit customer-orientation (charters)
- economy
- accountability (explicit targets)
- published results
- external audit,

there is much more likelihood of library performance measurement attracting interest than in a more hierarchical, rigidly stratified society. It is therefore now worth putting more effort into performance measurement than in years gone by.

Lastly in this section we need to ask the question: Which people? Here modern "stakeholder" analysis offers helpful guidance. A simplified categorisation of "stakeholder" groups and their roles might run:

- parent organisation - objectives setters
- library managers - decision makers
- library staff - service providers
- customers - users
- purchasers - funders.

It is foolish to assume that all these groups, let alone sub-categories, will be interested in the same aspects of performance, and therefore the same measures, or that the same measures will always be taken to support the same judgments. And yet much of the literature of performance measurement shows little apparent awareness of these issues. We now look at some examples.

SOME EXAMPLES OF LIBRARY PERFORMANCE MEASUREMENT

Example 1: UK Public Libraries

In the United Kingdom there is a long tradition of national collection of library statistics. The standard (but still voluntary) approach is managed by the Chartered Institute of Public Finance and Accountancy (CIPFA), which for many years has reported statistics on resources and some outputs such as books issued and numbers of libraries. CIPFA achieves a high but not universal return of data. In recent years attempts have been made by the Library and Information Statistics Unit at Loughborough University to make more use of the available historical trends data, but take-up and interest is far from universal.

In the late 1980s the American firm King Research was commissioned on behalf of the UK government to produce a methodology for a more comprehensive set of performance measures for public libraries. The resulting volume *Keys to success* (1990) set out a quite complex framework of indicators. It did not catch on because of its complexity and other flaws.

Likewise, in the early 1980s, an attempt to apply business-like approaches to library performance measurement by an agency called the Centre for Inter-Firm Comparison failed. The project produced a proposed framework after much labour, but libraries were generally unable routinely to produce the levels of cost data required. Another problem for both methods was the absence of firm encouragement, from an authoritative agency for library participation, to counteract the manifest requirement to put in effort on costing which was not generally valued by librarians or their local authority bosses.

In terms of compliance and participation, much more success has been achieved by a UK government initiative called *The Citizen's charter,* begun in 1991. The crucial difference is probably that public reporting of performance is a legal requirement, so all those responsible have a clear motive for compliance. The initiative covered many areas of public service, including the entire operation of the local councils who run UK public libraries, and aimed to offer the citizen (Audit Commission, 1992) six "Principles of Public Service":

- standards
- information
- openness
- choice
- accessibility
- putting things right.

The specific performance measures for libraries were five:

- issues per capita of books and other items
- number of libraries open x hours per week
- number of visits to libraries
- expenditure per capita of population on books etc.
- net expenditure per capita of population.

These were chosen after considerable discussion around the usual problem of how to maintain representativeness when only a few indicators can be used. Given a government requirement, the indicators have been universally and consistently applied and published.

A recent UK government paper *Reading the future* (Department of National Heritage, 1997) has proposed the addition of some new indicators, focused very much on efficiency and usage - "quality and quantity of service" - rather than resources, plus two interesting new features:

- Annual Public Library Plans - "policies, services, targets and standards . . . previous year's targets";
- benchmarking - over time, with similar authorities, with national averages.

Both these new activities have already been piloted and the whole enterprise has been backed up by a further Audit Commission exercise to establish and disseminate good management practice. While the approach taken may have been more attractive than some previously, the key element is the very strong motivation of government requirement.

Example 2: UK Academic Libraries

The historical tradition of performance indicators work in UK academic libraries is well represented by the SCONUL 1991/92 *Statistics* (SCONUL, 1993). These contain data on:

- accommodation
- seating
- shelving
- collection size
- number of users
- outputs
- staff numbers
- expenditure
- income.

They illustrate a typical development of performance measures in any area of librarianship, reflecting the changing concerns of librarians:

commonly used measures: historical trends

- data on expenditure, resources: the virility phase;
- data on throughputs (ie. work done): the analytical phase;
- data on outputs: the productivity phase;
- ratios and cookbooks: the recipe phase;
- customer satisfaction surveys: the customer phase;
- measures of impact/quality: the quality phase;
- sophisticated software: the computerised phase.

Unfortunately they also illustrate in their neglect by universities the pitfalls of performance measures which are not well attached to organisational goals. In 1993 the four UK Higher Education Funding Councils asked that "a coherent and generic set of performance indicators for libraries should be developed as soon as possible" (Joint . . , 1993). The outcome of the committee set up to implement this, dominated by librarians, was a publication called *The Effective academic library* (Joint . . , 1995). This proposed 35 standard indicators grouped within five aspects of performance: Integration, User Satisfaction, Delivery, Efficiency, and Economy. Meanwhile, *The Times* league table of universities reduces library evaluation to one statistic: spending per student.

Consultation with the higher education community produced a large volume of responses to *The Effective academic library* which might unkindly be summarised as "There are too many indicators here. You should add another indicator on . . . " . After some delay the Funding Councils and Vice-Chancellors responded by seeking "half a dozen indicators". SCONUL has now obtained funding for a nine-month project to devise and test a proposed set.

Alongside all this, again prompted by pressure from government, the Higher Education Funding Councils had begun to evolve processes for the assessment of teaching quality. Processes vary in England, Wales, Scotland and Northern Ireland but are broadly similar. In England, after a very poor start on libraries, this process has arrived at a sensible coverage in which:

- learning resources is one of six aspects of provision;
- an aide-memoire for Assessors is written by SCONUL;
- the aide-memoire for Assessors is explained and expanded for those being assessed.

This is arguably a good example of what can be achieved when proper notice is taken of the organisational environment and the resulting motivations.

Example 3: International Standards

This section is for space reasons a very superficial overview. But the same historical pattern of development can be perceived:

- statistics (UNESCO)
- cookbook 1 (IFLA)
- cookbook 2 (ISO)
- Management Information Systems (European Community-funded projects).

Other papers at this conference report on progress, but it seems fair to say that there is a similar pattern of slow development and rather limited impact on the world outside libraries. But the sponsorship of international organisations has certainly achieved a higher profile than would otherwise have been the case.

CONCLUSIONS

1. The literature until the late 1980s is:

- too statistical: complex statistical presentation (or statistical naïvety),
- too obscure: availability, document exposure, collection bias,
- too complex: detailed breakdowns, cost-benefit, failure surveys,
- too few clear objectives or models of reality.

2. The literature since the late 1980s is:

- less mechanical
- more explanatory
- nearer to real decisions
- some recognition of real audiences
- too complex
- too numerically oriented.

3. We need to identify the potential audiences, in 1990s jargon the "stakeholders", and their needs. A simple categorisation would be:

- parent organisation - objectives setters
- library managers - decision makers
- library staff - service providers
- customers - users
- purchasers - funders.

PROPOSALS

The varying stakeholder needs might be identified as follows:

(a) Parent Organisation wants:

- relevance, user satisfaction, delivery against objectives, efficiency, economy;
- simpler than *The Effective academic library;*
- mix of data;
- comparability;
- benchmarking.

(b) Library Managers need performance indicators with:

- more detail and complexity (but do they WANT it?);
- overall, service area, and lower level data;
- inter-relationships (ratios);
- efficiency and effectiveness;
- training and support.

(c) Individual Staff/Teams want performance indicators with:

- simple throughput/output/customer response data for their services;
- historical trends;
- authority to act on results;
- how well am I (/are we) doing?
- praise.

(d) Customers want performance indicators which:

- are simple to understand;
- reflect their concerns;
- will influence the library staff, management and parent organisation to act in the customers' interest.

(e) Funders want:

- financial data;
- confirmation of wise spending, economy and cost-effectiveness;
- overall data.

In handling all these, we need to shift the focus of research away from complexity and towards the particular needs, remembering always **three golden rules**:

- tell a story - clear rationale;
- different language for different audiences (style, context);
- focus on informing actual decisions.

Finally, remember that libraries are well ahead of many other services in developing effective performance measurement.

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SEMINAR PAPERS
and
POSTER SESSIONS

ACADEMIC LIBRARIES

Setting Standards and Monitoring Performance: The Experience of Information Services at the University of Sunderland

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This short paper presents the University of Sunderland's approach to and experiences of introducing service standards. It covers how the standards were set, then considers the standards themselves and how they are monitored. It concludes with some thoughts on what the benefits have been both for the staff and for their customers.

SETTING STANDARDS

Our starting point for setting the standards was to define our core customer services. We deliberately decided to set standards rather than service level agreements. We wanted to define a minimum level of service that the customer could expect that was not dependent upon some other department, school or individual. This meant that we would be responsible and accountable for our own performance.

The next stage was to get ownership of the standards throughout the service and there was much discussion and debate with all staff and especially those responsible for the services as to what the minimum standards should be. Our standards were then approved by our senior management team and the Directorate of the University.

THE STANDARDS

The content and focus of the standards were very deliberate; for example, academic liaison is listed first as we regard this as key to our service. So also is listening to our customers and eliciting customer feedback which is listed next. This deliberate focus was also beneficial in that our staff too could see the key areas of service.

The standards also concentrate on outputs or delivery of service; for example, we say interlibrary loans will be supplied within ten days. We did not publish how soon we would process interlibrary loan requests: that is an internal standard. We deliberately focused on the standard which would be of most interest to the customer ie. in this case how soon they can expect to receive the book or article they require.

PUBLICATION OF THE STANDARDS

Once published we did not "hide" our standards away. A copy was distributed to all the staff in the University including our own. They are also published in handbooks and guides given to all new staff and students. They are also on display in each of our site libraries on "Customer noticeboards" (see Appendix).

MONITORING AND REPORTING PERFORMANCE AGAINST THE STANDARDS

I worked closely with staff to set up monitoring mechanisms. Wherever possible we used systems that already existed in order to keep any extra work involved to a minimum. Any time spent monitoring the performance should not detract from delivering the actual service. Most of the data generated are quantitative. The qualitative part of the performance monitoring comes from making sure that we speedily address any difficulties that could result in poor performance against the standards.
Each site library and service provides monthly reports on performance. These are collated and reported to our senior management and to the University Directorate. The reports are also available for our customers to see on the Customer noticeboards. Copies are also sent to all library staff via e-mail.

REVIEWING THE STANDARDS

We are about to review the standards. This year's annual report will indicate which standards we exceeded or more occasionally those we failed to meet. We will also be able to analyse why this was the case. They will also, if necessary, be revised in

the light of changed resources, something that many of our staff were concerned about when the standards were first agreed. It will also be important to ensure that the standards are not set in stone and new areas of service are introduced if appropriate. I call this retaining "Vision". As with the setting of the standards the revision will include consultation with staff.

THE BENEFITS

The main benefits of introducing standards include an improved customer focus. We are open with our customers in publishing the level of service they can expect. Performance monitoring also means improved levels of service because we can see if remedial action needs taking and if so take it quickly. There have also been benefits for staff development and motivation. Staff have developed skills in monitoring performance and management information. They are also motivated by having their good performance recognised.

CONCLUSIONS

I would like to conclude with a couple of observations that I have been able to make as a result of introducing standards. The first is that ownership of the standards is very important. Everyone has to feel comfortable about the standards. The standards need to be realistic but not undemanding. Staff involvement will also have additional benefits; for example, some of our staff came up with great ideas about how we should monitor the standards. Finally I am delighted to be able to say that we were the first service in the University to introduce standards and have been used as an example for other services in the University to follow.

Appendix

Information Services

University of Sunderland

Service Standards

These set out the standard or level of service students and staff can expect from Information Services. Achieving these minimum standards depends not only on the efficient delivery of services, but also on an effective partnership with the academic community, and places responsibility for good communication both on the Service and the Schools

Liaison and communication with Schools

- a senior member of staff will liaise with each School at least three times a year
- the Director will sit on Academic Board, Quality Enhancement Board and Research Committee
- a Site Librarian will sit on School Quality Boards
- a senior member of staff will have access to relevant School management meetings, programme and module boards, and planning and validation committees
- new services will be publicised each month

User feedback

- learning, research and student forums will be organised twice a year
- replies to comments, complaints and compliments will be given within five days
- student questionnaires will be conducted every two years
- feedback and actions taken will be reported to the University once a year

Acquisitions

- recommended books will be on the shelves within twelve weeks of receipt of the order, as long as they are readily available for purchase
- users will be informed of books that cannot be ordered within seven days
- users will receive a report on the status of orders within three days of request
- users will be notified when a book is available within four days
- Schools will be informed monthly of their book expenditure and commitment
- one copy of books and articles recommended in module guides will be provided
- periodicals will be made available within a day of receipt by the site library

Issues and Returns

- users will have to wait no more than five minutes to have books issued
- the automated system will have no more than five days down-time a year
- books required and in stock in another site library will be made available within two days

Shelving

- books will be reshelved within 24 hrs of return to the site library in term time
- shelves will be tidied weekly, and heavily-used subjects daily

Reservations

- requests will be processed within 24 hrs
- readers will be notified when reserved items are available within 24 hrs

Short Loan Collections

- items available in the libraries will be placed in the Collection within two days

CD-ROM support and electronic information services

- access will be provided to relevant databases in each site library, and wherever possible on the campus network
- system down-time will be less than two hours a week in term time
- helpsheets will be available for all databases provided
- assistance will be provided throughout the opening hours
- new developments will be publicised monthly

PC clusters

- at least 45 open access machines will be provided
- down-time will be no greater than 48 hours

Inter library loans

- documents available in the British Library will be supplied within ten days

Access

- the major site libraries will be open for 83 hrs a week during term time, and at least 40 hrs in vacations
- a professional member of staff will be available to support learners throughout

Study places

- at least 1,900 reader places will be provided for silent study, quiet group study and electronic access

Information skills training

- the induction workbook will be made available to all new students
- an Information Skills Module (level 1) is offered to Schools
- at least 40 formal training sessions will be provided for students, postgraduates and staff a year, some pre-timetabled and others within five weeks of request
- qualified staff will always be available to assist readers, and guides will be provided including helpsheets for all CD-ROM titles

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Information Services
March 1996

Can you Compare one University's Library Performance with another?

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This project builds on the performance indicators developed in *The Effective academic library*. It aims to develop a small set of indicators which will enable the performance of one university library to be compared with another. The main thrust is to develop indicators which will be acceptable to funding bodies, vice-chancellors and other senior staff within the UK higher education sector. The criteria to be used in selecting these performance indicators are explained. The issues being addressed include indicators for the electronic library environment, access versus holdings, in-house use, document delivery, document availability and stock utilisation, user population definitions, and methodologies for assessing user satisfaction. The project is due for completion in June 1998.

1. BACKGROUND TO THE RESEARCH PROJECT

One of the issues that arose out of the Follett Report (Joint . . , 1993) was how could UK university library performance be more effectively measured. A working party was established to address this issue which led to the publication of *The Effective academic library* (Joint . . , 1995). This publication developed 33 indicators of performance and comments on this list were received from the UK higher education sector. In the Summer of 1996 a meeting was organised by the Standing Conference of National and University Libraries (SCONUL) with representatives of the Funding Councils, the Higher Education Statistical Agency and the Committee of Vice-Chancellors and Principals to discuss what further action should be taken on *The Effective academic library* and the detailed and extensive responses that had been received on this report.

At that meeting it was agreed that:

- a small set of indicators should be developed which would enable comparisons to be made on university library performance, particularly (but not exclusively) from the viewpoint of the Funding Councils and the Vice-Chancellors.

A proposal was submitted to the British Library Research and Innovation Centre and a grant awarded in February 1997 to undertake the work. The project formally commenced in June 1997 and will complete its work in June 1998.

2. CRITERIA TO BE USED IN SELECTING THESE PERFORMANCE INDICATORS

2.1 Validity

The research will be very much guided here by the three-step validity test that Suchman (1967) suggested:

- is the indicator selected a valid criterion of the overall assessment goals that the project is seeking to achieve? (Eg. is improved job performance a valid criterion for therapeutic gains?)
- again, using the Suchman example, is increased production a valid criterion for improved job performance?
- can these indicators be combined or viewed as a whole to give a reasonably rounded structure of overall library performance? In this connection the framework suggested in *The Effective academic library* of integration, service quality, delivery, efficiency and economy will be very much borne in mind.

2.2 Reliability

Reliability is defined here as the degree to which the results of using a particular indicator match previous results when the indicator is applied using the same methodology and studying a similar population or library service.

2.3 Comparability

The question posed in the title of this paper lies at the heart of this research. If funding councils, vice-

chancellors and university librarians are concerned about library performance (as they are), it is assumed that this concern cannot satisfactorily be addressed unless some attempt is made to compare an individual library's performance with another. Of course, comparisons can also be conducted within an institution over time and this will also continue to be an important element in addressing these concerns.

It has to be recognised that performance indicators which could be used across the higher education sector can be misused by politicians, the media and others, often in an attempt to produce simplistic league tables.

The philosophy underpinning this research will be to produce a set of indicators which will give, as suggested earlier, a rounded view of library performance. It should be emphasised here that the developed set of indicators should be used as a diagnostic tool: this is where our library is in comparison with other libraries; is this where we want to be? It should also be emphasised that the sector is very diverse, with universities with very different missions and great discrepancies in the size of both the universities and their libraries.

Given this diversity, the set of indicators may well be used to compare an individual library with other similar libraries in the sector, eg. members of the Consortium of University Research Libraries, former polytechnics, technological universities, etc., rather than conducting sector-wide comparisons. This is very much the model developed in the UK public library sector as David Spiller (1997) has suggested. This is also very much how the Centre for Inter-Firm Comparison operated, although attempts to apply their approach to libraries were not entirely successful, as the discussion on a paper by Michael Moffatt (1983) makes clear.

2.4 Acceptability

This is a very sensitive area. One of the problems is the lack of consensus on which indicators should be used, which is exemplified in the responses received from the sector on *The Effective academic library*. Also, recent publications such as those from ISO (BSI . . , 1996) and IFLA (Boekhorst, 1995) again show more divergence than convergence. The steering committee advising on this project has representatives not only from the library community, but also from the funding councils and vice-chancellors. The project does, therefore, have an opportunity of bridging any gaps between perceptions on library performance, of library managers, university managers and funding bodies.

2.5 Costliness

The study must be sensitive to the issue of how much the suggested performance indicators will cost to collect. The approach here will be to build on the work of SCONUL's annual published statistics (1997) and the other general university statistics already in the public domain. In some cases what might be suggested is that data should only be collected say every three years, not only to reduce costs, but also to address the issue of "questionnaire fatigue" which is becoming a major problem in the library sector.

2.6 Outputs and Outcomes

Clearly the focus of the indicators should be on outputs and outcomes, and particularly on what relationship there is between outcomes and resource inputs. This will not be easy to achieve as what has been discussed here is, in the main, the use of statistical indicators, whilst outcomes may require indicators of a more qualitative nature.

3. KEY AREAS TO BE ADDRESSED

The project has, at the date of this conference, been under way for only three months. The second part of this paper identifies a number of key areas in the assessment of academic library performance and outlines some of the difficulties which must be addressed as the project progresses.

3.1 The Electronic Library

A key criticism of *The Effective academic library* was that it failed to address the needs of the electronic library environment.

In a recent study, Brophy and Wynne (1997) put forward a range of indicators tailored to the needs of the electronic library. They make a clear distinction between indicators for operational management purposes and those for evaluation and strategic management. They develop an alternative

assessment framework for performance assessment at an operational management level as follows:

- resource discovery
- resource delivery
- resource utilisation
- infrastructure provision
- resource management.

However, for evaluative purposes, they retain the five-point framework put forward in *The Effective academic library*. They find that some of the indicators within this framework can be adapted to the electronic environment, but that some are redundant. They also propose several new indicators, specifically designed for the electronic environment.

It is clear that much work remains to be done in this area. Acceptable definitions of electronic documents and measures of document delivery continue to elude us, and the difficulties in measuring use of the Internet are well documented (Goldberg, 1997). Brophy and Wynne acknowledge that, for the foreseeable future, most academic libraries will continue to provide traditional library services alongside electronic services, and a further study on performance assessment for hybrid services is planned (Wynne and Brophy, 1998 p.296).

3.2 Access vs Holdings

It is doubtful whether it will be possible, at this stage, to identify performance indicators which directly address the electronic environment and also meet our selection criteria. However, it may be possible to take an indirect approach and to identify indicators which tell us something about the provision of electronic services in more general terms. For example, can we devise an indicator of the balance between local holdings and access?

Indicators of "holdings" are readily available. SCONUL's *Annual library statistics* include data on collection size, acquisitions, materials expenditure, loans from stock and user population, giving us indicators such as books added per fte student, materials expenditure as a percentage of total expenditure, loans per fte student, etc. We can also identify some indicators of "access", such as interlibrary loans per fte student, satisfaction rates, delivery speeds, etc., although arguably some of these are indicators of the performance of document delivery services rather than of the library itself.

But what about indicators which relate access to holdings? For this we need a ratio, such as the ratio of interlibrary loans to loans from stock, or the ratio of expenditure on interlibrary borrowing to materials expenditure. These ratios can be derived using existing measures and yet would give an insight into the nature of the library and its position with regard to access vs holdings.

3.3 Document Delivery

Document delivery is a key area, representing one of the most visible aspects of the academic library function. *The Effective academic library* used a basket formula approach to document delivery:

Documents delivered =	loans from stock + interlibrary loans + photocopies made ÷ 10 + electronic documents delivered + in-house consultations.

However, this approach attracted criticism for a number of reasons. For two of the five elements of the "basket", there is no established methodology: the problems associated with counting electronic documents delivered have already been mentioned and, as Geoffrey Ford has made clear (1990), there are also problems with counting in-house use, an issue of particular concern to libraries with large research collections. Even among the elements which can readily be measured, it was felt that the basket approach could mask inefficiencies in some areas and that a more sensitive instrument is needed. Also, this approach takes no account of the quality and range of the documents delivered, or of their relevance and usefulness; it is an indicator of outputs but not outcomes.

3.4 Document Availability and Stock Utilisation

A more rounded view of the document delivery function of the library might be achieved by considering document availability and stock utilisation.

A survey of student experiences and expectations carried out in conjunction with the Dearing Report shows that almost half the student population is dissatisfied with the availability of books in their library (National, 1997). Simple measures of document availability tend to be rather crude, but

nevertheless can provide some useful information for relatively little effort. More sophisticated methods of assessment, such as the failure analysis study carried out by Jacobs (1995), are more time consuming and costly to implement, but could perhaps be considered as part of a three-year assessment cycle. It is important that measures of document availability should be interpreted in the context of the institution's mission and goals, and especially the balance between teaching and research, and the library's policy on access vs local holdings.

Measures of stock utilisation, and in particular the proportion of new materials used within a certain time scale, could also provide useful indicators of effectiveness. The difficulties associated with measuring use of library stock are well documented by Ford to which reference has already been made. However, measures restricted to issues from the loan collection may be possible. It is again important, when interpreting such indicators, to bear in mind the library's policy on access vs local holdings, and to consider whether its primary purpose is to provide text books to undergraduates or to maintain and develop a specialist research collection.

3.5 User Population

The measures of user population most commonly used to calculate library performance indicators are student full-time equivalents or occasionally student numbers or "bodies". It can be argued that these measures do not fairly represent the user population of an academic library. In practice, part-time and mature undergraduates may place greater demands on library services than their more traditional counterparts; postgraduates and off-campus users may also be more demanding. However, measures which attempt to give premium weightings to these groups of users are complex and contentious, and it is unlikely that an acceptable weighting formula could be developed within the timescale of the project, if at all.

In many academic libraries, a significant amount of use comes from the teaching and research staff, and in the large research libraries use by external readers is also significant. How significant and how to calculate this is the subject of a recent study by Coopers & Lybrand on behalf of the Funding Councils (Funding . . , 1997). A measure of the total user population, to include teaching and research staff and external readers, would perhaps be more representative than the measures of student population currently in use.

3.6 User Satisfaction

User satisfaction is clearly a key issue in assessing library performance. Measures of user satisfaction, both general and specific, can be seen either as performance indicators in themselves, or as contextual information which can assist in the interpretation of other indicators. There are a number of methodologies for measuring user satisfaction, primarily based on questionnaire surveys. Some are relatively straightforward, such as the standard user satisfaction survey forms issued by SCONUL (Revill and Ford, 1996), whilst others, such as the paired comparisons method used by Priority Search, are much more complex. However, no single method is accepted sector wide.

Without a standard methodology, comparisons of user satisfaction between institutions are meaningless. Even with a standard approach, such comparisons are still very difficult. Results are in part dependent on user expectations, and on users' perceptions of library services rather than on actual service quality. If the methodology is too prescriptive, results may also be distorted by differences in the priorities of user populations in increasingly diverse institutions.

It may prove impossible to include user satisfaction in the set of indicators with a view to making inter-institutional comparisons. In this case, an alternative approach may be to indicate whether an institution is using one of a range of recommended methodologies to measure user satisfaction, again perhaps as part of a three-year assessment cycle.

4. CONCLUSION

At this early stage in the project, we would like to invite comment and feedback on any of the key areas mentioned above, and on any other aspect of performance assessment in academic libraries in the UK. We would also welcome the opportunity to share experience with those conducting similar studies in other sectors and abroad, particularly those that are attempting to address the feasibility of national and/or international comparisons.

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Team Performance: Measurement or Mystery?

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Teams are increasingly used in library and information work, but performance measurement tends to concentrate on the individual or on the organisation. The contribution of the team to the provision of effective services also needs to be considered. Knowing whether a team is performing well or badly seems easy; but more objective measures are needed. Several management models are outlined, together with research at Northumbria, to suggest practical ways for assessing team performance. Much can be achieved where team members reflect on the way they work together and explore ways to improvement.

1. TEAMS AND TRADITIONAL PERFORMANCE MEASUREMENT

Teams have been playing an increasingly important role in library and information services over the past few years. They have become familiar in public libraries, and their use has now spread across the organisational spectrum. Peter Brophy (1997) is not overstating the case:

> "The modern organisation can only function effectively through teams of people contributing to the achievement of the corporate goals . . . teams are also the natural, human way of working. We are social animals and staff encouraged to work in teams will tend to be better motivated and more content than those having to cope with a task on their own."

A glance at current UK advertisements confirms the importance of teams for today's library employers. Applicants are often invited to join a team of assistants, librarians or managers - or to supervise or lead a team. It is common to ask for the ability to "work effectively as part of a team" or for "experience in leading, motivating and supervising a team".

Traditional performance measurement tends to concentrate on the whole organisation or the individual. We look at overall inputs and standards, and overall outputs and processes. Or we appraise each person to see how well they are doing. One recent guide (Goodson, 1997) has produced standards for every category of staff, from shelving assistant to department head, from archivist to webmaster!

However, Marquardt (1996) argues that standard performance appraisals (How did you do last year?) are old fashioned and emphasise a management view rather than user needs. The complex "interdependence of library units requires team thinking and collaboration," and evaluation of team performance should be considered. Mohrman suggests a move "from performance appraisal to performance management," which includes groups and teams (as well as individuals) as both appraisers and appraisees (Aluri and Reichel, 1994).

Effective team performance is vital to achieve library aims and objectives. Teams which do not perform well can undermine rather than support management policies, and will tend to provide a poor service to users. Clearly some form of measurement of team performance is needed to identify any areas of weakness, and to see what staff development needs there may be. But how can team performance be measured? How can we discover whether teams are working effectively?

2. GUESSWORK, MYSTERY AND COMPETITION

We all know (or think we know) when a library team is performing well or badly. Everyone in the staff room knows that Team A get on really well together, while Team B are always arguing. This anecdotal "knowledge" is passed on to new staff, and mysteriously becomes part of the prevailing culture, often without any real supporting evidence. It may be difficult to change these strange perceptions, even when Team A start shouting at each other and Team B start taking lunch together!

But the friendly team may well be spending too much time socialising rather than actually working. It is not impossible that the arguing team can toler-

ate healthy conflict because of their mutual trust and commitment. Uninformed guesswork is not good enough here. We need something less subjective to judge how teams are performing, and to provide regular feedback to teams about their performance. Team problems and genuine conflicts need to be tackled promptly rather than ignored; and teams which are performing well should at least be recognised and praised, even if no financial rewards are available.

The most obvious way of measuring team performance is through competition between teams. If a football team wins more matches than its rivals, or a sales team sells more products than its competitors, they will get more points - and points mean prizes! But even such competitive success is no guarantee of genuine team co-operation. What about the football team where there is bad feeling between the star players and the rest? Or the firm torn apart by rival sales teams all scrambling for their bonuses? Competitive teamwork as a model does not transfer readily into the information field. Despite the current financial climate in libraries, library teams are not in direct competition with each other like business or sports teams. There are few tangible rewards for providing a better library service - and "better service" is more difficult to measure than selling fridges or scoring goals.

3. MONITORING EFFECTS ON SERVICES

The basic question in measuring team performance in library and information work is not how well staff get on with each other, nor whether they can beat other teams in a competitive atmosphere. The question is rather: *what effect does the team have on the effectiveness of services to library users?* Team performance is not an end in itself. We are interested only in how it contributes to overall library effectiveness, and how this contribution can be improved and maintained. Because team working is firmly associated with a human relations management approach rather than the traditional bureaucratic management, we are also asking implicit questions about the effect of management style, library culture, and staff deployment on services to users.

So how can we measure the effect that teams have on providing services? Perhaps we could compare a group of public or academic libraries of similar size, where some are run on hierarchical lines and the others have a participative, team-based approach. Formidable difficulties would arise here. There would be a host of other relevant variables, with different parent organisations, history, client groups, funding, staffing and buildings. Comparison between an established and well-funded hierarchical library and a new but impoverished team-based library could produce some interesting conclusions - but not necessarily about team working. Even if all these other variables could be eliminated, the results would still tend to show differences between organisations, rather than between individual teams.

Monitoring a single team-based organisation over a period of time is also far from straightforward. The introduction of the team approach will probably have coincided with other changes such as reduced funding, converged services, rising numbers of users or new electronic services. It may well have been introduced as a specific response to those changes. It was a wise woman who said that a library is like a bicycle: move one of the parts and all the other parts move as well, though not necessarily at the same speed, or even in the same direction!

4. MODELS FROM HUMAN RESOURCE MANAGEMENT

Although the sales team may not be a helpful analogy, some other business models may be more relevant. John Adair (1986) describes three areas in team performance: task, group and individual needs overlap and reinforce each other like three interlocking circles. Organisations must achieve tasks to be successful; teams must establish and maintain working relationships to achieve tasks; and individuals must satisfy needs for security and self-esteem. Adair emphasises that "achieving the task, building and maintaining the team, and developing the individual" cannot be achieved sequentially or in isolation. All three depend on each other and have to be tackled together. We can measure if the task is achieved; but has it been achieved because of the team or in spite of the team?

Blake and Mouton's familiar Managerial Grid has been developed into a Teamwork Grid along the same two axes of concern for people and concern for production (Blake, Mouton and Allen, 1987). Impoverished management (1,1) is a lifeless team approach based on survival, obedience and

self-protection. Task management (9,1) is a competitive team approach, where only results matter, leading to personal rivalry and conflict. Country club management (1,9) is an easygoing team approach, with comfort more important than action. Middle-of-the-road management (5,5) salutes the status quo, relying on rules to enforce conformity. Only genuine team management (9,9) ensures that team members are "goal-oriented and seek results by participation, involvement and commitment".

Some guidance is also given on determining where your team is on this grid. Staff are invited to say whether statements about meetings, objectives, delegation, team spirit and other areas are characteristic of the particular team. But lack of delegation may be a management problem rather than a team problem. And identifying poor team spirit is only a first step. The diagnostic tool needs to be linked to both the managerial context and to an action plan to improve the situation.

Hitchcock argues that individual performance appraisal is not working, and that traditional performance management is hostile to teamwork, as it creates unhealthy competition between colleagues (Hitchcock, 1990). Aluri and Reichel suggest that

> "librarians may not want to share their expertise with colleagues who become competitors . . . any strategies for improvement which they share may result in their competitors getting 'credit' for improvement." (Aluri and Reichel, 1994)

This pessimistic view would only be tenable where financial rewards are directly involved. Most of us find our library colleagues generous in sharing their expertise. Hitchcock suggests using an open appraisal form, allowing individual teams to monitor their own progress, and give formal feedback to their peers. She links this to profit-sharing, but in the library context the incentive for team appraisal is less obvious - though still important. Like many public sector staff, librarians have strong professional, personal and social needs. As well as a desire to maintain and improve services to users, they need a sense of achievement in their work, and a sense of belonging, of being accepted and recognised.

5. QUANTITATIVE DATA: SERVICE STANDARDS, LIBRARY SURVEYS

A variety of methods can help to monitor team performance and link it to team development. At the quantitative end of the scale, performance can be measured against relevant service standards and specific team targets and workplans (all of these set within the overall context of the organisation's aims and objectives). This is of course measuring the tasks achieved rather than how successfully the team is operating as a team.

Service standards can be used to monitor team performance, provided that they are appropriate, and that the teams have a say in forming them. At Northumbria for example, teams often devise service standards for their own specific area of work, and so help define how their performance will be measured. All the standards need to be seen in the context of Library aims and objectives, and geared specifically to users and their needs, not just to "what we think we can manage". If reshelving books falls behind the 24-hour standard, it is a team responsibility to pull staff away from other tasks to catch up.

Library surveys can also be used. Again at Northumbria a general satisfaction survey in 1994 and a subject enquiry survey in 1996 showed high levels of satisfaction with the answers provided to reference questions. Staff were seen as understanding the question, being helpful, and providing relevant information. Each enquiry point was the responsibility of a subject team, so the team can be given some credit for co-operating to provide answers to enquiries. It would be tempting to compare the success rate of individual teams, though again there would be many other factors involved, such as staff/student ratios, subject areas covered, and size of bookstock.

A recent HEFCE report on performance evaluation in UK academic libraries (Joint . . , 1995) recommends a structure where overall library effectiveness is measured by five performance indicators: integration, quality of service (or user satisfaction), delivery, efficiency, and effectiveness. User satisfaction includes document delivery, enquiry services, and information skills teaching; but it is "largely qualitative and presents substantial difficulties to the assessor or information gatherer". Delivery includes "meeting service standards over a given period". This might be the time taken for processing, reservations, or the accuracy of enquiry answers. Examples of efficiency and effectiveness

include enquiries answered per member of library staff or number of students per member of library staff.

But can we accurately measure team performance using this kind of indicator? We can monitor issue desk queues or enquiry desk cover; but good performance here will be due to a number of factors of which teamwork is only one. We may assume that work is delegated more effectively in a team approach, so that there is a better use of staff at all grades. But is this assumption justified?

6. QUALITATIVE DATA: STAFF PERCEPTIONS, STAFF TRAINING, STUDENT TEAMS, TEAM REVIEW

There are also more intangible areas than those identified by the HEFCE Group. These include staff motivation, communication and decision-making, and job satisfaction - all the things that teams are claimed to improve. There is a need for a more qualitative approach to see how well individual teams are performing in these areas. Data can be provided by looking at staff perceptions, staff training needs, and team review. This approach looks more at the way the team is operating, and less at the tasks achieved.

Staff Perceptions

At Northumbria teams were introduced to improve communication, to encourage both delegation and staff participation, and so to "reinforce commitment to common objectives". Team operations have been regularly monitored. Staff were asked informally how the new structure was working, and formal evaluation was then built into Library targets. Staff comments included much positive feedback, but also identified both transitional and recurring problems (eg. conflicts between library and team priorities, and differing perceptions of teams).

My own research (reported in Bluck, 1994) into Library teams involved a questionnaire sent to all Library staff. This can only show staff perceptions of teams, rather than the hard facts of team performance. But these perceptions are the only readily available information, and form a detailed picture of how well staff feel their teams are operating.

Responses showed a strong agreement that teams help staff to work together effectively, taking part in decision-making and agreeing their own targets through discussion. Communication within teams is effective, though there is some conflict because of poor communication between teams. Staff enjoy their team roles, trust and support each other, and teams help to maintain morale and motivate staff. Teams help individuals to work successfully and to adapt to change. Perhaps most importantly, teams help staff provide better services to users.

Examples of poor teamwork identified include: some ineffective leadership; some lack of trust and even conflict; some communication problems; and a few individuals who have genuine difficulty in fitting into teams.

The results of such a team survey can be used to make recommendations such as: emphasise team working during selection and induction; insist that poor team working is tackled and improved; offer appropriate team leadership/team building training; issue further guidelines to teams on setting team targets; offer appropriate communication and interpersonal skills training; continue to delegate tasks to Library Assistants where appropriate; and encourage team members to put users first, work together, trust and support each other.

Staff Training

Another method of asking staff to look at their own awareness of teams is in the staff training context. There is a real need for training in teamwork to ensure that staff understand what teams are about, and that they can gain and apply the skills needed for effective teamwork. It should be recognised that some teams are more effective than others, though this can be a difficult subject to approach. One initial suggestion is to ask a group of colleagues to make their own lists of the characteristics of effective teams, in order of importance. This can then be repeated with the characteristics of ineffective teams, with both lists being discussed by the group to achieve a consensus.

Team members can then be asked to consider their own team, and how it compares with the agreed characteristics of effective and ineffective teams. Some staff may find this rather uncomfortable; but this honest analysis of both team strengths and team weaknesses can often lead to exactly the kind of understanding which is needed to improve team working and the services the team provide (Bluck, 1996).

Teamwork and Students

Methods used to assess students' teamwork skills may also be relevant here. Graham Gibbs (1995) describes how both the products and the process of teamwork can be assessed, using a combination of direct observation, peer assessment and "teamwork logs" to show evidence of teamworking. Teamwork logs can help students to reflect on how the team is operating, and to produce a final report describing what steps have been taken to organise teamwork, to monitor and improve the effectiveness of the team, and to tackle any problems. Assessment criteria would include the "range and effectiveness of steps taken to improve team performance".

John Hall (1996) describes a library management unit where students were introduced to team skills and given exercises to apply them, after which "the teams were asked to review their performance and identify ways in which they could improve in terms of both task management and interpersonal processes". Peer feedback was used to help students "identify their strengths and weaknesses as team members". Hall concedes that this is inevitably subjective and that only "exposure to teamwork in the real world" will show if team skills have genuinely improved.

Both these examples of reflective practice with students could be adapted to the real world of work in libraries, to encourage team members and team leaders to monitor how well the team is performing.

Team Review

The conclusion of team training includes asking the team to examine its own processes as well as its activities, to review current operation and identify areas for improvement (Bluck, 1996). This team review or team appraisal can be a further tool in pointing up strengths and weaknesses and forming an action plan for any further training.

Team review is an activity for the team as a whole, with each member looking at how they and others are performing as team members, and at how effectively they support the team in its task of providing services. The team leader should act as a facilitator rather than a manager here, introducing the review, keeping the discussion on track, and introducing relevant topics and questions as needed. With practice team members will be able to reflect carefully on their own performance, and team review can become a regular part of scheduled team meetings. Whatever problems are thrown up by the team review process can be discussed openly by the team. They may need only minor adjustments if the team is working well together; but if there are genuine difficulties, then the need for further training should become apparent.

7. SUGGESTED DIAGNOSTIC MATERIAL

According to Mike Woodcock the "building blocks of effective teamwork" include balanced roles, clear objectives, support and trust, co-operation and conflict, appropriate leadership, and good communications. He gives a detailed questionnaire to "look at team strengths and weaknesses under each of these headings" to identify which areas may need improvement. Participants are invited to consider a list of statements which may relate to their team situation. Their responses indicate which areas are most relevant, and this leads on to specific teambuilding exercises (Woodcock, 1989). The diagnostic tool is thus linked to opportunities for team development.

Peter Moxon offers both guided interviews and questionnaires as methods of discovering how effectively teams are working. His "interview checklist" includes areas such as team purpose and objectives, communication, decision-making, team meetings, and leadership style, with several relevant prompting questions on each area. His "team effectiveness questionnaire" asks for a response to statements on similar topics, but also including more personal areas such as handling conflict, criticism, or expression of feelings. A "team development questionnaire" asks for comments on the team's successes and failures, on changes needed to improve effectiveness, and on the challenges and frustrations which face the team. Further questionnaires explore these subjects in more detail, in order to "allow the group to compare its performance against key criteria for team effectiveness" (Moxon, 1993).

8. PERSONAL FEELINGS

The background culture of teamworking is very much one of participative rather than hierarchical management, where staff operate within guidelines rather than obey a set of rules. As we have seen, some staff are uncomfortable with this, and they

may also feel awkward about monitoring team performance. They may be unhappy about looking at the process rather than the product of their working life, viewing it as either worthless navel-gazing or as a real threat from something which is psychologically intrusive.

Whether the context is a staff questionnaire, staff training or team review, staff will need to be reassured that it is their skills and their behaviour which is being monitored, not their souls. Lacking certain team skills is not the same as being a bad person! Team skills can be learned, in the same way as other skills can be learned; though of course like other skills, some people find them easier to learn and to apply than others. The team leader will need to make sure at all stages that this is not a threatening process to any team members. An example is asking in a team meeting how a particular decision was arrived at. How did we get there? Was the discussion constructive? Did team members support each other or fight their own corner? If this kind of informal team review begins to be seen as an ordinary part of team meetings, staff should feel encouraged rather than threatened.

9. THE REFLECTIVE PRACTITIONER

The key to an overall approach to measuring team performance is to encourage staff to look for themselves at their own team and the way it operates. The concept of the reflective practitioner is common to many public sector professions. We can suggest to staff that they think about how well their work in the team is progressing; we can provide opportunities for the team as a whole to consider how they could work more effectively; and we can insist that the team undertake regular review. But individual staff also need to take these ideas on board for themselves. The ideal is where staff will monitor their own team performance as a matter of course. This can be done informally and regularly by looking at one's own behaviour in team meetings and other team interactions; or more formally in preparation for an annual appraisal.

There are roles for library managers, team leaders and team members. Managers can consciously adopt a more participative and team-based management style. They can use a combination of quantitative and qualitative methods to monitor team performance, drawing selectively on models and materials from human resources management. Managers and team leaders can take care to link performance measurement to the need for team building and staff development, emphasising the importance of staff perceptions and being aware of any personal sensitivities and concerns. Managers, team leaders and team members can encourage each other to reflect on the effectiveness of each team; and team members can take the initiative in reflecting on their own performance within the team. When there is a real commitment to teamworking throughout a library organisation, with staff at all levels prepared to look how the teams work, then monitoring team performance will genuinely lead towards maintaining and improving library services.

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Practical Issues of Performance Measurement in British and German University Libraries

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The paper reports a survey of 23 British and German university libraries, focusing on three aspects of performance. First, the extent to which the sample libraries used performance measurement is examined; most did so; there was also interest in measuring more qualitative aspects of service. Second, the use made of performance-related data was examined; a wide variety of purposes was identified. Third, the measurement of library performance presents the practitioner with considerable problems; some might be relatively easy to overcome, others seem more difficult to address effectively. The issue of making comparisons was controversial: whereas year-on-year comparisons in the same library were perceived to be useful, there were reservations about comparing different library services. The cost effectiveness of performance measurement is discussed.

INTRODUCTION

This paper is based on the PhD thesis entitled 'A comparative analysis of marketing management in British and German university libraries' by one of the authors. This study was based on a large-scale literature review, 23 in-depth semi-structured interviews in both countries, and document analysis. The interviews were conducted in the summer of 1994, and the libraries included were selected by using a stratified random sampling approach (Cockrill, 1996). The final sample included the following libraries:

Stratum	Interviews
British post-1945 universities	4
British pre-1945 universities	3
Former polytechnics	4
German post-1945 universities	4
German pre-1945 universities	3
Gesamthochschulen (higher education institutions which are amalgamations of universities, polytechnics and colleges)	2
East German universities	3
Total	23

The term "library" here is used to include all organisations visited, even if their correct title was different, such as "Learning Resource Centre", "Learning Services" etc., because this study was explicitly interested in the library aspects of the organisations in this sample.

This paper regards some of the practical issues which have arisen in these libraries when performance measurement was implemented. Here, we are not concerned with the extensive debate on definitions in this area or with the vast array of available literature in this field. These issues could and have warranted publications in their own right[1].

Although most of the literature on library performance measurement has appeared only recently, it is not a new activity in libraries. Already in 1989 McElroy maintained that librarians have always measured performance, using a range of methods. Therefore, he continues, we should beware of behaving now as if we believed that performance measurement were new; only some aspects are new; the principles are well known (McElroy, 1989).

This was borne out in this research. Historically, libraries have always collected some data on performance, particularly statistics. This is reflected in the fact that all libraries participating in this research collected statistics, with the most widely used instrument to measure performance being the SCONUL (Standing Conference of National and University Libraries) statistics in Britain and the DBI (Deutsches Bibliotheksinstitut) statistics in Germany[2]. Virtually all respondents mentioned this aspect.

[1] For a literature review in this area see Cockrill, A. (1996).

However, with increasing emphasis on service quality, acceptability and quality management, the measurement and evaluation of a library's performance has become ever more important. Brophy (1989) maintains that performance measurement is important for political reasons. He explains that if libraries are going to attract resources, they shall increasingly have to be able to demonstrate in ways which convince their political masters both of the quality and the relevance of their products.

The results of this research have shown that although most libraries in this sample gathered much more data on performance than the SCONUL or DBI statistics, some libraries limited themselves to the compilation of this set, and one British library actually did not participate in the SCONUL surveys at all, claiming lack of time as the reason for not collecting these statistics; and another British library provided only some of the data; both of these were traditional universities.

The extent to which libraries were involved in performance measurement beyond collecting and analysing statistics varied considerably. Boekhorst (1992) maintained performance measurement concerning libraries other than public libraries and beyond the compilation of statistics was hardly discussed in Germany. He identified three reasons for this situation. Firstly, there has only recently been a movement towards measuring effectiveness of libraries by the funding bodies. Furthermore, most university libraries do not have to bargain with the university management for funds. Thirdly, very comprehensive and mandatory library statistics are collected on a national level which permit comparisons with other libraries.

Undoubtedly, only a small amount of literature concerning performance measurement has appeared in Germany, and even less concerning academic libraries. In tune with these findings, several German librarians in this sample claimed that performance measurement was only very little practised or not at all in Germany. However, the differences in practice did not seem to be as great as the literature might suggest, although one distinctive difference between the two countries is that in Germany measuring the performance of individual staff members is not legally permitted.

Several respondents mentioned that the one very active library in this field in Germany was the university of Münster library, which was not part of this sample. This library was mentioned several times as being particularly active in this field.

In Britain, some libraries were very active in this area, and were trying to improve their service by establishing performance indicators rather than merely using performance measures. One of these respondents explained how his library was trying to establish a set of performance indicators, as opposed to only measuring performance. He explained that they were trying to develop performance indicators for about 20 different areas of activity: the area of user needs, particularly liaison with departments and users in general, provision of stock, acquisitions, cataloguing, relegation, withdrawal, the availability of material, lending, reservations, shelving, interlibrary loans, photocopying, OPACs, signage and publications, enquiry services and information skills teaching, study facilities, other facilities, and staff training and development. This library was using both subjective and objective indicators, but the respondent clearly preferred statistical indicators.

In Germany, the use of performance indicators seemed to be less widespread than in Britain although at least one German respondent clearly expressed his desire for better use of the data that his library had available anyway. He outlined a system of benchmarks which could be used to test and monitor performance in order to optimise processes. He concluded that this library was just in the process of developing such a system with the help of an economist.

Another German library was in the process of developing a system of quantitative performance measurement for the library as a whole. Essentially, this librarian had decided that the usual statistics were too limited to permit a useful indication of the library's performance. He developed a series of quantitative performance indicators which ulti-

[2] An interesting point to mention here is that the latest available statistics from Britain are from 1992, and thus many of these statistics are already outdated. The German DBI statistics appear regularly each autumn and therefore tend to be reasonably up to date. Another very useful compilation of library statistics in Britain is *LISU annual library statistics* (Sumsion et al, 1983-).

mately compared the library's performance with itself in order to show up trends over time. A selected number of quantifiable library activities received a numerical value. These numerical values permit a comparison of different activities such as online searches and loans. These values result in abstract numbers for each activity which can be added up to a figure for the library's general performance. This general figure is then divided by the costs and staffing costs and the result of the first year is standardised to a hundred. In consecutive years, the same figures will be derived and thus general library performance can be measured. If the general figure is less or more, for example 102 or 98, general library performance as related to the measured activities has either improved or has got worse.

Although this system is clearly impressive on paper, the question does arise how meaningful a performance indicator for overall library performance really is. Whereas knowledge of improved or decreased performance of individual activities might be beneficial since this data can be used as a basis for resource allocation, staff motivation and staff training decisions, an overall figure for the library as a whole compared only with itself seems to beg the question "so what?" - what does it actually mean?

However, this respondent was not alone in his interest in presenting library performance in one single figure. One British respondent also very explicitly expressed his desire to find a way how to maximise a single measure, although, in contrast to his German colleague, he concluded that in libraries this could not be achieved because there was no single meaningful figure, perhaps apart from availability, which, as he conceded, was difficult to measure meaningfully.

One British library conducted a large amount of qualitative performance measurement, using surveys on material availability, on user expectations and attitudes, reader enquiries and a general satisfaction survey. Some of these were conducted regularly on an annual basis. This respondent also tried to tackle the difficult area of outcomes, whether or not the library has any impact on users. He took an indicative sample of 50 students, identified items that had been borrowed and returned six weeks before, borrowed the items himself and then interviewed the students about the item concerned. All students remembered the book, and he then continued to ask such questions as: Why did you use it? What did you need it for? Did you scan it? Did you read it cover to cover? Did you take notes from it? Did you photocopy parts of it? The rather sad (but perhaps unsurprising) conclusion of this experiment was that most of the reading was purely instrumental - the academic staff required students to do the readings, and they did, but nothing more or less than that. The library seemed to have no further impact beyond providing these required readings.

One interesting aspect concerning availability data was mentioned by two German librarians. Since the loan system in some libraries was not automated, availability data was almost automatically available because ordering slips could be counted into different categories such as available, not available etc.

Several other aspects of performance measurement were mentioned in Germany. One librarian reported the collection of interlibrary loan requests which were then passed on to the appropriate subject librarians. Another German respondent compared acquisition funds by subject with other libraries in order to see if there were fundamental differences. This respondent also received detailed performance data on an order copy service.

Some librarians in both countries mentioned that they were using performance measurement only for specific purposes rather than on a regular basis. Respondents mentioned using performance measurement to establish data on the following issues:

- the quality of the interlibrary loan system;
- book circulation data;
- percentages of overdue books now and in earlier years;
- type of incoming and outgoing interlibrary loans;
- times series experiments and changes of working procedures.

However, if performance measurement is used only on a one-off basis, Grunenwald (1983) maintains that the evaluation outcome can be distorted by extraneous effects, particular when parts of a programme are evaluated after a short period of time. These effects can be environmental factors momentarily changing the apparent level of success

of a particular programme or programme element. It is therefore useful for a library to establish historic trends concerning the evaluation results both of marketing programmes and the elements of such programmes. It is only in comparison with previous years that a true evaluation of the success of many activities can take place - distorting influences can be discounted and eliminated, and long-term trends can be established.

ANALYSIS AND USE OF DATA

As has already been stressed, performance measurement is meaningful only if it has a purpose. Therefore it is not sufficient to collect data, but information gathered needs to be analysed, evaluated and eventually used to implement any necessary changes. Our respondents were asked how they analysed the data they collected and what happened to it subsequently.

Several respondents mentioned the use of statistical software packages to analyse statistical data. Statistics and other data on library performance were used extensively for incorporation into annual reports and other documents. With regard to the presentation of the data in such documents, several respondents mentioned how useful it was to be able to present data such as tables and in graphs and charts. When this data was used externally, it often served the purpose of making a case for the library; as one respondent pointed out:

> "I fish it out of my hat like a rabbit at various appropriate moments, and go to the university and ask them for more money or more staff or whatever it may be. It's useful to support cases . . . that are made in the university."

Other uses of performance measurement data consisted of:

- use in lieu of an official profit-loss account;
- as a means to establish trends and usage patterns over time or as the result of different circumstances such as semesterisation;
- to identify the reasons for different usage patterns;
- to forecast changes in the budget by forecasting exchange rate and currency trends, particularly for periodical purchasing;
- to decide on staffing levels;
- to decide on resources for particular subject areas or divisions;
- to keep users informed of what is going on by publicly displaying performance data as charts and graphics.

COMPARISONS

One aspect that features very prominently in the literature is comparisons. Moore maintains that the essence of performance measurement is comparison. Comparison over time, comparison between libraries in the same library system and comparison between library systems (Moore, 1989). Most commentators, such as Poll (1992), suggest that only by comparing similarly structured libraries can it be understood how the results of performance measures are to be evaluated if, for example, 70 per cent successful interlibrary loans for a special collection is already praiseworthy, or if 5 per cent misshelved material in open access areas should be a cause for more frequent stock takings. However, in contrast to the notion of being able to compare only similarly structured libraries usefully, Kemper (1993) suggests that the results obtained from qualitative measures such as user satisfaction can be compared even when libraries are differently structured. She argues that qualitative judgements by users (for example with regard to friendliness, helpfulness and efficiency of the staff) are independent of the size, the equipment and social environment of a library. However, our research suggests that this argument should be used with caution because staff efficiency or speed is tied to the resources available - if these differ substantially, speed and efficiency are likely to differ as well.

This research showed that in practice performance-related data was used for a variety of comparisons. One very explicit use of performance-related data was to choose data depicting the library's excellence in comparison to other university libraries, and thus to raise more funds, viz.:

> "We do the SCONUL ones, but . . . we also . . . compare ourselves with other institutions to see where we are in terms of our patterns. And this particular dean who was really impressed, he said, '. . . you are prepared to actually publish how you do in comparison with other universities?', and we do quite well. Of course, we tend to choose the statistics that reflect that.
>
> "One of the things we have used, collect information on, is other libraries' performance. I said

it is extremely dangerous to compare but of course politically it has been extremely useful to us to compare [library's name] basic statistics like spend per FTE on the library with other libraries. And we have done that without any qualms at all. And I think quite successfully, actually!"

PROBLEMS OF PERFORMANCE MEASUREMENT

Although comparison of performance is a recurrent theme in the literature, the problems encountered are significant. Poll (1992) indicates that even seemingly simple terms like "active users", "loans" (this can include or exclude renewals) or volumes (or physical units) can be defined very differently - and therefore any meaningful comparison must be based on truly comparable data[3].

Another difficulty encountered in this study when comparing library performance concerned the presentation of the results. When dealing with statistical data gained by using objective measures, the results can often be presented in a way that can be interpreted either as positive or as negative. It is therefore paramount to know beforehand how the data is to be analysed and what the analysis is for. For example, a typical problem would be the question as to whether a library uses its resources more effectively if it spends less money per head of the user population than another library, or whether this means that first library's service is poorer, or simply that it does not have more money to spend.

Comparisons of statistical analysis are useful only when it has been previously established what the data is used for, and when it can be evaluated against previously stated objectives. This issue was raised by one of our respondents who maintained that his library was the busiest library in the country in terms of usage per item of stock. He realised that there were two interpretations of this situation: students insisted that stock levels were too low, and subject librarians claimed the reason was that they were very good at choosing the right material. This respondent was certain that both interpretations reflected part of the picture but the data itself did not offer any clue to which of the two interpretations was more valid. Another respondent explained how his organisation had conducted an availability study over several years. This study resulted in availability figures between 60+ and 70+ per cent, but it did not answer the question what these percentages actually meant - are these ratings low, average or high? These examples show clearly that comparisons are useful only when it has been previously established what the data is for and how it can be meaningfully analysed.

The analysis of comparative data also presented the problem of misuse. Several respondents feared that performance-related data potentially might be misused, particularly when outside agencies would attempt to compare different libraries without regarding differences in set-up and services. Several respondents in both countries had very strong misgivings about the use of performance-related data, particularly by funding agencies, because they feared the data would be taken out of context and thus distorted. Examples of such comments were the following statements:

"But the problem with performance indicators is that it is a can of worms . . . It is really extremely difficult to come up with a set which is going to be acceptable to everyone and the thing I fear about them is the inevitable tendency that is going to be particularly on the part of funding councils to . . . compare one institution with another. And I think in the case of nearly all of them it is extremely dangerous and difficult to do."

"I don't know what will happen with SCONUL, but COPOL used to publish the results of all those universities, and you could actually make comparisons and see where you were in a league table for this or that . . . A lot of it was very dubious, . . . some of the comparisons that you could make because each individual, each organisation . . . in a sense had a different background . . . you could look at staffing costs for example, as a percentage of the total what they spent and you could say, 'well, they were spending 50 per cent or 60 per cent and we are spending 49 per cent, so therefore we are better than they'. What you don't know is the background they are working against, if they [have] got a large, multi-site polytechnic as it was, then obviously the staffing costs were going to be higher than in a place like us where we are in a decent central library."

[3] Useful definitions of relevant terms can be found in SCONUL (1992).

"Dieser Begriff Leistungsmessung, der ist natürlich dann sehr leicht ein rotes Tuch, wenn das Falsche damit verbunden wird. Wenn man also Daten erhebt oder Zahlen sammelt, um dann fur das eigene Haus also die Leistung zu messen, . . . um so Entwicklungen zu sehen, halte ich das fur sehr wichtig, daß man diese Zahlenbasis hat. Wenn man aber diese Zahlen mißbraucht, um die Leistung verschiedener Bibliotheken zu vergleichen, dann wird es sehr, sehr gefährlich, well die Bibliotheken zu unterschiedlich sind . . . Man kann in Teilbereichen vergleichen, nur jetzt nicht das gesamte Spektrum . . . Die Rahmenbedingungen, die sind so unterschiedlich, . . . und diese Dinge sind schwer quantitativ mit einzubringen. Und deswegen ist die Vergleichbarkeit, was Zahlen angeht, also sehr, sehr schwierig."

(*"This term performance measurement, that can very easily become a red rag if people mean the wrong things. If data or numbers are collected in order to measure the performance of your own institution, . . . in order to see developments, then I think it is very important to have such a numerical basis. But if these figures are misused to compare the performance of different libraries, then it can be very, very dangerous, because libraries are so different . . . It is possible to compare parts, but not everything . . . the framework conditions, they are so different . . . and these things are very difficult to quantify. And therefore the comparability concerning numbers is very, very difficult."*)

Many respondents reported other problems related not to comparisons but to difficulties with performance measurement. For example, several respondents were not satisfied with their existing methods of performance measurement but found the creation of meaningful performance indicators difficult. One respondent reported that at the time of the interview, no set of performance indicators dealing with the effectiveness of the library was in place, although one objective of the library was to provide effective services, and he maintained that it had turned out to be extremely difficult to meaningfully measure effectiveness. Another respondent thought that performance measurement was not enough to identify the benefits that users derive from the library; for example, other measures aside from performance measurement were needed to address the problem of queues at the issue desk.

Some respondents had serious doubts about the validity of the data received, particularly when dealing with quantitative performance measures and indicators. For example, one respondent pointed out difficulties with satisfaction data. He maintained that this type of data is affected by people's expectations of the library and that these expectations might increase. This in turn could mean that the satisfaction rate would go down, although service quality might have gone up, and thus result in an entirely misleading figure. Another respondent claimed that student survey data particularly could be of such poor quality as to be virtually useless, especially if participation rates are so low that the results cannot be taken to be representative or even just to be indicative.

Another issue related to statistics was raised by one German respondent, whose main argument was that many librarians and information scientists simply do not know how to collate and use statistics, and thus they achieve what he called "perverse" results, which might then be published without further comments. He continued that such a lack of mathematical credibility could also lead to a lack of credibility for libraries generally: if someone more knowledgeable reads this data they might come to the conclusion that it is not really surprising that libraries are doing poorly.

Two respondents mentioned the difficulty of presenting statistical data in such a way that both "statistically illiterate" (as one respondent put it) staff and users could interpret this data. One of these respondents said that his organisation placed a lot of emphasis on their staff being able to use such data and to understand it in order to be able to deal with questions from visitors, colleagues or anyone else.

In summary, this research has shown that although all libraries produce statistics, their use, analysis and presentation encounter a variety of problems, which are well recognised within the profession. Krienitz-Reinhard (1993) sums up the thrust of these difficulties by suggesting that statistics should not be an end in themselves but that their objective and the need for them should be defined previous to their collection and collation.

COST EFFECTIVENESS

The two largest problems of performance measurement that may become apparent in the long term were actually mentioned only once each in this research. The first of these issues concerns the cost effectiveness of performance measures and indicators. One respondent pointed out that "a lot of performance indicators are hopelessly uneconomic to produce, at least on a regular basis", which he perceived as the major flaw of many performance indicators.

The cost effectiveness of evaluation is hardly ever mentioned in the literature. However, Richard (1992) cites Catterall (1987, p.47) and points out that the cost elements of evaluation are salaries and opportunity costs for staff, time costs of the users involved in the evaluation efforts, and the equipment and materials used. Furthermore, the costs of evaluation include development, administration, analysis of results, distribution of results, monitoring and enforcement, compliance and cost of consequences. The benefits are managerial and operational, decision-making and policy-making, incidental learning about the organisation, staff motivation, institutional motivation, demonstration of concern for library performance, and library/university/government communications. Richard then maintains that the evaluation effort needs to pay for itself in more effective and efficient operations. At the University of Houston, the system of efficiency evaluation began to cost little less than the savings achieved, so it was determined that the effort was better placed in providing services than evaluating costs.

The second long-term problem with performance measurement, which is increasingly being recognised as a problem within the profession, concerns a tendency to do things that can be measured easily rather than things that are less tangible. One respondent maintained that he was buying fewer books because that is less tangible, as "an easy way of making economies without creating a big fuss" and that this trend is a serious weakness of all university libraries. He continued his argument by pointing out that "we are tending to design services down to the price rather than up to a standard" and that there was now a situation where young professionals who "will take as much persuading to eventually at some point to go up to the standards objective as it took to bring my generation down to the pricing objective". This respondent, although by far the most explicit on this issue, was not the only manager in this research feeling that the "pricing objective" had gone too far.

Finally, one sole respondent, perhaps more open than the others, mentioned an argument which the researcher had expected to be far more prominent. He admitted frankly that there was little time to analyse collated information, and that it was only done in a crisis situation when a very definite need arose to look at particular sets of figures.

CONCLUSION

At present there is an enormous amount of discussion of and activity in the area of performance measurement, and it can be established that some type of performance measurement is used in all libraries.

All libraries in this sample collected statistics, but the extent to which libraries were involved in performance measurement beyond collecting and analysing statistics varied considerably. In Germany, only a small amount of literature concerning performance measurement has been published. In keeping with this, several German librarians in this sample claimed that performance measurement was rarely or not practised at all in Germany. However, the differences in practice did not seem to be as great as the literature might suggest. In Britain, some libraries were very active in this area, and were trying to improve their service by establishing performance indicators rather than merely using performance measures.

The extent of and commitment to performance measurement varied widely. Even the most enthusiastic respondents had reservations, and had encountered a variety of practical difficulties in establishing and using performance indicators.

One aspect that features very prominently in the literature on performance measurement is comparisons, but in practice comparisons of library performance data present a multitude of problems. Definitions of terms and comparability of data are one area of difficulty, and the presentation and use of such data is another. Statistical data can often be interpreted in several ways, and thus open the door to misuse. Furthermore, statistical data are often

not meaningful by themselves, they have to be set into an appropriate framework. Comparisons of libraries on the basis of performance-related data were generally perceived to be dangerous by the respondents in this sample, particularly when they could be used by outside agencies to compare libraries without regard to their different working conditions or when the categories of comparison were not clearly defined.

Other difficulties with performance measurement evident in this research were problems with the establishment of meaningful performance indicators, low user participation rates and, generally speaking, difficulties with the use of statistics.

However, possibly one of the largest long-term problems relating to performance measurement was only briefly mentioned. In the present rush to develop and apply library performance measurement, cost effectiveness is often disregarded. In years to come, libraries will have to decide if the benefits of performance measurement outweigh the cost and staff time involved.

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The Stakeholder Approach to the Construction of Performance Measures: Outcomes and Implications

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Fifteen British university libraries participated in a questionnaire to ten stakeholder groups. The questionnaire consisted of 91 performance measures, each to be graded on a scale of perceived importance. The results are reported, including similarities and differences between stakeholder groups and the main characteristics of each group. Eighteen key performance issues are identified. Availability of adequate multiple copies of textbooks was the most important issue, and availability issues generally were highly rated, but there was little interest in feedback or involvement. The outcomes are compared with recent performance measurement documents. Skeleton questionnaires are suggested. Part-time students are identified as the stakeholder group with the most serious need for library support. Concludes by considering the potential benefit of stakeholder mechanisms.

"The Stakeholder Approach to the Construction of Performance Measures" (Pickering et al, 1996) was a BLRIC funded research project which began in July 1995 and concluded in November 1996.

AIMS AND OBJECTIVES

The aim of the research project was to design a set of user-chosen performance measures, using the stakeholder method, which can be used in British academic libraries to improve customer service.

The detailed objectives were:

- To identify the following:
  - a set of user (stakeholder) chosen performance measures, using the questionnaire method;
  - a small number of generally applicable "parsimonious" measures;
  - an appropriate number of meaningful stakeholder groups;
  - performance measures appropriate to particular stakeholder groups.
- To design semi-standardised questionnaires for the following:
  - general use;
  - specific categories of users.

To allow academic library managers to concentrate their attention on an independently validated set of measures, a questionnaire consisting of 91 performance measures, each of which had to be graded on a scale of 1 to 7, was distributed to 15 participating British university libraries.

SELECTION OF STAKEHOLDERS

The list of stakeholders, decided upon in conjunction with the 15 participating libraries, was:

1. Part-time undergraduate
2. Full-time undergraduate
3. Part-time postgraduate (taught)
4. Full-time postgraduate (taught)
5. Postgraduate (research)
6. Research staff
7. Academic staff (teaching)
8. Library staff (other than senior staff)
9. Senior library staff
10. Members of university senior management team.

SAMPLE DESIGN AND SAMPLE SIZES

It was decided to identify samples from small populations using a census, and for large populations using Krejcie and Morgan's (1970) table which gives suggested sample sizes for different population sizes. These samples were then doubled to allow for non-returns. Any further increase in sample size was impractical from the point of view of the participating institutions, since they were limited in the number of questionnaires they could handle. Most completed questionnaires were returned

by the end of February 1996 and all were in by the end of April. They were distributed by internal mail or through lecturers and returned through a combination of internal mail and collection boxes. Several universities used the Royal Mail to contact students and they were supplied with pre-paid envelopes to encourage returns. In the end 33,797 questionnaires were distributed of which 6,724 (20%) were returned. Of these, 4,193 (62%) of the returns were fully completed and could be used to calculate the overall rankings.

OVERALL RESULTS

Although the imbalance of response numbers in each stakeholder category renders it impossible to make direct links between their respective rankings of performance issues, it is possible, by scanning the rankings (Figure 1) derived from the total responses, to make some general remarks about high and low priorities. In the following account, the numbers referring to the ranking of issues are allied to the percentage of all stakeholders rating the issue as "very important".

The demand for availability of materials was reflected in the high priority given to *Provision of multiple copies of items in high use* (1: 60.79%), the *Proportion of materials listed on computer catalogue* (5: 54.38%), *Availability of materials on the shelf* (9: 51.56%), *Speed & accuracy of re-shelving of materials* (15: 46.46%) and *Length of queues/ time taken to be served* (38: 34.94%). On the other hand, the *State of repair of stock* (74: 19.29%) was not a high priority, suggesting that savings on binding would be possible. Other questions of accessibility and costs were important, such as *Match of open hours to user needs* (10: 50.78%), *Cost of photocopying* (11: 48.39%), *Amount of regular maintenance of equipment* (12: 47.58%), *Provision of adequate number of photocopiers* (16: 46.12%) and *Extent to which services are free* (17: 45.72%). This last item conflicted with the low rating given to *Equitable and effective sanctions policy* (68: 21.04%).

Staffing issues directly related to user satisfaction were rated highly: *Overall user satisfaction* (2: 60.15%), *Staff helpfulness* (3: 58.55%), *Availability of enquiry desk staff when needed* (6: 52.25%) and *Expertise of enquiry desk staff* (22: 43.45%). However, other staffing issues, such as the *Level of staff training and development* (60: 24.23%), *Counter staff expertise* (75: 19.15%) and *Availability of subject specialists* (48: 31.84%) were much more lowly rated. Also less important were *Extent of involvement of user groups in decision making* (76: 18.65%), *Regular communication with user groups* (59: 24.99%), *Openness of management procedures* (69: 20.70%) and *Feedback to users who request items for purchase* (72: 19.84%), although *Extent to which users are made aware of services available* was rated quite highly (28: 38.42%). Amount of user education had a similar ranking (26: 38.85%). Importance was given to some management issues, such as *Competence of library management* (7: 51.87%) and *Total amount of library budget* (8: 51.63%).

IT issues generated a variety of interest. The most important networking issues were *Access to library catalogues/CD-ROMs/internal databases via networks throughout the campus* (14: 46.48%) and *Access to remote databases via networks throughout the campus* (37: 35.85%). The OPAC was the most important electronic service, with a high rating given to *Proportion of materials listed on computer catalogue* (5: 54.38%). Ease of use of public catalogues (35: 36.42%) was placed slightly higher than *Provision of personal computers for general use* (50: 30.93%).

In general, it can be noted that service issues predominated in those ranked up to 60 and that resource issues did not feature highly in the bottom 30 rankings, apart from *Provision of audio-visual equipment* (82: 14.81%).

The problem with using overall results to decide which questions are important and unimportant in evaluating library services is that with a ratio in the questionnaire responses of 8:1 of library users to service providers, the views of the latter tend to be overshadowed by the former. For example, 43% of service providers rate question 6 (Expertise of the issue desk/counter staff) as "very important", a rating given by only 16% of library users. In the overall results, this averages out as a 19% rating as "very important", which could not be regarded as a true reflection of opinion. It was, therefore, more appropriate to split the overall results into those for library users and service providers. There were four issues which had a difference of less than 1% in the higher rankings given by providers as compared with users: *Division of materials budget expendi-*

Figure 1
Rankings: combined responses

Indicator	Rank	% frequency of 'very important'
q42. Multiple copies provided	1	60.79%
q65. User satisfaction	2	60.15%
q02. Staff helpfulness	3	58.55%
q18. Provisions for disabled users	4	55.95%
q56. Proportion of materials catalogued	5	54.38%
q04. Enquiry staff available	6	52.25%
q70. Competence of library management	7	51.87%
q78. Total library budget	8	51.63%
q44. Availability of materials on shelf	9	51.56%
q31. Opening hours	10	50.78%
q23. Cost of photocopying	11	48.39%
q24. Regular equipment maintenance	12	47.58%
q15. Quietness	13	46.51%
q58. Catalogue networked within campus	14	46.48%
q43. Re-shelving	15	46.46%
q22. Photocopier numbers	16	46.12%
q91. Extent to which services are free	17	45.72%
q80. Budget flexibility	18	44.34%
q57. Catalogue availability	19	44.05%
q79. Budget as % of university budget	20	43.95%
q69. Stock security	21	43.86%
q05. Enquiry staff expertise	22	43.45%
q26. Adequate seating	23	41.19%
q34. Range of material types	24	39.33%
q67. Currency of materials	25	39.18%
q11. Amount of user education	26	38.85%
q25. Seats : FTE student	27	38.66%
q36. Publicity for services available	28	38.42%
q81. Materials as % of library budget	29	38.33%
q62. % enquiries answered	30	38.25%
q51. Proportion of wanted items obtained	31	37.99%
q35. Range of services	32	37.94%
q38. Collection adequacy	33	36.63%
q49. Speed of ILL	34	36.47%
q59. Ease of use of OPACs	35	36.42%
q13. Collection arrangement	36	36.20%
q20. Remote database access	37	35.85%
q63. Queues	38	34.94%
q14. Signing	39	34.15%
q33. Total items held by library	40	33.99%
q82. Budget allocation amongst subjects	41	33.94%
q54. Acquisition speed	42	33.79%
q48. Short-loan reservations available	43	33.32%
q90. Cost efficiency of library	44	33.20%
q89. Cost effectiveness of library	45	32.22%
q37. Reciprocal access to libraries	46	32.03%
q74. Library goals achieved	47	31.96%
q03. Subject specialists available	48	31.84%
q50. Recall speed of reserved items	49	31.46%
q19. Computers provided for general use	50	30.93%
q46. Flexibility of loan periods	51	29.81%
q12. Suitability of library building	52	29.12%
q32. Institution goals match user needs	53	28.74%
q66. Time taken for journal binding	54	28.33%
q61. CD-Rom serials indexes available	55	27.74%
q39. All material available for browsing	56	27.55%
q87. Expenditure per FTE student	57	26.47%
q45. Borrowing entitlement	58	26.26%
q76. Communication with user groups	59	24.99%
q08. Level of staff training	60	24.23%
q09. Workload levels	61	24.04%
q55. New stock notification	62	23.99%
q01. Staff per FTE student	63	23.47%
q47. Proportion of stock in short-loan	64	23.13%
q60. Printed serials indexes available	65	22.44%
q52. User recommendation mechanisms	66	22.39%
q88. Expenditure per FTE researcher	67	22.25%
q64. Sanctions policy	68	21.04%
q75. Openness of management procedures	69	20.70%
q17. Provision of carrels	70	20.46%
q16. Provision of group study rooms	71	20.15%
q53. Feedback to users	72	19.84%
q40. Usage of reference collection	73	19.51%
q68. State of repair of stock	74	19.29%
q06. Counter staff expertise	75	19.15%
q77. User involvement in decision-making	76	18.65%
q29. % potential users using the library	77	18.48%
q27. Library proximity to teaching areas	78	18.20%
q84. % material budget spent on research	79	17.17%
q83. Books : serials budget	80	16.60%
q73. Use of planning procedures	81.1	16.17%
q85. Staff budget as % of library budget	81.2	16.17%
q21. Provision of audio-visual equipment	82	14.81%
q07. Proportion of qualified staff	83	13.31%
q86. Cost per item	84	12.47%
q72. Stock development policies	85	11.78%
q30. Vacation : term time usage ratio	86	10.80%
q28. Refreshments proximity to library	87	10.59%
q10. Staff involvement in organisation	88	10.28%
q41. % collection borrowed	89	10.02%
q71. Management policies	90	6.58%

ture between books and periodicals, *Proportion of staff professionally qualified*, *Cost per item (books) added to stock* and *Speed of acquisition of new material*. The same difference of under 1% applies to four issues ranked lower by providers: *Availability of periodical indexes on CD-ROM*, *Adequacy of seat numbers*, *Provision of audio-visual equipment* and *Extent of involvement of user groups in decision making*. It is noticeable that these middle-ranking issues are evenly balanced between management and service issues. The larger percentage differences show that in general, the providers rated higher by at least 10% the management issues related to budgeting, cost efficiency, cost effectiveness and staffing matters, such as *Proportion of library budget spent on staff*, *Expertise of enquiry desk staff when needed*, *Cost effectiveness of library* and *Openness of management procedures*. The issues they rated lower by at least 10% were service issues, such as borrowing and library stock, exemplified by *Flexibility of loan periods*, *Number of items borrowable at one time*, *Adequacy of library collection compared to other institutions* and *Quietness of study environment*. This division is even more obvious in the higher rankings, by at least 20%, which providers gave to: *Expertise of issue desk/counter staff*, *Ease of use of public catalogues*, *Competence of library management* and *Level of staff training and development*. They gave lower ratings by at least 20% to two cost issues: *Cost of photocopying* and *Extent to which services are free*.

STAKEHOLDER GROUPS AND THEIR CONCERNS

Each group had its own agenda, no doubt related to special characteristics, such as student poverty or the increasing involvement of academic staff in administrative work. There was, however, a tendency for each group to look upwards to the next group in the academic scale, most notably in the overlap between the interests of some researchers (both postgraduates and staff) and academic staff, and also in the higher ratings given by senior library staff to some management matters than to some user-orientated issues. Nevertheless, by looking at the priorities attached to the suggested performance issues by stakeholders, whether as one group, as the two basic groupings of providers and users, or as individual groups, it is possible to identify some general issues and some problems which universities would require to consider, taking into account the characteristics of their own constituencies. For example:

- Users do not seem to be very interested in involvement and feedback issues, although they rate *Extent to which users are made aware of services* available highly.
- The above point may be allied to the apparently low interest in internal library management and also to the low value placed on the mission statement approach.
- Relevant and adequate *Match of open hours to user needs* is important to everyone, including university managers.
- Computers for general use are important to undergraduate students although not to groups at postgraduate level and above.
- Because of its generally low ranking, there may be a case for reducing audio-visual provision.
- All student groups rate the availability of multiple copies very highly.
- Some user groups, particularly undergraduates and postgraduates on taught courses, do not appear to be interested in IT applications.
- The provision of multiple copies, together with IT issues and cost issues, constitute possible areas of conflict, not only between providers and users, but also amongst identifiable groups.
- On some key issues (eg. *Extent to which services are free* and *Cost of photocopying*) senior library staff identify with university managers rather than their users.
- There is a need to invest more time and effort in user education and information services for part-time students who emerged as the group most in need of help and which receives least.
- Some contradictions relating to staffing arose in the analysis of the questionnaires. There was a high ranking for *Availability of enquiry desk staff when needed* but a low rating for *Counter staff expertise*, *Levels of staff training* and *Proportion of qualified staff*, and a relatively low ranking for *Subject specialists available to provide assistance to users*.
- When viewing the table dealing with rankings for all stakeholders (Figure 1), it is noticeable that

some issues which are traditionally regarded as important by librarians were rated lowly. Therefore, librarians would require to use their professional judgement when making decisions about issues to be included in surveys of individual stakeholder groups:

6 Expertise of issue desk/counter staff (19.15%)
7 Proportion of staff professionally qualified (13.31%)
8 Level of staff training and development (24.23%)
9 Level of library staff workload (24.04%)
16 Provision of group study rooms (20.15%)
17 Provision of personal study rooms (eg. carrels) (20.46%)
47 Proportion of stock restricted to short loan (23.13%)
60 Availability of printed periodicals indexes (22.44%)
64 Equitable and effective sanctions policy (eg. fines) (21.04%).

QUESTIONNAIRE SKELETONS

One objective of this study was to design semi-standardised questionnaire skeletons which could be employed as a reliable method of surveying satisfaction with library services. It was found that the important issues identified by all subgroups were mainly covered in the "overall" library users results. The exception was the research users' preferences because of the relatively small size of this group as compared with the others. Although there is not sufficient difference to justify a questionnaire for each stakeholder group, it became apparent that separate surveys for users, providers and research/academic staff would be desirable, making a total of four questionnaires. The principle followed for each questionnaire was to discard issues which received a rating of less than 25% and to include those which received a rating of more than 40%, although some amalgamation of issues was made.

CONCLUSIONS

A particular value of the project was the inclusion of a large number of respondents, thus allowing identification of the characteristics of stakeholders and of the influence these have on different groups' requirements for library services. Each group was large enough to allow some consensus on different concerns to be reached, so that the user-orientated approach to performance measurement was supported. When considering individual stakeholder groups, it became clear that for many users there is still a "them and us" attitude in place, with library staff and university management on one side and users on the other. There is a tendency for each group to look upwards towards the next one, so that, for example, management issues become more important to researchers and to senior library staff.

Ranked outputs of performance issues were produced, both by all stakeholder groups in all institutions (Figure 1) and by individual stakeholder groups. Comparisons were made between service provider stakeholder groups and user stakeholder groups and also between pre- and post-1992 universities. Of the 91 issues included in the questionnaire, 18 were rated as "very important" by at least 40% of the combined stakeholders and could be regarded as the key performance issues:

2 Helpfulness, courtesy of staff
4 Availability of enquiry desk staff when needed
5 Expertise of enquiry desk staff
18 Provision made for disabled users
24 Amount of regular maintenance of equipment
26 Adequacy of seat numbers
31 Match of open hours to user needs
42 Provision of multiple copies of items in high use
43 Speed and accuracy of re-shelving of materials
44 Availability of sought material on the shelf
56 Proportion of materials listed on computer catalogue
57 Availability of library catalogues throughout the library
58 Access to library catalogues/CD-ROMs/ internal databases via networks throughout the campus
65 Overall user satisfaction
70 Competence of library management
78 Total amount of library budget

79 Total amount of library budget as proportion of university expenditure

80 Flexibility of library budget to respond to new subject areas.

The above preferences show that there is more interest in direct user services and the ability of library management to deliver them than in involvement and feedback issues. If the university is interested in involving users in decision-making, rather than just making them aware of what has been decided, it would need to look at mechanisms which would encourage them to be involved in future planning. This point may be allied to the apparently low interest in internal library management and also to the low value placed on the mission statement approach. Both *Number and quality of written management policies* and *Use of planning procedures (long and short term)* received low ratings. Users are more motivated by the provision of hard information about services than by the possibility of involvement in strategic planning, a fact which has particular implications for the planning of user education and the identification of relevant publicity material relating to library services.

It was not possible to identify an objectively validated method of recognising the most important and least important issues. The figures of 40% of respondents' highly placed preferences and 25% for low preferences, which were used as cut-off points, were reached by studying the tables of rankings and making a subjective judgement.

Planning of library accommodation could be influenced by the low rating given to *Provision of group study rooms*, *Provision of carrels* and *Proximity of refreshment service during library open hours* as well, of course, by university-wide decisions about the provision of computers for general use. These issues are usually the outcome of the teaching methods favoured by the university, and regular evaluation of this requirement would need to be undertaken.

Because of its generally low ranking, there may be a case for reducing audio-visual provision. This would have implications for purchase and maintenance of equipment and for appropriate staffing.

Since all student groups rate the availability of multiple copies very highly, there could be implications for the supply of electronic textbooks. On the other hand, some user groups, particularly undergraduates and postgraduates on taught courses, do not appear to be interested in IT applications, and the idea of the Virtual Library may not be attractive to them. This attitude may require to be addressed if full advantage is to be taken of developments in this field. However, it is evident that attitudes to IT issues vary from one university to another and from one stakeholder group to another and each institution would be advised to study this issue in more depth.

The provision of multiple copies, together with IT issues and cost issues constitute possible areas of conflict, not only between providers and users, but also amongst identifiable groups. Consideration would also have to be given to the rating for *Extent to which services are free*, which was highly rated by users but lower by service providers, and to the fairly low rating for *Equitable and effective sanctions policy*. The possibility of charging for some services, such as photocopying, microform copying and interlibrary loans would have to be considered in the light of users' concern for the availability of free services.

There is a need to invest more time and effort in user education and information services for part-time undergraduates, whose access to the library is limited by time constraints and, often, poor information-seeking skills.

Some contradictions relating to staffing arose in the analysis of the questionnaires. There was a high ranking for *Availability of enquiry desk staff when needed* but a low rating for *Counter staff expertise*, *Levels of staff training* and *Proportion of qualified staff*, and a relatively low ranking for *Subject specialists available to provide assistance to users*. It is questionable whether participants understood the difference between enquiry staff and subject specialists, and they were not necessarily knowledgeable about the skills required by counter staff, the depth of knowledge acquired by subject specialists or the need for staff training. It would seem necessary to give more information to users about the skills, expertise and training of library staff, so that they could make more appropriate judgements about the level of assistance they require.

The comparison with current performance measurement documents demonstrates that, in some

instances, notably the recommendations of the Follett Report (Joint . . , 1993), the stakeholder approach to performance measurement would yield helpful information which would support the report's aims. *The Effective academic library* (Joint . . , 1995) is orientated towards traditional input measures and is particularly weak on staffing and electronic issues. The ISO document omits some library activities and services for which no tested indicators were available, principally in the area of direct user services (ISO . . , 1998). The IFLA indicators (Poll and Boekhorst) also omit references to some aspects, such as space, equipment, budgets and staffing. Use of these documents would be enhanced by qualitative data provided through stakeholder surveys.

The response to the call for participation in the project suggests that there is a limited number of institutions interested in performance research and that interest lies principally with the newer universities. However, the possibility of co-operation within a network of institutions and of creating standardised survey questionnaires has been demonstrated by the methodology of the stakeholder approach. It is suggested that this would be a valuable technique to employ in benchmarking.

Consideration of the research carried out by Cullen and Calvert (1995) in New Zealand points to the prospect of valid international comparative studies, given a reasonable match of aims and administrative framework within the institutions being compared.

SOME IMPLICATIONS

A linked focus group investigation using data derived from the Stakeholder project.

Questionnaire-based evaluation at Glasgow Caledonian University Library in Spring 1996 and some programme board feedback had drawn attention to substantial dissatisfaction among part-time students (and those on non-standard modes of attendance) about certain aspects of the Library's services. This was reported to the Learning and Teaching Committee in October 1996 and it was decided to investigate the matter further by means of focus groups. Using data from the questionnaire evaluation and the Stakeholder project the following list of issues was identified for discussion:

1) Loan periods especially short loan periods
2) User education/how students use the Library
3) IT skills/use of electronic services
4) Library publications
5) Staff helpfulness
6) Enquiry desk services
7) Availability of library materials
8) Opening hours
9) Costs eg. photocopying.

Because of the different levels of course and the heterogeneity of part-time students, some issues emerged which characterised each group, but the following general issues emerged.

1. **Short loan collection.** It is considered inappropriate to the needs of part-time students. Solutions suggested included lengthening short loan periods and re-instating the part-time collection.
2. **More induction and user education.** All groups reported lack of knowledge about the Library's services and how best to use them, a point directly supported by the BLRIC study. Concern about understanding and using electronic services was acute.
3. **Opening hours.** These were felt to be unsuitable to part-time students. Such success as the Library has had in extending opening hours was supported, especially Sunday opening. Last book issue at 8.45 pm was criticised as being inappropriate to part-time students whose lectures do not finish till 9 pm.
4. **Staff helpfulness** was criticised especially by Social Science students who said library staff treat them like teenagers and are not user-friendly. This deters some part-time students from using the Library. The City Campus building was felt to be large, intimidating and like a supermarket.
5. **Remote electronic access.** This was found to be difficult by all who had attempted it.
6. **Access to core texts** (links with short loan collection). This was felt to be poor. Not enough copies, and full-time students get priority because of more frequent access to the library. (Directly supported by the BLRIC study.)
7. **Electronic services.** Not enough is known about them. Difficult to access off-site. If off-site access to OPAC were easy it would be possible to advance book items from the short loan collection.

8. **Photocopying service.** Machines unreliable, not enough of them. Long queues to use them which wastes part-time students' limited time. Also link with short loan collection. Because they can access short loan items for only a short time, they have to photocopy relevant items, resulting in additional costs. (Supported by the BLRIC study.)

STAKEHOLDERISM

The project aimed to identify empirically viable stakeholder groups and successfully accomplished this. Recently "stakeholderism" has emerged as a popular ideology and has even been espoused by the Prime Minister who believes that competitive success in business comes from a stakeholder approach and that companies which treat their workers as partners are the ones which succeed (Blair, 1996). Several large companies have taken up the idea and, as yet, it exists mainly as a macro-economic idea. Will Hutton (1997), the editor of the *Observer* in *The State to come*, an overt attempt to influence the new Labour government, links "stakeholderism" with the following:

1. the promotion of an investment culture;
2. the promotion of intermediate institutions between government and the electorate;
3. a bottom-up rather than top-down approach to government and administration;
4. the promotion of equality;
5. the sharing of responsibility.

To what extent this philosophy is applicable to the public sector in general and to librarianship in particular requires further debate but there are germs of the idea in *The Effective academic library* Para 1 Integration and Para 2 User satisfaction, especially Para 2.35 which states:

> "Library managers should ensure that user constituencies are regularly invited to appraise the effectiveness of the library operations and services".

The key question is: What mechanisms in university libraries are likely to facilitate stakeholderism? Qualitative mechanisms can be resource intensive and likely to lose credibility if they do not produce timeous, useful results. However, stakeholder mechanisms are likely to be more successful and valued if they are seen to promote the integration of the library into the university community as proposed by the *The Effective academic library*. Another potential stumbling block is the possible hostility between senior library managers who do not seem to identify with user stakeholder groups on some key issues. However, Davies and Kirkpatrick (1995) have argued that, as a result of the imposition of performance indicators, academic librarians have lost much of their workplace autonomy. While their case is open to argument, it raises the question of whether new means of accountability can offer a useful way forward.

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The Use of Focus Groups in the Evaluation of Services

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Focus groups have been used for some time at Huddersfield University Library as one of a number of performance measurement and evaluation methods. The use of focus groups has recently been expanded in order to enhance the receipt of user feedback and the assessment of user services. The paper outlines the work undertaken to date, and makes some assessment of the usefulness of the techniques employed. Procedures undertaken in the organisation of focus groups are detailed. Techniques of facilitating groups and of conceptual mapping are outlined. Details are given of the focus groups' perceptions of the library induction process, the loans service, the short loan collection, and of potential service developments. Concludes that the use of focus groups to evaluate services is worthwhile.

This paper builds on work already being undertaken at the University of Huddersfield to assess performance measurement. Focus groups have been used over a period as one of a number of performance measurement and evaluation methods. The overall aim of the programme is to provide necessary management information relevant to both internal and external needs and also to allow a more effective interpretation of what is happening in a library and, therefore, to assist in the anticipation of future trends and directions (Hart, 1995).

Previously our use of focus groups had concentrated on addressing quite specific issues such as silence policies. For the first time this year we addressed issues in relation to a whole service, specifically Lending. This was new because of the complex nature of the Lending service which comprises a number of elements and a variety of processes and procedures. We wished to examine Lending in a qualitative fashion without necessarily focusing entirely on the issues of human interaction; to conduct this examination from a variety of "perspectives" and to see how well each could be addressed by a conceptual mapping technique; and finally we wished to see how much focus groups added to our sum of knowledge and whether they were, in fact, worth the investment of time and energy in an evaluation of service areas as opposed to relatively specific topics.

WHAT IS A SERVICE?

Let us begin by briefly looking at qualitative issues specifically in relation to services. Firstly what is a service? It is not always tangible and not necessarily a concrete activity but is usually made up of a series of activities and processes. The characteristics of a service have been widely discussed and suggested in the literature (Lovelock, 1983) and some basic characteristics can be identified:

- Services are activities or a series of activities and processes;
- Customers or clients may participate in these activities or processes to some extent;
- Services are usually produced and consumed at the same time by clients or users.

For example, at a minimum level in the lending operation, users or clients have materials issued to them, consuming and receiving the lending service simultaneously at the issue point. However, the model can be more complex; for example, clients may wish to borrow items that are not available and require recall. They participate in the process of that service by initiating it and consume the output ultimately. They do not necessarily participate in the interim but take that part of the process of the service on "trust". Here is a key difficulty with attempting to assess the quality of a service. Trust can be subjective and also be directly related to user perception. How do you quantify or assess a feeling or a perception?

USER PERCEPTION

This consideration of what a service is helps in an appreciation of why focus groups might be useful in any evaluation. We have already discovered that

focus groups are very good at providing views of user perceptions (Hart, 1995). The quality of a service can also be related to user perception. Gronroos (1988) has defined qualitative issues in relation to service as: "Quality is what customers perceive". As such, the way libraries manage user perception can have a direct bearing on the perceived service quality. Users who have inappropriate or unrealistic expectations of a service are inevitably disappointed. Similarly the perception of relatively slow or poor quality service can also be masked by a variety of factors. For example, a new and prestigious building or, more often, the actual participation of the client in the service can influence perception. If you enter a new, light and attractive building it is easier to perceive that you wish to share the values that the building (and presumably the services within it) represents. Similarly, self-service allows direct participation which can often lead to a perception of a better service because certain steps of the service process are carried out by the user and might therefore be perceived as reliable (whether this is actually true or not).

Our study is based on the idea that user perceptions of quality go well beyond the behavioural. While in libraries we are often quite good at the operational issues, we perhaps do not place as much emphasis on the marketing or management of perceptions and the expectations of our users. As such, there is frequently a gap between the expectation and the reality.

The basis of our perceptual analysis of the focus groups carried out on the topic of lending are the six criteria of good perceived service quality as defined in the marketing and management literature by Gronroos:

- Professionalism or skills.

  Essentially related to an understanding that the individuals delivering the service have the ability to provide what is required.

- Attitudes and behaviour.

  Essentially service with a smile and, more importantly, service perceived as delivered with genuine interest and commitment by staff. It is sometimes easy to tell the difference!: what we have referred to ourselves as the "Have a nice day" factor. A recent publication (Whipple, 1994) stresses the need to appoint service staff with appropriate attitudes rather than skills on the basis that skills can be taught but attitudes not necessarily changed.

- Accessibility and flexibility.

  A difficult one for any libraries but particularly those with limited resources. We constantly ask our users to adjust to our operating criteria and demands rather than the other way around. How well we explain what our operating criteria are is therefore likely to directly influence perceptions of service quality.

- Reliability and trustworthiness.

  Reliable delivery. One failure is equal to many successes and is inevitably the remembered occurrence. Note here the word "trustworthiness", the assumption being that we as library staff have the best interests of our users as our key objectives. This is often true but is not necessarily the message that comes across.

- Recovery.

  In the event of the unpredictable happening, some level of corrective action will be taken by the service provider. An example might be a missing item - how quickly can libraries take corrective action and how reliable is that process?

- Reputation and credibility.

  Essentially the image factor: again very important because, if users share the values a particular library represents (its "image"), then they are more likely to treat it with respect and care.

Naturally all the above issues overlap and merge!

METHODOLOGY

No doubt you are all familiar with focus groups as a research method so I will not go into the fine detail. However, I would like to outline some of the procedures undertaken in the organisation of focus groups at Huddersfield:

Firstly, the preparation, which necessitated:

- a comfortable, informal relatively "neutral" setting;
- an inducement to attend (each participant would receive a book token as payment for her/his attendance. This payment was not performance-related!);
- a set of objectives.

Secondly, the scene-setting, comprising:

- asking participants to introduce themselves (name and course) and indicate why they chose to attend the group;
- explaining the concern of the Focus Group;
- clarifying the role of facilitator, stressing that intervention would be kept to a minimum to encourage the participants to exchange views between themselves, speaking their mind and responding to the comments of others;
- highlighting the fact that there were no "right" or "wrong" answers; that their responses could be positive or negative and they should feel free to speak without raising their hands before so doing;
- stressing when interjection by the facilitator would be made, for example to challenge their views (though ideally they would do this as a group).

The Search for a Facilitator

Look no further! Two focus groups were facilitated by a member of the Business School and two by myself (Patricia Gannon-Leary). While I am a member of library staff, I am not so well known to the students as eg., my colleague Lorraine Noel who, as a front-line manager, might have been less appropriate to conduct the groups.

Guiding the Facilitator

The facilitator from the Business School had prior experience of conducting focus groups so was familiar with the guidelines, but I did prepare a prompt sheet for use as and when necessary. This prompt sheet was to serve as a catalyst for group discussion. Responses to the prompts sometimes pointed out areas which merited deeper analysis through ad-lib questioning so it was necessary to be flexible enough to pursue thoughts and ideas suggested by the participants that might not have been anticipated.

As well as keeping to the topic and covering all questions, we as facilitators had to:

- avoid talking overmuch ourselves;
- encourage all group members to participate;
- play devil's advocate (don't assume silence indicates consensus);
- retain a sense of humour!

Analysis was undertaken by myself and my two colleagues. We each had copies of tapes from all four focus groups. We independently prepared an analysis of each group and its emergent key topics. We decided on this approach rather than each analysing one focus group or a key topic because we felt that, since we each hold a different position in the Library, we would approach the analysis in different ways. Not only were we looking at Lending Services from the users' perspectives but we were responding to these perceptions in different ways, depending partially on our own perspectives of the performance of Lending Services. For example, Elizabeth Hart - as Assistant Director - was taking an overview and focusing on quality issues; Lorraine Noel - as Lending Services Supervisor - was looking at operations, efficiency and effectiveness and taking a much more detailed approach; Patricia Gannon-Leary, as User Services Manager, was offsetting problems highlighted by the groups against solutions posited by the groups - it was also pointed out to me that I could be identified as a one-time cataloguing co-ordinator by my tendency to cross-reference some of my analytical headings with "see also" references!

Conceptual Mapping

Perhaps it was not altogether inappropriate that I should don my cataloguing hat for the exercise, since the conceptual mapping technique which we elected to use might be compared to a classification system. While our analyses partially consisted of the anecdotal, in that we quoted snatches of key comments, we also homed in on recurrent themes. Conceptual mapping facilitated the evaluation of the richness of the data from our various perspectives. Since this was qualitative rather than quantitative data, our interpretations could have been subjective and we might have read meaning into the data which others might not share. This was partially mitigated by the fact that all three of us independently analysed all four sessions prior to collating and interpreting our findings.

Each group was treated as an independent unit. While we did not measure the extent to which perceptions were expressed, by eg. word-counts or measurement of the length of time which a group spent in expressing a particular perception, we did derive a pattern of concepts.

Key themes common to all groups emerged. While several key themes ran through the four groups, we decided - because of the time constraints of this presentation - to focus on four. These were:

- the induction process
- the loans service
- the short loan collection
- future developments.

I would stress that these focus groups are only the beginning of our exploratory research which should generate hypotheses and identify further issues to be raised, questions to be asked. As a research method, the focus group dynamics allow the emergence of aspects of a topic that we, as researchers, have not anticipated and a more formal measurement process such as a questionnaire would not have allowed for. We were not inhibited by the straitjacket imposed by, eg. using a software package in our analysis. Important insights into users' perceptions may be gained and an opportunity afforded for positing solutions to perceived problems. While the small numbers involved can't be expected to represent a population, the dialogue engaged in by the groups does give us a snapshot of some users' beliefs and attitudes.

Group dynamics have positive aspects in that interactivity may promote candour and spontaneity, tapping into perceptions and providing useful insight. Lorraine Noel and Patricia Gannon-Leary, as novices to the focus group method, were encouraged by how rich the data was and felt that the involvement of three of us, looking at the users' perceptions in three different ways gave us valuable results. What we came out with at the end of this exercise is illustrative of the perception rather than the reality, as will be exemplified in Lorraine's conclusion - eg. perceptions about the inaccessibility of short-term loan items at weekends vs. the reality of our weekend opening hours; perceptions of the slowness of our computer system vs. our recently upgrading the system and increasing its response time! What we came out with also highlighted the difference between our own perceptions or needs and those of our users, eg. we viewed our short loan collection as the solution to many of the problems of our users, but they indicated that it might pose more problems than it solves!

The conceptual mapping technique was then related to the Gronroos model of the "Six criteria of good perceived quality". There was, in fact, enough data to apply all six criteria but limits of time necessitate our focusing specifically on our findings relating to the "accessibility and flexibility" element of the model in which Gronroos said that customers should feel that " . . . it is easy to gain access to the service and, . . . that they (the service providers) are prepared to adjust to the demands and wishes of the customer in a flexible way".

ANALYSIS AND CONCLUSIONS

In this snapshot of the analysis of the study we have deliberately concentrated on the more negative aspects of the data because it was felt that these were the more interesting issues which needed to be addressed.

Induction Process

As a starting point, we felt that it was important for us to establish whether our users actually knew how to access our services. When asked about the induction they had received, the focus groups made the following points:

- The content of even a basic induction seemed to vary between Faculties and courses.
- The process was described as "pathetic", "short" and "rushed".
- There was insufficient liaison between the Faculties and the Library regarding the programme content.
- Significant numbers of users found the technology difficult to use and could not even conduct an "informal browse on the catalogue".
- The induction programme provided to part-time students was considered particularly poor.

It was interesting to note that the Library staff were not held either responsible or accountable for the poor quality of the induction programmes. Indeed, the responsibility and the impetus for the organisation of the inductions was perceived by the focus groups to be with the university teaching staff.

It was also interesting to note that having the knowledge, training and skill to access Library Services was regarded by the focus groups as a very important issue. This was evident in the length

of time they devoted to discussing various solutions for improving the service, ie. making inductions compulsory, providing "self-teach" packages on the library catalogue to supplement inductions, and developing an integrated Library/Computing skills module.

Loans Service

With regard to our loans service, we have attempted to maximise "accessibility" for customers with the adoption of certain loans policies. We have also attempted to be "flexible" and we responded to "customer demand" by, for example, introducing an "unlimited" renewals policy. Yet, whilst it was pleasing to discover that the focus groups generally considered the loan periods and entitlement to be "appropriate", gaining access to materials was perhaps the single biggest preoccupation of the groups and it was perceived to be the most problematic. The reasons for this were very diverse and included:

- Abuse of the system by other users, eg. willingness to pay fines rather than return a reserved item.
- Lack of user awareness, eg. that they could borrow a range of materials such as videos and CD-ROMs.
- Under-resourcing, eg. course module leaders recommending core texts without checking availability in the library.
- Ineffective library systems, eg. untidy shelves, "slow computer system". (It should be noted here that the Library System was upgraded in 1995 and it works very quickly, yet the perception still exists that the system is slow.)

The information we gathered from the focus groups about our loans service proved to be particularly notable because:

- It was the area that the groups had the most knowledge about and yet, at the same time, the most misconceptions.
- The groups discussed the adoption of more punitive measures to punish abusers of the system than we have ever considered.
- Rather than being welcomed by them, our renewals policy actually concerned them and was perceived to be a prime target for abuse. One member actually said: "Now I know I could probably get away with renewing indefinitely".

Short Loan Collection

The focus group perceptions about the Short Loan service were perhaps the most surprising of all to Library staff. We had adopted a number of measures in order to improve the "accessibility" and "flexibility" of the service (ie. making the collection open access, increasing fines rates to encourage users to return items promptly), yet:

- Focus group members described the service as "bureaucratic" and "complex".
- The high fine rates were considered "too costly".
- Short loan received little explanation during induction.
- Loan periods were "unrealistic".
- The Collection was "inaccessible" over the weekend. (Again it should be noted here that this is another example of user "mis-perception". Ironically, weekend opening exists to allow users the potential to access materials at some point during the weekend).
- The Collection would "only be used in an emergency", if all loan copies were unavailable or to borrow photocopies.

However, on a more positive note, the findings were of interest for two main reasons:

- They indicated that by "re-vamping" our Short Loan Collection, we appear to have inadvertently created more problems for our customers than we had initially attempted to solve.
- They illustrated how customers will compensate for perceived "inadequacies" in the system by developing their own "solutions" to maximise the benefits they can receive from the service. Focus group members described how they "planned" their approach to using the Library, how a "club" method for photocopying existed within certain course groups and how it was important to "pick your times".

Future Developments: Self Issue/Virtual Library

We were keen to gauge opinion about our existing self-service facilities (renewals, reservations) and to determine how users would react to the introduction of additional electronic library services.

With regard to future developments, focus group members did, as anticipated, welcome the idea of being able to do more for themselves. However,

they were still somewhat cautious and they indicated that they would feel happier about the introduction of more self-service facilities:

- if it worked;
- if users received adequate training;
- if enough self-service points were provided;
- if a self-service issue system could "run alongside" the current system for those users who had difficulties or were not yet ready to use self-service.

It was interesting to note that when discussing the concept of the "virtual library", although this would potentially allow them the ultimate "accessibility" and "flexibility", the focus group felt that the "pleasure" and "excitement" of actually visiting the library would be removed. The ability to communicate with people, maintain human contact and the use of their legs still seemed very important to them.

Conclusions

The results of our research have led us to a number of conclusions:

- the use of focus groups to evaluate services is worthwhile;
- it is possible to successfully evaluate a service as opposed to just a "specific topic" by using focus groups;
- an enormous amount of rich and valuable data is now available which is relevant to a wide range of needs;
- it is beneficial to initially cover a number of general areas relating to a service in focus groups. We now feel that we have a good view of more specific areas that will need to be addressed in future focus groups work which will be undertaken in combination with other performance measurement methods;
- we feel that we have been guilty of making assumptions about user needs. Our current research has definitely indicated that the issue of customer perceptions and more specifically our management of them, is an area of research that should be explored in the future.

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Cronbach Revisited: Positive Bias: A Powerful Enemy to Validity in Library Services

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The paper describes the design of the Reference Transaction Assessment Instrument (RTAI), used by the Wisconsin-Ohio Reference Evaluation Program to measure the quality of reference service since 1983 in 110 academic and 121 public libraries in the US and Canada. Longitudinal data on the condition ofacademic reference service is presented. The background, theory, rationale, procedures and outcomes of the Program are outlined. Methods of eliminating bias are described. Validity and survey design are discussed, the diagnostic power of RTAI is illustrated, and the Program is analyzed in terms of successes and failures in meeting major goals. Success rates have risen for academic libraries of all sizes, but the rise has been greatest for small libraries. Increased success rates for nonprofessional staff are noted. The cumulative data collected will continue to grow in value.

Introduction

Marjorie Murfin: The purpose of this paper is twofold: to describe the design of the Reference Transaction Assessment Instrument which has been used by the Wisconsin-Ohio Reference Evaluation Program (WOREP) to measure quality of reference service over a 15-year period, and to present some of the longitudinal data we have accumulated on the condition of reference service.

To summarize the program, we have:

(1) developed a relatively bias-free instrument;

(2) set up a scheme of data collection where libraries are divided into three groups by collection size;

(3) provided for analysis of the data so as to produce norms or benchmarks for each size group, and best-practice benchmarks for the top-scoring library in each group;

(4) developed a computerized scanning system to input library data;

(5) developed a computerized analysis program which produces a 17-page statistical report for each participating library;

(6) continued to maintain a cumulative database for research purposes.

Each library's report covers (1) input variables such as types of patrons and questions and reference environment, (2) process variables such as librarian responses, problems reported by librarians and sources used, and (3) outcome variables such as success in finding what was wanted, quality of the interpersonal interaction, quality of reference communication, and amount learned by patrons. All measures are given in terms of both frequency and success, accompanied by benchmarks. The definition for success will be discussed at length later.

To begin, I'd like to borrow a story from Janine Schmidt of Australia concerning the state of reference service in 1980. It emphasizes the three greatest lies: "one, your check is in the mail; two, I'll love you as much in the morning as I do tonight; and three, I'm a reference librarian and I'm here to help you".

This illustrates the low point to which reference service had sunk in 1980 when Janine told this story at the ALA Preconference on Reference Effectiveness. And this is how Charles Bunge and I came to start the Wisconsin-Ohio Reference Evaluation Program in 1983.

Dr. Bunge has now retired and Dr. W. Michael Havener is the new director. The program is based on the Reference Transaction Assessment Instrument (RTAI) which consists of a two-page form, one part to be marked by the librarian and one by the patron. Each half has the same number so that both halves of the transaction can later be computer-matched. This form has been used to evaluate reference service in 110 academic and 121

public libraries in the US and Canada. Figure 1 shows the sizes of the 110 academic libraries who have participated in the WOREP to date.

Procedures for the survey are described in more detail in Appendix 1. After the survey is completed, forms are mailed to the Project Office where they are scanned on to tape and run through a customized computer analysis program. The resulting statistical report is then mailed to the participating library. You will find in Appendix 2 a sample page from the 17-page statistical report that participating libraries receive.

Benchmarks

The sample page of the statistical report in Appendix 2 displays data in four columns. The profile in the first column represents the raw data and percentages for the participating library. The second column represents the profile for other libraries of the same size and type. The third column serves as a "best-practice" benchmark, and represents the profile of the top-scoring library in that size group. The fourth column represents the profile of all libraries that have participated in the survey to date.

Both norms and best-practice benchmarks appear to have had positive effects. They seem to have motivated libraries in the adequate category to become better, and those already in the good category to maintain or improve their quality of service. This is evidenced by the fact that six libraries in the adequate to good category and one in the fair category chose to repeat the survey at a later time in an effort to improve their reference service.

The effect of benchmarks on poor libraries (50% and below) is less easy to assess. Generally, they did not appear to derive immediate benefit from the survey because the problems which placed them in the poor category tended to be intractable and of long standing. The process of improvement tended to take several years in cases where we received some feedback. Common problems were that these libraries were unclear about needed changes, or unable or unwilling to make them.

Another positive result of the benchmarks was the fact that no one rejected or set aside their results as not a valid reflection of their service.

Theory and Rationale of the Wisconsin-Ohio Reference Evaluation Program

What are the outcomes of the Reference Transaction? Which of these outcomes should be measured?

Cronbach suggests that a first step is to identify and measure all outcomes that are worth striving for (Cronbach, 1983). We have identified six possible outcomes of the reference transaction:

- Overall satisfaction;
- Success in finding what was wanted;
- Satisfaction with what was found;
- Satisfaction with the interpersonal interaction;
- Success in communicating with the librarian;
- Success in learning about the library and use of reference sources.

We have chosen not to measure overall satisfaction for two reasons, the first being because it is liable to inflate ratings. When overall satisfaction is used, the rater is likely to be uncertain about how to

Figure 1

110 academic libraries participating in the WOREP 1983-1997

GENERAL REFERENCE DEPARTMENTS		
Small (to 499,999 v.)	Medium (500,000-999,999 v.)	Large (1 million v. +)
31 libraries	25 libraries	22 libraries
SPECIAL SUBJECT DEPARTMENT LIBRARIES (classified by parent institution)		
X	10 libraries	22 libraries

combine a number of differing ratings into one, and uncertainty leads, as Cuadra has shown, to inflated ratings (Cuadra et al, 1967, p.83). Secondly, we do not use this measure because the combining of a number of outcomes into a single rating makes this rating difficult to interpret in a meaningful manner. Tagliacozzo says, "especially those questions which elicit general overall judgments of the service provided by the system should be looked at suspiciously" (Tagliacozzo, 1977). We do, however, measure the five other outcomes shown above.

Which Outcome Should be Chosen as the Primary Measure?

Which of the above outcomes is the most important for us to know and should be chosen as our central measure? We have chosen success in finding what was wanted as the most important for several reasons. The first and most important reason is that it is central to the mission of the library. We define success as does Cotta-Schønberg who defines the library's mission in terms of the user as "users getting what they need when they need it" (Cotta-Schønberg, 1995). The second reason is that success in finding what is wanted is shown by our data to be the lowest score of all the outcomes, as can be seen in Figure 2.

By choosing success in finding what was wanted as the central measure, we are focusing our effort on the area most in need of improvement. We are also setting high standards for library performance by concentrating on the goal that is most difficult to reach.

Will Some Other Measure, for Example, Satisfaction with the Interpersonal Interaction, Substitute for the "Found What was Wanted" Measure?

We need a measure of success in finding, but won't a measure of success in the interpersonal interaction substitute? Why can't we just evaluate the satisfaction of our patrons with the interaction? Won't a measure of our helpfulness, courtesy, and perceived knowledge tell us how successful our patrons are in finding what they want? This measure is, of course, very important, and we look forward eagerly to papers on the SERVQUAL which assesses this aspect of performance. However, our data show that a measure of satisfaction with the interpersonal interaction will not substitute for a measure of success in finding what was wanted.

Our data have found a correlation of .30 between satisfaction with the interpersonal interaction and success. It might be said that good service and success are frequently found together. However, this relationship is impossible to predict in any one library. This is illustrated for three libraries in Figure 3.

Success in Finding What Was Wanted How Should it be Measured? By User Report, or by Other Methods?

If we are convinced that it is necessary to measure the outcome of "finding", we must then decide how it should be measured. The Reference and User Services Association (RUSA) guidelines

Figure 2
Positive outcomes in 110 academic libraries

Complaint-free communication (Patron did not say "what I asked for but not really what I wanted", "Librarian didn't understand what I wanted", "I wanted a different viewpoint".)	91.77
Complaint-free service (enough time and help, courtesy, knowledgeability, understanding, and clear explanations)	80.24
Success in learning (patron reports learned something about library or reference sources)	79.64
Satisfaction with what was found	70.95
Success in finding exactly what was wanted	57.88

Figure 3

Satisfaction with the interaction and success in finding what was wanted in three libraries

	LIBRARY A	LIBRARY B	LIBRARY C
Only partly or not enough time	3.3%	5.78%	10.26%
Only partly or not enough help	0%	11.54%	20.49%
Explanations only partly or not clear	4.9%	6.73%	23.60%
Only partly or not courteous	2.1%	3.85%	10.32%
Librarian did not understand or only partly understood what was wanted	0%	5.77%	0%
Librarian was only partly or not knowledgeable	4.9%	16.35%	10.31%
Mean	2.53% (all libs 6.05%)	8.34%	12.90%
SUCCESS	45.10%	72.0%	56.42%

(American . . , 1990) imply that the user must be the ultimate judge of whether the information/ materials sought have been found.

Can Success in Finding What Was Wanted be Measured by Patron Report in a Valid Way?

WOREP data has indicated that this can be done. Indications of external validity were demonstrated when a statistician studied WOREP means for success in finding what was wanted, and those means obtained by unobtrusive observation in 1987, and found no statistically significant difference (Murfin and Gugelchuk, 1987).

Why Has it Been Believed in the Past That Patrons Were Not Capable of Making Critical Judgments About the Information/Materials Found?

During the early 1980s it became clear that patron surveys were producing greatly inflated ratings of satisfaction of 80-90% in view of rates of 50-55% success as measured by unobtrusive observation (Rothstein, 1983; Schrader, 1984).

There are two situational requirements for accurate measurement:

1. Quality of patron's judgment (ability of the patron to judge to what degree the information sought has been found).
2. Quality of the measurement instrument used to measure this judgment.

It has been noted by William Young, among others, that "the very fact of receiving help or the pleasant demeanor of the reference librarian rather than the accuracy of the information will influence patron perception of service" (Young, 1984).

Those seeking to explain the inflated ratings in patron surveys focused on the first requirement of accurate measurement and did not consider the second. Positive bias toward the reference librarian was identified; and the assumption was made that patrons, rather than the instruments used, were at fault and could not make critical judgments about information.

At that time, the discrimination of the instruments used to measure patron satisfaction was not questioned, except by Cuadra and Katter, and by Auster.

Cuadra: "Our methodologies may not be entirely adequate for the complex phenomena being studied" (Cuadra and Katter, 1967).

Auster: ". . . questions should be raised, not just about the sophistication of patrons but about the discrimination power of the instruments used to measure patron satisfaction" (Auster, 1983).

Why Did Previous Survey of Reference Satisfaction Show Results of 80-90%? Weren't Those Results Inflated?

Inflated ratings are a complex phenomenon and, to understand how they occur, one must understand the discoveries of Cronbach (Cronbach, 1950) and Cuadra (Cuadra et al, 1967).

Tendencies Toward Response Set

Cronbach was one of the first to note and study this problem in relation to questionnaire surveys. He found that most people have a tendency toward response set, or, as it might be described, marking the boxes all in one direction without exercising judgment. He also noted that this tendency can actually be *invited and activated* by certain features of questionnaire design. This tendency is controlled by other features of questionnaire design and *not activated* (Cronbach, 1950, p.29).

Cuadra, doing research under a grant, found, in regard to the judgment of information, that the "set" response was always in the positive direction. He called this the "fail-safe response" and noted that when a rater was uncertain about which rating to give, he/she always chose the higher one. He also noted the aspects of questionnaire design that activated this response and those that had an inhibiting effect (Cuadra et al, 1967, pp.83-84). Both Cronbach and Cuadra found that questionnaire design which aroused uncertainty in the respondent directly determined whether or not this tendency toward response set was activated (Cuadra, et al, 1967, pp.83-84; Cronbach, 1950, pp.14-15, 29).

Positive Bias

Following the findings of Cronbach and Cuadra, we might ask what would be likely to happen if a questionnaire design which activates response set rather than controlling it, is used. Clearly, we would see the kind of results which have been obtained in past surveys. Why was this phenomenon described by Cronbach and Cuadra represented in such highly inflated ratings?

It would appear that those results were inflated by response set or positive bias, which was activated due to the nature of the instruments used. What kind of tendencies toward positive bias exist and must be controlled by the design of the instrument if objective judgments are to be made?

Positive Bias:
- gratitude toward the reference librarian for help;
- social desirability response - the desired self-image as a library supporter.

Fowler speaks to us on this subject when he actually uses the library as an example of an institution which brings out the maximum in the social desirability response (Fowler, 1995, p.29). What features of instrument design actually invite and activate positive bias and what features control and prevent its occurrence?

Questionnaire Design

Aspects of design which avoid and prevent response set and positive bias:

1. Avoidance of an overall combined measure. This has been discussed previously.
2. Use of the most objective and discriminating measure possible.

   Success Versus Satisfaction

   Success is a more objective measure than satisfaction and less liable to inflated ratings. The user matches the specifications of what was wanted with what was actually found.

   Satisfaction is an emotional state, as defined by the dictionary, of contentment and pleasure. Even when tied to a specific outcome, emotional factors such as positive bias and tendencies toward leniency, come into play. Some users, as Cuadra expresses it, are more "lenient" in their judgments and more easily satisfied than others with the same information (Cuadra et al, 1967, p.86). For example, some users will express themselves as satisfied if they find only approximately what was wanted, while other users, under the same conditions, will express themselves as not satisfied. This can be seen in Figure 4.

Figure 4

Relationship between satisfaction and success based on ratings by patrons in 110 academic libraries

Found exactly what was wanted	6212	
Satisfied	5774	93%
Unsatisfied	438	7%
Found approximately what was wanted	3250	
Satisfied (with what was found)	1107	34%
Unsatisfied (with what was found)	2143	66%
Didn't find what was wanted	608	
Satisfied (with what was found)	9	1%
Unsatisfied (with what was found)	599	99%

3. Avoidance of continuum scales.
   Cronbach notes that continuum scales are prone to response sets (Cronbach, 1950, p.4). In spite of this good advice, we have used a scale on a rough continuum because it eases the task a great deal for the rater. However, we have attempted to compensate for the possible response set this might cause in other ways described below. Also, we have attempted to break up the continuum, and believe we have succeeded in doing so, by anchoring the success scale with short phrases to represent outcomes.
4. Preventing rater uncertainty by using sufficient scale points (six) to represent all outcomes (Cuadra et al, 1967, p.58).
5. Preventing rater uncertainty by anchoring all points with descriptive phrases (Fowler, 1995, p.55).
6. Preventing rater uncertainty by use of language as precise and specific as possible (Cuadra et al, 1967, p.84).
7. Establishing a rigorous scoring system which accepts only the first alternative on the six-point scale. It has been shown by Ankeny and others (Ankeny, 1991; Cuadra et al, 1967, p.64; Cronbach, 1950, p.7) that the first alternative on a continuum scale has very little tendency toward inflation. The second alternative was found to be strongly inflated (Ankeny, 1991).

   Requires three conditions for a successful transaction:
   That the patron:
   mark that exactly what was wanted was found;
   mark that he/she is fully satisfied;
   not mark any of the nine listed reasons for dissatisfaction.
   This gives the patron three opportunities to reflect on the success of the transaction.

   Adds a correction for possible positive bias. Adds the word "yes" to the second and third alternatives on the success scale, along with qualifiers "yes, with limitations", and "yes, not what I asked for but other information or materials that will be helpful". It was hoped that this would allow patrons to feel free to check these items *when they applied* and still feel that they were not "scoring down the nice reference librarian who was so helpful". If the first category were the only category beginning with the word "yes", it might be more susceptible to positive bias.

The RTAI as a Diagnostic Tool

Michael Havener: Marge Murfin has given an overview of the RTAI and some of the ways in which we believe it combats positive bias when analyzing the outcomes of reference transactions. In my part of this presentation, I will be illustrating the diagnostic power of the RTAI. This diagnostic power lies in the ability of the RTAI to look at the context of reference transactions. We can examine a wide range of input and process variables and see how they correlate with outcome variables.

- What is the correlation between collection size and success in finding what was wanted?
- Is there a correlation between communication difficulties and user satisfaction?

- Is there a correlation between the amount of time spent on a transaction and the patron's success in learning about the library and use of reference sources?

All of these types of questions can be answered using the RTAI. However, as Marge has explained, we believe that success in finding what was wanted should be used as the primary measure of the success of a reference transaction. I will therefore correlate input and process variables with that measure when discussing how success rates vary across contextual conditions.

The figures I will share with you today are based upon 15 years of data gathered from the use of the WOREP by 110 academic libraries. These data were compiled from 9,796 reference transactions between 1983 and 1997 and can be used to create a picture of the state of academic reference services. After first giving composite data based upon all 15 years, I will provide longitudinal data and discuss what the WOREP reveals about changes in academic reference services over the past 15 years. Time limitations will allow me to share only a fraction of the data gathered, but I will illustrate the diagnostic power of the RTAI by discussing data on:

- librarian behaviors;
- patron reports of service problems;
- patron reports of problems with information or materials;
- type of library staff; and
- collection size.

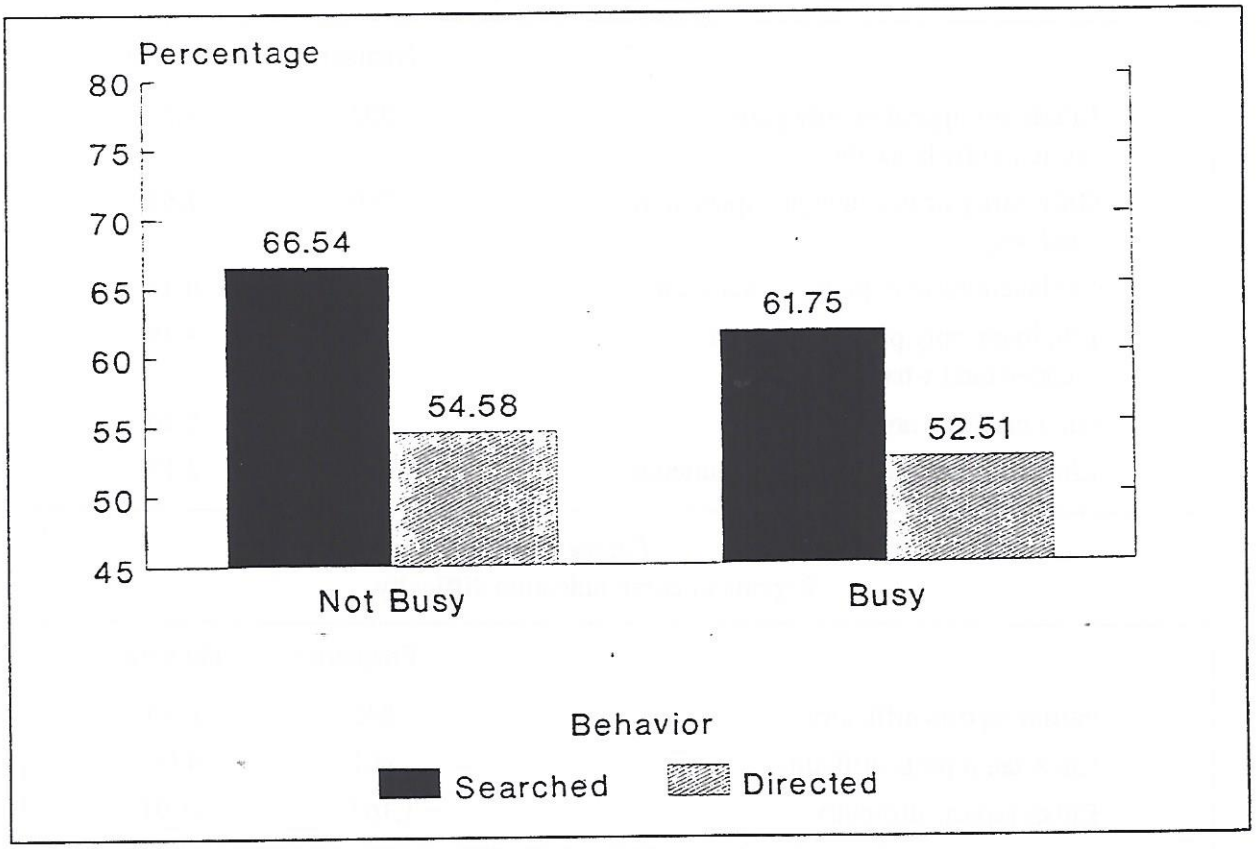
Searching versus Directing

One example of a librarian behavior that has been documented by the WOREP is searching versus directing. In response to users' questions librarians searched or helped search 53.26% of the time and directed 37.1% of the time. (These figures add up to less than 100% because of transactions that were deferred or referred.) Was there a difference in outcomes associated with these two behaviors? Yes. Patrons reported finding exactly what was wanted 65.26% of the time when library staff searched but only 54.06% of the time when directed, a difference of 11.2%.

The impact of multiple variables can have a cumulative influence on success. This point can be illustrated by looking at both the condition, busy or not busy, and the librarian behavior, searched or directed (Figure 5). Transactions during busy time

Figure 5

Success rates for searching and directing when busy and not busy



periods had a lower success rate than overall transactions. Overall success rates were 58.94%, but success rate when busy was only 56.11%, a drop of almost 3%. What impact did busy time periods have on directing versus searching behaviors? If we compare these two behaviors under identical conditions, we see that library staff were successful 11.96% more of the time when not busy and searching rather than directing. The advantage of searching over directing dropped to 9.24% when conditions were reported as busy, but this is still a sizable difference.

Patron Reports of Problems

Our data indicate librarians direct 37% of the time. They spend less than three minutes on over 36% of all reference transactions. Given these numbers, do patrons feel that library staff spend enough time with them? In 5.16% of all transactions, patrons reported that the time received was only partly satisfactory or not enough. Composite data for this and five other service problem areas are given in Figure 6.

Some type of communication difficulty was reported by either the patron or the librarian in 11.91% of all transactions; but, as Figure 7 illustrates, there was relatively little overlap between patron and librarian reports of communication difficulty. Librarians detected patron communication difficulty only 34.36% of the time.

In addition to reporting service problems, patrons could also report problems with the information or materials that they were given. Figure 8 shows these problems in order of frequency.

Professional Librarian versus Nonprofessional Staff

The appropriate level of staffing at reference desks has been debated within our profession for many years, and the WOREP can provide data on how effectively a library is using different categories of staff. As Figure 9 shows, the academic libraries in our data bank used professional librarians for approximately three-quarters of the transactions studied.

Were transactions involving nonprofessionals significantly different from those involving professional librarians?

Data show that nonprofessionals spend less aver-

Figure 6
Patron reports of service problems

	Number	Per cent
Librarians appeared only partly or not knowledgeable	902	9.21
Only partly or not enough explanation and help	746	7.62
Explanations only partly or not clear	629	6.42
Librarians only partly or did not understand what was wanted	537	5.48
Only partly or not enough time	505	5.16
Librarians only partly or not courteous	211	2.15

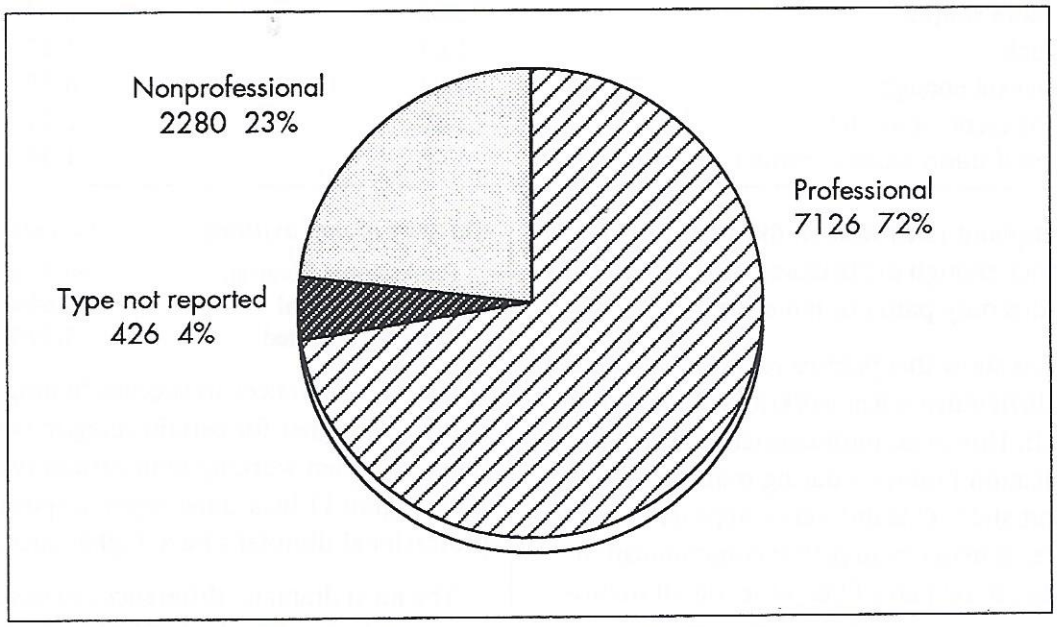
Figure 7
Reports of communication difficulty

	Frequency	Per cent
Patron reports difficulty	845	8.63
Librarian reports difficulty	401	4.09
Either reports difficulty	1,167	11.91

Figure 8
Patron reports of problems with information or materials

	Number	Per cent
Not enough	1,201	12.26
Need more in-depth	824	8.41
Not relevant enough	423	4.32
Couldn't find information in source	415	4.24
Found nothing	303	3.09
Want more simple	302	3.08
Want different viewpoint	189	1.93
Not sure if information is correct	147	1.50
Too much	108	1.10

Figure 9
Category of staff performing transaction



Data show that nonprofessionals spend less average time on transactions than professionals do. For example, they are more likely to spend two minutes or less on a question:

	Professionals	*Nonprofessionals*	*Difference*
0-2 minutes	34.87%	39.26%	4.39%

Nonprofessionals also consult fewer sources:

	Professional	*Nonprofessionals*	*Difference*
Consulted only one source	42.43%	47.29%	4.86%

As has already been mentioned, the WOREP also records patron reports of problems with service and/or information or materials. Figure 10 compares problem report rates for professionals and nonprofessionals. It shows the percentage of time that patrons reported 15 different types of problems in the course of a reference transaction.

Although the differences were not dramatic, professional librarians out-performed nonprofessionals on all service satisfaction measures and received fewer patron complaints in eight of the nine information or materials problem areas. The two largest differences between professional and nonprofes-

Figure 10

Patron reports of problems: percentage of all transactions with problems

	Professional Librarians	Nonprofessionals
Service		
Only partly or not enough time	5.04	5.13
Only partly or not enough explanation and help	7.13	9.12
Explanations only partly or not clear	5.91	8.16
Librarians only partly or not courteous	1.83	2.89
Librarians only partly or did not understand what was wanted	5.25	6.14
Librarians appeared only partly or not knowledgeable	8.44	11.75
Information or Materials		
Found nothing	3.00	3.25
Couldn't find information in source	4.11	4.56
Not enough	12.49	10.88
Need more in-depth	8.23	8.95
Want more simple	3.05	3.42
Too much	1.07	1.27
Not relevant enough	4.21	4.52
Want different viewpoint	1.80	2.41
Not sure if information is correct	1.46	1.54

sional complaint rates were in the areas of (1) only partly or not enough explanation and help, and (2) explanations only partly or not clear.

Data also show that patrons report more communication difficulties when working with nonprofessional staff. However, professionals reported more communication problems during transactions than did support staff. This difference appears to be due to a greater sensitivity to patron communication difficulties on the part of the professional librarians.

	Professional Librarians	*Nonprofessionals*
Percentage of patron communication difficulty detected	36.92	26.91

You can see from the above figures that, although professionals were much more sensitive to patron communication difficulties, both groups need substantial improvement in this area.

Overall, 15 years of data from the WOREP show that patrons are slightly more successful in finding what they want when helped by a professional librarian.

Category of staff assisting	*Success*
Professional librarian	59.56%
Nonprofessional	58.64%
Type not reported	53.99%

However, differences in success finding rates are noticeably higher for certain categories of questions and when working with certain types of materials. Figure 11 lists some types of questions where professional librarians have higher success rates.

The most dramatic differences in success outcomes emerge when the level of question difficulty is examined. The greatest difference between professional and nonprofessional success rates emerges when working with hard questions (Figure 12).

These data illustrate the importance of developing guidelines on the use of different levels of staff in the provision of reference service. The need for such guidelines is accentuated by a major trend toward increased use of nonprofessionals on the reference desk. Longitudinal data from the use of the WOREP in general reference departments show a growth from 11.63% to 32.04% in the percentage of transactions handled by nonprofessionals (Figure 13).

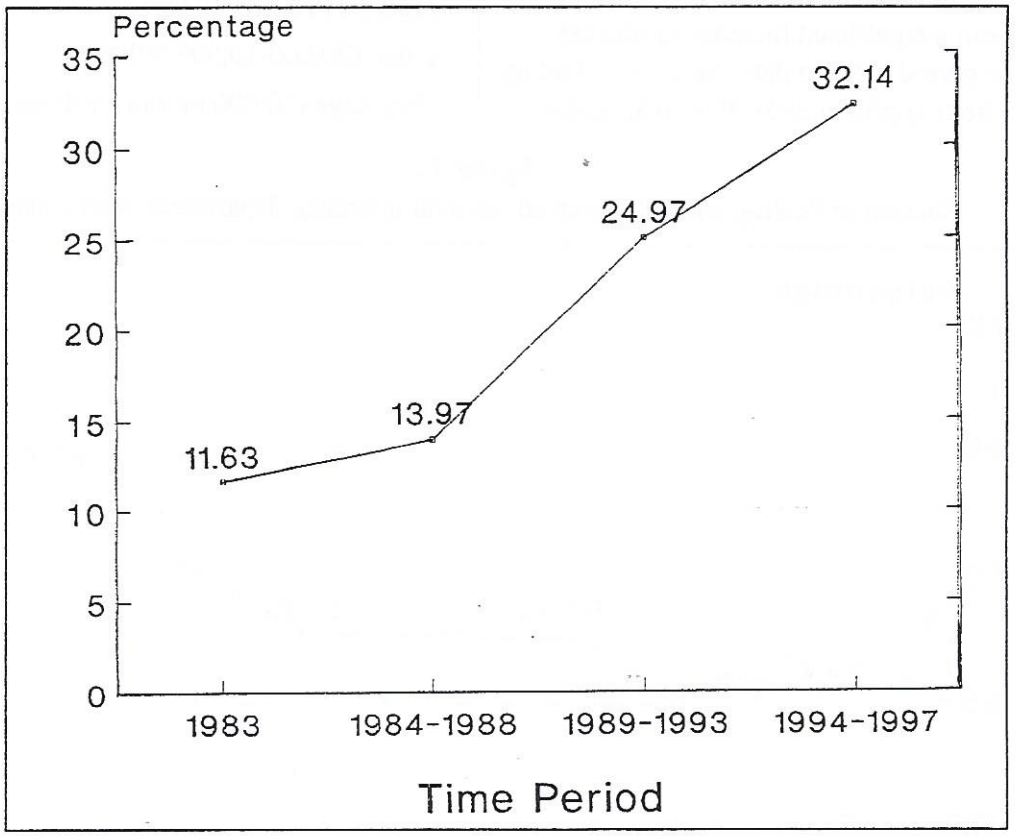
Figure 11
Finding success rates by question type

	Professional Librarians	*Nonprofessionals*	*Difference*
Short answer facts	67.35%	61.18%	6.17%
Criticism, reviews	60.64%	57.14%	3.50%
Analysis, trends, pro/con, etc.	53.82%	46.96%	6.86%
Focus on aspect	57.99%	51.53%	6.46%

Figure 12
Level of question difficulty: finding success percentages

	Professional Librarians	*Nonprofessionals*	*Difference*
Easy	66.60	64.69	1.91
Medium	52.77	52.95	-0.18
Hard	35.08	26.11	8.97

Figure 13
Percentage of transactions handled by nonprofessionals



Longitudinal Data

As these figures on the use of nonprofessionals illustrate, library services are not static over time. With the exception of Figure 13, the findings I have shared so far are based upon composite data gathered from 110 academic libraries over a 15-year period. During that time period, there were changes in inputs, processes and outcomes that are not revealed by the composite. I will now share some more longitudinal data from the WOREP.

However, before reporting longitudinal findings, I should explain that these data are based upon a different set of data from those used for the composite. The composite data include data from sub-

ject department libraries as well as from general reference department libraries. Since differences between subject department libraries and general reference departments could potentially distort findings, only data from general reference departments were used when compiling longitudinal data. Since 1983, the WOREP has been used in 78 studies of general academic reference departments. These 78 studies include seven repeat studies of general academic reference departments that had made changes and wanted to measure their effects. The seven repeat libraries were excluded from our longitudinal analysis of transaction outcomes because we felt that the influence of prior evaluation made them atypical. Reports of longitudinal success are therefore based upon data from only 71 libraries.

Success in Finding

As Figure 14 shows, success in finding what was wanted was relatively stable through 1993; but there has been a significant increase in success rates for the period 1994 to date. Success in finding has leaped from approximately 57% to approximately 63%. What possible explanations are there for this increase? The WOREP cannot show causality, but it can indicate the correlation of success with other variables.

Success by Size of Library

A longitudinal examination of success by library size (Figure 15) shows that success rates have risen for academic libraries of all sizes, but that the rise in success has been greatest for small libraries.

Success by Size of Reference Collection

Looking at the size of an academic library's reference collection rather than at its overall collection size provides even more revealing data. We classified libraries according to reference collection size, using the following divisions:

- Very small (under 5,000 volumes)
- Small (5,000-9,999 volumes)
- Medium (10,000-19,999 volumes)
- Large (20,000-29,999 volumes)
- Very large (30,000 or more volumes).

Figure 14

Success in finding what was wanted: general reference department percentages

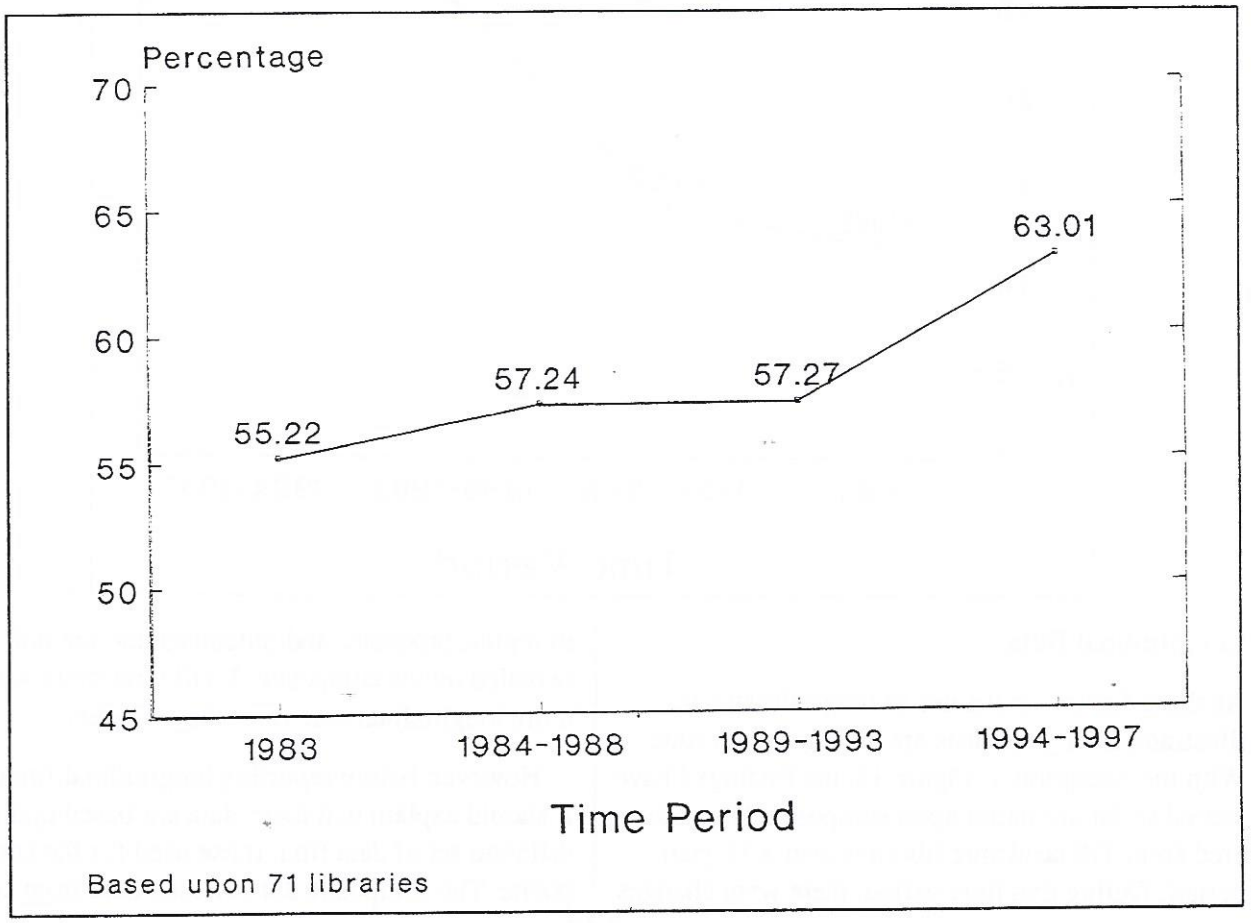
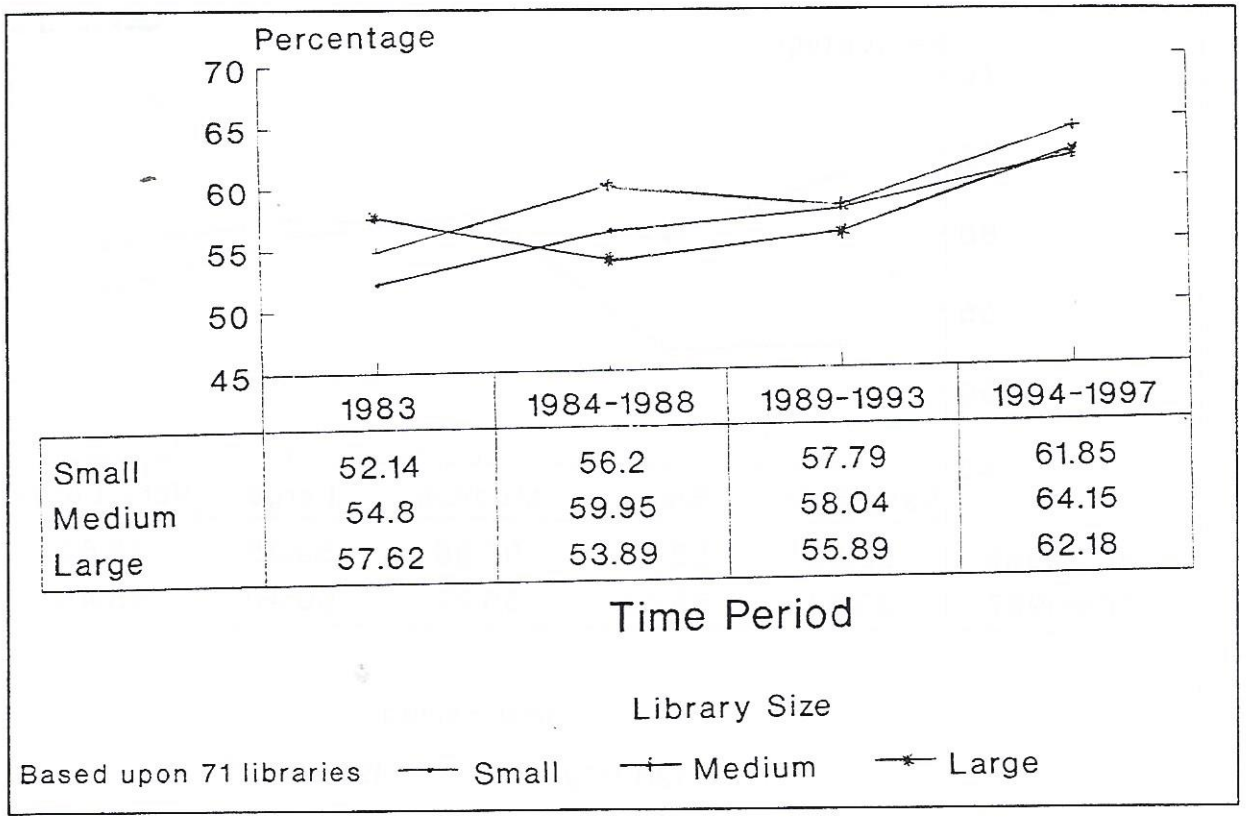


Figure 15

Finding success by size of library: longitudinal data



A longitudinal study of success by size of reference collection shows striking changes. In the past, success rates were significantly different for different sizes of collections. However, there is currently much less variation by reference collection size. In fact, libraries with very small collections now have the highest success rates (Figure 16).

Success by Type of Library Staff

One reason for increased overall success rates is increased success rates for nonprofessional staff. During the period from 1983 through 1988, success rates for professionals were more than 10% higher than rates for nonprofessionals. As Figure 17 shows, that difference has narrowed to less than 1%.

We can only speculate on the reasons for this change. Are libraries training nonprofessionals better? Are they doing a better job of using nonprofessionals to answer only certain types of questions? Have the tools that they use changed?

Success in Database Use

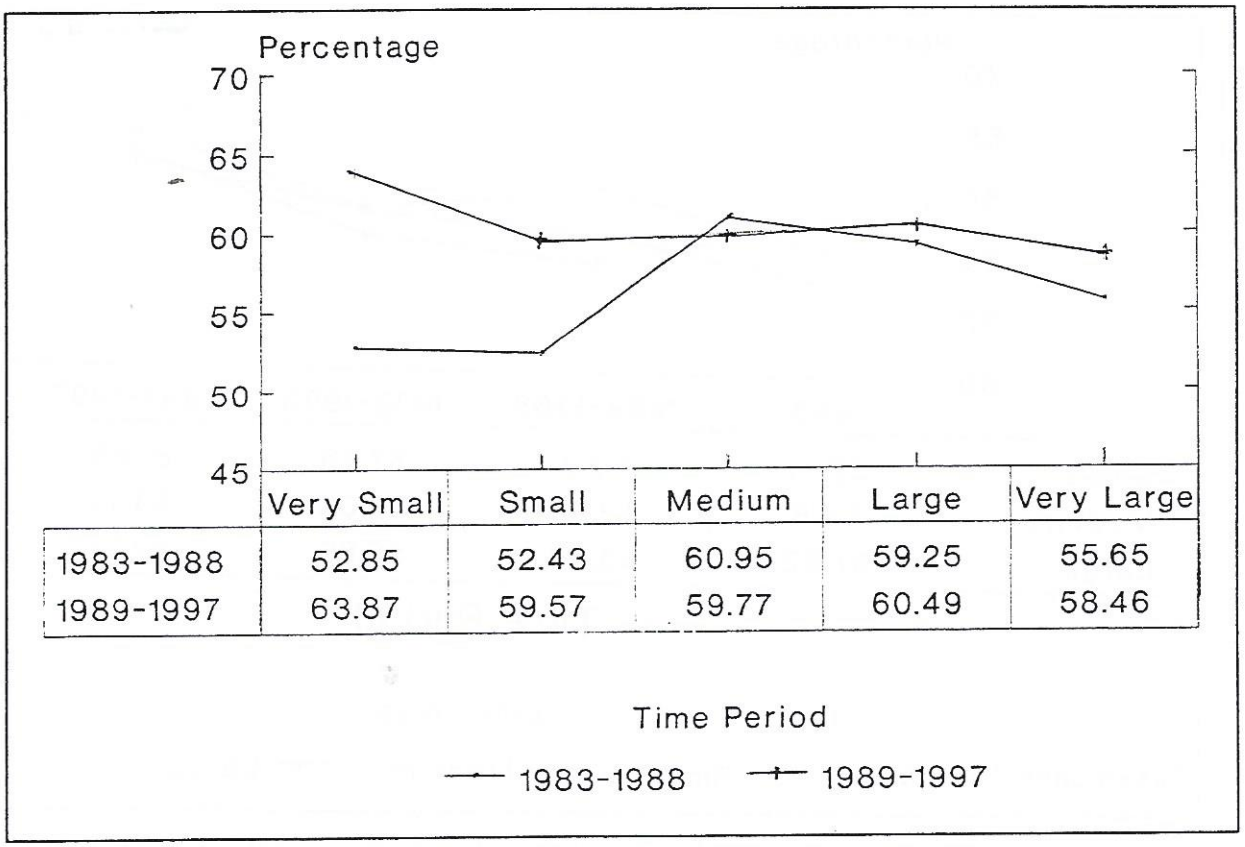
One marked change has been the increasing use of database searching to answer reference questions. There has also been a striking longitudinal increase in finding what was wanted when using databases. As Figure 18 shows, small academic libraries in our study began using databases before medium and large libraries did. Success rates for database searching in small libraries were relatively low prior to 1989 but have increased dramatically since then. Currently, success rates for database searching are virtually identical for academic libraries of all sizes. In fact, we are tempted to speculate that the use of databases is at least partly responsible for decreasing the impact that reference collection size has on success.

Concluding Remarks

As you can see, the WOREP can provide detailed diagnostic information for a library seeking to evaluate the quality of its information services. In addition, the cumulative data gathered from all libraries using the WOREP can be used to provide an overview of the state of library reference services and to document trends in services. As more and more libraries use this instrument over time, the cumulative data collected will continue to grow in value.

Figure 16

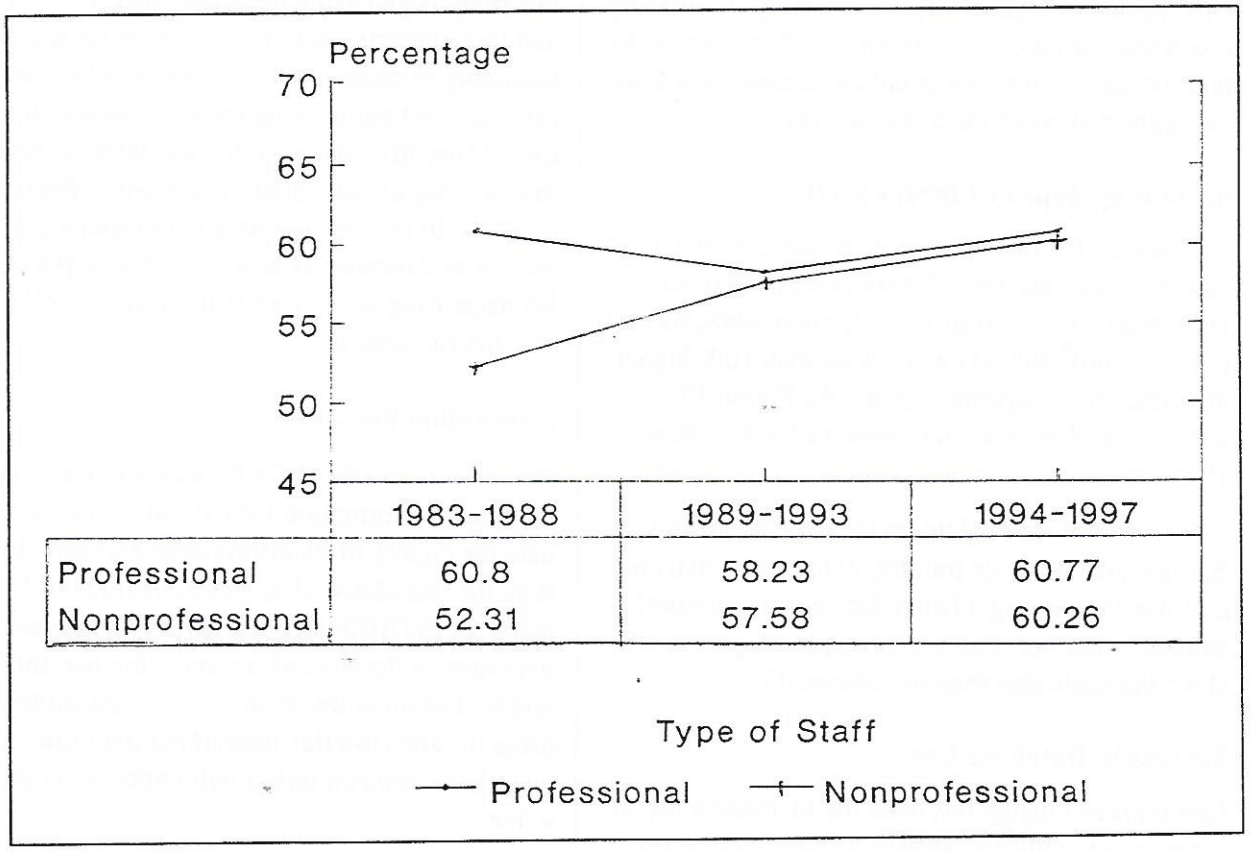
Finding success by reference collection size: longitudinal data



	Very Small	Small	Medium	Large	Very Large
1983-1988	52.85	52.43	60.95	59.25	55.65
1989-1997	63.87	59.57	59.77	60.49	58.46

Figure 17

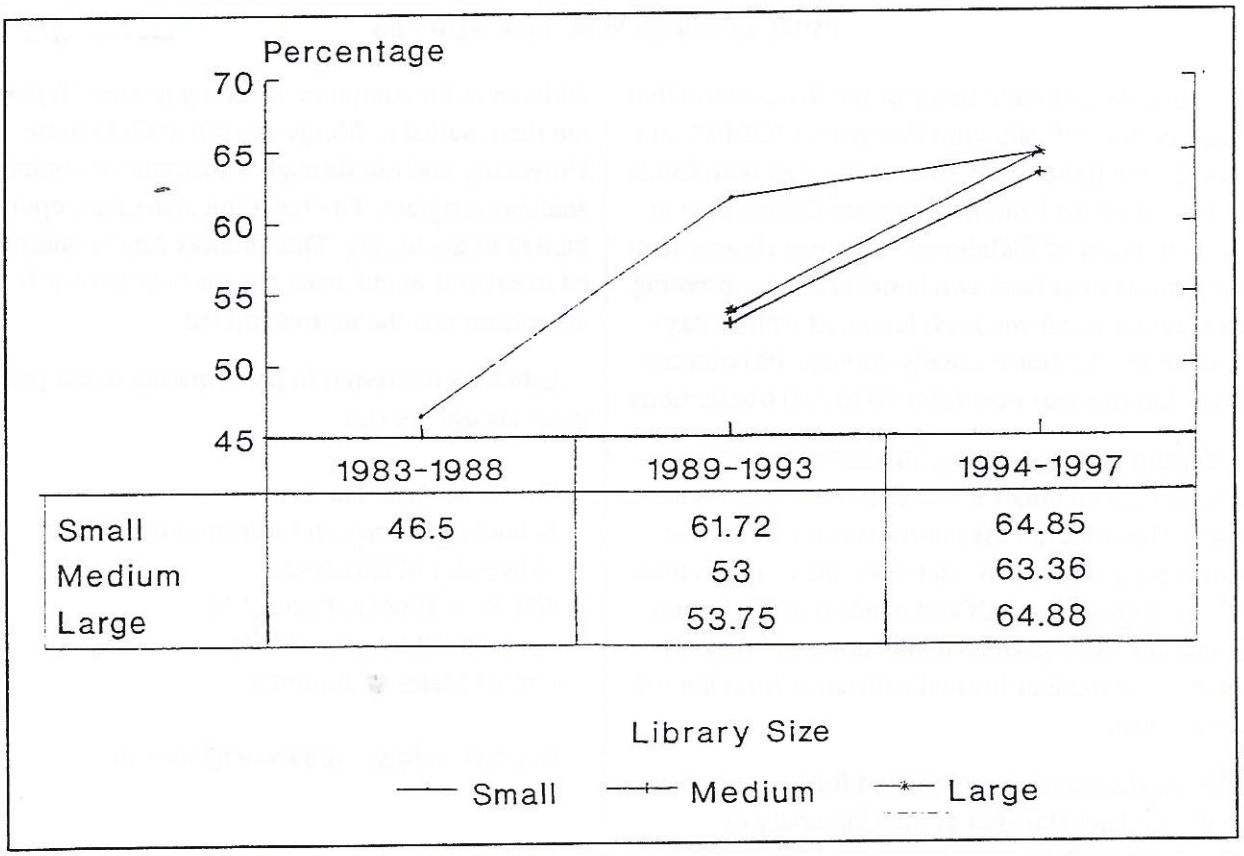
Professionals versus nonprofessionals: a longitudinal comparison of success



	1983-1988	1989-1993	1994-1997
Professional	60.8	58.23	60.77
Nonprofessional	52.31	57.58	60.26

Figure 18

Success in database use by library size: a longitudinal comparison



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Appendix 1

PROCEDURES FOR THE SURVEY

Libraries that have heard of the Wisconsin-Ohio Reference Evaluation Program (WOREP) and request evaluations are provided at cost with forms and instructions from the Program Office, now at the University of Oklahoma. Libraries choose sample periods of at least two hours each, representing both evening and weekend hours, as well as daytime hours. A library usually surveys 100 transactions, but this can vary from 50 to 200 transactions.

During sample periods, all patrons asking questions are given either a reference or a directional form. The librarian asks each patron if he or she will mark a brief form; and if so, the librarian tears off the appropriate half and hands it to the patron. Sometime later, patrons mark forms and deposit them in a container located a distance from the reference desk.

After the survey is completed forms are mailed to W. Michael Havener at the University of Oklahoma for computer-scanning to tape. Tapes are then mailed to Marge Murfin at Ohio State University and run through a customized computer analysis program. The resulting statistical report is mailed to the library. This process can be completed in several weeks from the time the survey is completed and the returns mailed.

Libraries interested in participating in the program should contact:

Dr. W. Michael Havener
School of Library and Information Studies
University of Oklahoma
401 West Brooks, Room 120
Norman, Oklahoma 73071
United States of America

Internet address: mhavener@ou.edu

Appendix 2

SAMPLE PAGE FROM WOREP STATISTICAL REPORT

STATISTICAL PROFILE	YOUR LIBRARY TOT	NO.	%	LIBRARIES OF SIMILAR SIZE IN THIS SAMPLE PERCENT	TOP SCORING LIBRARY PERCENT	AVERAGE ALL LIBRARIES PERCENT
10. PERCENT ADDING THOSE WHO FOUND APPROXIMATELY WHAT WAS WANTED AND WERE SATISFIED	312	243	77.88	68.70	78.13	68.99
11. PERCENT ADDING THOSE WHO DID NOT FIND WHAT WAS WANTED BUT WERE SATISFIED ANYWAY	312	246	78.85	70.52	78.13	70.56
12. UNDERCLASS WHO FOUND EXACTLY	100	63	63.00	54.37	50.00	57.58
UPPERCLASS WHO FOUND EXACTLY	126	88	69.84	54.70	53.85	55.50
GRADUATES WHO FOUND EXACTLY	50	36	72.00	59.23	77.78	55.48
13. PATRONS WHO FOUND EXACTLY WHAT WAS WANTED UNDER DIFFERING CONDITIONS (DEFINITION OF "SEARCH" OR "DIRECT": BOTH LIBRARIAN AND PATRON REPORT SEARCH. EITHER LIBRARIAN OR PATRON REPORT DIRECT						
(A) PATRONS WHO FOUND EXACTLY WHAT WAS WANTED WHEN:						
LIBRARIAN WAS NOT BUSY AND SEARCHED	149	108	72.48	66.03	100.00	66.02
LIBRARIAN WAS BUSY AND SEARCHED	44	30	68.18	53.21	70.00	59.69
LIBRARIAN WAS NOT BUSY AND DIRECTED	82	51	62.20	51.97	60.00	52.60
LIBRARIAN WAS BUSY AND DIRECTED	23	14	60.87	39.93	40.00	51.74
(B) DIFFERENCE IN PATRONS WHO FOUND EXACTLY WHAT WAS WANTED ACCORDING TO THE LIBRARIAN'S REPORT OF BUSY OR NOT BUSY						
NOT BUSY AND SEARCHED	149	108	72.48	66.03	100.00	66.02
BUSY AND SEARCHED	44	30	68.18 4.30	53.21 12.82	70.00 30.00	59.69 6.33
(C) DIFFERENCE IN PATRONS WHO FOUND EXACTLY WHAT WAS WANTED ACCORDING TO THE LIBRARIAN'S OR PATRON'S (AS DEFINED ABOVE) REPORT OF DIRECTING OR SEARCHING						
NOT BUSY AND SEARCHED	149	108	72.48	66.03	100.00	66.02
NOT BUSY AND DIRECTED	82	51	62.20 10.29	51.97 14.06	60.00 40.00	52.60 13.42
(D) PERCENT OF QUESTIONS ON WHICH LIBRARIAN REPORTED BUSY	312	69	22.12	25.48	46.88	25.09
(E) PERCENT OF QUESTIONS ON WHICH PATRON REPORTED						

Big Pictures and Fine Details: A Toolbox of Measures for South African Academic Libraries and a Call for Looking Closely

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Library managers in South Africa have been grappling with demands to set priorities, to do more with less, to provide high quality services, and to be accountable to all stakeholders. This paper considers a proposed toolbox of performance indicators suggested for general use in academic libraries. It discusses the procedure used in order to achieve consensus on the indicators that would be most meaningful and appropriate for South African circumstances. The most recent developments are described. An investigation into materials availability at the University of Cape Town is highlighted. It illustrates that, while numeric indicators may suggest positive performance, closer scrutiny of surrounding phenomena may reveal hidden obstacles. Carefully selected probes into specific areas may be needed to tease out the implications of particular indicators.

INTRODUCTION

In South Africa today, academic library services have not only been beset by the familiar difficulties of price increases of library materials, but also seriously affected by repeated onslaughts in reductions of funding and a downward-spiralling currency exchange rate. In addition, an urgent need is being voiced for redressing historical imbalances in funding for and access to tertiary education and to provide learning resources and opportunities to increasing numbers of students. In such a climate there is a particular need for objective indicators of the use, value and performance of academic libraries.

In this environment of decreasing funding and increasing demand, library managers have been grappling with injunctions to set priorities, to "do more with less," to provide high quality services while at the same time being accountable to all the stakeholders. The University of Cape Town has for some time been involved in measuring aspects of its library performance. Partly as a result, the South African Inter-University Library Committee (IULC), consisting of the heads of South African university libraries, expressed an interest in the production of a uniform base for the development of performance indicators which could be used for comparative purposes. The University Librarian therefore undertook to report to the IULC the results of the UCT investigation into a "toolbox" of performance measures and indicators to evaluate library services.

Results from the UCT investigations were presented to the IULC in May 1997 and the discussion was continued at a workshop with members of the IULC and other senior library staff in July. This paper will consider the proposed basket of indicators that was suggested for general use in South African academic libraries, and will discuss the achievement of a measure of consensus on specific indicators that were regarded as the most meaningful and appropriate for the South African circumstances indicated above.

In addition, however, the paper will briefly report on an investigation into materials availability at the University of Cape Town. This study attempted to illustrate that numeric indicators may suggest very positive performance, but that a closer and more detailed look at surrounding phenomena may reveal hidden obstacles and barriers that are not apparent from the indicators.

PART ONE: BIG PICTURES

A number of important, recent publications on indicators for measuring academic library performance were taken into consideration for the compilation of a provisional toolbox that was presented to the

[1] Financial assistance to participate in the conference was received from the University of Cape Town Bremner Travel Fund and the Human Sciences Research Council for Science Development.

IULC at the earlier meeting. Particularly significant were *The Effective academic library* by the Joint Funding Councils' Ad-hoc Group on Performance Indicators for Libraries (1995); *Measuring quality*, the IFLA guidelines for performance measurement in academic libraries (Poll and Boekhorst, 1996); and *The Committee Draft of International Standard ISO CD 11620 on library performance indicators* (1996).

An attempt was made to distil from these texts the commonalties that seemed most applicable to academic libraries in South Africa. The indicators selected were based primarily on those suggested in the IFLA guidelines for academic libraries, which is specifically aimed at an international audience of academic libraries in both developed and developing countries (Boekhorst, 1995) and therefore seemed particularly suitable for South African academic libraries.

It has often been emphasised that performance indicators should be relatively simple to generate and to compile. This seems to be particularly important in South Africa, where overburdened academic library managers tend to be reluctant to engage in yet more onerous and time-consuming demands for additional statistical reporting. At the same time, the most meaningful performance indicators are not to be generated from measures that are routinely collected by libraries. According to the IFLA guidelines: "Statistics are regularly collected in areas where it is easy to get exact data . . . Performance measurement asks for data that are more difficult to obtain . . ." (Poll and Boekhorst, 1996, p.17). Some kind of trade-off therefore has to be reached between the ease of compilation and obtaining the most meaningful measures and indicators.

The question of using performance indicators to *compare* different libraries has often been a matter of concern. Different libraries may collect data or define indicators differently and thereby produce results that are not truly comparable. To avoid this, the procedures for measures and ratios, from which performance indicators that are to be used for comparative purposes are calculated, have to be mutually agreed, simple and clear.

The issue of whether or not to include indicators reflecting *costs* of services is a complex one. The IFLA guidelines suggest that they should perhaps be left out. Some librarians may be afraid of including cost measures, as they may be used inappropriately, for example to demand the most service at the least cost (Boekhorst, 1995, p.278). In addition, a particularly low-cost service may not be a very effective one nor one that meets the needs of the users (Poll and Boekhorst, 1996, p.39).

Other proposals for performance indicators, such as ISO Standard and those from the Joint Funding Councils' Ad-hoc Group, do include indicators of cost of services and materials. One possible solution could therefore be to compile two different groups of indicators: one for internal use and comparison over periods of time, which would include costs and enable one to track fluctuations. Another set of indicators, which would not include costs, could then be made public and used for comparative purposes.

It was therefore proposed to members of the IULC at the meeting in May, that a toolbox of performance indicators for South African academic libraries would contain a list of selected ratios, from which different libraries could pick those that are most appropriate for their particular purposes. It was recognised that not all academic libraries would wish or be able to calculate all the indicators. It was emphasised that a process of consultation and negotiation would be necessary to obtain clarity on exactly how the base measures would be calculated.

It will be essential, for example, to agree on whether full-time equivalent (FTE) students or registered student numbers are to be used as a basis for comparison. In this regard it could be noted that the IFLA guidelines recommend the use of the FTE (Poll and Boekhorst, 1996, p.38) which should not be problematic to South African libraries, as FTEs have routinely been calculated for annual SAPSE (South African Post-Secondary Education Information System) reports.

Agreement will also have to be reached on how activities such as reference queries and bibliographic instruction should be counted and whether or not ratios reflecting costs will be made available for comparative purposes. It will be imperative to define the concept of library "use" and to distinguish it from circulation. At the IULC meeting, a

tacit agreement seemed to emerge that the FTE should be used as a basis for comparison.

It was noted that one should at all times keep in mind that quantitative indicators alone frequently give rise to many new questions and that indicators do not give reasons for specific levels of performance. Attempts at comparing performance indicators from different institutions should therefore not be made without taking into account both the objectives and the encumbrances of the institution from where they originate. It was also recognised that some institutions may wish to conduct further in-depth analyses to investigate specific aspects of library performance at their own institutions.

At the IULC meeting in May 1997, a checklist was circulated, with the request that the 21 members present (heads of libraries or their deputies) would rate the proposed indicators according to their own perceptions of importance or relevance in their particular circumstances. A total of 16 responses were returned and analysed - a response rate of 76%. The checklist made extensive provision for the inclusion of additional indicators that members thought could be useful or valuable for their own purposes. Members were therefore requested to annotate and enlarge the list as they saw fit. All the open-ended comments that were received were considered for possible inclusion in the toolbox.

The indicators that were provisionally selected for the toolbox are listed below. Indicators that were additionally suggested by participants are shown as such. The list below, together with preliminary suggestions on *how* to compile the ratios based on the IFLA and ISO documents, were presented for further discussion at the IULC workshop in July 1997.

PROPOSED TOOLBOX OF INDICATORS FOR SOUTH AFRICAN ACADEMIC LIBRARIES

1. **Integration**: a qualitative reflection on the extent of integration of the library mission and goals, with the mission and goals of the parent institution. It was noted that although this indicator was somewhat problematic, it is meant to report on evidence for the effective integration of library services into the teaching, learning and research objectives of the parent institution.
2. **User satisfaction**
   - 2.1 General user satisfaction: adapted Van House survey
   - 2.2 User satisfaction with specific services: where needed to investigate particular aspects of local services.
3. **General library use and facilities**
   - 3.1 Market penetration: ratio between FTE students and identified library users
   - 3.2 Opening hours: total number of hours open per year per FTE
   - 3.3 Seating space: number of seats per FTE
   - 3.4 Remote use: number of remote uses per FTE
   - 3.5 ***Added***: Seat occupancy rate.
4. **Materials provision**
   - 4.1 Annual volumes per FTE
   - 4.2 Annual titles per FTE
   - 4.3 Total volumes in stock per FTE
   - 4.4 Total titles in stock per FTE
   - 4.5 ***Added***: Journal subscriptions per academic staff FTE.
5. **Collection use**
   - 5.1 Annual circulation of books per FTE
   - 5.2 Total annual circulation per FTE
   - 5.3 Periodicals circulation per FTE
   - 5.4 Turnover rate: circulation/stock ratio
   - 5.5 Library visits per FTE
   - 5.6 In-library uses per FTE.
6. **Availability**
   - 6.1 Total volume to title ratio
   - 6.2 Materials availability survey
   - 6.3 ***Added***: Number of items reported missing per annum per FTE
   - 6.4 ***Added***: Acquisition speed
   - 6.5 ***Added***: Book processing speed
   - 6.6 ***Added***: Document delivery time
   - 6.7 ***Added***: Interlibrary loan speed.
7. **Reference service**
   - 7.1 Reference fill rate: queries answered per FTE
   - 7.2 Students attending bibliographic instruction per FTE.

8. **Economy**
   - 8.1 Library expenditure per FTE
   - 8.2 Library salaries and benefits plus operating costs per FTE
   - 8.3 Acquisition costs per FTE.
9. **Efficiency**
   - 9.1 Total library expenditure per items catalogued
   - 9.2 Total library expenditure per items circulated
   - 9.3 Total library expenditure per queries answered
   - 9.4 ***Added***: Total items catalogued per cataloguer
   - 9.5 ***Added***: Total reference queries per reference librarian.

It was noted that it was necessary to distinguish between indicators for in-house use, and indicators prepared for comparative purposes among different libraries. Some of the responses obtained seemed to suggest a need for much more detailed indicators than those proposed on the checklist. While detailed indicators may be of much interest to individual library services, indicators for comparative purposes should be more general, as individual institutions are by nature too different for finely distinguished comparisons. It will be noted that most of the additionally suggested indicators are of the more specific kind and therefore more suitable for in-house use.

The indicators that were regarded as "*very useful or essential*" by at least 60% of the participants, are illustrated in Figure 1. It will be noted that no indicators for materials provision, efficiency or availability were selected in the "*very useful or essential*" category. The availability measures, however, especially the materials availability survey, were recognised to be important, but respondents thought that availability investigations were too labour-intensive and demanding to be practicable.

In this context one could note that a current trend is to investigate aspects of availability through the automated library system rather than conducting labour-intensive, manual availability studies. Data derived from a library's automated system may, for example, be used to monitor book availability. The potential for such investigations, however, is still limited by the frequent inability of automated systems to distinguish between browsing activity and sought-after or requested items (Jacobs and Young, 1995), or the inability to record exactly when an item has been returned to the shelf and is again ready for loan (Day and Revill, 1995). While some academic libraries in South Africa are at present in the process of purchasing sophisticated computer systems, it is not envisaged that availability investigations based on automated records will be a feasible option for all in the near future.

As a result of the analysis illustrated in Figure 1, the members of the IULC agreed that they would begin to experiment with the compilation of performance indicators for comparative purposes. They resolved to attempt to collect the indicators that they themselves had selected as the most important, and would report on progress after a year.

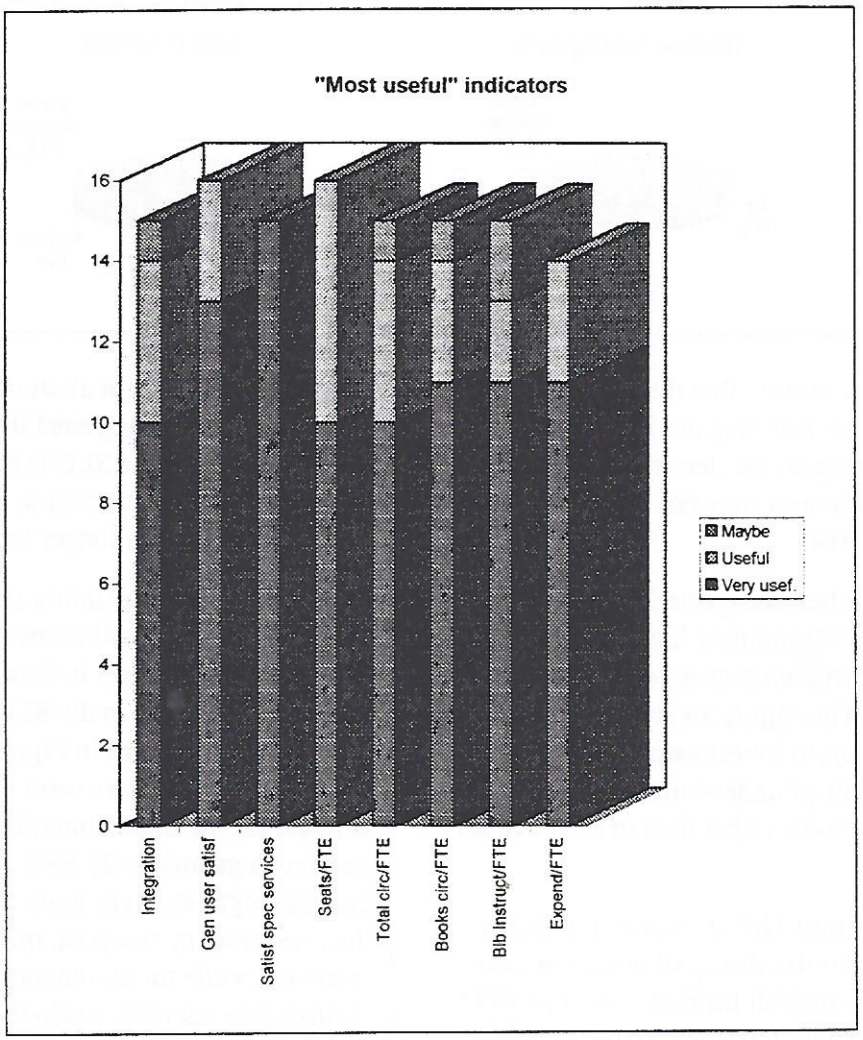
PART TWO: FINE DETAILS

From the selections above it becomes clear that it would not be realistic to expect much informative detail from so few and such broad indicators. Libraries are complicated systems with many local variations. A limited number of indicators may only provide a very general framework in which to discover how measures and ratios become more meaningful in juxtaposition with similarly derived measures from other libraries, and collected over a period of time.

The rest of this paper briefly reports on a very much more detailed investigation into one aspect of library service in an attempt to assess how much information may be gathered by looking closely and critically at a single and fairly well-established indicator of library performance: in this case *materials availability*. As part of the original UCT study into its own performance, an investigation of high-demand materials in the Short Loan Collection (SLC) for undergraduate students in the UCT library was completed in 1996 (Leibbrandt, 1997).

This investigation consisted of a quantitative study of the availability of a sample of materials from the SLC and a supporting qualitative user survey in order to obtain a richer picture of the obstacles to access and the availability of undergraduate

Figure 1



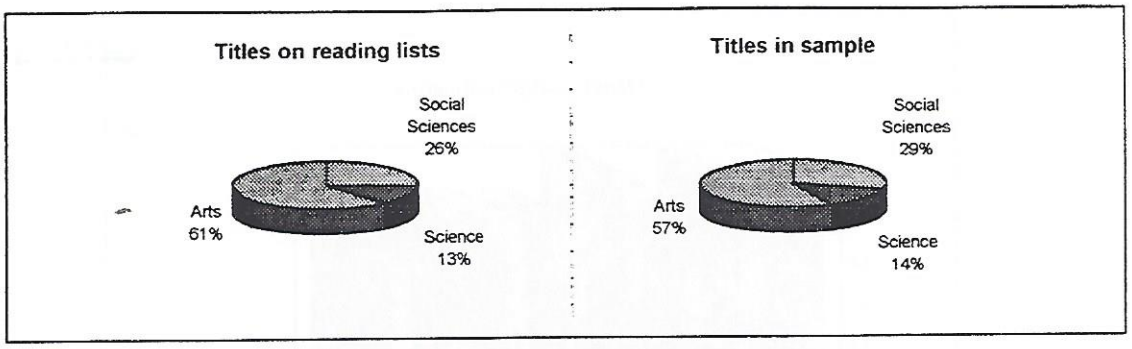
study materials in an academic library in a developing country such as South Africa.

Availability studies measure the probability that an item sought by a patron will "be in the collection, be found in the catalog, be on the shelves and be found on the shelves" (Baker and Lancaster, 1991, p.143). If an item is sought but not found, the reason could be that the library does not own the item, that it may be in circulation, that it may not be on the shelf or that the user is unable to find it. The overall availability rate, or fill rate, is the cumulative probability that the user will overcome the four barriers and successfully procure the required item.

For this study an approach based on the "known item" search was chosen. As many current reading lists as possible, issued to second year students in the faculties served by the main library, were collected. A random sample of 300 titles was compiled from a total of 1,060 titles on the reading lists. The titles in the sample closely resembled the subject distribution of all the items on the collected reading lists, as illustrated in Figure 2.

The availability of the items in the sample was checked by the researcher at two separate times: in the middle of the first semester of the academic year, and again just before the semester examinations in early June 1996. For each item, its availability was checked in the OPAC, followed by a search on the shelves to establish whether the item was physically obtainable. The sample consisted of 57.7% monographs and 42.3% photocopied articles that are made available in the SLC in multiples of one copy per 20 students to a maximum of ten copies. In cases of titles where multiple copies were present, the catalogue reference number for the title was used, rather than the barcode for the individual item, so that circulation figures could be obtained for each title collectively. Kantor's branching technique was used to quantify the

Figure 2



obstacles to availability: that the library may not own the item; the user may not be able to locate the item in the catalogue; the item may be in use by someone else; the user may not be able to find the item (Kantor, 1984).

The results rather unexpectedly indicated that availability was surprisingly high at just over 80% and had not significantly changed between the two investigations. This figure and its implications became important to investigate, as high availability may be a result of under-utilisation and low circulation of materials, rather than of effective service.

Investigation into SLC circulation statistics seemed to support the theory of under-use and showed a steady overall decrease between 1992 and 1996. There was a decline in the use of the SLC in the same period in 1996, compared to 1995. Of the titles in the sample, 41.3% did not circulate at all during the period under investigation, in spite of being specified as required or prescribed reading for undergraduate courses, while 19% of the sample did not circulate at all during the entire semester. It is therefore suggested that much of the materials at present in the SLC is either not used by students, or could be returned to the open shelves and thus be available for longer lending periods.

The materials availability study indicated the extent to which overall ratios can be misleading if accepted at face value. It showed that only a small percentage of items in the SLC were actually in demand, as illustrated in Figure 3. The heavily duplicated photocopies were 94% available, while demand for the limited number of core monographs was much greater (only 65% availability). These core monographs were more often on loan, overdue, reserved, misshelved, misplaced or illegally removed, while the abundant number of multiple photocopies not only resulted in an artificially high availability rate, but caused unnecessary costs as many were never used at all.

In view of these findings: apparently high availability rates together with low circulation in the SLC, it was decided to conduct an additional quali-

Figure 3

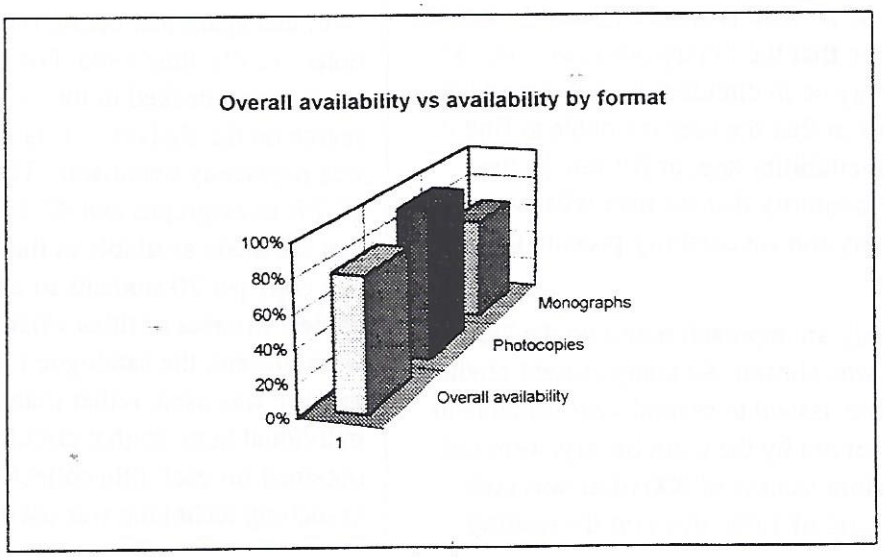
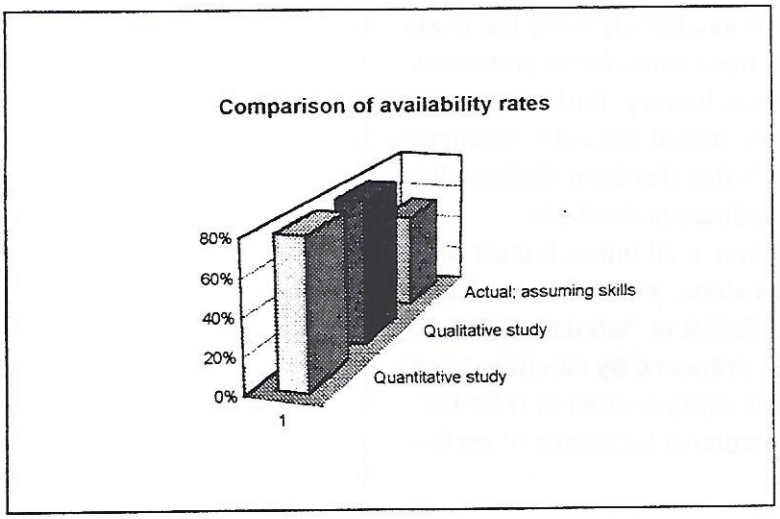


Figure 4



tative user survey to determine the extent of user satisfaction in obtaining prescribed materials, to glean information with regard to the patterns and frequency of undergraduate SLC use, and to investigate whether user perceptions of materials availability supported the quantitatively derived indicators of availability.

A brief interview schedule was drawn up and students were interviewed during the first week of June in the official study week when students were actively pursuing material in preparation for their semester examinations. Most of the students approached were eager to give their comments regarding the issue of availability and accessibility of SLC materials. A total of 101 undergraduates were approached and 95 agreed to be interviewed; a response rate of 94%.

It was surprising to discover that a number of students found the shelf arrangement in the SLC confusing and they were not familiar with some of the library procedures such as the filing order for photocopied articles. Other students avoided using the OPAC on the grounds that it is too slow, frustrating or limiting. In addition, 40% of the students interviewed did not have English as their home language.

Many students admitted that they seldom sought the assistance of the SLC staff because they felt that it would reflect poorly on their abilities and library skills. There was a surprising lack of interest in attending user training sessions, although they agreed that better information literacy skills would enhance their ability to identify and access the study materials that they needed.

Although the empirical investigation indicated a high materials availability rate, it became evident from the interviews that at least one-third of the students were not confident OPAC users and did not attempt to use SLC facilities when they anticipated failure in advance. This means that only 66% of respondents were confident in using the OPAC or in locating materials in the SLC. The empirical study had not taken this aspect into consideration, as the shelf-searching had been done by the researcher who was familiar with the shelves and with the appearance of the items concerned. If user ability or debility as an access barrier would therefore be factored into the equation, using Kantor's branching technique, a high availability rate of .80 or 80% from the library's perspective, could drop to .80 x .66 = .528 or 53% from the user perspective, as illustrated in Figure 4.

The user perspective is particularly significant, as quantified availability investigations, based on searches checked by qualified investigators, may yield results indicating high availability. Yet this may not be a true reflection of the actual availability experienced by an individual user who may not know how to look for an item, or where to find it once it has been located in the catalogue. While numeric indicators may therefore suggest very positive performance, a closer and more detailed look at surrounding phenomena may reveal hidden obstacles and barriers that were by no means apparent from the figures alone.

CONCLUSION

The detailed materials availability study has made it clear that a serious need exists for improvement in students' information literacy. Initiatives to address this issue have started since the completion of this investigation. It has also been illustrated that global performanee indicators should be approached with caution at all times. It must be recognised that ratios alone, while useful and informative, may be insufficient to "tell the whole story," but need to be enhanced by carefully selected probes into specific areas in order to tease out the implications of particular indicators of performance.

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Setting Standards for Enquiry Desk Operations: A Case Study

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Enquiry services have been relatively neglected in recent accounts of quality management in library and information services. Most investigations have been concerned with the accuracy of information provided. The process of setting standards for Enquiry Desk operation in two campus libraries is described. All aspects of the enquiry service were covered. The paper discusses the stages involved in formulating the key standards, the design and delivery of a training programme, the use of satisfaction forms, and the development of peer-review observation to review interactions at the enquiry desks. It describes the enthusiastic participation of the staff involved in these services, the outcomes of monitoring and evaluation, and enhancement processes. It concludes positively on the value of the approach adopted and its planned application to other areas of user support.

INTRODUCTION

I am going to present a case study of an attempt to apply the idea of "standards" to a significant aspect of operations - enquiry services, more specifically the enquiry desk - in a medium-sized academic library, at Nene College. It is very much a practical, "how we did it", account of a project which still has some way to go, but one which I hope demonstrates performance measurement making a difference - beginning to close the feedback loop and have some effect on decision-making.

I shall present the whole story of the case study because what I have found particularly interesting in all of this are the processes which the project has evolved, and the ramifications which have developed from the initial starting point of "standards". I propose to discuss:

- the context in which the project arose;
- the process;
- the "standards" which were adopted;
- the training and development which the project gave rise to;
- how we attempted to monitor performance;
- the outcomes to date, both of the monitoring process and of the project as a whole;
- a little about what other people have done.

CONTEXT: NENE COLLEGE

I shall start with Nene College, Northampton, a general College of Higher Education with some 8,000 full-time and sandwich students and 2,500 part-timers. Ten per cent of students are on post-graduate programmes. While currently engaged in seeking Research Degree Awarding Powers, Nene continues to stress its role as a teaching institution, and this colours the kind of library support provided and the main purpose of an enquiry service. Libraries come under Learning Resources Services (LRS) which comprises Library, Media and Learning Development. There are two campus libraries, one significantly larger than the other.

An enquiry desk service is provided in both libraries, between 8.30 am and 7.00 pm in the larger library, 9.00 am-5.00 pm in the other. It is staffed mainly by professional librarians but the rotas also include paraprofessionals working in faculty teams. This service is seen as an important part of what we do and part of a wider pattern of learner support. This is:

- reflected in the mission statements of the College which speak of a supportive environment, and of LRS: ". . . provision of facilities to uphold learning and enquiry . . . and a service which will equip students with skills in information retrieval, handling and presentation";
- described as such by the staff involved: ". . . enquiry desks serve to underpin our ever-growing programme of user education . . . they are often the first port of call for a user's search for information, providing an immediate . . . impression of the enquiry service . . . must be a priority in delivering a quality and cost effective service" is

a quote from one of the discussion papers generated by the project;

- apparently well-used and well-regarded by our customers, or so we have concluded from user surveys and other feedback.

When this project began we had within LRS:

- a quality committee dealing with links to College structures and programmes and departmental quality initiatives;
- an established pattern of faculty liaison which engendered a general commitment to and reputation for helpfulness and responsiveness;
- a programme of user surveys and quality enhancement workshops.

What seemed to be missing from this picture were explicit standards or performance targets (although some existed for "through-put" in acquisitions, cataloguing etc. and for some issue desk operations). Various factors stimulated a feeling that the idea of standards should be investigated - the publication of *The Effective academic library* (Joint . . , 1995), the College's publication of a student charter, relevant statements in the College's strategic plan - but the immediate stimulus was the collection of standards and performance targets in academic libraries produced as a SCONUL working paper (Service . . , 1994). These were circulated and discussed. Fairly or unfairly there was a reaction that there seemed to be an emphasis on measuring the easily quantifiable and a comparative neglect of the qualitative or of aspects of service difficult to measure. There was a proposal to examine this approach as applied to something difficult but significant - enquiry services - and to do this via a working group operating through a series of open workshops.

CHRONOLOGY AND PROCESS

Figure 1 shows the the chronology of the project as it developed.

I should stress that the process began on a voluntary, open basis and developed via consensus and the involvement of the whole work team participating in workshops and meetings. The project thus became "owned" by the staff group who enthusiastically progressed it. It was not imposed: there were no problems of staff not wanting to be part of the project. It should also be noted that at least as much attention was devoted to training and development, and to monitoring and enhancement as to establishing standards, the original starting point. Finally this project has become an exemplar for us, both with regard to the total process of examining and setting standards for a specific operation, and for specifics like training/updating programmes.

Figure 1
Project chronology

- Open workshops	Summer 1995
- Report/discussion paper covering:	January 1996 (final draft)
Objectives Standards Training/development Operational issues (location, environment etc.) Feedback Publicity Monitoring	
- Agreement/refinement of standards	March 1996
- Detailed training programme designed	June 1996
- Operational issues addressed	Summer 1996
- Training/updating programme implemented	1996/97
- Monitoring exercise	April 1997
- Enhancement process	July 1997

THE STANDARDS

Appendix 1 gives the text of the ten standards which were adopted. As can be seen they are a mixture of indicators and measures and charter-like statements. They seem to me to be fairly similar to some other attempts to establish standards or specifications which are discussed at the end of this paper. They seem to fall into four categories: services will be *consistent* with published hours and levels of service; they will be *appropriate* - resources provided; staff training will be appropriate to the objectives of the service; appropriate training will help to ensure accuracy; staff providing the services will be *courteous and helpful*; finally services will be *timely* in terms of speed of response to personal or written enquiries and waiting times.

TRAINING AND UPDATING

Much of the initial effort went into devising a training and updating regime which would enable all staff to meet these standards. Again the design and subsequent delivery were managed by the group as a whole. The outcome was a detailed training programme for all new members of staff (new at least to the enquiry desk), and a programme of weekly updating sessions for all staff. The training programme involved some 19 hours plus hands-on, backed up by the opportunity to shadow experienced staff, and monitoring of initial performance. The training sessions comprised one on answering enquiries, which included matters of "style", conducting the reference interview, interpersonal issues and such things as managing queues and telephones - a detailed set of guidelines dealing with all these matters was produced; four sessions on information sources in specific subject areas; one on general reference sources and one on IT skills.

In addition to this training programme for staff new to the enquiry desk, a programme for regular updating of established staff was instituted at the beginning of the 1996/7 session. This consisted of weekly sessions of approximately one hour which took place every Wednesday morning between 8.30 am and 9.30 am. Again the whole staff group was involved - one person had the responsibility for co-ordinating one term's programme; everyone who could attended (this meant that the desk opened later on Wednesdays) and everyone was expected eventually to contribute a presentation or demonstration. The sessions comprised a variety of formats (presentations, demonstrations, discussions, quizzes); they included overviews of particular subjects (health statistics, information sources in music), round robins on new sources, introductions to new services (subject Web pages), demonstrations of new products and discussions of issues arising that term. These updating sessions proved very popular and successful in keeping the staff group informed and in ensuring some uniformity of approach and knowledge. Again everyone participated enthusiastically and prepared presentations etc. with great care. It was soon decided to apply this model of training/updating to other service areas.

MONITORING

Monitoring had always been seen as a vital element of the total project in order to be able to form an overview of the extent to which we were meeting objectives and standards and following guidelines, and in order to able to demonstrate this. Observation (rather than unobtrusive testing) had been chosen as the major component of this monitoring at the stage of the initial workshops and this was confirmed during subsequent discussion and planning. It was decided to conduct a pilot monitoring exercise in April of 1997. The exercise was to last for one week and to involve three elements:

- counting enquiries as had been done regularly for SCONUL returns, but with the count broken down into individual timetable slots and identifying queries concerning IT;
- conducting an enquiries/reference satisfaction survey, using the standard form circulated via a SCONUL briefing paper (*User . . ,* 1996);
- observing each other dealing with enquiries during sample slots (ten).

Observers were equipped with two forms - one to record numbers queuing etc. at half-hourly intervals, and one on which to record details of individual enquiries including its duration, the sources used, whether it was wholly or partly referred, the extent to which the question was answered and the user's requirements identified, and whether appropriate interpersonal skills were employed. There

was a section for comments which observers were encouraged to use to amplify/explain what they were recording and to provide material for later discussion.

We were somewhat nervous about doing this and were both concerned about how it would work in practice and anxious that all staff would participate willingly. Again all staff were involved in designing forms and procedures, in discussing logistics (should observers follow staff around the library as they answered the query? How should they respond to people in the queue asking them questions?) and in defining the purpose of the exercise. This, it was stressed, was developmental and to do with enhancement, and not judgmental or targeted at individuals. As the final briefing memo expressed it, it was to "make our service slightly better . . . by pinpointing timetabling issues, gaps in reference stock, causes of user dissatisfaction, additional training needs and examples of good practice."

The monitoring pilot took place in the third week of April, a pre-exam period when enquiry desks were still quite busy but activity was not at its peak. It was followed up by an informal meeting for immediate feedback, the analysis of the data and comments collected, and the presentation and discussion of these at an enhancement workshop which produced two lists of recommended actions - one on improving the monitoring process, and one concerning the service itself.

Appendix 2 tabulates some of the data which were collected. No claims are made for its validity or for any kind of statistical rigour. However, as a pilot it did seem to suggest that with refinement (eg. better forms/procedures, more frequent sampling) this kind of exercise could produce useful information, and even as a rough and ready exercise it produced material appropriate for its main purpose - some kind of enhancement activity. As can be seen, the exercise yielded data on:

- number and distribution of enquiries and IT problems;
- numbers queuing/walking away;
- user satisfaction scores;
- waiting time;
- time spent with users;
- number of whole or partial referrals;
- number of questions completely answered, partially answered, not answered;
- whether appropriate interpersonal skills were used.

The comments which were recorded involved what was seen as good practice (giving a lot of information, finding out what the user really wanted, making appropriate referrals, making notes for the user, and so on), less than good practice (cases where more could have been done in terms of information given or action taken), and issues which just seemed to be problematic ("juggling" the queue, dealing with phone calls, the user experiencing a long wait to ask a simple enquiry).

The workshop which met to consider the monitoring exercise concluded that it had broadly worked and that it should be repeated at a busier period. Some changes in procedures were agreed (for refinement immediately prior to the next monitoring). These were to rethink the handing out of the satisfaction survey forms (very few of these were distributed and returned); to amend the procedures and form for observers (to clarify logistical issues and to improve the recording of how adequately questions were answered); and to include a count of the times the desk was left unstaffed.

The data collected were subjected to appropriate health warnings. However, even given these, it seemed to indicate positive messages on user satisfaction, how questions were being answered and how long users were waiting. It also provided useful indications of the distribution of enquiries during the week, the percentage concerning IT, and the time spent answering them. From the general discussion which the data, the comments collected, and participants' general impressions generated a number of service improvements were proposed and adopted. These concerned:

- phones (filter phone calls, provide answerphone);
- IT (formalise present support mechanism);
- queues (timetable back-up. . . user to invoke help if waiting for more than three minutes);
- notices (generally improve, explain the above);
- communication (post or e-mail documents, messages).

COMPARABLE APPROACHES

For the most part this project has progressed without too much concern for what has been done elsewhere and without any systematic attempt to compare our activity with other approaches. It is of course illuminating to do this and such comparison will undoubtedly play its part as we come to refine what we are doing. Here I shall quickly say a little about two particular aspects of applying performance measurement to enquiry/reference services (reflecting what I have gleaned from quickly skimming the literature).

Firstly, I am aware of a number of attempts to establish qualitative standards or specifications, which seem to have produced lists not very dissimilar to our standards. For example, Judkins et al (Judkins, 1986) list eight such headings produced by the Oregon Health Sciences Libraries. These include quality control, appropriateness, accuracy, and timeliness. Duffy (Duffy, 1995) describes a Southwark Libraries specification for Information Services for enquiry services; these involve timeliness, appropriate referral, trained staff and staff's awareness of appropriate sources. Finally Whitehall in his 1992 review (Whitehall, 1992) has relevance and quality of answer, accuracy, speed of response, and accessibility/ease of use.

Secondly, most of the attempts to measure service have involved unobtrusive measurement, eg. those described by Williams (Williams, 1987), Elzy et al (Elzy, 1991), and Dudley and Barraclough (Dudley, 1995). Usually what is being measured is the accuracy of answers to factual questions asked in person or by telephone, although some studies also attempt to measure helpfulness or to correlate accuracy with user satisfaction. Even so this is some way from the holistic picture we were trying to achieve through observation; in any event, unobtrusive measurement is not something we have so far seriously considered.

OUTCOMES

I should like to claim four sets of positive outcomes from this standard-setting exercise to date. These concern :

- the *enquiry service* itself where there has been general enhancement including a clarification of purpose and detailing of the service within a wider framework of learner support; improved training and specific service improvements;
- other *library services* where similar processes (qualitative standards, training, monitoring enhancement) are about to be applied. These include user education and tutorial support, customer services as whole, and provision of the electronic environment;
- our overall approach to *quality management*: this activity has involved most of the key components in a way which staff have found comprehensible and in which they have been keen to participate;
- more *general management issues* where it has influenced the overall approach to staff training/development and teamworking.

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Appendix 1

ENQUIRY SERVICE STANDARDS

1 Enquiry services will be provided at both campus libraries at published levels of service, within published hours.

2 Two service levels will be provided -

.1 a comprehensive service delivered from specialised enquiry desks.

.2 a more limited service delivered via issue desks which may involve referral to specialist staff and a consequent time lag in answering the query.

3 Enquiries may also be made by letter, fax, telephone or e-mail.

4 Appropriate reference resources, including material in both printed and electronic formats, will be maintained.

5 Enquiry services at all levels will be provided by appropriately trained staff. They will be supported by updating and monitoring programmes. In this way every effort will be made to ensure the accuracy of any information provided by the service.

6 All enquiries staff will respond to users in a helpful and courteous manner.

7 In addition to receiving a full answer to any enquiry, users will be helped and encouraged to develop information retrieval skills in order to facilitate further self-help.

8 Responses to personal applications will be made within five minutes of the enquiry being made. Any referrals will be explained and the time-table for receiving a full answer provided.

9 Requests received via letter, fax, e-mail etc will be answered within two working days.

10 Queues will be monitored and efforts made to minimise waiting times within existing resources. Staff will respond to users methodically and advise those waiting of any likely delay.

Appendix 2

DATA COLLECTED FROM THE PILOT ENQUIRY SERVICE MONITORING EXERCISE

	Min	Max
1 **Number of Enquiries Recorded**		
per 2 hour session	13	53
per day	97	152
Technical (IT) Enquiries per session		11
2 **Numbers Queuing**		4
Number who walked away (Total for the week)	11	
3 **User Satisfaction Forms**		
Average score (5 categories, 5 point scale, Max score - 20)	18.3	
Average staff helpfulness score	20	
4 **Observation Forms**		
.1 Waiting time (Percentage of observed enquiries in each category)		
0-2 min	92%	
2-5 min	7%	
5-10 min	1%	
.2 Time spent with user		
0-2 min	25%	
2-5 min	33%	
5-10 min	25%	
10 min+	17%	
.3 Enquiries recorded as wholly or partly referred (to another member of staff, elsewhere inside or outside the College)	23%	
.4 Enquiries recorded as not answered or inadequately answered	11%	
.5 Enquiries recorded as demonstrating good interpersonal skills	100%	
.6 Percentage of comments recording -		
Good practice	71%	
Examples where more could have been done	17%	
General problems and issues	12%	

Data Envelopment Analysis (DEA) as a Method of Evaluating Libraries: A Case Study of Finnish Academic Libraries

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In performance analysis and evaluation contextual issues can affect the applicability of different performance analysis methods. In this study, the Data Envelopment Analysis (DEA) method is applied to assess the performance of Finnish academic libraries. The results show that the DEA method can reliably identify a library's high or low performance areas. DEA can also be seen as a useful tool for strategic self-evaluation and management of libraries. For productivity measurement this method can offer a result from the data which is difficult to achieve with partial indicators. The DEA analyses are very sensitive to deviations, eg. a very uncommon input/output mix of the unit can influence results, and therefore the DEA measures of efficiency should be interpreted cautiously. The DEA efficiency scores can be a starting point for the benchmarking approach; in other words the DEA analysis can show the benchmark unit or units.

1. INTRODUCTION

A world-wide increasing phenomenon of accountability can be observed in the public sector. Academic libraries are not an exception to this development. Efficiency and productivity analyses have become vital managerial control tools for assessing the performance of an academic library. The traditional productivity measurement at the universities and in their libraries has been based on different kinds of partial indicators, so-called ratio analysis. There are many partial indicators developed especially for libraries, eg. *The Effective academic library (Joint . . ,* 1995) mentions 21 such indicators. However, it is quite difficult to decide which of these indicators are the most important ones for the efficiency assessment of libraries. Usually these partial indicators vary quite a lot between libraries and therefore it is problematic to use them for comparison purposes.

The main reasons for the failure of traditional productivity measurement approaches in non-profit organisations are, for instance, the following (Golany and Roll, 1989):

- it is difficult to formulate an explicit functional relationship between inputs and outputs, with fixed weights on the various factors;
- averaging performance across many organisations and units, as in statistical regressions, fails to explain the behaviour of an individual unit.

The data envelopment analysis (DEA) method tries to overcome these difficulties. It provides a means for assessing relative efficiency of units or any decision-making units (DMUs), with minimal assumptions on input-output relations in these units.

The purpose of this paper is to investigate one measuring method, DEA, for evaluating the performance of Finnish academic libraries. The presentation will be of an exploratory nature.

2. BASIC ASSUMPTION IN USING DEA

The DEA method has become a popular subject for research in the field of operations analysis. The increasing interest in performance measurement and evaluation has made the DEA method widely used as an analysis technique in the public sector, and also in universities (Vakkuri and Mälkiä, 1996). This method has been seen as an innovation in measuring.

In the application of the DEA method three main phases can be distinguished (Golany and Roll, 1989):

- definition and selection of decision-making units;
- selection of relevant and suitable input and output factors;

[1] Jorma Niemitalo was unable to attend the Conference owing to unforeseen circumstances, but has made his paper available for publication.

- application of the DEA models and analysis of outcome.

The selection of input and output factors is important, as the resulting efficiency scores are sensitive to the variables selected. DEA can be used in many ways for productivity analysis. Vakkuri and Mälkiä (1996) identify at least three ways to use the DEA method and results for performance evaluation in the university context. The DEA technique can be used as a method:

(i) for centralised, top-down oriented performance evaluation and control;
(ii) to support unit based strategic self-evaluation and management;
(iii) for guided organisational change.

The most interesting means of library evaluation are monitoring own self-evaluation (ii), and using this method for guided organisational change (iii). In other words the DEA method helps to compare the existing set of libraries, and for the managers DEA makes it easier to compare their own library's performance with that of another library. The DEA method can also show the input or output areas which could be improved.

One of the main assumptions in the DEA method is the comparability of units. Golany and Roll (1989) define three basic conditions for the units before the DEA analysis can be done:

1) selected units should perform the same task, with similar objectives;
2) selected units should perform under the same set of "market conditions";
3) the factors (both input and output) characterising the performance of all units should be identical, except for differences in intensity or magnitude.

Are libraries comparable enough for this kind of analysis? All academic libraries fulfil the first and third condition. The main task of libraries is to disseminate information with different services. On the basic level these services (loans, interlibrary loans, information retrievals) perform the same task and the figures are easy to obtain from library statistics. Furthermore, the intensity and the magnitude of these figures vary in different libraries.

On the other hand, the second condition about the same set of "market conditions" is more problematic. The market condition of a library can be very different. For example, in three Finnish cities there is more than one university library and the client can freely choose between them. This situation has an effect on the intensity of the library's use, eg. level of outputs. Moreover in a large university the library has a more heterogeneous position than in a small university eg. in administration and computer services.

3. THE DATA ENVELOPMENT ANALYSIS METHOD

DEA is a tool for measuring relative efficiency empirically. So far, the DEA method is little used in library and information science. In the library context three DEA researches have been made in this decade. In the US a dissertation study has assessed the performance of California's school libraries (Easun, 1992). In the UK an experiment has been done to measure the performance of UK academic libraries, but it has never been published (Johnson et al, 1990). Niemitalo (1995) has compared the performance of Finnish academic libraries with the traditional ratio analysis and the DEA method.

Data envelopment analysis, introduced by Charnes, Cooper and Rhodes (1978), is a linear programming method for assessing the relative efficiency of production units (in this case libraries) with multiple inputs and outputs. The efficiency of a unit is defined as the ratio of the weighted sums of the outputs and the weighted sums of the inputs. DEA uses observed or reported values of multiple outputs and inputs for each unit, and mathematically selects a peer group or reference set of efficient units which most resemble the unit being evaluated (in terms of input and output mixes) to effect its performance evaluations. The maximum of efficiency scores is unity (or 100 per cent) for an efficient unit(s) and inefficient units obtain a score below unity (or 100 per cent). The efficient unit(s) forms a benchmark for the inefficient units. Each inefficient unit is evaluated individually and the amounts and sources of its inefficiencies are estimated and identified. It is important to note that DEA measures of efficiency are relative. DEA is especially valuable in the public sector where typically many outputs are produced from few inputs. An excellent guide to the applications of DEA for the public sector is provided by Ganley and Cubbin (1992).

Figure 1
Efficiency frontier

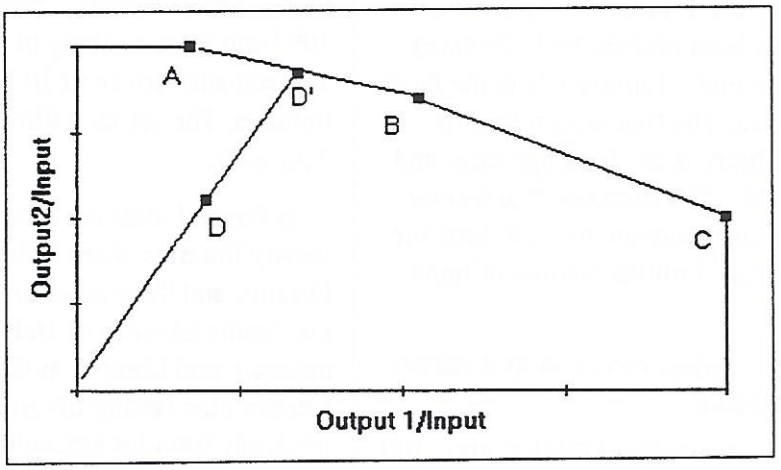


Figure 1 shows the efficiency frontier with one input and two outputs. The efficiency frontier or envelopment is the basis for the whole concept of data envelopment analysis (Norman and Stoker, 1991). Figure 1 presents the hypothetical case of the efficiency frontier with decision-making units A, B, C and D. Units A, B and C are on the efficiency frontier (the units of the best practice) which means that they obtain efficiency score 100 per cent. The unit D lies below the efficiency frontier and is therefore an inefficient unit. The efficiency score of the unit D is below 100 per cent. The efficiency of the unit D can be determined by comparing it to a virtual unit formed by units A and B. This virtual unit D is formed from the units A and B, approximately 60 per cent based on unit A and 40 per cent on unit B. While the DEA method analyses all inputs and outputs simultaneously, DEA can be interpreted as a generalisation of the traditional ratio analyses. The advantage of using DEA is that it is easier to interpret one efficiency score than many performance indicators. DEA shows those input and output areas whose performance could be improved.

In using the DEA method two assumptions of scale effect should be chosen (Figure 2). In this study the analyses were made with both assumptions.

In the DEA method the alternatives for measuring directions are as shown in Figure 2. In the first choice "input minimisation", the level of output is fixed so that DEA is measuring how much the DMU can spare input(s) with the certain output level. Similarly "output maximisation" means that the level of input is fixed. In this case the DEA method measures how much the DMU can produce output(s) with the current level of input(s). With the constant returns of scale the efficiency scores are the same because input and output growths are linear. In the library context it is relevant to use the "input minimisation" measuring direction because it is appropriate to research the level of input minimisation with achieved results (outputs). Moreover this measuring direction is widely used in the public sector.

In the library context there are basically three organisational levels which are appropriate for the

Figure 2
Assumptions of scale effect and alternatives for measuring directions

SCALE	**Constant returns to scale (CRS)**	Increase x% input level -> Increase y% output level (*linear*)
	Variable returns to scale (VRS)	Increase x% input level- > Increase y-∂% output level (*nonlinear*, ∂ free)
MEASURING DIRECTIONS		
	Input minimisation	Level of output is given
	Output maximisation	Level of input is given

DEA analysis. The performance can be analysed at the university library level, faculty library level and departmental library level. In this study the university library level has been chosen, with the exception of Helsinki University Library where the faculty level has been used. The first reason for this choice is that this library is too heterogeneous and large compared to the other libraries. The second reason is that otherwise there are too few units for the analysis, which can limit the amount of input and output variables.

In short the DEA analysis can yield four important pieces of information:

- defines the efficiency scores of DMUs, max. 100 per cent (or 1);
- defines the peer group for the inefficient DMUs;
- defines the combination of inputs and outputs making an inefficient unit efficient;
- shows the weight of each input and output, eg. how important each factor is in the production process.

4. DATA AND VARIABLES

The comparison of libraries is a very problematic task. Revill (1990) prefers to compare staff time rather than costs of libraries and the comparison should be done across the libraries of the same kind. It is difficult to find a suitable and reliable basis for library comparison and therefore it is suggested not to compare an individual component (such as the loans service) of the total service between libraries, but on the contrary to use a broad definition of input (Joint . . , 1995). The broad definition of inputs is also used in this research. This is the only way to compare different libraries at the organisational level. The data were collected from the national annual Finnish research library and university statistics for the years 1991-1993 and from a survey of the library managers. The statistics cover all 20 Finnish university libraries. The selected libraries are listed in the Appendix.

In Finland there are nine multidisciplinary university libraries, three technology university libraries and three economic school libraries. From the faculty libraries of Helsinki University and departmental libraries at the Helsinki University Library nine faculty libraries were selected. Other academic libraries are the libraries of the three arts universities and the College of Veterinary Medicine Library. Together 28 libraries were chosen. In the analyses of the research the mean values of the years 1991 and 1993 were used. The DEA analyses were performed with the Warwick DEA software package with the CCR-model (see more exactly Charnes et al, 1978).

In the simplest form, and also in the traditional role, a library is an information intermediary, having certain information resources and using these to disseminate information with different kinds of services (output) which in this research are information retrieval transactions, loans and interlibrary loans. These variables describe the traditional and basic role of academic libraries.

The input and output variables (together five) are presented in Figure 3. Considerable scale changes are made to the loans variable. The renewals of the computer-based loan system were eliminated. The normalising of text book loans was made because in some libraries the the text book loans can be 90

Figure 3

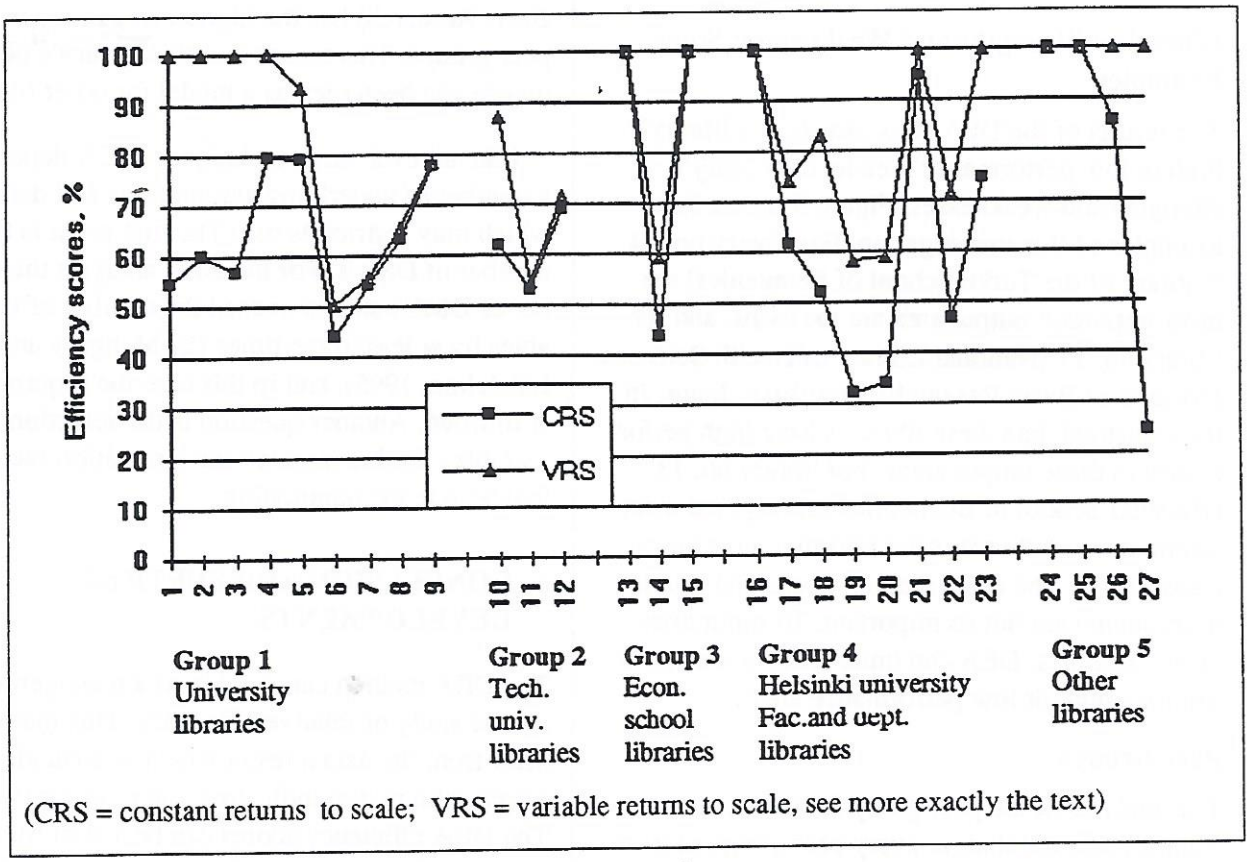
The variables in the analyses

Type of variable	*Variable*	*Notes*
INPUT	Expenditure	FIM*
	Full-time staff	Man years
OUTPUT	Information retrieval transactions	Quantity
	Loans	Normalised**
	ILL, lending + ILL, borrowing	Books and copies

* The staff expenditure was eliminated.

** Only the study literature loans were normalised, in other words the loan period has no influence on the amount of loans.

Figure 4
DEA efficiency scores of Finnish academic libraries 1991-1993



(CRS = constant returns to scale; VRS = variable returns to scale, see more exactly the text)

per cent of total loans and in many libraries text book loans have shorter loan periods. The normalising was done in the following manner. Loan periods varied from one week to four weeks. Four weeks was chosen as a standard time. Loans of one week were multiplied by 0.25, loans of two weeks by 0.5, loans of three weeks by 0.75 and loans of four weeks by 1.0.

5. RESULTS OF THE DEA RUNS

The DEA method offers one way to measure and to compare the performance of organisations. In the library context the most important evaluation areas are strategic self-evaluation and management. In this study the efficiency was captured by a two-input (expenditure and full-time staff) and three-output (information retrieval transactions, loans and interlibrary loans) model. Altogether about 100 DEA runs were made and robustness of the data was achieved. In the following part of this paper, the main outcome of the DEA runs - efficiency scores, strengths and weaknesses of libraries and peer groups - will be presented.

The Efficiency Scores

One of the interesting outcomes of the DEA method is the efficiency scores of the DMUs. The DEA analyses are very sensitive for deviations, eg. a very uncommon input/output mix of the unit can have a crucial influence on the results. The basic DEA runs of the sample showed that library no. 19 (Helsinki University. Undergraduate Library) was an "outlier" in this sample. This library has very high loan performance and therefore it was dropped from the following main analysis.

Figure 4 shows the efficiency scores of Finnish academic libraries on both the measuring dimensions. The efficiency scores are remarkably higher with variable returns to scale. The large and small libraries have a significant increase between these two measuring dimensions. Even with the variable returns to scale, significant efficiency differences were found between the libraries. On balance 13 libraries out of 27 libraries proved efficient. The most efficient libraries had a very high circulation performance whereas many inefficient libraries had low circulation figures. The DEA analysis indicates

those differences by type ("loan library" vs "collection library") and by the size of the libraries.

Libraries' Strengths and Weaknesses: Some Examples

The results of the DEA runs can show a library's high or low performance area ie. the library's strengths and weaknesses. Figure 5 shows three examples of this investigation. For library no. 14 (Library of the Turku School of Economics) the most important output area are the loans, and for library no. 17 (National Library of Health Sciences. Division of Basic Research) interlibrary loans. In the statistical data these libraries have high performance in these output areas. For library no. 13 (Helsinki School of Economics Library) the most important output area is the information retrieval transactions. The other outputs (loans and interlibrary loans) are not so important. To summarise these examples, DEA can quite reliably identify a library's high or low performance areas.

Peer Groups

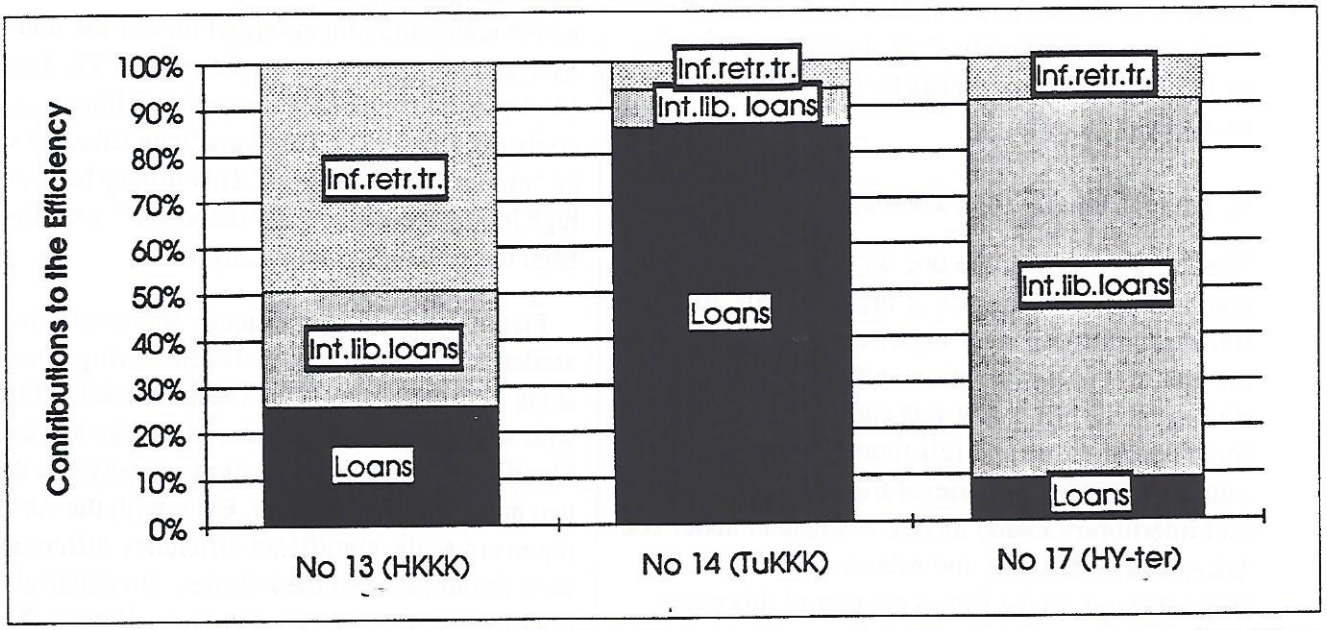
The analysis of the peer group for inefficient libraries showed that, in every peer group, at least one library of the same size was selected. These reference libraries can offer a strategic management object for an inefficient library. The library no. 17 (National Library of Health Sciences. Division of Basic Research) has the highest frequency in the peer groups. This means that this library's performance can been seen as a model for other libraries.

Like all evaluation techniques, DEA depends on a number of underlying assumptions and details[2] which may restrict its use. The first point is the number of DMUs. For the DEA analysis the number of DMUs should exceed the number of variables by at least three times (El-Mahgary and Lahdelma, 1995), and in this case the requirement is fulfilled. Another question is the selection of variables. In this research the circulation factor maybe was too dominating.

6. CONCLUSION AND FURTHER DEVELOPMENTS

The DEA method can be seen as a managerial tool for the study of relative efficiency. This method can offer from the data a result which is difficult to obtain with partial indicators, the ratio analysis. The DEA efficiency scores can be a start for the *benchmarking approach*, in other words the DEA analysis can show the benchmark unit or units.

Figure 5
Libraries' strengths and weaknesses: some examples.



[2] As a conclusion, the DEA method is appropriate in the library context given the following assumptions:
1) measuring direction should be input minimisation;
2) variable returns to scale is valid;
3) it is questionable to compare a very heterogeneous group of libraries. In this case one library was an "outlier" in the sample.

Figure 6
The sorts of information in the DEA method (Vakkuri 1997)

	Analysing the similarity	*Analysing the divergence*
Sorts of information	Ranking information Signalling information*	Strengths and weaknesses Strategic groups Unique units

* Means the ability of DEA to produce one efficiency measure from the data eg. the measure gives a signal for the detailed research.

According to Vakkuri (1997), DEA can produce two kinds of information in the university or university library context. Firstly, the DEA efficiency scores can help to analyse the similarity of the units. Secondly, the DEA results can help to investigate the divergence of the units (Figure 6).

This classification is valid also for academic libraries. The emphasis is on analysing the divergence of academic libraries. As we saw from the results, the DEA method can help to analyse the strengths and weaknesses of the library (compare with SWOT analysis). It can also locate appropriate best practice units and unique units (a start for the benchmarking approach).

The DEA method is an effective approach to assess the efficiency of organisations in cases where traditional approaches for efficiency analysis of productivity measurement fail or are difficult to apply. Such is the case in academic libraries where it is difficult to form a strict functional relationship between factors of production, and where the relative weights of input and output factors are not well defined. DEA shows the extreme limits of efficiency. The DEA efficiency has proved accurate, and it is easier to make conclusions from the DEA results than from a great amount of single input-output ratios. To summarise, DEA appears to be a new and useful operations research tool available to the public sector, as well as to libraries and library managers.

This research is based at this stage only on the quantitative data of academic libraries. It should be very fruitful to use also performance measures of qualitative origin. In the DEA analysis it is also possible to use classified measures (for instance the reference service could be rated 0-5 = low level service, 6-10 = moderate level of service etc.). This kind of indicator could also give a qualitative point of view to the quantitative DEA analyses.

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continued

Appendix

Finnish Academic Libraries by Fields According to Libraries Expenditure in Each Group (eg. library number 1 largest, library number 2 second etc.)

GROUP 1	No.	Multidisciplinary university libraries	GROUP 4	No.	Helsinki university. Faculty and department libraries
Abbreviation			*Abbreviation*		
OYK	**1**	Oulu University Library	**HYK-op**	**16**	Undergraduate Library
JYK	**2**	Jyväskylä University Library	**HY-ter**	**17**	National Library of Health Sciences. Division of Basic Research
TYK	**3**	Turku University Library	**HY-maa**	**18**	Agricultural Library
TaYK	**4**	Tampere University Library	**HY-me**	**19**	Library of Forest
ÅAB	**5**	Library of Åbo Akademi University	**HY-val**	**20**	Social Science Library
JoYK	**6**	Joensuu University Library	**HY-hk**	**21**	History and Philology Library
KuYK	**7**	Kuopio University Library	**HY-ka**	**22**	Education Library
LYK	**8**	Lapland University Library	**HY-oik**	**23**	Law Library
VYK	**9**	Vaasa University Library	**HY-teo**	**24**	Theology Library
GROUP 2		**Technology university libraries**	**GROUP 5**		**Other academic libraries**
Abbreviation			*Abbreviation*		
TKK	**10**	Helsinki University of Technology Library	**SibA**	**25**	Sibelius Academy Library
TTKK	**11**	Tampere University of Technology Library	**TaiK**	**26**	The University of Industrial Arts Library
LTKK	**12**	Lappeenranta University of Technology Library	**EKK**	**27**	College of Veterinary Medicine Library
			TeaK	**28**	Central Library of Theatre and Dance
GROUP 3		**Economic school libraries**			
Abbreviation					
HKKK	**13**	Helsinki School of Economics Library			
TuKKK	**14**	Library of the Turku School of Economics			
SHHB	**15**	Swedish School of Economics and Business Administration Library			

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Assessment of Service Quality in Academic Libraries: Focus on the Applicability of the SERVQUAL

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Service quality is the most studied topic in marketing research. It is, as perceived by customers, a function of what customers expect from a service and what they perceive is the performance of the organisation providing the service. The customer-based approach to measuring service quality offers an alternative for defining the quality of library services. The SERVQUAL instrument, modified for use in library settings, provides an outcome measure for managers to gauge their success. Its usefulness to the improvement of service management in academic libraries is only beginning to be discovered. This paper discusses the theoretical consideration of service quality as an evolving performance measure in academic libraries, and reviews, from the results of studies in eight, mostly academic, libraries, issues of applying SERVQUAL to measure the quality of ILL and reference services.

Flying across the Atlantic, are you more likely to judge the quality of the airline you use by the number of planes it operates or by the reliability of its schedules of departure and arrivals and the attention its staff gives you? When shopping from a mail order catalog, would you judge the quality of the vendor by the number of products it has itemized, or rather by the likelihood that your order will arrive when promised? Similarly, as someone going to a library in need of information, is the size of the collection enough for you to judge the library's quality? Or are gaining access to appropriate resources when you need it, receiving assistance willingly from knowledgeable staff, and acquiring prompt response to your queries more important to shaping your sense of quality?

The traditional orientation of measuring the quality of an academic library in terms of its collection and various counts of its use no longer offers attainable goals for library staff to successfully address the campus community's demands for information. New ways to conceive of quality and to monitor its attainment are being sought by numerous librarians in recent years. Alternative approaches to measure quality emerge in the business sector where organizations are increasingly being evaluated in terms of their service quality.

Service quality is the most studied topic in marketing research during the past decade. A repeated theme in the literature is that service quality, as perceived by consumers, is a function of what customers expect from an excellent service and what they perceive is the performance of the firm providing the service.

Among the most popular assessments of service quality is the SERVQUAL, a scale designed by the US marketing research team of Berry, Parasuraman and Zeithaml. Used to develop a survey instrument, the SERVQUAL measures the gap between customers' expectations for excellent services and their perceptions of actual service delivered. The instrument is a diagnostic tool to help service providers understand both customer expectations and perceptions of specific services, as well as quality improvements over time.

Through numerous qualitative studies, Berry, Parasuraman and Zeithaml evolved a set of five dimensions which have been consistently ranked by customers to be most important for service quality, regardless of service industry. These dimensions are characterized as Tangibles, Reliability, Responsiveness, Assurance, and Empathy. From extensive research, this team concluded that customers ranked the importance of two of these SERVQUAL dimensions consistently and regardless of service industry. According to customers participating in their surveys, Reliability is the most important contributor to service quality and Tangibles is the least important (Zeithaml et al, 1990).

Parasuraman, Berry and Zeithaml's customer-based approach to conceptualize and measure ser-

vice quality offers an alternative for defining quality of libraries. It emphasizes the service nature of libraries, in which the traditional collection-based criteria of quality may be part of, but not be the entire, component of excellence. It also accents the essential role of the library user to be the judge of a library's service quality. Its usefulness to improve service management in academic libraries is promising and is only beginning to be discovered among a handful of librarians experimenting with applications of the SERVQUAL during the past four years.

My presentation today broadly asks if the SERVQUAL instrument is applicable in the library setting. Specifically, can it be administered easily in libraries? Do data collected from the instrument's applications in library settings uphold principles followed to assess the usefulness of such psychometric measurements? Let me share how I propose to organize my comments for those of you mapping out when to leave to catch part of another presentation:

1. brief description of the SERVQUAL instrument;
2. short identification of the research studies used in my analysis today;
3. a detailed summary of a set of three concerns by which I have examined the applicability of the instrument to library service settings. These three concerns address:

   a) the scale's reliability and validity,

   b) the relation of users' perceived service quality as measured by the SERVQUAL scale and four variables related to quality of library services,

   c) the scale's potential to differentiate quality factors among library services;
4. concluding comments on future directions for use of the SERVQUAL in libraries;
5. audience discussion.

1. Brief Description of the SERVQUAL Instrument

The studies conducted in library settings (Figure 1) used slightly modified versions of the SERVQUAL instrument as refined by the designers by 1991. Each questionnaire consists of 22 pairs of statements. The first set of these statements measure the library user's expectations by asking each respondent to rate, on a seven-point scale, how essential each item is for an excellent library. The second set

Figure 1

Summary of studies using the SERVQUAL in library settings

Author	Date of study/ publication	Type of library	Target service	Return Rate	Size of return (N)
Hebert	1993	Canadian public	ILL	52%	130
White	1993/4	US special	not distinguished	47%	142
Nitecki	1994/95	US academic	ILL Reference Reserves	76% 53% 62%	140 97 114
Edwards & Browne	1994	Australian academic	not distinguished	27%	82
Coleman, Xiao, Bair, Chollett	1994/96	US academic	not distinguished	38%	198
Stein	1997	US academic	ILL	62%	248
Nitecki	1997	US academic	Reference	36%	93
[Emory]	?	US academic	ILL	?	?

Figure 2
Description of the five SERVQUAL dimensions*

Unstated Dimension	Stated Description
(Tangibles)	The appearance of the library ILL unit's physical facilities, equipment, personnel, and communication materials
(Reliability)	The library's ability to perform the promised ILL service dependably and accurately
(Responsiveness)	The library's willingness to help ILL users and provide prompt ILL service
(Assurance)	The knowledge and courtesy of the library's ILL unit employees and their ability to convey trust and confidence
(Empathy)	The caring, individualized attention the library provides its ILL users

* Wording used in questions B1--B5 in the questionnaire sent to ILL users (Nitecki, 1996). Respondents were asked to allocate a total of 100 points among these features according to how important each was when evaluating quality of the library service.

of 22 statements measures the respondent's perceptions of level of service given by the Test Library. For each pair of statements, the difference between the ranked perception minus the ranked expectation is calculated; the average of these gap scores is the SERVQUAL overall quality score. In addition, the questionnaire includes a section in which participants were asked to allocate 100 points among descriptions of the five dimensions, to indicate how important each feature is when they evaluate the quality of a library's service. These descriptions are noted in Figure 2. In addition, each questionnaire has a set of overall and comparative service quality questions, and a set of demographic questions.

2. Short Identification of the Research Studies used in my Analysis Today

I am familiar with eight completed empirical studies in which the SERVQUAL has been used in a library setting with a combined response from over 1,240 library users. Hebert first used the instrument in a study of ILL services in Canadian public libraries in 1993 (Hebert, 1993; Hebert, 1994). The following year the instrument's use was recorded by White in a study of service quality in special libraries in the Washington DC area (White, 1994), and Nitecki in her dissertation research to assess the tool's applicability in measuring service quality among users of ILL, reference, and reserve services at the University of Maryland, a large US research academic library (Nitecki, 1995; Nitecki, 1996). Simultaneously, Edwards and Browne used the SERVQUAL to compare expectations for quality services between users and service providers in academic libraries in Sydney, Australia (Edwards and Browne, 1995). In fall, 1994, another application of the instrument was undertaken at Texas A&M University, another large US academic research library, by a team of library staff (Coleman et al, 1997). Both of these studies applied the instrument to measure quality of library services without discriminating which specific service was judged by the customer. A consultant group used a customized version of the instrument for an evaluation of customer satisfaction with ILL services at Emory University, a US research academic library (Emory. . .). This year, two additional US studies have been undertaken in academic research libraries, the results of which are both being reported at this conference for the first time: Joan Stein used the SERVQUAL for an assessment of quality of ILL services at Carnegie Mellon University (Stein, 1997), and I used the instrument with people using general reference services at Yale University. I apologize if I have not identified any others who have used the SERVQUAL in library settings; I would appreciate being told about such applications or would welcome inquiries from those interested in undertaking such a study.

Half of these studies to some degree addressed the reliability and validity of the instrument, while the others did not. As appropriate, I used for

Figure 3

Adequacy of SERVQUAL elements to identify expectations for excellent library services

Study	Other Expectations?* yes N (%)	no N (%)	total N (%)	Other Factors?** yes N (%)	no N (%)	total N (%)
Reserve (Nitecki 1995)	24(24)	78(76)	102(100)	24(26)	69(74)	93(100)
Reference (Nitecki 1995)	22(23)	72(77)	94(100)	18(20)	70(80)	88(100)
Reference (Nitecki 1997)	30(35)	57(66)	87(101)	14(19)	60(81)	74(100)
ILL (Nitecki 1995)	25(20)	99(80)	124(100)	14(13)	94(87)	108(100)
ILL (Stein 1997)	61(26)	173(74)	234(100)	30(14)	190(86)	220(100)
Combined Library Setting	162(25)	479(75)	641(100)	100(17)	483(83)	583(100)

* Based on response to Question A-23 ** Based on response to Question B-8

today's review published analyses performed by Hebert, White, Coleman et al, and Edwards and Browne. I used SPSS Windows (previously SPSS-PC) to analyze data available to me from both my studies, as well as from the study conducted at Carnegie Mellon University; I am indebted to Joan Stein's generosity for sharing her work with me.

Summarized information about these studies in Figure 1 illustrates the practicality of using the SERVQUAL instrument in library settings. Response rates were typically high and ranged from 27% to 76%; with most applications of the instrument, the majority of mailings (over 50%) were returned. From my own experiences, nearly all questionnaires were returned completed. Accompanying the 444 responses I received, only two separately sent letters criticizing the instrument's design; Stein received one similar criticism among her response of 248. Specific statements (for example, statement 15 about feeling "safe") triggered marginal comments, but generally the questionnaire's design did not seem to be a barrier to administering the survey. Various incentives were used to improve response rate, including insertion of a teabag (Nitecki, Stein), participation in a draw for one of three gift certificates for a local restaurant (Nitecki), and a card for making free photocopies (Stein). Follow-up mailings were generally used to encourage response. The instrument lends itself well to inexpensive transmission by electronic mail which was used among non-respondents in my Yale study for those whose e-mail addresses were identified; this approach lowers survey overhead costs by eliminating printing and postage for both distribution and returns. In academic settings, the timing when questionnaires are mailed is critical; delays in preparing the mailing for the Yale study resulted in a distribution the last week of the spring semester when many students were cramming for finals or leaving town and not attentive to responding to questionnaires. Data entry using a statistical software package as SPSS Windows is based on spreadsheet designs and is assignable to any typist with minimum instructions.

3. The Applicability of the Instrument to Library Service Settings

Three concerns were addressed in examining the SERVQUAL's applicability to library service settings using the responses from similar instruments used in Stein's Carnegie Mellon study, both of my studies and wherever similar analyses were reported in the literature.

a) The scale's reliability and validity

Three steps were taken to examine the instrument's reliability and validity. To what extent do the scale's factors define the construct, in this case service quality, which is being measured? How well

do the scale's variables correlate? Do the scale's measures relate to other measures of the construct? First, respondents were asked to confirm whether or not the 22 statements and the five described dimensions adequately reflected the expectations for excellent library service quality and whether any were judged "not at all essential". As reflected in Figure 3, the clear majority of respondents, regardless of library service or setting, confirm that there are no other expectations or service factors beyond what are cited on the questionnaire which are important to their evaluation of library service quality. Furthermore (Figure 4), only four statements (A1-A4) were considered "not at all essential" by more than 5% of the respondents in either Stein's or my study. These four statements all relate to the tangible dimension and address appearances of service site, providers and materials. These results support the SERVQUAL's face and content validity that the five dimensions, as reflected by the 22 statements, capture key facets of service quality.

Second, the extent to which the SERVQUAL scale variables correlate with each other was determined in two ways. The scale's internal reliability was measured by the Cronbach Alpha score at the overall level of the SERVQUAL difference score. Whenever reported or calculated, the Cronbach Alpha score was consistently high, above .80, ranging from .81 in the Yale Reference services setting (Nitecki) to .88 in the Canadian ILL study (Hebert). These studies' scores indicate that the five SERVQUAL dimensions measured in library service settings are parallel measures of the same concept (Figure 5).

The scale's construct validity was evaluated at the five dimension level through a factor analysis of the perception minus expectation (quality) scores for each item. The SERVQUAL designers used this method to verify the five dimension structure, but other applications of the SERVQUAL scale have resulted in different factor structures. None of the library settings conclude that the five dimension pattern proposed by the SERVQUAL designers applies to the library setting (Figure 6). Except for the Maryland study, all data agree that without constraint, a five-factor solution can be established, but the items did not load on the same factors as developed by the SERVQUAL designers. There is no repetition of associated patterns among the library studies, except that consistently the first four statements load together (the Tangible group) as do statements 18, 20-22 (Empathy). The Maryland study reached a four-factor solution.

For the third step, to test the scale's convergent validity, correlations were examined between the

Figure 4

Expectations considered "not at all essential"

Expectation Statement	Nitecki 1995 3 services N (%)	Nitecki 1997 Reference N (%)	Stein 1997 ILL N (%)
A1	64 (18)	15 (17)	56 (23)
A2	38 (11)	12 (13)	53 (22)
A3	47 (13)	12 (13)	42 (17)
A4	37 (11)	8 (9)	14 (6)
A9	2 (1)		1 (*)
A10	1 (*)		1 (*)
A11			1 (*)
A12			1 (*)
A13	3 (1)		1 (*)
A14	3 (1)		1 (*)
A15	1 (*)	1 (1)	4 (2)
A16			1 (*)
A20	1 (*)		1 (*)
A21	2 (1)		
A22	1 (*)		

(*) less than 1%

Based on value responses 1 "not at all essential" to questions A1-A22

Figure 5
Reliability of SERVQUAL in different service settings

Reported library settings	Cronbach Alpha score on overall quality score
Canadian public library (Hebert 1993)	.88
US special libraries (White 1994)	n/a
US academic library, ILL, reference, & reserve (Nitecki 1995)	.84
US academic library, reference (Nitecki 1997)	.81
US academic library, ILL (Stein 1997)	.84

mean value of responses to a request to rank the overall quality of library service on a ten-point scale (question D1), and the calculated SERVQUAL score as differences between perceptions and expectations. Across my two studies and Stein's study, correlation between the SERVQUAL score and overall measures of quality is significant regardless of library service setting considered. Correlations were consistently high at the overall gap score level (Figure 7).

b) Relation of SERVQUAL scale to four variables related to quality of library services

The second set of concerns in evaluating the SERVQUAL's applicability to library service settings focused on the relation of customer's perceived service quality as measured by the scale and as reflected by four other variables related to service quality. Specific questions asked respondents if they had experienced a problem with the specific library service within the past year (D2), if they were satisfied with the resolution of the problem (D4), if the information they obtained from the service was valuable to them (D5), and if they would recommend the service to a friend (D6). Independent (and Pooled variance) t-tests were used to evaluate the difference between the means on the calculated SERVQUAL score among those who responded positively and those who responded negatively to each of these four questions.

Significant differences were not consistently found on any of these four comparisons across studies in the library settings (Figure 8). Where significant differences were found, the data confirmed expected relationships to other variables. Lower SERVQUAL scores were found (in the Maryland ILL and Yale Reference studies) among readers who experienced a service problem. Higher SERVQUAL scores were found among readers who were satisfied by the problem resolution, valued the information received, or were willing to recommend the service. The eta (probability) square index indicates a high effect on the variance in SERVQUAL scores of both the satisfaction with problem resolution (D4) and willingness to recommend the service (D6) among users of reference (31.7%) and ILL service (36.2%) respectively.

c) Scale's potential to differentiate quality factors among library services

The final set of concerns considered in my review of the SERVQUAL's applicability to library service settings asked in two ways if the instrument differentiates library services. Is the relative importance of the five dimensions different among users of different library services? Do users of different library services have different expectations for excellence?

Several studies in library settings provide data for an examination of the relative importance of the five SERVQUAL dimensions to evaluate service quality as recorded by responses to three questions. Most replications of the instrument included the request of respondents to allocate 100 points among descriptions of the five dimensions and then to identify among these the factor which is most and least important to them in judging service quality.

Consistently, when specifically asked to identify the least important dimension (Figure 9) all library service users selected "Tangibles". Except for the

Figure 6
Factor loadings in library setting SERVQUAL studies

Statements		Factors			
	Settings	ILL (Hebert)	ILL/Reference/Reserve (Nitecki 1995)	Reference (Nitecki 1997)	ILL (Stein 1997)
Tangibles	1	A	A	C	C
	2	A	A	C	C
	3	A	A	C	C
	4	A	A	C	C
Reliability	5	B	C	A	E
	6	C	C	D	A
	7	D	B	D	D
	8	D	B	A	E
	9	D	B	A	D
Responsive	10	D	B	A	D
	11	C+D	C	A	D
	12	C	D	D	A
	13	C	D	B	A
Assurance	14	E	D	E	A
	15	E	D	E	A
	16	C	D	E	A
	17	C	D	A	B
Empathy	18	E	D	B	B
	19	B	D	B	B
	20	E	D	B	B
	21	E	D	B	B
	22	E	D	B	B

Note: Statements refer to the questionnaire 22-item statements. Based on factor analysis on the expectation scores (Section A of the questionnaire). Letters reference different dimensions based on a 5-factor loading.

Figure 7
Correlation between SERVQUAL score and measure of overall rating of quality by library setting

Library service study	Correlation
ILL (Nitecki 1995)	.583
Reference (Nitecki 1995)	.802
Reserve (Nitecki 1995)	.717
Combined	.729
Reference (Nitecki 1997)	.677
ILL (Stein 1997)	.693*
ILL (Hebert 1993)	.767**

Note: Based on responses to Question D1 and the calculated quality scores (paired item ratings from section C minus Section A) 2-tail significance test, p<.001
* p<.01 ** Based on correlation to overall satisfaction with ILL service

Maryland reference users (Figure 10), all identify "Reliability" as most important. This pattern was confirmed by the distribution of 100 point allocations (Figure 11), regardless of service setting. In all library studies, readers gave highest point allocation to Reliability and, except for those at Texas A&M University, lowest allocation to Tangibles. Readers at Texas A&M nearly tied lowest point distribution between Tangibles and Empathy, the second least important dimension among all studies as defined by the 100 point allocation. This pattern reflects findings in other service industries.

Figure 8
Relationships of SERVQUAL score to four other variables among ILL and Reference users

Service Setting	(probability squared)	Other Variables SERVQUAL Mean (N) (s.d.) Yes	SERVQUAL Mean (N) (s.d.) No
Problem (D2)			
ILL (Nitecki 1995)	.005*	-4.104 (27) (4.519)	-1.313 (98) (4.495)
ILL (Stein 1997)	***		
Reference (Nitecki 1995)	.010**	-5.439 (28) (7.132)	-1.527 (62) (4.006)
Reference (Nitecki 1997)	***		
Resolution (D4)			
ILL (Nitecki 1995)	***		
ILL (Stein 1997)	.089*	-.889 (8) (.591)	-1.689 (15) (1.506)
Reference (Nitecki 1995)	***		
Reference (Nitecki 1997)	.317*	-.1344 (12) (1.006)	-1.365 (14) (.8740)
Valuable Results (D5)			
ILL (Nitecki 1995)	.012**	-1.752 (110)(4.597)	-8.556 (3) (1.005)
ILL (Stein 1997)	***		
Reference (Nitecki 1995)	.028**	-2.589 (79) (5.490)	-7.040 (10) (8.851)
Reference (Nitecki 1997)	.049*	-.6187 (62) (1.067)	-1.661 (4) (1.760)
Recommend (D6)			
ILL (Nitecki 1995)	***		
ILL (Stein 1997)	.362*	-.4635 (62) (.864)	-3.353 (4) (1.288)
Reference (Nitecki 1995)	***		
Reference (Nitecki 1997)	.063*	-.5639 (59) (1.021)	-1.595 (5) (1.782)

Note: Based on separate variance *t-tests/** Pooled variance t-tests.
*** no significance found; Eta squares used.

An examination of expectations for excellent academic library services by users of reference and ILL reflect strong similarities regardless of library service. Figure 12 codes the mean scores for rankings on the 22 expectation statements in four settings into three categories, high, medium and low. Regardless of service, low rankings are consistently given to the first four statements, all reflecting the tangible elements of appearances. Highest rankings are consistently given to statement 6, expectation of sincere interest shown by staff to assist users, among users of both services. The academic library studies examined also reflect consistently high rankings for statements 5, 8 and 12:

A5: *When the library promises to do something by a certain time, it does so*

A8: *Library provides its service at the time it promises to do so*

A12: *Employees of the library are always willing to help.*

Remaining statements consistently evoke medium rankings, regardless of service, with two noticeable differences between the two services. Users of reference services in both studies ranked statement 17 (employees have the knowledge to answer your questions) more important than users of ILL services. Similarly, statement 11 (employees give you prompt services) distinguished responses by library service, with ILL users holding higher expectations than users of reference services.

It seems, from these two perspectives, that the instrument does not distinguish services at the dimensional level, but might do so at the item level.

4. Concluding Comments

In conclusion, the SERVQUAL scale and instrument transfer well to the library setting, as illustrated by replication studies primarily in academic libraries with users of ILL and reference services. It is easy to administer, evokes high response rates

Figure 9

Least important SERVQUAL dimension by library service setting

Percent indicating Dimension is LEAST important	Nitecki 1995 ILL (N=139)	Stein 1997 ILL (N=243)	Nitecki 1995 Reference (N=94)	Nitecki 1997 Reference (N=92)	Nitecki 1995 Reserve (N=112)
Tangibles	83%	79%	71%	84%	78%
Reliability	0%	0%	4%	0%	3%
Responsiveness	0%	0%	1%	0%	1%
Assurance	3%	4%	4%	5%	5%
Empathy	10%	16%	19%	11%	10%
Multiple Responses	3%	0%	0%	0%	4%

Note: Based on responses to question B7

Figure 10

Most important SERVQUAL dimension by library service setting

Percent indicating Dimension is MOST important	Nitecki 1995 ILL (N=138)	Stein 1997 ILL (N=246)	Nitecki 1995 Reference (N=92)	Nitecki 1997 Reference (N=91)	Nitecki 1995 Reserve (N=109)
Tangibles	1%	2%	1 %	1%	1%
Reliability	72%	79%	32%	58%	62%
Responsiveness	18%	17%	37%	12%	21%
Assurance	3%	3%	18%	24%	13%
Empathy	3%	0%	10%	3%	1%
Multiple responses	2%	0%	2%	1%	2%

Note: Based on responses to question B6

following standard mail survey techniques of enclosing self-addressed stamped envelopes and sending follow-up mailings to non-respondents. Responses are recorded for simple data entry.

Data collected from the instrument's applications in at least four library service settings confirm the general usefulness of the SERVQUAL scale as a measure of customer perceptions of service quality. The 22 items and five dimension statements capture the construct of service quality as perceived by library users, with the consistent low importance given to statements relating to tangible appearances of service elements. Based on high scores on tests of the scale's internal reliability, the five SERVQUAL dimensions measured in these settings are parallel measurements of the same concept. However, none of the data collected in library settings validates the five dimension construct of the scale applied in these library settings. Interpretations of its dimensionalities based on the proposed pattern of association of the 22 items should be made with caution. Significant correlations associate higher SERVQUAL scores for per-

Figure 11
Comparison of percent allocation of 100 points to five SERVQUAL dimensions cross multiple service settings

Service	(N)	Dimension				
		Tangible	Reliable	Responsive	Assurance	Empathy
ILL (Nitecki 1995)-	(140)	9%	39%	23%	17%	13%
ILL (Stein 1997)	(246)	8%	41%	24%	16%	11%
ILL (Hebert 1993)	(130)	12%	35%	20%	20%	14%
Reference (Nitecki 1995)	(95)	10%	26%	25%	22%	18%
Reference (Nitecki 1997)	(90)	10%	31%	23%	24%	16%
Reserve (Nitecki 1995)	(101)	9%	35%	24%	19%	13%
Special libraries (White 1994)	(n/a)	12%	34%	23%	18%	13%
Academic library (Coleman et al 1997)	(198)	16%	27%	24%	19%	15%
Academic library (Edwarde & Browne 1995)	(80)	9%	36%	23%	17%	15%
Non-library, multiple industries (Zeithaml et al 1990)	(1936)	11%	32%	22%	19%	16%

Note: Based on calculated percent point allocation on questions B1 through B5.

ceived service quality with independently measured higher overall quality ratings and other variables related to service quality. At the dimension level, users of library services give similar lowest importance to tangible factors and highest importance to reliability factors, regardless of library service. Differences between users of ILL and reference services are suggested by their ranked importance of the 22 items for expectation of excellence in service, with ILL users valuing promptness more and reference users valuing staff knowledge more.

The SERVQUAL offers service providers a diagnostic tool to assess what is important to meet or exceed their readers' expectations for quality service and a monitor of how well they do so. It offers a method to systematically collect data to identify where improvements are most needed. Its impact on changing the management of academic library service is yet to be discovered, as only a few libraries have begun to use the instrument to collect customer-driven data about service quality.

Further applications of the instrument will offer more data about the tool's transferability to library settings and will suggest ways to improve its adaptation for use with library services. Findings from these early studies reviewed today suggest that the attention to tangible factors might be de-emphasized. Use of the SERVQUAL instrument might be supplemented by other methods of capturing customer perceptions, including focus group interviews and diary logs. Service improvements might also benefit from understanding the discrepancy between what customers expect of service excellence and what the service providers think they

Figure 12

Importance of expectations for ILL and reference services as indicated by mean scores on the SERVQUAL statements.

SERVQUAL statement	Mean Score on Expectations							
	Reference				ILL			
	(Nitecki *)		(Nitecki 1995)		(Stein *)		(Nitecki 1995)	
1	3.43	Low	4.29	Low	3.30	Low	3.61	Low
2	3.93	Low	4.67	Low	3.27	Low	3.64	Low
3	3.76	Low	4.78	Low	3.57	Low	3.86	Low
4	4.18	Low	4.61	Low	4.26	Low	4.11	Low
5	6.57	High	6.51	High	6.72	High	6.69	High
6	6.66	High	6.79	High	6.72	High	6.71	High
7	6.25	Med	6.17	Med	6.37	Med	6.44	Med
8	6.55	High	6.57	High	6.72	High	6.68	High
9	6.20	Med	6.28	Med	6.09	Med	6.28	Med
10	6.08	Med	6.17	Med	5.91	Med	5.95	Med
11	6.39	Med	6.50	Med	6.50	High	6.54	High
12	6.71	High	6.81	High	6.61	High	6.72	High
13	6.17	Med	5.95	Med	5.88	Med	6.04	Med
14	6.11	Med	6.19	Med	6.00	Med	6.26	Med
15	6.04	Med	6.14	Med	5.59	Med	6.02	Med
16	6.24	Med	6.44	Med	6.03	Med	6.21	Med
17	6.54	High	6.56	High	6.44	Med	6.25	Med
18	6.36	Med	6.26	Med	5.91	Med	6.20	Med
19	6.37	Med	6.28	Med	6.05	Med	6.14	Med
20	6.28	Med	6.33	Med	5.79	Med	6.12	Med
21	6.39	Med	6.28	Med	6.05	Med	6.29	Med
22	5.97	Med	6.20	Med	6.07	Med	6.10	Med

Note: Based on mean scores of responses to questions A1- A22 on four applications of the SERVQUAL as adapted for library services. Groupings include Low = <5.00, 5.0 >Med =<6.5, High>6.5.
Stein* & Nitecki * based on my calculations with SPSS Windows using raw data from 1997 studies.

expect. Early research on adapting the SERVQUAL for this purpose has been reported by Edwards and Browne and is also under way within the reference services settings which I have studied.

Use of the SERVQUAL is but one alternative to the broader change required to address the new demands for excellence in academic libraries. The instrument and data it collects can help managers to raise awareness among service providers of the importance of customer expectations and perceptions of what they do. It offers a method to easily gather information in a systematic and non-threatening way on where to most effectively focus attention to improve services. The tool can be used to track the impact of changes in workflow, in adjustments to procedures for handling non-routine problems, of staff training, or of adjusted employee attitudes and behavior.

With this introduction to the usefulness of the SERVQUAL for application in academic library settings, I invite you to explore its use elsewhere. I also offer to analyze your data for further insights on the scale's transferability to library service settings. I'll be happy to assist any library with implementing a study to use the instrument as I've modified it for library applications, or to work with anyone to further experiment with variations on its design. I'm particularly interested to examine its usefulness to understand library users' perceptions of quality of electronic information services. I also plan to investigate how to more simply gather and automatically code data obtained from using the instrument electronically. If there is any interest, I will create and maintain a web site to share experiences on the applicability of the SERVQUAL to library services.

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Appendix

REFERENCE SERVICES SURVEY

Section A: DIRECTIONS: *Based on your experiences as a user of reference services, please think about the kind of library that would deliver excellent quality of reference services. Think about the kind of library which you would be pleased to use. Please show the extent to which you think such a library should possess the feature described by each statement. If you feel a feature is "not at all essential" for excellent libraries such as the one you have in mind, circle the number "1". If you feel a feature is "absolutely essential" for excellent libraries, circle "7". If your feelings are less strong, circle one of the numbers in the middle. There are no right or wrong answers -- all we are interested in is a number that truly reflects your feelings regarding libraries that would deliver excellent quality of reference service.*

	Not at all Essential						Absolutely Essential
1. Excellent libraries' reference units will have modern-looking equipment.	1	2	3	4	5	6	7
2. The physical facilities at excellent libraries' reference units will be visually appealing.	1	2	3	4	5	6	7
3. Employees at excellent libraries' reference units will be neat-appearing.	1	2	3	4	5	6	7
4. Materials associated with the reference services (such as pamphlets or statements) will be visually appealing in an excellent library.	1	2	3	4	5	6	7
5. When excellent libraries' reference units promise to do something by a certain time, they will do so.	1	2	3	4	5	6	7
6. When a user has a problem, excellent libraries' reference units will show a sincere interest in solving it.	1	2	3	4	5	6	7
7. Excellent libraries will perform reference services right the first time.	1	2	3	4	5	6	7
8. Excellent libraries will provide reference services at the time they promise to do so.	1	2	3	4	5	6	7
9. Excellent libraries' reference units will insist on error-free records.	1	2	3	4	5	6	7
10. Employees in excellent libraries will tell users exactly when reference services will be performed.	1	2	3	4	5	6	7
11. Employees in excellent libraries will give prompt reference service to users.	1	2	3	4	5	6	7
12. Employees in excellent libraries' reference units will always be willing to help users.	1	2	3	4	5	6	7
13. Employees in excellent libraries' reference units will never be too busy to respond to users' requests.	1	2	3	4	5	6	7
14. The behavior of employees in excellent libraries' reference units will instill confidence in users.	1	2	3	4	5	6	7
15. Users of excellent libraries will feel safe in their reference transactions.	1	2	3	4	5	6	7
16. Employees in excellent libraries' reference units will be consistently courteous with users.	1	2	3	4	5	6	7
17. Employees in excellent libraries' reference units will have the knowledge to answer users' questions.	1	2	3	4	5	6	7
18. Excellent libraries' reference units will give users individual attention.	1	2	3	4	5	6	7
19. Excellent libraries' reference units will have operating hours convenient to all their users.	1	2	3	4	5	6	7

	Not at all Essential						Absolutely Essential
20. Excellent libraries' reference units will have employees who give users personal attention.	1	2	3	4	5	6	7
21. Excellent libraries' reference units will have the user's best interests at heart.	1	2	3	4	5	6	7
22. The employees of excellent libraries' reference units will understand the specific needs of their users.	1	2	3	4	5	6	7

23. Do you have any other expectations for excellent reference services not mentioned thus far on this questionnaire?
_____ Yes _____ No [If no, proceed to section B].

24. *Identify additional expectations you have of excellent reference services and rank how important you feel each expectation is in evaluating the quality of reference services.*

Expectations of excellent reference services	Not at all Essential						Absolutely Essential
a. _____	1	2	3	4	5	6	7
b. _____	1	2	3	4	5	6	7
c. _____	1	2	3	4	5	6	7

Section B: DIRECTIONS: *Listed below are five features pertaining to libraries and the reference service they offer. We would like to know how important each of these features is to you when you evaluate a library's quality of reference service. Please allocate a total of 100 points among the five features according to how important each feature is to you -- the more important a feature is to you, the more points you should allocate to it. Please ensure that the points you allocate to the five features add up to 100.*

1. The appearance of the library reference unit's physical facilities, equipment, personnel, and communication materials. _____ points
2. The library's ability to perform the promised reference service dependably and accurately. _____ points
3. The library's willingness to help reference users and provide prompt reference service. _____ points
4. The knowledge and courtesy of the library's reference unit employees and their ability to convey trust and confidence. _____ points
5. The caring, individualized attention the library provides its reference users. _____ points

TOTAL points allocated ____100___ points

6. Which one feature among the above five is *most important* to you? (please enter the feature's number) _____
7. Which feature is *least important* to you? _____
8. Is there anything else not included in these five factors which you find important in evaluating the quality of reference services?
_____Yes, please specify:_____
_____No

Section C. DIRECTIONS: The following set of statements relate to your feelings about the Yale University Sterling Memorial Library's reference services. For each statement, please show the extent to which you believe Sterling Memorial Library (SML) has the feature described by the statement. Circling a "1" means that you strongly disagree that Sterling Memorial Library has that feature, and circling a "7" means that you strongly agree. You may circle any of the numbers in the middle that show how strong your feelings are. There are no right or wrong answers -- all we are interested in is a number that best shows your perceptions about Sterling Memorial Library's reference services.

	Strongly Disagree						Strongly Agree	No basis to judge
1. SML Reference unit has modern-looking equipment	1	2	3	4	5	6	7	0
2. SML Reference unit's physical facilities are visually appealing.	1	2	3	4	5	6	7	0

	Strongly Disagree						Strongly Agree	No basis to judge
3. SML Reference unit employees are neat-appearing.	1	2	3	4	5	6	7	0
4. Materials associated with the reference services (such as pamphlets or statements) are visually appealing at SML.	1	2	3	4	5	6	7	0
5. When SML Reference unit promises to do something by a certain time, it does so.	1	2	3	4	5	6	7	0
6. When a reference user has a problem, SML shows a sincere interest in solving it.	1	2	3	4	5	6	7	0
7. SML performs reference services right the first time.	1	2	3	4	5	6	7	0
8. SML provides its reference services at the time it promises to do so.	1	2	3	4	5	6	7	0
9. SML Reference unit insists on error-free records.	1	2	3	4	5	6	7	0
10. Employees of SML tell you exactly when reference services will be performed.	1	2	3	4	5	6	7	0
11. Employees of SML give you prompt reference services.	1	2	3	4	5	6	7	0
12. Employees of SML Reference unit are always willing to help you.	1	2	3	4	5	6	7	0
13. Employees of SML Reference unit are never too busy to respond to your requests.	1	2	3	4	5	6	7	0
14. The behavior of employees of SML Reference unit instills confidence in users.	1	2	3	4	5	6	7	0
15. You feel safe in your reference transactions with SML.	1	2	3	4	5	6	7	0
16. Employees of SML Reference unit are consistently courteous with you.	1	2	3	4	5	6	7	0
17. Employees of SML Reference unit have the knowledge to answer your questions.	1	2	3	4	5	6	7	0
18. SML Reference unit gives you individual attention.	1	2	3	4	5	6	7	0
19. SML Reference unit has operating hours convenient to you.	1	2	3	4	5	6	7	0
20. SML Reference unit has employees who give you personal attention.	1	2	3	4	5	6	7	0
21. SML Reference unit has your best interests at heart.	1	2	3	4	5	6	7	0
22. Employees of SML Reference unit understand your specific needs.	1	2	3	4	5	6	7	0

Section D. DIRECTIONS: *Please answer just a few more questions about your experiences with library services in Sterling Memorial Library.*

1. Overall, how would you rate the quality of the Sterling Memorial Library's reference services ?

Extremely Poor									Extremely Good
1	2	3	4	5	6	7	8	9	10

2. Have you experienced a problem with reference services at the Sterling Memorial Library within the past year?
   _____ Yes _____ No (if no, skip to question 5)

3. Please briefly describe the problem:

4. Were you satisfied with the resolution of the problem?
_____ Yes _____ No

5. Was the information you obtained through your most recent experience with reference services at the Sterling Memorial Library valuable to you?
_____ Yes _____ No

6. Would you recommend the reference services to a friend?
_____ Yes _____ No

Section E. DIRECTIONS: Your help will be appreciated in this final section to better understand the characteristics of the Sterling Memorial Library's reference users. Please check the categories in each question which best apply.

1. How many times have you used the reference services in SML during the past three months? _____times

2. At how many libraries, other than Sterling Memorial Library, have you used reference services during the past two years?
_____ none _____ 1 _____2 _____3 _____4 or more

3. Your most recent use of the reference services in the Sterling Memorial Library was primarily in support of (check one):
_____ course work _____ teaching _____ mix of several purposes
_____ research _____ current awareness _____ other:_____

4. Which best describes your activities on the Yale campus?:
_____ undergraduate student _____ graduate student _____ faculty
_____ staff _____ other:_____

5. Your study or research falls within which of the following academic areas?:

Humanities and Area Studies
_____ African-American Studies
_____ American Studies
_____ Classics
_____ Comparative Literature
_____ East Asian Languages & Lit
_____ East Asian Studies
_____ English
_____ Studies in the Environment
_____ Theater Studies
_____ Philosophy
_____ History
_____ History of Art
_____ History of Med & Science
_____ Italian
_____ Judaic Studies
_____ Latin American Studies
_____ Film Studies
_____ French
_____ German Studies
_____ Germanic Lang & Lit
_____ Near Eastern Languages & Civilizations
_____ Religious Studies
_____ Renaissance Studies
_____ Russian & East European Studies
_____ Slavic Languages and Literatures
_____ Spanish and Portuguese
_____ Linguistics
_____ Medieval Studies
_____ Middle East Studies
_____ Music

Social Sciences
_____ Anthropology
_____ Economics
_____ Ethics, Politics & Economics
_____ International Studies
_____ Political Science
_____ Psychology
_____ Sociology
_____ Statistics
_____ Women's Studies

Sciences
_____ Astronomy
_____ Biology
_____ Chemistry
_____ Computer Science
_____ Engineering (all areas)
_____ Geology & Geophysics
_____ Mathematics
_____ Molecular Biology
_____ Operations Research
_____ Organismal Biology

Professional School
_____ Art
_____ Architecture
_____ Divinity
_____ Drama
_____ EPH
_____ Forestry
_____ Law
_____ Medicine
_____ Music
_____ Nursing
_____ School of Management

_____ **Undeclared Undergraduate**
_____ Other: _____

6.You are: _____ Male _____ Female

7. How old are you? _____

Thank you very much for participating in this study.

Please forward the completed questionnaire, in the enclosed addressed, stamped envelope, to
Library Administration, Sterling Memorial Library, P.O. Box 208240, New Haven, Connecticut 06520-8240.

Investigating Stock Performance and Intensity of Stock Use at a South African University Library[1]

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A 1992 study indicated that the circulation of new books was in decline, and that the heaviest recorded use was of books that were six or seven years old. This follow-up study in 1996 found a marked increase in the circulation of new books. An image was also obtained of the subject areas in which stock was circulating most vigorously. Circulation patterns over time can help to predict future use.

BACKGROUND TO THE STUDY

In 1992 a study of circulation patterns of books available for borrowing from the open shelves of the Linear Library at the University of Cape Town (UCT) libraries was conducted, which focused particularly on providing some indication of stock performance and the intensity of stock use (De Jager, 1994).

The present investigation, conducted during the second semester of 1996, as a "synchronous study", was prompted by the indication in 1992 that the circulation of new books accessioned and catalogued by UCT libraries was in decline, and that the heaviest recorded use was of books that were six or seven years old. Its objective was to perform a follow-up of these patterns observed in the previous study.

QUESTIONS PROMPTED BY THE 1992 INVESTIGATION

Decreasing stock performance:

- Does the intensity of stock use in the library decline with the aging of the stock?
- Is the circulation of new books (accessioned and made available on the open shelves during the last two to three years) in decline?

SAMPLING

The sample in the original "synchronous" study (of all the books out at a given time) consisted of 1,023 records and a comparable sample was required. A print-out would therefore be obtained of all the books due to be returned on a specific day. As it was discovered that there would be insufficient items due on a single day, two days, 23 and 25 September, were chosen (the 24th was a public holiday) and accession records for all the items due back in the library on those days were printed out. A sample of 1,024 records was randomly selected from the 1,788 records obtained, and a database consisting of the date when each item had been accessioned into the collection (available as part of the accession number), and the first three letters of the Dewey Decimal Classification number (to provide a broad indication of subject) was constructed.

Sampling Constraints

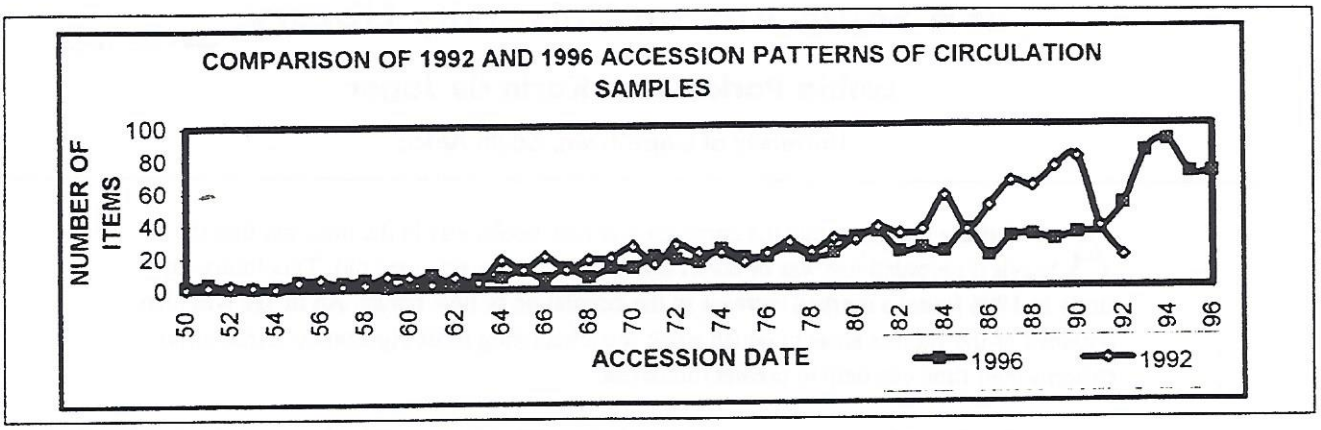
Subject areas housed in separate branch libraries at UCT are not very evident in the Linear library, and thus the sample. These include Law, Architecture, Fine and Dramatic Art, Music, Education and Medicine.

Categories of user (undergraduate, postgraduate or staff member) could not be differentiated in the sample derived from the computer system at UCT libraries. This impacted on the study since the different users are allowed to borrow books for different periods of time. For example, academic staff members are allowed a lending period of three months.

Different methods of material classification are used when purchasing items for the library, and when classifying for organisation of the collection. Presently, monograph purchases are subdivided by subject into CESM (Classification of Educational Subject Matter) categories, and not by Dewey Decimal Classification (DDC) divisions, which is the shelf classification scheme used by UCT libraries. The differences between the purchasing

[1] This presentation was sponsored by the University of Cape Town/Mellon Awards Committee.

Figure 1



categories (CESM) and the classification method (DDC) resulted in discrepancies too large to address in this investigation, and therefore calculations of ratios of expenditure to use could not be calculated. This area will be investigated during 1997.

INVESTIGATING THE CIRCULATION OF MATERIAL ON THE OPEN SHELVES IN RELATION TO THEIR AGE

See Figure 1.

- Considerable similarity in the use of open-shelf material. Materials from the 1950s are still circulating in 1996, and materials as old as 20 years are still circulating fairly heavily.
- The marked drop in circulation of the newest books in 1992 is to some extent still evident in 1996, but levels off abruptly in the last two years: the same number of books (70) accessioned in 1995 and 1996 were due back on the same dates.
- The original study showed that items accessioned in 1991 and 1992 circulated as little as or less than items up to ten years old. In 1996 the drop in use of new books is far less significant: more books accessioned in 1995 and 1996 circulated than books accessioned in 1992.

INVESTIGATING THE CIRCULATION PATTERNS OF THE OPEN SHELF COLLECTION OBTAINED:

1. An image of the circulation patterns and level of activity in the main class divisions of DDC.
2. An image of specific subject areas in which books were circulating most vigorously.

The sample obtained in the study enabled one to obtain a picture of where books were circulating most heavily, as illustrated in Figure 2. It is clear that the classes of most active use are the Social Sciences (23.54%), Technology and Applied Science (20.61%), Natural Sciences and

Figure 2

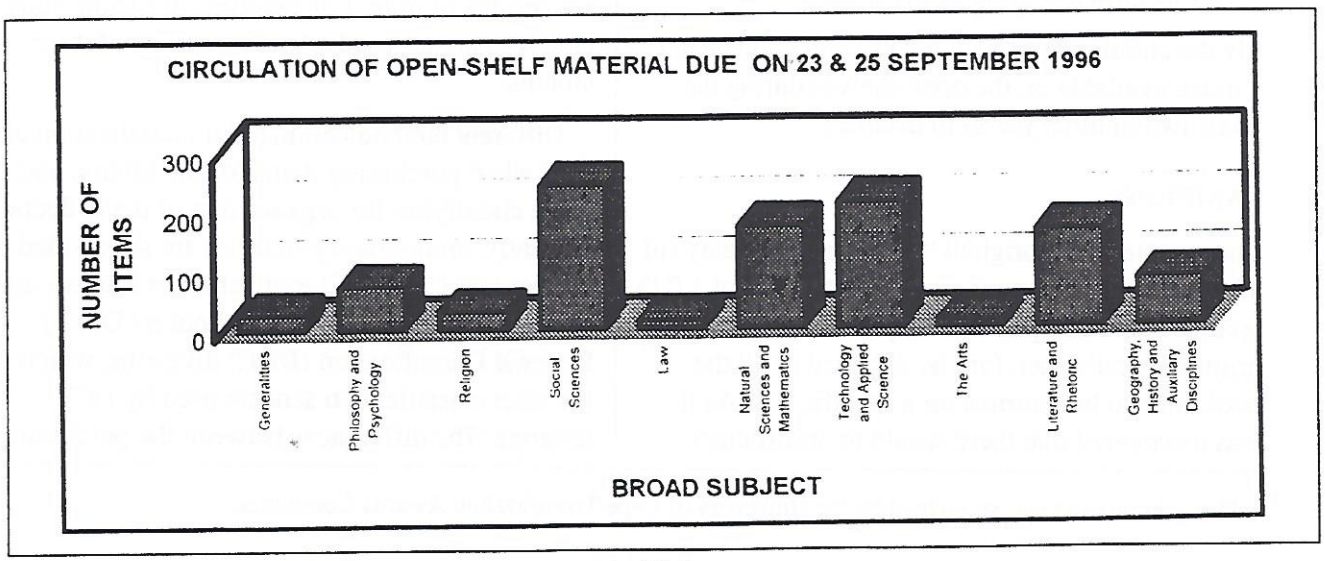
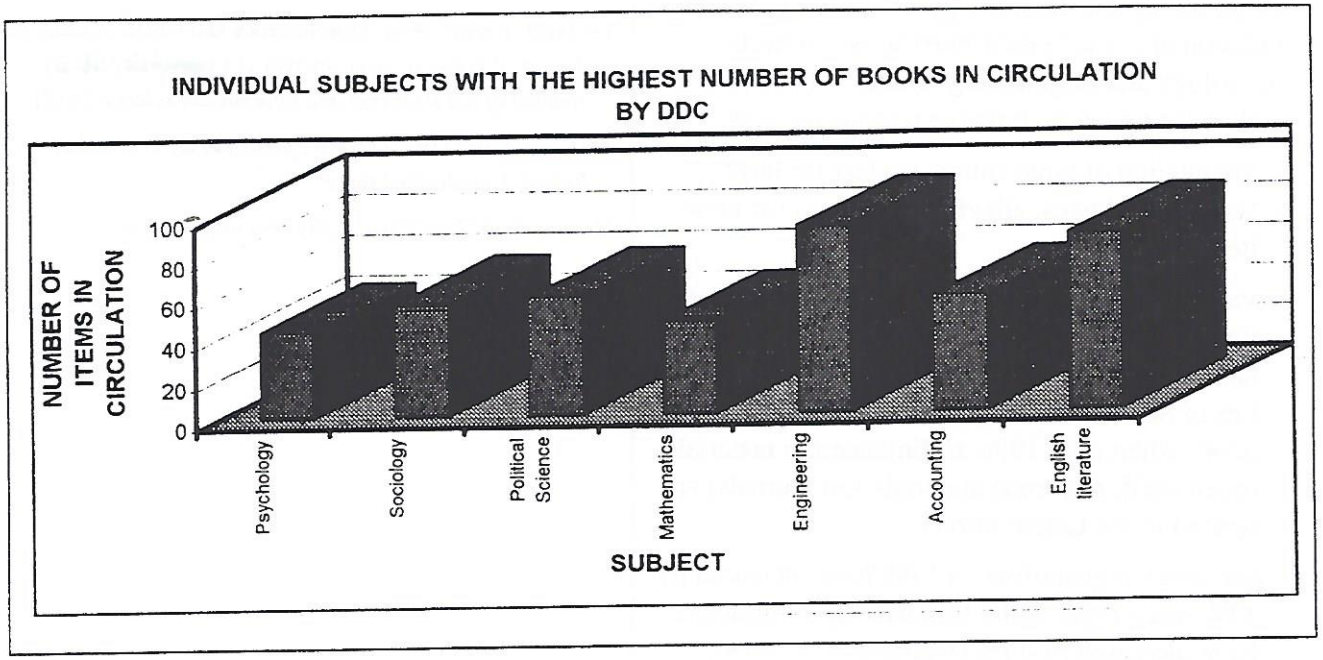


Figure 3



Mathematics (16.8%), and Literature and Rhetoric (13.02%).

An image was also obtained of the individual subjects in which books were circulating most vigorously (Figure 3).

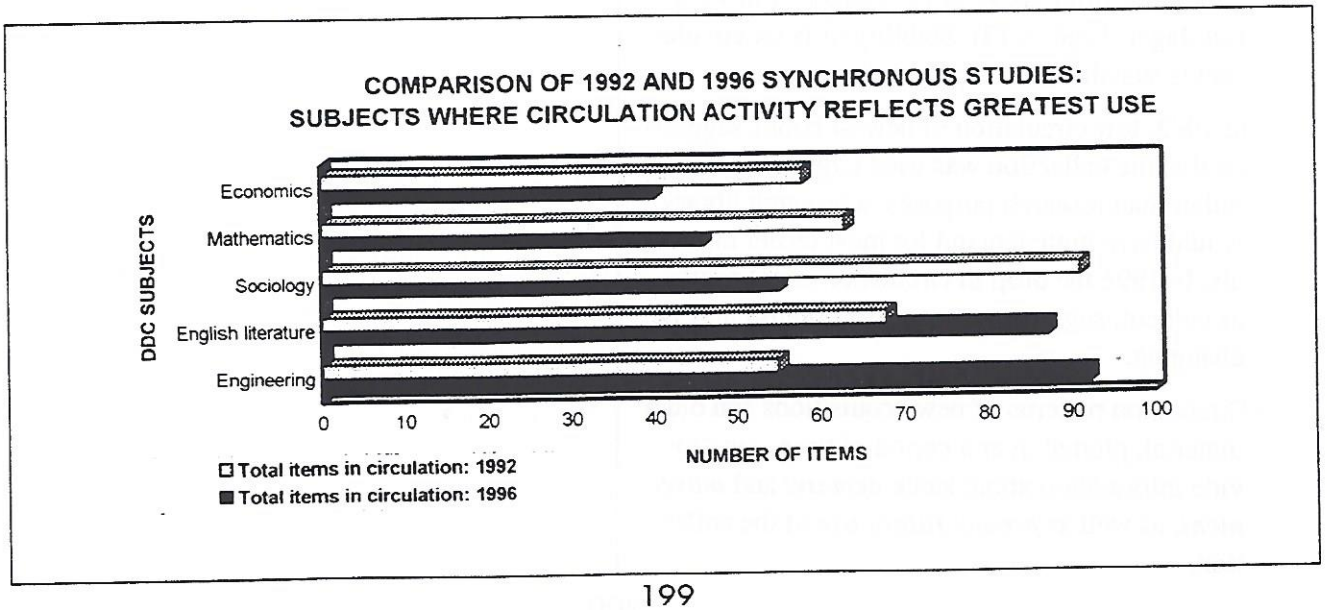
Engineering and English Literature account for the highest circulation in the database, while Political Science, Economics and Sociology in the Social Sciences also have amongst the highest circulation rates. This image conforms to the Main Subject classification depiction of the areas of heaviest circulation.

COMPARISON OF 1992 AND 1996 FINDINGS

(See Figure 4.) In 1996 the most active subjects in circulation were Sociology, English Literature and Engineering. This conforms to the graphic presentation (Figure 2) of the circulation activity in the DDC main classes.

A reversal of the intensity of circulation in Sociology and Engineering is apparent, with Engineering now accounting for 9.0% of book circulation, in comparison to 5.9% in the original synchronous study. Circulation of Sociology has decreased by 3.5%, from 8.9% in 1992 to 5.4% in 1996. This is particularly interesting, considering

Figure 4



that the Social Science database is larger than the Engineering and Technology database, yet the circulation of items in their most active subjects, Sociology and Engineering respectively, appear to reflect the opposite. Possible reasons include:

- compilation of large course readers for large Sociology classes, alleviating demand for these items;
- when the original study was conducted, 29% of the Engineering collection was on semi-permanent loan to departmental collections in the faculties of Science and Engineering (De Jager, 1994, p.74), whereas in 1996 *all* Engineering materials (open shelf, reference materials and journals) are housed in the Linear library.
- Sociology registrations in 1996 have increased by 12% since 1992, while Engineering enrollments have increased by 17% (University . . , 1996). The Engineering and Science faculty is therefore growing at a faster rate than the Social Science faculty.

CONCLUSIONS

- Both investigations indicate that materials as old as 26 years are still in circulation, but items six to seven years old are in heaviest demand.
- In 1996, items accessioned in 1994 and later (the newest books) comprise 22.5% of the books in circulation, and are in heavier demand than those six to seven years old. Circulation of new books has significantly increased in the Linear Library since the previous investigation, possibly due to the increase in total circulation per registered student ratio, from 50.34 in 1994 to 51.74 in 1995 (De Jager, 1996, p.12). Stability of book circulation is sustained, and apparently increasing.
- In 1992, low circulation of newest books suggested that the collection was used largely for study rather than research purposes: a research library would have high demand for most recent materials. In 1996 the drop in circulation is not nearly as evident, suggesting that collection use may be changing.
- Circulation patterns of new acquisitions and older material, plotted over a period of time, can provide information about stock ***demand*** and ***movement***, as well as *predict* ***future use*** of the collection.

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Performance Indicators for Reference and Information Services: A Study of Academic Libraries in Victoria, Australia

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The CAVAL Reference Interest Group Working Party on Performance Measures for Reference Services sought to identify both implicit and explicit measures used in evaluating reference services in academic libraries. Three constituencies were identified for analysis: reference staff, academic library managers, and the clients of the service. Focus interviews were conducted with reference staff in Victorian academic libraries in 1994, with senior library managers in 1995, and with clients of the service in 1996 and 1997. Results demonstrate a degree of congruence between the indicators identified by the reference staff and the library managers, with some differences in emphasis. Preliminary results from the client constituency are discussed briefly.

INTRODUCTION

The 43 universities in Australia cater for nearly half a million equivalent full-time students. The south-eastern state of Victoria has nine universities ranging in size from 4,000 to 34,000 equivalent full-time students. The largest of the Victorian universities are multi-site institutions with campuses located in both urban and country areas, some of which operate with geographical separations of up to 300 kilometres between the main city campus and the smaller regional campuses.

All but two of the universities in Australia are publicly funded and have experienced an increase in accountability and the application of quality processes over the last ten years following the general trend away from input standards to output as measured by performance. More recently, the federal government reduced the operating grants of the universities for the 1997-99 triennium, declined to fund salary increases achieved through enterprise bargaining, and instituted a Review of Higher Education Financing and Policy which, among other things, is to review further the funding of the nation's universities. Universities are now permitted to enrol some local fee-paying undergraduate students in addition to the international fee-paying students they have courted for several years.

Inevitably, many of the universities have reduced staff to cope with the budget cuts and the unfunded salary increases, and libraries have not been immune. Within the context of a commitment (and requirement) to the provision of quality services, libraries are attempting to provide those quality services with a reduced staff. While libraries are exploring options such as outsourcing to improve the efficiency and effectiveness of some of their operations, there is a growing demand from reference staff, library and university managers, and library users to define and demonstrate the real value of reference services. This is also occurring in the context of what the future of libraries and reference librarians will be.

A variety of performance measures has been used for evaluating reference and information services in academic libraries, but the measures have been predominantly quantitative. The complexity of the reference service and the changing nature of reference services in academic libraries contribute to the difficult task of developing performance indicators and measures which are relevant, reliable, simple and sustainable.

CAVAL (Co-operative Action by Victorian Academic Libraries) was established by the university librarians in Victoria to provide co-operative services across the various tertiary education libraries. The CAVAL Reference Interest group, with members from each member library, co-ordinates several working parties, each concerned with specific aspects of reference work. The Working Party on Performance Measures for Reference Services was established in 1993. Its first report, presented in 1995, provided a detailed picture of the roles and tasks performed by reference staff in Victorian academic libraries and identified 19 per-

formance indicators used by those staff (CAVAL . . , 1995). The second report in 1997 identified 21 performance indicators used by library managers (CAVAL . . , 1997). The third stage of the study with client groups is under way.

Concurrently with this project, the Council of Australian University Librarians (CAUL) commissioned the development of selected performance indicators for Australian university libraries and has provided a suite of indicators for general user satisfaction, document delivery, and materials availability (CAUL . . , 1995). The Performance Measures project, which in its third stage is being supported by CAUL, complements the CAUL indicators by focusing specifically on the analysis and production of performance indicators for reference and information services.

METHODOLOGY

The objective of the Working Party was to identify the performance indicators and measures currently used to evaluate reference services in Victorian academic libraries. The multiple constituencies model (Cameron and Whetten, 1983; Van House, 1993) was selected as the methodology for the project. Within the range of constituencies whose needs and expectations must be met by the university library, three constituencies were identified to be studied: reference staff, library managers, and clients. The technique of focus group interviews (Widdows, 1993; Wells, 1974; Hurworth, 1996) was used to identify both the explicit and implicit indicators used to evaluate the success or otherwise of the reference service. Explication of the rationale for selecting the chosen methodology can be found in the first report (CAVAL . . , 1995).

Focus groups with reference staff and library managers were held in 1994 and 1995 respectively. These groups were asked to list the roles and tasks of reference staff, to list the indicators and measures of effectiveness of the reference service they were using, and to rank the five most important indicators. Each of the sessions was conducted by two members of the Working Party. The reference staff groups comprised professional and paraprofessional staff involved in the delivery of reference services. In addition to reference supervisors, reader education staff and document delivery staff, the groups included those who staff reference service points but whose core duties lie outside the reference service. The library manager groups included university librarians and staff at the level of deputy librarian and associate librarian.

A series of focus groups with the client constituency began in 1996 and is continuing in 1997. These groups are being conducted by a contract facilitator, assisted by a member of the Working Party. As with the reference staff and library managers, the groups are being asked to describe the role of the reference librarian, to identify the critical success factors for the service, and to nominate the most important indicators. Combined groups of academic staff and postgraduate students were studied as these sub-constituencies are perceived to use and view library services within similar frameworks, and the participants often had the dual roles of teaching and pursuing postgraduate qualifications.

Within each of the constituencies, focus groups have been constructed to reflect rural/urban and main/branch campus variations across the universities. Participants in client focus groups have been selected also to reflect variations in disciplines and year levels.

Figure 1 summarises key details regarding the focus groups studied.

OUTCOMES

The datasets being analysed fall into three areas: tasks or roles, performance indicators and measures, and the ranking of indicators.

Tasks and Roles

A traditional model of the reference service was selected as the framework for analysing the tasks and roles data from the reference staff and library managers. Initially the framework comprised six categories which were common to both the reference staff and the managers:

- academic liaison/subject liaison
- collection management
- database searching
- reader education
- reference desk
- staff development.

Figure 1
Focus groups

Library constituencies		Client constituencies	
Reference staff 1994	Library managers 1995	Academic staff & postgraduate students 1996	Undergraduate students 1997 (in process)
professional & para-professional staff	university librarians, deputy/associate librarians	mix of disciplines across 7 focus groups	mix of disciplines and year levels across 5 focus groups
80 participants	17 participants	70 participants	35 participants to date
7 groups	2 groups	7 groups	5 groups to date
7 universities	9 universities	7 universities	4 universities to date
mono-institutional groups	multi-institutional groups	mono-institutional groups	mono-institutional groups

A seventh category, planning and policy development, emerged during the analysis of the managers data. This category covered a range of tasks including making input into strategic planning, procedure writing, and gathering information from the wider university and channelling it back into the library. This aspect of the reference staff role was conspicuously absent from the data collected from the focus interviews with reference staff.

For both reference staff and library managers, the reference desk appears to be the most visible and central aspect of the role of reference staff. In the eyes of the reference staff, the effectiveness of staff development and training, collection management, reader education and academic liaison is evident at the desk. While reference staff appeared to focus on the detail of the various parts of the reference service, the managers appeared to take a holistic view, giving importance to the overall impact of the reference service on the library's profile within the university.

The client subconstituency of postgraduate students and academic staff identified a broad range of tasks which aligned with those enumerated by the reference staff and library managers. A particular theme throughout was the personalised service expected from the reference staff by the client group: reference staff knowing the research and teaching interests of individual academic staff and tailoring information dissemination to the academic to keep him or her up-to-date.

Consistent across the five focus groups conducted to date with undergraduate students is the reference librarian's role as a communicator. Students rely on the reference staff to translate jargon, to explain at the level of the individual student, and to interpret the student's question. These groups also highlighted the educational role of reference staff in both one-to-one interactions and in class situations.

While the aim of the project is to develop a suite of performance indicators and measures, the project has also provided insights into the variations in perceptions of the constituent groups of the roles and tasks performed by the reference staff.

Performance Indicators

The derivation of indicators from measures identified by the groups was carried out as part of the data analysis. During the focus group sessions, participants were not asked to distinguish between performance indicators and performance measures.

Figure 2 lists the key indicators derived from the constituencies to date. These are not in any ranked order.

There was a high degree of congruence between the indicators identified by the reference staff and by library managers. This result is not surprising, and indeed there would be some concern within university libraries if there were a very low level of congruence. The performance indicators identified by library managers and not identified by the reference staff were:

- participation in strategic planning;
- provision of relevant information to library managers.

Figure 2
Key performance indicators

Key performance indicator	Reference staff	Library managers	Academic staff & post-graduate students	Under-graduate students[1]
User satisfaction	■	■	■	■
Use of service	■	■	■	■
Intellectual and physical accessibility of services	■	■	■	■
Provision of relevant information	■	■	■	■
Participation of users in selection process	■	■	■	
Promotion of resources and services	■	■	■	■
Integration into the academic community	■	■	■	
Participation in teaching programmes	■	■		
Library's commitment to staffing excellence	■	■	■	■
Reference staff teamwork	■	■		
Provision of relevant information to library managers		■	■	
Participation in strategic planning		■	■	

[1] Preliminary results from five focus groups. ■ Indicator identified from constituency data.

These indicators relate to the role of the reference staff in Planning and Policy Development. It is interesting to note that these indicators were also derived from the constituency of academic staff and postgraduate students.

Indicators *not* identified by academic staff and postgraduate students were:

- reference staff teamwork;
- participation in teaching programmes.

To date only five focus groups of undergraduate students have been conducted. While some preliminary comments can be made, more detailed comment must await the results of further focus interviews. Nonetheless the data from these five groups are included in Figure 2. The indicator "User satisfaction" has been prominent in the data so far collected from this constituency.

For the postgraduate students/academic staff and the undergraduate students subconstituencies, the general qualities or personal attributes of the reference staff have emerged as key factors in their determination of satisfaction. The reference staff member must be knowledgeable, patient, polite and caring; be a good communicator and listener; be an innovator, evaluator, ambassador; be a problem solver, scholar, and "rememberer"; show genuine interest and enthusiasm. One of the most evocative descriptions of the reference staff given by a member of the client constituency was "an omnipotent slave". How libraries can achieve the staffing of their reference service during all opening hours with such paragons of virtue is a critical issue for management.

The indicator "User satisfaction" has a number of aspects which can be seen as sub-indicators. The range of sub-indicators which have been identified for "User satisfaction" for each constituency are listed in Figure 3. Although the library managers cited "User friendliness of the service and equipment" as an indicator of performance, neither the reference staff nor the library managers gave emphasis to the personal attributes of reference staff as indicators.

As only five focus groups of undergraduate students have been conducted, additional aspects of "User satisfaction" may yet emerge.

The data collected have highlighted the different perspectives of the constituent groups. While there is some overlap between the library constituencies and the client constituencies in the indicators identified, there are differences in emphasis as outlined above and in Figures 2 and 3.

Figure 3

Facets of the indicator "User satisfaction"

Reference staff	Library managers	Academic staff & postgraduate students	Undergraduate students[2]
User feedback	User feedback	User feedback	User feedback
	Timeliness	Timeliness	Timeliness
	General qualities	General qualities	General qualities
		Communication skills	Communication skills
		Level of follow-up	
		Knowledge	Knowledge

[2] Preliminary results from five focus groups.

Ranking of Performance Indicators

Applying the critical success factors approach, the focus interview groups were asked to nominate the most important indicators or measures that they had proposed. All of the focus groups across the constituencies experienced difficulty in ranking their most important indicators.

The reference staff and library managers constituencies ranked "User satisfaction" highest. However, the groups of postgraduate students and academic staff were unable to develop a simple ranking; instead they tended to list a range of indicators as important. Within the range, various facets of "User satisfaction" featured (Figure 4).

CONCLUDING REMARKS

Further focus group interviews with undergraduate students are scheduled for the third stage of the project, following which a consolidated list of performance indicators will be compiled.

This project will identify indicators used to evaluate reference services in academic libraries in Victoria. It must be recognised that changes in library services and in the expectations of stakeholders in the services provided may occur over time. Consequently the performance indicators developed through this project may, in time, need to be redeveloped. The work of this project proposes a process for the development of performance indicators appropriate to the environment at a particular time. The process is not only relevant to the academic library environment but also applicable to other library sectors.

Figure 4

Examples of facets of "User satisfaction" featured within a range of indicators ranked as important

User satisfaction - Knowledge:	"knowledge in subject area, of Internet" "knowledge of own collection" "reference staff knows 'her' stuff" "up to date with technology, latest search techniques"
User satisfaction - Communication skills:	ability to communicate"
User satisfaction - Timeliness:	"timeliness" "quick response time" "speed of response"
User satisfaction - General qualities:	"user friendly manner" "nonjudgemental" "patience, courtesy" "approachability" "treatment at reference desk"

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Feedback from a Captive Audience: Reflections on the Results of a SERVQUAL Survey of Interlibrary Loan Services at Carnegie Mellon University Libraries

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Service quality measures in interlibrary loan have focused on quantitative measures of such features as turnaround time, fill rates and annual volume of lending. It is increasingly clear that these must be interpreted in a more meaningful context if they are to contribute to continuous service improvement. That context is user satisfaction with the service provided. Qualitative measures are a recent development in library services. This paper presents results from the use of the SERVQUAL instrument in an academic library's interlibrary loan unit. The practical implications are discussed, including how the results can be translated into meaningful action by focusing improvement efforts on those issues most valued by the user. Also discussed is the divergence between what service providers believe users' expectations to be and what those users' expectations actually are.

Interlibrary loan in academic libraries has changed dramatically over the past decade. It is being transformed from a marginal service that supported serious researchers who had need for obscure materials into a primary service for the entire campus community that supports the access versus ownership paradigm. The service is also evolving from a process-driven one, governed by strict codes and exacting policies which sometimes took precedence over the needs and desires of its users, into a customer-driven service, characterized by the need for increasingly shorter turnaround times and empowering service users to become self-sufficient. Interlibrary lending (ILL) is no longer a strictly "library to library" service. In the beginning of the 1990s, the ILL customer's desire for direct end-user requesting for interlibrary loan was viewed by many as an unreasonable and untenable demand. Today, it is a reality in some institutions, notably among OhioLINK-member libraries. Agreements among some library networks now include delivery of articles directly to the patron instead of to the library. When OCLC introduces its "Direct Request" service, we will move even closer toward widespread empowerment of interlibrary loan users.

However, until such time as the innovations I just mentioned become widely available, interlibrary loan users remain a captive audience. There is a variety of factors contributing to this situation, including:

- the high cost of commercial document suppliers and reluctance on the part of users to pay these costs;
- the proliferation of commercial document suppliers, creating confusion among potential customers;
- lack of expertise in using the end-user search systems;
- institutions where "library to library" lending policies still prevail;
- the limitation of commercial suppliers to single journal articles;
- lack of awareness of alternatives.

Because users of ILL services continue to be heavily dependent on them, academic libraries need to make a special effort to understand the needs of ILL users (Millson-Martula and Menon, 1995).

However, service quality measures in ILL have traditionally focused on quantitative measures such as average turnaround time, fill rates, and annual volume of borrowing and lending activity. While such measures do provide useful information for managers, it is becoming increasingly clear that they must be interpreted in a more meaningful context if these measures are to contribute to the evolution of ILL into a client-centered service. That more meaningful context is user satisfaction with the service provided.

One such user-based measure of service quality that has received considerable attention lately is the SERVQUAL instrument, developed by Parasuraman, Zeithaml and Berry, which measures the gap between a service customer's expectation of a service and their perception of actual service received. These measures are taken across five dimensions:

1. tangibles: appearance of physical facilities, equipment, personnel, and communication materials;
2. reliability: ability to perform the promised service dependably and accurately;
3. responsiveness: willingness to help customers and provide prompt service;
4. assurance: knowledge and courtesy of employees and their ability to convey trust and confidence;
5. empathy: caring, individualized attention the firm provides its customers. (Zeithaml et al, 1990, p.26)

The instrument itself contains two paired sets of 22 questions each. The first set of questions asks respondents to rate on a seven-point Likert scale the extent to which they think the service should possess the feature described in each question, the second set to rate their perceptions of the service they actually received. Subtracting the expectations from the perceptions provides a measure, as either a positive or a negative number, of how that respondent perceives the quality of the service on those dimensions measured. In another section of the survey, respondents are asked to rank the importance of each of the five dimensions measured by the questions. These importance-ranking scores can be used to weight the scores on individual questions as well as the scores by dimension.

The SERVQUAL instrument is being employed in a variety of types of libraries: public, academic, and special. It is being used to measure satisfaction with both the library in general and with specific services within the library. Its application to interlibrary loan is spreading. Reported studies include Françoise Hebert's work in the early 1990s using SERVQUAL to measure ILL service quality in large Canadian public libraries (Hebert, 1994). Danuta Nitecki's dissertation research on the applicability of the SERVQUAL to academic libraries aimed to assess the applicability of the instrument for measuring service quality in interlibrary loan, reserve, and reference services at a large US academic research library. This study was not an evaluation of services provided within the test library (Nitecki, 1996). A highly customized version of the SERVQUAL instrument was used by an external consulting group to measure customer satisfaction with Emory University's ILL services (Molidori Group . . ,).

I'd like to talk about the practical implications of using the SERVQUAL instrument in the resource sharing departments of Carnegie Mellon University Libraries, as well as discuss the results. I should perhaps begin with an overview of resource sharing services at Carnegie Mellon University Libraries. Interlibrary loan at Carnegie Mellon is the responsibility of the Resource Sharing Department. The term "resource sharing" is used in the sense defined by Shirley Baker and Mary Jackson in their 1993 ARL white paper, 'Maximizing access, minimizing cost: A first step toward the information access future'. They define resource sharing as "activities engaged in by libraries for the purpose of improving access to and delivery of the holdings of other libraries or information providers." (Baker and Jackson, 1993, p.2)

Currently, each of the three libraries in the Carnegie Mellon University Libraries system has its own resource sharing office. The Engineering & Science Library houses collections for engineering, computer science, physics and math; Hunt Library contains the humanities and social sciences collections, and the Mellon Institute Library houses chemistry and biomedical engineering collections. The Libraries absorb the costs for obtaining items unless the cost exceeds $20.00 per request, in which case the user is asked to pay the difference. During fiscal year 1995/96, 9,673 interlibrary borrowing requests were initiated from these offices, 88% (8,512) of which were successfully supplied. At both the Hunt and the Engineering & Science Libraries, where the majority of ILL requests are placed, there is a full-time ILL staff member and each of these supervises up to 60 student hours per week. At the Mellon Institute Library, a full-time staff person devotes approximately one-half to two-thirds of her time to ILL activities with assistance from one student worker. Each office performs all of the necessary tasks for successful interlibrary lending and borrowing.

In the summer of 1996, the University Librarian appointed a task force to assess and evaluate our existing resource sharing services from a user-focused perspective. Any recommendations for change would be supported by data from relevant quantitative measurement tools, and qualitative user and staff feedback. The task force was charged with developing a cost-effective plan to organize and to staff resource sharing services to best meet users' needs and make best use of current resources. This effort was undertaken to ensure that the department was optimally positioned to provide quality service in the most efficient manner.

I thought it would be most useful to organize the information that I'd like to share around a **series of questions**. These are the questions which I think most of you, in considering whether or not to conduct such a measure in your own libraries, would most want answered about SERVQUAL's use and usefulness in the library setting.

1. Why did we Choose to use the SERVQUAL Instrument over some other Measure?

Our selection of the SERVQUAL instrument was based on the following considerations:

- the need for a user-based measure of service quality to guide our analysis of our resource sharing services;
- to begin to establish a relationship with our customers that showed the library's desire to base services on users' needs and expectations;
- the fact that the instrument has been thoroughly tested and, although there is ongoing debate about certain of its premises, its validity has not been called into serious question. Currently, there are few well-tested instruments to choose from and we were not inclined to create and test an instrument of our own design when useful alternatives existed;
- the instrument has been shown to be applicable to academic libraries;
- a desire to contribute to the body of research on the use of SERVQUAL in academic libraries.

The survey results would indicate where to target our efforts for improvement and to guide any recommendations that the task force would make about how best to organize and provide these services to our users. In addition to a large-scale survey of current resource sharing customers, we also conducted focus groups with faculty, university staff, graduate, and undergraduate students who make use of these services. Another focus group was held to solicit the viewpoints and insights of the library staff members who currently provide resource sharing services to the campus community. Finally, an in-depth turnaround-time study was conducted to determine average times for each step in the interlibrary borrowing process, including lag times between steps. This paper will only discuss the results of the SERVQUAL survey.

2. What were the Practical Aspects of How we Conducted the Survey?

Survey participants were chosen randomly from a sample frame of over 900 people who had used the resources sharing services at Carnegie Mellon University Libraries at least once since January, 1996. We were repeatedly encouraged by statistics faculty and a systems analyst consultant to select the largest sample size that we could afford to process and then do what was necessary to guarantee a high response rate. In the end, we determined to send out 400 surveys. 150 names were chosen from those who primarily used our Engineering & Science Library's ILL department, 150 names from those using Hunt Library's ILL department, and 100 names from those who most often used the Mellon Institute Library's ILL department.

The survey instrument used at Carnegie Mellon was based on the SERVQUAL survey adapted by Danuta Nitecki for her dissertation research and tested at the University of Maryland at College Park. It included five parts:

- Part A contained the 22 statements designed to measure users' expectations of ideal ILL services across the five SERVQUAL dimensions. Participants were also given the opportunity in this section to identify any additional expectations not mentioned in the 22 statements and to rate these expectations.
- Part B requested that participants rank the importance of each dimension in evaluating the quality of ILL service and to identify any additional features not yet mentioned.
- Part C contained the same set of 22 statements as Part A, this time designed to measure users' perceptions of the actual ILL service they received at Carnegie Mellon University Libraries.

These three sections parallel the SERVQUAL instrument developed by Parasuraman, Zeithaml, and Berry which was used in other service industries. The remaining two sections were not part of the original SERVQUAL instrument but were part of the instrument used by Danuta Nitecki in her dissertation research:

- Part D asked for an overall quality rating for ILL service, asked whether or not they had experienced any problems with the service and, if so, what the nature of the problem was and if they were satisfied with the resolution, and their willingness to recommend ILL service to a colleague or friend;
- Part E contained questions designed to collect demographic data about the respondents, including their use of the three different ILL offices, their status, and their primary subject area (Nitecki, 1995).

For the initial mailing, the 400 surveys were sent to potential participants through campus mail in mid-October, 1996, along with a letter explaining the purpose of the survey and urging their participation, an addressed return envelope for their reply, and a 30-copy copicard (which allowed them to make copies on the Libraries' photocopy machines) to thank them for their participation. By October 25th, we had received 130 responses, a 32.5% response rate. Two follow-up mailings were sent to non-responding participants, the first via e-mail and the second via campus mail using an incentive of a tea bag enclosed with the survey. These mailings resulted in raising the total return response to n=248, a 62% response rate.

3. What were our Results?

The results from this survey provided us with a rich vein of data to mine. I would like to point out the highlights of these results and our interpretations of them. Data from the responses were coded and entered into SPSS 6.1 for the Macintosh, the Statistical Package for the Social Sciences software. A review of the demographic data shows that typical ILL users at Carnegie Mellon University Libraries are graduate students (45.5%), who use the service in support of their research (77%). The average user has used the service between two and five times in the past year (52.2%) and 72% of them (175) have not used ILL at other libraries during the past two years. The majority of our respondents, 89.3% (217) have never purchased articles from off-campus commercial document suppliers. 94.8% stated that the information they obtained from ILL services was valuable to them. 96.1% of respondents stated that they would recommend the service to a colleague or a friend. However, this response was sometimes qualified by a comment noting that they would only recommend it because they knew of no reasonable alternative.

For the data from Part B, where participants were asked to rank the five dimensions' importance by assigning a total of 100 points among them, mean points allocated and overall percentages were calculated. Users were also asked to identify the most important, second most important, and least important dimension. As would be expected from results reported in other similar studies, "reliability" ranked as the most important dimension of interlibrary loan service quality for our survey respondents, receiving a mean point allocation of 41.069 (or approximately 41%). 78.5% of users (n=246) ranked "reliability" as the most important dimension. The point allocation for "reliability" in our study is a full nine percentage points higher than the results reported by Parasuraman, Zeithaml and Berry in their research across multiple service industries. This may reflect the precise, detail-oriented nature of interlibrary loan service, where accuracy is crucial to the successful provision of service.

"Responsiveness" was rated the second most important dimension of service quality by our users, with a mean point allocation of 24.397, rounded to 24%. 63.7% (n=245) of respondents ranked "responsiveness" as the second most important feature in their evaluation of a library's quality of ILL services. "Assurance" was third in importance with 15.688 mean points allocated (16% when rounded), followed by "empathy" in fourth place with 11.175 mean points allocated (11%). Consistent with results from most other similar studies, both in other libraries and across service industries, "tangibles" was rated the least important feature, in this study by 80.7% (n=243) of users. The mean point allocation for "tangibles" was 7.508 (or approximately 8%).

For question B9, which asked participants to name any other features of excellent library service not yet mentioned in the survey, 86.4% (n=220) of

respondents stated that there were no other factors, aside from the five features given, that they considered when evaluating the quality of ILL service. The remaining 13.6% (29 users) did consider other features and described them. A few of these deserve mention since they surface again in the "Additional Expectations" section:

- provision of status updates - 17% (five users);
- clarify service rules and expectations - 17% (five users);
- make the request form easier to use and put it on the Web - 14% (four users);
- stating and meeting deadlines - 10% (three users);
- improving speed of delivery - 10% (three users).

The importance of the ranking of the dimensions becomes evident when interpreting the scores for the 22 statements and overall difference scores by dimension. This ranking allows you to prioritize your improvement efforts and address the items in the dimensions that matter most to users first. For each of the 22 statements, the mean, median, and mode scores were calculated, as well as overall scores for each dimension.

Survey respondents' perceptions of CMU Libraries' ILL service performance on the statements related to reliability were consistently below users' expectations. The mean overall SERVQUAL score for statements in the reliability dimension was -1.502. When weighted, the score was -.576 (n=97). It comes as no surprise that reliability is of primary importance when users evaluate service quality for interlibrary loan. Reliability equates to a library's ability to perform the service in question dependably and accurately. Features of ILL service that relate to this dimension include fill rate, length of turnaround time, meeting stated deadlines, accuracy, and error recovery, all very visible and crucial elements of ILL service provision.

An examination of users' expectations scores for ILL services reinforces the importance of the reliability dimension to our users in evaluating ILL service quality. All of the five statements in this dimension had expectations scores of over 6.0 on a scale of one to seven. Figure 1 is a summary of our scores on the reliability statements.

Clearly, in order to improve users' perceptions of service quality, Carnegie Mellon ILL services need to focus efforts for improvement along the reliability dimension. Expectations are high and therefore of importance to our users when evaluating service quality. Comments written on the survey made it clear that the perception scores on statement C8 ("providing ILL services at the time they promise to do so") were low at least in part because we currently make few promises about exactly when ILL services will be provided. Similarly, our users perceive that we are not as good as they'd like us to be at keeping the promises that we do make.

Figure 1

Summary of scores on the reliability statements

Statement:	Mean Expectation	Mean Perception	Mean Gap
A5: When excellent libraries' ILL units promise to do something by a certain time, they will do so.	6.68	5.00	-1.71
A6: When a user has a problem, excellent libraries' ILL units will show a sincere interest in solving it.	6.69	5.62	-1.07
A7: Excellent libraries will perform ILL services right the first time.	6.34	5.48	-.85
A8: Excellent libraries will provide ILL services at the time they promise to do so.	6.68	5.05	-1.62
A9: Excellent libraries' ILL units will insist on error-free records	6.07	4.64	-1.44

The results for statement A9, "excellent libraries' ILL units will insist on error-free records", were interesting. The mean expectation for this statement was 6.070, although a few respondents commented that they weren't quite sure what was meant by this statement. When rating their perception of our actual performance on this statement, almost half of the respondents, 120 of them (or 48.4%) answered "no basis to judge". This calls into question the usefulness of this statement as a factor by which users judge service quality. For those that did feel able to rate their perception, the mean perception score was 5.381, creating a mean SERVQUAL score of -1.444 (n=119), the fifth largest gap overall. Users that do understand this statement and feel able to rate their perceptions of it feel that this is an area where we need to improve. Our difference score for this statement was particularly poor among those users who had experienced a problem with ILL services within the past year. Statement A7 ("Excellent libraries will perform ILL services right the first time") has the smallest gap score between perceptions and expectations along the reliability dimension: -.855. Median and mode scores for this item show no gap at all, with both scores equaling .000.

"Responsiveness" was ranked by respondents as the second most important feature when evaluating quality of ILL service. The mean overall SERVQUAL score for the four statements related to "responsiveness" was -1.305. When weighted, the mean score was -.340 (n=200). This dimension is related to the library's "willingness to help customers and provide prompt service" (Zeithaml et al, 1990). As Françoise Hebert points out in her article describing a SERVQUAL survey of ILL in Canadian public libraries, this is where judgments about how the service is provided and how well you keep customers informed throughout the transaction come into play (Hebert, 1994). Results show that the process of service delivery can be just as important as the product.

The largest gap recorded was for statement A10 in the "responsiveness" dimension, which states "Employees in excellent ILL units will tell users exactly when ILL services will be performed". Although the expectation for this statement was not as high as some others (the mean expectation is 5.895) the mean perception of our performance was 3.809, with a SERVQUAL score of -2.117. This score represents the largest gap recorded.

The importance of this item was further underscored by the results of the "Additional expectations" portion of the survey. Of the 61 respondents (26.1%; n=234) who stated that they did have additional expectations for excellent ILL service, 19 of these (31%) stated that they also evaluate ILL services based on whether or not they receive, or are able to retrieve themselves in some fashion, information about the status of their request throughout the process. This expectation is related to telling users exactly when ILL services will be performed, since there are several steps along the way in providing ILL services. Explicit mention was made in some instances of the UPS and Federal Express package tracking systems on the World Wide Web, and comparisons were drawn between that service industry and ILL. This issue surfaced again in question D3, which asks users to describe problems they have had with ILL service. Of the 70 comments received on this item, lack of status information about their requests was mentioned in 30 responses (43%).

The score for this statement further emphasizes the importance to our users when judging service quality of clearly explaining information about when they can expect ILL services to be performed. This is a valuable opportunity for service providers to help shape users' expectations by providing them with realistic information that accurately reflects service time frames. Providing a time frame for service deliverables is difficult in interlibrary loan, where each request often goes to a separate supplier and where performance among suppliers, libraries and commercial services alike, varies greatly and even the same supplier performs differently from request to request. Each service transaction is unique. Nevertheless, service users expect to be provided with reliable information about "what happens when" and judge service quality on this basis. In the face of no information to help shape their expectations, users are left to set their own expectations, which may be unrealistic.

Two statements in the responsiveness dimension, A11 and A12, had high mean expectation scores of over 6.4 and low perception scores, creating difference scores in the negative. Perceptions fell short of expectations for these statements (Figure 2).

Overall, difference scores for each statement in

Figure 2

Two statements in the responsiveness dimension

Statement:	Mean Expectation	Mean Perception	Mean Gap
A11: Employees in excellent libraries will give prompt ILL service to users.	6.484	4.971	-1.527
A12: Employees in excellent libraries' ILL units will always be willing to help users.	6.597	5.800	-.830

the "responsiveness" dimension were below users' expectations and will be the focus of improvement efforts in the months to come.

The overall mean difference score for respondents' ratings across the assurance quality dimensions was: -.430, when weighted: -.080 (n=182). Assurance is defined as the knowledge and courtesy of employees and their ability to convey trust and confidence (Zeithaml et al, 1990). In this dimension, the score on one statement deserves mention. Statement A17, "Employees in excellent libraries' ILL units will have the knowledge to answer users' questions", had a mean expectation of 6.411 but a mean perception of 5.381, resulting in a score of -1.036. It undermines users' confidence in a service if staff are unable to provide them with answers to their questions.

It became clear to us from comments supplied by survey respondents that student workers in the ILL offices were not fluent enough in all aspects of the ILL process to be able to knowledgeably answer users' questions. Particularly in the early stages of their training, ILL student assistants may understand only one small part of the overall picture (processing loans for return, for example) and they are consequently at a loss when they are alone in the office (as they can be during lunch times or meetings) and a user comes to them with a question.

The mean difference score along the empathy dimension was -.637, when weighted -.074 (n=178). This dimension encompasses the caring, individualized attention the ILL service gives its customers. Such features as approachability, clear communication and understanding the needs of the customer all play a part in this dimension. Addressing several of the issues raised in the reliability and responsiveness dimensions should contribute to improving scores along this dimension.

The mean difference score for "tangibles" was the only dimension where perceptions met or exceeded users' expectations: .541, when weighted: .000 (n=193). Tangibles relate to the appearance of the physical facilities, equipment, personnel, and communication materials related to the service (Zeithaml et al, 1990). Expectations scores were low for this dimension; users did not consider these factors to be essential to providing quality interlibrary loan service, so although our difference scores slightly exceeded their expectations in this dimension, we are succeeding in an area of minimal importance to users when judging service quality.

Section A provides a place for respondents to provide any additional expectations they may have for excellent ILL services which had not been mentioned in the survey. 26% of users did have additional expectations (n=234), which can be quickly summarized as falling into the following categories:

- status: as I've already discussed, users expect excellent libraries' ILL units to provide them with or provide access to information about the status of their requests (31%; n=61);
- rapid turnaround time (25%);
- increased use of technology to facilitate all aspects of the process (31%);
- ease of use, especially request forms (18%);
- provision of target delivery dates (10%).

These expectations mirror those expressed in item B9, further emphasizing their importance.

The first question in Section D asks users to rate the overall quality of ILL services at Carnegie Mellon University Libraries along a ten-point scale, with 10 being "extremely good". In spite of the number and size of the gaps in our difference scores, particularly in the two dimensions rated as

the two most important, the mean overall quality rating we received was 7.545 (n=239), with a standard deviation of 1.831. Our median score was 8.000. These results call into question the usefulness of such an overall measure. In particular, it lacks any kind of specific indication of what you need to address in order to attain a higher score.

Our overall quality scores did illustrate the importance of error recovery to customers' perceptions of service quality. The mean overall quality score for those users who reported that they had not experienced a problem with ILL service at Carnegie Mellon University Libraries (165 users, n=248) within the past year was 8.090. The mean score for those who did experience a problem (73 users) was 6.287. For those who were not satisfied with the problem's resolution, the mean rating was even lower, 5.650. A few of these noted in the comments section that they did not bother to complain. The mean overall quality rating given by those people who were satisfied with the resolution of their problem was 7.571.

These results illustrate findings by The Technical Assistance Research Program (TARP), a customer service research and consulting firm, which has collected data that describe the impact customer satisfaction (which is related to service quality) has on perceptions of service quality. Their research shows that:

- the average business hears from only 4% of its unhappy customers. Of the 96% who don't bother to complain, 25% have "serious" problems. In their words, one complaint equals 24 others, six of which are serious;
- complainers (4%) are more likely to stay with a company than are non-complainers. Complaints tell you what needs fixing in the system and timely problem resolution has a positive impact;
- about 60% of the complainers will stay if their problems are resolved. 95% of them will stay if they feel the problem was resolved quickly;
- customers with a problem will tell between ten and 20 other people about it;
- customers who have had a problem resolved by a company will tell about five other people about their treatment (Xerox Corporation, 1991, pp.1-4).

We will be carefully analyzing the problems experienced by our users and working toward solutions which will prevent them from reoccurring.

4. Did we Learn what we had Hoped to Learn from our Results?

The Resource Sharing Task Force and the Libraries' administrative group were satisfied with the results of the SERVQUAL survey. The survey provided us with a body of quantitative data to support or, in some cases, refute previously held impressions of what users of ILL services consider to be essential to quality service.

The results have also helped to reshape the resource sharing staff's perceptions of customers' expectations toward customers' actual expectations and to create a better match between the two. For example, resource sharing staff had been emphasizing the importance of prompt service to the detriment of providing users with regular status reports on the progress of their requests. Rather than take time from the request process to provide a status report, staff members were assuming that their time could be better spent in continuing efforts to obtain the requested item. Now that staff better understand users' priorities, they understand the need to work toward a balance between the two.

To return to the idea that the process can be just as important as the end result in a service transaction, we learned that just the very act of showing an interest in measuring users' perceptions of service quality can bring about a change in attitude on the part of service users. The process of measurement itself has begun to establish a sense of shared purpose between our resource sharing service users and service providers. It also seems to have enriched staff members' understanding of the importance of their work and helped them to set priorities.

In their article entitled 'Customer expectations: Concepts and reality for academic library services', the authors offer this insight: "A commonly held belief is that the customer is always right. However, the opposite is more likely the case; customers often hold unrealistic expectations. Cross-service comparison, that is, comparing one service provider with providers of other types of services, can often account for customers' unrealistic expectations." (Millson-Martula and Menon, 1995) The results of this survey underscored the importance of playing an active role in shaping our users' expectations for resource sharing services. When asked in Section B of the survey to describe other factors

that were important to them in evaluating ILL service quality, one respondent replied: "Set appropriate expectations; be clear about what can and can't be done." Another recommended that we "clarify the rules and expectations for the ILL user". Implicit and explicit promises must be grounded in reality and widely promulgated.

5. How will we Use the Results to Improve our Service?

Efforts to meet the expectations of our resource sharing service users are already under way as a result of the data collected by the SERVQUAL survey. These include:

- improving communication about the service through such work as a major revision and expansion of the ILL service description handout, making the handout a web page linked to the Library's home page, and revising the interlibrary borrowing request forms. We also plan to offer instruction sessions to the campus community, particularly new members, on making effective use of ILL services;
- providing a time frame for when service will be performed. Using data gathered from the recent detailed turnaround-time study, we will provide users with data on the average (mean) times for various steps in the ILL process, such as average time from request submission to actual order, average time from request submission until they are notified of the item's availability, etc.;
- using the results of the data to support our requests for additional resources. For example, in an effort to speed up turnaround time and meet users' expectations for prompt service, the data have been used to obtain funding for the hardware and software necessary to implement ARIEL for receiving documents via the Internet;
- investigating electronic methods of providing or providing access to regular status information about users' requests. It would take a great deal of time for staff to update each customer on the status of each of their requests (considering that staff processed over 9,000 borrowing requests last year at CMU), so we'd prefer to work toward encouraging our vendors to allow end-user access to that information. OCLC has received other requests for this information and is working toward making end-user access to this status information available via their web page, which would ease staff workload and empower users. We will also be exploring other options for the borrowing requests that never enter into the OCLC ILL Subsystem, which account for about 40% of our total requests. The newly developed ILLiad system, which stands for Interlibrary Loan Internet Accessible Database, at Virginia Polytechnic Institute and State University (Virginia Tech) offers an interesting solution that is worth exploring. It allows users to check on the status of any of their requests that were submitted on the system's web-based form and therefore in the ILLiad database. Users can also generate real-time reports on interlibrary loan performance at any time from the live database (ILLiad . . ,);
- investigating lending partnerships to provide quicker turnaround for books. The service that libraries provide to each other as lenders has received far less attention than the service libraries provide to their users as borrowers. I suspect that there are many fruitful avenues for exploration here, including arranging shorter turnaround times or direct end-user delivery of photocopies;
- constructing a set of customer requirements for resource sharing services;
- becoming less dependent on student workers, who can be unreliable and inaccurate, by substituting them with library school interns. We also plan to upgrade training of student assistants.

6. What would we do Differently?

When we replicate the survey in ILL or use it with another library service, there are a few things that we may do differently. We are considering using a later version of the instrument that measures minimum service performance as well as the expectations for excellent service and perceptions of actual service. This measurement allows you to determine the "zone of tolerance" between the minimum and desired acceptance levels. This version of the survey also presents the 22 questions only once, asking participants to rate excellent service, minimum service, and perceptions of actual service received in one place, rather than repeating the 22 statements for each rating (Parasuraman et al, 1994). This would make the overall length shorter and may encourage a better return rate.

7. What Advice would I give to Someone Considering such a Project?

Because of the length of the survey, I recommend using whatever small incentives you think your participants would value. We had several comments indicating that the incentives were the sole reason that some participants took the time to respond. I would also emphasize the importance of being vigilant with follow-up efforts to increase your return rate.

It was particularly important to keep the service staff informed throughout the process, providing regular updates on the progress of the survey and preliminary results as they became available. Staff can sometimes feel defensive about the results of quality measures, particularly when such measures are new to an organization. It is important to present the results in terms of the "85/15 rule". This rule holds that 85% of problems are caused by the system and only 15% people-related. Stress that the results will be used to determine how the system needs to be changed to meet users' expectations and not to judge individual performance.

8. Would we Conduct Another SERVQUAL Survey?

We have definite plans to conduct a follow-up SERVQUAL survey of our resource sharing services so that we can measure the effect of the changes that we implement on our users' perceptions of the quality of the service. We plan to conduct this survey in the fall of 1998. We are committed to meeting and managing expectations in order to provide the best service possible, as defined by what customers value. To do this, we must know what those expectations are. SERVQUAL gave us the necessary data on those expectations that can be relied upon as a basis from which to enhance our service.

In conclusion I would like to acknowledge that some librarians view user-based service quality measures with suspicion. In their opinions, it is only common sense that a library would strive for the highest service quality; we don't need our users to tell us to do that. They feel that they already know what users want and further, that they know what users ought to want. While it is true that libraries have a long and distinguished record as successful service organizations, the gap between what users expect of excellent service and what service providers believe users expect needs to be carefully examined and addressed. The SERVQUAL tool permits organizations to take that step in the journey that is continuous improvement.

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Appendix

CARNEGIE MELLON UNIVERSITY LIBRARIES INTERLIBRARY LOAN SURVEY

Section A (Ideal of Service).

DIRECTIONS: Based on your experiences as a user of ILL (interlibrary loan and courier services), please think about the kind of library that would deliver excellent quality of ILL services. Think about the kind of library that you would be pleased to use. Please show the extent to which you think such a library should possess the feature described by each statement. If you feel a feature is "not at all essential" for excellent libraries such as the one you have in mind, circle the number 1. If you feel a feature is "absolutely essential" for excellent libraries, circle 7. If your feelings are less strong, circle one of the numbers in the middle. There are no right or wrong answers-all we are interested in is an evaluation that reflects your feelings regarding an ideal library that would deliver excellent quality of ILL service.

	Not at all Essential						Absolutely Essential
1. Excellent libraries' ILL units will have modern-looking equipment.	1	2	3	4	5	6	7
2. The physical facilities at excellent libraries' ILL units will be visually appealing.	1	2	3	4	5	6	7
3. Employees at excellent libraries' ILL units will be neat-appearing.	1	2	3	4	5	6	7
4. Materials associated with the ILL services (such as service guides or forms) will be visually appealing in an excellent library.	1	2	3	4	5	6	7
5. When excellent libraries' ILL units promise to do something by a certain time, they will do so.	1	2	3	4	5	6	7
6. When a user has a problem, excellent libraries' ILL units will show a sincere interest in solving it.	1	2	3	4	5	6	7
7. Excellent libraries will perform ILL services right the first time.	1	2	3	4	5	6	7
8. Excellent libraries will provide ILL services at the time they promise to do so.	1	2	3	4	5	6	7
9. Excellent libraries' ILL units will insist on error-free records.	1	2	3	4	5	6	7
10. Employees in excellent libraries will tell users exactly when ILL services will be performed.	1	2	3	4	5	6	7
11. Employees in excellent libraries will give prompt ILL service to users.	1	2	3	4	5	6	7
12. Employees in excellent libraries' ILL units will always be willing to help users.	1	2	3	4	5	6	7
13. Employees in excellent libraries' ILL units will never be too busy to respond to users' requests.	1	2	3	4	5	6	7
14. The behavior of employees in excellent libraries' ILL units will instill confidence in users.	1	2	3	4	5	6	7

Section A (Ideal of Service) *continued*

	Not at all Essential						Absolutely Essential
15. Users of excellent libraries will feel safe in their ILL transactions.	1	2	3	4	5	6	7
16. Employees in excellent libraries' ILL units will be consistently courteous with users.	1	2	3	4	5	6	7
17. Employees in excellent libraries' ILL units will have the knowledge to answer users' questions.	1	2	3	4	5	6	7
18. Excellent libraries' ILL units will give users individual attention.	1	2	3	4	5	6	7
19. Excellent libraries' ILL units will have operating hours that are convenient for all their users.	1	2	3	4	5	6	7
20. Excellent libraries' ILL units will have employees who give users personal attention.	1	2	3	4	5	6	7
21. Excellent libraries' ILL units will have the users' best interests at heart.	1	2	3	4	5	6	7
22. The employees of excellent libraries' ILL units will understand the specific needs of their users.	1	2	3	4	5	6	7

23. Do you have other expectations for excellent ILL services that have not been mentioned in this survey?

_____ Yes _____ No (If no, turn to Section B.)

24. If yes, identify additional expectations you have of excellent ILL services and rank how important you feel each expectation is in evaluating the quality of ILL services (**1** = not at all essential, **7** = absolutely essential).

Additional Expectations of Excellent ILL Services *(if any)*

	Not at all Essential						Absolutely Essential
A. _____ _____ _____	1	2	3	4	5	6	7
B. _____ _____ _____	1	2	3	4	5	6	7
C. _____ _____ _____	1	2	3	4	5	6	7

Section B.

DIRECTIONS: Listed below are five features pertaining to libraries and the ILL service they offer. We would like to know how important each of these features is to you when you evaluate a library's quality of ILL service. Please allocate a total of 100 points among the five features according to how important each feature is to you-the more important a feature is to you, the more points you should allocate to it. Please ensure that the points you allocate to the five features add up to 100.

1. The appearance of the library ILL unit's physical facilities, equipment, personnel, and communication materials. _____ points
2. The library's ability to perform the promised ILL service dependably and accurately. _____ points
3. The library's willingness to help ILL users and provide prompt ILL service. _____ points
4. The knowledge and courtesy of the library's ILL unit employees and their ability to convey trust and confidence. _____ points
5. The caring, individualized attention the library provides its ILL users. _____ points

TOTAL POINTS ALLOCATED **100** points

6. Which feature listed above (1 through 5) is *most important* to you? (Indicate feature number) _____
7. Which factor is *second* most important to you? (Indicate feature number) _____
8. Which factor is *least important* to you? (Indicate feature number) _____
9. Is there any other factor (not included among these five features) that is important to you in evaluating the quality of ILL services?

_____ Yes _____ No

10. If yes, please describe:

_____

_____

_____

Section C.

DIRECTIONS: The following set of statements relate to your feelings about the Carnegie Mellon University Libraries' ILL services. For each statement, please show the extent to which you believe that the Carnegie Mellon University Libraries have the feature described by the statement. Circling **1** means that you strongly disagree that the University Libraries have that feature, and circling **7** means that you strongly agree. You may circle any number in the middle to indicate how strong your feelings are, or circle **0** if you have no experience with the feature described. There are no right or wrong answers-all we are interested in is an evaluation that reflects your perceptions about the Carnegie Mellon University Libraries' ILL services.

	Strongly Disagree						Strongly Agree	No basis to judge
1. Carnegie Mellon University Libraries' ILL unit has modern-looking equipment.	1	2	3	4	5	6	7	0
2. Carnegie Mellon University Libraries' ILL unit's physical facilities are visually appealing.	1	2	3	4	5	6	7	0
3. Carnegie Mellon University Libraries' ILL unit employees are neat-appearing.	1	2	3	4	5	6	7	0
4. Materials associated with the ILL services (such as service guides or forms) are visually appealing at the Carnegie Mellon University Libraries.	1	2	3	4	5	6	7	0
5. When the University Libraries' ILL unit promises to do something by a certain time, it does so.	1	2	3	4	5	6	7	0
6. When an ILL user has a problem, the Carnegie Mellon University Libraries' ILL unit show an interest in solving it.	1	2	3	4	5	6	7	0
7. Carnegie Mellon University Libraries perform ILL services right the first time.	1	2	3	4	5	6	7	0
8. Carnegie Mellon University Libraries provides its ILL services within the time it promises to do so.	1	2	3	4	5	6	7	0
9. Carnegie Mellon University Libraries' ILL unit insists on error-free records.	1	2	3	4	5	6	7	0
10. Employees of Carnegie Mellon University Libraries tell you exactly when ILL services will be performed.	1	2	3	4	5	6	7	0
11. Employees of Carnegie Mellon University Libraries give you prompt ILL services.	1	2	3	4	5	6	7	0
12. Employees of Carnegie Mellon University Libraries' ILL unit are always willing to help you.	1	2	3	4	5	6	7	0
13. Employees of Carnegie Mellon University Libraries' ILL unit are never too busy to respond to your requests.	1	2	3	4	5	6	7	0
14. The behavior of employees of the University Libraries' ILL unit instills confidence in users.	1	2	3	4	5	6	7	0
15. You feel safe in your ILL transactions with the Carnegie Mellon University Libraries.	1	2	3	4	5	6	7	0
16. Employees of Carnegie Mellon University Libraries' ILL unit are consistently courteous with you.	1	2	3	4	5	6	7	0

Section C. *continued*

	Strongly Disagree						Strongly Agree	No basis to judge
17. Employees at Carnegie Mellon University Libraries' ILL unit have the knowledge to answer your questions.	1	2	3	4	5	6	7	0
18. Carnegie Mellon University Libraries' ILL unit gives you individual attention.	1	2	3	4	5	6	7	0
19. Carnegie Mellon University Libraries' ILL unit has operating hours that are convenient for you.	1	2	3	4	5	6	7	0
20. Carnegie Mellon University Libraries' ILL unit has employees who give you personal attention.	1	2	3	4	5	6	7	0
21. Carnegie Mellon University Libraries' ILL unit has your best interests at heart.	1	2	3	4	5	6	7	0
22. Employees of Carnegie Mellon University Libraries' ILL unit understand your specific needs.	1	2	3	4	5	6	7	0

Section D.

DIRECTIONS: Please answer just a few more questions about your experiences with ILL services in the Carnegie Mellon University Libraries.

1. Overall, how would you rate the quality of the Carnegie Mellon University Libraries' ILL services?

Extremely Poor — Extremely Good

1 2 3 4 5 6 7 8 9 10

2. Have you experienced a problem with ILL services at the Carnegie Mellon University Libraries within the past year?

_____ Yes _____ No (If no, skip to question 5.)

3. If yes, briefly describe the problem:

_____

4. If yes, were you satisfied with the resolution of the problem?

_____ Yes _____ No

5. Was the information you obtained through your most recent experience with ILL services at the Carnegie Mellon University Libraries valuable to you?

_____ Yes _____ No

6. Would you recommend the ILL services at the University Libraries to a friend or colleague on campus?

_____ Yes _____ No

Section E.

DIRECTIONS: Your help will be appreciated in this final section to better understand the characteristics of the Carnegie Mellon University Libraries' ILL users. Please check the responses which best apply to you.

1. Which of the three Carnegie Mellon University Libraries' ILL units do you use most often?

_____ Engineering & Science _____ Hunt _____ Mellon Institute

2. Do you make use of the ILL units in the other Carnegie Mellon University Libraries as well?

No: _____ never Yes: _____ sometimes Yes: _____ frequently

3. How many times have you used the ILL services at the Carnegie Mellon University Libraries during the past ten months?

_____ once _____ 2 to 5 times _____ 6-10 times _____ 11 or more times

4. At how many libraries, other than the Carnegie Mellon University Libraries, have you used ILL services during the past two years?

_____ none at _____ other libraries

5. Do you ever purchase articles from off-campus article delivery services?

No: _____ never Yes: _____ sometimes Yes: _____ frequently

6. If yes, which service(s) do you use? _____

7. Your most recent use of ILL services at the Carnegie Mellon University Libraries was primarily in support of (check one);

_____ course work _____ teaching _____ mix of several purposes
_____ research _____ current awareness _____ other: _____

8. Which best describes your activities at Carnegie Mellon University (choose one):

_____ undergraduate student _____ graduate student _____ faculty

_____ staff _____ other: _____

9. Your study or research falls within which of the following subject areas (check all that apply):

_____ a. Architecture
_____ b. Fine arts
_____ c. Social sciences
_____ d. History
_____ e. Psychology
_____ f. Public policy / management
_____ g. Business / economics
_____ h. Languages and literature
_____ i. Computer sciences
_____ j. Chemistry
_____ k. Biological sciences
_____ l. Engineering
_____ m. Math
_____ n. Philosophy
_____ o. Music
_____ p. Performing arts
_____ q. Physics
_____ r. other: _____

Thank you for participating in the Interlibrary Loan Survey.
Please send the completed survey, in the enclosed envelope, to: Joan Stein, Hunt Library.

Client Satisfaction: A Rear-View Mirror Assessment

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The library and information institution is categorised as a service organisation whose primary goal is to provide quality services to its clients. The importance of having a form of measure that reflects the client's perceptions about the service and the staff is increasingly recognised. A basis for evaluating subject librarian information services is discussed. The paper provides a practical assessment of client satisfaction measures and the results that have been measured and evaluated over a period of five years. The focus is primarily on such aspects as benefits and limitations of the measures, problems with client surveys, insights gleaned from the results, and refinements to the measures. Suggestions are made on the way forward for client-centred approaches to the evaluation of information services.

1. INTRODUCTION

The concept for this paper was largely inspired by a comment made during the opening address of this Conference in 1995. Under the guise of a poetic title "On not mistaking the finger for the moon", Nancy van House issued a cloaked warning to the library profession about being lured by a misguided use of performance measurement. She reminds us that performance measurement is not intended to eulogise library achievement but rather that measurement and evaluation are means to "construct sense in ongoing reconstruction within our libraries and with the larger organisation" (Van House, 1995, p.8).

This comment prompted reflection on the matter of client satisfaction measurement which, we presume, is the result of an organisation being "customer-driven" - but what does this concept mean, how is it achieved and what have we, as library and information managers, achieved with it? Furthermore, does it have value and for whom? By pausing to take a rear-view mirror glance at our organisations from the customer's point of view, we can consider whether we have become complacent in its application. Are we guilty of eulogising library achievement and management success rather than concentrating on whether client expectations are being met? This paper gives consideration to some of these issues.

The purpose of this paper is two-fold. The first section forms a rear-view mirror perspective of the client satisfaction road I have travelled from researcher to manager-practitioner in the library at the University of South Africa. Having briefly outlined the model of client satisfaction and its application in the evaluation of subject librarian service quality, attention will be focused on what has been learned in the process including limitations experienced and refinements introduced.

With the benefit of hindsight, the second part of the paper examines why client satisfaction is not simply an outcome measure within a performance measurement system of a library and information organisation. Within the highly competitive information arena in which we find ourselves these days, where survival and growth are inextricably linked to keeping your clients and making them happy, client satisfaction should be accorded strategic status in the planning, provision and evaluation of our library and information services. The Total Quality Management movement is providing the impetus for library and information managers to revisit the importance of client satisfaction within the organisation. "Customer-inspired quality" (Shaw, 1996, p.1) is derived from how our clients define quality (which is probably different from how librarians and the textbooks define it), and should be the determining factor behind the design of input, output, process and outcomes measures used in the organisation. All results should be inextricably linked back to client satisfaction levels.

2. PERFORMANCE MEASUREMENT AT THE UNIVERSITY OF SOUTH AFRICA

2.1 Background

The University of South Africa (Unisa) had its origins in the University of Good Hope established in 1873. Initially the administrative and examining body for a number of university colleges in the country, Unisa assumed a distance teaching function in 1947 when most of the colleges had become, or were on the verge of becoming, independent tertiary institutions. Since 1946, the Library has rendered information services and makes available information resources to faculty, researchers and students who participate in the programmes of the University.

Today, Unisa offers undergraduate and postgraduate studies up to doctoral level to approximately 126,000 students (about 74,000 FTEs), mostly in southern Africa, although there are a number of registered students in overseas countries. At the undergraduate level, the University's formal tuition is done mainly through a combination of printed study guides and prescribed books supplemented by reading lists of recommended titles for individual assignments. This service is provided by a separate study collection with multiple copies of recommended titles in the main library as well as branches throughout South Africa. The recommended books are supplied, on request, by post or are collected personally by students who live in close proximity to the main library or its branches.

The teaching staff, researchers and postgraduate students are served by a team of some 30 subject librarians. With the support of a collection in excess of one and a half million volumes of books and journals and approximately 5,000 current periodicals providing coverage mainly in the disciplines of the humanities, social sciences, management and law, the subject librarians render comprehensive and individualised information services including literature lists, reference work, current awareness services and bibliographic source training. In 1996, a total of 3,346 postgraduate students registered at Unisa of whom 2,763 and 583 were registered for master's and doctoral degrees respectively.

2.2 Goals-based Performance Measurement at the Unisa Library

As part of its commitment to support the University's strategic goals, the Unisa Library adopted a goals-based performance measurement approach in the late 1980s. A mission statement, goals and long-term objectives were formulated and measures designed to evaluate the effectiveness and efficiency of its service outputs in key performance areas. The measures focused primarily on the effectiveness of the document delivery service using survey instruments to determine materials availability in various collections as well as requested materials delay. Within the performance area of information provision, a number of objective measures were devised to monitor service output, for example the number of online searches conducted. A shortcoming of this initial approach was that these were manager-control type measures of input, process and output designed by staff without consideration for expectations and feedback by the client on the perceived service quality.

2.3 Performance Review and Management Planning System

With the restructuring of the library in 1993, a new planning and evaluation approach was required to integrate the strategic, management and operational levels with appropriate measures. This approach has a stronger client orientation with its focus on core business and three to five key performance areas in each sub-division. Managers are required to identify key output products and services that are important to clients and whose performance is critical to the effectiveness of the library (Willemse, 1995). Although the measures are supposed to reflect service quality, throughput rate and delivery speed to client, the resulting matrix is similar to that of the goals-based performance measurement approach with a mix of primarily input, process and output measures and, to a lesser extent, outcome measures. Although there are efforts to include a client perspective, the measures still reflect functional lines within the structural hierarchy. The measures are neither process-oriented with the client at the centre of service delivery nor "customer-inspired" to determine the extent to which the service quality as defined by the client has been met or exceeded.

3. MEASURING AND EVALUATING CLIENT SATISFACTION

3.1 Background

Over the years, a number of subjective output measures were designed for the information services provided by the subject librarians but were discarded for various reasons. In response to the problem of trying to identify a suitable means to evaluate the effectiveness of the subject librarian services, I proposed an outcome measure that would determine client satisfaction taking into account client expectation levels. My purpose was to develop a reliable quantitative client satisfaction assessment instrument and a practical management tool. It was also intended that the instrument should be applicable as a general satisfaction measure across any process in the library where the client is the recipient of services.

3.2 Definition of Client Satisfaction

The approach to library client satisfaction was influenced strongly by marketing theorists and practitioners in the field of consumer behaviour research where consumer satisfaction has been applied to determine the quality of services. The definition of consumer satisfaction proposed by Miller (1977, p.72) served as the departure point for the conceptualisation and operationalisation of client satisfaction as a quantitative measure. He posited that consumer satisfaction results from the interaction of levels of (a) expectations about anticipated performance and (b) evaluations of perceived performance. This definition gave rise to the disconfirmation of expectations model also known as the expectancy-disconfirmation model which is widely applied in the marketing field and is a means to measure and evaluate an individual's responsive feelings toward a service.

Client satisfaction is a subjective output measure which reflects the quality dimension of the library and information service as a whole or specific components of the service being provided. Client satisfaction is defined as the difference between a client's expectations about an anticipated service and the actual performance of the service outputs as perceived by that client. A level of satisfaction is derived by taking the difference between the average actual performance as perceived by the client and the average expected performance, where the averages denoted as <> are taken over the total number of user responses (Dalton, 1992, p.91).

3.3 Client Satisfaction Scale

Numerical scores derived for the attributes of the service can be depicted on a satisfaction scale so that performance can be monitored and interpreted by the manager. The client satisfaction ratings reflect each service component or the collective service to give an indication of the relative satisfaction as judged by the clients. Since most survey questionnaires use five-point Likert scales, the satisfaction scale will range between -4 and +4. However, in practice, respondents tend to mark 2, 3 or 4 on the attitude scale which means that the upper and lower bounds of the client satisfaction range between -2 and +2 with a mid-point of 0 (Appendix 1).

3.4 Client Satisfaction in Practice

The formal implementation of the client satisfaction assessment instrument began in 1992 with the purpose of evaluating the services provided by the subject librarians to all their clients (staff and postgraduate students). Two separate surveys, using samples, are distributed at the beginning of each year to Unisa staff and registered master's and doctoral students who made use of the information services rendered during the previous year. The attributes include:

- Subject librarian skills
  - attitude (friendliness and courtesy)
  - subject knowledge
  - expectations of client with regard to subject librarian skills.
- Subject bibliography services
  - keywords used to describe topic of research
  - relevance of references in literature lists
  - amount of references in literature lists
  - time lapse between client's request and receipt of information
  - expectations of client with regard to subject bibliography services.
- Enquiry and advice services
  - accuracy

  - timeliness
  - expectations of client with regard to enquiry and advice services.
- Collections
  - research collection
  - periodical collection
  - expectations of client with regard to collections.
- Overall service quality
  - overall performance of service
  - overall expectations of service by client.

Appendix 2 is a graphic depiction of client satisfaction with the quality of subject librarian skills (attitude and subject knowledge) between 1991 and 1996.

4. CLIENT SATISFACTION: A REAR-VIEW MIRROR PERSPECTIVE

4.1 Benefits

A number of benefits have been derived from measuring client satisfaction among staff and postgraduate students:

- The application of the client satisfaction assessment instrument was a breakthrough in trying to find a practicable measure of service outcome. At any time and in any library and information organisation, subject librarian and reference services (including the staff) are a difficult performance area to evaluate, bordering on the realm of intangible qualitative measures.
- It is a starting point for measuring service quality with the inclusion of client expectations in the questionnaire. A shortcoming, however, was the failure to solicit client input as to what they would define as the key attributes of the service that constitute their perception of service quality.
- Identifying key performance areas and outputs for client evaluation helped to focus the subject librarian team on the central service attributes.
- The results provide both a valuable overview and an insight into specific attributes of the various subject librarian services. An example is the 1995 survey results of Unisa staff satisfaction levels (Appendix 3). In the early part of that year, the subject librarian section was restructured and a number of former assistants were given full subject librarian responsibilities. On the surface, the structure appeared to be settled and the information services functioning. The graph in Appendix 3 illustrates the dissatisfaction of the clients (academic and teaching staff) with the performance output of the subject bibliography service. A similar result happened with collection development and subject knowledge. Recognising the negative impact of the restructuring on the clients' perception of the service, action was taken to make the setback an opportunity for our staff to identify areas for improved services. Corrective actions included:
  - junior subject librarians were required to spend time studying their subject collections (research and periodicals);
  - a number of them opted to register for first year courses in the areas of their subject responsibilities;
  - as part of the annual performance appraisal process, goals were set for subject librarians to visit their departments on a regular basis in order to build up contact and establish confidence through stronger partnerships;
  - subject librarians were made more accountable for the management of their departmental book budgets;
  - staff training was provided in reference interview techniques and search strategy skills by the Department of Information Science at Unisa;
  - subject librarians were encouraged to develop formal end-user training programmes for Unisa staff as a key performance area - this includes the design of the course content and presentation.
- The responses to the open-ended question provided valuable insight into the clients' expectations beyond those levels measured against specified service attributes. From the comments, it is clear that insufficient attention is given to current awareness services by the subject librarians - a pilot project in co-operation with a number of teaching departments has since been initiated to investigate electronic CAS services and products with a view to formal implementation for staff and postgraduate students in 1998.

4.2 Limitations of Client Satisfaction Measurement

As with any measurement a number of limitations have been experienced with client satisfaction:

- The questionnaire is not linked to specific service encounters between the subject librarian and client; it is a generic evaluation of service quality over the period of a year.

- The questionnaire is too long to be used for measuring satisfaction with a single reference transaction.

- Client satisfaction feedback cannot be linked directly to the service output of a particular subject librarian, as the respondent is required to indicate only faculty and degree. This has prevented managerial follow-up on poor satisfaction ratings.

- The use of library jargon is a terminological barrier for our clients especially when they encounter concepts like recall, relevance, completeness, pertinence, bibliography, and we should not underestimate their confusion with terms like periodicals, journals and serials.

- The service attributes included for evaluation are largely traditional and represent the standard measures touted in the library literature for years; it is time to incorporate outcome measures relating to the networked information environment.

- The questionnaire is not sufficiently diagnostic. Although one open-ended question provides important feedback, it would be more useful to provide opportunity for specific comments relating to different aspects of the information service.

- A number of subject librarians take umbrage at dissatisfaction ratings or criticism from clients in response to the open-ended question, rather than as a means for identifying areas for improvement.

- Subject librarian resistance to measurement and evaluation of performance was not anticipated. Whilst one does not want to alienate the staff who are at the sharp end of service delivery, the issue of standards, benchmarks and evaluation versus individuality remains a problematic area.

- The questionnaire reflects a "producer-supplier perspective" (Harvey, 1995, p.162) incorporating that which the manager and staff think is important for measurement. Service quality advocates are universal in their approach stressing that to assess service quality meaningfully, questions should be designed around the issues that are identified by your clients as being important to them.

- A consequence related to the "producer-supplier" approach to client satisfaction is a complacency that results in a lack of feedback to the constituencies. Client satisfaction ratings are used mainly for internal consumption or selected items in annual reports. Harvey (1995, p.172) highlights this neglected area as a managerial responsibility noting that "Feedback to students about what has happened as a result of the research is an important element but one that is difficult to undertake effectively".

- The satisfaction ratings are confined to a narrow client base, namely academic staff and postgraduate master's and doctoral students. Whilst this is a natural tendency as they constitute main groupings on a university campus, there are increasing calls to look more carefully at the university communities and the needs of all the key constituencies (Calvert and Cullen, 1992; Crawford, 1995).

- The provision of information services by subject librarians is not an activity that can be confined to within the functional boundaries of a section - their services are only one component in a broader process that encompasses a range of activities from the reference encounter with the subject librarian to retrieval and formatting of information to the supply of books or journal articles. Client satisfaction ratings are, at present, confined to output measures for isolated parts of the information provision process. Our perspective of client satisfaction with the service quality is restricted to isolated "temperature readings" at selected intervals in the process from which we try to derive meaning about the outcome of our services for the client. This shortcoming highlights the importance of the total quality management approach which looks at service quality from both the organisational and client viewpoints.

- The questionnaire is sent to clients who make use of the subject librarian services with the result that we have no information about the expecta-

tions and requirements of non-users or potential clients.

4.3 Refinements to Client Satisfaction Measurement

After the 1995 results of the Unisa staff client satisfaction survey, we went back to the drawing board. From a management perspective, the overall assessment indicated that staff and, to a lesser extent, students were dissatisfied with the quality of the services being delivered. It was time for detailed and accurate evaluation of the bibliographic service encounter based on perceived performance. A workgroup examined the bibliographic service process and identified a series of actions to monitor its outputs:

- A reference interview form was devised that could be used on a personal interview basis, telephonically, electronically or mailed between the client and subject librarian (Appendix 4).
- A search strategy form was designed on which keywords, boolean operators, information sources and search results are recorded. Subject librarians are encouraged to record their own reflections, and there is place to indicate the client's response to the search results as well as any follow-up actions taken (Appendix 5).
- A client evaluation card is attached to each literature search on completion. The card is brightly coloured, postage paid and self-addressed to the Library's Research Unit. It is not intended to evaluate the subject librarian each time a literature list is supplied but rather that the bibliographic contents are rated in terms of the following attributes:
  - timeliness
  - relevance of the bibliographic references in the literature list
  - usability of the bibliographic references
  - request correctly understood
  - satisfaction with the contents of the literature search.

  Space for comments is provided after each of the above attributes and the client is requested to supply a department name and staff/student number so that the response can be linked to the subject librarian.
- An administrative form which lists the searches completed, the client's details, search topic, evaluation card sent/received. This is a simple mechanism to assist in determining how many evaluation cards are despatched and to ensure that subject librarians are recording output statistics consistently. This information could also be used, if necessary, to conduct follow-up actions of the cards but this is an expensive option and should be approached with circumspection.
- The clients' evaluation cards are returned to the Research Unit where the ratings are entered into a statistical program and any comments are recorded. The cards are then forwarded to the subject librarian as feedback and for follow-up actions, if required. Six-monthly management reports are generated which summarise the client satisfaction results.

5. THE WAY FORWARD: PUTTING THE CLIENT IN THE CENTRE

5.1 From Linear to Strategic Level Measurement of Client Satisfaction

Library and information organisations are characterised by both a genuine desire to provide good services to their clients and a recognition that, since the client is the direct recipient of these services, it is important to have measures that reflect the client's perceptions about what was delivered (information product) and how it was delivered (interaction). However, what we do need to be asking is, not what can the client do for us in terms of feedback, but what can we do to achieve strategic insight into that which the client expects in terms of information and service. What we think is of importance in relation to the product and service might be quite different to the dimensions employed by the client in deciding whether the services rendered met or exceeded his or her expectations of quality.

With the benefit of hindsight, I would like to propose that for client satisfaction to be purposeful as an indicator of service quality, information and library managers will be required to analyse it more closely and develop a better understanding of its role in achieving desirable service quality levels. This will enable evaluation processes to indicate the extent to which our organisational vision and mission have been fulfilled. Until recently, we were

relatively content that client satisfaction could be treated as a linear measure by incorporating it within the performance measurement system to evaluate the outputs and to obtain feedback from the clients on the outcome of the service. For the most part, the measures have been largely characterised by a producer-supplier orientation underpinned by a management-control approach.

The fact that we obtain client satisfaction "readings" based on selected outputs indicates that we are probably inclined to measure that which is convenient and obvious rather than probing more fundamental questions related to establishing what are the clients' expectations. This cannot be achieved through a linear approach to client satisfaction where the service is determined on his behalf and presented to him to evaluate the outputs. The manager is going to have to shift the predominant mindset from one of a manager-control approach to one of reaching into the client community. Hernon (1997, p.2) believes that insufficient attention is being paid to expectations and how the client defines quality. He notes that "input and output measures are useful but they neglect a perspective important to any service organisation - that of customer expectations and views of excellence". Within the worldwide service movement, it is clear that library and information managers will be required to shift client satisfaction from a linear to a strategic context within the organisation.

5.2 Integrating Client Satisfaction in the Bigger Quality Picture

The strategic dimension of client satisfaction is well acknowledged within the realm of Total Quality Management. Increasingly, within the library and information management fraternity, there is strong advocacy to embrace a strategic approach towards measuring service quality (Brophy and Coulling, 1996; Hernon and Calvert, 1996; Nitecki, 1996; Pritchard, 1996; Seay, Seaman and Cohen, 1996; St Clair, 1997; Whitlatch, 1995).

The message is clear - if we are serious about our commitments set out in vision and mission statements, then we have to shift from an interest in quality (based on performance measurement, library operations and effectiveness) to the management of service quality viewing the organisation from both client and organisational perspectives. Reflect briefly on how many of us try to define quality for our clients as opposed to asking the clients what they perceive as quality in information products and services and their delivery. Brophy and Coulling (1996, p.47) point out that many of us probably have no idea what makes our clients really tick or "delighted" and serve to remind us that meeting and exceeding customer needs is the key to success or failure for the organisation in the future.

In order to acquire a better understanding of client satisfaction, it needs to be given context within the bigger framework of quality. In a useful and informative text, Brophy and Coulling (1996) have explored the integration of client satisfaction within the processes of Total Quality Management, quality management and service quality. The concept of Total Quality Management (TQM) is not new but it remains difficult to define because it is an umbrella for various management philosophies, theories and practices applied to promote quality throughout an organisation's activities, operations and services. Brophy and Coulling (1996, p.107) propose that at the most basic level it is "a holistic approach which begins and ends with an obsessive attention to customer requirements". However, the term "requirements" does not give library managers and their staff licence to:

- make assumptions about what the clients want and need;
- prescribe what is important to clients in decisions about quality;
- provide services based on these assumptions.

A warning is issued about making too many assumptions without establishing the needs and wants of the client base and suggests that this tendency should be countered by ". . . taking deliberate actions to introduce a customer perspective and to retain it" (Brophy and Coulling, 1996, p.72). This viewpoint is endorsed by Shaw (1996, p.20) who urges "It doesn't matter how excellent or superior an organisation considers its goods or services to be if they are not what the customer wants or needs. Being customer-driven means providing value-added goods, services and personal experiences that customers find useful, convenient and delightful. Being customer-driven means seeing and feeling the things the customer does. Being customer-driven means meeting and exceeding customer expectations".

Quality becomes a meaningful concept only when it is linked to the aim of total consumer satisfaction and product is one which meets or exceeds the specified requirements of the client in a consistent manner (Brophy and Coulling, 1996, p.7). Within the TQM context, the client must be at the centre of all planning, activities and evaluation - the library must strive to align and synchronise its customer-driven initiatives with the desired service quality levels set out in its mission, vision and goals. Organisations consist of processes - quality management is a way to design processes to ensure that the service outputs meet the clients' needs and wants. Quality management is widely used in the literature to depict a range of applications and techniques including quality assurance, quality improvement, customer care and continuous quality improvement. Brophy and Coulling (1996, p.33) treat quality management as a form of management based on standards where quality is a commitment contained within the organisation's goals and is followed through from the planning phase to delivery.

The challenge of striving to offer service quality and meet clients' requirements is being addressed by a number of management practitioners and researchers who have imported the guidelines established by Zeithaml, Parasuraman and Berry (1990) for measuring client satisfaction within a strategic context. Within the field of service marketing, they developed a conceptual framework called the Gaps Model of Service Quality and a measuring instrument known as SERVQUAL. An important aspect of their approach is that they distinguish service quality from satisfaction. Service quality is perceived quality about an entity's overall excellence and they describe it as the outcome of the client's comparison of expectations with perceptions of performance. Whilst performance satisfaction measures a specific interaction, service quality evaluates the perceived performance of a generic service and the extent to which a service achieves its goals or even mission and vision. Service quality is the cumulation of a number of satisfaction encounters. Zeithaml et al (1990) identified five dimensions which represent the core criteria used by clients to evaluate service quality:

- reliability
- assurance
- tangibles
- empathy
- responsiveness.

Services marketing research established that, according to clients, reliability is the most important dimension and tangibles the least important. Using the SERVQUAL instrument to monitor client expectations and perceptions of performance, Nitecki (1996) measured the service quality of interlibrary loans, reference and graduate reservations in a university library. The findings indicated that library clients identified reliability as the most important customer-perceived dimension of quality and in reference services that reliability and responsiveness are the most important dimensions in evaluating service quality.

Coleman, Bair, Xiao and Chollett (1997) also applied the SERVQUAL instrument but with the purpose to measure the library service quality of Sterling C. Evans University Library. What is both interesting and sobering about their results is that whilst their clients ranked reliability, responsiveness, assurance, tangibles and empathy as the order which they consider to be important when deciding on service quality, tangibles emerged as the only dimension considered to be acceptable (within the zone of tolerance) by their clients. It is this kind of new insight to the client and his views that is starting to shape the way ahead for future developments and applications in the field of client satisfaction.

Whilst SERVQUAL has opened up a new dimension of client satisfaction and better understanding of expectations, its statements are still based on expert and professionally-determined questions. In a number of British universities, efforts have been made to work closely with the clients in order to better understand their expectations and achieve levels of performance directly related to those wants and needs. At the University of Leeds, Doyle (1995, p.144) designed a questionnaire based on discussions with librarians and interviews with student users. Similarly at the University of Central England in Birmingham, the client is drawn into the process of quality monitoring as a stakeholder through a "client-driven intervention" method which combines student determined questions with satisfaction and importance ratings which determine the degree of intervention to services or areas for action (Harvey, 1995, p.161).

6. CONCLUSION

The quest for service quality in library and information organisations begins with a focus on clients and a desire for continuous improvement. Until recently, we accepted measuring service in terms of quantities of services performed, timeliness, cycle times or services per patron. However, it is increasingly recognised that expectations, in consultation with the clients, have to be taken into account in the evaluation of service quality particularly if the commitments made in the mission, vision and goal statements are to be achieved.

Returning to Nancy Van House's reminder that, in order to compete for jurisdiction in a highly competitive arena, libraries and information organisations will have to establish a reputation for service quality by placing the client perspective at the centre of our services and reaching out into our client communities to ask how we best can address their needs: total quality management, quality management, service quality and client satisfaction are the way forward to assist information and library managers to attain high levels of client focus and to develop programmes of service that meet or exceed client expectations. The overriding goal is always client satisfaction but, in our endeavours to achieve it, the management of quality must remain a never-ending process - a system of continuous improvement. There is no finish line in this business.

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Appendix 1

CLIENT SATISFACTION SCALE

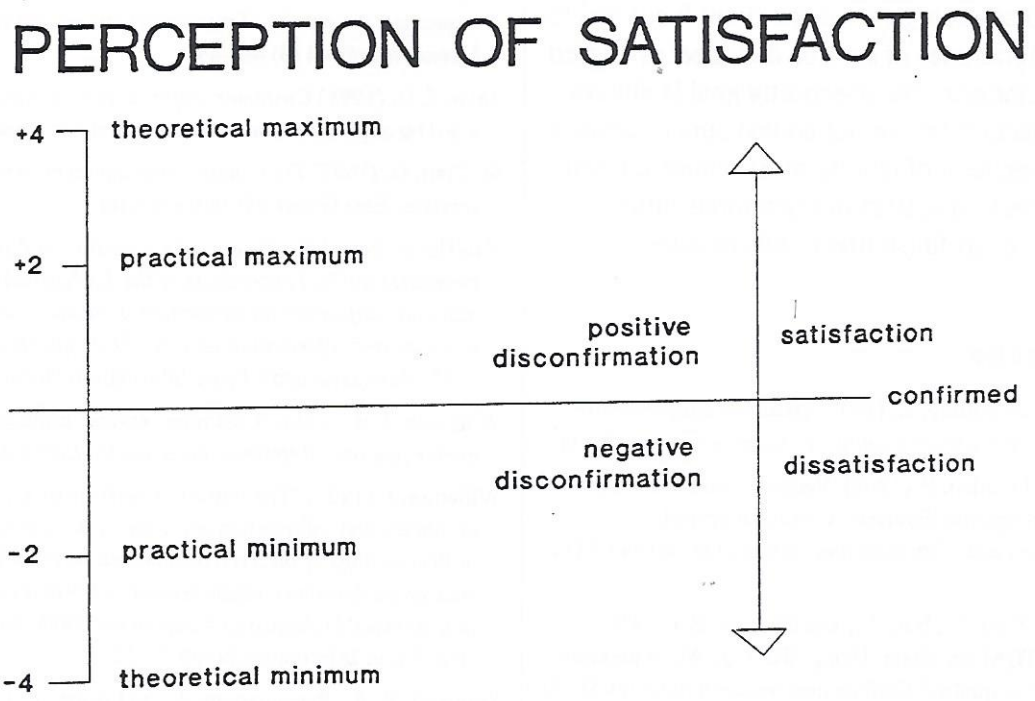
MEASURING CLIENT SATISFACTION LEVELS

Satisfaction is defined as the difference between the actual performance and expected performance. The mean value (expressed as < >) of associated variables is taken as the quantitative measure. In other words:

satisfaction = <actual performance> - <expected performance>

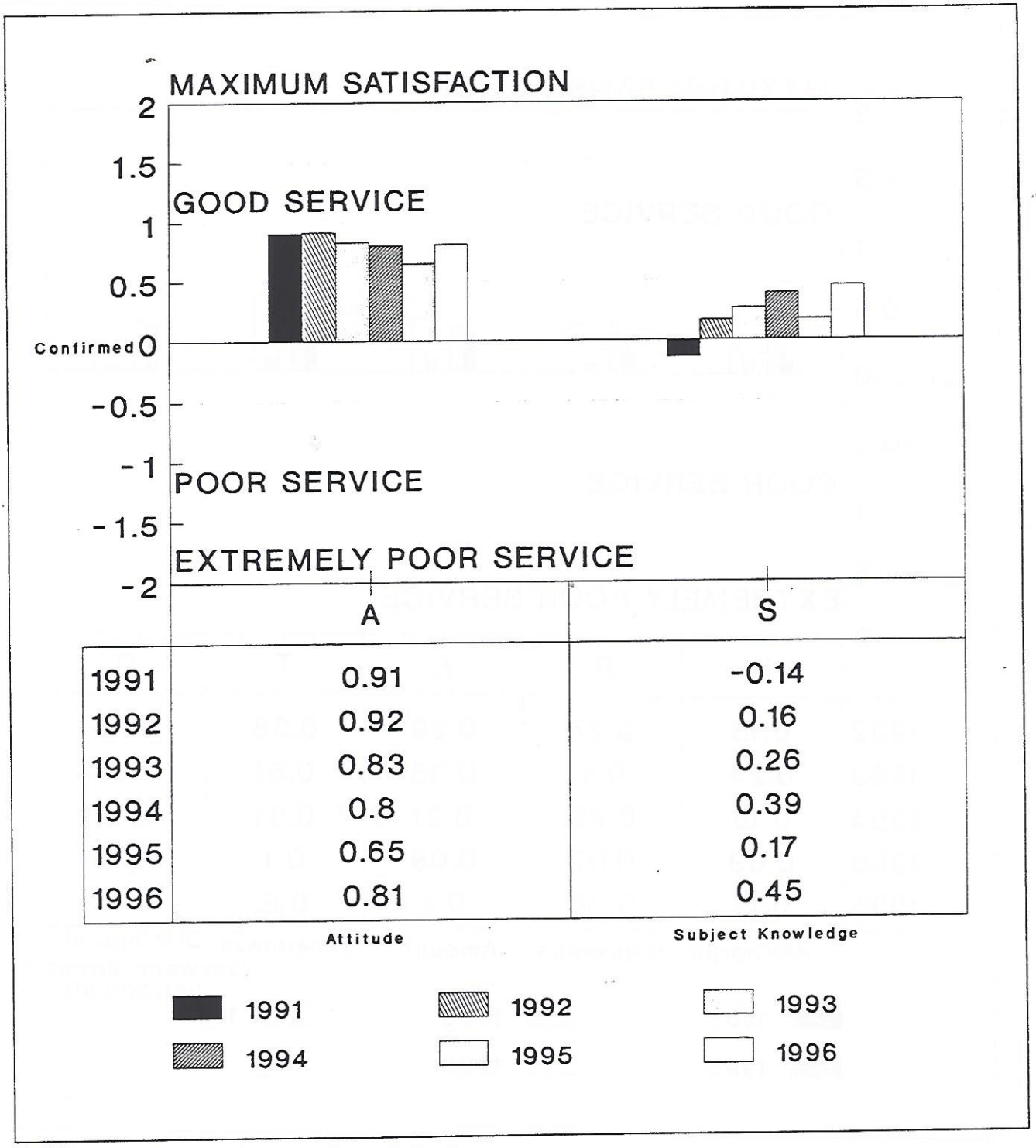
When the means are substituted in the formula, it is possible to calculate a level of user satisfaction for each individual component of the service as well as to determine the overall satisfaction with the service.

A positive value indicates a degree of user satisfaction whereas a negative value indicates a level of user dissatisfaction.



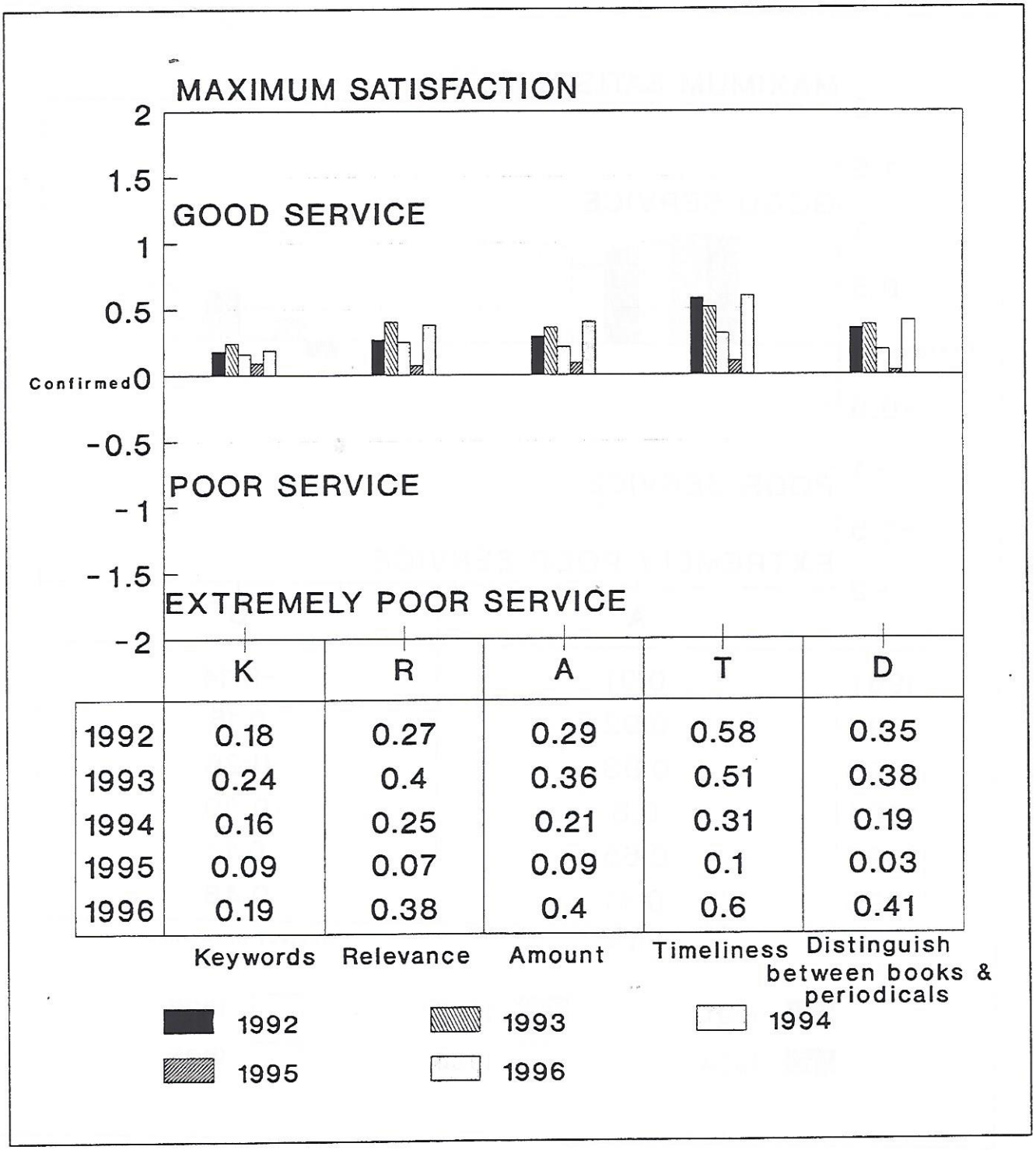
Appendix 2

SUBJECT LIBRARIAN SKILLS (ATTITUDE AND SUBJECT KNOWLEDGE)
MASTER'S AND DOCTORAL STUDENTS FOR THE PERIOD 1991-1996



Appendix 3

SUBJECT LIBRARIAN BIBLIOGRAPHICAL SERVICES: UNISA STAFF FOR THE PERIOD 1992-1996



Appendix 4

REFERENCE INTERVIEW FORM

Request for Information

Personal Information

Name: .....

Address: .....

.....

E-mail address: ..... Fax no: .....

Department: ..... Degree: .....

Student/Staff no: .....

Telephone (work) ..... (home) .....

Research Topic

.....

.....

.....

.....

.....

.....

Recommended Keywords

.....

.....

.....

.....

.....

.....

1. **Has the subject librarian already researched this topic for you?**

YES NO

If YES, when and what? .....

2. **What type of information do you require?**

Periodicals	Books	Manuscripts
Music scores	Theses	Microform
CDs	Government Pub	

Unisa holdings only YES NO

Other South African libraries YES NO

Overseas holdings YES NO

3. **How far back should your subject librarian search for information?**

Last 10 years	Last 5 years	Last 2 years
No time limit	Other:	

4. **Which languages can you read?**

English	Dutch	Sotho
Afrikaans	Zulu	Xhosa
German	French	
Other:		

5. **Are you aware of any authors working in this field?**

.....

.....

.....

6. **Would you prefer the information to be:**

Posted	Collected	Sent by e-mail

7. **Approximately when do you require the information?**

OFFICE USE ONLY	
Date received	Date despatched

Appendix 5

SEARCH STRATEGY AND RESULTS FORM

WORK SHEET

STUDENT/STAFF NO: ..... DEPT: .....

TOPIC: .....

.....

.....

DATABASES USED: .....

.....

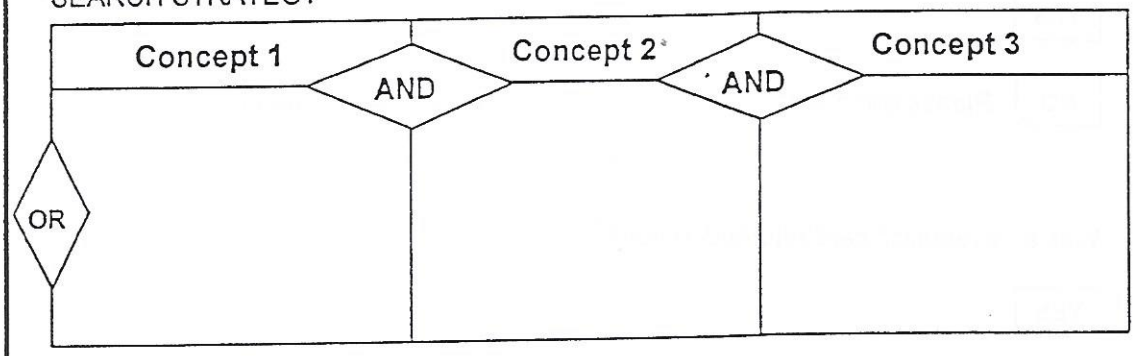
.....

VOCABULARY CONTROL (Reference sources consulted eg. Thesauri, Dictionaries)

.....

.....

SEARCH STRATEGY



NARROWING A SEARCH

AU=	JN=	LA=	PY=

RESULTS:

Database:..... Hits:..... Database:..... Hits:.....

Database:..... Hits:..... Database:..... Hits:.....

Database:..... Hits:..... Database:..... Hits:.....

Database:..... Hits:..... Database:..... Hits:.....

Database:..... Hits:..... Database:..... Hits:.....

VALUE ADDED SERVICE	YES	NO	COMMENTS
Did you remove duplicates			
Did you include Unisa holdings			
Did you include abstracts			
Did you evaluate the abstracts			
Did you check descriptors in abstracts			
Did you do a search in the descriptor field			

Did you send out an evaluation postcard?

YES

NO Please comment .....

.....

Was an evaluation card returned to you?

YES

NO

Were you satisfied with the results of the evaluation card?

YES

NO If no, did you take any follow-up action?

Comments: .....

.....

.....

.....

How to Plan and Manage Library Performance Measurement Projects through Continuous Improvement Practice: USQ Library Experience

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Library staff at the University of Southern Queensland received basic training on continuous quality improvement principles in 1994. In 1995 a series of performance measurement projects began, covering acquisitions and cataloguing, shelving turnaround time, serials collection usage, library client congruence surveys, request services for Off Campus students, document delivery, and library materials availability. This paper discusses the processes of planning and managing the projects, including staff training and team building. Results of the projects are outlined. Also discussed is the position of the Collection Management Division within the Library since the implementation of these quality initiatives, and of the Library within the University itself. Samples of survey documentation and results are appended.

1. INTRODUCTION

The University of Southern Queensland (USQ) was established in January 1992, 20 years after the opening of the Darling Downs Institute of Advanced Education from which it had developed. The University is located in Toowoomba, west of Brisbane with a new campus at Hervey Bay on Queensland's central coast. The University enrols about 18,000 students of which 70% are enrolled externally. USQ is also a major player in international education with overseas student enrolment exceeding 3,400 (20% of the student body) in 1996 (USQ, 1996).

The Main Library collection and staff are housed in an attractive building at the centre of the Toowoomba campus. The University will commence extensions to the Library in 1998. It houses about 250,000 volumes of monographs and over 5,000 journal titles with over 40 computer work stations. The Library subscribes to 163 electronic databases, including nine in full text. Total library staff, full-time equivalent, is 58.4.

Wide Bay Campus Library was constructed as a joint venture between the Hervey Bay City Council and the USQ. The University invested A$650,000 toward building costs, A$400,000 for collections and A$203,800 for processing, equipment and furniture.

A higher degree of interaction and co-operation among all Library sections was emphasised during the process of Review of the University Library structure (Watson, 1994). The new Division "Collection Management" has been the product of this procedure to form library teams to achieve improvement in procedures and enhance support and sharing skills among the members, who are encouraged to be more accountable and responsible for their input and output. The Associate Librarian, Collection Management has come to be responsible for the functions of acquisitions (monographs, serials and electronic resources), cataloguing, circulation, ILL/document delivery and Off Campus Library Service, and is Chair of the Collection Development Committee and the Library Quality Co-ordinator. The other Associate Librarian is responsible for Electronic Information Services.

The 1997 Library budget is A$4.5 million and 40% of this is for library resource acquisitions (monographs, serials, electronic resources). The Library has developed a Five-year Strategic Plan which details goals, performance indicators and activities. This has been reviewed and updated annually.

At the beginning of 1994, I was invited by the Vice-Chancellor to be a member of the University Quality Committee. Being a member of this Committee for three and a half years has given me the credibility and support that I needed, to help the Library staff to start the performance journey. Dr Norm Hughes has offered us much support and advice.

2. WHY PERFORMANCE MEASUREMENTS?

Continuous process improvement ". . . is a systematic approach that you can use to make incremental and breakthrough improvements in process that produce products and services for customers . . .". (Chang, 1994, p.7).

Having quoted this definition, we have been trying to encourage suggestions from all staff members, however insignificant or unsystematic those suggestions may seem. It is important to encourage staff members to review existing procedures objectively, and to be willing to change those procedures. We realised that we must help each other to simplify procedures whenever we could and to focus on main client needs. This new outlook and its new practices were promoted well before we actually started performance indicators measurement projects.

We often hear that the Library is getting busier and we are overworked, with not enough time to do this and that. We have a backlog of shelving, cataloguing or checking publishers' catalogues or providing timely ILLs because the staffing situation is getting tighter while the volume of work is getting bigger. But when we get asked how much busier, how many more books have to be catalogued per staff member, how many more volumes to shelve or how many more extra hours of work are needed to cope with the latest technology to satisfy ILL requests, we do not always have factual evidence. Sometimes we believe that staff don't have time to work out all those performance measurements because we are too busy. Only if we are given a higher staffing level or a special fund, will we do something about it. Because we have to compete for a tighter budget and accomplish a higher volume of tasks, we need to show our accountability to fund providers. We know it's a catch-22 situation. We must admit that some staff get suspicious that their comfortable employment status of many years will be threatened. Many more libraries conduct performance measurements these days for different reasons. Some are political and some are practical and it has become a more accepted practice.

When I was going through the 1995 Proceedings of this Conference, what Van House said about "better us than them" (Van House, 1995) struck me as very wise advice to us all. I was pleased that we, the Collection Management Division (CMD) Team at USQ, actually started performance indicators measurement, with some encouragement from the Associate Librarian of CMD, before we were told to or before consultants were brought in to direct us to do so.

Technical Services, which is only a part of CMD in USQ's case, sometimes suffers an unfortunate reputation. They are in the back room processing books and hard copy journals day after day - not exactly a glamorous or fashionable task compared to demonstrating the latest electronic services to faculty members. But this Technical Services area is more noticeable when its work is not done correctly or in time, as also in the case of Lending Services performance. Some of our external students have a habit of leaving their requests for books or photocopies very late, then complaining that they could not finish the assignments in time because the Library was too slow in providing the resources they needed. On the other hand, it is considered normal if they can find what they need at the time they need it.

When good reference service is delivered face to face, clients notice it and show their appreciation to the staff members. Perhaps this is one of the reasons why many Technical Services staff members learned to live with backlogs as an accepted practice. New books get ordered and arrive all the time. There is no end to all this business, so why get so anxious about all that? One university library in Australia calculated that they had three years backlog of cataloguing work. Even if we accept that not all of these materials are needed now for the students, most of the new materials are available to students only after they finish their degrees.

The special emphasis on the development of electronic resources in our library can lead our users to an expectation that the latest resources can be available to students directly, without delay, if we cut out human intervention. It is not surprising if some libraries have downgraded the importance of excellent technical and lending services with this trend of development. But the wish that inefficiency of processing hard copies will be eliminated naturally with the introduction of electronic resources will not come true. This is because managing issues

like electronic resources, subscriptions, licensing, monitoring usage, measuring cost effectiveness, copyright, and providing bibliographic information to users is much more complicated and needs a much higher level of efficiency and knowledge about characteristics of the databases and delivery technology. We will discuss briefly the complexity of electronic service performance indicators at the end of this paper.

In some ways, timely provision of paper resources is becoming more important than ever because the users can compare the timeliness against accessing electronic resources. I will be the first librarian who is longing for the day when we have all serials that can be accessed electronically. Keeping up with the value of continued user confidence in our services is very important whatever the transit stage we are in. Clients expect all formats of library resources to be delivered to them more promptly than ever. Therefore, the value of regular performance measurement and making good sense of all data that we collect is not purely for the survival of the Technical or Lending services or for ensuring staff future employment. It is the future insurance policy of the library - its long term survival as a total business. As the majority of our clients still rely on hard copy materials, a large percentage of library activities are lending, returning, shelving or sending photocopies and books to external students.

But performance measurements should not be the beginning or the end of the process. The USQ University Librarian has been alert to the importance of fast delivery of hard copy materials until a time when the Library can deliver most resources electronically. She has given us much support and encouragement by approving extra funds to upgrade staff equipment and workstations. This support was offered when she actually saw the results of hard work through performance indicators and continuous improvement practice. Her support has enabled staff to work more efficiently. Who wants to invest valuable dollars in losing business? There were times when I felt I had inherited staff who had talents but were not given the opportunity to develop their potential properly. There were times when the University Librarian and I studied what re-engineering and out-sourcing could do for us. What we have tried, with success, is to give the staff a chance to excel themselves by offering them support. This support has enabled them to believe in their ability and worth, not to mention their satisfaction in their daily work. So performance measurement projects have to be conducted hand in hand with all other good practices. Performance projects themselves do not contribute to better services or productivity.

To receive our share of recognition and approval has not always been easy because of competing forces. The newly created Electronic Services Team has been working hard to get their share of the glory and reward. It was a breakthrough when we won the inaugural Vice-Chancellor's General Staff Award for Excellence in Process Improvement, a medal, a certificate and a A$5,000 cash prize. We are still enjoying this money for CMD staff development activities.

If I were to say that all CMD staff members showed as much enthusiasm as I did in these new practices and procedures, I would be lying. Some staff were upset, some were angry and some were critical. The belief of staff that they were doing their best, and how could they possibly improve more by a project such as performance measurement was the hardest obstacle to overcome. We emphasised again and again that procedures and process can be improved continuously. The often quoted quality theory that we should not aim for a higher level of productivity but aim for improving staff morale and procedures should be questioned. If the new procedures and higher staff morale do not achieve higher productivity and better client service at all, then the staff did not really improve procedures.

We have to go back to our continuous procedure improvement practice constantly. Some staff may have thought when Taisoo has had enough of these projects, she would move on to the next projects. They were wrong, because what we did not realise was the degree to which these projects had impacted on the whole library services, not only CMD operation. We had to work through a very delicate negotiation with Cataloguing staff to agree on their performance level (Appendix 1). Once this task was done, the staff realised that I was more interested in divisional effectiveness and better client services than individual staff member performance. This task came to be the immediate supervisor's responsibility. Also, the Acquisitions Team used an

established performance level to evaluate the performance of a temporary staff member.

3. HOW DID WE START THE PROJECT?

We did not start the first performance measurement until the second semester 1995, and it was in many ways a trial. This means we took nearly two years to prepare ourselves. However, we started by collecting one-page monthly CMD statistics on acquisitions and cataloguing from January 1994 and lending services from 1995. We have studied the statistics every month (Appendix 2a,b,c).

We use statistics and performance measurements to find areas we can improve further or where we should request an increased staffing level when the service volumes exceed the capacity of the existing staff after trying all possible improved procedures. Whenever there was a breakthrough and significant improvement, we have celebrated. The first occasion was during April 1994 when we managed to get rid of all the cataloguing backlog. That's when the University Librarian ordered a cake. We have kept up this good practice since then. I get really excited working with numbers and gradually my excitement started to spread to some other staff members though it has taken a few years. Many supervisors now suggest, themselves, how to improve the format and how to analyse the statistics to improve services. So collecting useful statistics and making use of them to improve the section performance/client service and uplift morale of the staff is the first step.

The staff have also been encouraged to ask:

- why are we doing this? Is this better for the library clients? How does it benefit the clients?
- is there any reason why we have to follow this particular procedure?
- are we utilising all possible technology and existing data bases to deliver the resources faster to our clients?
- how can we do better, faster and more?

We have eliminated a number of procedures. Checking all new resources by the Head Cataloguer when books were catalogued and processed was one of them. The Team members have become more responsible and more accountable for their correct input and quality output. This practice freed the Head Cataloguer to assist staff with training and to deal with more difficult resources cataloguing. We also reviewed all procedures from ordering, cataloguing and end processing. We gradually removed the barrier between Acquisitions and Cataloguing, managing to streamline the procedures and work as a unit.

During the process, constant redefinition of section roles and tasks have been carried out. ILL/DDS and Off Campus Service have been reviewed a number of times for practical and political reasons. Whenever a position becomes vacant, we try to restructure and reallocate tasks according to the level of efficiency and competency of staff members. Four positions were upgraded without any extra costs to the Library and this has achieved extra efficiency and productivity. In one case, a new position was created, but when the appointee left after two years, the position was not refilled. Also, a number of staff members were able to share positions with Reference Staff members. This has generally offered good opportunities to have contact with clients and to see how their hard work is appreciated. Also, CMD staff are given a chance to increase multi-skilling opportunities.

At the end of 1994, we believed that the Library staff were ready for more structured information workshops on quality issues and principles. Attendance at the Library Quality Sessions was voluntary and open to all staff. About 90% of full-time staff attended at least two of the six half-day sessions or the one-day compact session. We discussed:

- who are our customers? Do we serve them well?
- dealing with difficult people. Who are they?
- brainstorming skills;
- quality tools (flow and pareto charts, histograms, cause and effect diagrams etc.);
- ISO 9000 and Australian Quality Award.

We started these sessions with a Learning-Style Inventory. From the second session, Dr Norm Hughes was invited as co-facilitator. We spent some time identifying our customers, external and internal. The concept that the customer is the person in the next process and the person in the previous process has been introduced. We spent one entire session discussing level of services delivered by all Sections within the Library to their cus-

tomers. After this session, we carried out a survey with all Library staff about our own performance. The survey form that we used was based on the Macquarie University Library survey. When we felt comfortable discussing our services, both those that were satisfactory and those that needed improvement, we explored possible performance indicators projects that we could start measuring from 1995. But the first performance project did not start until the second semester of 1995. Looking back, I do not regret that we did not hurry but had nearly two years to prepare ourselves and to plan our project.

4. WHAT AREAS OF FUNCTIONS DO WE MEASURE?

During these sessions, the staff came forward with key performance indicators that we could start to measure:

- acquisitions and cataloguing turnaround time;
- shelving turnaround time;
- Library Admin Section tasks completion turnaround time;
- error rate of the library catalogue database;
- usage rate of hard copy serials.

Because the staff had opportunities themselves to suggest which areas of Library performance that we wanted to know about, conducting projects came to be accepted as a regular part of our life; there has been little opposition during the last two years. Since then, we have received a special fund (A$10,000) to add the Council of Australian University Librarians surveys and one other project:

- serials collection usage;
- library client congruence surveys;
- materials availability survey;
- turnaround time to deliver resources to Off Campus students;
- ILL/document delivery performance measures.

Appendix 3 shows current USQ Library performance measurements projects.

5. HOW DO WE MEASURE AND WHAT DO WE DO WITH THE RESULTS?

We used common sense rather than academic principles. We did not try to copy what other libraries have implemented as the only right way to go. Most of the checksheets were developed with staff members who are doing actual tasks. USQ Library performance projects are very practical, easy to implement, easy for the staff to carry out and, some of you might say, not conventional. They:

- should be simple for the staff to use;
- should require minimum time for the staff to complete;
- should be simple to collect and to do data analysis with.

They are mostly quantitative measurements so far. I hope to go back to Australia with more information on successful practices of qualitative measurements from this Conference.

Appendix 4a and Appendix 4b show the checksheets which staff use in Acquisitions /Cataloguing and Circulation sections. They are really simple to use. The Circulation Team members came forward with many new ideas and procedures to tackle never-ending tasks. Not only did they conduct shelving turnaround projects eight times a year, but they started to place little tags on each trolley informing us when the books on that trolley are checked in and when they are shelved. They decided to change sorting procedures. Then they suggested that if we had ten extra strong trolleys, they could improve the shelving turnaround time, by moving the trolleys to the Main Collection area from the Circulation area twice as fast. The University Librarian was convinced and I think she never regretted the investment of A$5,500. When the results showed that the shelvers simply could not cope with the increased volumes to shelve in spite of all the ingenuity and invention, the University Librarian made an agreement with the Students Guild in 1996 that we could spend some of the money collected from Library fines to employ extra shelvers. But she gave us a target to achieve: 24-hours turnaround time. As shown in Appendix 5a and 5b, it has worked. When a large number of books are returned on Fridays, we don't seem to achieve over 90% of shelving turnaround time because we don't hire shelvers during the weekend as the Library has to pay a higher penalty rate. However, a newly implemented Enterprise Bargaining Agreement means that we do not have to pay penalty rates on weekends and can therefore employ more shelvers on Saturdays and Sundays.

Again we are using the performance measurements result. (Appendix 6: shelving turnaround time.)

Consider the numbers of tasks that Off Campus Service staff have to perform:

- receiving requests by post, fax, telephone and e-mail;
- sorting them by category of materials and checking Library catalogue;
- gathering materials from shelves and photocopying journal articles;
- checking out to the students through the circulation system;
- including a note explaining why some books or articles can't be sent this time;
- packing and posting them.

During 1996, we satisfied 87.77% requests within seven calendar days. During the first semester of 1997, we increased the satisfaction rate to 95.15% within seven days. As a whole, the staffing increase did not match the increased requests volumes as is the situation in many libraries. (Appendix 7: statistics and performance measurements of Off Campus Services.)

In measuring turnaround time of ordering, accessioning, editing imported catalogue records or original cataloguing and end processing, a very interesting pattern emerged. Because the staff know from the monthly statistics that we are doing better and more than ever in total volumes, it was puzzling to see that one particular book took nearly 30 days when the other 421 books were accessioned within ten calendar days which is actually eight working days (Appendix 8a and 8b). So if we had used only our monthly statistics but no data from performance measurements, then we would have never known how long it takes for books to arrive from overseas suppliers or local suppliers or how many books wander around. Can we stop books wandering around? Neither would we know how well different imported catalogue records satisfy our needs. Again we use continuous improvement practice by studying the statistics and performance indicators in order to achieve a higher goal.

Some time ago, we received a question from a librarian: "What do you do with the results of the materials availability survey?". What we did was to analyse the results and share the tasks among the staff to work in each area. (Appendix 9: materials availability). That we are doing a little better than the Australian national average made us feel good:

54%: materials immediately available
12%: not in collection
Action: CMD/Ref Section to review the titles and order if relevant;

11%: user errors
1%: catalogue search
1%: location check
1%: items status check
Action: better catalogue search skills provided to users by Reference Services;

8%: shelf search
Action: better shelf reading and information by Circulation/Ref section;

14%: on loan
Action: CMD to check if extra copies are required;

9%: missing
Action: Acquisitions Section to check and re-order if they are relevant to USQ programs.

We have only one survey result so far, and we will continue for three years, once a year, during second semester. And we will compare the results and try to reduce particularly the user error rates (by better user education on cataloguing searches), and missing error (by tighter security control).

Library/client Congruence survey is the only survey where we have attempted qualitative as well as quantitative performance measurement survey. We used the format designed by the Council of Australian University Librarians (CAUL). Again we were comforted to know that our users' perception of USQ library service was a bit better than the national average score. We extracted user comments from surveys and circulated them to the senior staff members. There was much positive feedback as well as suggestions to improve services and facilities. Two main concerns were that they did not have enough new resources available and not enough PC workstations. We also revised the survey format somewhat in order to assess how many external students have facilities to access the Library's networked databases. This is the area that we should get into more, and divide the areas to improve customer service. We have not done so yet except in the Off Campus Students Survey (Appendix 10).

6. THE FUTURE

With the majority of our students being external, we are investigating suppliers' availability to download enhanced bibliographic records into our VTLS Catalogue System automatically. This facility will enable our external students to search our OPAC and request photocopies of chapters rather than a whole book. How are the cataloguing staff going to cope with editing much longer records?

Mounting a new booklist on web pages and extracting Wide Bay books catalogue records to download into the Hervey Bay City Library System has alerted us to cataloguing practice errors. Most of them are irritating errors such as dates and location numbers. We pass feedback to cataloguing staff constantly. But we do not have a systematic procedure to measure accuracy of catalogue records other than ad hoc feedback and a continuous improvement approach.

I have been informing the Deans twice a year for two whole years about serials usage surveys and what we are going to do with the results. When we publish the recommendations for cancellation because of very low usage, I hope they will be relieved to know that at last the Library is doing something with its famous surveys, rather than getting mad at us.

So what does the future hold after this successful story of USQ Library?

The Library managers have to recognise that all staff get tired after a number of years' hard work of measuring, collecting and analysing data constantly. Even though we employ temporary staff to conduct two major surveys, all other performance measurement projects are carried out with no extra staffing. And of course using the data wisely but in a shrewd way to encourage and motivate staff to perform better and deliver better services is a really hard task. As long as these projects show remarkable results and offer the staff a high level of satisfaction, we can sustain the hard work. But in whatever way we define the very successful two years achievement, it has been hard work for all of us involved, including me.

When we have three full years' performance of results, we should review the projects. We might decide to have a one-year break. This will coincide with the work on the extension. I welcomed the University Librarian's request to co-ordinate the Library extension work, because constant hard work does not always offer new challenges.

But what about the staff who have been working very hard for over three years, especially when the Collection Management Division staff notice that Electronic and Reference staff are trained and equipped with new skills to meet the new challenge of electronic library and flexible delivery? CMD staff are efficient in managing resources, mostly hard copies, at this stage. Some of the staff are involved with electronic reserve collection, electronic document delivery, and different ways of approaching the cataloguing of electronic resources. Another issue is licences and copyright, where we all know that electronic resources are more complicated than hard copy materials. I feel also a responsibility to offer opportunities to the CMD staff to become knowledgeable in some areas of this electronic development. I initiated and helped to design an evaluation of electronic/ Internet databases/resources. This was well received because it helps Electronic and Reference staff to select electronic resources more efficiently. We have to make sure that our Library resources budget is used most cost effectively as possible.

In their final report on management information systems and performance measurement for the electronic library, Peter Brophy and Peter M. Wynne divide the electronic library decision areas which managers will counter as follows (Brophy and Wynne, 1997):

- resources discovery: *ease use of OPACs, which bibliographic indexes to provide?* clumps;
- resources delivery: speed and *agreement for document delivery, co-operative agreements*;
- resource utilisation: conversion of software, emerging document formats, software tools;
- infrastructure provision: availability of PCs, number of networked PCs, *development of off-campus infrastructure*;
- resources management: peaks in demand for services, *predicted costs of alternative services, IPR legislation for electronic sources.*

I have put in italics those areas where the Collection Management Division can be more

responsible and help the USQ electronic library service to be more cost effective and efficient.This will free the Electronic and Reference staff from the daily nitty-gritty detail of management issues, so that they can devote more time and energy to be more innovative and to deliver excellent services to clients. For example I drafted a letter asking for a refund to one of our electronic database suppliers when the service was unavailable for three months early this year. We received a reply that they would give us a credit of A$18,692. I calculated the amount that I believed that they owed us. On receiving database usage statistics from Electronic Services, I worked out that it costs the Library A$77.53 per hour for this particular electronic database service. In a very informal way, we have started already to measure electronic resources effectiveness. Also I have been saving all messages on databases' downtime, with the thought that one day this information might be useful.

Should we catalogue all full-text database journals individually or collectively? Should we attach the Library journals holdings to indexes? Brophy and Wynne suggested a number of areas that can be measured in efficiency, effectiveness and economy in electronic resources and services; I list the following functions as starting points because it is easier to measure their efficiency than other functions (Brophy and Wynne, 1997):

- number of "hits" per service per month;
- queuing times for access to workstations;
- downtime (as % of total time) per month;
- pages of print per month: can obtain;
- number of enquiries received per day (on electronic resources?);
- number of sessions on each service/subscription cost;
- number of helpdesk enquiries per staff day.

Electronic and Reference Services staff have been collecting data on some of the above functions. The CMD should record the number of documents delivered to faculties when we obtain them through commercial agencies/databases.

The CMD staff with a few years' experience in performance measurement can assist other areas of Library staff when they start performance measurement more systematically.

The staff in CMD should not try to be second-rate electronic experts, but we should find a role using our skills of managing resources and budget with efficiency.

Acknowledgements

Madeleine McPherson, the University Librarian, for her full support and encouragement from the beginning of our performance journey;
Jennifer Redding and Lending Services Team Members for planning, coordinating and conducting surveys;
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Jenny Pendlebury and Acquisitions Team Members for introducing continuous improvement practices in all procedures with excellent results through the journey;
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John McArthur, Director - University Staff Development Office, for his encouragement;
Helen McBreen, CMD, for her help in compiling this paper;
Dorothy Baker and Annmaree August, Library Admin, for their assistance;
Rod Shannon, EIS, for compiling the finished product;
and Norm Hughes, Associate Director-DEC, for his support and help during our journey.

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Appendix 1

USQ LIBRARY CATALOGUING TEAM

New Personal goal per year for 1996

30 items per day x 5 days per week x 38 weeks per year = 5700

1995 USQ Cataloguers Goal as agreed at the Meeting 28 March 1995

Personal Goal

20 items per day x 5 days per week x 38 weeks per year = 3800
(3 original + 17 editing = 20)

Section Goal

3800 x 5 EFT = 19 000 : Section goal per year

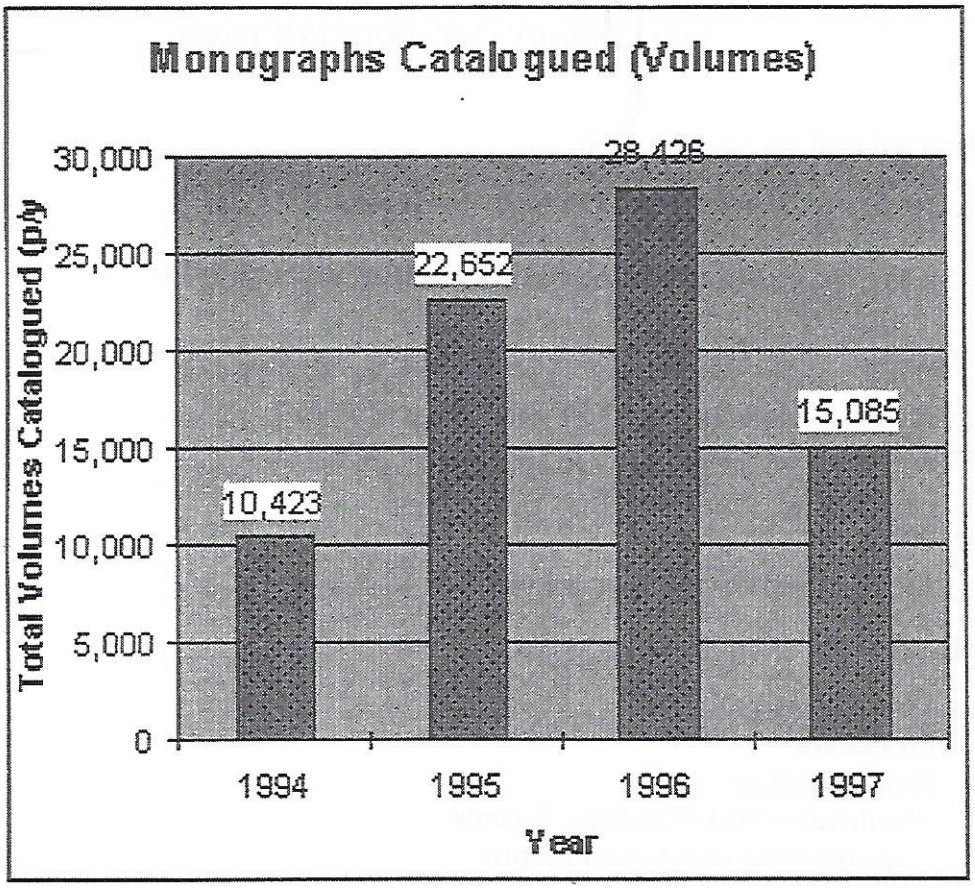
52 weeks per year

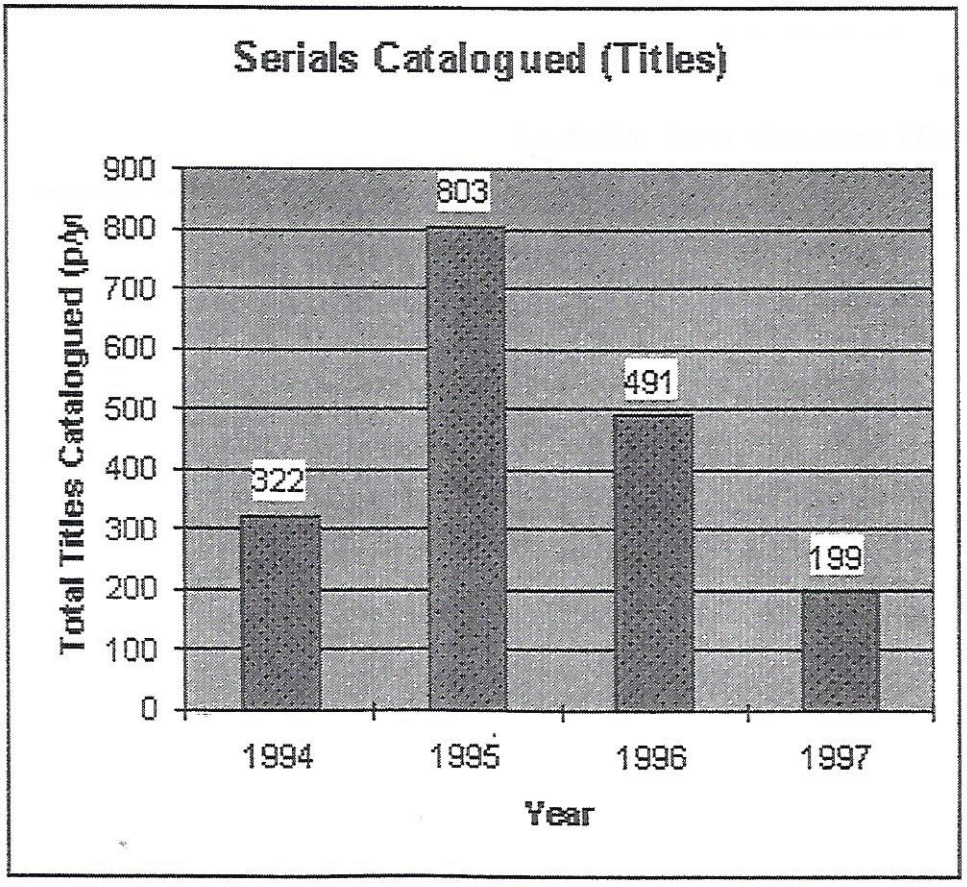
4 weeks Annual Leave
1 Sick Leave
2 Public Holidays
2 Maintenance Work (Catalogue Records)
2 Authority Work (Catalogue Records)
2 Staff Development
1 Staff Meeting etc.

14 weeks

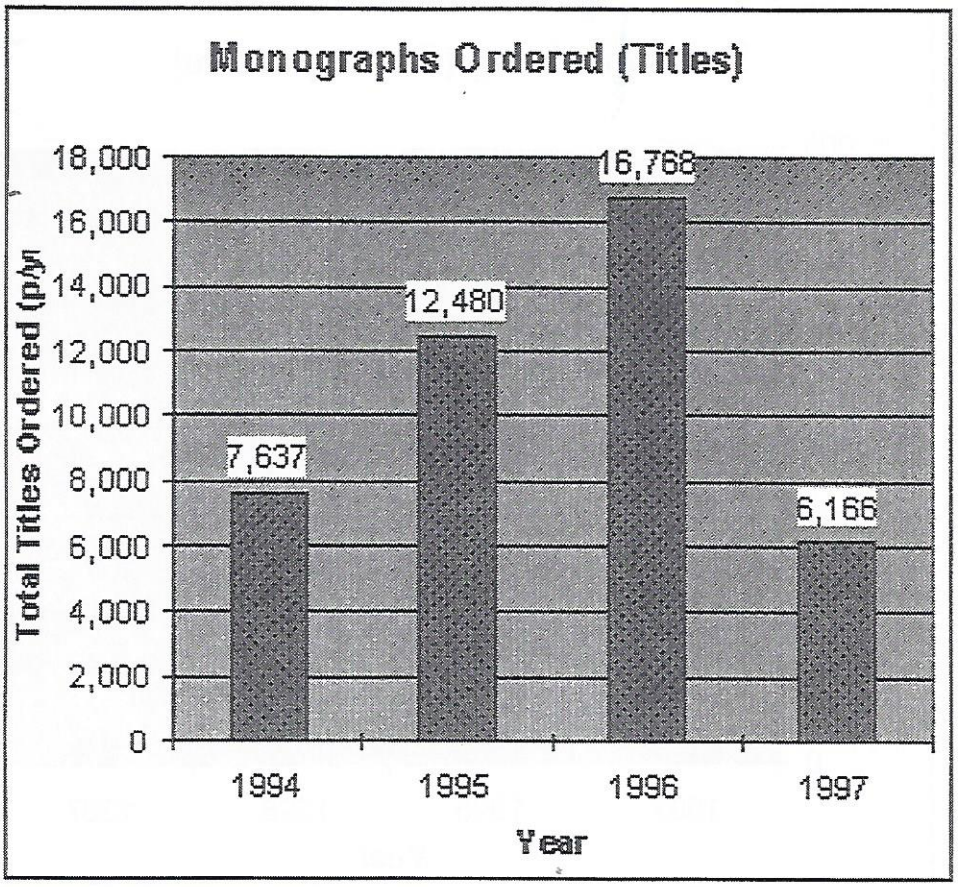
52 - 14 = 38 weeks to do actual cataloguing

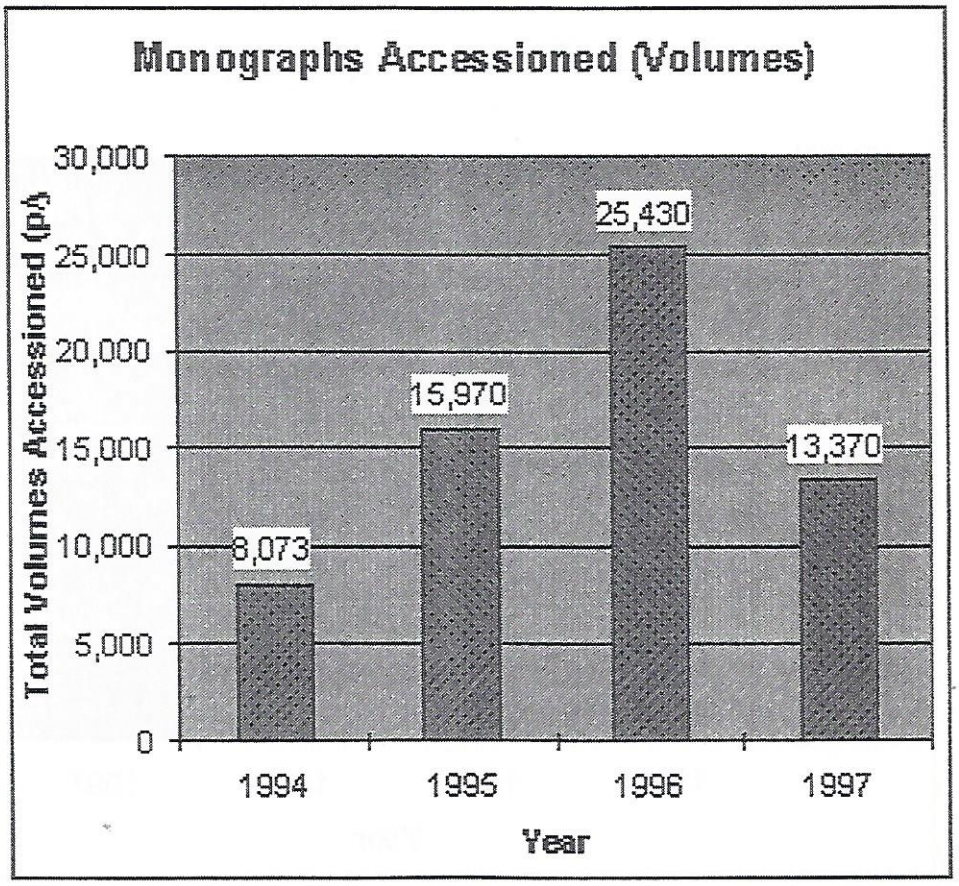
Appendix 2a


Monographs Catalogued (Volumes)
Total Volumes Catalogued (p/y
30,000
25,000
20,000
15,000
10,000
5,000
0
10,423
22,652
28,426
15,085
1994
1995
1996
1997
Year

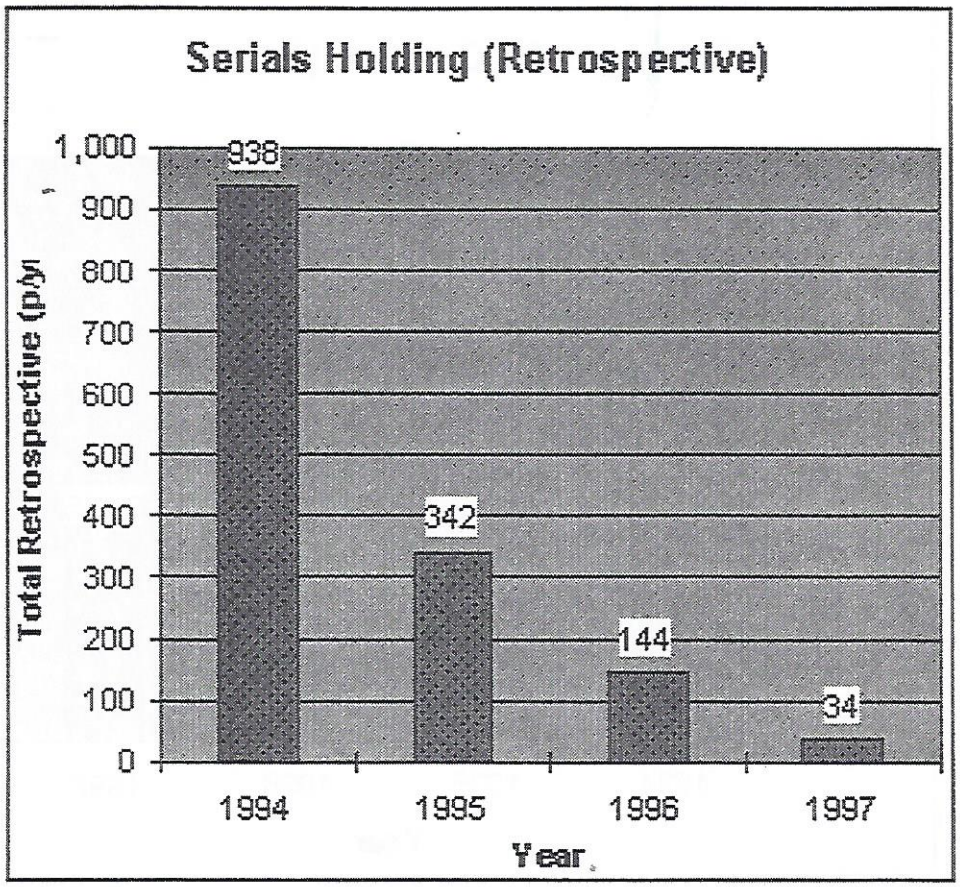

Serials Catalogued (Titles)
Total Titles Catalogued (p/yr
900
800
700
600
500
400
300
200
100
0
322
803
491
199
1994
1995
1996
1997
Year

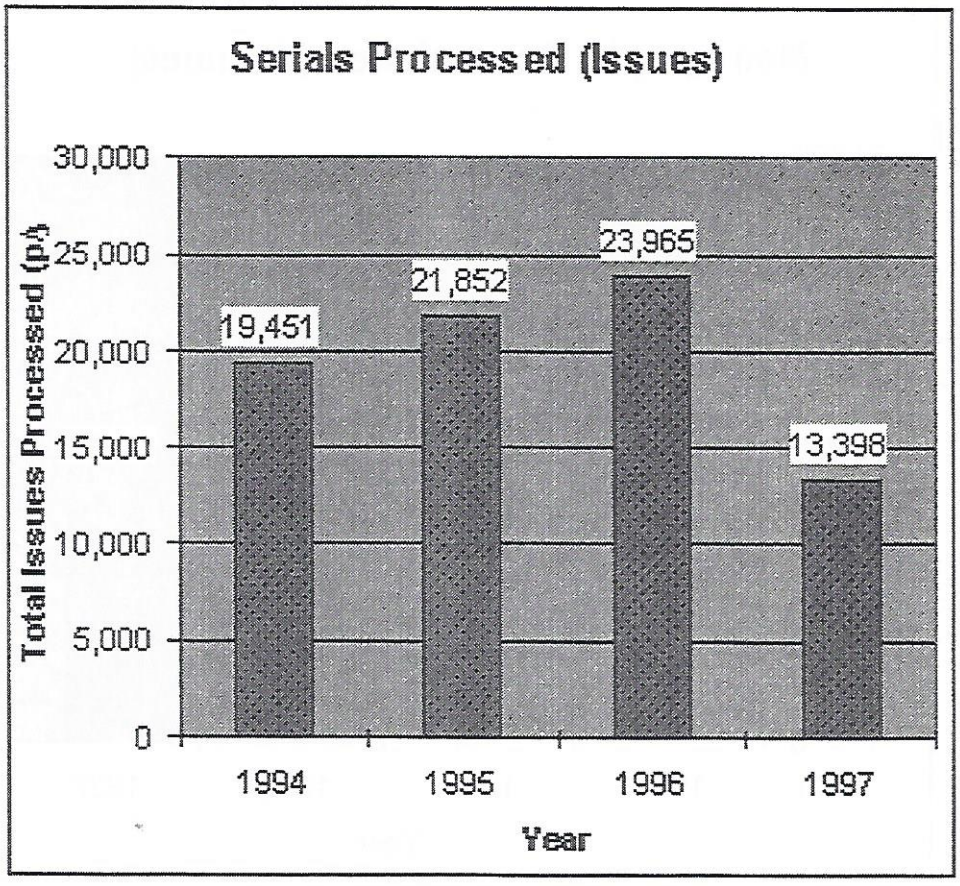
Appendix 2b


Monographs Ordered (Titles)
Total Titles Ordered (p/y
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
7,637
12,480
16,768
6,166
1994
1995
1996
1997
Year


Monographs Accessioned (Volumes)
Total Volumes Accessioned (p/y
30,000
25,000
20,000
15,000
10,000
5,000
0
8,073
15,970
25,430
13,370
1994
1995
1996
1997
Year

Appendix 2c


Serials Holding (Retrospective)
Total Retrospective (p/yr
1,000
900
800
700
600
500
400
300
200
100
0
938
342
144
34
1994
1995
1996
1997
Year


Serials Processed (Issues)
Total Issues Processed (p/y
30,000
25,000
20,000
15,000
10,000
5,000
0
19,451
21,852
23,965
13,398
1994
1995
1996
1997
Year

Appendix 3

USQ LIBRARY
CURRENT PERFORMANCE MEASUREMENT PROJECTS

	Started	Frequency	Note
Acquisition cataloguing	1995 second semester	twice a year	- 500 samples - in-house designed procedures - practical and easy to use
Shelving turnaround	1995 second semester	8 times a year for 5 days	- one in 10 returned materials - one in 5 in-house used materials - in-house designed procedures - practical and easy to use
Serials usage survey	1995 second semester	6 times a year for 5 days	- shelvers tally each issue/volume on a printout of serials list - need analysis for cancellation in 1998
Library clientele congruence surveys - on site - with staff - off campus	1996 second semester	3 separate surveys once per year during second semester	CAUL Project
Materials availability survey	1996 second semester	once per year during second semester	CAUL Project on site
Off Campus	1995	each semester	CAUL Project
ILL	1996	each semester	CAUL Project

Appendix 4a

1997
University of Southern Queensland

Library Quality Program
May 1997
"Continuous Improvement"

"Let's show them!"

Acquisitions/Cataloguing
(Purchased materials)

Order no:
Supplier:

1. Requisition received

_____/May, June, July, Aug, Sept, Oct, Nov, Dec.

2. Order placed

_____/May, June, July, Aug, Sept, Oct, Nov, Dec.

3. Item received

_____/ May, June, July, Aug, Sept, Oct, Nov, Dec. 1998 Jan, Feb,March,April

4. Item accessioned

_____/ June, July, Aug, Sept, Oct, Nov, Dec. 1998 Jan, Feb, March, April, May

5. Catalogued: when

Duplicates: _____/_____
Bibliofile edit: _____/_____
ABN edit: _____/_____
First Search: _____/_____
Original cat: _____/_____

6. End processing

_____/ June, July, Aug, Sept, Oct, Nov, Dec.1998 Jan, Feb, March, April, May.

1997
University of Southern Queensland

Library Quality Program
May 1997
"Continuous Improvement"

"Let's show them!"

Acquisitions/Cataloguing
(Purchased materials)

Order no:
Supplier:

1. Requisition received

_____/May, June, July, Aug, Sept, Oct, Nov, Dec.

2. Order placed

_____/May, June, July, Aug, Sept, Oct, Nov, Dec.

3. Item received

_____/ May, June, July, Aug, Sept, Oct, Nov, Dec. 1998 Jan, Feb,March,April

4. Item accessioned

_____/ June, July, Aug, Sept, Oct, Nov, Dec. 1998 Jan, Feb, March, April, May

5. Catalogued: when

Duplicates: _____/_____
Bibliofile edit: _____/_____
ABN edit: _____/_____
First Search: _____/_____
Original cat: _____/_____

6. End processing

_____/ June, July, Aug, Sept, Oct, Nov, Dec.1998 Jan, Feb, March, April, May.

Appendix 4b

PLEASE DO NOT REMOVE THIS SLIP

University of Southern Queensland

Library Quality Program

"Continuous Improvement"

Lending Services Section
1997

Books..... ❑

Reference Materials..... ❑

Serials (periodicals)..... ❑

Others (A/V etc)..... ❑

Collected in the Library
Shelved in temporary shelves

(only one in 5 all materials)

_____ Mar/Apr/May/Jun

AM ❑ PM ❑

Sorted

_____ Mar/Apr/May/Jun

AM ❑ PM ❑

Shelved/Borrowed

_____ Mar/Apr/May/Jun

AM ❑ PM ❑

10 - 14 Mar
14 - 18 Apr
12 - 16 May
16 - 20 June

University of Southern Queensland

Library Quality Program

"Continuous Improvement"

Lending Services Section
1997

Checked in
(only one in 10 all materials)

_____/Mar/April/May/June

AM ❑ PM ❑

Sorted

_____ Mar/Apr/May/Jun

AM ❑ PM ❑

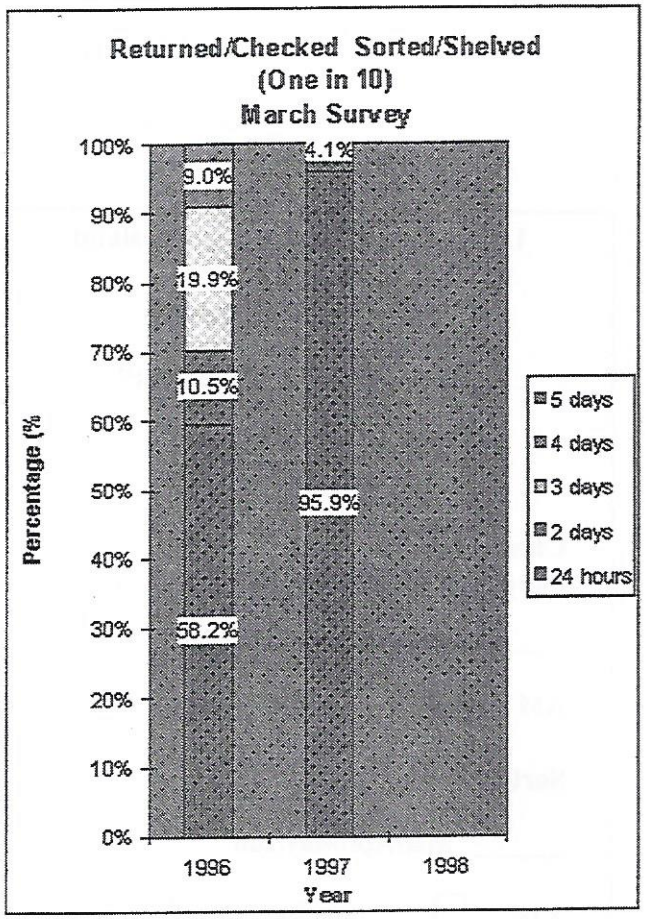
Shelved/Borrowed

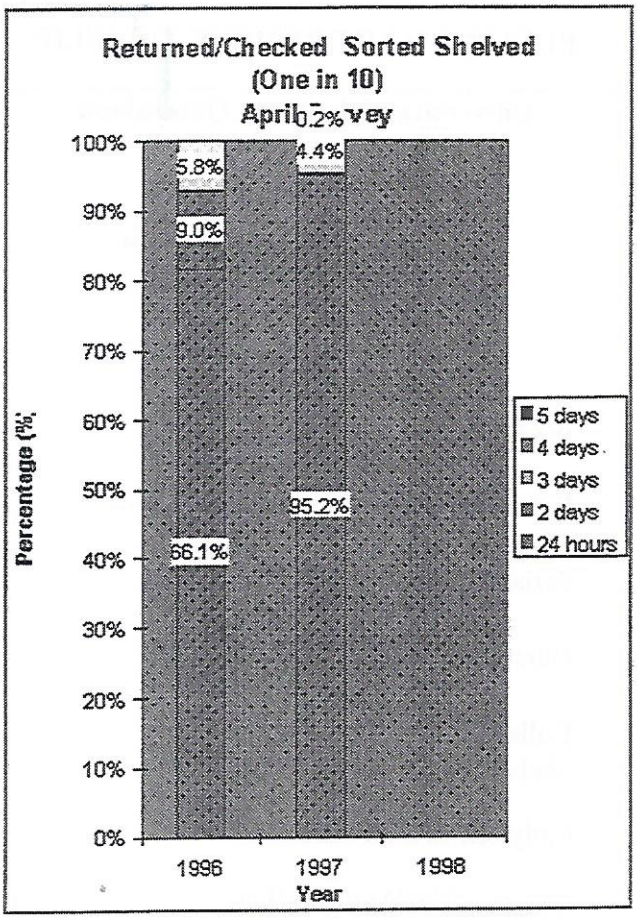
_____ Mar/Apr/May/Jun

AM ❑ PM ❑

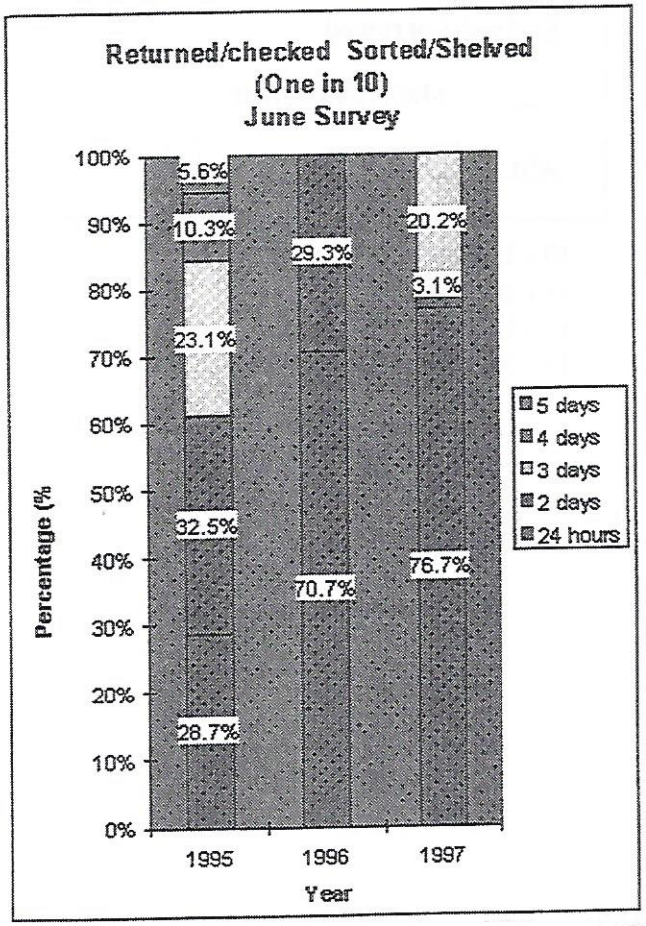
10 - 14 Mar
14 - 18 Apr
12 - 16 May
16 - 20 June

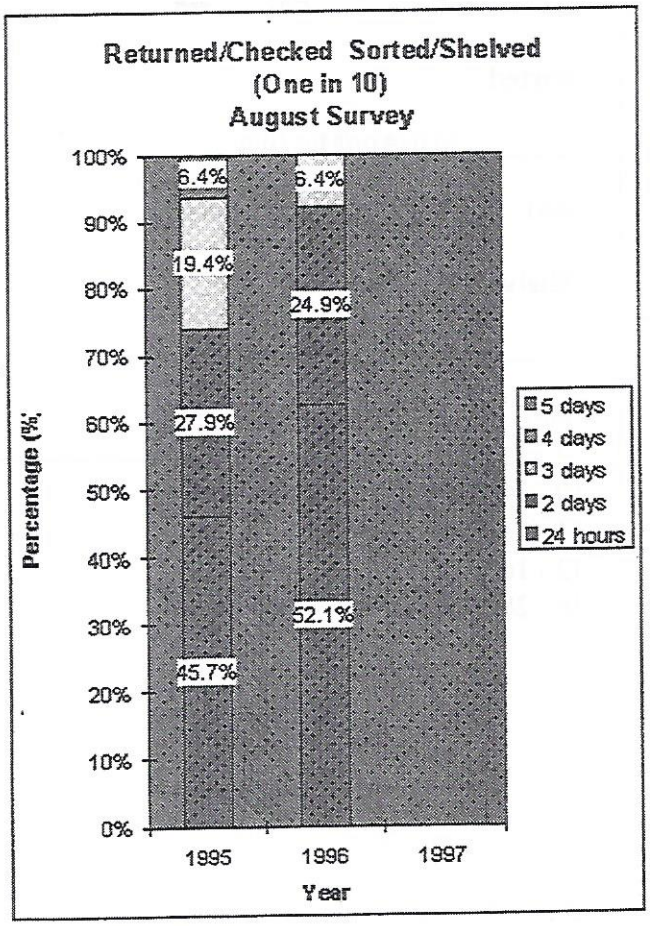
Appendix 5a





Appendix 5b





Appendix 6

USQ LIBRARY
SHELVING TURNAROUND TIME

	Total Books/ Serials shelved (approx)	Total Loan Nos.	Annual Staffing Hours to shelve Temp	Perm	Shelving done (%) within 24 hrs
1995	205 000	186 100	1097	580	37.20%
	(122 vols/hr)		(1677)		
1996	313 100	194 700	1712	580	61.78%
	(131 vols/hr)		(2292)		
1997	329 000	126 700	2687	580	89.27%
	(101 vols/hr)		(3267)		
	based on	To June			
	4 surveys	1997			
	in 1997				

Note: Eight one-week surveys are conducted during the same periods in each year. About 580 hours of Loans desk staff hours per year are spent on shelving duties.

Appendix 7

USQ LIBRARY
OFF CAMPUS SERVICES

	Requests Received			Total Staff	Requests	Transaction
	Books	Photocopies	Total	hours/year	satisfied	Nos/staff hr
1995						
Jan - June	2313	2862	5175			3.24/hr
July - Dec	2197	4180	6377			4.0/hr
Total	4510	7042	11552	3194 hrs	87.54%	3.62/hr
1996						
Jan - June	3238	4025	7263			4.05/hr
July - Dec	2875	5083	7958			4.44/hr
Total	6113	9108	15221	3583 hrs	87.77%	4.25/hr
1997						
Jan - June	2947	5408	8355		95.15%	4.15/hr
July - Dec	?	?	?		?	?
Total				4025 hrs		

Note: Off Campus staff help with a part of ILL tasks and Loan desk duties. These hours are subtracted from their total employed hours.

Appendix 8a

University of Southern Queensland
Library Continuous Improvement Program -Feb 1996
Acquisitions/Cataloguing
Purchased Materials

	1 Day or Less	2 Days	3 Days	4 Days	5 Days	6-10 Days	11-15 Days	16-20 Days	21-25 Days	26-30 Days	31-40 Days	41-50 Days	51-70 Days	71+ 130 Days	131-149	150-	Total
Requisition ↓																	
Order Placed ↓																	
Items Received ↓	1 (0.22%)					5 (1.08)	7 (1.51)	2 (0.43)	16 (3.44)	13 (2.80)	73 (15.70)	76 (16.34)	107 (23.01)	117 (25.16)	15 (3.23)	33 (7.10)	465
Accessioned ↓	185 (43.84)	54 (12.80)	40 (9.48)	19 (4.50)	37	86 (8.77)	(20.38)			1	(0.24)						422
Cataloguing																	
Duplicates Added	4		1	2		2											9
Bibliofile	93	63	36	29	30	84	24		1		1						363
ABN	9	2	2	1	4	9	4	2	1		1		1	2			39
Original	1			1			2	1		1	1		1	3			8
Total	107 (25.54)	65 (15.51)	59 (14.08)	33 (7.88)	34 (8.11)	95 (22.67)	30 (7.16)	3 (0.72)	2 (0.48)	1 (0.24)	3 (0.72)		2 (0.48)	5 (1.19)			419
End Processing	90 (19.87)	11 (2.43)	28 (6.18)	55 (12.14)	57 (12.58)	172 (37.97)	32 (7.06)	5 (1.10)	1 (0.22)	2 (0.44)				1 (0.22)			453

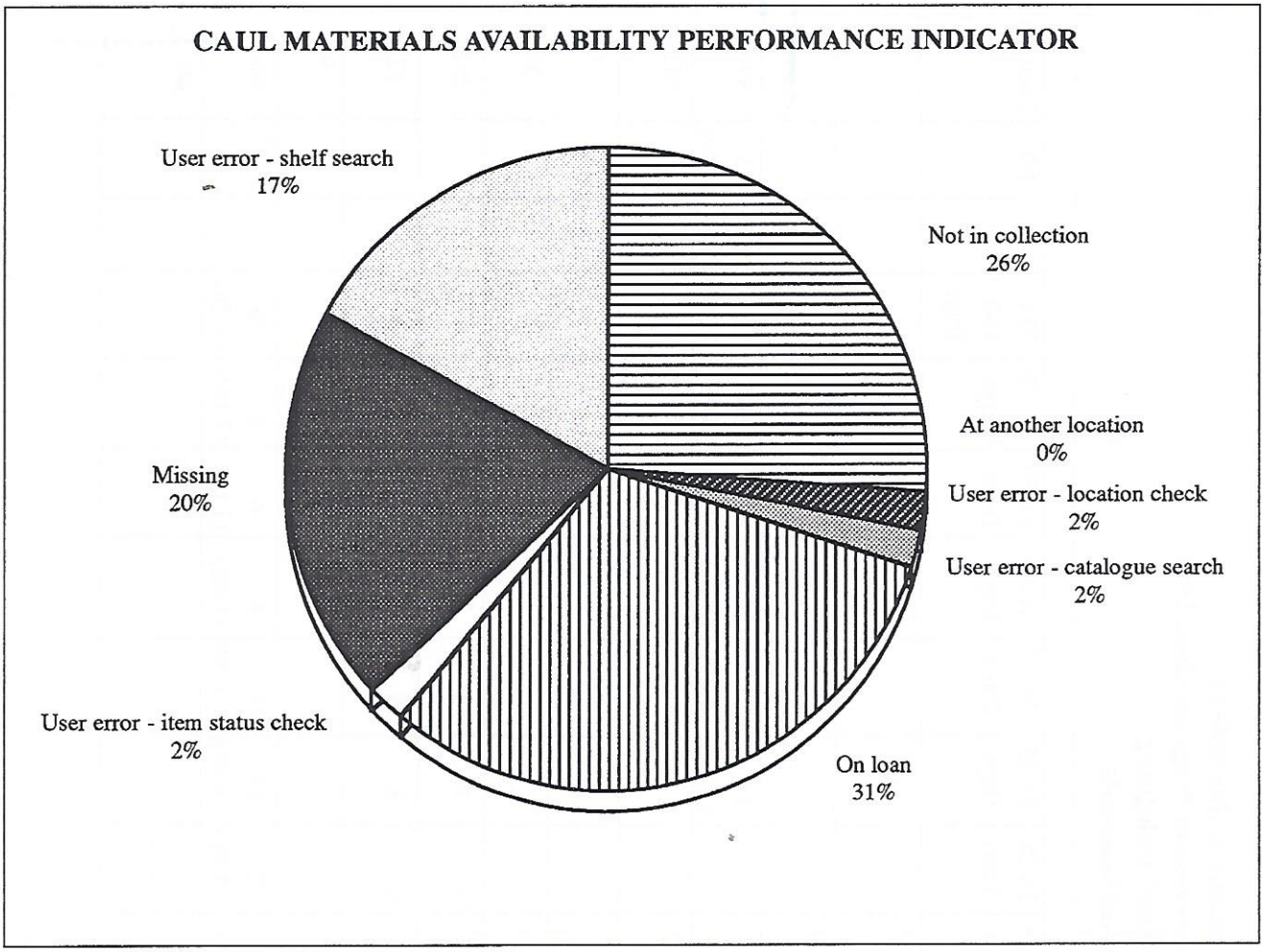
Days: Calendar days, not working days Cancelled Orders: 24

University of Southern Queensland
Library Continuous Improvement Program -June 1996
Acquisitions/Cataloguing
Purchased Materials

	1 Day or Less	2 Days	3 Days	4 Days	5 Days	6-10 Days	11-15 Days	16-20 Days	21-25 Days	26-30 Days	31-40 Days	41-50 Days	51-70 Days	71+ 130 Days	131-149	150-	Total
Requisition ↓																	
Order Placed ↓																	
Items Received ↓									12 (3.24)	15 (4.05)	25 (6.76)	82 (22.16)	110 (29.73)	96 (25.95)	19 (5.14)	11 (2.97)	370
Accessioned ↓	42 (11.93)	183 (51.99)	31 (8.81)	20 (5.68)	46 (13.07)	30 (8.52)				1 (0.24)							352
Cataloguing																	
Duplicates Added	13	2	4	1	2	4	2					1		2			31
Bibliofile	31	24	23	36	17	65	28	18	7	3	3	1	2	4			262
ABN	3		1	4	7	10	9	4	8	5	3	3	6	9			72
Original							7					1		1			9
Total	47 (12.57)	26 (6.95)	28 (7.49)	41 (10.96)	26 (6.95)	79 (21.12)	46 (12.30)	22 (5.88)	15 (4.01)	8 (21.39)	6 (1.60)	6 (1.60)	8 (2.14)	16 (4.28)			374
End Processing	44 (12.90)	59 (17.30)	16 (4.69)	33 (9.68)	85 (24.93)	93 (27.27)	10 (2.93)	1 (0.32)									341

Days: Calendar days, not working days Cancelled Orders: 24

Appendix 9


CAUL MATERIALS AVAILABILITY PERFORMANCE INDICATOR
User error - shelf search
17%
Not in collection
26%
At another location
0%
User error - location check
2%
User error - catalogue search
2%
Missing
20%
User error - item status check
2%
On loan
31%

Appendix 10

USQ LIBRARY SURVEY OF OFF CAMPUS STUDENTS
OCTOBER 1996

During October 1996, The USQ Library conducted a Survey with Off Campus students under the title: **How satisfied are you with the Library and its service?**

A total of 530 questionnaires were sent out to Off Campus students. They were sent to students who had requested subject searches, books or photocopies during Semester 2 1996 and we received 262 (49%).

A total **159** comments were recorded on the Survey.

Very positive comments (65) 41%
Service is excellent, staff are efficient and helpful, turnaround time is good and resources are suitable for their study, free call service is good, bag room is good

Staff are good but . . (9) 6%
Off Campus Library staff helpful but turnaround time is too slow due to limited staffing level, lack of library materials or too short borrowing period (eg. video)

Strong concerns on results (46) 29%
Slow turnover of books, journal articles and subject searches. Students don't receive notices on progress. They receive materials after the due dates of assignments. Students messages are not responded to within a reasonable time

Complaints on procedures (16) 10%
Complaints for paying postage cost to return books (one student wrote s/he limits the book request for books because of this cost), overdue fines and short loan period (esp. video), lack of information on facilities, library skills, borrowing/returning procedures and requesting

Electronic information (6) 4%
USQ (online) catalogue is not easy to use (1), don't have a Computer and modem (2), was unable to log into the library catalogue through the computer (1)
Have access to ABI and use it (1)
Needs information how to use the electronic connections (1)

Other comments not directly on Off Campus Library service (16) 10%

The Uses of Performance Measures and their Impact upon Academic Library Management Practice: The Evolution of a Research Idea

Lawraine Wood

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The original purpose of this research was to investigate the uses of performance measurement in UK academic libraries. The project was to shed light on issues concerning the implementation of performance measures, by reviewing current trends in management practice, collecting data on how measures are used, and investigating the ways in which the management of libraries is perceived to have changed as a result of introducing performance measurement. The areas to be considered were: management style, organisational structure, operational procedures, and human resource management. The paper describes challenges to be addressed before the research can proceed: the project is too large, the topic is sensitive, and change has been pervasive. A new aim for the project is outlined, to construct a picture of the effects on academic libraries of external policy changes.

Two years ago, I asked some colleagues who had recently been promoted to their first posts as Head of Library Services, what they considered to be their biggest problem. After an initial reaction of surprise at what was possibly a naïve question, there came the answer:

> "The rapidity of change means that it is very difficult to plan anything: everything consists of short-term fixes".

This answer caught my imagination as I pondered, not for the first time, the difficulties of running a large academic library. Change, in fact, has been so central to academic libraries, that it is now difficult to remember a life when things were relatively stable. During the Eighties, the Conservative Government's reforms changed the whole face of universities, so what has happened in libraries is only symptomatic of a bigger picture.

We are lucky that Chief Officers in academic libraries have a strong tradition of reporting their latest concerns. An overview of recent literature indicates that academic librarians have a number of preoccupations. These include issues such as the introduction of Total Quality Management initiatives (Brophy and Coulling, 1995) and the associated Investors In People and staff development programmes (Oldroyd, 1994), the ever present challenge of IT strategies and the convergence of libraries with computer centres (*Relay . . ,* 1995) and, of course, performance measurement.

Colleagues working in UK academic libraries need no reminders of the sequence of events; however, for the benefit of non-academic librarians, I will briefly run through the main events that have had an impact.

The rationale behind the increasing pressure from government for universities to change was that they should be more accountable. The formal process began with the government Green Paper of 1986, *The Development of higher education into the 1990s* and the Committee of Vice-Chancellors and Principals (CVCP) response, *The Future of universities*. The basis for funding was changed, universities' internal management structures were overhauled, and huge amounts of cash were made available for IT development.

For libraries, this process culminated in The Follett Report on the state and future of higher education (HE) libraries (Joint . . , 1993). Follett was the most significant report since the Atkinson Report (University Grants Committee, 1976), in that it prescribed how academic libraries should be developing for the foreseeable future. Derek Law foresaw that its impact was likely to be great when he commented,

> "The sums of money to be spent . . . dwarf anything seen in our professional careers and are unlikely to be repeated . . . This is both the biggest professional challenge and opportunity we face to change and redirect the future of academic libraries for at least another generation." (Law, 1994)

The main impact of Follett has been in the development of IT infrastructures. The report generally

has been well received by the academic sector at large, since it recognised the centrality of the library in serving the information needs of students and staff. One of its main conclusions was that a coherent and generic set of performance indicators be developed as soon as possible.

The Standing Conference on National and University Libraries (SCONUL) and the Joint Performance Indicators Working Group (JPIWG), worked together to provide a meaningful set of indicators for libraries with the recommendation that they be generally adopted for use in the academic year 1995/96 (Joint . . , 1995). A concern of the group was that measurements should reflect quality as well as quantity, but there were serious concerns that precautions should be taken to protect the use of these indicators so that they were not open to being used out of context, or misconstrued. The recommendations made in this consultative document have already been criticised in some quarters as placing extra burdens on already stretched library staff, and for duplicating some measures which have already been requested by the Higher Education Quality Council (HEQC) auditors and Higher Education Funding Councils (HEFC) assessors. Since then we have seen the publication of ISO 9000, but some academic librarians are not happy with this "basket" approach to measurement since they feel it does not necessarily reflect local factors.

Measurement is generally not without its critics. The stance of many critics is typified by Caulkin who noted in the *Observer*,

> "Most management measurements are actually stand-ins for qualities that are intangible or indirect. The trouble starts when these intermediate targets are taken literally or as ends in themselves, which at best misleads, at worst damages and distorts." (Caulkin, 1995)

There is a suggestion that if hoops are set up, then organisations will devote all of their energies to jumping through them, at the expense of actually providing quality. He cites the example of British Rail setting easier to meet targets by lengthening its journey times.

So, given these diverging views, I have been interested in how performance measurement is viewed in practice by academic librarians. My research interest in performance measurement coincided with my interest in how academic libraries are managed. I began to think that it might be interesting to see how an agent of change, of which performance measurement is an example, might be studied in terms of its impact on the management of an organisation.

When I turned to the literature, I discovered that major research studies of academic library management practice are thin on the ground, although there have been some discussions on aspects of the topic from time to time. Notable have been Brophy's paper on organisational decision-making (Brophy, 1986), Line on structures (Line, 1991) and, more recently, Gumilar and Johnson's work on how extensively Management Information Systems are used for decision-making (Gumilar and Johnson, 1995).

My research idea was intended to shed light upon issues concerned with how academic librarians have responded to the need to implement performance measures focusing upon whether, and how, such a major change affects the way in which they choose to manage.

The emphasis of my investigations was to be in four areas of management.

FOUR AREAS OF MANAGEMENT

1. Management Style

How much evidence in reality is there to support the trend reported in the literature to more democratic styles of decision-making?

Writings on management style suggest various "dimensions":

- people vs task orientation - the extent to which the manager emphasises relationships with people as against getting the job done;
- directive vs laissez-faire - the extent to which the manager directs staff as against the extent to which he lets them get on with the job in their own way. This dimension is sometimes seen in terms of an autocratic-democratic continuum, and/or a distinction between structuring and supporting styles. This is usually determined by the personality of the manager, who tends, according to McGregor, to see people either as X types, who have to be coerced, or Y types, who enjoy work and responsibility (McGregor, 1961);

- degrees of psychological distance - the distance a manager sets between himself and his staff. This might be viewed in terms of an aloof-intimate continuum.

Hersey and Blanchard's situational leadership model is perhaps the best illustration of these dimensions. The model examines the people/task dimension but suggests that the extent to which a manager should be people or task orientated depends upon the degree of maturity of the subordinates. By maturity we mean the ability to set and pursue goals for themselves (Hersey and Blanchard, 1977).

General management literature of the 1980s emphasised the need for organisations to be more people centred in their approach. Peters and Waterman, for example, argued that organisations could only be truly successful by involving staff at all levels in the decision-making process, and this is really only successful where true participative management is practised (Peters and Waterman, 1982). To what extent, then, are these trends apparent in academic libraries? What is the most predominant style in evidence? To what extent are decisions delegated?

2. Organisational Structure

What evidence is there to suggest that management structures have become flatter? Again the general trend in the outside world has been towards flat, or matrix styles of management. Matrix styles of organisation combine project groups with functional areas. Project groups are usually set up for a specific purpose and may disband once their mission has been accomplished. In this structure, a person has two supervisors - a project manager and a function manager. The structure is viewed as the best way of bringing about change. The positive features of matrix management are that it combines the best features of both project and function types of management; they are flexible, but they emphasise task specialisation and are generally thought to foster innovative solutions. The negative features are that there may be a conflict between project and function over resources, and it encourages competitiveness within an organisation.

Flat structures have become more popular as an antidote to too many layers - they are much less bureaucratic, since fewer managers review or filter decisions of those higher up. These structures are popular because they reduce staff costs, speed up decision-making and generally improve organisational effectiveness. They also mean that people at a lower level take greater responsibility for a wider range of duties. The downside is that people at all levels are overworked.

Some commentators such as Thompson have noted the changes brought about by the introduction of technology, where the introduction of problem-solving work groups evoked a change from traditional autocratic decision-making models to more democratic involvement of senior staff (Thompson, 1991).

The project would investigate the kind of structures that are in place in academic libraries. Has performance measurement been viewed as a project, for example? Have any changes been implemented as a result, and if so, what? More interestingly, how do academic librarians feel about these structures, and are their feelings reflected amongst lower levels of staff?

3. Operational Procedures

With the need to introduce or revise performance measurement collection methods, has there been a need to change operational procedures, and exactly what use is being made of Management Information Systems and other data collection software? This is a purely internal area of investigation, with no reference to general management literature. I was hoping rather to collect data on current practices.

4. Human Resource Management

How has change affected the way in which people are managed? Libraries have followed external trends in introducing staff development and appraisal programmes. To what extent have these mechanisms been used to introduce a change such as performance measurement, and to what effect? Anecdotal evidence suggests that in one library, attempts to introduce the benefits of performance measurement fell flat, but when they were re-introduced as part of a total quality programme, the programme was accepted much more readily by staff. Approaches such as these would be the subject under study.

At the moment, detailed information on the management practices described simply does not exist in one place. I felt that this research would be an important contribution to a picture of academic library efficiency that would be of interest not only to academic librarians, but also to policy makers.

As I stated at the outset, a further dimension of the research would have investigated the ways in which academic librarians actually use the results of a performance measurement exercise. For example, is the exercise fully embraced as part of a much larger quality programme, or is it regarded as just another management fad which has to be fulfilled for political purposes? I would be interested to know the general view of all academic librarians. Is it the same as those who publish papers and turn up at conferences?

AIMS

The aims of this project are:

- to review the literature describing current trends in management practices in UK academic libraries;
- to collect data on the uses to which performance measures are put, and the views of academic librarians on the overall usefulness of the exercise itself;
- to investigate the ways in which the management of academic libraries is perceived to have changed as a result of the introduction of performance measures. Four areas will be considered: management style, organisational structure, operational procedures, human resource management.

METHODOLOGY

A thorough, comprehensive and ongoing literature review is ongoing to identify all material relevant.

Data collection would take place through questionnaires, which would be sent to all UK academic libraries, and through structured interviews with a representative sample of academic librarians. Care would be taken to ensure that a reasonable distribution of the different "types" of academic institution was included. I was anticipating that two or three of those being interviewed might form the basis of case studies.

EXPECTED OUTCOME

The purpose of the research was to determine the effects of the introduction of performance measurement on academic library management practice, and to identify areas where these effects are significant. I suggest that it would provide a body of knowledge where none exists currently, which would put academic librarians in a much better position to determine future implementation of measurement in their libraries. It will provide data regarding the progress of policy implementation. It may be possible to identify the ingredients of a successful strategy for change, or to provide insights into the link between management practice and efficiency.

For various reasons this research did not get off the ground. Since writing the proposal nearly two years ago, it seemed that there were some fundamental challenges that needed to be addressed.

Firstly, the whole thing is just too large - the various strands that I am interested in would probably form the basis of individual research projects. I am also aware that the topic of my research is quite politically sensitive - academic librarians are, in my experience, territorial and defensive and would not take kindly to being put under the microscope in the way that I envisaged, so co-operation was likely to prove difficult. But a more serious deficiency which was pointed out to me is that change has been so all-pervasive, that it would be practically impossible to isolate the introduction of performance measurement as having any particular causal effect that was separate from the other agents of change.

So bearing this in mind, my project has undergone a transformation into something different. I thought that the critical thing here that I was interested in was change. It seemed to me that I needed to start asking questions a bit further back in the process, and what I was really trying to find out is what *exactly* has happened in academic libraries. What do academic librarians perceive as the greatest forces for change? (It may be that performance measurement pales into insignificance beside some of the IT developments.) How have they responded to those changes in terms of their approaches to management practice that I already described. I would like to find out whether this "brave new

world" requires a different style of management. The new study would focus in particular on management style, organisational structures and the decision-making process. The study would investigate the extent of the existence of matrix styles of organisation and attempt to determine the extent of use of team-based problem-solving groups, their composition and their decision-making powers.

NEW AIMS

The new aims of the project, then, would be to construct an overall picture of the effects of external policy changes on academic libraries, and their response to it. Specifically, the aims are to identify:

- *which* libraries have changed their internal management practices, and to try to measure the extent of these internal responses;
- *what* academic librarians consider to have been the greatest of the challenges since the Follett Report;
- *why* there are apparently different responses to the same problems, and whether the patterns of response can be shown to bear any relation to local factors, such as the type of library;
- *how* senior management has approached the process of managing change;
- *whether* any relationship can be found between the pressure to change, styles of management and the decision-making process.

I suspect that these aims are more robust than the original ones, but the challenge of conducting an enquiry that is potentially sensitive remains. My methodology would be the same: collecting some basic data via a questionnaire, but relying on interviews to provide a highly qualitative picture of academic library management in the late 1990s.

The study could have potential for further investigation by surveying staff at different levels within the organisation. This further study would reveal the extent of "market penetration" of the policy changes within the organisation itself, and perhaps give an indication of the overall morale of staff undergoing constant change.

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DocUTrans and ISO 9002 Quality Assurance

Reinder Jan Zwart

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There follows an edited version of the author's Seminar Descriptor included in the Conference delegates' pack and of the Powerpoint transparencies which he prepared for the Conference. Owing to unforeseen circumstances, Jan Zwart was unable to attend the Conference but he has provided his presentation material for publication in the *Proceedings*. It covers the background to the implementation of ISO 9002 at Delft University of Technology Library (DUTL); the organisation of DUTL; DocUTrans; and ISO 9002.

In 1992, because of external influences, Delft University of Technology Library (DUTL) began to guarantee its users a standard four-day delivery in document supply. An express delivery service was also provided (order in the morning, delivery guaranteed in the afternoon).

A more ambitious approach was not realisable at that time: either the equipment was not available, or it was too expensive. In 1996 a more ambitious approach was explored again. This time it was judged possible, though still complicated and risky. Together with partner KN/Minolta, DUTL started to develop the DocUTrans system, a spin-off from the EC-funded Eurilia Project on aerospace information. Using state-of-the-art technology, a system was built through which it is possible to deliver documents almost direct to the user. Today the library is able to supply "photocopies" as hard copies, fax, tiff files or as an e-mail attachment. The user only has to state once the preferred method of delivery. Before development started on DocUTrans, the system now up and running in Delft, workflow was redefined using Business Process Redesign techniques. The library redefined its document supply activities as a logistical challenge, rather than a library process.

While developing the DocUTrans system the staff at DUTL also worked on rewriting working processes and procedures, aiming to procure an ISO 9002 certificate. In January 1997 an ISO 9002 certificate was awarded by Lloyd's Register Quality Assurance. As far as is known, this is the first ISO certificate awarded to a library dealing with document supply worldwide.

1. ORGANISATION OF DELFT UNIVERSITY OF TECHNOLOGY LIBRARY

- Information Sources sector;
- Information Services sector;
- Information Logistics (document delivery) sector
  - focus on universities, companies and research institutes (national and international)
  - logistical process approach to document delivery
  - quality assurance according to ISO 9002.

Information Logistics Sector

- Request department - 2,000 requests per day;
- Delivery department - delivery of copies and loan of books;
- Periodicals department - receipt control of 15,000 current subscriptions.

2. DOCUTRANS

Eurilia Project

- enhance the library/information process which underpins the Aerospace sector;
- establish a new service based on a standardised pan-European system for
  - information access, retrieval, image browsing
  - document delivery;
- extend access and availability of major aerospace collections.

Eurilia Project Objectives

- PC-based user application;
- client/server architecture;
- OPAC access;
- thesaurus integration;
- wide-area network integration;
- image browsing;
- document delivery;
- pre- and post-user audit, including study of commercial potential.

Eurilia Application Functions

- Server
- Client
  - browse image collection;
  - view image;
  - search database;
  - browse database index;
  - initiate document delivery service.

See Figures 1 to 4.

Project DocUTrans: Goals

- technical feasibility of the chosen solution;
- feasibility of integration of the different components;
- price of required equipment;
- what will be the effect on work processes at the Delivery/Request/Finance department?
- what will be the effect on labour circumstances for the Library staff of DocUTrans (ARBO)?
- possibility of ISO 9002 certification;
- major service improvement for users of DUTL.

Project DocUTrans

- Function: scanner connected to PC. Images temporarily stored on hard disc. Scanned images over network to whatever other system eg. fax CCITT III/IV, Internet or as hard copy;
- Judge: storage of image, sending of image via fax, Internet, printing, network integration;
- Eurilia link: process an image through DocUTrans, eg. printing, faxing or Internet;
- delivery over the Internet (tiff files or PDF attachment to e-mail message);
- delivery by fax (Groups 3 or 4);
- delivery of hard copies (automatically packaged/invoice added)

  (delivery method depends on what the end-user wants and once known is automatically chosen by the system).

For DocUTrans Schematic Overview, see Figures 5 to 7.

Effects of Operational DocUTrans in Delft

Before DocUTrans	*After DocUTrans*
- 5 high volume copiers;	- 1 high volume image printer
- manual sign-off to the Pica system;	- automatic sign-off to the Pica system
- high postal cost;	- strong decrease of postal cost;
- manual operation with copying or faxing;	- full automatic choice between copy, fax or ftp;
- full DDL service, operated manually (copying, invoicing etc.);	- full DDL service, operated as automatically as possible following today's (de facto) standards;
- library driven;	- library driven;
- delivery time to the user: approx. 4 days.	- delivery time to the user: < 2 days.

See also Figures 8 and 9.

Project DocUTrans

- DocUTrans ready February 1997;
- delivered as Deliverable 3/6 (hardcopy, fax delivery) in the framework of Eurilia in February 1996;
- on the basis of DocUTrans project: Quality certificate on the basis of ISO 9002 (Lloyd's Register QA, January 16, 1997) for the DUTL Document Delivery service;
- but as usual at DUTL "Tailored information . . . on the spot".

3. ISO 9002:1994

ISO 9002 at DUTL

- start May 1995
  - orientation (ISO implementation)
  - selection of Veritas QI for consultancy and Lloyd's for the actual certification;
- start ISO process November 1995
  - internal education
  - implementation of quality assurance
  - certified according to ISO 9002:1994, January 17, 1997.

Slogan

- Do it right the first time, on time, every time.

Goals

- continuous quality control;
- guarantee quality - do what is promised to the user
  - >60% of incoming requests for photocopies is processed the day they come in
  - loan of books at desk within 15 minutes;
- cost control - do it right the first time;
- competitive position.

ISO 9002 Standard with regard to

- management;
- relation with suppliers/vendors;
- relation with clients/users;
- process control;
- service improvement;
- follow-up and quotations handling;
- HRM;
- administrative organisation.

ISO as Management Tool

- control figures and indicators

  eg. quality cost: cost caused because there was no 100% quality;
- planning and control

  eg. come to internal mutual agreement = culture dependent.

Management Information and Steering

- steering on deviations, faults and complaints
  - feedback
  - control;
- steering on the basis of information
  - feed forward
  - give direction.

Strategic Premises Organisation

- effectiveness;
- efficiency;
- creativity;
- flexibility.

Balance:

- between internal and external orientation;
- between control and change.

ISO Forces Organisation to React to:

- benchmark information;
- competitor analysis;
- judge vendors/suppliers;
- production results.

ISO and Management Information

- ISO produces continuous input for:
  - internal quality system
  - obligatory management review
  - internal audits
  - quality forms;
- ISO fit as management tool.

ISO and Management Information DUTL

- effectiveness of quality system;
- continuous control of output indicators;
- yearly analysis;
- methodological analysis (eg. Pareto);
- reconsider organisational goals;
- cost analysis.

Figure 1

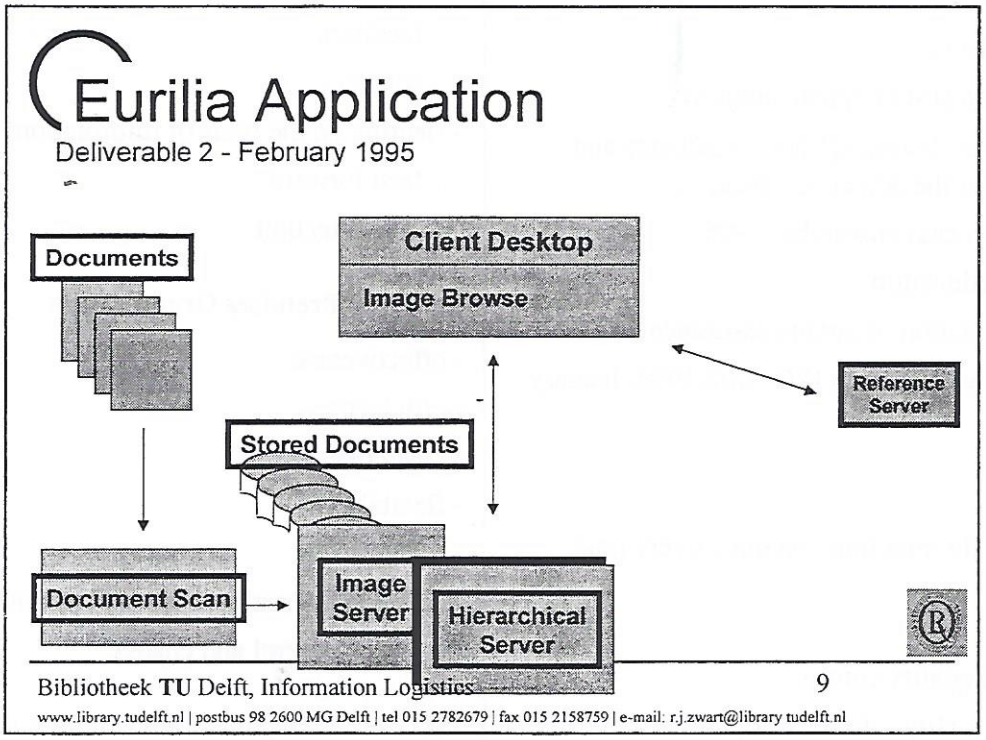


Figure 2

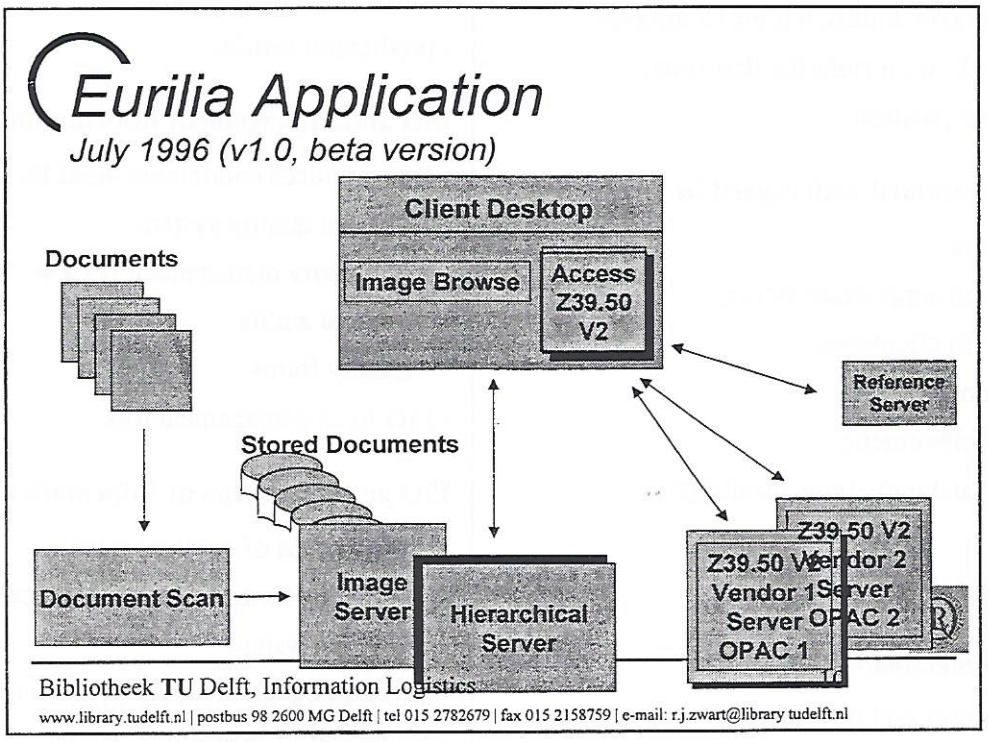


Figure 3

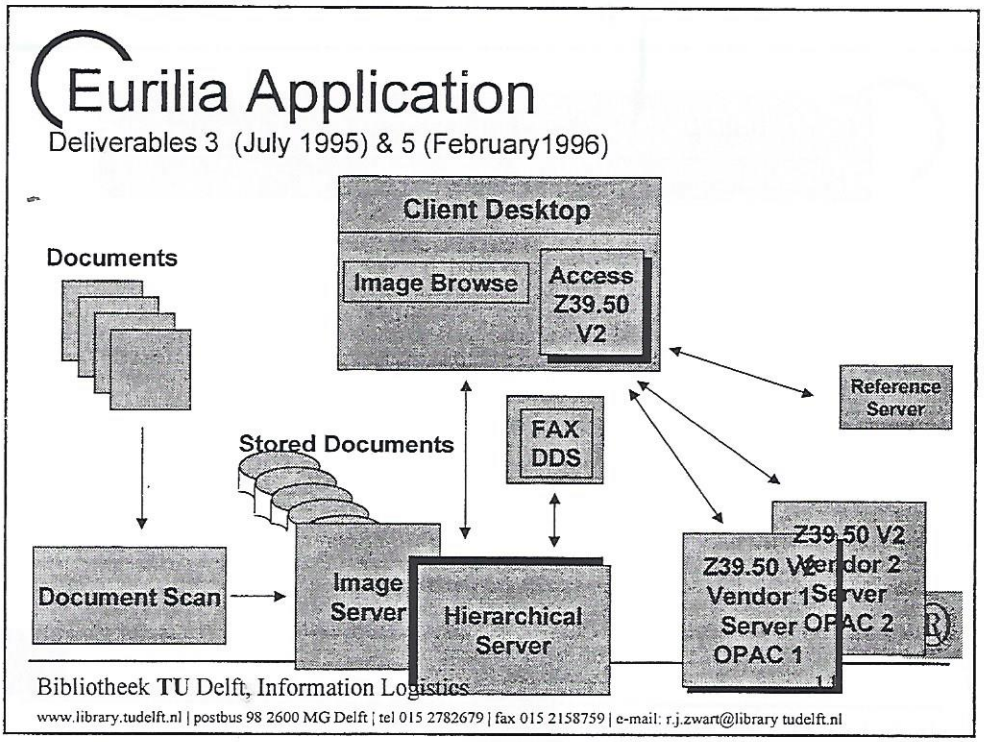
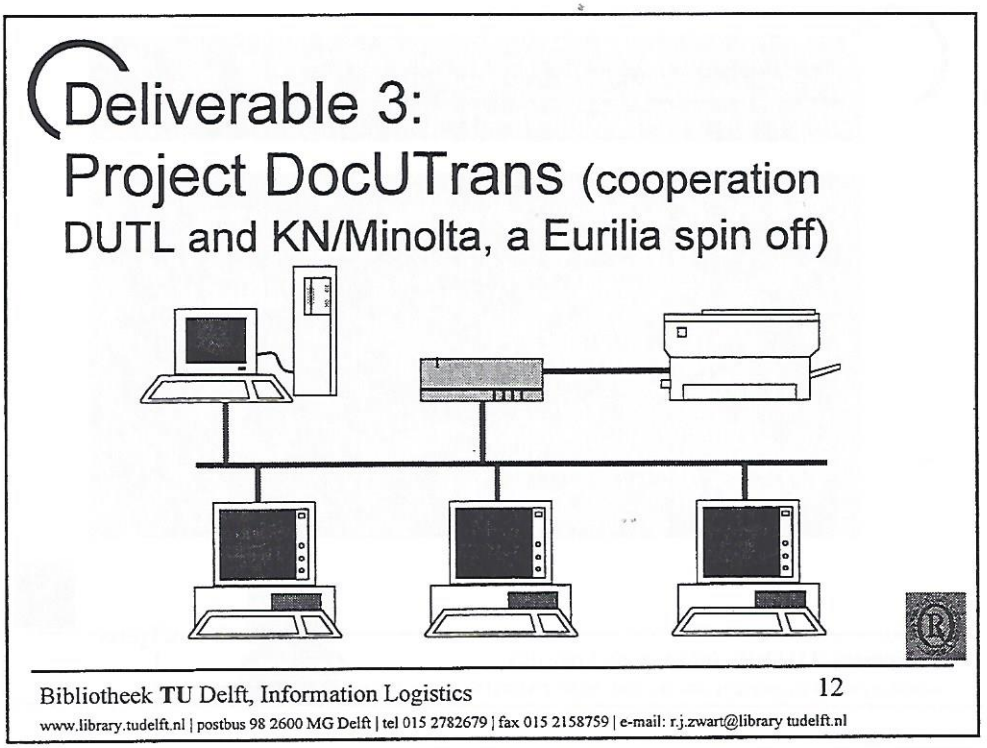
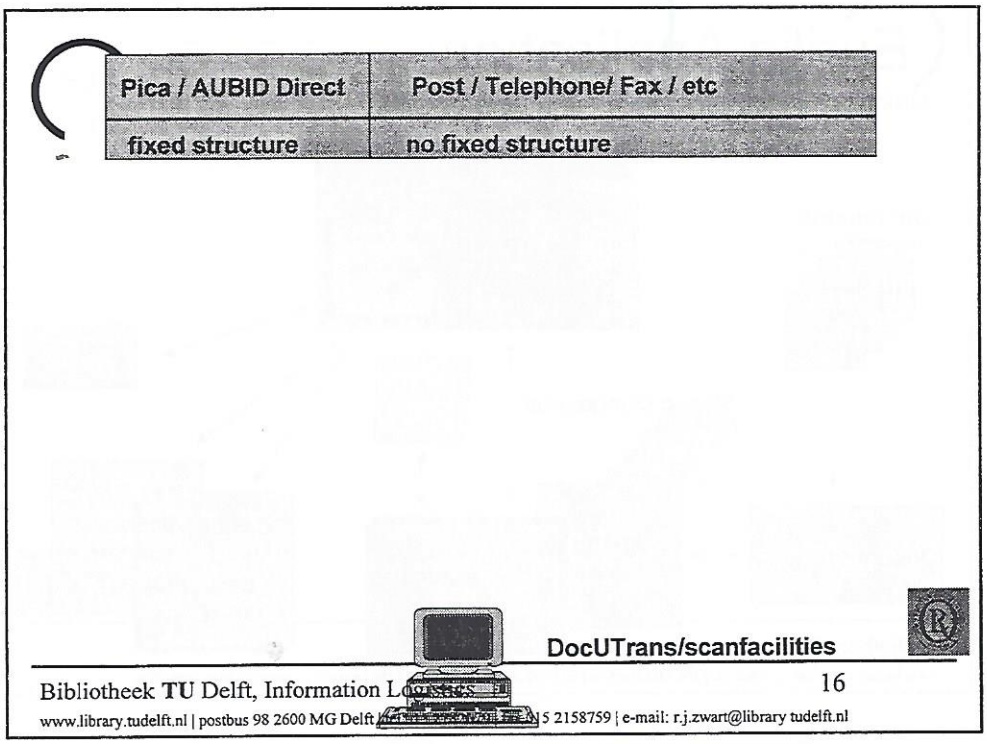
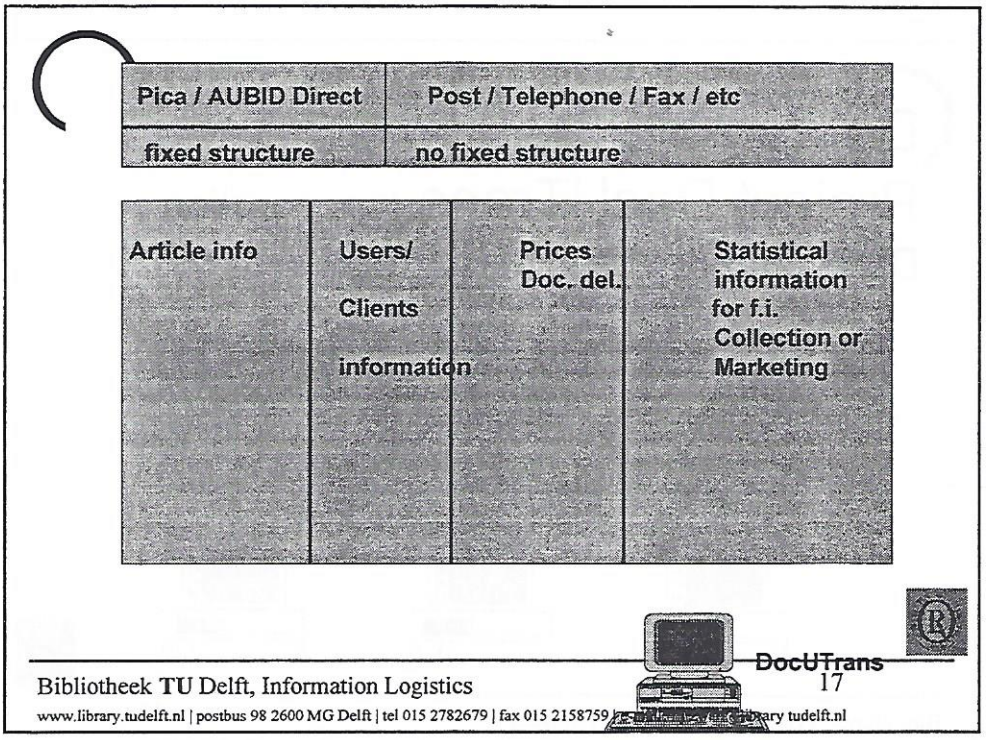


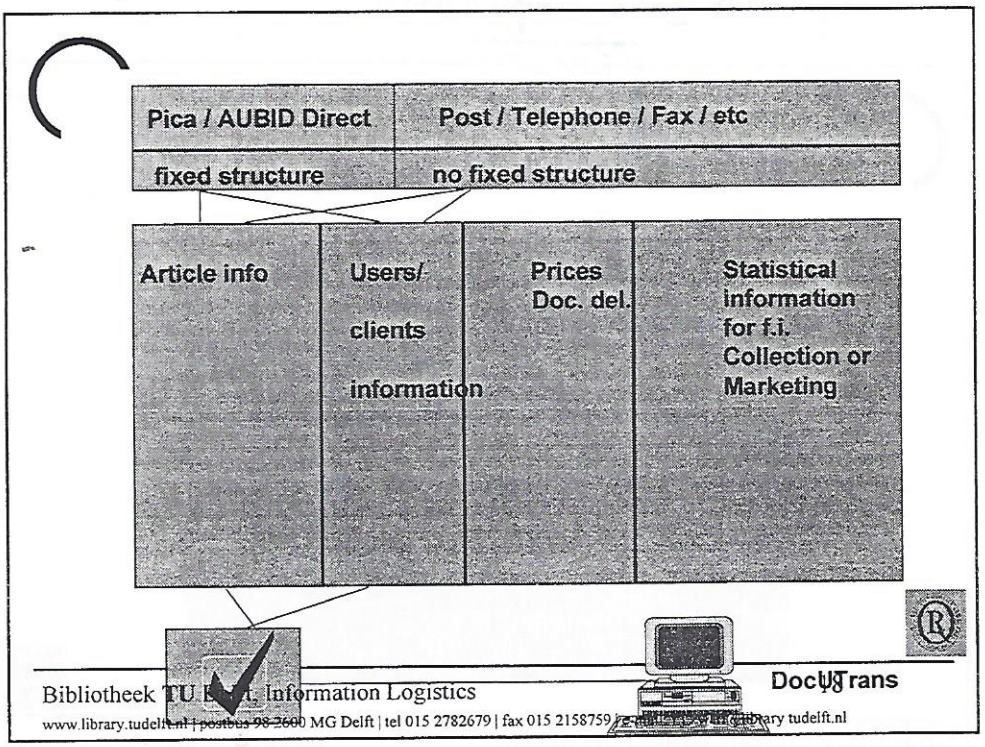
Figure 4



Figures 5 to 7
DocUTrans: schematic overview

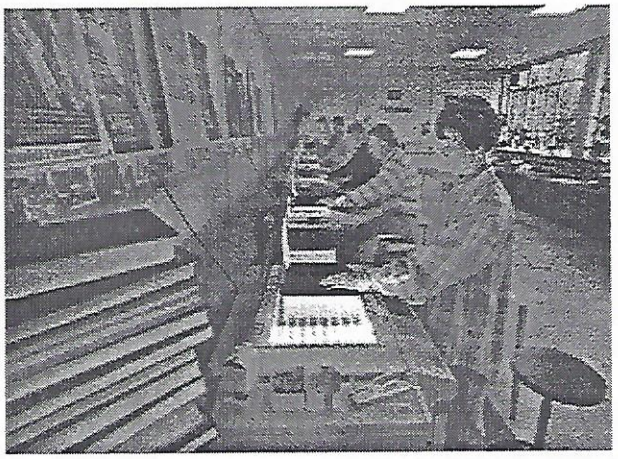





Pica / AUBID Direct
Post / Telephone / Fax / etc
fixed structure
no fixed structure
Article info
Users/ clients information
Prices Doc. del.
Statistical information for f.i. Collection or Marketing
DocUTrans
Bibliotheek TU Delft, Information Logistics
www.library.tudelft.nl | postbus 98 2600 MG Delft | tel 015 2782679 | fax 015 2158759 | e-mail: library tudelft.nl

Figures 8 and 9

Before DocUTrans



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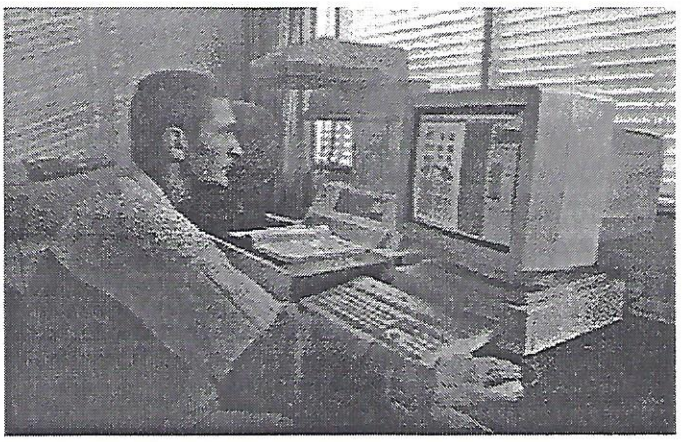

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SEMINAR PAPERS
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THE ELECTRONIC LIBRARY

Library Management Information Systems in the Client Server Environment: A Proposed New Model

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Forces for change are rapidly pushing libraries to ask fundamental questions about their services, their clients, and their performance. To be more effective and efficient, librarians need to be prepared and to have better information. Setting up management systems is one of the tools available to help them manage libraries better, but the systematic application of MIS in the library environment is still rare. This paper addresses why we need to foster an environment or a culture of assessment, what are the components of the environment of assessment, and what are the attributes for a new model of local library MIS. It describes work done at the University of Waterloo library to develop an environment for better decision-making. The phases of this process are described and the initial MIS model is highlighted. Conclusions are derived from the Waterloo experience.

INTRODUCTION

The library environment is undergoing rapid change. There is a number of internal and external forces pushing libraries to confront their raison d'être. Libraries and librarians have to answer some fundamental questions: What are we doing? Who are our clients? How are we performing? Can we do better? To better address these fundamentals, many libraries are redesigning their missions, changing their structures, changing their processes. All this in order to be more efficient and to be more effective. To achieve positive outcomes, libraries have to use information better. Setting up Management Information Systems (MIS) to help manage better is one of the tools available to libraries.

CONSTANTS

There is a number of forces affecting our changing library landscape, which present constant pressures. I would characterise these forces of change, ironically, as our "constants".

Libraries exist in a rapidly changing technological environment. The Web environment changed librarians' assumptions or paradigms about who they are, what they do, how they do what they do, and it certainly is changing the expectations of the library clients. This particular change, together with other technological innovations, puts enormous demands on library resources be they financial, material or human in nature. But mostly this puts high demands on librarians' imaginations.

Especially in Canada, where all libraries are part of publicly funded institutions, diminishing financial resources squeeze academic libraries. At the same time, there is an explosion of newly available information resources of all types. The clienteles of libraries are changing. They come from more diverse backgrounds and their demands and requirements are varied. Librarians are not yet sure what exactly those needs are, but they are aware of their shifting nature and they have to keep up with these different needs. Librarians are also confronted with remote users who are very diverse and they put added pressures on library infrastructures, resources and services. Libraries need a plan of action.

WHY LIBRARIES NEED AN ENVIRONMENT OF ASSESSMENT?

Libraries do not exist for themselves, nor are they independent institutions but are part of their parent organisations. Libraries have defined roles to play in the educational process on campus. They are central to the educational purpose of universities in supporting the missions of effective teaching, research and learning. Librarians are aware of the "constants" which define or influence the library's situation, and assume that the library has to be prepared to respond to the needs of its clients. Academic libraries have to focus on the value they add to the educational process. As complex organisations, they are asked to account for the work they do, for the resources they spend and for their value-

added activities. As our institutional environments are shifting and changing, library staff have to anticipate client needs and, in effect, to imagine our future.

To be able to do this, libraries have to be more efficient and effective. They have to be managed well. This implies better decision-making, the capability and willingness to prioritize scarce resources, both human and material, and to be accountable for the use of those resources. This means that the libraries need to do better planning. It is imperative that they establish and institutionalize planning processes in order to foster an environment of assessment.

To focus on client needs, libraries must base their services on the expressed needs and requirements of their clientele, to deliver high quality service and to find ways to ensure service quality. The focus on results, on outcomes, on added value is essential. These are the prerequisites for creating a culture of assessment.

ASSESSMENT ENVIRONMENT

Libraries should, when thinking about the components that will make up the assessment environment:

- emphasise the notion of the primacy of client needs across the organization. The library exists for the client, not for the sake of staff;
- incorporate assessment, analysis and follow-up into the cycle of work;
- promote an evaluation or assessment attitude for all staff at all levels across the library. This culture of assessment has to be reflected in the mission and policies, supported by library administrators, and ingrained in all the processes that staff develop and integrate into library services;
- make assessment tools available to all staff. This means that staff will have the tools to work independently and add their creativity to the assessment process. It also means a hefty investment in training. Staff training will be constant and must be built into the work process. Continuous learning will be a prerequisite for being able to stay current and being able to deliver quality services;
- promote an environment of cooperation and participation in the library. Encourage an atmosphere of trust, which will in turn encourage creativity;
- encourage cooperation and partnerships with other entities on campus - especially with faculty and the computing department;
- establish a MIS as one of the tools available to realise an environment of assessment.

LIBRARY MISSION - VALUES AND ACTIONS

About three years ago, the University of Waterloo Library, as part of its change to a more client-centered operation, undertook a number of activities which were designed to enhance the way we do our work, with an emphasis on client needs and outcomes. For this, we mounted a number of workshops and developed mission statements for the library and for a number of functional units. The essence of the mission statements was to identify the values we wanted to operationalize. The following four values have a direct relationship with the development of the environment of assessment:

- **Client needs are primary** - the library is putting the educational needs of its clients as the value that drives its authority and accountability.
- **Equitable access** - all our community should have equitable access to our resources and services.
- **Assessment is the responsibility of all staff** - inculcate an "attitude" toward assessment and evaluation at all staff levels.
- **Continuous improvement** - work to make all services and processes more effective.

Based on these values, the following actions are directly related to the establishment of a Management Information System, which could be one of the central components of an assessment environment:

- **Identification of the information needs of the client community** - the main priority is to gather information about the client population, its composition and its needs, on a continuing basis.
- **Relate client needs to available resources** - examine what resources are needed, what are the currently available resources, and what is required to facilitate change.
- **Provide access to those resources** - it is paramount to make resources, local and remote, available efficiently and effectively to users, and to

organize the library and the staff to maximize access to those resources.

- **Facilitate the productive and proficient use of those resources** - organize the library for service quality - maximize effective use of resources and new technologies to enhance the needs of clients.

About four years ago I was asked by the Chief Librarian to look into the subject of MIS and to investigate the possibility of creating such a system for the University of Waterloo Library. I readily agreed because I was ready for new challenges. I discovered that the Library had started looking into some form of MIS already in the mid-1980s, when Charles D. Emery, our Associate Librarian for Collections, wrote a detailed proposal suggesting the establishment of a MIS. However, to quote, "the biggest obstacle to thinking about, developing and implementing new strategies is the need to run today's business. The day-to-day-events drive out most strategic good intentions" (Bowman, 1990, p.10). I presume that this is what happened - there were just too many "higher priorities" for this initiative to get off the ground. However, it did mean that there existed some expertise and help to set my thinking in the right direction.

MIS/DSS SYSTEMS

MIS are computer-based tools designed to improve management decisions. They have been around in industry and business since the 1950s. The need for systematic application of MIS in libraries was recognized many years ago by Charles McClure (1980) and others (see Select MIS Bibliography, p. 284). **However, systematic application of some kind of MIS in the library environment has been and remains rare.**

Concurrent with technological and management advances, refinements were added to MISs, and these systems evolved into Decision Support Systems (DSS) (Adams et al, 1993) and later Executive Information Systems (EIS). Research and other cooperative activities into developing library-based MIS and DSS are done mostly in Europe (DECIMAL . .).

For the purposes of this paper, I will ignore differences and peculiarities of each of these systems. I believe that it is not very useful at this stage of MIS development in libraries to delve into the differences, but instead to concentrate on the commonalties.

What are MISs and what do they do?

- **A MIS provides managers and staff with internal and external data and tools for the analysis of that data** - they are software-based systems or environments which use input measures and with the right analysis tools, provide information to managers.

- **They assist in the decision process** - the assumption is that the library wishes to make rational decisions, based on empirical data.

- **They act as support tools** - they do not replace managerial judgement, they do not replace humans - they are helping tools.

- **Their main objective is to improve the effectiveness of decisions** - they are process improvement tools, information tools that help to improve outcomes.

OBJECTIVES (AND BENEFITS) OF A LIBRARY MANAGEMENT INFORMATION SYSTEM

What could be the objectives and eventual benefits of a MIS in the library setting? A short list could be the following:

- **Assist managers and staff in their daily decision-making process** - the increased quality of available information will make decisions more effective.

- **Maintain better accountability and control of resources** - a MIS should give better real-time information for resource management, and allow for more assured accountability.

- **Monitor and control resource allocations** - an equitable allocation of budgets, especially material budget allocations, is always a difficult exercise. A well-organized MIS may improve the process, both for reliable analysis and for the approval process.

- **Improve overall library effectiveness** - paying attention to outcomes, to improved quality of work and service, is important. Better analysis of client needs, better allocations of resources and services, better management decisions should improve effectiveness over time.

- **Generate internal and external reports** - we are required to produce a large number of reports, both internally and for external agencies. Libraries invest a large amount of staff resources in collecting, organizing, filing, sending and receiving these reports. A MIS should automate most of these activities and execute them efficiently. Hopefully these tools will also enhance comparative analysis between libraries.
- **Improve long-term planning** - a MIS should be incorporated into the planning process - or be the catalyst to enable planning where it is not present or not yet institutionalized.
- **Facilitate performance measures activities** - a MIS would help with other qualitative performance measure activities by providing reliable information and tools.

OBSTACLES AND DIFFICULTIES IN THE INTRODUCTION OF MIS TO LIBRARIES

Introducing a new concept and set of activities into an established library environment is difficult. There are built-in cultural and personal obstacles to overcome. Difficulties to be aware of are:

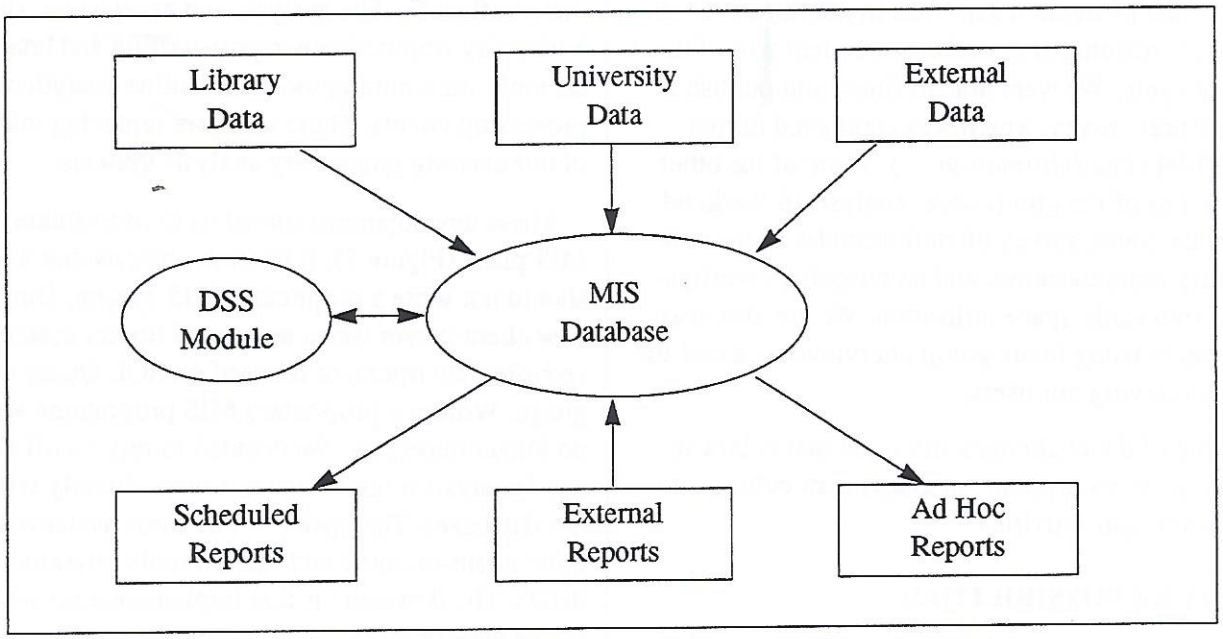
- **Lack of executive leadership** - leadership is essential for developing an MIS, as it needs time to develop and needs executive backing, especially in libraries unfamiliar with the concepts of MIS.
- **Few library-based examples** - there are very few libraries with any functioning MIS, or library personnel who are familiar with the concept. There is no practical "how to" manual for the development of a library-based MIS.
- **Lack of technical skills** - most librarians lack the technical and computer skills needed, and resist acquiring those skills. Professionals hesitate to work in areas where they lack knowledge, as this seems to signify lack of control.
- **Lack of technical support** - a well-functioning MIS needs technical staff.
- **Hierarchical management** - a centralised management structure may not be well suited to a well-functioning MIS system - which may increase the quality and availability of management information across all levels of staff in an organisation.
- **Routine work or workload** - just the grind of everyday work, the lack of time for anything extra - no time for the new activities and new services.
- **Insufficient planning** - we need to plan processes in advance - assessment has to be built into all levels of the organisation.
- **Lack of buy-in** - staff, especially management staff, may not see advantages for themselves from a MIS or from any assessment work. Turf wars and personal animosities may also interfere. Professional disagreements can persist for long periods of time.
- **Resistance to change** - change of any kind is difficult, but a completely new concept with a new mandate is particularly difficult to absorb and accept.
- **Lack of investment in infrastructure** - a MIS system needs hardware and software infrastructure. Without good infrastructure, the best intentions will crumble.
- **Lack of system thinking** - creating an assessment environment and the corresponding MIS infrastructure depends on seeing the whole picture. Administration and staff have to be encouraged to look beyond the details.

UNIVERSITY OF WATERLOO MIS SCHEME

The University of Waterloo Library's push for a MIS was coming from senior ranks and there was a disposition to make decisions based on facts. We also wanted to change the way we were organized, with the objective to flatten the organizational structure, involve more staff in decision-making and become a more client-centred organization.

Our concept envisioned the Library's MIS as part of the information infrastructure for the whole campus. Since the campus was moving to adopt ORACLE as the common database engine, ultimately we planned to base our MIS on an ORACLE database. Since we knew we were moving from the existing library system to a new one, there was no advantage in building a MIS based on the outgoing system. We decided to concentrate on learning about MIS and to plan how to integrate it with the new library system. It became clear that in order to build any local MIS, we would need programmers to write the software. We would have to

Figure 1
University of Waterloo Library - MIS/DSS scheme



map out all our inputs and build a large MIS that would be able to accept data from our own library systems, from other on-campus systems and from external sources. We planned to build an additional module which would be "end-user friendly" so that our staff would be able to execute ad hoc reports and do their own queries (Figure 1).

Since we were not going to implement the MIS system until we were sure what our new library integrated system was to be, and we did not have the technical resources to write a MIS program from scratch, I concentrated on developing the concept of MIS for the library. I realised that what we needed is not just a piece of software, but an environment that would encourage assessment and planning across the organization and was integral to the values and goals established by the library.

One of the common reasons for the scarcity of any MIS infrastructure in libraries is lack of resources allocated for achieving this goal. It became clear that assessment activities were fragmented, duplicated and done in isolation. Most assessment activities such as surveys, analysis of surveys, gathering of data, etc, either were done on a project basis or were not centralized. This meant that analysis was haphazard and that follow-through based on information was either non-existent or out of context.

To overcome the fragmentation of efforts, I proposed to establish a professional position that would have responsibilities for coordinating many of these assessment activities in the library and be a resource to staff for data and analysis. The proposal was developed into a coordinating position and I started my job in December 1994 (Lakos . .).

Our concept for the MIS was based on a program capable of receiving systems data from a variety of internal and external sources, a report writer for reports, and an attached module that was going to deliver data and analysis to senior management. We were hoping to be able to deliver scheduled canned reports with great detail to the process units, and also more strategic reports and analysis to senior management.

During the last two years, we established an EXCEL spreadsheet environment on one of our servers, which organizes most of our inputs and outputs by department and process. The system is a mirror system, where one directory is made up of "work files" which are private and another directory which is public to all library staff, but is "read only" so that the data is secure. We were capable of building a good source of quantitative information and have up-to-date data on most of our processes. External reports can be done with more confidence and they take less time to finish. We were also able to see some service trends and have better control on our book and serial budgets and expenditures.

On the qualitative side, we established a Community Needs Assessment Process Group,

which is made up of up to eight staff members who are working to become resource persons for assessment and evaluation activities in the library. Each unit is encouraged to make assessment part of the work cycle. We were able to finish and publish a large user survey, which was conducted during 1993-94 (*The Information . .*). Some of the other activities of the group were: analysis of weekend service hours, survey of staff attitudes to the new library reorganisation, and an on-going investigation into study space utilisation. We are also gearing up to using focus group interviews as a tool for better serving our users.

One of the challenges still to be met is how to effectively incorporate an assessment culture into departmental activities.

FUTURE POSSIBILITIES

Advances in computer technology take place fast and frequently. The library world is moving rapidly into a network-based environment. The networked environment is based on connectivity and inclusivity - not on exclusivity and lack of dynamic connectivity. Communication is the essence of this environment. Fast transmission, retrieval and dissemination of information is the norm. The Web environment changed our paradigms. We are on the threshold of a client-server environment, which promises much improved flexibility to clients.

Three Ontario universities, the University of Waterloo, Wilfrid Laurier University and the University of Guelph, are embarking on a cooperative venture, which will create a union catalog and function as one library system to their users. This new integrated library consortium will be based on the Endeavor Voyager System. This system is client-server based and is using the ORACLE database system as its core.

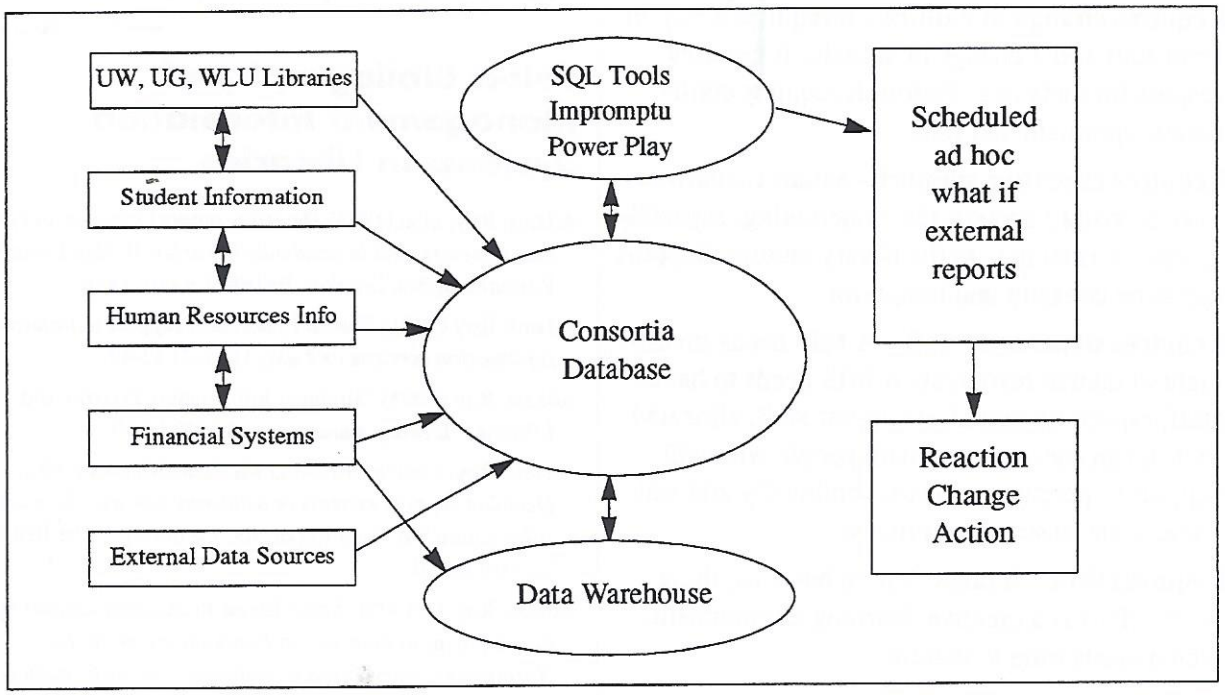
At the same time, other campus entities are also moving to the client-server model. They stopped developing proprietary, in-house local systems, and are buying off-the-shelf systems with common database engines. The University developed a campus-wide institutional computing plan and structure, which is encouraging more efficiency and better inter-operability. The University is also planning to create a data warehouse, which will enhance information creation and analysis. There are plans for a high-end biographical database for all our students, faculty and staff, which will rationalize campus-wide network identification and authentification. For analysis and assessment, the University acquired new report-writing and analysis tools, data-mining tools and online analytical processing clients. These tools are replacing many of our existing proprietary analysis systems.

These developments forced us to re-evaluate our MIS plans (Figure 2). It became obvious that we should not write a proprietary MIS system. Our new client-server based integrated library system's reporting environment is based on SQL Query language. Writing a proprietary MIS programme was no longer necessary. We decided to rely on off-the-shelf analysis tools, which can work directly with our databases. The upside is that these systems are more client-oriented and user-friendly environments. The downside is that implementation will not be easy or quick.

The new concept for the MIS is based on the availability of client-server tools that can read the data directly. These software packages, which are developing and changing at a rapid rate, enable staff to work with real data from their desktops. They can also work on non-library datasets. These packages are capable of working on a variety of database formats and machines, so that we could, with proper authorisations, do campus-wide analysis, and not be departmentalised. The data mining packages (*Knowledge . .*) are capable of drilling down into the database for fine details, and creating powerful reports. Multidimensional Online Analytical Processing (OLAP) (*Online . .*) systems allow new ways of analysing, by "slicing, dicing and rotating" multidimensional cubes of data and enabling better and more complicated analysis. Longitudinal analysis on campus-wide data-warehoused (*Data . .*) data will eventually enable us to do impact analysis. All these systems are rapidly migrating to the Web, hopefully bringing querying and reporting closer to library staff desktops.

To succeed, we have to plan out the staffing requirements, especially the technical requirements to maintain catalogues of datasets and ability to do SQL queries. The library should map out its reporting and analysis requirements and assign staff responsibilities accordingly. Staff have to be continuously trained, as all these systems are changing constantly.

Figure 2
Future possibilities!



The potential for more client control of information analysis will be greatly enhanced. Thought has to be given on the structure and linkages between the systems, for better results, both to clients and for staff. These new tools empower us if we wish to have more and better information and analysis capabilities on our desktops. Doing real outcome measurements and impact measurements can become a reality.

Now that the tools for decision enhancement are clearly at hand, libraries have to build an environment in which they can operate. If we are serious about delivering on the client-needs model, we have to invest in this environment of assessment. This is also a learning environment. The main satisfaction of working in this new area comes from being pushed to learn new things constantly, and from the pressure to continually re-evaluate decisions.

When looking for report writing or data-mining software, we should remember some basic points:

- **Usability** - ease of use, documentation, available local technical expertise, available infrastructure to deploy.
- **Functionality** - does it do reports? How complex is the analysis?
- **Compatibility** - how compatible is the system with existing local networks?
- **Administration/support** - does it require low maintenance? How much administrative support does it need?

SUMMARY AND CONCLUSION

Academic and administrative units in universities such as the libraries, human resources, financial services and student registration departments are converting to client-server based integrated systems. Campus-wide biographical databases for top-level networked identification and authentication are being developed and the concept of data warehousing of events data is being investigated seriously. New business intelligence and report writing software packages, especially developed to enable better analysis, forecasting and more effective decision-making and planning are being introduced.

Together with the above-mentioned developments, our education systems are changing towards more student-centred learning. This demands more effective information delivery options. Libraries have to invest in staff, resources and processes that maximize results. For this to happen, an institutional culture of assessment has to be fostered. An integral part of this should be a well-functioning MIS system.

- **MIS is possible** - It is possible to create and implement a real MIS system in a library. The

will to do so is needed. This is not a software problem - this is a "people" issue.

- **Requires change in culture** - It requires a buy-in from staff and a change in attitude. It requires respect for facts over fiction. It requires confidence, optimism and trust.
- **Requires executive support** - Senior executives have to visibly support this undertaking, especially since it is so new to the library culture. Support has to be constant and long-term.
- **Requires structure - staff** - A MIS needs investment in human resources. A MIS needs to have staff, especially technical support staff, allocated to it. It can succeed only with people who will support it, people who learn continually and add value to the assessment process.
- **Requires time** - It takes time to build anything useful. This is a creative, learning environment, which needs time to mature.

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Identifying and Assessing Library Clients in a Networked Environment: Issues and Possibilities

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As we move into a networked environment, the ways in which our clients use library services are changing fundamentally. As we invest large resources into changing services, the pressure mounts to be accountable for the quality of service. As more services are delivered through a networked environment, new client profiles are identified. The new environment forces us to develop policies that are inclusive rather than exclusive. Tracking who is using our systems and what they want is becoming more complex. The identification and authentication of clients is a basic issue and, in an open environment, attention has to be given to remote clients. The paper discusses the issue of identifying library clients in the networked environment, investigates possible links between identification and service assessment, and identifies future possibilities for client assessment.

INTRODUCTION

My modest goal in preparing this paper is to encourage discussion. The identification of library network users and the value of identification for assessment purposes has not been widely and directly addressed. I hope to build a framework for discussion and future analysis.

Some of the questions arising are:

- who are the users that access the local academic network and what types of services do they utilize? (McClure and Lopata, 1996, p.1)
- what identification measurements are possible? can we identify individual users in a networked environment? can we identify users by status or by institutional affiliation?
- what user behavior measurements are possible? can we track user's activities in a networked environment?
- is there utility in tracking these measurements? is user identification a useful measurement indicator for assessing client services in a networked environment?

I became interested in assessment of library network services after reading last year Chuck McClure and Cynthia Lopata's report to CNI - *Assessing the academic networked environment: Strategies and options*. It was obvious to me that the library environment is changing rapidly, and that the traditional library measurement indicators are not addressing the network environment into which we are all moving. Library services, just like other services and businesses are completely dependent on computers and networked systems. In my opinion, the real watershed is the emergence of the Internet and the fundamental changes it brings to the information services environment and to the academic enterprise. Libraries and librarians are at the forefront of change in the academic network environment. The emergence of networked information services and tools are challenging traditional forms of academic information delivery. We are changing our processes and structures with increased emphasis on quality of outcomes, on assurance processes, and on more customer-focused approaches to service. To rise to these challenges, we have to develop a new paradigm of information provision. One result of all these developments is much more emphasis on the user, the client or the customer (Sandy, 1997). Developments in computer hardware, communication and software enable much more empowerment to the user. The library's position as a major source of information on campus, as a mediator between users and information, is undergoing fundamental changes.

Over two years ago, the University of Waterloo Library started a process of restructuring. As part of the restructuring activities, the library developed a mission statement, and established five functional process groups. Each process group worked on its own vision-mission statement, in the spirit of the "learning organization, flat management, openness,

etc.". One of the functional groups is the Community Needs Assessment Process Group of which I am a member. While developing a mission statement for this group we discussed at length the question of who constitutes our client community. Who are our clients, their status, their service privileges or rights, was not self-evident. I note this, because my interest in client identification and the assessment issues derived partly from these discussions.

In June 1996, Chuck McClure presented a workshop at the Canadian Library Association's Annual Conference in Halifax about Library Network Service Assessments. Among the many interesting ideas he presented were some which are relevant to this topic:

- network users measurement indicators;
- difficulty of identifying user status, especially in the Web environment;
- Web pages quality assessment.

Chuck McClure and Cynthia Lopata identified "Count of Network Users" and "Count of Active Network Users" as the basic measurement indicators for locally authorized users. They proposed the "tally and analysis of e-mail accounts as the basis for identifying the number of users and active users" (McClure and Lopata, pp.23-25), mainly because e-mail is the most used application in academic institutions. They acknowledged that more accurate methods of identifying users on networks may exist, depending on local network setups and policies. One of the main problems with these and any other identification schemes is the difficulty of determining status of users. Depending on the degree of openness of the network, the policies governing "privacy and confidentiality" and the systems restrictions due to them affect the possibilities of determining some of the unique identification indicators which we may need in order to do user-based assessment of networked services.

Identification of users in a networked environment proves to be far from a straightforward problem. Identification of network users is directly related to issues of security and privacy on networks, and especially in the Web environment. To maximize equitable access, easy access and to encourage use of networked and electronic resources, libraries are establishing policies of openness on networks. These same policies make identification difficult, and therefore assessment and tracking of use and users more troublesome.

GLOSSARY

A glossary of terms may be useful here, in order to clarify what we are talking about:

- **identification** - the process of establishing a symbolic label that is a unique reference to only one entity - either "person" or "resource";
- **authorization** - the process of establishing the set of resource identities to which the "person" identity has access;
- **authentication** - the process of establishing the "person" has the right to use the "person" identity; this is achieved by assigning to the "person" identity a password or similar service that is secure - known only to the person and to the authentication system;
- **privacy** - this term is very difficult to define. However, there is a huge literature on the term of privacy and on its related concept of confidentiality. In a networked environment it refers to the mechanism set up on the network to secure the individual user's right to keep information about their activities confidential - "the right to be left alone" or "the condition of not having undocumented personal information about oneself known by others". A useful discussion and references on this topic are to be found in US Congress, Office of Technology Assessment (1993) 'The Problem of Definition - Privacy and Confidentiality';
- **confidentiality** - "refers to how data collected will be maintained and used by the organization which collected it, what further uses are made of it and when individuals will require consent to such uses" ('The Problem . . , p.1)

Further on the issue of privacy - the library, or more accurately the parent institution, has to maintain a balance between the privacy rights and needs of its constituents and the responsibility for providing effective and efficient service (*CAUSE . .*). Whatever we do, concern for the protection of the privacy of individual users has to be maintained. I think that we would all derive more benefit if we formulated and acted on clear policies of professional confidentiality, instead of getting bogged

down in protracted discussions on the semantics of privacy. A confidentiality policy modeled on the medical or the legal profession may be one model for examination.

When I am talking about "identifying library network users", I am not interested in the user's personal identity. I am interested mainly in their status: are they students? at what level of study are they? are they faculty? staff? alumni? I may also be interested in their age. For remote users, although I may be interested in all the above, I may have to settle just to their institutional affiliation or geographical origin.

SCHEMATIC PERSPECTIVE

To establish a framework of discussion, I propose a simplified schematic view of our present library environment (Figure 1).

Local resources include both library and other campus networks, since they are progressively tightly linked. A local library environment consists of the local integrated systems, of which the most publicly visible is the OPAC, locally mounted databases, networked or tape-loaded CD-ROMs, and access to locally financed leased services to electronic data, bibliographic or full text resources. The local system provides interlibrary loan and document delivery services as well as a local Web server, with local Web resources and access to the Web. Since more institutions are entering into various consortia-type relationships, we may look at our local resources as part of a consortia-type cooperative environment.

Local users may be identified by some unique reference or entity identifier, be it a food card, a library card or an e-mail account. Consortia users may also be able to be uniquely identified. Remote users are more difficult to identify, and they may be identified only by institutional affiliation or geographic place.

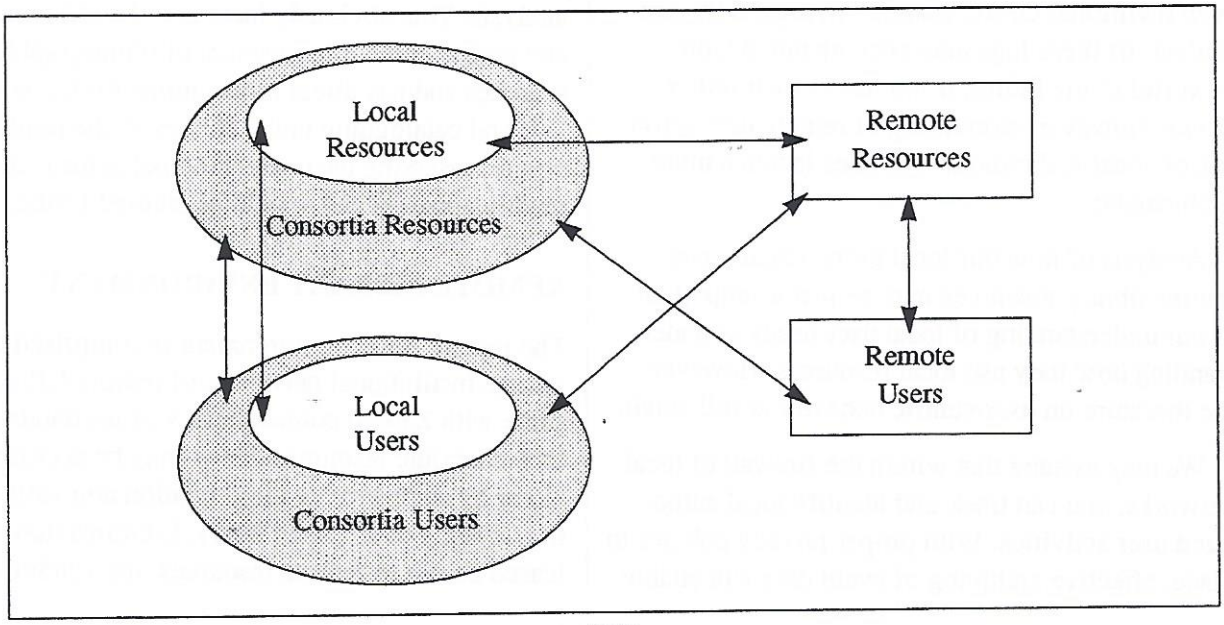
I am using the local resource perspective as the vantage point of analysis. From this perspective, the following activities are of interest:

1. local user uses local resources;
2. local user uses consortia resources;
3. consortia user uses local resources;
4. remote user uses local resources;
5. local user uses remote resources.

For most of these activities, analysis is mainly set up from a "site centric perspective" (Peters, 1996) - analysis of use of the local resource. Analysis that puts emphasis on the behavior of the user may be characterized as "user centric perspective". The location of the data collection activity has major importance: where we count the data determines what we count and what results we get. Analysis of local users' use of remote resources is

Figure 1

A schematic model for looking at the Library Network environment



possible only through the router level or through a report from the remote site (Smith and Rowland, 1997).

SITE CENTRIC PERSPECTIVE

Although the library or, more accurately, the local campus can monitor and restrict use to local resources to authorized users through a well-designed identification and authentication system, the true situation is more complicated. Most libraries choose to open their local resources. They allow unrestricted access to local users. In addition, most users of the public workstations located in our libraries do not need any identification at all. Anybody using public workstations has access to all local resources, remote resources and leased services. This means that accurate and complete tracking of local use may not be as precise as we may wish - but we have to balance this shortcoming against ease of access and use.

Consortia-type systems and resources enable much better access and hopefully better utilization of resources between university libraries. However, from an identification and authentication perspective, they increase the complexity of IT networks, as well as the complexity of assessment activities.

Opening the restrictions on access to local and consortia resources also makes monitoring of local resource use by remote users more difficult. Most of the user tracking is not problematic, as long as it is restricted to the monitoring of an event or a transaction, be that some type of circulation transaction, an ILL transaction, a document delivery or even traditional OPAC transaction logs. Software analysis of these logs may become much more powerful in the future, if interest in their utility grows. However, monitoring of remote user activities on local and remote Web sites is much more problematic.

Analysis of how our local users actually use remote library resources may be just as important to our understanding of local user needs as understanding how they use local resources. However, the literature on user-centric behavior is still small.

We may assume that within the firewall of local networks, one can track and identify local authorized user activities. With proper privacy policies in place, effective archiving of event data will enable enhanced assessment of behavior of local users on the local systems. With better OPAC log analysis software, it may be easier to analyze OPAC searching behavior. Current trends suggest that the Web is becoming the preferred interface for users to all types of resources. This means that we have to pay much closer attention to the design of the local Web interface. Just like the commercial Web sites, library Web sites have to make their interfaces useful and attractive.

Most current assessment activities are centered on use of local resources, what I call site centric analysis. More attention has to be given to analysis of user behavior on local as well as remote sites, ie. user centric analysis.

Campus-wide or consortia-wide biographical databases may be a useful way to overcome the limitation of other identifying mechanisms. New data-warehousing transaction archives, together with the use of new data mining software, may enable better longitudinal analysis. Biographical databases may contain name, student identification number, address, status (undergraduate, graduate, faculty, staff . .) and e-mail address. Longitudinal analysis of disparate university databases may bring us eventually closer to being able to do impact analysis. We may be able to correlate academic achievement (marks) with library use.

A new development is the ability to search a number different databases or sites in one search session, eg. clumping OPAC searches with Z39.50 search engines such as the Book Where? software package. This also changes the paradigm of use analysis. This obviously increases the efficiency and probably the effectiveness of bibliographic searches and has direct implications for the work of ILL and cataloguing units. However, the implication on assessing user-searching behavior is not readily apparent and should be studied further.

REMOTE LIBRARY ENVIRONMENT

The remote library environment is comprised of remote institutional networks, of remote OPACs, some with Z39.50 connections, various databases, and electronic resources which may be accessed, either by some type of identification and authorization scheme or accessed freely. Libraries may have leased access to remote resources, the vendor of

which may report back on detailed use that may identify local users or may just report volume of use. Most local connections to remote sites are becoming Web connections. Users prefer the Web as the environment of choice for information dissemination, retrieval and for communication. However, the Web environment makes any kind of tracking of remote Web activity from a local site very difficult.

Most of our network activities will essentially be Web-based. In a Microsoft dominated desktop, it may even be difficult to differentiate between the desktop and the Web. This means that we should concentrate on analyzing Web activities as the possible solution for issues of identification and user behavior. For this we have to delve into Web log statistics and analysis.

WEB LOG FILE ANALYSIS

Web server transaction log file analysis is the tool available to us to assess activities on local Web servers. The activities involve data collection, analysis and interpretation. There are a number of very useful resources which explain the details of Web log analysis. I will cite here a small but useful number of these resources (Noonan, 1996; Stout, 1997; Peters, 1998 [forthcoming]).

Most Web log analysis tools analyze server logs. They are used mainly for "site centric analysis". By far the majority of these software packages and most of the research on log analysis is based on the needs of marketers, the Web advertisement community and the increased needs of Web commerce. For-profit organizations want to maximize the return on their Web investments, and they want to know as much as possible about their market, how to reach the market effectively and to find out how their "customers" act in this new environment. Because of this, most log analysis tools are site specific tools: their goal is to make the site as attractive for commerce as possible. Until now, and for some time to come, Web analysis software has not been developed with the needs of the library community in mind. However, I think that in the Web environment our goals of maximizing the effectiveness of our Web accesses to our users does not differ in essence from the goals of the for-profit community.

Web log analysis software is trying to gather useful information on site traffic, on user demographic information and on user behavior. These software programs are successful in analyzing amount of traffic, hits, number of computers connected online, etc. They are far less successful giving a useful picture of user behavior. This is a result of the lack of built-in system on the Internet to track user identity or behavior. The Web server handles only requests between browser software and a number of HTTP servers. The server does not record the state of previous or subsequent requests. The logs are good at capturing number of "hits" (downloads of an html page), number of bytes transferred, number of "page views" (number of pages downloaded). Server logs also record which local resources are demanded, by which workstations and when. They can identify where these machines are by their IP address and which browser the user is using.

In order to make better use of log analyses, it would be useful for librarians to keep in mind the following limitations:

- differentiate between hits (downloads on a html page) and accesses (downloads of a whole page). Hits do not reflect the true nature of the use of a site. Accesses are better measure of use. None of these measurements indicate the identity of distinct users;
- counting hits or accesses may give an indication of demand for local resources. Currently these counts may be useful to show general demand trends and to show the relative demand for local resources from remote users;
- develop more familiarity with different log analysis software packages, since each one concentrates on tracking different measures. Rick Stout's book (1997) is a must-have for any webmaster and other persons who want to understand and customize their log analysis reports. He also includes information about available software and third party businesses that specialize in Web analysis reports (pp.105-175).

USERS CENTRIC PERSPECTIVE

To try to examine the behavior of users on remote servers may be almost impossible. The only way to do this at present is to use client-side logging software. These software packages are being developed

in response to the expressed needs of corporate managers who want to monitor and control the Web-surfing behavior of their employees. Libraries who choose to use these packages are forced into morally questionable practices. There is a number of these packages that profess to be able to track every click and every move on the Web - and from the client side (Client . .). Some of these packages show great promise, depending on how they are used.

Cookies - (persistent client state HTTP cookies) (Netscape . . ; Stout, pp.80-86) are a mechanism used by server-side connections to both store and retrieve information on the client-side connection. Cookies can store information that identifies the user - user's name, password, demographic information, method of payment data - for re-use on the server side for a future time when the user who used the page before is reading it again. Many browsers have the capabilities to capture and re-use cookies. The cookies may be a good way for us to track Web-surfing behavior. However, cookies may contain only limited amount of data, and not all browsers support them. Users may also be unaware of cookies on their hard disks. Users may be able to opt out of being monitored by cookies, but most users are unaware of this capability or are unaware of cookies. Cookies certainly violate the privacy of the hard disk and the privacy of the user.

Digital ID (*Digital . .*) is a new development initiated by for-profit companies who are mainly interested in ensuring secure commerce on the Internet, but it has potential to facilitate a secure identification environment which can be used by libraries as well.

The main limitation of Web log analysis packages is that they can only count activity of grabbing files or activity of creating page views in the networked environment, but they cannot show how the information contained in those file is used. We may have to supplement these system counters with more reliable proven techniques, such as surveys, questionnaires and interviews. More systematic use of Web-based questionnaires, context-sensitive pop-up questions and Web page evaluation questionnaires may be better analysis tools than the reports derived from currently available Web logs.

CONCLUSION AND OPTIONS

We need to develop user identity performance measure indicators that are appropriate to the way networks are structured and the way they work. These measurements have to reflect local structures and policies. They have to be identifiable and traceable. The indicators should be able to be comparable to similar indicators in other institutions. This may be more difficult to achieve than we think. Work is being done by a number of US national organizations such as the Federal-State Cooperative System for Public Library Data (FSCS), with the goal of identifying comparative library network output measures. The effort to find consensus among the stakeholders is on-going (Smith and Rowland, 1997, pp.168-172). A study on 'Investment in Electronic Resources', done by Timothy Jewell from the University of Washington and sponsored by the Association of Research Libraries (ARL) and the Council on Library Resources (CLR), is looking at the character and nature of investment in electronic resources with the goal of defining input and outcome measures for the use of electronic resources in academic libraries. For now, count of e-mail accounts may prove to be one of the more reliable indicators of the potential size of local network user population.

Campus or consortia server-based biographical databases, which are part of an integrated identification and authentication gateway to local and consortia resources, are being set up. Sophisticated client-side reporting software, in conjunction with these biographical databases, will enable individual and status tracking and may produce better outcome analysis in the near future.

Site-centered Web log analysis will not serve the library community well as a source of analysis on user Web-surfing behavior. Developing and implementing better user-centered Web log analyses, with particular attention given to privacy and confidentiality aspects of implementation, may serve us better. We have to pay much more attention to the Web environment as the environment for the future. This means a new way of thinking about our business. We still live in a site-centric mindset. The Web is not site-based at all - it is a virtual environment with no familiar defined notions of space or governance. It may be that our quest for control of this environment will fail and, at least from the per-

spective of measurement activities, we are in for a long period of confusion and chaos.

Since most of our services and contacts with users will be Web-based, libraries should pay as much attention to the Web interface as do the for-profit organizations. It is imperative that we design and maintain good Web interfaces, which will enable users easy access and use of networked resources. We should strive to incorporate new service possibilities such as simultaneous multiple Z39.50 searches and explore the possibilities of new agent technologies and push technologies for delivering quality service.

We have to develop statistical measurements and analysis for the use of electronic resources. Libraries have to find reasons for the reductions they experience in traditional library services such as reduced circulation and reduced use of reference services. Alternative and new modes of information delivery have to be developed and measured with real quantifiable data as the basis for future planning.

On the positive side, qualitative methods of assessment and analysis, based on survey activities, questionnaires, interviews and focus groups may be the way to proceed in our quest to understand user behavior in network environments. We should employ and refine Web-based interactions with users in the form of available feedback mechanisms, real-time net-based reference services, pop-up questionnaires and constant evaluation of our Web interfaces.

The usefulness of user identification as a measurement indicator is dependent on the validity of the analysis of the data and on the actions generated by the analysis. However, concerns for the protection of the privacy of the individual user have to be maintained for the whole system to survive and thrive.

Successful integration of new technologies into library services and their positive impact on the educational process will ensure that libraries continue to be relevant to the learning process.

An institutional culture of assessment has to be fostered in libraries. The principle of making decisions based on facts has to be strengthened. Library managers have to show leadership in areas of assessment and planning.

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Performance Measurement and Management Information for the Electronic Library

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This study was designed to provide a framework for the development of performance measurement of electronic library services. Drawing on the work of McClure, the study liaised closely with the implementation of *The Effective academic library* concept. A five-fold model electronic library is proposed: resource discovery, resource delivery, resource utilisation, infrastructure provision, resource management. Reasons for measuring the performance of electronic information services are identified, and a framework for evaluating electronic services is described. Areas in which further work is required are outlined, eg. the testing of suggested indicators, agreement on a core set, agreement on international standards, and modelling the electronic library. Work on the *impact* of electronic library services on users is advocated.

1. INTRODUCTION

The concept of the electronic library has evolved over a very long time. In the 1960s there was avid discussion of the "scholar's workstation", which would provide a comprehensive information retrieval system on the desktop of every researcher: quite how the desk would take the weight of all those valves wasn't made clear! During the 1970s we went through the era of the "automated library", which used computer systems to support its administrative functions and started to use online services, produced mostly by commercial vendors and learned societies. This usage was consolidated in the 1980s with the introduction of a much wider range of information services, the use of PCs to provide intelligence at the front-end, and the development of widespread networking - by the end of the 1980s the "networked library" would be an appropriate descriptor for the stage of development that the average library, at least in the academic sector, had reached.

In the current decade this growth in the use by libraries of computers and networks has continued apace, with the World Wide Web as an icon of innovation in information delivery. Such changes have been so fundamental that it is now reasonable to claim that they are altering the nature of libraries themselves. The "electronic library", in its fully developed form, may hold no stock of its own and may never see its users. It may be understood better as an "information brokerage" which is involved in identifying appropriate information sources on behalf of its clients, in assessing the quality of those sources, in making them available in a convenient, personally-packaged form at the right time, in training its users in ever more complex information skills and, perhaps, in generating new information products.

The issues which librarians have to address, however, are made more complex by the fact that, except in a few isolated pockets, the pure electronic library does not yet exist. There is great significance in the UK Joint Information Systems Committee's recent call for proposals for exemplar projects in the field of "hybrid libraries". For the foreseeable future - which with luck means beyond the end of next year! - libraries will be a complex mix of the electronic and the traditional. At the University of Central Lancashire we will be jointly leading a "hybrid library" project with the University of Northumbria at Newcastle. We will be working together, with colleagues from many other universities in the UK, to try to define how the library as place, the library as a physical learning centre, the library as shelves of books and journals, the library as electronic information broker - how all these fit together to provide the best possible service for the user.

That imperative - providing the best possible service for the user - is the motivation which lies behind the Management Information for the Electronic Library (MIEL) Programme on which we have been engaged at the Centre for Research in Library and Information Management (CERLIM)

for some time now. MIEL, as presently conceived, has five major phases:

- MIEL1, a Scoping Study carried out under the eLib Programme, which included an expert seminar attended by UK university librarians with experience in the field of performance measurement. The Scoping Study recommended a basic model for work on this subject. Briefly this would involve consideration of the needs of library managers for management information in support of three functions: operational, or day-to-day, management; forward planning; and evaluation and review;
- MIEL2, a follow-on to the Scoping Study, which was funded as a Supporting Study under the eLib Programme. The Report on this Study has been published recently on the Web (Brophy and Wynne, 1997). We will be describing its key results later in this paper;
- MIEL3 consists of international standards activity designed to provide agreement on indicators and paralleling work on traditional indicators by such bodies as ISO and IFLA. This work is being funded by the European Commission as part of the larger EQUINOX Project which will run from 1998 to 2000;
- MIEL4 is examining the issue of management information requirements in co-operative networked electronic environments such as clumps and hybrid libraries;
- MIEL5 is researching the management information needs which arise when electronic libraries are delivered to dispersed and remote populations.

The last two phases are still very much at the preparatory stages.

MIEL also relates to a number of ongoing projects in CERLIM, most notably in the area of quality management. Again, this work has received funding from both the British Library and the European Commission and a number of papers and a book have been published (Brophy and Coulling, 1996; Brophy and Coulling, 1997).

2. A MODEL OF THE ELECTRONIC LIBRARY

In order to develop meaningful management information and performance indicators we need some kind of theoretical model of the electronic library. However, as yet there are few clear models available on which the strategic vision of the electronic library can be built. The term "electronic library" is itself controversial, and some prefer to call it (whatever "it" may turn out to be!) a "virtual library" or "networked library". Others regard the whole debate as sterile, since the whole concept of a library needs to be revisited in an environment of readily available, globally networked information. Such issues will continue to engender heated debate for many years to come.

Some of the issues are, however, becoming clearer. If we assume that the principal role of the academic library is to enable its users to identify, locate, gain access to and use the information they require, then the "library", whether traditional, electronic or hybrid, may be identified and characterised by a series of five functions:

- it provides tools (and by "tools" we include (human) advisory services as well as IT-based mechanisms) which enable users to view the "electronic information landscape" through the sources of metadata which have been provided either directly by the library or to which it provides access. This is a "resource location" or **"resource discovery"** process. It may be seen as a two-stage process of *resource identification* and *location identification,* ie. the user may identify a resource and then identify a location which holds it. The second locating process may be left to the library to perform (as when a user completes an interlibrary loan form but does not specify a holding location);
- it provides tools which enable users to gain access to the information which they have identified as being of interest to them. This is a "resource provision" or **"resource delivery"** process. In some cases resource delivery may be a three-stage process, whereby the user, having discovered an item, first requests it, the library then acquires it, and the library then delivers it to the user - this is the classic traditional library process expressed, for example, in a reservations or interlibrary loan service. In an electronic context these processes are usually concatenated;
- it provides tools which enable users to exploit the information content to which they have been given access. This is a **"resource utilisation"** process. In an electronic context the tools will

include word processing, spreadsheet and database software together with filters and specialist display software such as Adobe Acrobat;

- it provides, possibly through third parties, the physical infrastructure and support services which users need to exploit information resources. This is the **"infrastructure provision"** process. One of the functions of the electronic library will be to provide network infrastructure, PCs, printing facilities and so on. It will also provide support in the form of helpdesk and advisory services;
- it provides management structures and procedures which ensure that the resources available to it are used to provide the maximum possible value for money to its users. As part of the management function, decisions will be taken on which resource discovery tools to provide, on how specific resources should be delivered (for example, should they be held locally or accessed from remote servers), and on which tools should be provided to enable users to exploit the information. In addition, management will provide procedures to handle the economic and legal aspects of information provision. Together, these may be described as **"resource management"**.

These functions are shown diagramatically in Figure 1.

Although these functions can be found in the traditional library, in the electronic environment they introduce new levels of complexity, not least because so many of the information resources are not "owned" by the library in any real sense: issues such as cataloguing of networked resources are therefore far more complex than their traditional library equivalents (Owen and Wiercx, 1996).

None of the functions described above assumes that the library acts as an intermediary: increasingly it must be expected that academic information resources will be discovered by and delivered to the end user. It follows that, once networking becomes pervasive, the concept of the library as "place" becomes essentially meaningless, except insofar as (a) the library operates as a "hybrid" of electronic and traditional services, and (b) one of the "tools" provided is a PC and a place to sit (and maybe drink coffee!). In the academic environment there are likely to be pressures to deliver more and more courses of study off-campus: the electronic library is ideally placed to support this, once the conceptual focus is shifted away from the geographic location.

3. BACKGROUND

As background to the MIEL2 study which we are reporting here we carried out an extensive literature search and contacted key individuals who are active in the field. Surprisingly little systematic work has been carried out on the performance of the electronic library, but there is one key corpus of work in the United States, led by Professor Charles McClure of Syracuse University. Published under the title "Assessing the academic networked environment" the work is in fact broader than the electronic academic library since it looks at the whole networked IT services which an academic institution provides for its staff and students (McClure and Lopata, 1996). The study posits the following questions as a foundation for assessing networked services:

- What is the volume and type of networking taking place on a particular academic campus?
- Who are the users that access the academic network and what types of services do they utilise?

Figure 1

Resource management functions

Resource Discovery	Resource Delivery	Resource Utilisation	Infrastructure Provision
Resource identification Location identification	Request Acquire Deliver to user	Exploitation tools	Space Equipment Networks Support services
← ..... **Resource Management** ..... →			
Prioritisation, Budget control, Value for Money			

- How much do the various types of network activities and services cost?
- How has access to and use of networked information resources and services affected teaching, research, learning, service, and other aspects of traditional academic life?

As can be seen these are fundamental questions which go beyond even convergence of library and IT services and impinge on the very nature of institutional approaches to teaching, learning and research.

Our work in MIEL has perhaps been more modest. As well as taking into account McClure's pioneering work, we were asked within the Scoping Study to pay particular attention to a publication of the UK Higher Education Funding Councils called *The Effective academic library* (Joint . . , 1995). We also looked in detail at earlier library performance measurement work, at research being carried out by Harry East and his team at City University (East, 1995-), and at the IMPEL work at the University of Northumbria (IMPEL . . ,). However, *The Effective academic library* provided the baseline. The origins of this document lie with the recommendation, made by the Follett Report in December 1993, that a framework of coherent and generic performance indicators, suitable for assessing academic libraries, be established which would build on earlier work carried out by COPOL and SCONUL. In response to this recommendation the Funding Councils set up an Ad-Hoc Group on Performance Measures for Libraries which reported its findings in the form of this discussion document. Since its publication a supplement on service standards and development targets has also been issued.

The indicators contained in the report have been arranged by the Ad-Hoc Group into five areas:

- integration: the level of integration between the mission, aims and objectives of the institution and those of the library (five indicators);
- user satisfaction: surveys and other feedback (eg. course review, suggestions) (five indicators);
- delivery: are stated objectives being met and is the volume of outputs high? (seven indicators);
- efficiency: outputs related to resource input (nine indicators);
- economy: cost per student (seven indicators).

Work is continuing, through SCONUL and with support from BLRIC, on refining these indicators. It must be emphasised, however, that the indicators relate almost exclusively to the *traditional* library: the MIEL Study aimed to parallel *The Effective academic library*.

4. THE MIEL FRAMEWORK

In order to constitute a framework for evaluating electronic services, the first question to be addressed was "what is to be measured?". The same is true of traditional service measurement but, with regard to electronic services, the MIEL Project Team found that the most obvious answer to this question might not be the most informative. It has been found that management information for electronic services which is relatively easy to collect can be very ambiguous. For example, the counting of the number of hits on a given web site in a specified period may yield a low total. This information may be interpreted in two contradictory ways: most obviously, it could mean that few users are hitting the site. Alternatively, the data could conceal the circumstance that the site was immensely popular immediately before the period of measurement, and that the majority of users cached the site in their own network areas in order that they could revisit its contents frequently thereafter, without encountering network congestion.

Some useful work has been done at Cranfield on the issues surrounding measurement of the usage of web resources (Goldberg . . ,).

Apart from this type of data ambiguity, further difficulties were encountered. It was initially tempting to take a dataset of *electronic documents delivered* as the founding dataset of the model. A dataset of this type for print materials is the foundation for many traditional indicators. However, a little investigation revealed that such an assumption can be misleading or even completely valueless.

After all, what *is* an electronic document? It will be seen with regard to the problem of definition that electronic documents may include:

- web pages (or a set of linked pages - is this one or many documents?);
- journal papers published in electronic form;
- an image contained within an electronic journal paper, but delivered as a separate file;

- digitised video clip of many individual "frames".

The decision to use *number of electronic documents delivered* as a baseline dataset raises more questions than simply that of definition. It may be pertinent to consider how useful it is for a library to measure at all some of the information delivered at all by certain electronic services. In the case of a traditional library, all the materials within it have been selected and purchased by library staff with a view to furthering the purpose for which the library was established. In the case, for example, of an academic library which offers its users access to the Internet via Netscape and a JANET connection, the library has provided the hardware, software, connection and possibly even training; but the users may choose to access information services which have no bearing at all on the declared mission of the library to support study and research. Furthermore, many web sites are accessed accidentally, or solely as a route to other services, and their inclusion in the dataset may badly skew any indicator which is subsequently derived from it.

It was eventually decided to preface the question "what is to be measured?" with the notionally earlier question of "why do we wish to measure performance?" Three principal reasons were identified for measuring electronic information service performance. These were:

- operational management of the library service - in order to establish how effective a library is in terms of its outputs: how well or ill is it, for example, meeting the requirements of any extant service level agreements which it has in place with its users?
- forward planning - an intelligence-gathering exercise which will inform the library's strategy for coping with technological change, possibly by means of a continuing "technology watch" function to predict the impact of new technologies and new product on the services offered;
- evaluation and review - in order to measure overall library effectiveness in absolute terms, as well as with a measurement of effectiveness in terms of outputs (as in operational management, above). The Project Team was particularly concerned to build on the approach taken in *The Effective academic library* as well as to incorporate the recent work of Charles McClure at Syracuse University.

5. OPERATIONAL MANAGEMENT

It is useful for library managers to consider choice of indicators for measuring operational management in the electronic library accordance with the five-fold model outlined earlier:

- resource discovery
- resource delivery
- resource utilisation
- infrastructure provision
- resource management.

In order to formulate indicators to inform operational management it was decided to utilise the *service session* as the basic dataset, or building block, of performance measures. The shortcomings of using *number of electronic documents* delivered for the same purpose has been discussed above. There are clear precedents for choosing *service session* for this role: most CD-ROM monitoring software and most JISC services choose this dataset (or some variant of it). It carries a number of advantages, of which the more notable are:

- it is time- and process-independent, in that it measures each occasion a user tries to do something, rather than how efficiently or otherwise they go about it;
- it gives a (rough) idea of comparative use between services;
- it offers the possibility of building time series (although only with great care).

Clearly, the notion of a service session requires to be contextualised and we suggest using a measurement period of one month. This accords with much accounting practice in UK universities, but there is no necessity to use it if an alternative is better suited to a particular site.

Resource Discovery

The choice of *service session* as a foundation will remain central in resource discovery; but where it is possible to do so it may be desirable to maintain a parallel indicator such as:

- items downloaded per service per month.

Some services, such as web pages are (as we have seen) not amenable to this type of analysis and, as described above, the question of what con-

stitutes an electronic document is still vexed. As an alternative for "services", where items cannot be defined and "sessions" is inappropriate or cannot be measured, it may be necessary to use:

- number of "hits" per service per month.

This is a particularly appropriate indicator for "front-end" services, such as web pages provided by the library and giving links to high quality web resources, where the effects of caching (as discussed above) are less likely to be pronounced.

Further examples of indicators appropriate for measuring operational management include:

Resource delivery

- items downloaded per service per month.

Resource utilisation

- user satisfaction with resource utilisation tools.

Infrastructure provision

- queuing times for access to workstations;
- downtime (as a percentage of total time) per month.

Resource management

- number of sessions on each service/subscription cost.

6. FORWARD PLANNING

The indicators the Project Team found appropriate to this area of performance measurement owe more to hard management data than to innovative, electronically-generated datasets. Typical data in this category might be:

- changes in size and composition of the market;
- extrapolation of market penetration;
- extrapolation of individual service usage.

Managers may wish to develop time series indicators in this category using externally available datasets such as number of students, number of staff etc., but in the case of "extrapolation of service usage" the previously-identified *service session* dataset can be used once again to formulate a Use of Services indicator. Hence:

- Use of Services:

  total number of sessions in years -2, -1, 0, 1, 2, 3 . . . (year 0 = current);

  number of sessions per service type in years -2, -1, 0, 1, 2, 3 . . .

7. EVALUATION AND REVIEW

In this section the Project Team was particularly concerned to build on the approach taken in *The Effective academic library* which uses a five-fold structure to gauge overall library effectiveness:

- integration
- quality of service
- delivery
- efficiency
- economy.

In preparing indicators to measure these concerns, the Project Team was also mindful of McClure's own similar set of criteria, and attempted to link the two sets wherever possible (McClure and Lopata, 1996). McClure's criteria comprise:

- extensiveness
- efficiency
- effectiveness
- service quality
- impact
- usefulness
- adoption.

The MIEL Project report proposes indicators which address each of *The Effective academic library* criteria, and references McClure's work. The guiding single principle in formulating indicators in this area was extrapolated by the Project Team from the question "what is important to the user in electronic services?", given that, early in the project (as discussed above) it had become clear that *number of electronic documents delivered* was unsuitable as a foundation dataset. The Project found that what is important to users is the *range* of resources and their *depth*, and these issues should therefore form the basis of effectiveness indicators. A couple of examples of indicators derived using this principle will suffice as illustrations:

- PC hours used per annum divided by FTE students, where PC hours is defined as the number of PCs from which students can gain access to

electronic library services multiplied by the number of hours they are used per annum, determined through sampling (automated where possible);

- total major electronic subscriptions, which will be the total numbers of:
  - JISC dataservice subscriptions
  - networked CD-ROMs (or equivalent)
  - commercial service subscriptions (above an agreed threshold value).

It is hoped that the foregoing makes clear the principles which informed the Project Team's work in seeking to formulate indicators appropriate for the measurement of electronic services, and that the Project sought, wherever possible, to include the best practice promulgated by a number of internationally-recognised authorities. However, it should be recognised that all the above are indicators solely for electronic services, and current evidence strongly suggests that libraries will remain "hybrid", ie. providing a mix of print and non-print services, for the foreseeable future. It may, therefore, be instructive to consider in conclusion not only the overall recommendations of the MIEL Project for electronic information services, but also the further work proposed by the Project Team to address the performance measurement needs of hybrid libraries.

8. RECOMMENDATIONS

It is inevitable that a Study of this kind will reveal a number of areas where further work is required. As we noted at the beginning of this paper, CERLIM is pursuing some of these through the MIEL3, MIEL4 and MIEL5 strands of its programme. However, the following broad recommendations were made by the MIEL2 Study itself:

8.1 Testing of the Proposed Indicators

Work is needed, involving a range of UK institutional contexts ("old" and "new" universities; geographical spread; converged/non-converged, etc.), to test the suggested indicators in live operational environments so as to confirm their validity and applicability.

8.2 Agreement on the Core Set of Academic Library Indicators

It would be inappropriate to seek community agreement on a "core" set of indicators until testing had proved the robustness and meaningfulness of the developed indicators in a live setting. However, once that process has been achieved, there will need to be a process whereby the set of indicators can be agreed. In the UK, it would be appropriate for this process to be integrated with that used for *The Effective academic library* and its core set.

8.3 Agreement on International Standards

There is already wide agreement (via ISO and IFLA) on performance indicators for traditional libraries. There is a need to encourage development of similar agreements on performance indicators for the electronic environment. CERLIM proposed a study of this area (MIEL3) which was submitted to the European Commission under the final Call for Proposals of its Libraries Programme and is funded under the EQUINOX Project which we are co-ordinating with five partners from Ireland, Germany, Sweden and Spain. It should be noted that this work will extend electronic library performance indicator work beyond academic libraries and beyond UK concerns.

8.4 Modelling the Electronic Library

One of the difficulties of the present exercise has been the inadequacy of current models of the electronic library. JISC's current calls for proposals in the areas of clumps and hybrid libraries are evidence of work which is being undertaken to develop our understanding of the organisational presence and reach of the electronic library. Alongside these developments there is a need to explore the management information needs of, and performance indicators for, emerging models of the electronic libraries. It is important, therefore, that work continues alongside these broader developments.

A further issue which may be significant is the development of distributed library services, where the emphasis is on off-campus delivery. Within the UK, current emphases on lifelong learning, the new government's intention to establish a "University for Industry", and the outcomes of the Dearing Review of Higher Education, may all shift demand

away from traditional on-campus users towards a more fragmented and dispersed user population. Drawing on the recommendations of the Dearing Review in particular, there is a strong case for a study of management information needs and strategies in a variety of electronic and hybrid library scenarios.

As we noted, CERLIM has initiated some work in this area (MIEL4 to look at hybrid libraries - including, for example, the issue of comparing print and electronic equivalents - and MIEL5, designed to look at distributed services). The biennial "Libraries without Walls" conferences, organised by CERLIM in co-operation with the University of the Aegean, also provide an opportunity to discuss these issues. Again, CERLIM has produced relevant publications (Irving and Butters, 1996). We are also developing our theoretical model of the hybrid library which we hope we will be able to use to underpin further work in this area.

8.5 Data Collection

A number of actions are needed under this heading. Firstly, work is needed to define methodologies to enable data to be collected economically and efficiently by each institution. Secondly, there is a case for considering how statistical data should in future be collected at national level and internationally. At present in the UK, statistical data (eg. on total book loans and total staffing in SCONUL libraries, leading to a national average) is collected by aggregating returns from all SCONUL members. For dataservices it would be more efficient to collect this data from the datacentres. At present the datacentres report this information to JISC, but in the context of their contractual service provision through formal annual reports rather than as a statistical collection exercise. There could be a role for a national agency, possibly by extension of the remit of a current agency in this context or JISC may itself take on this role.

Extending this concept internationally, there is a need to link with work such as the EC's newly approved supporting measure, LIBECON 2000 which aims to develop and continuously update a database of statistics about library activities and associated costs in the context of national economies. Further linkages with work by IFLA, ISO, UNESCO and other international agencies will also be required.

8.6 Understanding the Operation of Electronic Libraries

It would be useful to explore site-based issues in some detail, preferably through detailed case studies. These would allow in-depth exploration of key concerns, including exploration of electronic library service quality (using the SERVQUAL and similar methodologies), identification of user behaviour in networked information usage, issues of service substitutability and, most importantly, impact studies (see below).

8.7 The Impact of the Electronic Library

The consensus among the experts consulted during the MIEL Study was that there needs to be a new focus on the *impact* of electronic library services on their users. We know remarkably little about this subject. Staff and students in academic institutions make extensive use of electronic information resources, but we do not know which services are of the greatest value, nor how one service compares with another, nor, to any great extent, what it is about a service which gives it value (we posit that content quality is important, but we know that interface design can be equally significant). For these reasons we recommend that a strand of work on the impact of the electronic library should be encouraged.

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HEALTH LIBRARIES

Trends in Performance Measurement and their place in Management, Health Care and Librarianship

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In the fields of management, health care and librarianship, performance measurement has been integral to the cyclical process of quality improvement. Trends in measuring library performance have been changing in the past decades. From input and output figures, management has become increasingly concerned with outcomes. While academic and public libraries are developing empirical, user-oriented and outcome-focused measurements, health sciences librarians are attempting to measure the immediate impact of the service on its user community, ie. on clinical decision-making. The implications of these trends include: increasing attention to users' needs and feedback, focus on what is measurable at the expense of abstract objectives less amenable to quantitative measurement, and the danger of overlooking the input resources and output quality necessary for generating the outcomes and impact.

INTRODUCTION

The trend towards measuring library performance has been changing in the past decades. From merely looking at the input (resources essential to library services eg. number of books in the collection) and output (services resulting from library activities eg. number of book loans) figures, library management has been increasingly concerned with the outcomes (eg. users served) and the impact of the service on its user community. The focus of senior management, librarians and library stakeholders has changed and there is an increasing emphasis on the accountability of libraries and of organisations in general.

In the health care sector, medical and health professionals use information on a daily basis to support patient care and management decisions. "Medicine is first and primarily an information-based industry" (Potter, 1995, Article B). In this process, to what extent is information obtained from the library responsible for the quality of their work? Is this process measurable?

Before the questions can be answered meaningfully, the place of performance measurement in management theories in general and health care management in particular should be studied. Much research has been carried out recently on measuring performance in general management and in the health care fields. It sets the background for the study in the health care librarianship field.

IMPORTANCE OF PERFORMANCE MEASUREMENT IN QUALITY MANAGEMENT, HEALTH CARE AND LIBRARIANSHIP FIELDS

Performance measurement is a key concept in management, health care and librarianship fields in the evaluation of health care organisations and libraries.

The literature on the place of performance measurement both in the general management theories as well as in the health care field has been growing rapidly as a global trend. The management of quality theorists and practitioners rely on measurements to know where they are, to tell where they should go and how far they have gone, and to help in resource allocation and planning. Literature on management and quality management offers useful background materials for the study of the measurement of library performance.

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) refers performance to "the way in which a healthcare organization carries out or accomplishes its important functions" (Joint Commission, 1993, p.51). An organisation's functions are directed to its goals. The way in which performance is defined connotes a "dimension of scale" in its measurement, expressed as "levels of performance".

In librarianship literature, performance is defined by Winkworth (1991) as how well an organisation

is doing the job for which it was set up. Again, performance is linked to the objectives of the organisation and can be measured by regularly looking at a variety of areas such as systems, procedures, policies, standards, objectives, feedback, indicators, etc.

Measurement of Performance in Quality Management Literature

In management literature, the measurement of performance is an integral part of quality management theories.

In Total Quality Management (TQM) which is propounded by Deming (1986), the evaluation of performance is one of the many key processes in achieving quality. Quality is primarily satisfying the customers' needs. TQM focuses on improving the process and scientifically measuring the outcomes. TQM is based on three processes: to establish customer needs, examine processes to meet those needs, and improve these processes in terms of appropriateness and cost. The process of continuously measuring and monitoring, evaluating and improving performance is "continuous quality improvement" (CQI) which has been frequently quoted, used and applied to business and industry.

Another quality theory to improve performance, business process re-engineering (BPR), was introduced by Hammer in the Harvard Business Review (1990) and by Davenport and Short in the Sloan Management Review (1990). Hammer and Champy (1993, p.32) define BPR as the "fundamental thinking and radical redesign of business processes to achieve dramatic improvement in critical, contemporary measures of performance, such as cost, quality service, and speed". Davenport's definition of BPR is "the analysis and design of work flows and processes within and between organizations" (1990, p.11). Whatever the definition, central to the focus of BPR are performance measures.

Zairi subsequently summarised the different tools and techniques suggested by various authors to realise BPR such as operational research, change management, industrial engineering, etc. Benchmarking was referred to as one of the techniques, an "integral part of BPR" because it "allows the visualisation and development of processes which are known to be in operation in other organizations" (Zairi, 1995, p.4).

"Benchmarking" is often known in management as the process in identifying the outcomes measures, and using them to find the best performance in the industry. It has been interpreted slightly differently by various authors. Camp treats benchmarking as the "search for industry best practices that lead to superior performance". He follows David Kearns, chief executive officer of Xerox Corporation, in adopting a formal definition: "Benchmarking is the continuous process of measuring products, services and practices against the toughest competitors or those companies recognized as industry leaders" (Camp, 1989, p.10).

According to Camp, there are three major categories of benchmarking: internal benchmarking, industry benchmarking, and process benchmarking. Internal benchmarking refers to measuring and comparing performance against internal operations or standards especially in multinational or multidivisional corporations. Industry benchmarking compares with competitors in the same industry. Process benchmarking weighs generic processes against operations of the leader in the same function eg. in procurement function of any industry.

Benchmarking is carried out by translating "best practices . . . into operational units of measure" (Camp, 1989, p.15). Again, measurement is a major component of this quality management tool.

Macneil and Rimmer in their article "Benchmarking in Australia: The state of play" (1993) highlight a few areas of concern in using this tool in Australia. Among them are the difficulties in balancing between involving people, applying the strategy and ensuring that measurement is rigorous, and integrating benchmarking activities with normal activities. There are also problems with application - what to benchmark, whom to benchmark with, and agreeing on the meaning of the data.

A number of characteristics of performance measurement can be identified from current literature on quality management. The element of measuring performance is crucial in determining current positions and mapping future directions of an organisation. Performance measurement is focused mostly on outcomes. The input, process and the standards are the means to achieve the outcomes. In addition, performance is judged by the level of customer satisfaction. The process of measuring, monitoring

and changing to improve is regarded as continuous and cyclical.

Quality theories have made a marked influence on managers, and have been widely discussed and selectively applied. They have also been applied with varying results (Caruana, Pitt and Morris, 1995). Regardless of their theoretical validity, success or the extent to which they appear to have been adopted, the management theories highlighted above provide the background in the understanding of current trends in the design and the use of performance measures in the fields of health care and librarianship. The major concepts, particularly customer orientation and outcome focus, underlie the current thinking in health care and librarianship literature.

Measurement of Performance in Health Care Literature

Since the mid-eighties, the quality management concepts described were introduced into the health care field and were shown in the focus of the health care reforms in the United States, United Kingdom and Australia.

In the United States, Berwick, Godfrey and Roessner (1990) describe what a group of health care planners and quality management theorists think of applying TQM to health care. They stated that the causes for health care industry to turn to TQM were the escalating cost of health care to the government and to private industry and the inequity of care in the US.

Applying TQM principles to health care has generated the attention to and the development of performance measurement of health care, its processes and its outcomes. The JCAHO focuses on the development and use of performance indicators. In their *Primer on indicator development and application: Measuring quality in health care*, an "indicator" specifically connotes a "meaningful and useful performance measure" (Joint Commission, 1990, p.*v*). Their aim was to use and develop indicators which can validate performance.

Around the same time, Enthoven, a Stanford professor, introduced the internal market model to the health care sector in the United Kingdom (Enthoven, 1985) and it was adopted by the UK government five years later as the cornerstone of the Thatcher reform of the National Health Service. The avowed purpose of the reform was to "raise the performance of all hospitals and general practitioner practices to that of the best" (*Working for patients,* 1989, p.3).

According to Enthoven, an internal market separates the purchaser and the provider in an attempt to introduce competition and accountability in the service. The purchaser is a health authority who provides the funding and "purchases" services on behalf of the consumers of the service, ie. the staff, or the resident populations. The provider is the clinical unit such as an independent hospital, National Health Service trusts, general practitioners, etc. Integral to the internal market is the contracting element, which is either implicit to the purchaser provider relationship, or explicitly stated in service level agreements or contracts.

To ensure quality service, the purchaser monitors the provider's performance by using benchmarks, guidelines or standards as the case may be. In these aspects, performance and outcome indicators are important elements in the evaluation of the service (Maynard, 1993).

In examining the UK White Paper (*Working for patients*, 1989), the discussions on measuring health outcomes focus more on stating what they are, rather than why they should be so. Criteria for measuring the performance of health care are multi-fold. First of all they are based on the quest for "value for money" eg. cost per surgery, or expenditure expressed as a percentage of the gross domestic product. Emphasis is also patient-focused eg. waiting time for patients. The principle "Putting patients first" is used. Some tend to be proxy indicators for the purpose of resource allocation eg. unplanned re-admission to hospital, mortality rather than morbidity because the former is more obtainable. One can observe that a multitude of input (cost, resource), and outcomes measurements are being mentioned.

It can be argued, from reviewing the literature, that the measurement of performance in the health care field prior to the health care reform tended to focus on input and process. After the reform, the development of performance measurement tends to focus on outcomes eg. mortality, patient- or customer-oriented measures eg. patients' waiting time, and the design and use of quantitative indica-

tors. The indicators of health care performance are usually expressed as a proportion or as a ratio, eg. health expenditure as a percentage of GDP, as aggregate value over time or regular intervals, or as proxies eg. unplanned re-admission to hospitals as an indication of the success of hospital treatment (Joint Commission, 1993). They can be used to reflect or suggest the impact of health care eg. epidemiological data (Rubilee, 1993).

Measurement of Performance in Librarianship Literature

Similar to the health care field, earlier schemes for examining library performance tended to be based on input and throughput statistics only, rather than outcomes or impact. Traditional statistical keeping in libraries across the world reflected the same trend for a few decades or more. Very little has been discussed on why these statistical measures were kept, apart from the long held assumptions that the larger the library size and resource, the better the library performance, and that the greater the ability to secure resources, the more effective the library.

An examination of the statistics gathered on the national level by the Library and Information Statistics Unit revealed the tendency of still collecting input and output figures only (Library . . , 1993). A review of the UNESCO guidelines for measuring the performance of public libraries also testified to this view (Moore, 1987-89).

In Australia, statistical data collection by libraries as a whole have tended to focus on input (staff, collections) and output (loans, service levels) rather than outcome. This is shown in reviewing library statistics collected at the national level by the Australian Academic and Research Libraries and Special Libraries Sections of the Australian Libraries and Information Association (Maguire and Willard, 1990).

From the 1960s through to the first half of the 1980s, there were occasional studies and attempts to evaluate library success in terms of library effectiveness (Blagden, 1975), benefit and cost efficiency (Bickner, 1971). Evans found that after going through 500 articles, books and abstracts, the basic aspects in evaluating library performance were accessibility, cost, user satisfaction, response time, cost/benefit ratio, and use. He noted, however, that the techniques were focused on mathematical techniques rather than sensitive to the quantitative and qualitative factors of the library service (Evans and Ferguson, 1972).

The use of performance measures or performance indicators as a term with specific reference to the goals, standards, planning and budgeting and in general to outcomes has been used in librarianship literature only since the second half of the 1980s. Goodall (1988, p.140) summarised the library literature on this topic and concluded that there was "a surprising lack of originality in the writings".

There are two common approaches in the treatment of performance measures in librarianship literature - the empirical and the prescriptive. The latter has been adopted by library associations and institutions around the world which aim at developing manuals and practice guidelines on designing sets of performance measures as a framework for evaluation and comparison across libraries and countries.

It was in the last decade that more elaborate empirical studies were carried out to link performance measures to goals - what is it that libraries are set up for? The studies tended to cover primarily academic libraries (Kantor, 1984; Henty, 1989; Van House, Weil and McClure, 1990; Cotta-Schønberg and Line, 1994; McDonald and Micikas, 1994) and public libraries only (Van House and Childers, 1990; Childers and Van House, 1989; Cope, 1990).

On academic libraries, McDonald and Micikas (1994) used statistical factor analysis to identify "major" and "minor" dimensions of effectiveness after surveying senior library staff in 264 academic libraries in the US. The dimensions were then broadly grouped into major resources, "library stakeholder interaction", and access. They argued that effectiveness or ineffectiveness is the result of interaction of many traits found both within the library and between the library and its environment.

Recent empirical studies were carried out in Denmark and New Zealand with a view to collecting data using an existing methodology. Cotta-Schønberg and Line (1994) reported a pilot project at the Copenhagen Business School Library, Denmark, which started off to test a set of measures

empirically at different libraries of the same type with a view to apply them throughout the country.

The New Zealand research was aimed at examining a set of library standards incorporating performance measures which could be applied to New Zealand public libraries (Calvert and Cullen, 1992, 1994, 1995; Calvert, 1994) using the Van House and Childers methodology. Another New Zealand University Libraries Effectiveness Study (Cullen and Calvert, 1995, 1996) was carried out using Cameron's models of organisational effectiveness (Cameron, 1978) to develop a broad-based range of practical performance measures for libraries. The similar results of both studies suggested that there "might well be some core dimensions of effectiveness" (Cullen and Calvert, 1996, p.115).

The prescriptive approach adopted by library associations is different from the empirical studies just described and usually advocates a set of criteria, standards or methodology for evaluating library performance.

In 1989, the Association of College and Research Libraries approved the revised version of the 1979 "standards for university libraries" which refer to a set of evaluative criteria based on setting goals and objectives (Association of College and Research Libraries, 1989). The American Library Association also issued a manual on performance measurement for academic libraries (Van House, Weil and McClure, 1990).

Aslib included *Performance measurement in library and information services* (Abbott, 1994) as one of the Aslib Know How Guides. Abbott advocated a systematic approach to evaluation of library performance, following a planning and management cycle of objective setting, resource allocation, performance evaluation and objective review. Performance indicators suggested in the guide for measuring service level and operational performance indicators were efficiency, effectiveness, costs, productivity and market penetration. For each type of library operation, such as acquisition, selective performance indicators were highlighted. In the conceptual model of the library depicted in the guide, the impact of the service on the community served, regarded as less tangible areas of performance, and sometimes referred to as "higher order effects", was regarded as outside the boundaries of the library (Abbott, 1994, pp.17-19).

The International Federation of Library Associations (IFLA) has published guidelines to test and identify suitable indicators for academic libraries (Boekhorst, 1995). The methodology employed was to evaluate existing literature on performance measurement. Guidelines were then issued to include one set of 14 indicators which have been developed on the principle of user orientation and effectiveness rather than efficiency, eg. ratio of users to primary user group, reference fill rate. The guidelines provided the criteria for performance measurements - appropriateness, reliability, reproducibility, helpfulness, and practicality.

Regardless of the approaches and the focus on academic and public libraries, there have been discussions and contentions on performance measurements in librarianship literature. Some authors (Henty, 1989) still expressed doubts as to the validity of performance indicators to compare the difference between libraries. D'Elia (1985) thought that performance measures should be based on larger sample sizes. Lee (1987) questioned the validity of some performance measures such as output measures and concluded that they did not necessarily have correlation with user satisfaction. Goldhor (1983) was of the opinion that output measures were not adequate to assess the opinions and experience of library patrons.

Measurement of Performance in Health Sciences Librarianship

The introduction of quality concepts of TQM, CQI and benchmarking into librarianship, as evidenced by the publications, among others, of Jurow and Barnard on TQM (1993) and Muir on benchmarking (1993), had influenced the change of performance measures from being input- and throughput-focused to the increasing attention to user-oriented outcomes (Lyon and Gilbert, 1988). The trend is easily seen in health sciences library literature. Research studies have been conducted in the United States (King, 1987, Marshall, 1992, Fischer and Reel, 1992), United Kingdom (Urquhart and Hepworth, 1995a, 1995b) and Australia (Ali, 1995) which focused attention on the real effect of medical library services on their user communities. The studies provided quantitative data on the impact of medical and health care library information on the user community which until recently were rather limited.

In the studies, two typical research questions were explored: the effect of Medline search on clinical decisions of medical doctors (Wilkin, 1982; Haynes, 1990; Lindberg et al, 1993; Wilson et al, 1989; Klein, 1994); and the effect of library service on patient care (King, 1987; Marshall, 1992; Fischer and Reel, 1992; Ali, 1995). All studies yielded positive results.

The study of the effect of Medline search on medical decisions was first carried out in the UK in a systematic study of 58 health professionals in Guy's Hospital in 1982. In this study, the relationship between literature search and patient care was just touched upon (Wilkin, 1982).

More definitive findings on this question were obtained from subsequent studies (Haynes, 1990; Lindberg et al, 1993; Wilson et al, 1989; Klein, 1994). It was found by Lindberg (1993), for example, that Medline search was critical to patient care in the choice of test, diagnosis and treatment and influenced patient outcomes. Klein (1994) also found that cases whose searches were conducted earlier during hospitalisation had statistically significantly lower costs, charges and lengths of stay than those whose searches were conducted later.

On the effect of library service on patient care, King (1987) studied eight hospitals in Chicago by using the critical incident technique in which respondents were asked to assess the information obtained from the library in relation to a current clinical case. The technique was essentially to measure respondents' opinion while the case was still fresh in their minds. He found that 74 per cent of the health care professionals reported that they would definitely or probably handle the patients' case differently as a result of the information supplied by the library (King, 1987).

The Chicago methodology in the King study was further developed and extended in a study in Rochester, New York (Marshall 1992). It was found in this study that 80 per cent of respondents handled patients' cases differently. Other clinical decisions eg. choice of drugs, advice to patients, diagnosis, were reported to have been affected by the information supplied. As a result of the information supplied by the library, the following were avoided: some hospital admissions, patient mortality, hospital-acquired infection surgery and additional tests. It was also found that library information as a source was rated higher than information sources such as diagnostic imaging, lab test, and discussion with colleagues.

The Rochester study and its methodology was adopted by Ali (1995) on the study of two hospitals in Canberra, Australia in which it was found that 74 per cent of doctors admitted that library information would definitely/probably help handle some aspects of clinical situation differently.

Fischer and Reel (1992) adopted a different approach - an historical case study approach - while conducting a hospital case study in the United States. They also widened the scope of study to nurses and allied health professionals while the other studies concentrated on doctors. Survey questionnaires were distributed to seek respondents' opinion on how the (historical) use of the library affected clinical judgement. It was found from the study that 88 per cent of the reporting physicians, 69 per cent of nurses and 58 per cent of allied health professionals agreed that information obtained from the library contributed to higher quality care.

The "Value Project" funded by the British Library's Research and Development Department explored the same question, ie. the value of information supplied by the National Health Service library service to the clinicians at eleven hospitals in the United Kingdom and users with dial-up access to Medline (Urquhart and Hepworth, 1995a, 1995b).

The objectives of the Project were to examine "the value to postgraduate and continuing medical education, of information supplied by NHS (National Health Service) information and library services" and "the factors affecting delivery of that information to clinicians". Value of information in the Project was expressed as the benefits to clinical decision-making, with reference being made to A. J. Repo's definition and delineation of the value-in-use into subjective and objective components (Repo, 1986).

The study differed from previous research of such kind in one aspect ie. it focuses on the effects of the information on users' future decision-making by asking respondents: "How might the information provided contribute to your FUTURE clinical decisions?". The study relied on the user to assess the

information obtained to predict and assess the likely impact on their future decisions.

Whether it is tenable to argue that the question is a true reflection of the value of information, that is, the real effects the information has had on clinical decisions, is open to question. First, it is based on the users' previous experience and knowledge on the subject matter which affects the assessment. Second, subjective factors, such as the users' perception and opinions, may come into the picture. A well meaning respondent, for example, will tend to give positive assessments. Lastly, whether a decision based on a particular piece of information will have to be made may depend on future circumstances. The answers to the question may be conjectural because the value is realised only at the point of the decision. It has been generally acknowledged, however, that it is very difficult to gauge the effects of information at the point of impact on a person's decisions. If the addition to a person's knowledge can be measured fairly accurately, then it may be regarded as another proxy measurement of the value-in-use.

The report provided an interesting comparison between the Value Project and similar research in the United States, namely the Rochester study in 1991 (Marshall, 1992) and the National Library of Medicine study (Lindberg, 1993). There were discrepancies in the questions asked and the wording of the responses to the structured questionnaires. The Rochester study mainly asked: "Did the information provided by the library change (or will it change) . . ." (clinical decisions), while the Value Project concentrated on future decisions. The focus of the American studies on patient care was narrower than the additional focus of the Value Project on education and research use. While these discrepancies may be addressing individual countries' needs, they offer little opportunities for cross-country comparisons.

Though the study of the effect of library service on patient care may be a proxy measurement, it is a further step beyond the measurement of outcome. The study populations in most studies, however, were doctors only. As clients supported by health sciences libraries comprise not only doctors, but also nurses, allied health workers, hospital administrators and the service planners, the study of objective measurements which will accurately reflect the performance of library information service and its impact on these groups of staff is long overdue. The future research direction should focus more on the impact of the library service on the clinical decision-making of other user groups such as nurses, allied health professionals and the management decision-making of health managers. Another gap in research seems to be the lack of development in outcome-focused performance indicators for health science libraries. The Medical Library Association (US) issued its Standards for hospital libraries and described the characteristics of a good library service - relevancy, accuracy, timeliness, etc. (Medical Library Association, 1995). The key issues, ie. what measures may be used to reflect these qualities, and how to measure these qualities, were not elaborated. There is a need to fill this gap as it would be in fact a natural progression from the prevalent development of performance indicators in the health care field.

IMPLICATIONS AND ISSUES

The implications of the trends are mixed. Owing to the orientation towards outcome measurements, particular attention was paid to users' and stakeholders' perceptions of the objectives of the service. While user orientation is always a key factor in quality theories, it is not unusual that users' perceptions are subjective, and can be quite different from individual stakeholder's point of view. The results of the research, if designed to study user feedback alone, may not be conclusive.

For the same reason, users' expectations may be raised after the consultation process. It may just be a reflection of users' wants, rather than users' needs. The ability to meet users' demands and needs after the measurement and review may fall short of users' expectations. At the other end of the spectrum, some users may not know what they can expect from library service if they are not frequent users.

The studies on the immediate impact of the library information on clinical decisions of physicians and the declared reduction of costs are stretching the dimensions of outcomes measurement to a new level. Over-emphasis on outcomes measures may result in the lack of attention to input resources and output quality necessary to achieve the objectives of library service. Very often, it may

be more meaningful to build performance measures that are linked to input and output measures. The practical applications of performance improvement should not be under-rated.

To achieve comparability in the measurements, it is often the case that objectives are being quantified, or expressed as an explicit dimension of effectiveness eg. helpfulness graded into a numeric scale to represent the degree of helpfulness. In other cases, more abstract objectives are evaluated by proxy measures or left unassessed, eg. the educational value of libraries in general. To what extent the omission or substituted measures affect the evaluation of performance should be further studied.

The issues are compounded by the rapid development of the information technology and its effects on the speed and the method of information dissemination, outside of libraries. The paradigms of library service are shifting. Library schools are known to be considering dropping "library" from their course titles. Will the objectives of setting up a library or a library without walls be the same? May the process whereby library objectives are met be different? If so, will it affect the type of performance measures?

CONCLUSION

To library management, performance measures should have indicative, diagnostic and predictive values. The measures should indicate whether the library is doing what it is set up to do; they should highlight the existence of a problem if there is one; they should be able to reveal necessary information for planning and improving the service. While increasing attention to outcome measurements and impact studies and their related issues are to be resolved, researchers and practitioners must not lose sight of the intricate links with the input/output cycle. The model for performance measurements should also be flexible enough to respond to the fast changes in information delivery within and without the library setting.

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SEMINAR PAPERS
and
POSTER SESSIONS

NATIONAL LIBRARIES

Organisational Effectiveness Assessment: Case Studies of the National Library of Wales and the Perpustakaan Negara Malaysia

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The uniqueness of national libraries and their variegated functions are some of the major problems in assessing their overall effectiveness. Previous studies have tended to take a compartmentalised rather than an integrated approach to the evaluation of library performance. A methodology for the overall assessment of national libraries is developed for a doctoral study based on fundamental principles of organisational effectiveness which emerged from studies by Kim Cameron and others. Perceptions of constituents of the National Library of Wales and Perpustakaan Negara Malaysia provide empirical data for defining the concept of organisational effectiveness for national libraries, their dimensions, determinants and indicators. The development of grounded theory and a framework for assessing national library effectiveness are the main outcomes expected from the study.

1. INTRODUCTION

Considerable progress in assessing the performance of academic and public libraries, individually and as a group, has been widely reported in the professional literature. However, discussion on national libraries has tended to focus on their role and functions, that is, on what they should do, rather than how well these roles and functions should be performed. There have not, thus far, been any reports of studies on assessing the effectiveness of the performance of national libraries, particularly effectiveness at the organisational level. Although the British Library, for example, is represented in coordinated efforts to develop performance indicators, such as the Joint Funding Councils' Ad-hoc Group on Performance Indicators for Libraries, such efforts have concentrated on the needs of academic libraries. Individual national libraries, however, especially major institutions such as the British Library and the Australian National Library, report the evaluation of specific areas of activities in in-house and other journals, including *Alexandria*, the journal devoted to national libraries, from time to time.

Some of the problems associated with the evaluation of national library performance lie in their variegated and wide-ranging roles and functions, which are usually prescribed as statutory provisions. These consequently result in vague and broad objectives which are difficult to measure in terms of effectiveness. For example, Aje (1977), recognising that objectives are developed from functions, formulated a statement of objective which epitomises the results expected to be achieved through national libraries, namely:

> " . . . to ensure access to the total fund of recorded human knowledge in the world for the benefit of the nation's citizens."

The difficulty of measuring an objective such as the above becomes obvious when attempting to quantify the sum total of the world's recorded knowledge. It also raises the question of levels of access: what would be beneficial for the nation's citizens, who should determine these, and from whose perspective would effectiveness be viewed?

Maurice Line (1983), in one of the early attempts to consider performance measurement at the national library level, acknowledged the difficulties in such an exercise in respect of the national library's core functions. In addition to the need for national libraries to maintain a fine balance in terms of determining priorities and allocation of functions, a major problem is the phenomenal increase in the volume of publications in a variety of formats, and the difficulty of knowing what has been published. It would be difficult for a national library to measure its success in collecting and pre-

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serving the nation's literary heritage as the total population against which it can be measured is unknown. Line recommended that:

> " . . . some consensus as to performance criteria and measures could do much to further the national library development that is of such importance in many countries for the whole system." (Line, 1983, p.41)

Although established as national cultural institutions, national libraries cannot take for granted their permanence or continued existence, as economic pressures and considerations inevitably lead governments to take a long hard look at institutions which appear to be expensive cultural symbols of national prestige, without demonstrably contributing their fair share to the national economic good. Like other public service institutions or those financed from public funds, national libraries have come under increasing pressure to demonstrate results and outcomes of their activities and to justify the use of resources allocated to them. Administrative and budget reforms in the public sector have affected national libraries, particularly as they come directly under the purview of the central government, and thus subject to closer scrutiny and monitoring through various budgetary and audit procedures. Although a national library, with few exceptions, is unique in the functions that it performs, it nevertheless has to compete for public funds with other central government departments. This is true of both Perpustakaan Negara Malaysia and the National Library of Wales in respect of Non-Departmental Public Bodies (NDPBs). The national library's ability to secure the necessary resources is in fact a measure of its effectiveness. In turn, its ability to demonstrate the impact of its services will to a large extent influence the priority it will be given in the allocation of central resources.

The uniqueness of many of the functions that it performs means that the degree of dependence on the effectiveness of its performance in these functions is greater as there is no recourse to other agencies if a national library does not deliver, or does not deliver in time or to the standards required. In these functions, it has to be able to ensure its effectiveness; in essence, to guarantee it.

An effective national library is a national imperative in view of its wide-ranging functions and the vital role that it needs to play in the development of the nation's library and information services. A systematic assessment of its organisational effectiveness is essential in ensuring that it performs to expectations. It can be argued that an effective national library to a large extent mirrors the effectiveness of the nation's library and information service.

The uniqueness of national libraries and the variegation of their functions necessitate an in-depth study of individual organisations rather than a broad and inevitably more superficial treatment of a range of national libraries. With very few exceptions, there is usually only one national library in each country performing many functions which are unique in their respective countries. However, although national libraries perform many similar functions, they differ greatly in their origin, purpose, functions and priorities. As Line (1988) observed:

> "The various efforts that have been made to establish standard guidelines and generally agreed functions for National Libraries have perhaps been misplaced. There is no one model that can be applied to all countries. More than any other type of library, National Libraries do and must vary: they must reflect the culture, and relate to the needs of their countries." (Line, 1988, p.63)

Unlike academic and public libraries, very little has been published on performance indicators for national libraries. There are also no existing standards or guidelines for evaluating overall performance of national library services.

1.1 Purpose of the Study

The purpose of this study is to define the organisational effectiveness of national libraries, and not to evaluate the effectiveness of national libraries. As there are no previously known studies of national library organisational effectiveness, there are no tested criteria which can be drawn from the literature for the purpose of the study. The uniqueness of many of a national library's functions means that criteria developed for academic and public libraries may not be appropriate. Indeed, the uniqueness of each national library in terms of its role and functions in its respective countries may also mean that criteria developed by one national library may not

necessarily be relevant to another. Efforts to evaluate the organisational effectiveness of national libraries therefore have to begin with the development of appropriate and relevant criteria for assessing their effectiveness at the organisational level.

The framework of the approach to the study is based on fundamental theoretical principles of organisational effectiveness developed by Cameron (1980, 1981, 1984) and the four models of approaches for measuring organisational effectiveness. Empirical qualitative data is obtained from a questionnaire survey and in-depth interviews of purposefully sampled subjects representing internal and external constituents of national libraries.

This study also aims to build on more general research on library effectiveness, in particular those which have used the principles of organisational effectiveness and models of approaches developed from studies by Kim Cameron as a framework (Van House and Childers, 1993; Childers and Van House, 1993; MacDonald and Micikas 1994). Using these principles and models in assessing the organisational effectiveness of national libraries should contribute further to our knowledge of how overall library effectiveness can be assessed.

2. PERFORMANCE MEASUREMENT IN LIBRARIES

The early development of attempts to measure library performance is well documented by Noble and Layzell Ward (1976), Layzell Ward (1982) and Goodall (1988). In the UK, performance measurement in the public sector and in public funded institutions which include national, public, academic and departmental libraries, is largely government driven as part of measures for economy, efficiency and effectiveness. Despite earlier scepticism and reluctance on the part of library practitioners towards the idea of measuring library performance, constraints of resources and greater accountability for use of resources as part of measures for public sector reforms, including use of so-called private sector management techniques, performance measurement is slowly but surely becoming an integral part of library management. This is evident in the increase in published library corporate plans or strategic plans, which require clear objectives and performance targets and measures in their monitoring and evaluation component, and from the professional literature.

In Malaysia, performance measurement in libraries is part of a series of government measures for improvement in the public service. Performance measurement has developed from quality and productivity programmes introduced into the public service since the early 1980s. More specifically, guidelines for the implementation of performance measurement in libraries were launched in 1993 (*Panduan . . ,* 1993) in conjunction with the introduction of the new budgeting format for federal agencies, the Modified Budgeting System, which incorporates a more distinct evaluation component, requiring performance targets and measures. Since then, general discussion on the subject of performance measurement in libraries has appeared in seminars and conferences in Malaysia, but actual examples of what has been accomplished by individual libraries have yet to be reported in the professional literature.

The emergence of guidelines for the implementation of performance measures in libraries is indicative of the developments in its implementation. *Keys to success: Performance indicators for public libraries* (1990), was one of the earlier guides for performance measurement in public libraries. The Joint Funding Councils' *The Effective academic library* (Joint . . , 1995) demonstrates significant achievement in the development of indicators for evaluating performance in public and academic libraries. IFLA has produced its international guidelines for measuring performance in academic libraries with a caveat on its applicability in respect of financial performance (Poll and Boekhorst, 1996).

Despite these developments, the problems observed by Goodall (1988) continue to confront the library profession, namely:

1. . . problems in developing suitable practical measures for individual services . . . are intensified when the performance of the whole library is considered . . .
2. Librarians . . . need performance information for better library management and for justifying the library service to the funding body. . . . it is questionable whether the same performance measures can adequately satisfy both of these needs.
3. . . . there are no suitable published standards for library services . . . the way ahead seems to be in the collection of comparative data . . .

Many practitioners advocate the implementation of performance monitoring and evaluation as a gradual and steady process, as it is a time consuming process in the initial stages. However, in practice this often results in compartmentalised approaches to measuring the performance of libraries, which do not provide the overall picture of effectiveness. Similarly, studies on effectiveness of organisations have tended to concentrate on certain aspects of the organisation and not its overall performance. There is thus a need for an integrative approach to evaluating organisational performance.

3. THE CONCEPT OF ORGANISATIONAL EFFECTIVENESS

Organisational effectiveness relates to the concept of organisational goals, as goals represent the purpose and mission of the organisation (Daft and Steers, 1986). Effectiveness in this context concerns the organisation's performance in attaining those goals. Etzioni (1975) defines organisational effectiveness as the degree to which an organisation achieves its goals. The definition of effectiveness pertains to what an organisation is actually trying to do, and not what it is supposed to do. In other words, effectiveness pertains to its operative goals such as productivity and customer satisfaction, which may not necessarily be its official goals. Generally, organisations have multiple goals and need to achieve success over a variety of these in order to be effective. An assessment of an organisation's effectiveness therefore has to consider the wide ranging and diverse activities it undertakes. Cameron (1980) notes that the diversity of organisational goals and activities means that the actual assessment of effectiveness can be a very complex problem.

The problems in assessing organisational effectiveness lie essentially in the multiplicity and diversity of organisational goals and the criteria used to evaluate them. Organisations tend to be large, diverse and fragmented, perform many activities simultaneously, and generate many outcomes. These raise the problems of obtaining an overall perspective and a balanced view of an organisation's effectiveness as well as the selection of appropriate evaluation criteria with which to achieve this. As a result of these problems, studies on organisational effectiveness assessment have tended to focus on specific organisational goals or activities, thus achieving a compartmentalised view of the organisation's performance rather than an holistic one. These studies have also tended to predetermine or impose criteria, rather than develop the appropriate criteria for assessing an organisation's effectiveness based on what it actually does and what it is trying to achieve. Such studies do not provide an accurate or fair assessment of the organisation's effectiveness.

3.1 Approaches to Organisational Effectiveness Assessment

An holistic approach is essential in a study of effectiveness at the organisational level in order to assess the role of the organisation in relation to its environment. The holistic approach assumes that the whole is understood as a complex system that is greater than the sum of its parts. It also assumes that a description and understanding of a person's social environment or an organisation's political context is essential for overall understanding of what is observed.

Research on organisational effectiveness, particularly that of Cameron (1978, 1981, 1986), Cameron and Whetten (1981, 1983), Quinn and Cameron (1983) has made a breakthrough in coming to major conclusions in respect of organisational effectiveness. Firstly, effectiveness is a multidimensional construct, therefore no single measure of effectiveness is sufficient to describe an organisation. Secondly, no single definition of organisational effectiveness is adequate in describing an organisation. The above research results have consolidated the approaches to organisational effectiveness assessment into four models of approaches:

(i) the goal model
(ii) the process model
(iii) the system resource model
(iv) the participant satisfaction model

(i) The goal model

The goal model (Cameron, 1981) or rational system model (Scott, 1987) views organisations as instruments designed to achieve ends. Daft and Steers (1986) contend that the goal approach to effectiveness consists of identifying an organisation's output goals and assessing how well it has attained those goals. Effectiveness is thus measured by goal attainment.

(ii) The process model

The process model (Cameron, 1981) or natural systems model (Scott, 1987) defines organisations as collectives not only seeking to achieve specified goals, but also engaged in activities required to maintain themselves as social units. Effectiveness in this model is measured by goal attainment, and also by internal processes and organisational health. Daft and Steers (1986) refer to this model as the internal resource approach where effectiveness is evaluated in terms of internal operations and efficiency.

(iii) The system resource model

The system resource (Cameron, 1981) or open system (Scott, 1987) model emphasises the interdependence of the organisation with its environment in achieving its output goals. Without inputs, the organisation cannot achieve output goals. Yuchtman and Seashore (1967) define organisational effectiveness from this view as the ability of the organisation, in either absolute or relative terms, to exploit its environment in the acquisition of scarce and valued resources. Effectiveness from this approach can be viewed on the basis of the volume of resources acquired from the external environment.

(iv) The participant satisfaction model

The participant satisfaction model (Cameron, 1981), referred to by Daft and Steers (1986) as constituency satisfaction approach, and by Zammuto (1984) as the multiple constituencies approach, is a broad-based approach pertaining to an organisation's constituents. A constituent is any group within or outside the organisation that has a stake in the organisation's performance (Daft and Steers, 1986). Effectiveness is assessed by determining how satisfied these groups are with the organisation's activities. Each constituency will have a different criterion of effectiveness, as each has a different interest in the organisation.

Cameron (1981) contends that the different approaches may be appropriate under different organisational circumstances. Quinn and Cameron (1983) see these models as emphasising different aspects of organisational performance or values. Daft and Steers (1986) report that the need for a balanced view of effectiveness has led to developments of the combined approach to effectiveness. As organisations need to pursue goals and activities covered by each effectiveness approach, it is logical to make an overall assessment of an organisation based on indicators or measures from each perspective to provide managers with a comprehensive and balanced view of effectiveness.

Organisational effectiveness assessment also raises the question of how to weigh success in given areas. Organisations cannot do everything well and have therefore to set priorities. Daft and Steers (1986) suggest that "domain emphasis" answers the question of why organisations pursue and give greater emphasis to goals in one area. "Organisations do not ignore the lower priority areas of activity, they just do not give them equal emphasis." (Daft and Steers, 1986, p.345). Cameron (1981) conducted an important evaluation of domain effectiveness in his landmark study of universities in the United States, which showed that universities seem to emphasise either the teaching domain or the research domain. An important point which emerged is that organisations consciously select domains within which to excel, and the appropriate way to understand performance is to evaluate organisations according to how they perform within the selected domain. By considering domain emphasis in assessing organisational effectiveness, the organisation will be evaluated on the goals it is trying to achieve and can be compared to other organisations that emphasise accomplishment in the same domain.

3.2 Organisational Effectiveness Assessment in Libraries

The fundamental theoretical principles of organisational effectiveness developed by Cameron (1978, 1980, 1981), and the four approaches or models for assessing organisational effectiveness identified, have been used as a framework for studies on academic library effectiveness (MacDonald, 1987; MacDonald and Micikas, 1994) and public library effectiveness (Childers and Van House, 1993; Van House and Childers, 1993). MacDonald (1987) studied the organisational effectiveness of academic libraries belonging to universities not offering doctoral studies. Using Cameron's "dominant coalition" approach for sampling of a survey population, MacDonald's methodology closely followed Cameron's (1981) in obtaining perceptual or sub-

jective data to establish preference or importance of effectiveness indicators among the university libraries he surveyed. Childers and Van House (1993) and Van House and Childers (1993), in a survey of public library effectiveness in the United States, also applied the models of approaches developed by Cameron et al, as an approach to defining organisational effectiveness.

4. METHODOLOGY

Using Cameron's principles of organisational effectiveness and the constituency satisfaction approach as a framework, this study is concerned with the following questions:

(a) How is organisational effectiveness defined by a national library's constituents?
   (i) What are its dimensions ?
   (ii) What are its determinants ?
   (iii) What indicators are used to represent effectiveness ?

(b) Are there significant differences in how effectiveness is defined by different constituent groups of a national library ?

(c) Are there significant differences in how effectiveness is defined by constituents of different national libraries?

4.1 Inquiry Paradigm

The choice between the relative value of two fundamentally different and competing inquiry paradigms, logical-positivism and phenomenological inquiry, for the conduct of this study is guided by what Patton (1990, p.39) advocates as the primary criterion, namely, "methodological appropriateness". Based on the purpose of the inquiry, the questions being investigated and the resources available, phenomenological inquiry, which uses qualitative and naturalistic approaches to "inductively and holistically understand human experience in context-specific settings" (Patton, 1990) is preferred.

In contrast to the logical-positivism method of experimental research, a naturalistic inquiry or "discovery oriented" approach minimises investigator manipulation of the study setting and places no prior constraint on what the outcomes of the research will be (Guba, 1978). The purpose of this study is to discover how organisational effectiveness is defined by constituents of national libraries. The definition of effectiveness for national libraries will emerge from perceptions or subjective opinions of strategic constituents, namely the dimensions, determinants and indicators developed in response to open-ended questions. Inductive design strategy allows the important analysis dimensions to emerge from patterns found in case studies without presupposing what the important dimensions will be.

Concern for theory development is also prevalent in the literature on qualitative methods. The writings of Glaser and Strauss (1967) and other qualitative methodologists take the task of theory construction and verification as a major focus, expounding the relative merits of grounded theory, theory grounded in the data rather than contrived, in their ability to fit and work. The verification of fundamental theoretical principles on organisational effectiveness emerging from the data is an anticipated outcome of the study.

4.2 Rationale for a Case Study Approach

Yin (1984) provides a "technical definition" for case studies:

> "A case study is an empirical inquiry that:
> (i) investigates a contemporary phenomenon within its real-life context; when
> (ii) the boundaries between phenomenon and context are not clearly evident; and in which
> (iii) multiple sources of evidence are used."
> (Yin, 1984, p. 23)

The phenomenon in question here is the notion of organisational effectiveness in the context of national libraries. This study seeks to discover how the concept is defined by its constituents and what domains, dimensions, determinants and indicators of organisational effectiveness emerge from their perception of effectiveness in the context of national libraries as organisations.

The multiple constituencies approach is considered most appropriate for this study as it involves the national library's stakeholders directly. The people who are closely associated with the national library, whether as internal or external constituents, are those who know its purpose, functions and roles, who are involved with it or make use of its services, or are in frequent contact with it, and who

make judgements or decisions which have a bearing on its policies, resources and services. These are therefore people who know the national library best, albeit from their own perspective, and who are qualified to make judgements on what represents effectiveness in their respective national libraries.

An in-depth understanding of organisational characteristics in its real-life context is essential in establishing the dimensions, determinants and indicators of organisational effectiveness. This can best be achieved using case study data gathering methods which include documentary sources of evidence, in-depth interviews, site-visits and observation.

The holistic nature of the case study approach also fits well with a study on the overall effectiveness of the organisation. Rather than reduce the study processes into independent, isolated parts, it describes the inter-relationship of each and the sum of the parts or dimensions of the organisation. Case studies provide an empirical definition of the organisation and can be a rich source of data to generate a working hypothesis for the study (Patton, 1990, p.102).

Discussing the research design for a case study, Yin (1984, pp.28-29) identified five components which are especially important namely, a study's questions, its propositions (if any), its unit(s) of analysis, the logic linking the data to the propositions, and criteria for interpreting the findings.

4.3 Selection of Case Study Sites

A comparative element is essential for a performance assessment study. Since the study is on organisational effectiveness, it was decided that two case studies would be appropriate. The primary criterion for selection was that both organisations met with the definition of national libraries agreed at the 16th Session of the UNESCO General Conference in 1970:

> "Libraries which, irrespective of their title are responsible for acquiring and conserving copies of all significant publications published in the country and functioning as a 'deposit' library, whether by law or under any arrangements. They will also normally perform some of the following functions: produce a national bibliography; hold and keep up to date a large and representative collection of foreign literature, including books about the country; act as a national bibliographical information centre; compile union catalogues; publish the retrospective national bibliography. Libraries which may be called 'national' but whose functions do not correspond to the above definition should not be placed in the 'National Libraries' category."
>
> (Sylvestre, 1987, p.1)

Once this primary criterion has been met, the selection of national libraries as case studies was essentially based on access and interest in the research topic. Both the National Library of Wales (NLW) and Perpustakaan Negara Malaysia (PNM) fulfilled these basic criteria. NLW is located close to, and has a close working relationship with, the Department of Information and Library Studies of the University of Wales Aberystwyth and has experience of performance assessment in connection with the preparation of its annual corporate plan which is approved by its governing bodies and the Welsh Office, its funding agency. PNM is the institution in which the researcher is employed, having responsibilities for the Support Services Programme, which includes the Administration and Finance Division, Training and the Public Relations Divisions. As a federal department, PNM converted to the Modified Budgeting System (MBS) with its 1995 annual budget submission. The MBS has a prominent evaluation component which requires a strategic plan to be in place for its preparation. Both NLW and PNM are actively developing performance indicators for their activities, particularly for the services provided.

There are many similarities and differences in their history, background, circumstances and environment for NLW and PNM to qualify as information-rich cases for the study. Brief profiles of NLW and PNM are provided in Appendices 1 and 2.

One of the most obvious problems in a case study involving the researcher's own organisation is the possibility of bias or compromised objectivity. However, this problem is minimised because the purpose of the study is not to evaluate the effectiveness of case study organisations but to define its effectiveness, the dimensions, determinants and indicators of organisational level effectiveness from the perspective of its own constituents, not that of the researcher. The focus of the study allevi-

ates suspicion and apprehensiveness, if any, on the part of the library management and personnel, with regard to the motive of the researcher. At the same time, it protects the study from possible obstacles due to defensiveness or artificial stances by study subjects in the course of data collection.

4.4 Type of Data Required

The type of data to be used for assessing an organisation's effectiveness is one of the critical choices which needs to be made by evaluators. Cameron presents this as a choice between relying on objective data such as annual reports or relying on perceptual data, for example from interview or questionnaire responses. Some of the problems identified with objective data are that they are frequently kept only on "official" criteria of effectiveness, which makes them rather narrow in scope. Organisation-wide data are seldom kept and information is often ambiguous or confidential (Cameron, 1980, p.77). In this, using subjective data is more advantageous, as a broader set of criteria may be assessed from a wider variety of perspectives. However, the disadvantages are that the respondent's bias, dishonesty or lack of information may hinder the reliability of the data.

4.5 Data Collection Methods

The methods of data collection used for the study were as follows:

(i) Site visits and observation
(ii) Documentary sources
(iii) In-depth interviews
(iv) Questionnaire.

(i) Site visits and observation

A series of visits to NLW for the purposes of familiarisation and observations were made at the start of the study period. These visits included tours of the various departments and discussions with Keepers and Directors and other key personnel of the Library. The visits allowed for in-house information to be obtained and observations on the day-to-day activities of the Library to be made. Discussions and conversation with key personnel, particularly the corporate plan co-ordinator, also afforded the opportunity to make preliminary acquaintances with practices and attitudes towards performance assessment. Notes of discussions and observations were made following each visit. Further visits were subsequently made for meetings with individuals or groups, to attend activities at the Library, as well as to use the Library facilities.

Visits and discussions with Directors and key personnel were made in Malaysia as part of the study fieldwork for purposes of observations and obtaining current information on developments in the PNM.

(ii) Documentary sources

Documents relevant to the study were collected from NLW and PNM from time to time including Annual Reports, Corporate Plan or Strategic Plan, Budget submissions, Operational Plans, Survey Reports, consultancies and feasibility studies, pamphlets and other published or unpublished documents. Considerable amounts were collected during the site visits and have proved to be invaluable to this study for purposes of verifying correct spellings, titles, names of organisations mentioned in the course of discussions or interviews as well as to corroborate information from other sources.

(iii) In-depth interviews

The study seeks to obtain perceptual or subjective data on how people associated with NLW and PNM define organisational effectiveness, what they perceive to be its dimensions, determinants and characteristics. In order to understand their "construction of reality", it is better to ask them rather than make assumptions from their overt behaviour (Walker, 1985, p.46; Marshall,1995, pp.80-84). More spontaneous and in-depth information will also be forthcoming if questions are asked in such a way that people can respond in their own words, and on their own terms rather than in ways imposed by the researcher. In-depth interviewing is prescribed as one way, although not the only way, of obtaining perceptual data.

In the conduct of in-depth interviews to obtain subjective data for the study, a central issue has been the degree of structure in the interview process. While seeking to learn in ways which do not "rigidly structure the direction of enquiry and learning", there is also no such thing as "presuppositionless research" as researchers will have some broad questions in mind, when preparing interviews (Walker, 1985, p.47).

For this study, an attempt to achieve a balance between the two is made by a semi-structured approach to in-depth interviews. An interview guide is prepared in advance to guide the researcher on the line of questioning and a time-frame for each interview. However, the open-ended nature of questions provides flexibility to pursue subsequent lines of questioning based on the response of the interview subject. Questions were also asked in different ways to ensure that interview subjects understood the questions. To facilitate the flow of responses, all interviews were recorded with the prior knowledge of interviewees. Interviewees were guaranteed confidentiality and that the data would only be used for research purposes. At the same time, points made by the respondent, notes of other reactions, facial, physical and environmental conditions were also noted by the researcher.

(iv) Questionnaire

A questionnaire on national library functions was also administered to assess awareness of the interview subjects on functions performed by the national library and how important they considered these functions to be for a national library. The questionnaire was based on a list of 24 functions known to be performed by national libraries, compiled from a survey of 41 national libraries by Al-Nahari (1984). The questionnaire was administered before the commencement of each interview and intended to focus the attentions of interview subjects on national libraries.

4.6 Selection of Interview Subjects

The subjects for the in-depth interviews were purposefully sampled from internal and external constituents of NLW and PNM. The criteria for selection were their knowledge of, and involvement with, the policy or decision-making process of, or affecting, the National Library. Sometimes referred to as "elite" interviewing, such subjects are also often regarded as opinion leaders. Internal constituents of the Library included senior, middle and lower middle management. External constituents were from the funding agencies, governing boards or Councils, the Library Association, National Books Council, Library Schools, academic, public and special libraries, as well as other organisations in the Libraries "role-set".

Eight of the 54 interviews (including pilot interviews) carried out for the study were conducted as focus groups, particularly those involving middle and lower middle management personnel among internal and external constituents.

4.7 Interview Guide

The interview guide was developed from questions used in previous studies on organisational effectiveness by Cameron (1980) and Cameron and associates; current literature and documented experience of developing "superior performing business organisations' by Steele (1987) as well as literature on issues central to the concern of national libraries, their roles and functions. An interview guide comprising 12 main questions and 42 supplementary questions was developed for the study. All questions are open ended with the supplementary questions serving as prompters depending on the responses of the interview subjects. Those already covered in response to the main questions were not asked. However, the responses from interviewees could also prompt additional supplementary questions, usually for purposes of clarification.

The questions were tested for their coherence, timing and responses in pre-pilot and pilot interviews and changes made to their phrasing or inclusion or exclusion in the interview guide. The same questions were piloted in Malaysia in both languages before the commencement of interviews. However, as the interviews in Malaysia were conducted after the interviews in Wales had been completed, the changes needed were minimal.

Questions asked related to the following aspects of the organisation:

- ways in which subject was associated with the National Library
- primary role of a national library in the respective country
- purpose and mission
- image
- definition of organisational effectiveness
- dimensions of National Library effectiveness
- whose perspective?
- determinants of organisational effectiveness.

4.8 Language

The interview guide was prepared in two languages, English and Malay, which is the national

language in Malaysia. In bi-lingual Wales, where English and Welsh have equal status, English was used as the medium of interviews. In Malaysia, the language used for the interview depended on the preference of the subjects. Most interview subjects were conversant in English. However, when Malay was preferred, questions were repeated also in English, to ensure the clarity of the questions. Often responses to the questions were given in both languages, particularly for expressions. It is quite common in Malaysia for a mixture of English and Malay to be used in ordinary conservation.

4.9 The Interview Process

Interviews in Wales were conducted in May-July 1996. Twenty-one interviews were conducted in Aberystwyth, Bangor, Mold, Swansea and Cardiff, two of which involved middle and lower middle management personnel and were conducted as group interviews. Interviews in Malaysia were conducted in July-September 1996. Thirty interviews were conducted, including three pilot interviews. Six of the interviews in Malaysia were conducted as group interviews. All interviews were tape-recorded and transcribed verbatim. Ninety-five per cent of recordings in Wales and 80 per cent in Malaysia were of good quality. The rest were incomplete due to technical errors and were completed based on notes taken during the interviews.

4.10 Organisation and Analysis of Data

The recordings generated 53 folders of transcripts totalling almost 1,500 pages. The question of role elicited lengthy responses especially among librarians. Respondents found the question on ways of assessing a sense of common purpose most difficult to answer.

Interview transcripts were analysed using content analysis to facilitate the search for patterns and themes emerging from the data. Salient points in the responses are highlighted and transferred to a separate file under the interview code and theme. Data on the same theme are compiled and analysed to establish sub-themes and patterns using mind-mapping technique developed by Buzan (1993).

Through various stages of analysis, patterns on different themes were linked and synthesised to establish domains, dimensions and indicators of organisational effectiveness of NLW and PNM.

5. PRELIMINARY RESULTS

The analysis of the perceptions of internal and external constituents of NLW and PNM has produced preliminary findings regarding the following aspects of organisational effectiveness of the case study organisations:

- purpose and mission
- function and role
- criteria for assessing National Library effectiveness
- image
- whose perspective?
- referent

5.1 Purpose and Mission

Preliminary findings on the purpose and mission of NLW and PNM are outlined here as an illustration of emerging themes and patterns on an aspect of organisational effectiveness based on perceptions of internal and external constituents.

NLW is perceived by its constituents to be a mature organisation, very clear in both its purpose and direction, which is closely related to the purpose prescribed in its Charter. Its establishment was intended essentially for nationalistic and scholarly purposes, and this has remained the raison d'être of NLW's existence and development until the present. The National Library building is seen as reflecting and reinforcing its prescribed purpose as well as symbolising Welsh nationhood and identity. However, its purpose in relation to the population of Wales is not as clear to some external constituents outside Aberystwyth.

The status of NLW as a copyright library under UK copyright law has strengthened its position as a major research library supporting the purposes of higher education, literary and scientific research in Wales. The strength of its collection and the ethos of a national cultural institution and scholarly research is a manifestation of its focused purposes.

PNM is perceived by its constituents to be a purposeful and dynamic organisation but sends out mixed messages in respect of its actual purpose. Prescribed by its establishment legislation and the subsequent amendment to it, with very broad purposes and wide ranging responsibilities, PNM is seen by internal and external constituents as "doing too many things" and lacking in focus. In addition

to the traditional purposes of collection building and providing access and facilities for use, it also has the leadership role "thrust upon it" by legislation. In this respect, central government agencies in particular regard PNM as the co-ordinating arm of government for the development of the country's public library infrastructure and services as well as for the promotion of the reading habit, two main national strategies for improving the quality of life in the rural areas.

PNM is also the implementing agency for the Deposit of Library Materials Act 1986, by which it is designated as the National Depository as well as the sole depository for material published and produced in Malaysia. However, constituents perceive the purpose of this Act to be not widely known and there is still some confusion in respect of the National Library's role and that of the National Archives in its implementation.

Aspects of the national library which are considered important by internal and external constituents of NLW and PNM in assessing clarity of purpose are essentially its interpretation, expression, consultation and consensus, documentation, communication, presentation and dissemination, as well as policies and programmes.

5.2 Function and Role

The perceptions of internal and external constituents of the organisational purpose of NLW and PNM are borne out by results obtained from the analysis of the questionnaire on national library functions. From the list of 24 functions compiled from a survey of 41 national libraries by Al-Nahari (1984), internal constituents of NLW perceived only 16 of these functions to be performed by NLW, while its external constituents identified 18, an additional two more functions to those identified by internal constituents. On the other hand, internal and external constituents on PNM perceive all 24 functions to be performed by PNM, thus corroborating constituents' earlier perception that PNM is doing "too many things" when referring to its purported lack of focus in purpose. It also reinforces the general contention in the literature that one of the major problems in assessing the performance of national libraries is the variegation in their functions. Not all the functions listed in Al-Nahari's list are performed by all national libraries, but some of those functions are performed by all national libraries. The fact that the PNM is perceived as performing all of those functions clearly underscores the contention that it is perhaps performing too many functions. This is compounded by the fact that it also has other functions in addition to the 24 in the list, such as the promotion of the reading habit.

In terms of ranked importance of functions, however, internal and external constituents of NLW are even more selective, agreeing on a narrower list of only five functions as most important. These functions are incorporated in the core functions of NLW and reflect the more traditional remit prescribed by its charter. These functions are :

Function 1	legal deposit library
Function 2	central collection of nation's literature
Function 4	producing the national bibliography
Function 8	collection, preservation and documentation of manuscripts
Function 18	providing index to national periodicals and newspapers.

The above functions overlap with those ranked as most important by internal and external constituents of PNM indicating continuing emphasis on the traditional and unique functions of the National Library. In addition, however, PNM's constituents rank an additional four functions as most important, namely:

Function 6	national bibliographic centre
Function 7	developing and maintaining bibliographic databases
Function 11	planning library services in the country
Function 14	providing leadership among nation's libraries.

The recognition of the importance of its function as a national bibliographic centre can be attributed to PNM's role as national depository and sole depository under the Depository of Library Materials Act 1986. The development and maintenance of bibliographic databases, planning of library services in the country and providing leadership of the nation's libraries are typical functions associated with national libraries established in the more modern concept where leadership and co-ordination are the expected remit of national institutions.

The primary role of a national library in Wales and Malaysia generated lengthy responses and supplementary questions. Internal and external constituents of NLW both perceive the following to be its primary roles:

(i) centre of nation's literature and heritage
(ii) copyright library
(iii) centre of scholarship and research
(iv) symbol of Welsh nationhood and identity
(v) national archives of Wales
(vi) figurehead or leadership role.

Leadership of library and information services in Wales is not prescribed in its Charter as a primary purpose of the National Library's establishment. Professional leadership however is implied in its core function of providing "expert and professional input and collaboration at a Welsh, UK and international level". However, recent trends and developments in academic and public libraries in Wales may have implications for the need for the National Library to increasingly play a co-ordinating role. Local government reorganisation in Wales has also affected public services such as public libraries and museums as they are broken up into smaller units under the respective newly established local authorities. This has resulted in the creation of more positions of heads of public library authorities, but at lower grades because of the narrower span of responsibility. The diminishing number of senior directors among public libraries mainly due to early retirement and depleting resources will mean that public librarians will increasingly look to the National Library for advice and leadership. The trend towards convergence of the library and computing services in universities in Wales, in line with the recommendation of the report of the Joint Funding Councils' Libraries Review Group (1993), often referred to as the Follett Report, means that academic libraries now have wider terms of reference and are not focused on library services alone, nor can library services necessarily remain a priority in a converged service. The convergence of these university services in Bangor, Swansea and Aberystwyth is indicative of a continuing trend. In these circumstances the need for a flagship library in Wales, in this case the National Library, to provide leadership, becomes more significant.

Internal and external constituents of NLW see its role as a centre for scholarship and research as vitally important, notwithstanding the existence of the British Library, which is recognised as the National Library of the United Kingdom. NLW constituents are unanimous in their perception of the British Library (BL) as a national library for England, rather than representing Wales or Scotland. Founded on the former British Museum Library, the BL's remit is perceived as largely international rather than national. As a copyright library and repository for Welsh and Celtic materials, NLW is regarded as a major research library in its own right and should continue to benefit from copyright provisions to maintain and enhance its present role.

Constituents of PNM identified its primary roles as follows:

(i) providing leadership for library and information services
(ii) co-ordination of library development
(iii) centre of excellence for Malaysiana
(iv) national reference and referral centre
(v) co-ordination of developments in information technology in libraries
(vi) promotion of the reading habit.

Leadership is a statutory role and, as a federal government department, PNM has been regarded as the lead agency for libraries in Malaysia. In line with this role, one of PNM's function is to co-ordinate library services in the country. It is perceived as concentrating on the co-ordination of public library development in Malaysia, largely due to the fact that federal government funding for public library development as well as 50 per cent of its operating budget is channelled through PNM. In addition to the allocation of funds, it also monitors the development of projects and utilisation of these funds. In comparison, internal and external constituents perceive less emphasis in the co-ordination of special libraries in the public as well as private sectors. Librarians in government department libraries perceive the need for more concrete advice and support from PNM in solving management problems faced by special libraries. This is particularly lamented in view of PNM's role as the head of the Library Common User Service Scheme, to which professional and clerical library staff in government department libraries belong. Internal and external constituents also perceive it as ironic that PNM has a barely discernable role in the develop-

ment of school libraries as it is also a federal department under the Ministry of Education Malaysia. Although school libraries have historically been regarded as the purview of the Education department, most constituents consider PNM's professional input as essential in the effective development of school library services.

PNM's logical aspiration to become the centre of excellence for Malaysiana is also seen as one of its primary roles. This not only implies the vigorous implementation of the legal deposit act but also a determined effort to trace materials about Malaysia published overseas. To become a centre of excellence for things Malaysiana is stated as one of the important strategies with which PNM aims to achieve its mission to become a world class library. Most internal constituents, however, perceive that the implementation of this strategy does not appear to be given the high priority that is needed.

The co-ordination of the development of information technology in libraries is perceived as a primary role of PNM as it is seen as vital for the continued survival and relevance of libraries in Malaysia. PNM is also regarded by librarians among its external constituents as already providing the lead in this respect, and is widely commended among the library community for its role in promoting development of information technology in libraries.

A role which is strongly advocated for PNM is the co-ordination of efforts to promote and inculcate the reading habit among the people in Malaysia. This is particularly true of central agencies and senior chief executives interviewed who see this role as additional to PNM's other roles, albeit a very important one. A reading society and an information literate population is perceived as a vital pre-requisite to the attainment of the country's aspiration to become a developed nation by the year 2020, which has been formalised as official policy known as Vision 2020. PNM is the national secretariat for the country's reading campaign, and the declaration of the month of August as the annual national reading month is one of its successes. More recently, a national reading survey, *Reading profile of Malaysians*, commissioned by PNM, has provided fresh data on the status of the country's literacy rate and for the planning of future reading campaigns. It is widely felt, however, particularly among external constituents, that a great deal more needs to be done to co-ordinate reading promotion programmes at the national level.

There is a general consensus among PNM's external constituents and internal constituents that the perceived dual role, that of national library and public library is detrimental to the effectiveness of its primary role as a national library. Librarians particularly advocate the relinquishment of its public library or public lending role to Kuala Lumpur City Hall Library so it can focus on its research and bibliographical services role. Central agencies however, while recognising the problem of a dual function library, perceive this role as still important for PNM, in order to ensure as wide a client-base as possible for its services. Central agencies also express uncertainty as to whether the Kuala Lumpur City Hall will have the capacity to develop public library services to an extent which will allow PNM to focus solely on its national library functions.

A small number of PNM's external constituents perceive a lingering problem in respect of PNM's role in legal deposit, in the sense that there still remains some confusion as to which agency is the national depository. Some of the reasons perceived are that the National Archives was the implementing agency for the Preservation of Books Act 1966 until the National Library Department was established in 1971. More recently, the National Archives decided, as a proactive measure, to collect current government publications instead of waiting for them to be deposited after 25 years. This measure inevitably puts it in competition with the National Library for these items as well as causing some confusion on the part of depositors. PNM's role in this respect is seen as needing more publicity and an on-going public relations exercise.

5.3 Criteria for Assessing National Library Effectiveness

Many of those interviewed readily provided a definition of what they perceive to be an effective organisation. A number of definitions ventured relate the organisation to its purpose, what the organisation exists for. Knowing what the organisation is for is perceived to be crucial in determining how successful it is. The test of an effective organisation is whether its mission or role has been ful-

filled. The following definitions illustrate these perceptions:

> "An effective organisation is one that knows what it is there for, knows what its mission is, and is able to carry out that mission effectively. It creates for itself and for other people a service rendered well."

> "The test of an effective organisation is whether its mission or role has been fulfilled. Because what you get sometimes is a whole smokescreen of things that the institution does well and doesn't bother to relate back to say - what does the Charter actually say? "

Other respondents focus on the need to strike a balance between what should be provided locally and what should be provided nationally. The national library has to ensure that its customer base is a genuine customer base, and who actually uses it, because resources are not available elsewhere. A close working relationship between the national library and the public is essential to determine this. A funding agency unsurprisingly focuses on the financial aspect of effectiveness and client driven services. It recognises an effective organisation as:

> " . . . one which manages itself well, in terms of running its functions, and in accordance with its budgets and delivers services that its clients welcome and wish to make use of."

More specifically, constituents of NLW perceive the aspects in Appendix 3 as important to consider in assessing the organisational effectiveness of national libraries. There is a general consensus between NLW and PNM constituents in respect of the dimensions in Appendix 3 which are perceived as important to consider in assessing their organisational effectiveness. In addition, PNM constituents also suggest further aspects which are important to consider (see Appendix 4).

5.4 Image

Constituents generally agree that an organisation's image is vital to public perceptions of its effectiveness. A positive and successful image is important as it lends credibility to what the organisation is doing and consequently attracts more clients for its services and more support for its resources. As public funded bodies, national libraries also need to be seen as worthwhile institutions for public support. Although not in itself a reliable measure of effectiveness, an organisation needs to cultivate a good image as it cannot afford a bad one.

Overall, NLW has a positive image among its constituents. Some of the positive and negative images of NLW held by its external constituents images are shown in Appendix 5.

Its internal and external constituents perceive its image as a serious and scholarly institution as being true and acceptable in the past. Constituents, however, recognise the need for NLW to have a more friendly and welcoming image in order to attract potential users from amongst the ordinary non-academic population, and acknowledges its efforts to achieve this. Pressure from the Welsh Office, its funding agency, to increase use of the Library and widen its client-base is instrumental in its efforts to attract more visitors to its exhibitions and galleries. Constituents also emphasise the need for NLW to publicise more widely the wide range of materials which are relevant to corporate users as well as to ordinary users, in areas such as genealogy and local history.

PNM's image among its constituents varies depending on which aspects of the Library are being examined. Constituents acknowledge the positive aspects of its image in some respects but readily point out its less positive aspects. Some of the positive and negative images of PNM perceived by its external constituents are listed in Appendix 6.

PNM is widely perceived as having a largely predominant public library image, among internal and external constituents. It has a wide client-base as there are lending facilities and services for children and adults and no age limit is imposed for users. Although intended to encourage use by young persons, this open policy has led to parents regarding the library as "somewhere to send the children" and leave them unaccompanied because of the facilities and activities for children and the relatively safe environment. On weekends, particularly, the Library grounds may be overrun with children. This is perceived to be a deterrent for the more serious researchers from using the library, even though the research collections are located in a separate building.

Constituents of PNM generally feel that there is

an urgent need for PNM to cultivate a more serious image in order to attract researchers to the Library. There is also consensus in advocating relinquishing its public library role in Kuala Lumpur to City Hall authorities. This would enable the Library to focus on its primary roles and encourage research in the Library. Internal constituents see this as discontinuing its public lending service, but without narrowing its existing client-base. Children will continue to be an important client group as PNM intends to convert the children's library into a reference only library for children, and to upgrade the existing hypermedia library to further extend its popularity.

Images projected by NLW and PNM are attributed mainly to its building, location, services, staff, procedures and regulations, press coverage, publications and leadership.

5.5 Whose Perspective?

The effectiveness of an organisation depends on whose perspective the effectiveness is viewed from, as different groups may have different expectations of the library and use different criteria for assessing its effectiveness. An organisation needs to identify its stakeholders and assess their importance to the library in order to determine the priorities of needs which should be met.

Constituents of NLW are generally of the opinion that the perspective of users should be considered the most important for assessing effectiveness of services. Constituents recognise that the funding agency's perceptive is important, particularly in respect of the financial management and budget, and needs to be fulfilled in order to ensure the library secures the necessary resources. NLW's constituents readily concede the likelihood of a conflict in users' perspective of effectiveness and that of the funding agency. Other client groups whose perspective should be taken into consideration include the professional library community as well as the staff of the organisation.

PNM's constituents consider the government as the most important stakeholder, as it determines the resources the Library will receive. Without resources the Library will not be able to provide the necessary resources. Constituents recognise users as an important group whose perspective should be taken into consideration when evaluating effectiveness of services. PNM's constituents are divided in their opinion as to whether there would be a conflict between users' perspective and that of the government. Central agencies and internal constituents are of the opinion that government represents the people and that PNM, as a government body, represents the government in taking into account users' perspectives and to ensure that users' needs are met as far as resources will allow. Public opinion is important as the government can be harassed by it. The political leadership is thus sensitive to public opinion. Other perspectives considered important by PNM's constituents are those of the professional library community, state governments, and the private sector, including publishers.

5.6 Referents

There is a variety of possible referents against which performance data can be compared in order to assess effectiveness. National libraries usually measure themselves against stated organisational goals, but it is often difficult because of multiple goals, contradictory, ambiguous or changing goals. A common practice in NLW and PNM is for each to effect a comparison with itself based on the previous year's performance to assess improvement. But improvement does not, in this case, necessarily mean effectiveness.

In response to the question on whether an organisation's performance can be meaningfully compared with another organisation's performance, constituents of NLW generally recognise the value of comparative evaluation, but anticipate problems in finding similar organisations to compare with. All organisations are different and this would entail problems in selecting indicators that are common to both organisations. However, constituents ventured the National Library of Scotland and National Library of Ireland as organisations which are most similar but which nevertheless have major differences in their terms of reference, collection policies, budget and staff. Extreme caution needs to be exercised in the use of such comparative data.

Constituents of PNM readily acknowledged the need for comparison in assessing organisational performance. Comparison should be made not only with other national libraries but also with public and private sector organisations in order to compare performance of specific activities or organisa-

tional aspects. Internal constituents of PNM, particularly, emphasised the importance of comparative evaluation in keeping with the vision of PNM to become a world class library. Comparisons, it was felt, should be made with other major libraries in the Asia Pacific region for example, in order to assess PNM's standing and determine criteria for a world class library.

6. SUMMARY AND CONCLUSIONS

The above study has shown that, based on the perceptions of internal and external constituents of NLW and PNM, the concept of organisational effectiveness is multidimensional. Different constituent groups consider different aspects of the organisation more important than others in describing its effectiveness. Constituents perceive the national library's effectiveness and success from their own perspective or needs. The criteria for evaluation depend on the perspective from which the organisations' effectiveness is being viewed and their exposure to different organisational aspects or dimensions and level of interaction between external constituents and people in the organisation.

The analysis of interview data is still on-going and further results pertaining to the determinants of national library performance will emerge from responses to questions on factors which affect performance and on factors which bring about change in national libraries. From these a holistic picture of organisational effectiveness is expected to emerge for each case study organisation.

The cross analysis of the data from the two case studies will provide a comparative picture of how national library organisational effectiveness is defined for NLW and PNM by its constituents and the dimensions, determinants and indicators considered relevant or applicable in describing their organisational effectiveness. From these, two main outcomes are expected from the study. Firstly, the development of theory on the organisational effectiveness of national libraries grounded in the data. Secondly, a framework for assessing organisational effectiveness of national libraries will be developed. Thus, this work should make a substantial contribution to the development of effective performance indicators for national libraries.

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Appendix 1

THE NATIONAL LIBRARY OF WALES (NLW)

The National Library of Wales was established by Royal Charter on 19th March 1907. Under the terms of the Supplemental Charter, 1988, the "objects of the Library" are expressed in a two hundred word sentence which specifies the collection, preservation and maintenance of a wide range of materials, in Welsh or any other Celtic language or which relate to the Welsh or any other Celtic people. In keeping with the traditional classical national libraries such as the British Museum Library and Bibliothèque Nationale, the establishment of the National Library of Wales was intended for the purposes of "higher education and of literary and scientific research".

In addition to the collection responsibility specified by the Royal Charter, the National Library of Wales is also a library of legal deposit under the Copyright Act of 1911. The National Library of Wales (Delivery of Books) (Amendment) Regulation, which came into force on 8th June 1987, corrected an anomaly which then entitled the Library to claim a copy of any printed item published in the United Kingdom and Ireland, *gratis*.

The purpose of NLW is interpreted in its Corporate Plan 1996/97-1998/99 as:

> ". . . the collection, preservation and maintenance of manuscripts, printed matter, maps, photographs, visual and audio-visual materials relating to Wales and the Celtic peoples and similar materials which further the aims of higher education, literary and scientific research."

NLW identifies the following as its core functions, those which represent the absolutely fundamental work the library carries out to fulfil its Charter:

(i) provide an effective and timely service to near and remote users by delivery and enquiry services and . . . provision of manual, automated catalogues and handlists;

(ii) collect materials by legal deposit, purchase, donation, bequest, exchange and deposit, according to defined collection development policies . . . in accordance with the terms of the Charter and to process and store materials acquired;

(iii) preserve and conserve materials in the collection;

(iv) interpret the collections by means of guides, publications, printed and on-line bibliographies, exhibitions, lectures and any other appropriate means, and to produce and maintain the national bibliography;

(v) provide expert and professional input and collaboration at a Welsh, UK and international level.

(NLW Corporate Plan, 1996/97-1998/99)

Appendix 2

PERPUSTAKAAN NEGARA MALAYSIA (PNM)

The founding of the Perpustakaan Negara Malaysia (PNM) can be traced back to 1966, when a National Library Division was created under the National Archives of Malaysia to implement the Preservation of Books Act 1966. It became a component of the Department of National Archives and Library in 1971 and was given legal standing as a federal department with the promulgation of the National Library Act 1972. It eventually became a separate Department under its own Director-General in 1977. Within a decade, substantial revisions were made to the founding Act, particularly in respect of the objectives and functions of the Director-General. The National Library of Malaysia (Amendment) Act 1987 prescribes the three main objectives or purposes of PNM as

(i) making available a national collection of library resources;
(ii) facilitating access to library resources;
(iii) providing leadership on matters pertaining to libraries.

A wide variety of functions, a total of 17, is to be performed by the Director-General. In addition to the traditional functions of collecting, maintaining and facilitating the use of library materials, the Act also prescribes a number of statutory roles for the National Library, including:

- national depository for the storage and conversation of library resources
- national bibliographic centre
- national centre for Malay manuscripts
- national focal point for the national information system
- national centre for the lending and exchange of library resources

By virtue of the Deposit of Library Materials Act 1987, the National Library of Malaysia is designated as National Depository and sole depository for five copies of materials published in the country. The 1987 Act, which repealed the Preservation of Books Act 1966, expanded the scope of materials to be deposited to include audio-visual and electronic-based materials.

PNM identifies its corporate philosophy, vision and mission in line with the national aspiration to become a developed nation by the year 2020, which has been formalised as official policy known as Vision 2020. PNM sees its corporate vision as:

> " . . . a world class library in the provision of excellent information services towards the realisation of Vision 2020 and as an industrialised and developed nation."

(PNM Perancangan Strategik [Strategic Plan], 1996)

Appendix 3

Aspects perceived as important in assessing organisational effectiveness of NLW

- purpose and objectives - legislation, policies
- strategic plan - mission, strategies
- services - variety, quality
- access - technology, responsiveness, delivery
- staff - training, skills, expertise, job satisfaction
- management - financial, corporate
- leadership - national, regional
- communication - within organisation, outside bodies
- support services - facilities
- publications
- co-operative projects - resource sharing, strategic alliances
- evaluation - user surveys

Appendix 4

Aspects perceived as important in assessing organisational effectiveness of PNM

- alignment with government policy
- consultancy and advice services
- implementation of development projects
- legal deposit enforcement
- organisational structure
- bibliographical services
- research and development
- development of IT in Libraries
- centre of excellence for Malaysiana
- reading promotion
- allocation of funding for public libraries

Appendix 5

Images of NLW held by its external constituents

Negative	Positive
• daunting; forbidding; intimidating; awesome	• a tremendous asset; national asset
• distant; remote; mysterious; isolated	• user-friendly
• elitist; ivory tower; exclusive; restrictive; privileged use	• dynamic; outgoing
• bureaucratic	• source of pride
• stuffy; staid	• focus of Welshness
• antiquated, museum-type; traditional	• specialised organisation
• grand; imposing; noble; dignified	• research centre
• Welsh institution	• serious, well-founded, well-respected
• low profile	• dignified; noble; grand; imposing
	• distinctive; easily identifiable

Appendix 6

Images of PNM held by its constituents

Negative	Positive
• isolationist; not consultative	• prestigious; impressive; majestic; landmark
• unfriendly	• gives a sense of importance
• public library image	• unique
• confused image; vague image	• has a national identity
• bureaucratic	• very modern
• doing too many things	• comfortable
• inconsistent	• lead agency
• difficult to access	• dynamic, proactive
• not up to expectation	• international standard
• limited clientele	• increasing popularity
• not dominant in its primary role	• institution for the people
• a "social" organisation	• well-known and recognised
• publicity not focused on services	• excellence
• limited positive image	• aggressive
	• visionary

SEMINAR PAPERS
and
POSTER SESSIONS

PUBLIC LIBRARIES

Service Evaluation in the Not-for-Profit Sector: A Comparative Analysis as a basis for Public Library Benchmarking Methodology

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A comparative study of marketing and quality management for the not-for-profit sector involved analysis of eight service sectors, including public library services. Major elements were: identifying the context within which services were delivered and considering the criteria for performance evaluation and service development. A comparative and analytical approach to service delivery is needed in order to develop a benchmarking methodology for public library services which will involve partnerships with other not-for-profit services. Success criteria for different services need to be identified first, as a means of identifying key processes for benchmarking.

INTRODUCTION

The potential for benchmarking in library and information services was confirmed by an investigation into best practice benchmarking carried out between 1994 and 1995 at Loughborough University Department of Information and Library Studies (Garrod and Kinnell, 1997). A study of levels of activity in and attitudes to quality management and benchmarking in the academic and special sectors was complemented by three action research projects which demonstrated how benchmarking could support quality initiatives. The data showed that there was considerable interest in the use of benchmarking, but much uncertainty over how to go about it.

It was also evident, though, that some informal benchmarking was already under way, through the use of performance indicators and league tables of performance. It was found that for the demonstrator projects the generic approach was the most suitable of five main categories of benchmarking identified (competitor, generic, internal, functional and customer). This focuses on one process at a time and enables a comparison of business processes or functions that are very similar, regardless of industry (Oakland, 1994). Generic benchmarking ensures that the key processes which are crucial to customer satisfaction are identified and targeted for improvement:

> "The generic model facilitates an in-depth scrutiny of the way operations are currently run, causing questions to be raised and identifying areas for improvement. It is therefore a learning process. The subsequent comparisons with other organisations enable participants to exchange ideas and analyse gaps in performance, with a view to implementing beneficial changes." (Garrod and Kinnell, 1997, p.348)

While the study was targeted on the academic and special sectors, the principles also hold good for public library services, many of which are already in close contact with a range of public services within their local authorities and with commercial organisations such as library suppliers, as well as being able to compare themselves with other public library services. Some more formal attempts at benchmarking were also identified as being in progress in the sector. All public libraries now undertake some performance evaluation using the Audit Commission performance indicators, and in the Sheffield/Loughborough Quality Management and Public Library Services study it was found that many authorities are using a wide range of additional indicators: in four of the case-studied authorities measures against pre-determined targets were being used, such as queuing times and telephone response times (Milner et al, 1997).

There was clear evidence from this study and others that public libraries, for a variety of reasons, are now more performance conscious and that they have a wider range of management information available to them for evaluation purposes. Increasingly therefore it is both desirable and feasible for public libraries to develop their benchmark-

ing activity in order to improve performance. The Library and Information Statistics Unit (LISU), for example, provides a "tailor made" statistics service for public library authorities to enable them to undertake competitor benchmarking by setting their overall performance across a range of indicators against other comparable library authorities, using the rich LISU database (Spiller, 1998). However, there is even more potential for public libraries to compare the effectiveness of their key processes with those of other not-for-profit services: the generic approach.

The study reported in this paper was undertaken as a survey and analysis of marketing and quality in not-for-profit organisations, and serves as starting point for this wider approach to benchmarking (Kinnell and MacDougall, 1997). One of the major criticisms that public library managers have levelled at quality management and benchmarking is that it is inappropriate to compare practice in public services with commercial organisations, because of their very different operating environments. The highly politicised and complex nature of the local authority setting and the need to serve communities as well as to satisfy individual customers' needs have been highlighted particularly. In our study we were interested to provide evidence that would refute the view that marketing and quality were inappropriate tools for not-for-profit managers, and to support managers in their search for improved performance, whilst at the same time taking account of such criticism and remaining sensitive to the special nature of each sector, especially to the professional and vocational goals of public sector staff, and to ethical considerations.

We therefore studied the environment for each of eight not-for-profit service sectors, noted sector-specific concerns, isolated the key performance and other issues, and offered examples of good practice in marketing and quality. The organisations we investigated were:

secondary schools
universities
health services
leisure services
public libraries
social services
charities and voluntary organisations
churches.

Data were gathered from extensive literature surveys, from questionnaires and interview surveys in two sectors (public libraries and leisure services), and from four case studies: school, church, leisure service, public library service. Marketing strategies for public libraries and leisure surveys were considered in an earlier study (Kinnell and MacDougall, 1994) using the questionnaire data, case studies and document analysis from those two sectors: this study sought to extend and update that investigation. We aimed to identify the nature of not-for-profit organisations' relationships with their customers and how these were reconciled with wider social purpose and values. It was also essential to identify the critical success factors for each sector, as a basis for comparisons between sectors and in order to specify how marketing techniques could be developed to improve performance. This stage is key to successful benchmarking, as indicated in the step-by-step benchmarking model used in the Best Practice Benchmarking study for the academic and special library sectors (Garrod and Kinnell, 1997, p.348):

- identify a key process, critical to the success of the library and information service;
- document or map the sub-processes;
- take measurements of those factors which are deemed critical to the success of the process;
- analyse the results of this exercise and identify gaps in performance;
- select benchmarking partners and compare results;
- identify best practice.

What follows is a discussion of our findings, with recommendations for further development of generic benchmarking by public library services.

THE NOT-FOR-PROFIT SERVICE ENVIRONMENT

Fundamental changes within the political and social environment were evident for all of the sectors we studied. While this kind of statement has now become such a truism that it tends to have lost meaning, it is still important to state that not-for-profit services have undergone much more cultural change than commercial organisations over the last two decades, and that this has had a profound effect on their relationships with their clients, suppliers, funders and other stakeholders. Changes include:

1. The creation of the internal market in the National Health Service (NHS) and social welfare agencies;
2. The imposition of compulsory competitive tendering (CCT) in local government;
3. The effects of legislation on local authorities (during the 1980s there were 124 Acts of Parliament affecting local government [Coxall and Robins, 1994]);
4. The European free market agreement and the influence of European Union directives;
5. The introduction of market testing in central government;
6. The impact of public sector borrowing cuts and of recession on a shrinking resource base.

Charities and religious organisations also face particular problems associated with changes in social and cultural patterns and in the financial accountability of their operations. Overall, there has been an emphasis on quality and performance in line with the Conservative government's Citizen's Charter initiative, with new relationships being forged between service providers and service enablers.

There is a competitive environment now, even for what were once considered to be essential, publicly provided services. Competitive tendering and contracting out have been in existence for many years in terms of public procurement policy (for example in health and defence purchases), but the beginning of CCT in local government required local authorities to examine and clarify their corporate objectives and to review the development of policies and programmes. While general aims and objectives have been set, research has shown, though, that there has been a lack of attention to specific goals and the development of evaluation methods (Palmer, 1994). The economic benefits are not conclusive and, while savings may be made in relation to increased efficiency, this may be at the social cost of greater unemployment, reduced pay and part-time working (Wilson, 1994).

Public accountability, consumerism and decentralisation have reflected the drive towards a market-led approach to the provision of public sector services. The publication of the Citizen's Charter in 1992 set out the rights of the public to "expect high quality services, responsive to their needs, provided efficiently at minimum costs" (Citizen's Charter Unit, 1992). In adopting strategies to improve the quality and efficiency of services local authorities are increasingly becoming enabling authorities - supplying the resources and direction needed for outside contractors to deliver services - although there are problems associated with outsourcing, especially the possibility of becoming too commercially oriented and losing sight of the democratic process, policies and social agenda.

The challenge for public sector services is to overcome an historical lack of customer-centred culture, and to encourage the growth of objective setting and evaluation, which includes consideration of this wider agenda.

As well as these broad environmental factors, there were also sector-specific issues which had to be considered.

Schools

The 1988 Education Reform Act and subsequent legislation and regulation had shifted the management focus from local education authorities to individual schools. Our case study school, Garibaldi Comprehensive, situated in a deprived area in North Nottinghamshire, demonstrated how a school could develop its own mission and market-led approach, with the support of, but also quite separate in many ways from, the local education authority. We found, though, that the existence of a true equivalent to the commercial market place could not, and probably should not exist. So-called "free choices" in schooling have empowered educational providers rather than parents, enabling favoured schools to be more selective of pupils. Providing education for a whole area has been superseded by competition between schools.

While the use of Office for Standards on Education (Ofsted) reports, performance tables to compare examination performance, truancy rates, entry to higher and further education, etc. have become means of benchmarking schools, there was a need to consider how schools add value, and to identify further performance indicators which relate to customers' expectations. Who the "customer" was, also presented difficulties, and the stakeholder concept was therefore very relevant. Parents, pupils, local authorities, employers, central government, universities, further education colleges, all

had a stake in schools, and relationships with each group had to be effectively managed.

Universities

Like schools, universities have a range of stakeholders, some with a clear supplier-customer relationship (employers for example), but others, such as professional bodies, exerting various degrees of influence through their accreditation of programmes. The impact of the Dearing Review is yet to be fully assimilated, but the government decision that students shall pay an element of their fees from 1998, can only heighten the perception amongst students that they are indeed "customers".

We found, though, that there were conflicting views of the goals and objectives of universities, with the customer-provider concept only one element in the equation. Staff, too, are important stakeholders, with one view of the universities' role that they are places where individuals are "nourished, developed and celebrated" (Goodlad, 1995). Universities are not monoliths with one simple product: education, and their complexity means that performance evaluation is difficult. As with schools, there was need to manage a range of relationships with the many stakeholder groups.

Health Services

The internal market has meant a new role for health authorities as purchasers of healthcare, the establishment of self-governing hospital trusts and the empowerment of fundholding general practitioners. There has been increasing emphasis on performance outcomes and measures, patient satisfaction, and purchasing and marketing functions, with radical change in the roles of the organisations involved. The rationale behind the internal market (which the Labour government has announced it will change) has been that competition between providers of healthcare for contracts from purchasers will improve the choice, quality and efficiency of healthcare. Contracting is therefore at the centre of the internal market, with purchasers able to influence the level of service offered by providers in terms of cost-effectiveness and quality. There has been only gradual and in some cases reluctant acceptance of the new environment, but also an acknowledgement that quality improvement programmes were needed - and these have become more widespread. Again, a major problem lies not only with varying goals within each of the organisations, but with the concept of "customer satisfaction". Not only patients, but also carers, purchasers, referrers and other groups are involved. In many cases, patients would not necessarily know whether they were receiving the best quality care or not.

Leisure Services

Now that local government services are subject to many of the same pressures of competition and cost-effectiveness as those in the private sector there has been a fundamental reorganisation and adjustment to the commercial environment, while at the same time attempting to provide a public service. The rich but diverse accumulation of leisure facilities and services, as a result of a range of private, voluntary and statutory actions on both national and local levels, has led to a duplication and waste of resources. This is exacerbated by the split of local leisure services between different local and central government departments and different levels. Consequently, many local authority leisure departments lack a well-defined set of aims or objectives apart from vague notions of serving the whole community, although the effects of CCT in sharpening marketing strategies were apparent. As well as the need to target resources more clearly, there was again the need to manage the provider/purchaser relationships and the relationships with other leisure service providers.

Public Libraries

As with leisure services, defining a role was seen to be particularly problematic for public libraries given the plethora of other public information providers to whom they had to relate, and the need to offer a service to all of the community. This problem was highlighted in the Department of National Heritage Review (Aslib, 1995); and, in a recent study of adult reading promotion in public libraries, it was found that what was once considered a key role - developing reading - is being neglected, largely through lack of a clear sense of libraries' roles in relation to other book sources (Kinnell and Shepherd, 1997). Local political priorities as well as professional imperatives had played an important part in determining public library policies. Precisely because there are so many stakeholders with views as to the role of the public

library, there are varying if overlapping core objectives. While there is pressure to improve performance especially from the Audit Commission and central government, there needs to be a more deeply considered understanding of what quality means, to both customers and stakeholders. As with the health sector, library customers do not necessarily know when they are receiving poor quality services.

Social Services

The social security budget for the UK in 1996 was almost £90 billion, the largest single item of public expenditure, and one-third of all public spending. The imposition of a quasi-market, with the replacement of traditional state provision by private or independent providers, is an attempt to limit spending. At the same time, the state is becoming a purchaser of services under continually restricted budgets and the threat of new purchasers in the form of voluntary organisations. Many social services providers have been working from the assumption that as their services are in the best interests of the public, public funding will continue to be made available for them, but it has become apparent that this is no longer the case. Competition from voluntary organisations and private contractors means increased overlap of service provision and further pressure on resources. The dual constituency of donors (both public and private) and of clients for whom services are provided forms one important factor. The internal market between purchasers and providers is intended to introduce competition so that services will more directly reflect the specific needs of clients and be more responsive to them, but artificial barriers between fellow professionals have caused difficulties.

Charities and Voluntary Organisations

These are particularly sensitive to changes in the economic climate. Whereas other not-for-profit services may rely largely on statutory funding, charities are reliant mainly on public goodwill and on commercial organisations. Political influences are also significant, with many organisations having to lobby on particular issues to influence policy-making and subsequent legislation. Changes in cultural attitudes and demographic factors play an important role in the way charities are perceived. CCT and the purchaser/provider split in the public sector also have had far-reaching implications for the voluntary sector. Instead of their previous role as complementary providers of services with local authorities they are now taking over as alternative service providers and frequently, as in the case of residential care, as the main provider (Deakin, 1996). Again, therefore, a multiplicity of relationships has to be managed.

Churches

As one of the last bastions of the Establishment, the churches represent tradition and continuity where changing fashions and style have become more important to other organisations. Retaining the core values which have lasted for centuries remains a key issue for them. So too, though, is the problem of falling attendance and finance. Financial performance is now a key element in diocesan and parish planning. As we saw in our case study of Southwell Minster, professional public relations and marketing techniques are needed to ensure the survival of church buildings, some of the most significant heritage sites in the country, and to encourage more giving by parishioners and others - including large commercial organisations. Relating successfully to a wide range of stakeholders was an important success factor.

To summarise: the environment of each of the sectors shared common features:

- the emergence of a clear marketing approach in organisations' activities;
- the need to develop a more customer-oriented approach to service delivery;
- the importance of balancing the needs of a range of stakeholders.

But each also had specific features which would need to be considered when benchmarking processes or functions.

KEY PERFORMANCE ISSUES AND CRITICAL SUCCESS FACTORS

While the sectors had very different goals, and each was responding differently to its environment, there were sufficient common features in their key performance issues and the critical success factors to make benchmarking both feasible and useful between public library services and the other sectors in the study.

Customer/Client Relationships

First, as we have seen in the analysis of the environment, a customer focus was essential. Even churches were having to view their congregations in this light:

> "The dilemma is the recognition that the church is product orientated in its servicing of existing customers, rather than attracting new customers, and that new customers can only be attracted when the church begins this paradigmatic shift in its attitude towards both its mission and objectives." (Jennings and Saunders, 1993)

We found that methods of relating to customers had similarities which made them amenable to comparison across the sectors.

1. Data gathering about client behaviour was undertaken in all organisations. The type of survey instrument being used by churches in the Isle of Wight, for example, had aspects which would be recognised by public libraries: profiling contacts with people according to age categories and identifying the range of activities associated with churchgoing. Health and social services, too, monitor client satisfaction through surveys and focus groups and, like libraries, are supporting clients from widely disparate cultural and social backgrounds, with all the problems this produces in ensuring information is targeted appropriately.
2. Developing sustainable relationships with both customers and stakeholders was also seen to be a common feature. This was important, for example, in both schools and universities, where alumni databases and the management of long-term relationships was used for fundraising and for support in a range of ways. The Friends of the Library concept, so well known in the USA, is based on the same principle and could be used effectively by library services here. The increasing professionalism with which charities get close to donors and develop long-term relationships was also relevant to libraries. Use of the World Wide Web (WWW), affinity credit cards, and links with commercial sponsors, all have lessons for libraries. Help the Aged, for example, has a home page offering a wide range of information similar in concept to local authorities' WWW publicity, but rather better targeted than many.

Service Quality

Sustaining relationships depended ultimately, though, on the quality of the service/product being supplied. A continual awareness of how a service stacks up against accepted standards had to be built in to the quality assurance systems of the organisation, and seen as an essential element in the marketing strategy. "Quality" was not always a word which found favour in the sector as a whole, just as for many library managers it is seen as prescriptive and anti-professional/vocational. But nevertheless, because of the accepted need to develop a customer focus, all of the organisations we investigated were concerned with performance, with standards and with their customers' perceptions of quality. This was the most difficult area of all, though, to be clear about. The basic delivery processes for services might be benchmarked according to the key elements of:

- reliability
- responsiveness
- competence
- access
- courtesy
- communication
- credibility
- security
- understanding the customer
- tangibles. (Berry et al, 1990)

But for each of the sectors there was the difficulty of identifying with precision how the standards of service should be defined. While league tables have been developed for schools and universities based on so-called hard indicators such as truancy or dropout rates, examination performance and research performance, there were concerns that these were not adequate for measuring and comparing the overall quality of what was being provided. Strategic and operational plans are now in place which more broadly consider the overall product/service offering in both school and universities, with school development plans, for example, generally now updated annually. The experiences of pupils and students and their perceptions were also obviously important, but educators had a responsibility to ensure that standards exceeded those which are the result of low expectations on

the part of poorly informed consumers. It was found, for example, that what parents and pupils expect from a school before they register may change after they have had experience of it (Stillman and Meychell, 1986). The same problem is found with health services, where patients often have little idea in advance of treatment of the quality of care they have a right to expect. They may even be unaware after treatment.

While each sector has very different standards, based on their distinctiveness, there is clearly considerable scope and need for benchmarking of the planning processes for developing service quality and communication mechanisms with clients/customers about service quality. The Citizen's Charter initiative went some way to addressing this issue, but patients' and citizens' charters are only one method of communication, and are not in use in all organisations. Service level agreements between purchasers and providers are now well established in many sectors: the corollary to this is adequate information for the customer.

Staff Training and Development

As in the private sector, not-for-profit services are heavily people-dependent, and staff development was regarded as essential. While many processes, such as appraisal, could equally be benchmarked with commercial organisations, we found several aspects of training needs which were more significant for this sector. While best practice in the commercial sector is obviously relevant, so often the much greater resources available for training render comparisons with not-for-profits meaningless. One area was the need to develop a customer focus, something which is much more clearly embedded in the mission of commercial organisations and is therefore usually dealt with as a matter of course in internal training programmes. We found that in leisure services, for example, CCT had forced the pace of marketing and that training and the production of marketing handbooks to enable staff to carry out marketing functions as part of their daily routines were in use. Similarly, community health workers needed to be able to identify key features of their services and to be able to communicate with the public and purchasers alike, particularly GPs. Training in marketing skills had therefore been developed, involving workshops, educational resource packs, training sessions and day courses.

CONCLUSION: GENERIC BENCHMARKING FOR PUBLIC LIBRARY SERVICES

From the above brief analysis, it can be seen that public libraries share several critical success factors with other not-for-profit organisations, despite the sometimes differing variety of environmental pressures facing each sector, and that there is scope for generic best practice benchmarking. A common public service ethos and professionalism which characterises each of the sectors provides a basis for fruitful comparisons. It is suggested that the following areas could be targeted for this approach:

1. market research techniques to aid understanding of customer behaviour;
2. methods of contacting and sustaining relationships with customers and other stakeholders;
3. planning mechanisms for identifying and developing standards of service provision;
4. communication with customers on standards of service;
5. staff training needs and methods.

Benchmarking networks are already in operation to some extent within the health (NHS Benchmarking Reference Centre) and public library (Public Library Quality Forum) sectors. There is need now for bridging relationships between sectors through pilot studies and the development of wider networks.

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LOGOPLUS: Developing Innovative Performance Measures to Investigate the Impact of Local Government Reorganisation on Public Library Users and Staff

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The project is using change indicators and quality indices to monitor the impact of changes brought by reorganisation in England. The methodology and research techniques are described. Longitudinal research design is being employed. The use of the RATER model to record user views of service quality is highlighted. Major areas of change identified by staff were political, financial, integration, communication, co-operation, leadership, and staff training and development. Preliminary findings are reported: the transition from pre- to post-local government organisation has, in some situations, been seamless; the transition has not been seamless for library managers; the performance indicators developed for LOGOPLUS are innovative; illuminative data are being collated on the management of change. The project ends in December 1998.

The LOGOPLUS research was initiated because it was felt that it was important to monitor the effects of the changes that would undoubtedly occur when well established library authorities were broken up following the Local Government Review Commission for England's final recommendations. There was a need:

- to monitor the claim that there would be a seamless transition in service provision with the creation of unitary authorities;
- to examine the services that were being offered to the public by the large strategically placed public library and information services to see if the smaller authorities would suffer from the lack of economies of scale;
- to see if small would perhaps become beautiful;
- to provide a body of research which could be used, if necessary, to defend the quality of the very high levels of service provision which had been established in some authorities;
- to look at the effects on the library staff and the users of the service of these changes.

To date LOGOPLUS has completed the first phase of data collection and the preliminary findings are fascinating. The research has developed from being a potentially rather backward looking and negative study into a wider and more exciting study of the management of change. More data will be collected in 1998 to monitor on-going changes and new impacts on library staff and users.

The Department of Information and Library Management at the University of Northumbria has wide experience of user studies and was awarded a British Library grant to study the effects. The study began in January 1997 and will conclude in 1998. The focus of the project is to determine to what extent the move to unitary authorities has delivered the promised seamless transition of services to the users. Local authorities participating in the project include those new unitary authorities resulting from a complete break-up of an old authority (ie. Cleveland) and those where the polo effect is visible ie. where a large town has become a unitary authority within an old county (ie. Durham County Council and Staffordshire County Council). The participating local authorities are:

- Darlington Borough Council
- Durham County Council
- Hartlepool Borough Council
- Middlesbrough Borough Council
- North Yorkshire County Council
- Redcar and Cleveland Borough Council
- Staffordshire County Council
- Stockton-on-Tees Borough Council
- Stoke-on-Trent City Council
- City of York Council.

An extensive literature review was undertaken at the start of the project (Parker et al, 1997). As David Liddle (1993) said "It is a sad fact that this is the first reorganisation of local government involving libraries for which the purpose has not primarily been improvements in service efficiency and

effectiveness", and Midwinter (1994) believed that "the reorganisation of local government will bring a period of instability and uncertainty to the public library service". As "Public Libraries represent one of the greatest educational, cultural and social resources we have in Britain" (Comedia, 1993), it was perceived that there were inherent dangers in this process.

This reorganisation of local government in the UK has been piecemeal and has had little underlying philosophy. The aim of the Local Government Review was to create more responsive unitary authorities by removing one tier of bureaucracy and ostensibly bringing the government closer to the community so that the "needs of the consumer may be more effectively served" (LGC, 1994). Rather than produce a blueprint for the whole country, the Local Government Commission has considered each county individually and taken into account the views and opinions of local residents. The result has been that some, such as Cleveland, Humberside and Avon, have been disaggregated into smaller units, while others, such as Durham will retain a two-tier system, albeit without the Borough of Darlington. Overall the new unitary authorities were going to be much smaller than the existing ones.

There was concern that these smaller authorities would not be able to provide the range of public library services previously offered, that smaller was less good. It was felt by some public librarians that some authorities were being created which did not have the necessary "critical mass" to begin to provide an adequate service.

Libraries must have a clearly defined purpose and philosophy and must offer structures that meet the requirements of identity, accessibility, responsiveness and democracy, as laid down by the Local Government Commission. The DNH Review of public library services (Aslib, 1995) suggests that there are three perpetual functions at the core of the service: a valuable community asset, a prime source of reading materials, and for children to discover information and a reading habit. The Comedia Report on the future of public libraries (Comedia, 1993) warned that the purposes of public institutions have to be re-evaluated and recommends that the public library service find " a new over-arching rationale and a new public policy agenda". It is important to investigate the extent to which the new authorities are able to fulfil those functions. Such concerns and issues provide the context for the LOGOPLUS project.

LOGOPLUS METHODOLOGY

The methodological framework for LOGOPLUS is user-centred. The study uses a longitudinal, bottom-up research design, with a picture of the impact of change being built up from the individual staff member's and library user's points of view. A Project Advisory Group was established at the start of the project and has a genuinely interactive role in its design and progress: decisions on the development of methodology and the carrying out of the project are shared between the research team and Project Advisory Group.

The research techniques being used in LOGOPLUS are mostly qualitative, with limited quantitative data being collected where appropriate. LOGOPLUS is essentially a qualitative study: the interviewing of individual library staff and users is the cornerstone of the project. The framework for the interview with users is provided by building on responses to open-ended questions set out in a brief questionnaire sent to a sample of the local population. The questions asked were derived from analysis of workshop material undertaken with the Project Advisory Group when change indicators were derived and subsequently developed into measures of service quality.

Factual and background data are being collected via a questionnaire mailed to a random sample of the adult (18 years and over) population in participating authorities. Some quantifiable data will be obtained from closed questions, whilst responses from open-ended questions are being used to begin to indicate and to open up areas for further investigation through interviews.

In addition, documentary analysis is also revealing some quantifiable data. The scrutiny of available documentation, such as committee minutes and relevant correspondence, is giving background information on the change process in the participating authorities. Published statistics on expenditure and statistical performance measures such as opening hours, revenue expenditure and percentage of satisfied requests can be found in sources such as

the annual CIPFA (Chartered Institute of Public Finance and Accounting) statistics, and those collected by the Audit Commission. They all help to create the background and context in which the qualitative data is being gathered. Sets of background data on participating authorities are being tabulated, to enable the comparison of performance in recent years within and between participating authorities. Such data provide the context for observed changes identified by staff and library users.

LOGOPLUS - USER-BASED CHANGE INDICATORS AND QUALITY CRITERIA

Use of the RATER model, developed by Zeithaml, Parasuraman and Berry (1990) moved performance measurement away from being based on counting, as traditional performance measures still are, where items such as the number of issues or books, are recorded, usually annually. Whilst these provide part of the total picture of library service they do not illuminate library users' views on the quality of the service provided. The RATER model is based on the recording of user views of service quality on five dimensions:

- reliability of service (eg. is the right interlibrary loan item obtained?);
- assurance (eg. are staff knowledgeable about the services they provide?);
- tangibles/physical attributes of service (eg. is equipment up-to-date?);
- empathy of staff (eg. do staff appear to be giving users adequate time to deal with their queries?);
- responsiveness of service/customer care (eg. are problems put right quickly?).

The underlying intention of collecting such data is to identify what matters to the service's consumers in order for staff to be able to respond to any concerns raised. Such an activity moves performance measurement away from counting and into quality measurement (Brophy, 1995).

Canaway used the RATER model in his MBA dissertation where he developed it into a consumer centred model for specific use in the field of public library service quality measurement. He piloted his ideas in a user survey in Darlington (Canaway, 1992).

LOGOPLUS is also using the RATER model as a starting point. The project is taking the viewpoint that library service quality measurement from the user's point of view is the gap between user expectations of the service and the reality of the service they receive. LOGOPLUS is investigating whether or not the transition from pre- to post- local government reorganisation has been seamless. If there is no gap between expectations and reality, then the transition has indeed been seamless. In order to characterise this potential gap the following procedure was followed: general areas of change were identified in consultation with senior library staff; these then provided the framework for questioning library staff of all grades. A consensus on changes of greatest impact to staff and to the library service's public was derived for each participating authority. Changes deemed by library staff to have affected users most were used as the basis for questions put to a sample of the population both as a questionnaire and as an interview. The RATER model assesses user views of a service's quality using the five dimensions outlined earlier. The changes used as the basis of questions put to users in this project were, as far as was possible, representative of the different RATER dimensions. In addition, a time element was included in order to give a user's judgement on changes over the period of time since local government reorganisation. Interviews with individuals were then used to illuminate aspects of these changes and any others which the user wished to identify as having had an impact upon him/her.

1. Identify Change Indicators with Senior Library Staff

The first Project Advisory Group meeting incorporated a workshop session where senior staff members from participating library authorities identified and prioritised areas of change which, in their opinion, had been experienced by individual members of their staff and public. The areas of change identified as being of general importance for further investigation with staff were:

(i) political: the influence of politicians in the change process,
changes in culture and equality;
(ii) financial: population versus service spend,
allocation of resources/"cushioning" in the first year;

(iii) integration: the process followed and resulting new relationships, staff and user perceptions;
(iv) communication: amount, form and level of communication/counselling, effectiveness of communication/counselling;
(v) co-operation: joint arrangements, formal and informal;
(vi) leadership: changes in structures, status and control of service;
(vii) staff: training and development issues, loss of expertise during change;
(viii) services to users.

2. Interviews with Library Staff

The areas of change identified by senior staff were adopted as change indicators and formed the basis of questions put to staff members of all grades in all participating authorities. Some examples of questions asked are:

"on a local level what do you think have been the major (political) changes and what have been their effects on service delivery?"

"has there been a change in the budget model? extent? easy transition?"

"has the culture changed? how? devolved/centralised control?"

"how are decisions made, and who makes them?"

"management chains of command?"

"from the user's point of view what do you think about the notion of a seamless transition, in relation to specific services etc.?"

From such questions a picture was built up, illuminated by individuals' quotes, which gives a rich dataset for recording library staff members' experiences of recent changes surrounding the move to unitary authorities.

3. Establish User-based Quality Criteria; Questionnaire to Library Users and Non-users

Having established areas of change important in each participating authority, based on the views of library staff of all grades, these were then used as the basis for investigating the views of the library's customers.

At the second Project Advisory Group meeting the research team outlined the development of a questionnaire to be mailed to a random sample of the adult populations in participating authorities. This would therefore include library non-users as well as users in its numbers. The aim of the questionnaire was to determine the impact on the general public of changes deemed important to them by the library staff, and to identify any other areas of concern to them. Staff from each authority had agreed the areas of change to be investigated initially and, as far as was possible, areas of change were used which also covered the RATER model's dimensions for investigating service quality from the individual library user's point of view. The intention of this aspect of the work is that participating authorities should receive, as an output of the research, data which reports their users' views of the quality of service provided to them as individuals, and on the impact of recent changes on individual library users. The data will also enable the research team to assess whether, or not, the move to unitary authorities has been seamless in participating authorities from the individual users' points of view as well as from their staffs' points of view. An illuminative example is given below, based on data used in the project.

Example

The senior library staff in authority A identified the following as areas of change which may have impacted on library staff and users:

- changes in library opening hours;
- change to the number of new books received;
- changes to the routes of mobile libraries.

These were confirmed as important by other library staff interviewed.

The questionnaire sent to 650 local residents used these change indicators as the basis for its questions on library service quality as seen by users by first ascertaining respondents' expectations of the service. It asked them for their views, where "1" denoted strong agreement and "6" denoted strong disagreement, on a set of statements such as:

"in a good library service library opening hours should suit all its customers";

"in a good library service the library should have lots of new books";

"in a good library service the frequency of mobile library stops should suit all its customers equally".

Taking the same areas of change the respondent was then asked to indicate the extent to which the service has improved or worsened in those aspects since April 1997, where "1" denoted a great improvement in service and "7" denoted a great decline in service. Statements for completion included:

"since April 1997 opening hours have . . .";

"since April 1997 the number of new books has . . .";

"since April 1997 the frequency of mobile library visits to stops has . . .".

These views show the reality of the service for the respondents - it becomes possible to monitor the gap between the reality and the expectations expressed in the preceding question and thereby gives data on library service quality as affected by change as seen from the individual library user's (or non-user's) point of view.

4. Interviews with Library Users

In addition to the mailed questionnaire, brief interviews are being carried out with individual library users in order to obtain deeper and more illuminative data in relation to the impact of the changes identified on the questionnaire. The user could also identify any other changes which may have impacted upon him/her.

LOGOPLUS - PRELIMINARY FINDINGS

Based on fieldwork carried out to date and on-going, the following preliminary findings and conclusions can be reported. They will be verified or modified in the light of the on-going fieldwork.

1. The transition from pre- to post-local government reorganisation has been seamless for library staff members where the following conditions are fulfilled:

(i) communication is good (which will include contact with the new Borough being effective at an early stage; counselling available; regular newsletter produced);

(ii) the staff member is front-line as opposed to management;

(iii) the identity within the new Borough was already strong.

2. The transition from pre- to post-local government reorganisation has not been seamless for library managers. It has already been possible to identify some factors which are more effective than others in minimising the adverse effects of change. These are factors such as:

- the managers' early and genuine involvement in the decision-making process;
- the minimising of the loss of key skills during downsizing;
- consistency in decision-making;
- where small really is beautiful.

3. The performance measures developed for LOGOPLUS are innovative in the following ways:

(i) they are interactively user-driven: user-based change indicators were developed into user-based quality criteria for the measurement of library service quality from the individual's point of view;

(ii) a time element has been added to an investigation using methodology based on the RATER model;

(iii) the research design and data collected are permitting statements to be made on the gaps revealed between top-down and bottom-up analysis in LOGOPLUS. From the library user's and the library staff (below senior management level) member's point of view the change indicators, which were also developed into quality criteria, were top-down, in that they were identified by their senior managers. The quotes gathered from users and library front-line staff provide bottom-up data and allow for additional changes to be identified. It will be possible to assess the level of agreement between the two datasets.

4. Illuminative data are being collated on the management of change in the participating authorities.

In twelve months time LOGOPLUS will re-visit the participating authorities and will re-contact as many as possible of the staff members already interviewed. They will be asked for their views on the changes and their impact twelve months on. Some library users in the participating authorities will again be interviewed with the intention of also gauging any changes in user views over the preceding year.

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Measuring the Performance of Portuguese Public Libraries

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The author reports the Portuguese public libraries performance measurement programme. A brief description of the Portuguese Public Libraries System introduces the topic. The situation that, in 1992, made the Public Libraries Office plan the development of a Management Information System (MIS) for assessing the performance of public libraries is presented. The stages involved are examined, stressing the contribution made to this process by two manuals - Nick Moore's *Measuring the performance of public libraries* and King Research's *Keys to success*. Short and medium term plans and projects concerning the MIS are also presented.

1. INTRODUCTION

In 1987, Portugal initiated a Programme for the creation and development of public libraries in the Municipalities (Conselhos). By that time, the few institutions in existence with the designation of "public libraries" were hundred-year-old institutions in which old collections of great rarity and heritage value had been put together from the extinct religious convents and monasteries, but which did not relate to the demand and need for reading and information of the public in general, as did public libraries in more developed countries. On the other hand, only one private institution - the Fundação Calouste Gulbenkian - provided reading services to the general public through their small itinerant libraries and fixed service points. Books could be borrowed, but they were almost always located in premises of small dimensions and lacking comfortable facilities for readers.

The Public Libraries Programme is based upon local authorities having co-responsibility with central government for the creation of modern public libraries: 50 per cent of the investment is made by local authorities and 50 per cent, plus the technical support, is provided by the central government through the *Instituto Português do Livro e da Leitura*'s Public Libraries Office. These libraries have differentiated sections for adults and children, adequate book and periodical collections, and audiovisual materials and facilities. They provide for the artistic enjoyment and creative use of leisure, alongside their traditional roles of promoting reading, education and information for all. They also have space for cultural activities like exhibitions, book and author presentations, lectures and discussion groups. The infrastructures built after 1987 reflect, therefore, current trends and are essential to the creation of modern public libraries.

The Programme does not prescribe standards, but rather it aims at the achievement of minimum numerical values in programmatic terms and provides guidelines and guiding principles for the roles and functions of the new libraries. These libraries must adhere to what the Programme prescribes as a condition for the municipalities to obtain the financial aid and technical support from the central government, referred to above. They are, thereby, governed by a contract entered into by the latter and by the municipality to which the public library belongs.

From the selection of the site or heritage building to the various stages of construction and equipping, as well as the document collection, the automation process and the planning of the services, the Public Libraries Office supervises the whole project and provides technical support (even after the library has opened to the public), especially for staff training, cultural activities and reading promotion programmes. Concerning the automation process, it should be noted that an international tender was opened to buy software and hardware for another 11 public libraries, after the nine that have already implemented ADVANCE. For all the others, the Public Libraries Office offered the software Mini-micro CDS/ISIS that had been provided by UNESCO through the National Library.

Through this process, the Public Libraries Office intended to bring into the libraries the available information and communication technologies, building gradually a virtual Public Libraries System.

Three types of Programme have been agreed upon, based on the Conselho's population size. For a population of under 20,000 inhabitants, a type 1 municipal library is required, with a minimum space of about 830 m² and 15,000 documents; for a population of between 20,000 and 50,000 inhabitants, a type 2 library is required, with a minimum space of about 1,560 m² and 37,000 documents; and for a population of over 50,000, the minimal requirements are an area of 2,200 m² and 42,000 documents which correspond to a type 3 library.

For four of the biggest cities, which have, at the same time, an enormous cultural tradition and important university libraries, the *Bibliopolis* programme has been created.

The general principles laid down in the UNESCO Public Library Manifesto, therefore, have been applied for the establishment of municipal systems of public libraries. Given the fact that the country has as yet neither administrative regions nor regional elected bodies, and given Portugal's strong municipal tradition of local government, it has not yet been possible to establish a regional system of public libraries.

Until recently, 125 of the 275 Municipalities in the continent had entered into a library programme-contract with central government. 59 public libraries had already been inaugurated and the remainder are under construction. During the past 12 months, 16 more libraries have been opened, in either new or restored buildings, and, by the end of the year, another 15 will also be inaugurated. The Public Libraries Programme is in fact considered to be the most important and successful programme of the Ministry of Culture and a model of collaboration with the local authorities.

On 23 April, celebrating the International Day of the Book and Copyright, the Minister of Culture publicly announced the opening of a new call for proposals, which will last till 5 September, to select 20 municipalities that will become part of the Public Libraries Programme. The Minister took the opportunity of announcing his commitment to make the System cover the whole country by the year 2005, accelerating, in this way, the rhythm of the Programme, for which he estimates a budget of 30 million PTE until that year.

2. PERFORMANCE MEASUREMENT

Five years ago, performance measurement was not a very popular topic among most Portuguese non-profit organisations. Local authorities and therefore public libraries were not aware of the contribution that performance indicators could make to the process of evaluation, nor of the importance of evaluating products and services provided to users. In fact, although quantity and quality of data collected on performance varied enormously from library to library, this information mainly concerned the amount of products and services used and was rarely seen as an integral part of the management process.

As the number of new public libraries increased, the need for information on the performance of the entire Public Libraries System became more and more obvious. Since data provided by the National Statistical Institute (INE) could not adequately satisfy this want, the Public Libraries Office decided to develop a Management Information System (MIS) for assessing public libraries performance.

Two manuals played an important role in this process: Nick Moore's publication (Moore, 1989), which offered valuable practical guidance, and the manual prepared by King Research, *Keys to success* (1990), which put a broader perspective on performance measurement. In our opinion, the latter provides a conceptual framework more adequate to the assessment of performance. In that sense, for example, instead of calling statistics "data" and ratios "measures" as Moore does, we use the terms "measures" and "indicators" respectively.

Four stages had to be undertaken in order to implement the MIS. Before choosing what to measure and how to do it, a set of general principles and selection criteria was first established:

- principles:

  a) emphasis is placed on an overall approach to performance;

  b) measuring the use of basic products/services, as well as resource allocation is a priority;

c) comparison is a fundamental aspect of performance measurement.

- criteria:

a) reproducibility: it refers to the likelihood that application of a performance measure/indicator to identical phenomena will yield identical results;

b) comparability: it refers to the extent to which a performance measure/indicator can be applied to measure differences among libraries and also to monitor change over time in one library;

c) practicality: the performance measure/indicator must be practical in terms of the time and trouble taken by library staff and imposed on their users when collecting data;

d) simplicity: closely associated with the previous criterion, this one refers to the ease with which performance measures/indicators are calculated and understood by library staff;

e) helpfulness: the performance measure/indicator must be informative;

f) relevance: it refers to the appropriateness of a performance measure/indicator to the phenomenon being analysed.

The next phase concerned the establishment of basic procedures for gathering and reporting data on performance. It was decided that the best method for systematically collecting this sort of data would be an annual questionnaire. Based on the group of measures that were selected, a questionnaire was then designed and tested on a sample of 31 new public libraries. After making some corrections, the 1994 questionnaire was posted to all effective members of the Public Libraries System.

The accuracy of responses and comments made by respondents on this questionnaire and on the one that followed, as well as discussions held during three consecutive Public Librarians National Meetings, played an essential role in the evaluation

Figure 1

Significant changes in questionnaire content

MEASURES	QUESTIONNAIRES	
	1995	1997
Floor area (open to public)	N	
Number of hours open each week per type of service point and total	N	
Total number of hours open each week outside business hours	N	
Total number of service points open each week >= 60 hours, 45-59 hours, ...	N	W
Total income		W
Number of audiovisual units in stock by type		N
Number of audiovisual units added to stock by type		N
Number of computers within service points by type of available information and total		N
Number of volumes/units of documents on loan on a particular day	N	
Issue period by document type	N	
Number of borrowers by 9 age groups	N	W
Number of borrowers by 3 age groups		N
Number of visits to static service points		W

N = New W = Withdrawn

of the measurements and also of the questionnaire structure. As a result, from the first version until the latest one, the 1997 questionnaire, the content was slightly modified in order to improve its practicality and simplicity. Figure 1 refers to the most significant changes.

All these measures have informative value; nevertheless it is the relationships that can be established between them that are indicative of performance and of practical use to decision-makers. Having as background King Research's conceptual model of a library (*Keys to success*, 1990), five groups of performance indicators were then defined, each based on a particular type of relationship: level of input, level of output, effectiveness, cost effectiveness, operational performance and impact.

The first group of performance indicators relates to the resources used by the library (inputs) to the population served. It also emphasises some input attributes, that is, some inherent characteristics of what is been measured. Both aspects show the level of resources put into the library's system, giving an insight into how economically it is operating.

The relationship between the direct products of a library's operation or the activities it carries out (outputs) and the population served provides indicators of the *level of output* generated. Other comparisons stressing output attributes can also help to assess the level of output. Since library resources like documents can also be seen as outputs (for instance, "books in stock" might refer to books made available to users through library's operations like cataloguing and classification), this type of indicator also gives an insight into the general level of resources which are used.

Effectiveness indicators are generated by relating outputs to outcomes, that is, what the library provides is related to the use that is made of it and the level of satisfaction with it. Although we are aware of the importance of this last aspect to any library manager, it should be noted that the principles and criteria selected prevent us from producing effectiveness indicators based on direct measures of user satisfaction.

A comparison of outcomes with inputs provides *indicators of cost effectiveness*; in other words, the use of the library is related to what it costs.

The relationship between inputs and outputs generates *operational performance indicators* which can provide information on productivity and costs of products/services.

Impact indicators are derived by relating the use of the library to the population served, that is to say, to its potential use.

In Figures 2 and 3, the 48 performance indicators that were selected are divided into these six groups and simultaneously related to those proposed in Nick Moore's manual. It should be noted that the majority of the indicators we are using (28 indicators, that is, 58 per cent) were not suggested by Moore. Only 20 (42 per cent) of the selected indicators are, therefore, identical to those suggested by this author; nevertheless, 20 per cent of these are "Level two measures" and 40 per cent are differently calculated. Most of these differences in the calculation process deal with the way the number of documents in stock is counted, since we recommend that it should be based on documents inventory number(s).

After establishing all the procedures mentioned above for gathering and reporting data on the performance of Portuguese public libraries, the process of implementing the MIS entered its third phase: selection of the software that would support the MIS and also data input. The software chosen was *Excel*, though we were aware that a relational database would be a much more adequate basis for the MIS. In the middle of 1995, data referring to the 1994 questionnaire were input and, at the beginning of the next year, the same was done with the responses to the 1995 questionnaire. This information corresponded to a response rate of 56 per cent and 66 per cent respectively.

When the 1994 and 1995 information on public libraries performance became available to the staff working in the Public Libraries Office, an essential step in the fulfilment of the last stage – integration of performance information into the decision-making process and its dissemination - was reached. In fact, this information not only provides a clearer picture on the performance of the libraries being supported, but can also contribute to the improvement of the Public Libraries Programme, namely in what concerns an eventual introduction of standards for performance evaluation at a national level. Besides that, the available performance infor-

Figure 2

PERFORMANCE INDICATORS			
		PORTUGUESE PUBLIC LIBRARIES SYSTEM	N. MOORE'S MANUAL
RESOURCES	LEVEL OF INPUT	Total expenditure by 1000 population	X
		Current expenditure as a percentage of total annual expenditure	X
		Current expenditure by category as a percentage of total current expenditure	X
		Capital expenditure as a percentage of total annual expenditure	X
		Capital expenditure by category as a percentage of total capital expenditure	X
		Annual expenditure on additions per 1000 population	✓
		Annual expenditure on staff per 1000 population	✓
		Population served per member of staff	✓
		Population served per librarian	X
		Staff by professional category as a percentage of total number of staff	✓ *
		Total floor area open to public per 1000 population	X
	LEVEL OF OUTPUT	Percentage of opening hours which fall outside local business hours	✓ *
		Books in stock per 1000 population	✓ *
		Books as a percentage of total documents in stock	X
		Annual book additions to stock per 1000 population	✓
		Books as a percentage of total additions to stock	X
		Periodical titles in stock per 1000 population	X
		Annual periodical titles additions to stock per 1000 population	✓ 2
		Periodical titles as a percentage of total documents in stock	X
		New periodical titles as a percentage of total additions to stock	X
		Audio materials in stock per 1000 population	✓
		Audio materials as a percentage of total documents in stock	X
		Annual audio materials additions to stock per 1000 population	✓ 2
		Audio materials as a percentage of total additions to stock	X
		Visual materials in stock per 1000 population	✓
		Visual materials as a percentage of total documents in stock	X
		Annual visual materials additions to stock per 1000 population	✓ 2
		Visual materials as a percentage of total additions to stock	X

✓ = Identical (level 1) X = Not suggested in Moore's manual
✓ 2 = Identical (level 2)
✓ * = Identical, but differently calculated

mation is also expected to help librarians working in Portuguese public libraries in the decision-making process, contributing to the accomplishment of more effective management.

3. FURTHER PLANS AND PROJECTS

Before the end of 1997, the Public Libraries Office intends to incorporate all the information that has already been collected on the performance of public libraries into its new Decision Support System – *Colibri*. This system is based on Microsoft's *Access* and consists of a set of modules which includes, for instance, a relational database. A more flexible storage and retrieval of performance data will allow, therefore, a thorough analysis and it might be possible, in the near future, to add to the Public Libraries Programme some national performance standards.

Since the beginning of this decade, the Portuguese central government has been strength-

Figure 2

PERFORMANCE INDICATORS			
		PORTUGUESE PUBLIC LIBRARIES SYSTEM	N. MOORE'S MANUAL
RESOURCES	LEVEL OF INPUT	Total expenditure by 1000 population	X
		Current expenditure as a percentage of total annual expenditure	X
		Current expenditure by category as a percentage of total current expenditure	X
		Capital expenditure as a percentage of total annual expenditure	X
		Capital expenditure by category as a percentage of total capital expenditure	X
		Annual expenditure on additions per 1000 population	✓
		Annual expenditure on staff per 1000 population	✓
		Population served per member of staff	✓
		Population served per librarian	X
		Staff by professional category as a percentage of total number of staff	✓ *
		Total floor area open to public per 1000 population	X
	LEVEL OF OUTPUT	Percentage of opening hours which fall outside local business hours	✓ *
		Books in stock per 1000 population	✓ *
		Books as a percentage of total documents in stock	X
		Annual book additions to stock per 1000 population	✓
		Books as a percentage of total additions to stock	X
		Periodical titles in stock per 1000 population	X
		Annual periodical titles additions to stock per 1000 population	✓ 2
		Periodical titles as a percentage of total documents in stock	X
		New periodical titles as a percentage of total additions to stock	X
		Audio materials in stock per 1000 population	✓
		Audio materials as a percentage of total documents in stock	X
		Annual audio materials additions to stock per 1000 population	✓ 2
		Audio materials as a percentage of total additions to stock	X
		Visual materials in stock per 1000 population	✓
		Visual materials as a percentage of total documents in stock	X
		Annual visual materials additions to stock per 1000 population	✓ 2
		Visual materials as a percentage of total additions to stock	X

✓ = Identical (level 1) X = Not suggested in Moore's manual
✓ 2 = Identical (level 2)
✓ * = Identical, but differently calculated

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Since the beginning of this decade, the Portuguese central government has been strength-

Figure 3

PERFORMANCE INDICATORS		
	PORTUGUESE PUBLIC LIBRARIES SYSTEM	N. MOORE'S MANUAL
RESOURCES — LEVEL OF OUTPUT	Audiovisual materials in stock per 1000 population	✓
	Audiovisual materials as a percentage of total documents in stock	X
	Annual audiovisual materials additions to stock per 1000 population	✓2
	Audiovisual materials as a percentage of total additions to stock	X
	Live stock turnover rate	✓*
EFFECTIVEness	Annual loans per opening hour	X
	Annual in-house use of documents per opening hour	X
	Loans per item of stock (circulation rate)	✓*
	In-house use of documents per item in stock (usage rate)	X
	Percentage of book stock on loan on a given day	✓*
	Percentage of non-book material stock on loan on a given day	✓*
COST EFFECTIVEness	Cost (annual expenditure) per in house use of documents	X
	Cost (annual expenditure) per loan	X
	Cost per activity attendance	X
OPERATIONAL PERFOR.	Cost (annual expenditure) per opening hour	X
IMPACT	Borrowers per 1000 population	X
	New registered library borrowers as a percentage of total number of borrowers	X
	Loans per 1000 population	✓*
	In house use of documents per 1000 population	X
	Activity attendance per 1000 population	✓

✓ = Identical (level 1)
✓2 = Identical (level 2)
✓* = Identical, but differently calculated
X = Not suggested in Moore's manual

ening the emphasis on customer care in the public sector. Nevertheless, up till now, no public service or any cultural organisation among us has been certified by ISO 9000. This effort, though, is gradually leading to the implementation of quality management programmes in the public sector and, particularly in local authorities, and it will certainly affect public libraries.

Concerning our methodology for assessing performance, we hope that we will soon move towards an evaluation from the viewpoint of the user, since we believe that this will be the hallmark of the beginning of the next millennium in Portugal.

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The Use of Performance Indicators in Helsinki Public Libraries[1]

Helena Ruth

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Helsinki City Library monitors performance at city level and each branch library. The indicators, and the ways of analysing them, are being developed all the time. By using comparative indicators, the library evaluates the quantity of use of services, the efficiency and economy of operations, the quality of services, and the need for development. The operational indicators are listed. Details of the economic indicators are given, including productivity, staff performance bonus, and cost accounting. The qualitative indicators are described, in the context of a model of quality administration which includes self-evaluation.

"According to the circulation statistics, Finns are among the world's most avid users of libraries. Cost comparisons show that production of library services is economical and efficient in relation to use. Finland's public libraries are also pioneers in the use of information technology." (Library Director Maija Berndtson's review, Helsinki City Library Annual Report, 1996).

AT THE NATIONAL LEVEL

At the moment, public library statistics in Finland are collected by provincial administrative boards in their own areas, and compiled into national statistics by the Ministry of Education. But Finnish Library Law is under revision yet again, and it is now proposed that libraries also be evaluated nationally. This is intended to ensure quality and uniformity of service and to provide the information needed for local, regional and national development.

AT THE MUNICIPAL LEVEL

Municipal decision-makers need clear and useful indicators to base their decisions on. Under the proposed new law, municipalities are to evaluate the library service they provide. The purpose of this evaluation is to improve accessibility of library and information services for everyone, and to support the further development of these services.

AT THE LIBRARY LEVEL

Helsinki City Library monitors performance indicators both on city library level and at the level of each unit (that is, every branch library). The indicators, and ways of analysing them, are being developed all the time.

By using comparative indicators, the library evaluates the quantity of use of services, the efficiency and economy of operations, the quality of services and the need for development. Helsinki City Library publishes annually an extensive "Book of Statistics", in which detailed, precise figures are presented of acquisitions, collections, disposals and operations.

During the period 1991-1996 lending grew by 51.1% and visits by 78.6%.

PERFORMANCE INDICATORS IN HELSINKI CITY LIBRARY

Performance indicators in Helsinki City Library fall into three categories:

- Operational indicators (performance data)
- Economic indicators (productivity and cost data)
- Qualitative indicators (operational evaluation data).

We will look at each of these in more detail.

1. Operational Indicators for 1996

See Figure 1.

2. Economic Indicators

Economic indicators are being used both for the

[1] Translation of this paper is by Dances with Words, Britt and Philip Gaut.

Figure 1
Operational indicators for 1996

The City of Helsinki		
	population	525,031
Helsinki City Library		
Operational units		
	* libraries	1+34
	* in hospitals and institutions	19
	* home delivery units	1
	* mobile libraries	2
Opening hours		
	* total hours open	92,660
	* hours open per 1,000 pop.	176
	* loans per hour open	97
	* visits per hour open	71
Library visits		
	* total visits	6.53 million
	* visits per inhabitant	12.4
	* virtual visits on www-pages	2 million
	* virtual visits per day	5,500
Borrowers		
	* total borrowers	229,328
	* as % of population	44%
Lending		
	* loans	9.00 million
	* loans per inhabitant	17.2
	* loans per staff person-year	18,517
Inter-library loans		
	* despatched	5,361
	* received	1,100
Information service		
	* assignments (statistical sample)	1.23 million
Material		
	* books	1.76 million
	* books per inhabitant	3.36
	* other materials	205,160
	* other materials per inhabitant	0.39
	* loans per material unit	4.58
	* acquisitions per 1,000 pop.	258
	* subscribed journals (titles/annual volumes)	1,190/5,764
	* material costs	1.63 million GBP
	* material costs per inhabitant	3.10 GBP
Events		
	* for adults	229
	* for children	454
	* user training	859
	* exhibitions	245
Staff		
	* staff-years	486
	* staff-years per 1,000 pop.	0.9
	* loans per staff person-year	18,517
	* staff costs	8.92 million GBP
	* staff costs per inhabitant	16.98 GBP
Average library day		
	* loans	31,531
	* visitors	23,252

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Helsinki City Library monitors performance at city level and each branch library. The indicators, and the ways of analysing them, are being developed all the time. By using comparative indicators, the library evaluates the quantity of use of services, the efficiency and economy of operations, the quality of services, and the need for development. The operational indicators are listed. Details of the economic indicators are given, including productivity, staff performance bonus, and cost accounting. The qualitative indicators are described, in the context of a model of quality administration which includes self-evaluation.

"According to the circulation statistics, Finns are among the world's most avid users of libraries. Cost comparisons show that production of library services is economical and efficient in relation to use. Finland's public libraries are also pioneers in the use of information technology." (Library Director Maija Berndtson's review, Helsinki City Library Annual Report, 1996).

AT THE NATIONAL LEVEL

At the moment, public library statistics in Finland are collected by provincial administrative boards in their own areas, and compiled into national statistics by the Ministry of Education. But Finnish Library Law is under revision yet again, and it is now proposed that libraries also be evaluated nationally. This is intended to ensure quality and uniformity of service and to provide the information needed for local, regional and national development.

AT THE MUNICIPAL LEVEL

Municipal decision-makers need clear and useful indicators to base their decisions on. Under the proposed new law, municipalities are to evaluate the library service they provide. The purpose of this evaluation is to improve accessibility of library and information services for everyone, and to support the further development of these services.

AT THE LIBRARY LEVEL

Helsinki City Library monitors performance indicators both on city library level and at the level of each unit (that is, every branch library). The indicators, and ways of analysing them, are being developed all the time.

By using comparative indicators, the library evaluates the quantity of use of services, the efficiency and economy of operations, the quality of services and the need for development. Helsinki City Library publishes annually an extensive "Book of Statistics", in which detailed, precise figures are presented of acquisitions, collections, disposals and operations.

During the period 1991-1996 lending grew by 51.1% and visits by 78.6%.

PERFORMANCE INDICATORS IN HELSINKI CITY LIBRARY

Performance indicators in Helsinki City Library fall into three categories:

- Operational indicators (performance data)
- Economic indicators (productivity and cost data)
- Qualitative indicators (operational evaluation data).

We will look at each of these in more detail.

1. Operational Indicators for 1996

See Figure 1.

2. Economic Indicators

Economic indicators are being used both for the

[1] Translation of this paper is by Dances with Words, Britt and Philip Gaut.

entire city library and for each library unit. Performance budgeting for each unit has been in use since 1993, and a performance bonus system in all units since 1995.

- Financial outline, 1996

see Figure 2.

At the unit level, staff cost per loan, facility cost per loan and material cost per loan are also being monitored.

- Productivity

The development of productivity during the years 1993-1996 was +6% (1993=100), where productivity is defined thus:

productivity = performance index/cost index.

The weighted performance index of Helsinki City Library has been the "standard library visit" (0.70 x loans + 0.30 x visitors).

In addition to the physical library network, a new activity has emerged: the 24 hour virtual library, with more than 2 million visitors in 1996. Because of this trend, library visits monitored for productivity calculations in 1997 are being split in two parts: clients visiting the library personally, and virtual visits occurring electronically. In the calculations, virtual visits are given the same weight as personal visits.

The cost index uses figures from the balance sheet adjusted to 1993 price levels.

Helsinki City Library has tracked the development of productivity since 1991. Productivity is being monitored for the entire library, as well as for each unit, and is taken into account when calculating the staff performance bonus.

- Performance bonus

All units (cost centres) within Helsinki City Library are included in the performance bonus system. How results are developing is followed centrally as budget forecasts are prepared. Follow-up for the units is carried out by means of statistics, reports and the management information system (Gentia).

The achievement bonus comprises many items. There are common targets for the entire city library (weight value 50%) and specific goals for each unit (weight values 30%+20%=50%). A unit can achieve maximum bonus, therefore, only if the city library as a whole reaches its common targets, and if the unit itself meets its own goals. In 1997 the items were as follows:

- common targets for Helsinki City Library:
  - productivity of the city library (weight 25%);
  - further development of the quality strategy (weight 25%).
- common targets for all units:
  - growth of the unit's productivity by 1% (weight 10%);
  - exceeding the net target of the unit's own budget by 2% (weight 10%);
  - customer-satisfaction at least 4 (on a scale of 1-5) (weight 10%).
- optional target for each unit:
  - 1-2 projects approved by the management group (weight 20%).

Up to 5% of the city library's annual wage costs can be used for the performance bonus. The value of the bonus is the same for each member of the unit in proportion not to salary but to time worked.

Figure 2
Financial outline, 1996

	FIM	GBP
* operating costs	130.12 million	14.79 million
* operating costs per inhabitant	248	28.18
* income	10.15 million	1.15 million
* income per inhabitant	19	2.16
* net cost per inhabitant	229	26
* average cost per library visit	19.90	2.26
* average cost per loan	14.70	1.67

Thus, taking sick-leave, for example, decreases an individual's bonus.

- Cost accounting relative to defined products

Helsinki City Library has developed a model for product accounting suitable for a library. Its aim is to clarify the real costs of different library services, including support services.This is done by treating services as products and defining the resources that each demands - working time, for instance. In addition, cost information for each budget category is needed. One aim of product accounting is to support management decision-making by focusing into the future in a way that was not possible in traditional budget accounting.

The phases of product accounting are:

1) general description of the library unit and the area it serves;
2) identifying and quantifying the products;
3) clarifying the costs (including costs of supportive services, purchase services, central administration and capital expenditure);
4) apportioning the costs (working time and other costs are divided between 12 operations which determines the cost of each product).

Results can be examined both in detail at the product level, and more widely in product groups. Seven product groups have been identified for Helsinki City Library. For example, the unit price of Group 1, "offering material for lending", works out at 1.14 GBP, Group 2, "offering material for use", at 0.70 GBP, and Group 4, "national and international services", at 16.29 GBP.

Cost accounting relating to products helps in finding the crucial success factors, supports quality work, reveals the cost structure of products and promotes controlling processes. It supports all the areas of emphasis within the quality administration of Helsinki City Library.

At the moment five pilot libraries are experimenting with product cost accounting. During 1998 the project will extend to all the city library's units.

3. Qualitative Indicators

Helsinki City Library uses a model of quality administration which includes self-evaluation. This involves looking at the services offered by the library in relation to the community around it and to the needs of customers. It also includes efficiency and economy of the library's internal processes, as well as its ability to serve both internally and externally.

The aim is to consolidate systematic planning, control and evaluation of quality as part of the everyday operations of each library unit.

The criteria chosen for this evaluation are from the Finnish Quality Award scheme. The handbook "Model for mastering Quality within Helsinki City Library" was completed at the beginning of 1997.

The key performance areas by which quality within the city library is being controlled, evaluated and improved, are as follows:

1. Leadership

Evaluating:

- how well the most senior managers, personally, develop and maintain customer-orientation, clear values and the expectation of excellence;
- how well the most senior managers, personally, perform in meeting their own targets for managerial excellence;
- how values and expectations are manifest in the management system.

2. Information and how to analyse it

Evaluating:

- customer-orientation;
- how information is controlled and used to support success in the market place. Information significant for successful library operations, by which the library's profitability and economy is considered, can be divided into three groups:
  1) information about library operations and about customers;
  2) comparison figures;
  3) information needed for steering.

3. Strategic planning

Evaluating:

- how the city library defines the strategic direction for its activity and sets the essential requirements for planning;

- how requirements concerning plans are taken into account in management.

The most important strategies in Helsinki City Library are:

1) steering strategy
2) service strategy
3) staff strategy
4) the strategy of internationalism
5) information strategy.

4. Staff development

Evaluating:

- how the staff can develop and utilise all its potential in harmony with the purposes of the city library;
- how to create and maintain an atmosphere that promotes:
  1) excellence in results;
  2) learning and participation, both individually and for the organisation as a whole.

5. Mastering processes

Evaluating:

- key processes that are essential for the activity, such as: developing client-oriented products, production and delivery processes, support processes and co-operation with suppliers, covering all units of the city library;
- how key processes are planned, how to control them effectively, and how to improve them.

6. Results

Evaluating:

- how parameters concerning products, operations and suppliers, as well as economic results have developed;
- how results compare with those of other libraries or other comparison figures.

7. Client-orientation

Evaluating:

- how the city library gets information about its clients and how client relationships can be developed and maintained;
- how key indicators of success (client-satisfaction, client-loyalty and the market share) have developed, and how these results stand compared with other libraries.

8. Social impact on the community

Evaluating:

- what effect the city library - through its activities and products - has on society, on people's well-being, on their living environment and on natural resources;
- how these environmental results have developed.

WHERE DO WE GO FROM HERE?

Performance indicators are, by their very nature, a historical record - a record of the past. While they may tell us how well we have achieved our goals, we must remember that those goals are only stepping-stones to the future. So, where are we going? What do our next goals look like?

For us in the Helsinki Library world, our key areas right now are to provide an even better service (including improved opportunities for self-service) for all citizens of the Information Society, to put Internationalism increasingly into practice, and - last, but by no means least - to ensure that our staff receive all possible support and encouragement.

International Comparisons of Public Libraries

John Sumsion

Loughborough University, UK

This research project compared public library statistics in 25 countries, concentrating on western Europe and on English-speaking countries. The study dealt with the published statistics of individual library authorities within each country. Wide variations emerged, not only in statistical techniques and presentation but also in size, funding and organisational features. The paper discusses the comparisons and the most interesting features in the analysis. The comparisons are speculative but, with improvements in the consistency of published statistics, could be more interesting. Topics for further research on a similar scale might be standards, norms and targets; benchmarking; collection of data from a further set of countries; funding models; administrative geography; and electronic services. Wider discussion of these proposals, and their possible extension to academic libraries, is urged.

INTRODUCTION AND BACKGROUND

A research project was undertaken in 1995-96 at the Library and Information Statistics Unit (LISU) with a specific objective - to inform a subsequent review of UK Public Library Statistics by looking for examples of better statistical practice in other countries. For this reason comparisons focused on well developed library systems. For practical reasons (language, communications) there was concentration on western Europe and English speaking countries.

Published statistics were collected from 25 countries. Example pages were reproduced from each statistical collection. There was a careful analysis of content and presentation style, which is thoroughly explained and tabulated in the publication (Hanratty and Sumsion, 1996).

Unlike the UNESCO and EC statistics, the study was concerned not with national totals but with the published statistics of individual library authorities within each country. An amazingly large variation came to the surface - revealing wide discrepancy not only in statistical techniques and presentation but even more significantly in the size and organisational features of public library authorities.

The research proved quite arduous - initially in locating statistics agencies and subsequently in dealing with language difficulties and definitions of terms. However, many respondents showed great interest in the project and in the results. At the end of the day most respondents were enthusiastically interested and wanted the personal contact to continue. (Typically collectors of statistics do not enjoy widespread appreciation in their own countries!)

A short two-page outline of research prospects was sent in the summer of 1996 to UNESCO and to IFLA and was shown to members of the Statistics Committee and the Standing Committee of the Public Libraries Section at the Beijing IFLA Conference. There was immediate interest but no obvious source of funding for further research.

The purpose of this paper is (1) to summarise those comparisons; (2) to point up the most interesting features in the analysis; and (3) to discuss topics for further research on this scale.

1. STATISTICAL COMPARISONS

Although the study was principally concerned with statistical practice as opposed to comparing results, we could not resist the temptation to extract some of the most important statistical measures and to show them in the form of comparative totals and per capita ratios. These data were compiled from the statistical reports of individual libraries; some already contained useful national summaries. In a few cases (France, Germany, Netherlands and USA *NCES)* supplementary data were taken from national reports.

We noted considerable variation in the degrees of detail and in the completeness of coverage.

Limitations and anomalies. For various reasons it was not possible to include Switzerland, Flanders and Portugal. Lombardy is one of the most affluent regions of Italy; its developed library service should not be considered representative of Italy overall. Spanish data applied only to the major city libraries which serve 12 million people, ie. approximately 30 per cent of the total population.

The French statistics were also incomplete, as responses were received from only 84 per cent of library services. The French results pertain only to the 2,064 "Bibliothèques Municipales": these serve 34 million people out of 59 million. The UK data are "grossed up" to produce an overall total to allow for authorities that failed to make a return or that provided incomplete data. In Western Australia, most stock is purchased centrally and supplied to libraries by LISWA: so there is an unusually small amount, only three per cent, spent on acquisitions locally.

In Canada and Australia, library services are organised on a regional basis and figures are included for each state or province. The CALUPL publication covers the larger urban libraries throughout Canada.

Comparisons. Not surprisingly we encountered problems in comparing the data, particularly with regard to the expenditure categories. The basis for measuring Capital Expenditure was not always clear; in general the data included below are for "Total Operational Expenditure" excluding Capital costs.

Such problem areas have been highlighted in: *Library economics in Europe: An update - 1981-90* (Ramsdale, 1995). It is clear that standardisation of statistics is essential if accurate comparisons are to be made. One might regard this exercise as field-work preliminary to the next EC Library Statistics project and to the revision of ISO 2789 - both scheduled for 1998.

The data presented in these tables can therefore only provide a broad-brush indicative comparison between library operations (Figure 1). They cannot be considered precise due to different methods of collection, different definitions and problems with incomplete datasets. The loans per capita data are, for instance, frequently for loans of total stock rather than for books only. Furthermore, there can be great variation in the scope of services covered: lectures, exhibitions, audiovisual materials, domi-

Figure 1
Comparison statistics

	UK	Denmark	Finland	Norway	Sweden	Nether-lands	Belgium (Fr)	Flanders
Year of publication	1994-95	1993	1994	1994	1994	1993	1994	1993
Population (millions)	58	5.2	5.1	4.3	8.8	15.3	4.2	6.2
% population using library								
- membership	(58)†					29.7		
- users	(68)†		49.0					23.7
Professional staff per 1000	0.1	0.4						0.3
Staff per 1000 population	0.5	1.0	0.9*	0.4	0.6	0.4*		0.4
Book stock per capita	2.2	6.2	7.3	4.7	5.0	2.7	2.3	3.0
Book loans per capita	9.2	14.3	16.5	4.5	7.7	11.2	4.0	6.8
Total Stock (millions)	136.8	34.9	39.7	21.4	46.2	44.6		19.8
Book Stock (millions)	129.6	32.9	36.6	20.4	44.0	41.5		18.5
AV stock as % of Total Stock	5.2	5.6	8.0	4.4	5.0	5.1		6.7
AV loans as % of Total Loans	5.8	9.2	17.0	9.2	8	3.7		10.0
Expenditure per capita								
net	12.2	33.9	25.8	15.8	25.3	18.7	5.9	
gross								
Materials exp. per capita	2.4	5.8	3.5	2.7	3.2	2.9	0.9	
Materials exp. as % total	18	17	13	17	13	15	15	
Salaries as % total	53	68		58	47	46		

* Finland and the Netherlands staff per 1000 population are converted from person years; † from other market research.

Figure 1 continued
Comparison statistics

	Slovenia	Lombardy (Italy)	Germany	France (B.M.)	Spain*	Portugal	Ireland
Year of publication	1994	1992	1994	1993	1994	1993	1993
Population (millions)	2.0	8.1	81.3	34.1	12.3	10.6	3.5
% population using library							
- membership	21	12.4		17.8		6.0	21.6
- users			11.6		20		
Professional staff per 1000	0.3		0.2		0.02		0.1
Staff per 1000 population	0.4	0.2		0.5	0.1	0.1	0.4
Book stock per capita	2.7	1.4	1.6	2.4	0.4		3.6
Book loans per capita	4.4	0.7	3.0	3.7	0.3		3.2
Total Stock (millions)	6.0	12.2	137.3	79.6	5.9	0.3	11.4
Book Stock (millions)	5.5	11.6	126.9	75.4	5.2	0.3	11.2
AV stock as % of Total Stock	6.0	2.5	6.0	5.2	6.9	3.0	2.1
AV loans as % of Total Loans	6.2		14.0	12.3			3.0
Expenditure per capita							
net	6.1	5.2	7.3	8.7	0.4	0.5	7.0
gross							
Materials exp. per capita	1.4	0.7	0.9	1.4	0.2	0.1	1.0
Materials exp. as % total	24	13	13	16	44*	15	14
Salaries as % total	42	57	63	82		74	60

* Spain: Statistics shown are for the main city libraries and the corresponding population served of 12 million. The population of Spain is approximately 40 million. Salaries excluded from expenditure analysis.

	USA (NCES)	Ontario	British Columbia	CALUPL	South Australia	New S. Wales	Victoria	Western Australia	New Zealand
Year of publication	1993	1994	1994	1994	1993/94	1993	1993/94	1992/93	1994/95
Population (millions)	261	9.9	3.6	10.9	1.5	5.9	4.5	1.7	3.4
% population using library									
- membership			57	50	55	54	52	54	40
- users									
Professional staff per 1000	0.2	0.1	0.1	0.1	0.1	0.1	0.1		0.2
Staff per 1000 population	0.5	0.7	0.5	0.6	0.4	0.4	0.3	0.3	0.5
Book stock per capita	2.7	3.0	2.6	3.0*		2.6*	2.0*	1.6*	2.4*
Book loans per capita	6.5†	9.9†	11.1†	10.4†	10.0†	8.4†	8.9†	8.4†	11.0†
Total Stock (millions)	686.0	30.0		32.7		12.5	8.9	2.7	
Book Stock (millions)	656.0	28.7	9.1		2.4	11.8	8.2		
AV stock as % of Total Stock	4.4	4.4					4.3		
AV loans as % of Total Loans		13.4			8.9				
Expenditure per capita									
net	12.8	17.5	14.3	17.0	7.9	10.5	9.1	5.0	13.7
gross									
Materials exp. per capita	1.9	2.0	2.0	2.1		1.5	1.5	0.2	2.5
Materials exp. as % total	15	12	14	13		14	16	3	18
Salaries as % total	65	69	65	67		49	60	74	47

* Total stock per capita. † Loans of total stock per capita.

ciliary services can be provided or not. It is also to be noted that data from different years have been used.

2. ANALYSIS

The tables include headings for **membership** and **users** as a proportion of total population: allocation to one or other heading depends on the presentation and wording in the reports rather than on precise definitions. If membership data are to be compared, a standard definition for active users is most necessary.

Membership varies from six per cent to over 50 per cent of the population. The statistical count will be tighter where an annual subscription is required. The proportion of the population using the library is best ascertained by market research covering the entire population. This survey approach produces what, at first sight, seems an unusual result for the UK where significant numbers use the library services without having a library ticket.

Loans is the main activity measure. In places there are very wide variations between the fully developed and more embryonic library services. There is more homogeneity in the number of **staff** employed per 1,000 population. But linking lending rates to staff produces no constant ratios. The 75 percentile figure can be taken to represent a good standard. (Figure 2).

Figure 2
Book loans: staff numbers

	lowest	*highest*	*75 percentile*
loans per 1,000	650	16,640	9,850
staff per 1,000	0.09	1.01	0.61
loans per staff	2.80	27.30	19.0

Bookstock per capita figures are more even. This shows that high lending rates are not simply related to high bookstock: high lending figures can be achieved with average stock levels. **Audiovisual** as a proportion of total lending and stock is much more homogeneous: figures above ten per cent or below four per cent are rare.

Too much should not be read into the **Expenditure** figures per capita since accounting conventions and the scope of the service can distort comparisons wildly. Note for example how **Salaries** and **Materials** account for 98 per cent of expenditure in France (Bib. Mun.) whereas normally some 15-30 per cent is included for costs of premises and administration.

Overall the Scandinavian spending figures are notably high - with Canada, New Zealand and the Netherlands at the next level. UK and USA come above Australia, France and Germany. Except in Slovenia the proportion spent on **Materials** lies between 13-18 per cent, and the proportion spent on **Staff** lies mostly between 46 and 66 per cent.

Statistical conclusion. It must be admitted that at present such comparisons can only be highly speculative. They point to fascinating differences in service scope, expertise and funding policies. Obviously the tentative and imprecise comparisons made here could be much more interesting with improvements in the consistency of the published statistics.

3. TOPICS OF NOTE FOR FURTHER RESEARCH

Standards and Benchmarking? Traditionally library statistics focus on performance against standards, comparative measures and league tables. For this approach to be realistic there has to be uniform practice in collecting the statistics. While there has been some progress through international standards, the UNESCO and EC/CIPFA statistics have severe inadequacies both in their completeness, their timing, and in the consistency of data.

While these problems prevent precise and meaningful comparisons of actual results, they do not so much affect comparisons of targets, norms, or standards.

Possible Research Project 1

Tabulate and analyse data collected on STANDARDS/NORMS/TARGETS set in, or typical of, each country to establish areas of commonalty and areas of wide variation. Consider how far Standards/Norms/Targets appear to be met from the statistical results. Include, where appropriate, "charter" performance promises to users.

Benchmarking is an increasingly popular approach. Typically several broadly similar library authorities start by comparing their statistics but

then select particular features for more detailed and flexible study where the comparison can take account of, and investigate, how far different circumstances explain different performance results. This can then extend to qualitative study of Quality issues as well as quantitative analyses of service uptake, resources employed, etc.

Benchmarking is hard work but rewarding and meaningful in the outcome. It is this approach, "benchmarking on an international scale", that is most promising for IFLA promotion. In part this is because the impetus comes from practitioners - either individuals or groups - and the role of the researcher is that of a facilitator on the sideline rather than the principal mover.

For benchmarking some preliminary statistics are required to support initial decisions on the benchmarking agenda and to ensure that libraries participating are broadly similar in size and scope.

Possible Research Project 2

INTERNATIONAL BENCHMARKING

To extend these comparisons to more countries is clearly desirable.

Possible Research Project 3

Collect data for a FURTHER SET OF 25-30 COUNTRIES. For this to be manageable a contact will need to be found in each country who can (a) provide a copy of the published statistics and (b) communicate in English to translate the key terms and outline descriptions and answer queries in English. In practice this should not be too difficult.

Differences in **sources of funds** are very interesting. There is more variety than many expect in the extent to which public library authorities are entirely self-sufficient and how far they are funded by national or regional government - whether for operating revenue or for capital spend (mainly buildings and computer systems).

The following are relevant as sources of finance:

- national library or national government;
- regional government;
- local authority;
- private income - bequests, donations, etc.;
- subscriptions from users/borrowers;
- charges for specific services - loans, fines for overdue material, room hire, value-added information services, photocopying, etc.;
- other sources - which may include corporate organisations.

Possible Research Project 4

COMPARE FUNDING MODELS. One objective is to reveal and discuss novel sources of funds only apparent in some countries - through case studies.

There are several quite knotty problems of definition to be examined as part of the research. Some account will need to be taken to modify (or normalise) the data where statistics provided differ in definition and in scope from what is requested. It is not realistic to expect all countries to provide all information to set definitions, but it is realistic to ask for explanations and comments where there are differences and for these to be taken into account in the detailed analysis. The case studies should not involve a great deal of original work since these will mostly have been already written up in some form in the country concerned. The research work will be in translation and ensuring the results are presented in a comparable fashion.

Geographic and Structural Models. Variety between countries in what might also be called "administrative geography" is very apparent in the published statistics. Everywhere there are large, medium sized and small service points. But the smaller service points are sometimes grouped within a large administration (as in the UK) and sometimes quite independent (as in the USA). Yet another arrangement is found in France where the large library authorities are treated as a different universe to the small.

National and regional library organisations have a more obvious and important role where library authorities are small.

Some interesting aspects include: how far authorities provide specialist collections and services themselves, through collaborative arrangements, or not at all; arrangements for interlibrary lending - type, extent and efficacy; and transport and communication arrangements where distances are great.

These questions are, of course, linked with Funding models (project 4 above) and with the question of Economies of Scale in library services.

Possible Research Project 5

ADMINISTRATIVE GEOGRAPHY. Publicise the variety of options so that countries can review their own arrangements with knowledge of alternatives practised elsewhere. The project will aim to point out strengths and shortfalls in different situations. It will not attempt to establish "best practice", since so much depends on local, political and historic factors.

It will be noted that the statistics shown in this paper do not include items relating to **Electronic Materials, Services and Networked Facilities.** This is because such statistics are not yet established in any country - let alone internationally.

Academic libraries' use of electronic materials is typically some years ahead of public libraries', but they have not yet arrived at any very satisfactory procedures to monitor and report the extent of this use. The amount of money spent on Mediated Online, on Document Delivery and on CD-ROMs purchased can be calculated, as can the number of terminals on various networks. But to calculate the usage of networked information is really difficult. So statistics collected are more circumstantial evidence than direct measurement.

But, although imperfect, some useful measurements could readily be collected, such as:

- number of reference CD-ROMs (including newspapers) available (a) to read on dedicated readers and (b) through networked terminals;
- number of such networked terminals available (a) to staff and (b) to the public;
- local community information databases (with number of terminals for access);
- number of users electronically linked from home to public library for various purposes;
- number of OPACs available (a) for staff use and (b) for the public;
- automated issue and automated reservation facilities;
- hours online and/or income from the public for Internet access, etc.

Several of these items are already well covered in the UK biannual surveys that could well be the starting point for any international research (Batt, 1994; Batt, 1997).

Possible Research Project 6

Comparative study of statistics being developed in different countries to record provision and use of ELECTRONIC MATERIALS, SERVICES AND NETWORKED FACILITIES.

CONCLUSION

There are four principal **objectives** in studies of this sort.

1. To promote and increase the standing of public libraries and information services in the world-wide context. To provide hard data to publicise their achievements.
2. Comparative statistics to broaden public librarians' knowledge and politicians' awareness of what goes on in other countries.
3. Comparative statistics for any review and updating of IFLA's Public Library Standards and to support new International Standards.
4. To extend and develop benchmarking practice through work on an international scale.

Prospective research is deliberately aimed to record and report what is actually happening - objective description. Except for the project on Standards/Norms/Targets its approach is different from questions of what ought to happen or of ideal solutions. However, the comparative but systematic and objective study of situations in different countries can be most revealing in pointing out where what is "impossible" in one place is actually happening elsewhere! What is feasible is just as important as what is ideal.

The proposals discussed in this paper need more widespread discussion, though a consensus of support is already emerging. And their extension to academic libraries is an obvious possibility. Academic libraries could be expected to exhibit more homogeneity internationally; but who knows?

P.S.

It is clear that a research programme on this scale cannot be done part-time by practitioners alone,

although they can play an important part. (As public librarians become more used to e-mail communication their contribution becomes logistically more feasible.) However there is a substantial workload involved in data collection, analysis and report writing which calls for professional research properly funded. To supplement the EC project already scheduled possible additional **funders** are:

- IFLA/UNESCO;
- national libraries: separately or in a consortium of, say, four or five;
- one or more foundations such as Gulbenkian, Benton, Carnegie, Wolfson;
- a consortium of library suppliers/publishing firms.

Note

This paper is based generally on research carried out at LISU (Library and Information Statistics Unit, Loughborough University) funded by the British Library, and specifically on chapter 6 "Output Measures" of the report: Hanratty, C. and Sumsion, J. *International comparison of public library statistics.* It also reflects the contents of a paper addressed in February 1997 to the officers of the IFLA Section of Public Libraries.

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SEMINAR PAPERS
and
POSTER SESSIONS

SCHOOL LIBRARIES

Self-Evaluation Using Performance Indicators in Secondary School Libraries

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The project began from the fact that information from the Scottish Office on evaluation for schools seldom includes reference to the library. The objectives of the research were to compile a list of criteria for judging a school library service, to identify a set of performance indicators, to suggest data for librarians to collect to support self-evaluation of the library, and to enable librarians to prioritise through a set of performance indicators. Criteria, and their ranking by librarians and by their line managers, are listed. The results of a questionnaire about evaluation in the school and library are discussed, emphasising the similarities and differences between librarians' and teachers' views. Ways in which school librarians might use information derived from self-evaluation are suggested. Concludes that the use of performance indicators should be combined with the librarian's professional judgement.

This paper is a brief account of research carried out for a Master of Science degree in the Faculty of Education, Strathclyde University (Glasgow) (McLelland, 1996).

I undertook this particular piece of research because of a long-standing interest in the question of the value of libraries and, in particular, the contribution of libraries to the educational process. This is a philosophical question, of course, and not one that it was appropriate to investigate at the time, but it led to an interest in methods of evaluating the work and impact of the school library, assuming the received wisdom that it is indeed a "good thing".

Education in Scotland is legislated and administered separately from education in England and Wales, with its own inspectorate. In recent years, the Scottish Office Education and Industry Department (SOEID) has been encouraging schools to evaluate their services, whether whole-school or departmentally, pointing out that accountability, value for money, and the quality of teaching and learning are good reasons for doing so. However, when I looked at the various documents issued by SOEID to see what they said about the school library, I found very few references. In a 1991 report by HMI on information and study skills (SOED, 1991), there is a section on effective use of the school library, referring to its importance as a whole-school information/resource centre, with acknowledgement of the librarian's professional knowledge. Another typical example is taken from study material on monitoring school effectiveness which is aimed at headteachers and which simply states that one characteristic of an effective school is that pupils should acquire study skills and use resources well (SOED, 1990). A paragraph in another HMI document on the management of educational resources, published in 1988 states that "management seeks to maximise the library's contribution to learning and to encourage the desire to learn. While there are inequalities in school library provision and staffing across the country, management ensures that the library is viewed as a school resource, with departments encouraging its use in support of appropriate set assignments and being consulted on purchases" (SED, 1988).

Inspectors' reports usually include little assessment of library provision and, indeed, such assessment is not a mandatory part of a school inspection. The implication could be that the library is not a high priority service. After all, as we know, the cost of staffing a school library is a small proportion of the school's total staffing expenditure. On the other hand, would SOEID eventually realise that a lot of money is, in fact, being spent on the library, especially now that computerisation and electronic sources are becoming more usual, and decide to impose some criteria for evaluation which are not actually very useful to library managers? Examples of these criteria could be the total number of books issued in a year, or the amount spent per pupil per year, neither of which is necessarily a true indica-

tion of the library's role as a support for the curriculum and for personal development. It seemed to me that it would be a good idea to set out some measures which might be used to assess a good school library service and, furthermore, to use the kind of grading that SOEID uses for other aspects of the school, ie.

1. Major weaknesses - poor attainment/poor progress;
2. Strengths outweighed by weaknesses - barely satisfactory;
3. Strengths outweigh weaknesses - quite a good performance, certainly up to par;
4. Major strengths - in line with the best attainable standards nationally.

In addition, I wanted to provide information that librarians would find useful both for evaluation of their own library - that is, to help in forward planning and in prioritising their work - and also for incorporating in reports to the school's Senior Management Team, in terms that the team would recognise.

The objectives of the project were:

1. to compile a list of significant criteria by which a school library service could be judged;
2. to identify a set of performance indicators for secondary school libraries;
3. to suggest types of data which the librarian could collect to support self-evaluation of the school library;
4. to enable librarians to prioritise the aspects of the service through reference to a set of validated performance indicators.

Objectives 2 and 3 could stand alone, of course, but one strong objection which school librarians have to the process of self-evaluation is the time it takes to collect and interpret data, and the intention of the first objective was to assist librarians by identifying the most important aspects of a school library service, thus allowing achievement of the fourth objective, which draws together the two strands of the project.

To get a list of significant criteria, I decided to use the method developed by Nancy Van House in the USA (Van House et al, 1990) and then in New Zealand by Rowena Cullen and Philip Calvert (Cullen and Calvert, 1995). It has recently been used by Sheila McCullough in a study of Scottish Further Education libraries (McCullough, 1995) and by John Crawford and Helen Pickering of Glasgow Caledonian University in a nation-wide study of university libraries (Pickering et al, 1996).

The starting point is a list of criteria, which can be of any appropriate number. The Cullen and Calvert study had 100 items, the Caledonian University study had 91. The 50 criteria chosen for my study were based on guidelines, standards, research surveys and also accumulated personal experience. (See Appendix 2 for the full questionnaire). Each criterion could be graded on a scale of 1 to 7, respondents being asked to circle 1 if they thought the criterion was very important as a measure of a good school library service, and 7 if they thought it very unimportant. The other numbers could be circled according to their perceived importance. It was emphasised to respondents that the criteria were not being compared with one another and that they were not being ranked in any way at this stage. The criteria were grouped in categories, not to rank them but to split them up and make them seem less daunting. The groupings were:

1. Background Factors: staff, finance, accommodation, opening hours;
2. Contribution to Teaching and Learning: links between the curriculum and the library service, library and information skills instruction, and the account taken of differences in language skills, ethnic origins and support requirements;
3. Information Services: signing and guiding in the library, informal help given to staff and pupils, careers information, communication with users;
4. Access to Library Materials: the catalogue, multiple copies and short-loan collections, information about electronic information sources, safeguards against damage and theft, borrowing entitlements.

The other aspect of this method is to survey the various "constituencies" or "stakeholders" interested in the library. In the larger studies I mentioned, these could consist of ten or a dozen groups, from various categories of students to different categories of library staff and to general management. For example, in the Caledonian University

research, ten groups were identified. Since my project had to be quite small-scale, I used just two groups: librarians and their line managers, and omitted the largest group (the pupils), simply because I did not have the time or resources to include them, although I recognise that their opinions would certainly be worth identifying. However, I also felt that focusing on the management point of view was useful.

Since I wanted to survey a spread of schools, from inner city ones to rural, and very large to very small, I chose two areas in Scotland: Glasgow, and Central Region (which has been split into smaller local government units since then). Glasgow has suburban and inner city areas. Central Region included the sizeable towns of Falkirk and Stirling but also extended to parts of Loch Lomondside, with schools in large and small towns and also in very rural areas. All of these were represented in the responses.

Altogether, I distributed questionnaires to 65 schools, asking the librarian to pass a copy on to their line manager. The survey took place in March 1996, just before reorganisation of Scottish local authorities, which may account for a fairly low return, especially from Glasgow schools, but there was a total return of 38.5% from librarians and, not unexpectedly, a lower return of 21.5% from teachers. I say "not unexpectedly", because personal experience suggested that in many cases the line managers would not have in-depth knowledge of library matters, and some of the information I received from librarians bore out this perception.

Apart from the list of criteria, I asked librarians to complete a questionnaire about evaluation in their school and their library, which was intended to give me some background about what actually was being done and how this activity might be harnessed. An added bonus, which I did not know in advance, was that the majority of librarians who replied had substantial experience in school librarianship, with 13 of the 25 respondents having between three and ten years experience, six of them with between 11 and 23 years experience. Five of them had been in the same post between 11 and 17 years. It could, therefore, be claimed that the majority of the responding librarians had acquired a good knowledge of the service required.

However, it was interesting to learn that of the 25 school libraries, 14 did not have a policy document and only eight were required to submit an annual report to the Headteacher or to their line manager. Fifteen librarians said that the school did undertake some self-evaluation but, surprisingly, six did not know if this was the case. Of the 15 who did know, six did not know whether or not the school followed the SOEID's recommended method. Most librarians did collect some data about the library, examples being :

- total number of items issued (19 libraries);
- number of pupils attending information skills classes (14 libraries);
- number of pupils using the library for private study (9 libraries);
- number of interlibrary loans (six libraries).

Other data collected related to:

- use of the computer (Internet, CD-ROMs, databases);
- type and number of information/reference requests;
- satisfied requests;
- use of different types of resources;
- use of photocopier;
- use of periodicals;
- use of the library at lunchtime;
- teacher/department use and borrowing.

I then analysed the returns of the list of criteria, to see which were considered most important by the two groups and to compare their priorities (Figures 1 and 2). It was noticeable that most of the choices were in the upper part of the spectrum, perhaps because people felt that if an item were on the list at all, it must have some importance.

It was interesting to see that there was a fair amount of agreement between the two groups as to the important criteria for a good library service. Eight of the top ten criteria coincide:

- the library staff are helpful and courteous;
- the library staff are experienced and knowledgeable;
- the library budget is a guaranteed proportion of the total school expenditure;
- the library matches its goals and objectives to user-group needs;

Figure 1

Ranking of criteria by 25 librarians

Percentage:	
88	The Library staff are helpful and courteous
88	The Library budget is a guaranteed proportion of the total school expenditure
84	The Library staff are experienced and knowledgeable
80	The Library matches its goals and objectives to user-group needs
80	The Library spends an adequate amount on each pupil
80	The needs of all pupils are addressed
80	The Library promotes enjoyment of reading
72	Information is made available in a range of print and electronic form
72	The Library staff give users informal help in improving library skills
68	Equipment is well maintained
60	The Library supports cross-curricular initiatives for multi-cultural education and equality for all
60	The Library can respond to new demands, eg. materials for new courses
60	The Library has a high success rate in answering requests for information
56	The opening hours suit the needs of potential users
56	Learning resources are evaluated against educational criteria, eg learning skills & outcomes, appropriateness, differentiation, bias
56	There are clear signs giving directions and guidance within the Library
52	The Library maintains open and regular communication with its users
52	The Library offers a wide range of careers information
48	The Library makes provision for users with disabilities
48	The needs of all staff are addressed
44	The Library staff are involved in the organisational, administrative and social life of the school
44	The Library is conveniently situated with regard to teaching area *(1)*
44	The Library is open to pupils outwith class contact time
44	All services are available when the Library is open
44	The library/information skills programme takes account of differentiation, eg. in language skills, ethnic origins, learning support requirements
44	The Library helps pupils and teachers to find and use relevant information sources outside the school
40	A high percentage of potential users actually use the Library
40	The Library is comfortable and attractive
40	The Library includes quiet study areas
40	The Library co-ordinates skills instruction with classroom instruction
40	The Library catalogue is computerised
40	New items for stock are acquired quickly
40	Users may borrow a reasonable number of items for a suitable period
36	The Library provides audiovisual equipment, eg. video recorders, audio-cassette players
36	The Library offers a programme of library/information skills instruction to all year groups
36	Information about CD-ROM/electronic databases is available throughout the school
36	The Library takes measures to safeguard stock against damage and theft
36	A high proportion of items asked for by users is obtained for him/her
32	The Library provides personal computers for users' own work
24	A high percentage of Library resources is borrowed each year
24	The Library makes users aware of new items added to stock
24	The Library holds a central catalogue of all learning materials in the school
24	Items reserved by users are retrieved quickly for them
20	The Library provides a short-loan collection
16	Group study areas are found in the Library
16	The Library provides facilities for production of learning materials by staff and pupils
12	Enough study seats are available at all times
12	Tutorial rooms for classes are located within the Library
12	The Library provides multiple copies of items in high use
8	A photocopying service for users is available

(1) Compare with 21% of teachers who rated this highly

- the library spends an adequate amount on each pupil;
- equipment is well maintained;
- the needs of all pupils are addressed;
- the library promotes enjoyment of reading.

Additionally, librarians placed in the top ten:

- information is made available in a range of print and electronic formats;
- the library staff give users informal help in improving library skills.

Teachers' additional top ten placings were:

- the library is open to pupils outwith class contact time;
- the library is comfortable and attractive.

There is also an overlap of six items between the two groups when you look at the ten criteria ranked least important by the two groups:

- the library holds a central catalogue of learning materials in the school;
- group study areas are found in the library;
- the library provides facilities for production of learning materials by staff and pupils;
- tutorial rooms for classes are located within the library;
- the library provides multiple copies of items in high use;
- a photocopying service for users is available.

Four additional criteria were placed by librarians in the lowest section:

- the library makes users aware of new items added to stock;
- items reserved by users are retrieved quickly for them;
- the library provides a short-loan collection;
- enough study seats are available at all times.

As for teachers, the additional low-scoring criteria were:

- the library staff are involved in the organisational, administrative and social life of the school;
- the library catalogue is computerised;
- information about CD-ROM/electronic databases is available throughout the school;
- the library is conveniently situated with regard to teaching areas.

One criterion was preferred by significantly more librarians:

- the library is conveniently situated with regard to teaching areas (librarians 44%, teachers 21%).

There is a longer list of criteria preferred by significantly more teachers:

- the library is open to pupils outwith class contact time (librarians 44%, teachers 71%);
- the library is comfortable and attractive (librarians 40%, teachers 71%);
- the library makes provision for users with disabilities (librarians 48%, teachers 71%);
- the needs of all staff are addressed (librarians 48%, teachers 71%);
- the library takes measures to safeguard stock against damage and theft (librarians 36%, teachers 71%);
- the library offers a programme of library/information skills instruction to all year groups (librarians 36%, teachers 64%);
- the library/information skills programme takes account of differentiation eg. in language skills, ethnic origins, learning support requirements (librarians 44%, teachers 64%);
- items reserved by users are retrieved quickly for them (librarians 24%, teachers 57%);
- the library makes users aware of new items added to stock (librarians 24%, teachers 50%);
- enough study seats are available at all times (librarians 12%, teachers 43%).

Having gathered this information, I studied the various guidelines issued in the UK and the USA and "married" them to the information about priorities and current practices, to produce what I hope is a practical guide to the self-evaluation of a school library which allows for flexibility in compiling and expanding a set of performance indicators. The different aspects of the service were categorised:

BACKGROUND FACTORS

Library Staff: qualifications and expertise of staff; the librarian's place in the school's line of management;

Figure 2

Ranking of criteria by 14 teachers

Percentage:	
93	The Library staff are helpful and courteous
86	The Library staff are experienced and knowledgeable
86	The Library promotes enjoyment of reading
86	The needs of all pupils are addressed
79	Equipment is well maintained
79	The Library spends an adequate amount on each pupil
71	The Library matches its goals and objectives to user group needs
71	The Library is open to pupils outwith class contact time *(1)*
71	The Library budget is a guaranteed proportion of the total school expenditure
71	The Library is comfortable and attractive *(2)*
71	The Library makes provision for users with disabilities *(3)*
71	The needs of all staff are addressed *(4)*
71	The Library can respond to new demands, eg. materials for new courses
71	The Library takes measures to safeguard stock against damage and theft *(5)*
64	The Library offers a programme of library/information skills instruction to all year groups *(6)*
64	The library/information skills programme takes account of differentiation, eg. in language skills, ethnic origins, learning support requirements *(7)*
64	The Library offers a wide range of careers information
57	The opening hours suit the needs of potential users
57	Information is made available in a range of print and electronic form
57	The Library staff give users informal help in improving library skills
57	There are clear signs giving directions and guidance within the Library
57	Items reserved by users are retrieved quickly for them *(8)*
50	A high percentage of potential users actually use the Library
50	The Library includes quiet study areas
50	Learning resources are evaluated against educational criteria, eg. learning skills & outcomes, appropriateness, differentiation, bias
50	The Library makes users aware of new items added to stock *(9)*
50	A high proportion of items asked for by users is obtained for him/her
43	The Library maintains open and regular communication with its users
43	Enough study seats are available at all times *(10)*
43	The Library supports cross-curricular initiatives for multi-cultural education and equality for all
43	The Library co-ordinates skills instruction with classroom instruction
43	The Library has a high success rate in answering requests for information
43	Users may borrow a reasonable number of items for a suitable period
36	All services are available when the Library is open
36	A high percentage of Library resources is borrowed each year
36	The Library provides audiovisual equipment, eg. video recorders, audio-cassette players
36	The Library provides personal computers for users' own work
36	The Library helps pupils and teachers to find and use relevant information sources outside the school
36	New items for stock are acquired quickly
36	The Library provides a short-loan collection
29	The Library staff are involved in the organisational, administrative and social life of the school
29	The Library provides facilities for production of learning materials by staff and pupils
29	The Library catalogue is computerised
29	The Library provides multiple copies of items in high use
29	Information about CD-ROM/electronic databases is available throughout the school
21	The Library is conveniently situated with regard to teaching areas
21	Group study areas are found in the Library
21	The Library holds a central catalogue of all learning materials in the school
14	A photocopying service for users is available
7	Tutorial rooms for classes are located within the Library

(1) - (10) Compare with percentage of librarians who rated this highly:

(1) 44%	*(2) 40%*	*(3) 48%*	*(4) 48%*	*(5) 36%*
(6) 36%	*(7) 44%*	*(8) 24%*	*(9) 24%*	*(10) 12%*

Service to Users by Library Staff: the needs of all pupils; the needs of all staff; attitude of staff to users; communication with users;

Availability of Library Service to Users: library opening hours; sufficiency of staff; borrowing entitlement;

Library Policy: the library's policy vis-à-vis the aims and objectives of the school;

Library Premises and Furnishing: location of the library; furnishing and decor; security of premises and stock;

Study and Seating Facilities: accommodation for classes; accommodation for private study;

Library Equipment: provision of equipment; maintenance of equipment;

Library Stock: quality and quantity of stock; range and appropriateness of stock;

Finance: amount of library budget; allocation of library budget;

Level of Library Use: the level of borrowing of library materials; the level of use by potential users.

CONTRIBUTION TO TEACHING AND LEARNING

Links with Departments: the extent to which effective links have been made with departments;

Information Skills and the Curriculum: library/information skills teaching;

Reading Promotion: promoting reading enjoyment.

INFORMATION SERVICES

Quality of Enquiry Services: satisfaction with fulfilment of requests;

Informal Guidance to Information Sources: satisfaction level of information requests; quality of directional signs;

Careers Information: effective provision of careers information.

ACCESS TO LIBRARY MATERIALS

Classification and Cataloguing: quality of classification and cataloguing of library materials.

For each of these, examples are given at the level of major strengths. These are not always particularly prescriptive, to allow for differing circumstances. For example, with reference to information skills and the curriculum (Figure 3), it is suggested that pupils should be confident in carrying out investigations and using information sources on an independent basis and also that the programme should be timetabled for all year groups and relevant to each stage. Each school would require to decide on the proportion of the timetable allocated to information skills instruction and also how far pupils should be expected to be independent researchers. Reference is made to the relevant criteria on the original list and also given the priority ranking accorded by librarians and teachers. This is to allow the librarian (and, indeed, any other manager) to prioritise the evaluation process. Using the complete set, it is possible to see, for example, that promoting reading enjoyment had a high priority by over 80% for both teachers and librarians and so it may be decided that this is one area which should definitely be evaluated, using the criteria suggested and the methods which would yield the required data.

By referring back to the original list and seeing which are the high priority items, managers could possibly concentrate on these to begin with and decide what data are needed for this purpose. It is, of course, essential to identify the kind of data which may be required in the future and also collect that, but initially it may simply be stored, ready for expansion of the evaluation process. The co-operation of teachers is often stated as being a requirement to reach the desired level. This is a deliberate attempt to encourage the Senior Management Team to give the library service serious consideration and to offer some guidance on what steps are necessary to support the service.

There are other ways in which the librarians can use the information. For example, if they want to survey the satisfaction rate accorded by teachers to the service, they can take, say, the top ten criteria and compile a brief questionnaire based on them just to ensure that teachers' key priorities are being met.

They could also look at the data they already gather and see what they could most usefully do with them. For example, the librarians' questionnaire showed that most kept statistics of issues and also the number of pupils attending information skills classes. These could be used as input to various performance measures, such as service to users,

Figure 3

Example provided of major strengths relating to an aspect of the service

KEY AREA:	**Contribution to Teaching and Learning**	
PI:	**Information Skills and the Curriculum**	
THEMES TO BE ADDRESSED	Relevant Criteria No.	Priority Ranking%
- Library/Information skills teaching	30	L36 T64
	31	L40 T43
	34	L72 T57
	36	L44 T36

The following provides illustration at the level of major strengths
- A programme of library/information skills teaching is planned co-operatively by the librarians and teachers
- The programme is incorporated within subject teaching as a relevant part of the course
- The programme is timetabled for all year groups and relevant to each stage
- The programme takes account of differentiation, eg in language skills, ethnic origins, learning support requirements
- Informal help in acquiring skills is available to all users
- Users are helped to access sources of information outside the school
- Pupils are confident in carrying out investigations and using information sources on an independent basis

Required Data
- Curriculum plans for each subject and level within the school
- Analysis of timetabled use of the library
- Survey of pupil use of information sources pre- and post-library/information skills teaching
- Survey of teachers' opinions regarding the relevance of the programme's content and approach
- A current list/database of useful information sources outside the school
- Analysis of informal enquiries vis-a-vis the content of scheduled information skills classes

availability of the service, premises and furnishing, analysis of stock, level of library use, reading promotion, and informal guidance. Essentially, the data are gathered for purposes of comparison. For example, the number of items borrowed has to be compared with the number of actual borrowers or the length of the loan period. It is also needed in order to support the professional judgement of the librarian, who might, for example, conclude that issue statistics do not really indicate the level of library use at all. It might be better to forget about them and concentrate on analysing the reference use, whether it be for curriculum or personal purposes. Of course, the librarian may have to convince the Senior Management Team that this is a more valid use of the time which is available for evaluation, but I hope that the suggestions I have formulated would help them in this task.

Evaluation is a very large topic, but although performance measurement is just one aspect of it, it can be an extensive exercise. I have to emphasise that my project was quite a small-scale one, based on one person's perceptions, and I would readily agree that other approaches and opinions could be equally valid. However, it has also opened up new avenues of thought and possible research, particularly the inclusion of pupil opinion in the stakeholding exercise, an analysis of the benefits of various evaluative techniques, compared with the time and cost of carrying them out (particularly in the majority of schools where the librarian works alone), and methods of measuring the value and worth of a school library vis-à-vis the achievements, academic and otherwise, of the whole school.

I believe that self-evaluation of a school library's service is a beneficial and increasingly necessary part of the librarian's work. Performance indicators, when judiciously selected, should be an essential part of the process, but care must be taken to combine these with the subjective, but always professional judgement of the librarian.

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Appendix 1

SECONDARY SCHOOL LIBRARY PERFORMANCE MEASUREMENT STUDY

LIST OF CRITERIA

BACKGROUND FACTORS

1. The Library staff are experienced and knowledgeable
2. The Library staff are helpful and courteous
3. The Library staff are involved in the organisational, administrative and social life of the school
4. The Library matches its goals and objectives to user group needs
5. The Library is conveniently situated with regard to teaching areas
6. The opening hours suit the needs of potential users
7. The Library is open to pupils outwith class contact time
8. All services are available when the Library is open
9. The Library maintains open and regular communication with its users
10. Equipment is well maintained
11. The Library budget is a guaranteed proportion of the total school expenditure
12. The Library spends an adequate amount on each pupil
13. A high percentage of Library resources is borrowed each year
14. A high percentage of potential users actually use the Library
15. The Library is comfortable and attractive
16. The Library includes quiet study areas
17. Group study areas are found in the Library
18. Enough study seats are available at all times
19. Tutorial rooms for classes are located within the Library
20. The Library makes provision for users with disabilities
21. The Library provides audiovisual equipment, eg., video recorders, audio-cassette players
22. The Library provides facilities for production of learning materials by staff and pupils
23. The Library provides personal computers for users' own work

CONTRIBUTION TO TEACHING AND LEARNING

24. The Library supports cross-curricular initiatives for multi-cultural education and equality for all
25. Information is made available in a range of print and electronic formats
26. The needs of all pupils are addressed
27. The needs of all staff are addressed
28. Learning resources are evaluated against educational criteria, eg. learning skills & outcomes, appropriateness, differentiation, bias
29. The Library can respond to new demands, eg. materials for new courses
30. The Library offers a programme of library/information skills instruction to all year groups
31. The Library co-ordinates skills instruction with classroom instruction
32. The library/information skills programme takes account of differentiation, eg. in language skills, ethnic origins, learning support requirements
33. The Library promotes enjoyment of reading

INFORMATION SERVICES

34. The Library staff give users informal help in improving library skills
35. There are clear signs giving directions and guidance within the Library
36. The Library helps pupils and teachers to find and use relevant information sources outside the school
37. The Library offers a wide range of careers information
38. The Library makes users aware of new items added to stock
39. The Library has a high success rate in answering requests for information

ACCESS TO LIBRARY MATERIAL

40. The Library catalogue is computerised
41. The Library holds a central catalogue of all learning materials in the school
42. New items for stock are acquired quickly
43. The Library provides a short-loan collection
44. The Library provides multiple copies of items in high use
45. Information about CD-ROM/electronic databases is available throughout the school
46. A photocopying service for users is available
47. The Library takes measures to safeguard stock against damage and theft
48. Items reserved by users are retrieved quickly for them
49. A high proportion of items asked for by users is obtained for him/her
50. Users may borrow a reasonable number of items for a suitable period

Appendix 2

QUESTIONNAIRE FOR SCHOOL LIBRARIES

1. How would you describe your school? (please tick one)
   a. inner city .... b. suburban .... c. rural ....
   d. small town .... e. large town ....
   f. other (please specify) .....

2. How many pupils are in the school? .....

3. How many teachers are employed in the school? .....

4. To whom are you responsible within the school? .....

5. How many years' service in total do you have as a school librarian? (Omit service in other kinds of libraries) .....

6. How long have you been in this post? .....

7. Is there a library policy document? (please tick one)
   Yes ..... No .....

8. If the answer to number 7 is Yes, who has access to the policy document?

   .....

9. Does the Headteacher ask for an annual report about the library? (please tick one)
   Yes .... No ....

10. Does your line manager, if this is not the Headteacher, ask for an annual report about the library? (please tick one)
    Yes .... No .... N / A ....

11. If the answer to number 9 and/or number 10 is No, do you voluntarily prepare a report
    a. for the Headteacher? (please tick one)
       Yes .... No ....
    b. for your line manager, if this is not the Headteacher? (please tick one)
       Yes .... No .... N / A ....
    c. for your own information? (please tick one)
       Yes .... No ....

12. If you are neither required to prepare a report nor voluntarily do so, would you consider doing so? (please tick one)
    Yes .... No ....

13. Does the school undertake any self-evaluation? (please tick one)
    Yes .... No .... Do not know ....

14. The SOEID recommendations regarding methods of self-evaluation are to rate various aspects of performance as:
    a. Major weakness - poor attainment/poor progress
    b. Strengths outweighed by weaknesses - barely satisfactory
    c. Strengths outweigh weaknesses - quite a good performance, certainly up to par
    d. Major strength - in line with the best attainable standards nationally

    If the answer to number 13 is Yes, are these recommendations followed? (please tick one)
    Yes .... No .... Do not know ....

QUESTIONNAIRE FOR SCHOOL LIBRARIES *(continued)*

15. Do you undertake self-evaluation of the library? (please tick one)
Yes .... No ....

16. If the answer to number 15 is No, would you consider undertaking self-evaluation of the library? (please tick one)
Yes .... No ....

17. If the answer to number 15 or to number 16 is Yes, how do you *actually* measure *and/or* would you *possibly consider* measuring the effectiveness of the library service?
(please tick all applicable in the appropriate column)

	Actual	Possible
a. analysis of issue statistics	.....	.....
b. analysis of departmental use of library	.....	.....
c. assessment of information skills teaching	.....	.....
d. analysis of information enquiries	.....	.....
e. analysis of stock	.....	.....
f. survey of IT use (eg CD-ROMs)	.....	.....
g. survey of user satisfaction	.....	.....
h. other (please specify)	.....	.....
	.....	.....
	.....	.....

18. What statistics about library use do you collect ? (please tick all applicable)
a. total number of items issued ....
b. number of pupils attending information skills classes ....
c. number of pupils using the library for private study ....
d. number of inter-library loans ....
e. other (please specify) .....
.....
.....

19. Does the library have a computerised system ? (please tick one)
Yes .... No ....

20. If the library does have a computerised system, is it used for
Both library management *and* cataloguing? (please tick one)
Yes .... No ....
Library management functions *only*? (please tick one)
Yes .... No ....
Cataloguing *only*? (please tick one)
Yes .... No ....

21. If the library does have a computerised system, what information *can be* generated by the system to help in self-evaluation?
(please tick all applicable, even if you do not actually use a particular facility)
a. issue statistics ....
b. numbers of users ....
c. analysis of pupil use by year group ....
d. catalogue searches ....
e. spread of library use throughout the day ....
f. analysis of materials issued by type ....
g. amount of material added to stock ....
h. amount of material withdrawn from stock ....
i. other (please specify) .....
.....

SEMINAR PAPERS
and
POSTER SESSIONS

TECHNIQUES AND TOOLS

The MINSTREL Management Information Transformer

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MINSTREL's aim is to develop software for librarians at all management levels to obtain reliable management information from automated and non-automated data sources. MINSTREL has developed an environment which provides functions and tools to access and manipulate information. The software is independent of any particular library system or decision support system and requires no specialised knowledge. It enables librarians to explore performance measures, gathering data from a wide range of sources and making it available to decision-making modelling tools. Based on a client server approach, the system provides an environment for the sharing of information among staff separated by distance and by activities. Staff also have access to their own area for exploring new data and ratios. Security systems and encryption are provided.

BACKGROUND

Over the last ten years there has been increased interest in the application of management information tools and techniques to enhance the efficiency and effectiveness of library services. This interest has been stimulated by the need to provide each library's community with new services and facilities and to meet the challenges of developing delivery channels while facing increased competition and financial restraint. External pressures for financial accountability and the introduction of service charters have focused the minds of many librarians on the opportunity to exploit management information tools. Within the general area of management information there has been particular interest in performance measures and decision support techniques.

The European Commission provided opportunities to extend the knowledge in these areas through its libraries programmes under DGXIII, specifically the Third Framework. To stimulate further development the Commission of the European Community (CEC) commissioned a review of library performance indicators and library management models and provided small-scale funding in a number of target areas for the development of project proposals and the establishment of partnerships.

STUDY PROLIB/PI

The review of library performance indicators and management models PROLIB/PI (Ward, 1995) was carried out by a consortium of Essex County Library and the Library and Information Statistics Unit at Loughborough University and led by De Montfort University. The 14-month study of the field extended beyond Europe and included a toolbox of indicators designed for European library use. It found that there was considerable interest and substantial skills in the field although the depth of knowledge varied between countries. The report identified a number of barriers to the use of performance measures and decision support tools which were, principally:

1. Information on some European experience had not been disseminated widely. Much of the key material is in English and there is a lack of translation in other languages.
2. A need for further education and training of librarians in the areas of evaluation techniques and methods of statistical analysis.
3. Identification of time and resources to implement evaluation techniques.
4. Although information technology had spread widely in libraries, the required skills needed considerable effort from librarians to master current management information retrieval systems which were provided with automated library housekeeping facilities.

Among its recommendations the report included the need to stimulate the substantial scope for the use of contemporary general management analysis

tools and to extend the performance measure concept helped by the use of relational database structures and standard query languages such as SQL. As a result of the CEC call for proposals under action line 4, four projects were funded to undertake research projects during 1995. These were Project DECIDE, Project DECIMAL, Project EQLIPSE and Project MINSTREL (Management INformation Software Tool - REsearch in Libraries).

The aim of MINSTREL was to develop software which would enable library staff at all levels of management to obtain relevant and reliable management information from automated and non-automated data sources. The work would develop an environment which would provide managers with a range of functions and tools to access and manipulate information. Software would be independent of any particular library or decision support system and no special technical knowledge would be required to access it. A consortium consisting of BLCMP in the UK and PICA in the Netherlands as industrial partners, plus the libraries of University College, Dublin, the University of Twente, Netherlands, and De Montfort University acting as co-ordinating partners, has worked over the last two years to develop this model.

THE MINSTREL MODEL

One of the major barriers to the effective manipulation of management information has been the diversity of sources from which information can come. Variations in data format and style can produce very practical problems in calculating the simplest ratios. Information from library housekeeping systems, from parent bodies' accounting and population data sets, and from remote sources such as suppliers' computers all have valuable information. Surmounting such barriers can be an exhausting programme - a process not to be lightly repeated, and one which the CEC PROLIB/PI study highlighted as a major barrier to the development of more effective decisions support systems.

If measures and performance indicators are to be employed in a useful way, they must be comparatively easy to produce; if not, the organisation ends up with a standard set of measures for institutional and national statistical use which may have limited relevance to the developing needs of libraries. The MINSTREL model consists of a transformer which is designed to take data in from a variety of sources, enable it to be manipulated to calculate simple ratios, and also to export the data into a modelling tool so that users can make more sophisticated use of it. The model was designed through a process of analysis and consultation. The project started with an analysis of the CEC toolbox and other material on performance measurement and assessment. To these existing models, the members added further measures required based on the partner libraries and the management information models currently used by them, the draft ISO standard, and IFLA guidelines. Additional measures were examined, including those for the future, the newer document and information delivery techniques - and taking into account the need to measure uses rather than attendance by users at a particular library.

DETERMINING FUNCTIONALITY

A draft of functions required was drawn up and consultation seminars were held for librarians in the UK and Ireland and for the Netherlands and Germany. During the seminars, particular emphasis was placed on eliciting information on both current problems in using current decision support techniques and in the features that users wish to see. A questionnaire was sent to public, academic and special libraries asking them about their current methods for manipulating management information and their requirements for the future, backed by information on the context of their library. The questionnaire asked about the regional, national and sectorial data sets that the library contributed to and the local performance measures and indicators employed. Sources of input data for measures were requested including details of the computer systems, operating systems and file structures. A copy of the draft MINSTREL design was sent with each questionnaire and respondents were asked to read this and comment.

The main themes which arose from consultation produced pictures of the current state of Management Information Systems (MIS) in libraries at that time. They showed that they were characterised by a lack of strategy for data collection, the fragmentation of systems holding the data required, the need to address the measurement and evaluation of electronic information services, and the use of spreadsheets and graphics packages for

data analysis. The focus groups' discussions on future requirements concentrated on the type of information that librarians will need to produce, the growing importance of quality assessment in all libraries, the relationship of funding issues to measures, the development of payments for services in libraries, and the need to analyse what we consider to be the real costs of services rather than notional costs. There was also a need to analyse the impact of more access to information from related areas such as publishers and booksellers and application of Geographic Information Systems (GIS) and to carry out analysis over time series.

Following these consultations a definition for the system was developed which was the foundation for the next stages in the project. These included the definitions of the forms of data which the transformer would need to import and the data formats which were likely to be required for sending data from the transformer for statistical analysis into decision support tools which libraries used. The technology employed is based on client server architecture on a Unix server with a PC client. The software architecture is based on a relational model using SQL2 to query the database.

Key elements which came from the consultation processes with potential end users were: the need to provide an easy to use system which would encourage the development of the end user from a novice situation where they were able to access simple PIs into a more advanced mode where they will be manipulating decision support; the need to provide a system which was as open as possible for as many colleagues to consult but which, at the same time, could provide a private area which people could discover and explore for themselves; the need to provide methods for securing data so that information that was considered to be confidential to particular groups, which could be held on the system but available only under strict management; and finally the system should be accessible across networks so that users who are in different parts of the library system could effectively communicate their opinions about performance and measurements through the model.

THE MINSTREL SOFTWARE

Users log on to the MINSTREL client at their PC using their own identification and password. In this way, individual users can be attached to particular groups allowing access to data sets and results to be managed positively by an administrator. Users are then able to look through the reports which are available to them on the system. These are shown in a report window and include an identification, the name of the report and its owners. Users can see the reports which have been made available to them by others and also the ones that they have created themselves. Users can scan these and also examine the definitions to ensure that the performance measure which is to be calculated is suitable for their use. From the report window users are able to review the data sources which have been used in that report. They are then able to make the report or to produce the performance indicator directly from the reporting screen. The system may go directly to a remote data source and log on to a remote machine and collect the data, returning it to the client and producing a calculation online. Alternatively information may be held locally through the operator having keyboarded in the information beforehand. A third method of presenting the data is through a spreadsheet from which individual cells can be selected.

One feature of the system is its ability to have automatic updates programmed into it. In this way, information may be collected from a remote database as a series of time slices: every hour, every week, every month, and these made available to the MINSTREL system so that it may then be produced as individual performance measures or sent on to a spreadsheet for more detailed analysis and for time series projections to be analysed. As well as displaying information about the reports and their structure, the user may go into individual data sources and examine the definition of the source and join this with other sources to produce more performance indicators. The information available includes details of the technical source of the data such as the remote machine, how that machine is accessed, and also the SQL query which is used to retrieve the information required. This automates the process as much as possible once this query system has been set up. In this way, naïve users can make active use of information on remote systems in a sophisticated way without having to know in detail the technical implications of the searches which they are performing.

This remote fetching and collection of data is done through the use of Open Database Base

Connectivity (ODBC) which is rapidly becoming a de facto standard. ODBC defines a set of primitives which allow a client to work with an SQL database. The client application calls ODBC primitives to send SQL requests to the server and get back the results of these calls. ODBC loads the drive as necessary for each specific SQL server and despatches the requests to the drivers, finally presenting the results to the client application. A database management system driver provided by the database management system vendor, in this case Sybase, maps the generic calls made by the ODBC compliant client into the specific implementation understandable by the relevant database management system. This includes translation of data types where necessary. In the case of MINSTREL, the ODBC DBMS database management system driver has been designed to be specific to MINSTREL and independent of the server database in use for the clients.

In order to provide a multiple user environment accessible across distances, the project implemented data encryption across TCP/IP and within the data store. In this way even the most sensitive information such as salaries can be held confidential to users and groups within the user community.

EVALUATION

The evaluation of the MINSTREL model was divided into three phases. Phase 1 commenced after the initial testing of the functionality of the system to ensure that it carried out the tasks which were described in the specification. This was carried out by the research team. In phase 2 the transformer software was evaluated for user needs and functionality in the working environments of the partner libraries and at PICA. None of the library staff who undertook phase 2 evaluations were involved in the development or specification of MINSTREL, and so they came to it new. In phase 3 the evaluation was extended to librarians from other environments, including academic, public and special libraries. In all, some 35 formal evaluation sessions from phases 2 and 3 were used in the final analysis of MINSTREL.

As part of the evaluation, users were given a briefing on the background to MINSTREL and its functions and they carried out a number of tasks. They were then asked to comment on the system in the light of these activities, to complete a general assessment questionnaire and to provide information on their background so that their responses could be analysed in this context.

The analysis of results from the evaluations showed that most evaluators produced the anticipated response from the system for all the tasks which they were asked to undertake. In all, these tasks sought 11 defined responses from the evaluators, and of the 35 who took part only four were unable to produce 75 per cent of the anticipated results successfully on their first use of the system. Most evaluators found the tasks undertaken either simple or just slightly difficult to carry out while very few found the tasks difficult. The tasks were divided into four broad categories starting with the very simple production of a report and escalating in difficulty to the final task which involved joining two measures in a formula, creating a report and producing the result. Examination of the data showed that there was no correlation between the accuracy of the results obtained and the level of difficulty experienced by the evaluator.

The evaluators were invited to make any comments they felt relevant at the end of each task, and also to make more general ones on the activities and on the MINSTREL model when they had completed the tasks and any associated time that they wished to spend using the model. In addition to this invitation to provide responses to open questions, the general assessment included a number of statements with which evaluators were asked to agree to a greater or lesser extent on a scale of agreement. The statements covered the attributes that an effective system should have. The system scored lowest in the areas of general understandability such as ease of control and the ability to deal with errors but at no point scored under what users considered to be average compared with other software they had experienced. The system scored highest in the areas of ease of use and applicability to users' needs such as the ease of inputting data, ease of producing performance measures and reports, and applicability of the system to evaluators' needs.

The free text comments by the evaluators were grouped into those which were negative and those which were generally positive about the system, and then each of these clusters was further analysed into groups of common themes. The main concerns

about the system were the quality of the interface, the readiness of the version made available for evaluation, and the need to have an understanding of performance indicators to use the system effectively.

The best aspects of the system reported were ease of use, the quality of the interface, and the general benefit that the system brings to the manipulation of performance indicators. Clearly there were different opinions about the system from different evaluators and so the data sets were analysed to see if these differences could be identified. There were two evaluators who scored the system less well consistently and these found the system hardest to use and completed less of the tasks successfully compared with all other users. Special and public librarians rated the system easier to use than their academic colleagues. In the other areas, such as a comparison of tasks undertaken and the related general assessments, no differences were apparent. The data were analysed for the information technology experience indicated by the evaluator. Naïve users scored highest in the tasks and rated the system easiest to use. However, they rated the system lower than the other groups for general assessment and in the area of help provided. A second group, the novice group, were successful in carrying out the tasks and rated the system highly. There appeared to be an inverse relationship between information technology experience and ease of use of the system.

Looking at the managerial responsibility of the evaluators, it appeared that senior managers below the rank of chief librarian rated the system easiest to use, but scored lowest in the tasks. Departmental managers rated the system lowest in the general assessment. The complete data set was disaggregated so that evaluations carried out in phase 2 in the MINSTREL partners' own libraries could be compared with those of phase 3 carried out by librarians from other libraries. Phase 3 evaluators, those not in partner libraries, although scoring slightly lower in the tasks, rated the system easier to use and generally better than phase 2 evaluators.

MINSTREL AND MANAGEMENT MODELS

There are a number of ways in which the MINSTREL model may have an impact on the longer term development of management information in the library environment. There are a number of factors where change might occur when using a system based on the MINSTREL model which features transparency in use, while maintaining security in data storage, transmission and analysis with the ability to share data.

Information politics

Some management systems continue to operate in a monarchist/feudalistic mode with valuable management information processed for and retained by the senior staff. The MINSTREL model encourages, through its environment, the sharing of information. The individual is able to experiment privately and then make their work available to their community for consideration. Senior managers are able to keep confidential data secure while at the same time able to distribute data for others to see and manipulate very easily. In this way users are liberated from being focused on the confidentiality issue. This encourages openness.

Information behaviour and culture

Until now the focus for managers has often been on data ownership rather than information responsibility. The positive results of information sharing and gaining insights into the dynamics of the organisation are not to be reserved for a few. The move from intuitive decision-making to one with a data driven model using a base which is clearly understood and articulated, containing information on the definition of the data, its origins and timelines, application and authority, is essential to move to a more logical approach to decision-making.

As the culture of information use evolves, managers will need to develop new metaphors which reward information sharing and to provide disincentives for data hoarding if the changes are to be effective.

Information architecture

The structure and location of information management support for decision-making will change. This will have an impact on the timing and opportunity for management intervention. As information becomes more open, staff will be able to take the initiative in examining and analysing possible futures.

The extent to which the model prevents a prescriptive approach is debatable since the need to move data to more dynamic modelling environments may discourage some users from going from a data driven to a data content approach. The model should however provide any organisation with a start to move from an information provider/customer environment to an information explorer approach, where the "manager" requests specific information from an "expert" colleague to a mode where each data user searches for their own information and explores the environment.

MINSTREL AND DECISION-MAKING

Performance indicators and the data from which they are derived, the measures, have a role in many stages of decision-making. In the identification phase PIs can be used as indicators of deviance from norms and of the ways in which trends are moving. The PI can be an effective way of establishing those areas which are the most urgent for consideration. Here MINSTREL offers a time series function which can be operated at a fine or course granularity with series produced over years, months, weeks or days.

In the development phase there is a need to rapidly examine a range of data which represents development targets. Here MINSTREL is capable of taking data from a wide range of possible sources and enabling them to be analysed either directly within the transformer using "real" data or data input through the system keyboard or a spreadsheet to examine the effects of change or through the export of data directly into a spreadsheet form for the production of graphical representations.

In the selection phase, which includes testing, management information on the success or otherwise of the decisions being supported needs to be examined rapidly and repeatedly over a short period. Once measures have been established for the feasibility of an option, the MINSTREL model can be used to obtain information, much of it automatically, and hold the information against need in the time series table.

In the implementation phase, which includes monitoring and feedback, a regular flow of information is required to monitor uptake and effectiveness, efficiency and economy. Here the MINSTREL measures developed for the selection process can be adjusted for time slice, enabling regular analysis and ad hoc queries.

MINSTREL is neutral to the performance indicators which may be available at a particular library at a particular time. Existing performance indicators were employed in the development, testing and evaluation of the model, including the statistical sets used by SCONUL, the performance indicators developed for the CEC Toolkit, and the proposed standard set proposed by the UK Department of Culture, Media and Sport. The provision of a set of performance indicators with a production version of the MINSTREL system would give a method of stimulating activity and participation in local libraries adopting the MINSTREL transformer, but they serve no special purpose beyond that.

THE BENEFITS OF THE MINSTREL APPROACH

A major benefit of MINSTREL with its ability to log on to and to retrieve data from remote servers would be the elimination of printed national and sector data sets which then have to be input by local libraries. MINSTREL users could access just one data set remotely and use the data stored to calculate the ratios that they wished. At the same time data could be made available from co-operating partners across a sector or group by using a "host" server which could hold "public" data from the group libraries for other members of the group to use. The savings in time for inputting data locally and the gains in generating time series data could be rewarding, provided that a central administrator and host equipment could be agreed.

Using this model, groups of librarians could develop insights into the use and effectiveness of performance indicators much more quickly and thoroughly than they could by discussing these through paper-based sets distributed at intervals. MINSTREL allows the "proposal" of a new performance indicator with its associated measures and definitions so that it can then be examined dynamically by others in a consortium and commented on. Because the MINSTREL model is based on a networked approach with clients and a server and data security protection, the extent and constituency of these discussions could be across wide areas and time zones.

The whole area of performance measures for electronic access is now under review in a number of projects including those aspects of measurement in the 50 UK government projects following the Follett report (Joint . . , 1993). It is clear that the ability to collect and retain data and turn this into information will be improved with the record keeping abilities which are inherent in digital systems.

The exact nature of the data which is worth analysing has yet to be determined. It may be new in the sense of providing new opportunities for analysis eg. measuring time spent with a page on screen and analysing the movement of the cursor on a page which may provide new insights on usage. Alternatively it may be that simple measures of pages read by individuals may be the first step. This ability to analyse data in more detail could lead to interesting scenarios in which the exact usage data, because it may become more accurate, detailed and timely, will have a commercial relevance to distributors and publishers as well as to libraries. In this scenario the information is of strategic value, which would increase pressure on the commercial players to restrict the data availability in order to contain commercially sensitive information.

A corollary of this would be the commercial value that is embedded in the usage data collected by libraries and their ability, willingness and opportunity for exploiting it. The strength of the MINSTREL model is that it is immaterial which measurement and indicator sets the local user wishes to investigate or chooses to concentrate on. As technology develops further and the methods of retrieving data from other systems grow, the only barrier to the timely collection of data for analysis will be the closedness of the system dictated by confidentiality. The MINSTREL model is well suited to such a change since it contains the developing de facto standard for interconnection and remote data retrieval and includes an environment in which data can be kept confidential in a structured and well ordered fashion.

The MINSTREL software has potential for areas outside libraries and information sections where performance measures are employed. Given the technology and standards used and the openness of the system it could accommodate other service needs. As examples one could use pass rates of students in a university or patient throughput against staff resources in a hospital.

MINSTREL is analogous to a data warehouse in which elements can be stored and retrieved from known locations and joined to make useful parts which may then be sent on to others to construct into systems or which may be held locally and put together to form devices - management information sets - that can benefit users. The impact of the MINSTREL model in this analogy is the virtual warehouse or store with its ability to retrieve data as required and through the time series viewer the ability to construct series, provided the original data is available. The ability to set up time series collection on an automatic on-going basis makes this a powerful tool for the examination of service development.

The requirements of the data warehouse will therefore change and develop as needs change, and from time to time elements will be seen through the system management package to be less relevant and will be reviewed for elimination from the system. Provided that users are aware that there are data available, then they will be able to negotiate for them. The confidentiality which the encryption tools provide enable such negotiations.

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The Currency and Quality of Bibliographic Records

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Libraries today are able to acquire bibliographic records from a number of sources. The usefulness of such records depends on their availability, the standards to which they are created and the accuracy and consistency of the data they contain. One of the areas of research undertaken by UKOLN: The UK Office for Library and Information Networking is that of the currency and quality of bibliographic records. At present UKOLN has three projects in progress in this area, which are outlined in this paper: the BNBMARC Currency Survey, the Multi-Source Currency Survey and the CLSCP Quality Audit.

THE BNBMARC CURRENCY SURVEY

This survey monitors the availability of bibliographic records from the BNBMARC files of the British Library (BL) National Bibliographic Service (NBS). It measures whether a record was available in the BNBMARC files at the time a library might require a record either for cataloguing or for ordering purposes. To the best of our knowledge it is the only publicly available, independent, long-term performance measure on a national library service anywhere.

The survey began looking at the availability of records for cataloguing purposes in January 1980, at a time when libraries were beginning to purchase such records as an alternative to cataloguing every item themselves. Later, as libraries started to automate their acquisitions systems, a second sample to measure the availability of records for ordering purposes was begun in February 1988. Both samples have been collected and the data analysed continuously since then.

Separate samples are taken for the cataloguing and ordering stage surveys. They are taken on a randomly selected day each month by six academic and six public libraries chosen from the UK library population. Each library takes part in the survey for six months and is then replaced by another library, randomly selected, of the same type.

Each month's survey consists of ten records from each of the 12 libraries for the cataloguing sample, and ten records from each of the 12 libraries for the ordering sample. These monthly samples of 120 records per sample stage are too small for statistical analysis, which is therefore done on a full year's data (1440 records). Using the data for a year also ensures that the samples remain representative of UK library ordering and cataloguing, in addition to evening out seasonal variations and random factor bias possibilities.

Participating libraries are sent guidelines on how to select a random sample of items and what material is eligible for inclusion. Thus material must have been published in 1974 or later, have a UK publisher or distributor, and must not fall into any of the BNB exclusion categories.

After searching the BNB files for records for the items in the samples, datafiles are created. From 1980 the datafiles recorded for each item the ISBN publisher prefix and the date of publication as well as the result of the search. The search result records whether a record was found (and if so what type of record) or not found. From 1996 subject data have been included using the Dewey Decimal Classification. More recently, from the start of 1997, text data have also been included, which allows the production of more informative reports from the database. These additional data comprise author, title and publisher details.

Results are produced each month for the last twelve months of data. These enable UKOLN to produce a range of "hit-rates" or indicators of availability. Separate hit-rates are produced for the academic and public sectors as well as an overall hit-rate. Hit-rates are also produced for the various types of record found - NBS created, CIP confirmed and CIP status. The database contains all the

Figure 1
Levels of performance

Cataloguing stage	Academic libraries	Public libraries	All libraries
Records found at first search	80%	85%	83%
Records found at six month recheck	88%	92%	90%

Ordering stage	Academic libraries	Public libraries	All libraries
Records found at first search	77%	86%	81%
Records found at six month recheck	80%	90%	85%

survey data from its inception, so hit-rate movements and trends can be traced and monitored over time. These trends can be matched against known policies introduced or situations at specific times; examples are the BL's Currency with Coverage policy, the re-introduction of Library of Congress Subject Headings, and the relocation of BL cataloguing staff to Boston Spa. Finally, the data can be used in cross correlation analyses which, for instance, might look at whether fewer records are found in certain subject areas.

The latest results of the survey indicate the levels of performance shown in Figure 1. The results of the survey are published on UKOLN's web pages and appear twice a year in the British Library National Bibliographic Service (NBS) newsletter *Select*. In addition, a number of articles have been written on the survey.

THE MULTI-SOURCE CURRENCY SURVEY

Conscious that UKOLN was already investing effort in the collection of the samples for the BNBMARC Currency Survey, consideration was given as to whether there were other uses for the samples already being collected. The option decided on was to use the sample to investigate the performance of other sources of bibliographic records. As with the BNBMARC Currency Survey, it appeared that this would be the only such study in this area.

A number of sources of records were approached and the following agreed to take part in the survey: Bibliographic Data Services (BDS), Book Data, BLCMP, the Consortium of University Research Libraries (CURL), London and South Eastern Regional Library System (LASER), OCLC, SLS, Unity and Whitaker. The sources are allowing UKOLN free access to their databases for the period of the survey and receive in return a number of reports on their own performance. Access to the databases is by a variety of methods (telnet, e-mail, system terminals and system software) with UKOLN using the same methods of access as any ordinary user of the sources.

Since three of the sources concentrate heavily on pre-publication provision of bibliographic data, it was decided to use only the ordering sample. This survey began with the sample taken in September 1996 and was originally planned to last one year; however, the participating sources have agreed to extend this to a second year.

Statistically valid results will not be available until the August 1997 sample has been added to the database. For this reason, results so far have been sent back only to the source concerned. All the hit-rates produced for the BNBMARC Currency Survey will be produced for the sources, with one variation. For each source the records found are (like the BNBMARC Survey) divided into two or three categories, but these categories are specific to each source.

Once twelve months' data have been collected and analysed, valid hit-rates can be produced. It is intended to publish these results as part of a report

on the survey. Since the sources have somewhat different aims in providing records, it is not our intention to simply compare the performance of one source against another. A league table presentation would ignore other factors which also influence the choice of one or more sources as providers of records to any specific library. The report structure is therefore planned to give a profile of each source, to present the results for that source, and to discuss the implications of those results with reference to the aims and focus of the source. It is hoped that the report will be available at the end of 1997.

Although at present results are not publicly available, each source is sent the details of their own results each month. The sources are using the results to further their own assessments of performance and in some cases to review procedures and policy or to investigate specific aspects of performance.

This survey will also extend our knowledge of the profile of items ordered by libraries in the UK and the survey findings can identify problems and anomalies. The sample data so far, for instance, indicate that at present 70 per cent of items ordered were published in 1995 or later. On coverage of UK publishing, in the first eleven months of the survey, only two items were not found on any database. And in the area of problems, one item appeared with three variations on the title in the different databases, presumably accounted for by records being created at different stages in the publishing process.

THE CLSCP QUALITY AUDIT

The Copyright Libraries Shared Cataloguing Programme (CLSCP) began in late 1990. It was an initiative whereby the University Libraries of Cambridge and Oxford, the National Libraries of Scotland and Wales and Trinity College Dublin agreed to share in the creation of records for the BNBMARC files to cover the publishing output of the UK. Under this arrangement the British Library creates records for 70 per cent of titles and the other libraries contribute six per cent each (making their joint total 30 per cent).

Concern for the quality of the records created in the CLSCP prompted an initial internal monitoring of a selection of records by Trinity College Dublin. While this was agreed to be valuable, Trinity College did not have the resources to continue this on a long-term basis. So UKOLN was asked to undertake this task as an independent, external organisation starting with the records created in July 1994.

A random sample is generated from each month's file of records created and sent to UKOLN as a printout of 100 records created by NBS and nine records from each of the other libraries - a total of 145 records each month.

Each record on the printout is checked for errors; there is a limitation on the errors that can be identified as it is not possible to check against the books. Despite that, a number of errors can be detected from the printout. Firstly, records are checked for omitted data: perhaps 260$c or an added entry for a second author is missing. Secondly, records are checked for conflict of data within the record: here the date and place of publication in the 008 and 260 fields should match, or the various fields which indicate the language of the item should contain consistent data. Thirdly, records are checked for errors in the data: these are the transcription errors and filing indicator errors. Occasionally other errors may also be found: a field might be duplicated or the specific field chosen might be queried (series and notes fields are the most likely candidates for this type of error).

Each month, any records which contain errors are annotated and returned to the library which created the record. The library concerned can then investigate the reason for the error and use the information to review procedures, staff training and documentation. The monthly reports and quarterly report cumulations are sent to the CLSCP Steering Committee and are discussed at their regular meetings. At present these reports are available only to the CLSCP as the commissioning body and are not publicly available.

BIBLIOGRAPHIC MANAGEMENT AT UKOLN

Current research by UKOLN in this area is reported in the centre's Bibliographic Management web pages which can be found at:
<http://www.ukoln.ac.uk/research/>

Bibliography

A number of papers have been written on the currency surveys described above, but none directly on the quality audit, although two publications relate to some earlier work on the quality of catalogue records. All these publications are listed below.

BNBMARC Currency Survey

Chapman, A. (1992) 'Why MARC surveys are still a hot bibliographic currency' *Library Association record* 94 (4) April 248-254

Chapman, A. (1995) 'National library record availability: A long term survey' *Library resources and technical services* 39 (4) October 345-357

Chapman, A. (1996) 'The BNBMARC Currency Survey' *Ariadne* (Web version) Issue 6 November <http://www.ukoln.ac.uk/ariadne/issue6/>

Chapman, A. (1997) '1994 revisited: a year in the life of the BNBMARC Currency Survey' *International cataloguing and bibliographic control* 26 (2) April/June 41-46

Multi-Source Currency Survey

Chapman, A. (1997) 'Bibliographic record provision in the UK' *Library management* 18 (3&4) 112-123

Quality of Records

NB: These works are not about the CLSCP Quality Audit but are about catalogue record quality, relating to some research undertaken in 1992 on the quality of catalogue records in the BLCMP database.

Chapman, A. (1993) *Quality of records in a shared cataloguing database: A case study using the BLCMP database.* Bath: University of Bath, Centre for Bibliographic Management BLR&D report 6120

Chapman, A. (1994) 'Up to standard? A study of the records in a shared cataloguing base' *Journal of librarianship and information science* 26 (4) December 201-210

An Opportunity for Software Development in Library Quality Management and Performance Measurement: The EQLIPSE Experience

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The aim of the EQLIPSE (Evaluation and Quality in Library Performance: System for Europe) project was to specify, develop and validate an open system to support quality management and performance measurement in libraries of all types. The Project emphasised qualitative approaches, specifically quality management and ISO 9000, which complemented the quantitative nature of much of the work previously carried out on library performance measurement. This paper outlines the development of the EQLIPSE prototype system which comprised two modules: Performance Workbench and Quality Workbench.

1. BACKGROUND

EQLIPSE was a project funded under the Third Call for Proposals in the Telematics: Libraries Programme under Framework 3, 1990-1994. It was one of a cluster of four projects which addressed Action Line IV, Theme 18 bis - 'Models and tools to support decision-making in libraries'. The other projects in the cluster were DECIDE, DECIMAL and MINSTREL. The EQLIPSE project commenced in February 1995 and was completed at the end of March 1997. The Project Consortium comprised partners from seven countries, as shown in Figure 1.

The EQLIPSE project progressed through a series of six workpackages:

1. *Library requirements analysis.* A series of tasks brought together expertise from internationally recognised quality management, library performance measurement and technological perspectives in order to define the libraries' requirements for EQLIPSE.
2. *Initial functional specification.* The technical issues, including networking and systems integration, were reviewed leading to the production of the initial functional specification.
3. *Prototype system.* The initial functional specification was used to design and build a prototype functional system.
4. *Data tools and data collection.* The partners adapted and designed tools for collecting data,

Figure 1
EQLIPSE Consortium

Partner	*Country*
Centre for Research in Library and Information Management, University of Central Lancashire (co-ordinator)	UK
Dynix Library Systems Ltd (now Ameritech)	Ireland
Dublin City University	Ireland
National Microelectronics Applications Centre Ltd.	Ireland
Universitäts- und Landesbibliothek Münster	Germany
Copenhagen Business School Library	Denmark
Biblioteca Nazionale Centrale Vittorio Emanuele II, Rome	Italy
Stockholm University Library	Sweden
Stadtbüchereien Düsseldorf	Germany
University of the Aegean	Greece

supplementary to that contained in their operational IT-based systems, and built up test datasets for use with the system.

5. *Field trials and evaluation.* The prototype system was installed in two libraries, debugged and developed into a fully functional system.

6. *Integration in libraries.* The system was fully trialled, in a pseudo-operational environment, in six libraries (representing the different types of libraries found across the EU) and evaluated.

The following sections outline the key elements involved in developing a system to support decision-making by providing management information to support performance measurement and quality management, specifically ISO 9000.

2. AUTOMATING PERFORMANCE MEASUREMENT

Within the library and information science field there has been a considerable amount of work undertaken in developing performance measures, but much of it has been largely quantitative and not linked to management information and reporting systems. Existing sets of performance indicators have been developed for specific types of institutions and therefore it is unusual to discover an existing set which attempts to present indicators which would be suitable for both academic and public libraries (which are the types of library most commonly dealt with in the literature) while national or special libraries have barely received consideration.

Another problem facing the library manager who is considering introducing performance measurement is the level of staff time and associated costs required in creating and implementing practical, useful and informative performance indicators. For many library managers the difficulties of fitting an effective performance measurement system into the library's routine can appear to be insurmountable. For the EQLIPSE software to address these needs it was decided to include a core set of tried and tested indicators which are known to supply useful information to library managers, and to ensure that the EQLIPSE system allows augmentation of the set as necessary according to local needs.

Although it is probably unrealistic to expect one set of performance indicators to contain all the indicators that all types of libraries might require, it is important when defining a core set of indicators that it is as comprehensive as possible and also that it does cover a full range of library functions. As there is already much work published in this field, it was decided that it would not be helpful to try to define yet another set of performance indicators. Therefore a decision was taken to synthesise the work of past studies.

A comprehensive list of performance indicators was compiled which contained indicators drawn from a range of sources (Van House et al, 1987, 1990; *Keys to success*, 1990; Ward, 1995; Joint . . , 1995; ISO, 1995).

The compiled list of indicators was circulated to all EQLIPSE partners with the intention that they would study the list and identify those which they considered essential for their organisation. The responses provided important information, principally about the wide divergence of requirements amongst the partners, due to the different types of libraries. The responses also reinforced the view that different libraries require different indicators to suit their needs and that no one set of performance indicators will suit all libraries.

After consideration of the responses to the list of indicators, it was decided to adopt the ISO draft standard and to complement it with additional indicators from the other sources cited previously. This widened the applicability of the EQLIPSE software to various types of libraries and made the set of performance indicators even more relevant. These 52 performance indicators formed the core set, but it is important to note that any decision support system such as EQLIPSE needs to be flexible in order to suit the needs of different types of institutions, and thus the EQLIPSE software included the ability to add indicators locally.

All of the indicators specified in the draft standard (ISO 11620, 1995) either have been tried and tested or are well documented in the literature. Much of the confusion with performance measurement and indicators to date has been related to the lack of any standardisation in the literature; the ISO draft standard seeks to eliminate this by standardising the terminology and definitions. To this end the standard provides definitions of such terms as target population, user, loan, capital expenditure.

The EQLIPSE Consortium endorsed the draft ISO 11620 standard. The advantages provided by such a standard for libraries are several; it provides a set of indicators which have been tried and tested and therefore librarians can be assured that the data collection methods proposed are practical. It also demonstrates how the results of the performance indicators can be interpreted. Very importantly, it also allows for reliable benchmarking between libraries.

This is not to say that the indicators are immediately applicable to all libraries. There is some localisation work needed on each site to adapt the indicators to the specific library environment. Similarly, not all the indicators will be applicable to all libraries but the individual library can choose which are relevant. A concern raised by the Consortium's partners was that the networked environment is not covered by the draft standard. The difficulty with this element of library work is that tried and tested performance measurement techniques have not yet been developed. It is precisely the role of the ISO draft standard to recommend only those indicators which have been proven to be applicable and practical in the library field.

The performance measurement module which formed part of the EQLIPSE system was developed as Performance Workbench. This is described in more detail in the following section.

2.1 Performance Workbench

The Performance Workbench software was written in Visual Basic by the EQLIPSE technical partners. It provides both statistical and time-series information and enables trend analysis and threshold monitoring. It is implemented on PC-based hardware running under Windows. It is supplied with a predefined set of 52 indicators (in line with ISO 11620 plus other selected indicators) comprising 71 datasets. However, the user is able both to define the number and definition of the performance indicators to be held in the system at any one time, and to update these performance indicators in line with changing needs from library to library and their variance over time.

While the software is capable of direct data transfer from a range of Library Automation Systems, it is with a limited capacity and range. This is due to the actual limited level of raw data readily accessible from each of the systems currently developed and in use on the open library market. Performance Workbench is therefore provided with the facility for the user to manually input data where deemed necessary.

The functions of **Performance Workbench** are maintained in three main ways within the application:

- the system maintains data definitions specifying **Datasets and PIs** and how these are calculated;
- the system allows for the input and modification of data;
- the system provides an analysis trail on the data, and in turn provides a graphical facility in order to present the analysed data in a meaningful manner. This is achieved by pulling the **PIs** together as **Objectives**, so that performance can be analysed more generally, and by allowing any of the levels of data (**Datasets and PIs**) to be presented as a **Time-series** allowing trends to be analysed.

A brief glossary of terms and functions is given in Figure 2.

The collection of data for calculating performance indicators raised significant issues in the project. These are given separate consideration in the following section.

2.2 Data Collection

The data for the datasets necessary to form the 52 performance indicators were collected in the EQLIPSE partners' libraries. This phase of the Project allowed the Consortium to test the EQLIPSE performance indicators as to the practicality and feasibility of collecting the datasets specified. From the data collection exercise carried out by the EQLIPSE project team a number of management issues were highlighted:

- for all but the smallest libraries managers need to allow at least one full-time member of staff one month for the data collection exercise;
- in order to build up a picture of library performance over time, it is recommended that data is added to the system regularly. Library managers will have to decide how often the data collection

Figure 2

Glossary of EQLIPSE / Performance Workbench terms and functions

Term/Function	*Description*
DATASET	A fundamental piece of data from which **PI-MEASURE**s can be calculated.
DATASET-MEASURE	The value of a particular **DATASET** at a specific time.
LEVEL OF ACHIEVEMENT	The degree to which an **OBJECTIVE** has been achieved for a specific period of time. Numerically this is the sum of all relevant PIs for a particular time period, multiplied by their **WEIGHTING** for the **OBJECTIVE** in question.
OBJECTIVE	An overall target of the library or information service whose level of satisfaction encompasses and is determined by a range of **PI**s.
PI	A quantity indicating the level of quality of service provision in a particular area. A PI could be a single value for a specific period of time, eg. library floor area per capita.
PI-MEASURE	The value of a specific **PI** at a specific time.
THRESHOLD	A value relating to a **PI** which when missed or exceeded is cause for concern to the user. A **THRESHOLD** is either a **MAX**imum or **MIN**imum. When the value of a **PI-MEASURE OF ACHIEVEMENT** fall below a **MIN**imum **THRESHOLD** then the user needs to be warned. When the value of a **PI-MEASURE OF ACHIEVEMENT** goes above a **MAX THRESHOLD** then the user needs to be warned.
WEIGHTING	A number between **0.1** and **1.0** which indicates the degree of relevance of any **PI** to any specific **OBJECTIVE**.

will be carried out, although monthly and annual periods have been found to be suitable for most purposes;

- sampling is used for collecting many datasets. A decision will have to be made as to the size of samples and the length of time sampling periods will last;

- some datasets may prove impossible to collect, or be too time consuming to collect. Decisions may have to be made as to which datasets (and hence which indicators) to leave out. It should be noted that EQLIPSE is flexible as to the inclusion or exclusion of performance indicators and datasets;

- for some datasets, users have to be involved. This may range from answering a single question to filling out a questionnaire, and for a measure such as user satisfaction may involve other methods such as structured interviews and focus groups. It will have to be decided how much time and effort it is realistic to ask of users, and be aware of this when designing data collection forms;

- for some datasets, other members of library staff have to be involved. Again it will have to be decided how much time and effort can be asked of other staff;

- the number of relevant data elements available from library automation systems (LAS) was found to be very small. Of the 71 data elements which comprise the performance indicators selected for use in the EQLIPSE project only eight (on average) were available from a sample of LAS used by the EQLIPSE partners. Consequently most of the data collected was acquired and subsequently loaded into the EQLIPSE system manually. This had significant implications for the cost effectiveness of using the system;

- the performance indicators used in this project were found in many cases to require a significant data gathering exercise. An important issue which remains to be addressed is whether in all these cases the cost of the data gathering exercise can be justified when measured against the benefits derived from decisions informed by the data. It may be that future initiatives ought pragmatically to concentrate on data which can be automatically gathered and place less emphasis on high data-gathering cost.

The data gathered during the data collection exercise was loaded into Performance Workbench, and the Project partners evaluated the use of the software. Three types of forms, evaluation, bug report and recommended enhancement forms were used to feed comments back to the technical partners for action.

3. AUTOMATING QUALITY MANAGEMENT

The application of performance measurement to library services is part of an attempt by the library profession to improve the management and performance of libraries and to increase both their efficiency and effectiveness. Within this context one possible way forward is the use of quality management systems as applied to libraries.

An IT-based system has much to offer the manager who is serious about pursuing quality; however, it cannot be a substitute for management action. The following areas are particularly suited to IT-based support tools such as EQLIPSE:

- *Clear purpose*. The organisation's mission statement and objectives can be held and communicated by IT-based systems. Documents such as standards of service and service level agreements can be held, and links created to data on the performance of the organisation in relation to the published service standards.
- *Systematic processes*. This is the focus of ISO 9000. The idea here is to hold documented procedures on a computer. The system should also hold operational data which managers may wish to interrogate alongside the procedures. At the heart of the procedures there should be mechanisms for checking on customer satisfaction.
- *Resources and costs*. Tracking of costs will contribute to the TQM model.
- *Benchmarking*. Librarians will be able to use the data displayed by EQLIPSE to check their library's performance against that of other libraries. Partly this can be achieved by setting levels of performance which will "trigger" action.
- *Supplier awareness*. If a library is able to hold records on the performance of suppliers, the information can be used to monitor supplier performance and be used as evidence if performance falls below agreed levels.
- *Monitoring performance*. The quality management perspective would suggest that EQLIPSE should include the provision to use a variety of customer satisfaction measures at both macro and micro levels.
- *Training and education*. It is generally recognised that poor training often leads to quality problems. There should be the ability to hold descriptive documents related to staff training and staff competencies.
- The *Review* process is extremely important to quality management. ISO 9000 contains explicit requirements for internal and external audit. During each audit "non-conformances" may be found and must be logged. These logs are then used to initiate action, and are checked at the next audit. This audit/check process should be incorporated into EQLIPSE. Provision for weighting aspects of a review should be provided.

It was concluded that the quality management requirements of libraries would best be met in EQLIPSE by:

- providing text handling facilities, including hypertext, for key documents such as service standards, development plans and operational procedures. The library should also be able to hold a structured "profile" on the system;
- providing flexible input for a range of measures of customer satisfaction, with the ability to weight and combine them in user-defined ways and handling the scoring of aspects of review similarly (along the lines of the Baldridge [USA] and European Quality Awards);
- handling customer complaints and comments, and provide the ability to summarise these as time-series;
- the ability to log audit/review outcomes and to link subsequent actions;
- a facility to input threshold levels derived from comparative data from another EQLIPSE (or other) site in order to benchmark.

Thus, an IT application for quality management in libraries was identified. This involved investigating the many quality management systems and related applications that were developed for use in business. A particular emphasis was given to packages designed for used in service organisations.

The package chosen as a result of this investigation was Quality Workbench, a commercially successful software package which facilitates compliance with ISO 9000. This software can be networked and provides an effective means of document control and relatively easy compliance with the standard.

3.1 Quality Workbench

As Quality Workbench is already a commercially proven and successful package, the evaluation did not take the form of completing bug report forms and recommended enhancement forms. Instead, the various functions and features of the software were examined and tested as to their suitability for the EQLIPSE partners' libraries.

Quality Workbench was evaluated in eight libraries. Only one of those libraries (the University of Central Lancashire) conforms to the ISO 9000 standard. In that library Quality Workbench was found to be ideally suited to the requirements of the library's quality procedures. The areas of the software deemed to be the most useful by the non-ISO 9000 compliant libraries were document control, personnel and mailing facilities.

For those libraries which did not comply with the ISO 9000 standard the reaction to the software was mixed. Certain elements of the functionality were found to be of potential use but overall the use of ISO 9000 compliant software in a non-ISO compliant library environment was restrictive. For example certain terms are hard coded into the software and cannot be amended. The EQLIPSE partners believed it more important to properly identify the means and methods of implementing quality work within their libraries instead of attempting to work towards complying with ISO 9000, or attempting to fit their current quality policies into such software. Overall, the Project partners concluded that their libraries should choose a less rigid solution to their quality work.

The use of Quality Workbench in libraries will depend on whether that library is ISO 9000 compliant or not. For those libraries which do comply with the standard the software will probably immediately solve their quality documentation control and needs. The difficulty is for those libraries which do not comply with the standard. QW is an impressive piece of software and fulfils its purpose of enabling compliance with ISO 9000. However, non-ISO 9000 environments may find its functionalities restrictive and unsatisfactory.

During the evaluation some management issues were identified. Library managers will have to identify key personnel who will be allocated quality management responsibilities. Appropriate access levels and reporting structures will have to be input to the system for these personnel. For each section within the library the personnel with quality management responsibilities will have to identify which procedures need to be input to the system. The procedures will need to be written or imported to the system. Library managers will have to ensure access to the system for all staff, and organise training for all in the use of the Quality Workbench Viewer.

One issue emerged as a result of using a commercial product, which was that the copyright owners of commercial software could be unwilling to invest time or permit their software to be customised to suit libraries, as indeed was the case with Quality Workbench.

The project specifically undertook to address quality issues within the parameters of being ISO 9000 compliant. In that respect Quality Workbench software would provide a comprehensive answer to any library which was ISO 9000 certified. Nonetheless it became clear that any library not ISO compliant would find Quality Workbench inflexible, as the software cannot be altered, and this means that users cannot choose to utilise only some parts of Quality Workbench, but are committed to following its ISO 9000 compliant procedures. It is possible that an ISO framework will become the norm in the future and that the Quality Workbench approach would be an obvious choice in those circumstances.

However, a key issue at this stage of evolution would be that many types of libraries are unable or unwilling, for various reasons, to embrace this ISO approach. Reasons for this may include, for example, lack of resources, lack of confidence, disinterest, concern as to its applicability. In such circumstances it would be important to encourage libraries to implement quality management whether or not they move towards an ISO 9000 compliant route. In effect, there is a need to find an incremental approach which will appeal to such institutions,

provide a user friendly approach, permit a speedy learning curve and an easier understanding of concepts.

4. THE EQLIPSE PROTOTYPE

The prototype was developed over months six to 12 of the project and aimed to provide a suitable system for the specified Quality Management System and Performance Measurement requirements.

The application concept that emerged in the EQLIPSE consortium is of a system which is both open and integrated. It is open in accepting data from a range of LAS and other sources via clearly defined data transfer formats. It is integrated in providing useful links between quality management, with its documents and procedures, and performance measurement, with its quantitative measures. It is this combination of internal integration and external openness that makes the EQLIPSE concept unique in this field.

Openness to variant and changing information needs and data environments is not simply a matter of compliance with technical standards. It is also a question of finding concepts that are generally applicable. Success across a range of organisations has as much to do with general concepts like "drill down", "exception reporting", "mission", "objectives", "factors" and "weighting" as it has to do with Structured Query Language compliance, hardware and operating system portability and client/server architectures.

The user of the EQLIPSE system can access either or both modules of the system via a Windows standard interface. This interface uses clear presentation and simple dialogue. It is intuitive, quick to master and easy to use. When the user accesses the system via Quality Workbench then they are given controlled access to a set of documents and procedures. Functionality provided includes creation, modification, maintenance of amendment history, authorisation and release of documents and procedures.

Performance Workbench allows input, analysis and display of quantitative performance measurement data. Data input has to occur only at the two lowest levels, ie. the data-element and sub-data-element measure levels.

The project was able to demonstrate that technical linkage between the two modules was attainable, but the key issue is that at present both pieces of software are self-contained if only because the commercial company would not permit an integrated approach. However, it was concluded by the project that the integration of Quality Workbench and Performance Workbench would be desirable.

The design of a system which is integrated both internally and with a variety of external technical and organisational environments has been at the heart of the EQLIPSE project. Thus integration at the technical level takes two forms: that between quality management and performance measurement functions and that between the system and external sources of data.

The final usefulness of an EQLIPSE system depends on the benefits accruing from its use exceeding the cost of data collection and system implementation. This balance will be greatly aided by the ability to load data from external systems such as LAS and by access control systems which gather much of the required data automatically. EQLIPSE facilitates this by allowing data to be loaded directly in the following ways:

- through a client/server link to the Horizon LAS. This utilises ODBC over IPX/SPX or TCP/IP;
- by flat file transfer using the EQLIPSE Interface File Format (EIFF). Any system capable of outputting a flat file to a magnetic medium accessible from the EQLIPSE system will be able to use this route;
- through a client/server link to any LAS or other system based on an RDBMS which supports ODBC. The LAS database will require some extra tables added and software modifications to allow the updating of these tables before this route can be implemented.

5. CONCLUSIONS

Both modules of the EQLIPSE prototype have been verified and found useful in real working environments. The Quality Management module (Quality Workbench) of the current prototype is of most relevance in an ISO 9000 compliant environment. Since many libraries have not, as yet, adopted a quality standard and may, indeed, not adopt ISO

9000 there is a great need to specify and develop a product whose QM functionality is applicable across a range of libraries and continues to be applicable as individual libraries' needs and practice change over time.

It was possible for the Performance Workbench module, which was designed and developed within the project, to embody this openness to variant requirements in a way that was not possible in the off-the-shelf Quality Workbench. Performance Workbench can be supplied with or without predefined sets of datasets and performance indicators. Furthermore users can add to, delete or modify datasets, performance indicators and their definitions and relationships as they see fit for their particular organisation. An issue which requires exploring here is the definition, in the European context, of a set of datasets and performance indicators which will be applicable within emerging electronic library services and which would sit alongside those already defined by ISO 11620, etc.

Management Information for the Electronic Library is one of the themes currently under debate in CAMILE - Concerted Action on Management Information for Libraries in Europe, with support from DGXIII. CAMILE is promoting the combined results of four existing European Commission Libraries Projects, namely DECIDE, DECIMAL, EQLIPSE, and MINSTREL, to potential user groups across Europe. It is achieving this by the development of a series of workshops for practitioners throughout the library community in Europe to disseminate the work of this group of related EC projects. This will enable the exchange of information, ideas, and good practice between experts, and help them to consider and develop common approaches, identify areas for standardisation, and demonstrate the application of different software solutions.

In order to build on the achievements of EQLIPSE, CERLIM has submitted a further proposal for funding under the final Call for Proposals of the Libraries Programme (April 1997). This proposal (EQUINOX) is currently under consideration by the EC. The development of electronic library services has been so rapid that appropriate management techniques and tools are in their infancy. The aim of EQUINOX is to develop an *integrated* tool which will improve the quality of management of European "hybrid" (ie. traditional print-base *and* electronic) libraries. Ongoing work by McClure and Lopata (1996) and by CERLIM, under its Management Information for the Electronic Library (MIEL) Programme (Brophy, 1995; Brophy and Wynne, 1997) is also providing impetus to progress performance measurement in the electronic library environment.

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Introduction to CAMILE

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CAMILE disseminates and promotes the combined results of four library projects with common general themes, funded by the European Commission: DECIDE, DECIMAL, EQLIPSE and MINSTREL. Building blocks for a model travelling workshop have been formed. The objectives and themes of the workshops are given, together with lists of the Project Partners.

The objective of Project CAMILE (Concerted Action on Management Information for Libraries in Europe) is to disseminate and promote the common results of four Commission of the European Community (CEC) funded library projects to potential user groups across Europe. These four projects - DECIDE, DECIMAL, EQLIPSE and MINSTREL - which are now drawing to a close, were grouped around the theme of models and tools to support decision-making in libraries. Although each project was designed to provide unique insights into the issues and challenges which librarians in Europe have to meet in the current environment, they share common general themes. Through the co-ordination of their results they can provide a vehicle for moving forward discussion and opinion forming on related issues and a focus for the development of further research.

At the outset of the Project a Concerted Action Management Group (CAMG) was established in which each of the four projects is represented by its co-ordinating partner. With the assistance of a consultant, the CAMG has developed a synthesis of the results of each project and these have been fed into a series of thematic group discussions to form the building blocks for a model European travelling workshop. These workshops will comprise sessions based on papers and demonstrations arising from the synthesis of the project results but taking into account local needs. These needs will be determined in conjunction with associated partners in the particular country or region concerned working closely with their local professional organisations.

Nine of the Member States of the European Union: Germany, Denmark, Spain, Greece, Ireland, Italy, Netherlands, Sweden and the United Kingdom are represented by the CAMILE project consortium and workshops will be held in most of these countries. Contacts may be extended to countries in Central and Eastern Europe with the approval of the European Commission.

OBJECTIVES OF THE WORKSHOPS

- To provide an opportunity for participants to contribute to a European forum on Information for Management Decisions in libraries.
- To provide a common understanding of the issues in Information for Decision-Making, Performance Management (PM) and Quality Management (QM).
- To stimulate debate on PM and QM and to facilitate further interaction and discussion for interested participants by subject or national interest groups via e-mail.
- To consider the generic issues raised during the research and development phases of the Decision Support System projects through a discussion group.
- To feed the specific results and findings of the projects (and other relevant experience) into a Europe-wide debate.
- To share experiences and examples of best practice in this important area which participants can feed into the management of their own services.
- To explore the practical methods being used in libraries and information services which make best use of management information.

WORKSHOP CONTENT - THE FOUR THEMES

Introduction

Why PM and QM are important: it is suggested that a few examples from other industries and then from the CAMILE partners projects should be used to illustrate this component. A particular issue will be the need in all library sectors to reduce costs.

Theme 1 The Information

In this theme the following topics are to be covered:

1.1 The importance of clear aims and objectives.

1.2 The importance of being able to measure progress against aims and objectives.

1.3 Standards and benchmarking - including their limitations.

1.4 Detailed issues of implementation. Included will be the issues of hard versus soft measures and the extraction of data from automated systems.

1.5 Data quality.

1.6 Managing the costs of PM and QM.

Theme 2 Decision-Making

In this theme the following topics are to be covered:

2.1 Approaches to organisational decision-making: sectoral and cultural issues.

2.2 Procedures - limits of authority (political process, power dimensions, influencing stakeholders.) The stakeholder perspective.

2.3 Assigning responsibilities: who manages PM and QM in the Library?

2.4 Types of decision made related to management information sources used as management information (corporate memory).

2.5 The idea of feedback from measurement into decision-making.

2.6 Other tools (eg. Critical Success Factor identification), quality (qualitative) assessment.

Theme 3 Impact and Take-up of Library Services

In this theme the following topics are to be covered:

3.1 Measuring impacts on and value to users and other stakeholders including management and the organisation as a whole.

3.2 Market penetration of library services.

3.3 The issues of user expectations versus perception, leading to discussion of user satisfaction measures.

3.4 Advantages and disadvantages of different methods of measuring groups.

3.5 Market segmentation and how PM and QM address different groups.

Theme 4 Future Challenges

In this theme the following topics are to be covered:

4.1 The change from traditional to electronic library services and how those new services can be measured (eg. what does use mean in this context?)

4.2 Economic models and costs of electronic services.

4.3 What kind of measures will be appropriate?

4.4 Where does the library responsibility lie when services may by-pass the library?

4.5 What does QM mean when libraries facilitate rather than provide services?

4.6 How can PM help librarians choose which type of service/product to provide?

THE CAMILE DISCUSSION LIST

In addition to the workshops, a CAMILE discussion list has been set up. It is envisaged that this will give rise to a number of national and subject interest groups - "virtual groups" of interested library professionals from all over Europe communicating by electronic means. The groups will provide the opportunity for librarians to relate their personal experiences, ask questions and debate the issues raised in the workshops. These groups will be encouraged to continue the communication process beyond the life of CAMILE.

PROJECT PARTNERS

Project DECIDE

Co-ordinating Partner

Education for Change[1]	United Kingdom

Associated Partners

Datapoint Nederland	Netherlands
University of Bristol	United Kingdom
Universidad de Alcala de Henares	Spain
Stichting Stadsbibliotheek s'-Hertogenbosch	Netherlands
SLS	United Kingdom

Project EQLIPSE

Co-ordinating Partner

University of Central Lancashire	United Kingdom

Associated Partners

Dynix Library Systems	Republic of Ireland
Microelectronics Applications Centre	Republic of Ireland
Dublin City University	Republic of Ireland
Universitäts und Landes-bibliothek, Münster	Germany
Copenhagen Business School	Denmark
Biblioteca Nazionale Centrale Roma -Vittorio Emanuele II	Italy
Stockholm University Library	Sweden
Stadtbüchereien Düsseldorf	Germany
University of the Aegean	Greece

Project DECIMAL

Co-ordinating Partner

Manchester Metropolitan University	United Kingdom

Associated Partners

Inheritance Systems Ltd	United Kingdom
University College Oxford	United Kingdom
Universitat de Barcelona (Escola de Biblioteconomía i Documentacíon, Universitaria J Rubio i Balaguer/ Fundacio Bosch i Gimpera)	Spain
Istituto Biblioteconomia e Paleografia, University of Parma	Italy

Project MINSTREL

Co-ordinating Partner

De Montfort University	United Kingdom

Associated Partners

BLCMP Library Services	United Kingdom
PICA Centre for Library Automation	Netherlands
University College Dublin	Republic of Ireland
Technische Universiteit Twente	Netherlands

The 26 partners involved in the Call for Proposals 1993 (ie. DECIDE, DECIMAL, EQLIPSE and MINSTREL) projects include public and academic libraries and library suppliers. Partners of these projects have been invited to become Associated Partners of the Concerted Action although they have no specific responsibility to become involved. The Associated Partners will contribute to the national and subject interest groups. They will also provide the venues for workshops where appropriate, co-ordinate and moderate feedback from the workshops and contribute to the interest group dissemination activities.

FOR FURTHER INFORMATION PLEASE CONTACT:

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[1] Education for Change Ltd. incorporates Carpenter Davies Associates, the original project co-ordinator.

DECIDE: Decision Support Models and a Decision Support System for European Academic and Public Libraries

Rob Davies

Education for Change Ltd[1], UK

The progress of the DECIDE Decision Support system is outlined, together with the activities undertaken and the "deliverables" produced. These include a report on a user requirement study, a technical prototype specification, and a report on evaluation methodology. The user interface prototype is outlined and key features of the DSS are described.

DECIDE is one of four in a cluster of Decision Support System (DSS) projects approved under the European Commission's Telematics for Libraries Programme (Third Framework). It began in January 1995 and is due to complete its work by the end of 1997. The aims of DECIDE are:

- through research and field trials, to define a comprehensive set of decision-making support requirements, approaches and methodologies which can be adapted to match a wide range of current and future needs in academic and public libraries throughout the European Union;
- to develop and trial a new DSS prototype, for use with automated library management systems from different manufacturers, based on this set of requirements and methodologies, integrating flexible access to, interpretation and presentation of data generated by different systems and obtained from external sources.

DECIDE has now moved through a number of phases - user requirement definition, system and interface specification and design; and system building - to begin its first "verification" Field Trial. The first version of the prototype DSS is now installed in the three project partner libraries (see below).

Among the "deliverables" produced by the project to date is a User Requirement Study which incorporates a matrix comparing the performance indicators from a number of major standards, toolkits and studies - including the ISO 11620 set and the EU PROLIB/PI toolkit. This is being updated as part of the final project documentation to take into account later drafts or published versions of this work and subsequent work on performance measurement in the "electronic library".

This, together with technical specifications for the DSS prototype and the evaluation instruments used in the project, are available at DECIDE Web site (see below).

PROJECT PARTNERS

The members of the DECIDE consortium are:

- Education for Change (UK) - the project co-ordinator;
- two system vendors
  - Contrast BV (Netherlands) which is responsible for the development of the user interface;
  - SLS (Information Systems) Ltd (UK) - responsible for the database system;
- three library partners who are testing the system:
  - Stichting Stadsbibliotheek s'-Hertogenbosch (Netherlands)
  - University of Bristol (UK)
  - Universidad de Alcala de Henares (Spain).

DATA: SOURCES AND FORMATS

The DECIDE DSS prototype (see Figures 1 and 2) enables the user to draw upon "hard" (statistical) or "soft" (political) data imported from any machine-readable source or entered manually at the user interface. In the project "lowest common denominator" export formats such as CSV have been adopted to allow for the variety of formats in which useful data currently exists. However, it is recognised that the ODBC data protocol is likely to be of increasing importance, and data can be imported to the DECIDE system from any ODBC compatible sources. Among the data sources used in the field trials, in addition to the report generators of the LIBERTAS and TOBIAS systems (used by the

[1] Education for Change Ltd. incorporates Carpenter Davies Associates, the original project co-ordinator.

Figure 1
DECIDE: The principle

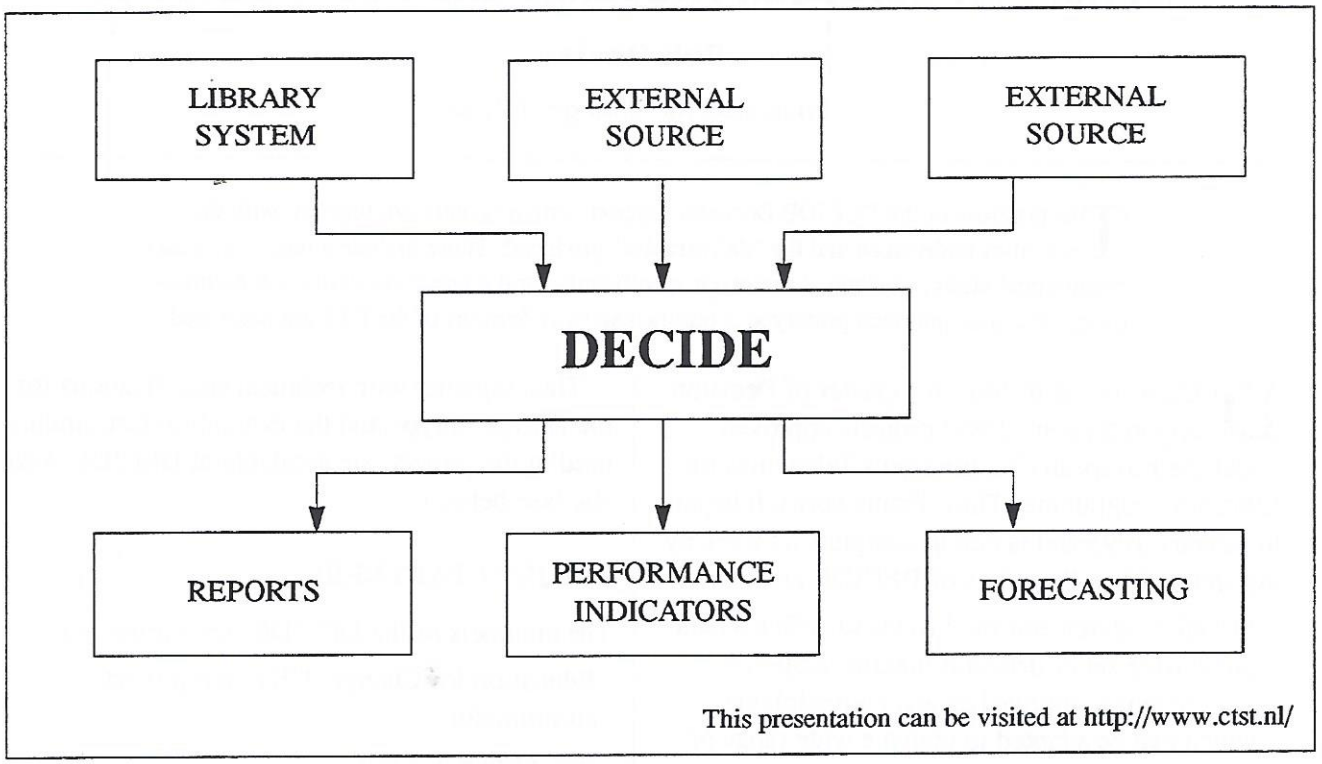
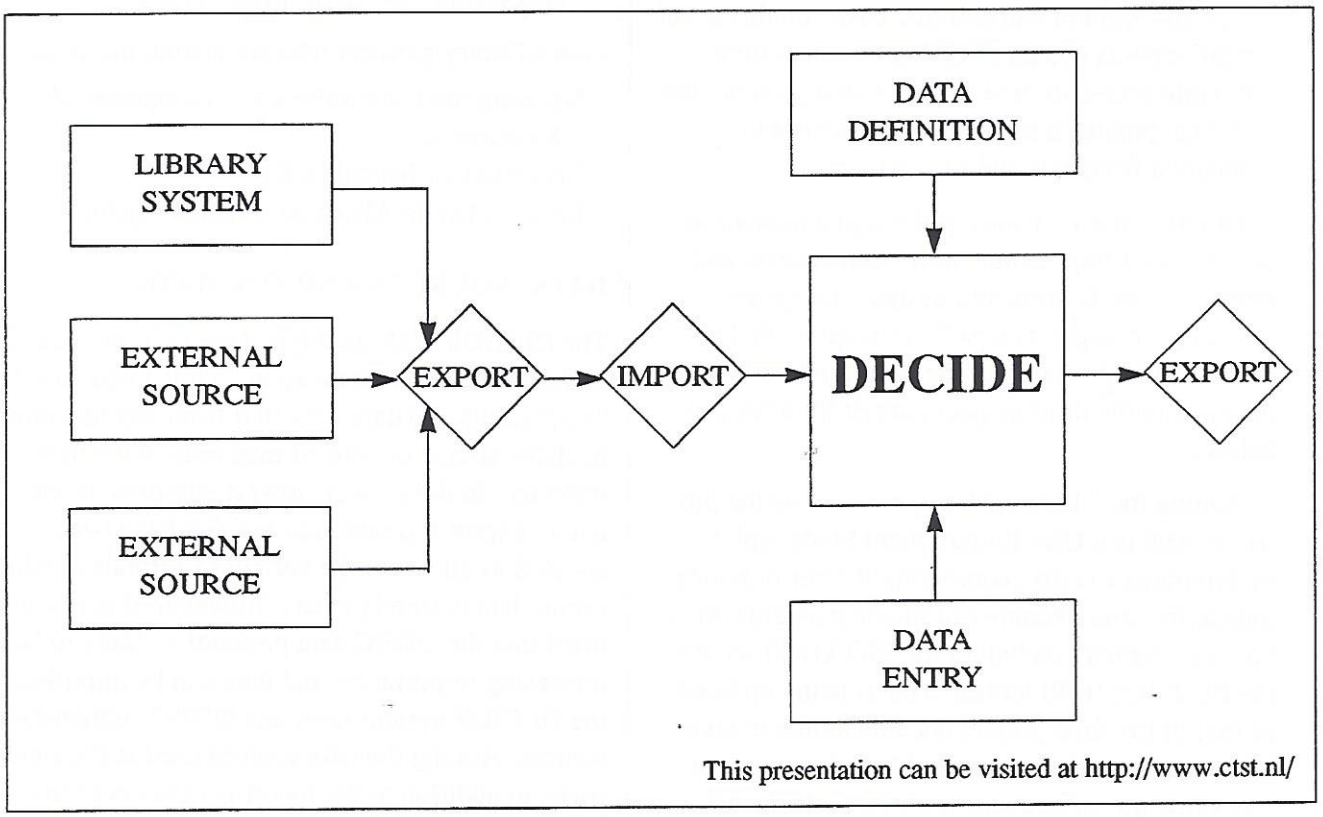


Figure 2
DECIDE: How it works



DECIDE library partners and marketed by the respective system vendor partners) are the UK SCONUL statistics, Dutch public library statistics and institutional administrative data from the University of Alcala de Henares.

The task of data definition - that is, initial assignment of precise locally relevant names to data items - also takes place at the interface. Performance indicators and other algorithms are built into the "calculate" function of the interface, although data can also be exported eg. to a spreadsheet or a more sophisticated statistical processing system if required.

THE DECIDE DSS

The user interface prototype currently includes the following six programs:

1. Maintenance of tables and fields
2. Data management (including enquiry, import and key-in functions)
3. Calculation of values, measures and indicators and storage of the procedures
4. Reporting
5. Forecasting
6. System management.

Other key features of the DSS are:

- multilingual: the user selects a language at the interface;
- flexible: library managers need to respond increasingly to ad hoc decision-making needs as well as having access to regularly generated PIs through "default" mechanisms. The DECIDE system enables the user to add or modify any tables and fields at any time;
- friendly: the user sees only the "user names" of tables and fields - the internal database names are hidden from the user;
- scope notes: any table and any field can be provided with a user-defined scope note, in which the provenance of any calculation, PI or report can be annotated by the user, or through which access to a document of any normal size can be provided;
- default datasets: a substantial number (which you can change) of tables, fields and procedures for calculating performance indicators are predefined (for example according to the ISO and PROLIB/PI standards), but the default datasets can be changed by the user;
- outputs in support of decision-making include: calculation of performance indicators, forecasting facilities and reports (such as time series);
- immediate visibility on screen of the results of any action by the user;
- integrity of the data model: the user is guided by the program when executing actions - the data model is checked and adjusted by the software itself;
- easy manual insertion of data at the interface;
- integration of programs, all of which are linked together and reachable from each other;
- when leaving a program, the "login" screen reappears;
- dissemination activity.

Public deliverables available via the WWW include:

- report on the user requirement, including the results of a European user survey and an analysis of major performance indicator studies;
- technical prototype specification of the DSS;
- report describing evaluation methodology.

They will be followed by the technical prototype specification of the user interface, later in the year.

A series of "validation seminars" will be organised in December 1997 to demonstrate the system and obtain the response of a wider professional audience: details will be announced on the CAMILE discussion list (see below).

It is expected that the DECIDE DSS will be developed commercially by one or more of the DECIDE partners.

With the other three projects (DECIMAL, EQLIPSE and MINSTREL) in the DSS "cluster", DECIDE is also involved actively in CAMILE (Concerted Action on Management Information for Libraries in Europe), through Education for Change, the project co-ordinator, which is a member of the Concerted Action Management Group. CAMILE can be reached via its Europe-wide discussion list at: CAMILE@mmu.ac.uk

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Evaluating your Online Public Access Catalogue

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The authors draw on their experience of evaluating the British Library's Networked OPAC (NOPAC) and the JISC-funded CURL OPAC (COPAC). They identify the main reasons for evaluating an OPAC, and provide a critical discussion of methods available for OPAC evaluation. The methods covered include controlled testing, transaction log analysis, obtrusive and unobtrusive observation, face to face and telephone interviews, and postal and electronic questionnaires. Sample questions for laboratory tests are highlighted. Experiences in evaluating NOPAC and COPAC are discussed, and results from these projects are used to illustrate the points made. The paper concludes by emphasising the importance of defining the scope of an evaluation exercise, advocating the use of more than one method to collect data, and suggesting useful texts on planning effective OPAC evaluation.

1. INTRODUCTION

The purpose of this paper is to use recent experience in Online Public Access Catalogue (OPAC) evaluation to offer some thoughts on why it is important to measure OPAC performance and how to go about it. The paper is addressed both to the individual library and information service (LIS) and to those working co-operatively (eg. in the development of public access union catalogues or OPAC clumps).

We are concerned about the catalogue search process itself and estimating the success of that process. In this latter case, we may not know why the user is searching for information. For example, he or she may be perfectly satisfied with a list of (seemingly) relevant references; or the knowledge of the location within a library of just the one item.

In order to provide a context for our discussion on methodologies, we will give some background information on two recent, funded evaluations which we have undertaken. The results of these two evaluations are available elsewhere (Graham, 1995; Hartley and Graham, 1996), but data from them will be used to illustrate particular points. We will explain why we perceive OPAC performance measurement to be of importance to this audience and critically discuss various methods which can be employed in the evaluation of the online catalogue.

2. BACKGROUND

2.1 NOPAC Evaluation Project

The British Library's Online Catalogue was originally developed to make accessible the full range of holdings of the British Library (BL). It was designed for use in St. Pancras as a stand-alone system running under Windows 3.1 with a Graphical User Interface offering screen colour and menu-driven searching. The Online Catalogue was made available to remote users over JANET. A client providing the same Online Catalogue interface but with networking capability was tested at three sites: the University of Bath, the University of Newcastle upon Tyne and the University of Westminster. Subsequently, a full-scale trial of the Network OPAC (NOPAC) began in UK academic sites in April 1994. NOPAC provided access to the collections of the humanities and science reading rooms in London and, from early 1995, the current monograph holdings of the Document Supply Centre.

A project to evaluate the service, with particular emphasis given to the interface, was carried out by the Department of Information and Library Management (DILM) at the University of Northumbria at Newcastle (UNN) on behalf of the BL National Bibliographic Service. The University of Newcastle upon Tyne and seven other academic sites agreed to collaborate in the study, which employed both interviews and self-completed ques-

tionnaires and some limited observation. Ninety-four interviews were carried out for the evaluation and 40 questionnaires were returned from four of these sites.

Findings from the NOPAC evaluation contributed to the BL's decision to investigate the feasibility of building a Web front end for the Online Catalogue. Blaise Line provided a testbed service and Blaise Web[1] appeared in 1996. The relative success of the latter service has contributed to the launch in 1997 of OPAC97 which offers standard Web access to the Online Catalogue[2] (Ashton, 1998).

2.2 COPAC Evaluation Project

COPAC is the Consortium of University Research Libraries (CURL) Online Public Access Catalogue. Thus it is a major bibliographic resource in the United Kingdom.

CURL was established in 1983 by seven of the largest university libraries in the United Kingdom, namely those at Cambridge, Edinburgh, Glasgow, Leeds, London (Senate House), Manchester and Oxford. Membership of CURL has been extended and now includes the university libraries of Birmingham, Durham, Trinity College Dublin, Liverpool, University College London, Imperial College London, London School of Economics, King's College London, Newcastle, Nottingham, Southampton, Sheffield and Warwick.

In 1987 the then University Grants Committee funded the creation of the CURL database which contains copies of the catalogue records held in UKMARC, AACR2 format at the member libraries. Until recently this database has been available only to libraries as a source of cataloguing data.

In 1995, Joint Information Systems Committee (JISC) funded the CURL OPAC (COPAC) Project. The objective of this project was to provide access to this valuable bibliographic resource to the wider academic community. The COPAC project began in November 1995 and the initial service went live on 30 April 1996. JISC issued an invitation to tender to undertake an initial evaluation of COPAC in July 1996, which was subsequently awarded to DILM. At that time, the database contained approximately 3.5 million records with about 5.5 million holdings statements. The database contains bibliographic data about a wide range of material but the vast majority of those bibliographic records relate to monographs which, at the time of the initial evaluation, was estimated to be about 87.5 per cent of the total. A full description of the COPAC database is available in Cousins (1997). It should be noted that COPAC is developing rapidly both in terms of its content (data from CURL libraries are being added continuously) and its search capabilities, and latest information is best obtained from the COPAC Web site[3].

The terms of reference of the evaluation included the following:

- that user reaction to COPAC was to be taken into account;
- that laboratory techniques were to be used for analysis;
- that the exact processes for the evaluation were to be left to the discretion of the bidders;
- that the evaluation itself was to be undertaken over a four-week period in September 1996.

The study, constrained by the short time period for data collection and analysis, employed a variety of methods. User opinions were sought by means of telephone interviews and electronic questionnaires. Seventeen interviews were carried out and 67 usable questionnaires were returned.

The laboratory techniques adopted included transaction log analysis and controlled test searching. The COPAC team provided the research team with two sets of transaction logs for analysis, one for each interface type. COPAC has two distinct search interfaces - a text (vt100) interface and a Web interface. The OPAC features and search facilities available are different across the two interfaces and this is also reflected in the way transactions are logged. In the Web version, each transaction is counted and recorded by the remote addressee, rather than date and time. In the text version, each session is logged, rather than each separate search or transaction. Thus, searching on the

[1] The Blaise Web service is available at <http://blaiseweb.bl.uk/>
[2] The OPAC97 address is <http://opac97.bl.uk>
[3] COPAC Web service is at <http://copac.ac.uk/copac/>

Web interface is counted by number of **searches**, whilst on the text interface the log counts the number of **search sessions**.

Controlled searching, using a set of 60 queries, was undertaken by a small group of "typical" users (new postgraduate students) and replicated by two more experienced searchers acting as controls.

3. WHY EVALUATE THE OPAC?

In the context of measuring performance in LIS, it has to be remembered that:

- the catalogue is the key to the library collection;
- the catalogue is expensive to create and maintain;
- the catalogue needs to be used effectively if the library collection is to be fully exploited;
- the collection needs to be used effectively if the expenditure on it is to be justified;
- the catalogue is an end-user tool, which can now be used in the library itself, at a terminal anywhere on the campus, in the home, or at many academic and other institutions across the Internet.

It is also significant to note that, whilst an individual library's catalogue may be available by remote access, there is still a strong spirit of co-operation in LIS. This is illustrated by the continuing effort being put into the development of union catalogues, such as COPAC, and the recent interest and activity in the creation of OPAC clumps.

Given the increasing importance of performance evaluation throughout LIS and the considerable investment in catalogue production and access, we would argue that it is critical that attempts are made to measure catalogue performance and to improve our understanding of how they are used.

Despite evidence of enthusiasm for searching OPACs, it should be remembered that the catalogue is a complex information retrieval system. Very few outside the LIS community have an accurate mental model of how an online catalogue performs. Despite this complexity, many users appear to think simply in terms of entering a few keywords and combining them. Matters such as the consequences of the way in which an author's name is entered will elude many searchers. Indeed, in our telephone interviews as a part of the COPAC evaluation, it was evident that there was a number of information professionals whose understanding of how COPAC's search engine functions was inaccurate.

Thus, the main reasons for evaluating the OPAC may be summarised as follows:

- to measure the system's performance in terms of its functionality and usability;
- to measure the actual searching process, eg. how efficient, and how successful, is the OPAC at retrieving information;
- to investigate the information seeking behaviour of the users of the OPAC.

4. METHODS FOR EVALUATING OPACS

There are many methods available for investigating OPAC performance. These are discussed briefly below.

4.1 Questionnaires

The questionnaire is probably the most common method of surveying users of LIS. The design of the questionnaire is critical and, as it is generally seeking to elicit user opinions, the questions have to be considered carefully and expressed in a language that users will understand. The need to pilot the instrument with a small number of typical users is essential.

Some of the issues which arose in the NOPAC and COPAC evaluations - which may be typical of other situations - included the following:

- Whom to survey?

  In both studies, we were content if any user completed the questionnaires. We collected some demographic information so that we got a feel for the type of people who used the OPACs.

- The sample size?

  This can be a problem, particularly if you want to undertake statistical analysis of responses. In the NOPAC survey, the eight participating libraries were decided early in the evaluation, but we had no clear indication of the number of actual users at each site. With COPAC, it was much more difficult to identify users and user groups. Access was possible by anyone having Internet facilities (via Telnet or World Wide Web), so we were dealing with a far more disparate (and worldwide) population.

- What is a satisfactory return?

In the NOPAC survey, we were very disappointed in the poor response to the self-completed questionnaire, except in one library where users were positively encouraged by staff to offer their comments. This indicates the importance of public relations when undertaking any survey and the attitude of the rest of the library staff who themselves have no direct involvement in the survey.

During the period of the COPAC survey, there were 10,042 searches on the Web interface and 346 search sessions on the text interface. Electronic questionnaires were attached to both the Web and text-based interfaces, with appropriate messages added to the search screens exhorting users to complete them. The response rate was low, with 38 returned from the Web interface and 29 from the text interface.

- When to distribute the questionnaire?

Timing can be critical, particularly in the academic context where it is better not to undertake surveys in the vacations nor in busy periods such as the start of the academic year. The NOPAC questionnaire survey was carried out in the spring and early summer period, which might be said to be a potentially good period. The COPAC questionnaires were made available in September, before the start of the traditional academic year in the UK, but this was a constraint imposed on the project team.

Another critical decision is for how long to make the questionnaires available, since it is a good idea to ensure that as many of your users as possible have the opportunity to take part in the survey, but you do not want to have it around so long that users get fed up or ignore it or, worse, fill it in a second time.

- How to distribute the questionnaire?

In the NOPAC study, distribution of questionnaires was undertaken by the library staff in the eight libraries. Blank questionnaires were left at the side of NOPAC terminals and completed ones collected periodically and forwarded to the research team. All publicity was left to discretion of the libraries.

In the case of COPAC, you could say that there was universal "distribution" of the questionnaires. Once completed, they were collected electronically by the COPAC team and subsequently forwarded to the research team via e-mail. No postal distribution was attempted in either study.

Questionnaire surveys are limiting in that they are self-selecting. Users can choose or not to respond and this, inevitably, limits the data validity. Respondents may not always be totally honest - intentionally or otherwise - in their responses, so that you have to treat the findings with care. The way the respondents interpret the questions will also affect their responses. Both surveys used a series of closed questions, asking respondents to tick boxes representing their answers. Open questions, seeking opinion-based data, were kept to a minimum, although it is recognised that such data can be invaluable. Length of questionnaire may also be a factor in getting user participation and a balance has to be made between length and coverage to ensure an adequate return.

The COPAC research team were mildly concerned at the high proportion of first-time users who completed questionnaires. Whilst first impressions of an OPAC can influence a user's willingness, or not, to try the service again another time, such limited use may not necessarily lead to an informed opinion about, say, specific features of the interface. Nevertheless, perhaps it is in COPAC's favour that one respondent remarked: "First time use is always traumatic - I coped".

4.2 Interviews

Interviews with users of the OPAC can be a very fruitful means of surveying opinion and use. Interviews can be conducted with users in the library building, as they use the OPAC or as they finish, or at any other time convenient to them and the interviewer. The point at which the user is interviewed can, to some extent, determine the type, amount and validity of the data collected. In any survey, there is the potential difficulty of identifying users who would be willing to give up time to be interviewed. Face to face interviews can be either an encouragement or a detriment to user participation. In either case much depends on the personality of the interviewer. One interviewer in the NOPAC evaluation was very successful - not only did she give away the standard British Library pen to her interviewees, she also offered sweets as an inducement to take part in the survey which proved popular with students!

In the NOPAC evaluation, certain users in the participating libraries were identified by library personnel in advance and appointments made for their interview. In other cases, interviewers stood close to the terminals and stopped users as they finished searching.

In the COPAC evaluation, telephone interviews were conducted. Certain known COPAC users were contacted by e-mail and, when the response rate was low and slow to materialise, requests for participation were placed on several Mailbase discussion lists. The research team was still disappointed by the low participation. One comment received indicates the problem here:

> "It would be nice to be helpful, but life is too short to spend half-an-hour on the phone on a questionnaire . . . ".

Many of the points mentioned above in section 4.1 concerning questionnaire surveys are also applicable here. One of the main advantages of interviews over questionnaires is the fact that you can ask more open-ended questions and can ask your interviewees to clarify or even expand on their answers as you go along. This allows for the collection of potentially very valuable qualitative data - particularly if you tape record responses. Due to the nature of the NOPAC/COPAC surveys, we had to rely on the transcription of responses by hand. Interviews are very labour intensive and time consuming, if they are to produce satisfactory data, and are consequently more expensive to organise, in terms of resources, than questionnaires.

The publicity surrounding the surveys can have a beneficial side-effect. In the COPAC survey we had questionnaires returned by a large number of first-time users - people who used COPAC because they found out about its existence due to our e-mail messages! In the NOPAC survey, interviewers found themselves, on some occasions, actually showing users some of the NOPAC features in the course of conducting the interviews. This *user education* was in all cases much appreciated by the recipients.

4.3 Transaction Log Analysis

Transaction log analysis is the automatic logging and subsequent analysis of the interaction which occurs when a user undertakes a search on the system.

Much has been written about transaction log analysis as a means of evaluating OPAC performance. This was particularly the case in the early days of OPACs and their evaluation. Experience has demonstrated that use of transaction logs is very time consuming and the information which can be gleaned from them is often severely restricted (see, for example, Hildreth, 1989; Hancock-Beaulieu, Robertson and Neilson, 1990). Nevertheless, we made use of transaction logs in our evaluation of COPAC.

Figure 1

Example of entries from COPAC text interface transaction log

```
copac00  960916 11:45:51      0    (de WITH lillo WITH don).auth.
copac00  960916 11:45:51 BQ   6    (de WITH lillo).auth.
copac00  960916 12:04:01 BQ   28   (festinger).auth.
copac00  960916 12:22:46 BQ   28   (great SAME wall SAME china).titl.
copac00  960916 12:39:08 B    2    (hildreth).auth. AND (online).titl.
copac00  960916 12:39:08 BF   4    (oppenheim).auth. AND (perspectives).titl.
copac00  960916 12:39:08 BF   161  (smithers).auth.
copac00  960916 12:39:08 BF   11   (smithers WITH A WITH J).auth.
copac00  960916 12:39:08 BF   161  (smithers).auth.
```

Key:
- copac00 = anonymous userid
- 960916 = date
- 12:22:46 = time
- BFTDG = action codes
- 161 = number of retrieved records
- (xxxxxx) = search terms
- .auth. = search in author field
- AND = Boolean operator

Action codes (i.e. actions to be taken by searcher) are:
- B view brief display
- F view full record display
- T tag record
- D download record
- Q quit

Figure 2

Example of entries from COPAC Web interface transaction log

```
192.190.201.197     96/07/31   13:34:42 toc   Auth   1 - 25  of 3400  T="Manchester"
192.190.201.197     96/07/31   13:35:40 doc   Auth      15   of 3400  T="Manchester"
192.190.201.197     96/07/31   13:36:39 toc   Auth  26 - 50  of 3400  T="Manchester"
...

bsd0.mds.qmw.ac.uk  96/07/30   14:07:49 toc   Auth   1 - 1   of 1     T="hill figure"
bsd0.mds.qmw.ac.uk  96/07/30   14:08:11 doc   Auth      1    of 1     T="hill figure"
bsd0.mds.qmw.ac.uk  96/07/30   14:08:55 toc   Auth   1 - 21  of 21    T="white horses"
bsd0.mds.qmw.ac.uk  96/07/30   14:09:26 doc   Auth      9    of 21    T="white horses"
bsd0.mds.qmw.ac.uk  96/07/30   14:09:53 doc   Auth      4    of 21    T="white horses"
...
bsd0.mds.qmw.ac.uk  96/07/30   14:21:00 toc   Auth   1 - 10  of 10    T="Hill figures"
bsd0.mds.qmw.ac.uk  96/07/30   14:21:20 doc   Auth      6    of 10    T="Hill figures"
...
bsd0.mds.qmw.ac.uk  96/07/30   14:29:18 toc   Auth   1 - 10  of 10    T="Uffington"
bsd0.mds.qmw.ac.uk  96/07/30   14:29:41 toc   Auth   1 - 6   of 6     T="Cerne Abbas"
```

Key:	192.190.201.197	= machine location	1 - 10	= the list numbers of records currently being displayed
	96/07/30	= date	of 10	= total number of records retrieved
	14:21:20	= time	T=	= the field which is being searched
	toc / doc	= display type	"xxxxxxxx"	= the query statement
	AUTH	= search form used		

Different systems have different transaction logging capabilities. The level of detail available dictates what information can be gleaned from an analysis of transaction logs. In the case of COPAC, the system has logging facilities for both its text-based (Telnet) interface and its Web interface. Examples of these logs are shown in Figures 1 and 2.

These illustrations demonstrate the sort of data which can be acquired by careful scrutiny of transaction logs. The most important feature is that the logs give a clear record of what a searcher has done and how the system has responded. There is no dependence upon memory and there is no dependence upon user value judgements of success. Thus, they are reasonably accurate data about how the particular OPAC is being searched. This enables some areas of concern to be identified.

For example, in the COPAC evaluation, it was observed that some 49 per cent of searches on the text interface (and 27 per cent of searches on the Web interface) apparently failed, in the sense that the searcher carried out a search, retrieved some items but only displayed the results of the search in brief format, that is in a format which neither contains full bibliographic details nor includes the location details of the retrieved items. Another example is the observation that some 22 per cent of searches yielded zero hits and, in all cases, the searchers made no attempt to amend their initial search terms or strategy. There is no obvious explanation for this particular observation except, per-

Figure 3

Breakdown of search types across the two interfaces of COPAC

Search type	Text interface	Web interface	Total no. of searches
Author/title	358 (77.7%)	822 (65.7%)	1,180 (68.9%)
Subject	75 (16.2%)	206 (16.5%)	281 (16.4%)
Periodical title	28 (6.1%)	223 (17.8%)	251 (14.7%)
Total:	461	1,251	1,712

haps, that the searcher believed in both the system and their searching ability and, therefore, deduced that there were no items of interest or relevance present in the database.

The transaction logs indicated that there was a surprising number of author/title searches (see Figure 3). From the responses to the questionnaires, it is plausible that this was due to the majority of users using the service for known item searching, whether for the purposes of bibliographic checking or for purposes of locating a copy of a known item. Another possible explanation is that some searchers used the title search to undertake a "subject" search.

There are limitations in the use of transaction log analysis as a method of evaluating OPAC use. It is necessary for the researcher to make a number of subjective judgements. In the case of the COPAC logs, it was necessary to make judgements about when one search had ended and another had begun. This had to be done using a mixture of the times recorded in the logs for each search, the source of the query, menu option used and search terms input. In some cases the judgements were straightforward, but in others it was more difficult. For example, see the "hill figure" example in Figure 2: we assume that all these queries (and there are 30 transactions recorded in sequence) were entered by the same person since the subject matter is similar. This same example shows the user's determination to find some useful references via the author/title search form, when a subject search might have provided better results.

The major limitation of transaction logs is clearly that the logs do not indicate why the searchers have undertaken a search in a particular manner nor what their search objectives were.

4.4 Controlled Searching

Evaluation and testing of information retrieval systems began in the UK with the controlled testing of the Cranfield tests and their successors (Cleverdon, 1960 and 1962), and tests of operational systems of which Lancaster's MEDLARS test remains the major example (Lancaster, 1968). In recent years, this sort of testing has been subjected to rigorous criticism, for example by Ellis (1996). Nevertheless, there is scope for using tests in which realistic attempts are made to mirror real-world searching whilst imposing some forms of control on the experiment.

However, we must admit that our experiences in this sphere have met with limited success. In the COPAC evaluation, we used a series of 60 queries, generated from a variety of sources, which provided a reasonable approximation to the sort of queries which are taken to OPACs. Some queries were created from the transaction logs which had been provided by the COPAC team. Some were generated from the books on our shelves and others were taken from published research (Cousins, 1992). In addition, some queries were expressed in such a way that there were elements of doubt about them and/or uncertain data, in an effort to replicate the "real" world of OPAC searching. Figure 4 lists a sample of the set of queries used.

The queries were searched by both experienced and inexperienced OPAC users to identify whether or not the less experienced searchers had more problems or searched in a markedly different manner from the experienced searchers. On the whole, we felt that they did not. Whilst it could be argued that this concurs with other examples in the literature, where searcher experience has apparently not had a marked impact, this sort of test did not enable us to pinpoint any problems (with COPAC) which inexperienced users faced which had not been problems to the more experienced searchers.

When undertaking such a study, care has to be taken to ensure that the subjects are typical of the users of the OPAC in question. On the whole, you are looking for people who have bibliographic knowledge but are not bibliographic experts. It could be argued that the need for subject knowledge in searching OPACs is somewhat less than that needed for searching bibliographic databases where the subject content of the records is greater than is the case with MARC records.

4.5 Observation

Observation of catalogue use has been carried out with some success in the past, although it is a very time consuming exercise and is potentially open to observer bias. Observing people at terminals is much more difficult to carry out. This can be achieved either by videoing searchers or asking

Figure 4
COPAC evaluation: sample questions for laboratory tests

Books on self-healing, the author is probably called Friedman?
Any books on nineteenth century Irish fiction?
What books are there about sustainable development strategies?
I am looking for books about the process of persuading business and commerce to implement sustainable environmental policies and practices
A bibliography on the history of education
Can you find a location for a book on early settlements in Jaffna by Rangaputhy?
A list of the books of Dominic Behan
Books about X-Ray Crystallography
I need to find Buckland's book on Irish labour history
Are there any books about the development of mental health services?
I know that Johnson-Laird has published a book on cognitive science. Can you find me the details?
Who are the authors of the book Computers and thought?
What is the latest edition of Cotton and Wilkinson's Advanced Inorganic Chemistry?
What is the latest book on Organic Chemistry by Morrison and Boyd and where can I get a copy?
What was the book that Margaret Boden wrote about the mechanics of creativity?
Can you find details of Smith's book about Folk Tales in Gloucestershire?
Any books about the portrayal of women in art.
A list of the books by Florence Barclay...or is it Barcley??
Where can I find the periodical Applied Surface Science?
What books have been written about Seamus Heaney?
Are there any books about television sitcoms?
Where can I find Wolfram's book on mathematics?
What books by Alastair Patterson (or is it Paterson) can you find??

them to speak aloud into a tape recorder as they search. Whilst there is the risk that searchers will verbalise what they feel the investigator wants to hear, rather than what they are trying to do, it has to be accepted that these thoughts would be the nearest that researchers can come to the thoughts of "real" searchers as they use OPACs. Added advantages of this approach are that the equipment needed is not too sophisticated and that it is readily portable.

Unobtrusive observation of searchers requires a sophisticated test environment which needs careful planning and execution. There are also questions of confidentiality and of privacy which would have to be addressed.

Formal observation of users was not undertaken in either the NOPAC or COPAC studies. In the NOPAC evaluation, interviewers were, at times, able to observe users in the libraries. This allowed them to approach potential interviewees once they had finished their session on the NOPAC. Appropriate signs and written guidance, alongside the PCs on which the NOPAC was available, were found to be factors in attracting use. Low use of NOPAC could be attributed to the fact that not many people knew it was there.

5. SOME CONCLUSIONS ABOUT METHODS FOR EVALUATING OPACS

Our experiences have led us to some conclusions about approaches to OPAC evaluation.

Firstly, it is critical to define the scope of the evaluation exercise. OPAC research is time consuming and can be expensive, but the rewards in terms of understanding user behaviour and the performance of your online catalogue are considerable. Do not be too ambitious. Choose a particular aspect of the OPAC which you want to investigate and plan appropriately. For example, you may want to get feedback on a newly introduced OPAC ser-

vice (such as was the case with both NOPAC and COPAC), or a new or modified interface to an existing OPAC, or you may simply want to investigate who is using, and who is not using, your OPAC. On the other hand, you may just be doing research into the information-seeking behaviour of your OPAC users.

Regarding the design of the evaluation programme, we advocate the use of more than one method to collect data. Questionnaires are very effective in gathering impressions about use and user opinion. Interviews provide the means of collecting qualitative data which can be difficult to do with self-completing questionnaires. However, interviews require a significant amount of time and effort, and such resources may not always be available.

Transaction log analysis and controlled searching are undertaken mostly to research specific aspects of user information-seeking behaviour. Notwithstanding that such research is rarely done in LIS without the injection of additional resources such as a research grant, we would advocate that the LIS community still needs to have a greater understanding of how and why people use the OPAC and with what degree of success.

Transaction log data could provide much more valuable information about users and their information seeking behaviour in particular settings, if the logging of each search session were linked to a recording - video or audio - of what the user was attempting to do. The use of controlled searching in the COPAC study produced some interesting results, but this was in a laboratory setting without the participation of real users of COPAC. A combination of controlled searching with transaction log analysis, using audio recording to capture the thoughts of the searchers as they search, could potentially produce invaluable data in the study of end-users, user interfaces, usability and performance of particular OPACs.

Finally there are many texts which can help us to plan effective OPAC evaluation programmes and surveys. We have found considerable help from Lancaster (1993), Hildreth (1989) and Lancaster and Warner (1993).

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Benchmarking in Practice

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Benchmarking is a route to standards based in practice, rather than the standards which set levels of excellence aimed at, but rarely achieved. This paper first outlines the conditions necessary for effective benchmarking, and then gives some examples - from public and special libraries - of a) the kind of information which is thrown up by the process, and b) its applications for library managers. Examples reflect recent work in Loughborough University's Library and Information Statistics Unit, which is continuously involved in benchmarking in various sectors.

Does the term "library managers" cover all potential users of a benchmarking service? To do so, it would need to include managers at all levels of the library service, including individual service points and key departments (IT, serials, etc); and also to include the managers of library managers - the chief executives, vice-chancellors, managing directors - who have the power to fund and shape the library services under their control. In the examples, we shall consider how these various groups can be affected by the information which emerges from a benchmarking exercise.

PRECONDITIONS

There are some preconditions for effective benchmarking:

1. There must be access to data collected from a homogeneous group of library/information services.
2. The data should be comprehensively edited: missing data chased; dubious data identified and queried; tables completed with interpolated estimates for missing information.
3. The data should be collected over a period of time so that they can show trends (rather than the blurred snapshot of a single year's performance).
4. Comparisons of library/information services drawn from the data must be on a "like with like" basis. For instance, in the UK, "old universities" are generally separated from "new universities" because of their disparate aims and services. In the public library examples which follow, a base library authority is compared with all authorities of the same type (whether counties, metropolitan districts, London boroughs, etc), and also with an even smaller group of four or five authorities deemed to be the closest peers to to the base authority (sometimes described as "the family").
5. Taking the "like with like" theme further, comparisons should wherever possible be based upon ratios rather than raw data. For instance, professional staff, or expenditure, or loans may be expressed: in public libraries as "per capita" or "per 1,000 population" (whichever produces the more sensible results); in school or academic libraries as potential user (drawn from the student and staff population); in special libraries/information services as "per target user".
6. Furthermore, notes and/or a commentary should be attached to the tables and graphs, drawing attention to any exceptional circumstances which may distort the comparisons. There can be quite a number of these, because level playing fields are rare. (My colleague Claire Creaser's recent work on the impact of deprivation upon public library use highlights a significant aspect of the uneven playing field [Creaser and Sumsion, 1995]).

Finally, I urge that the work described above is often best done by an independent unit, rather than by a library service scrutinised in the comparisons. Cynics will observe (noting where I come from): "well, he would say that, wouldn't he?". But it clearly makes no sense for each university library, public library authority, etc. individually to collect and process data from all its peers. And there is

Figure 1
Total income per capita

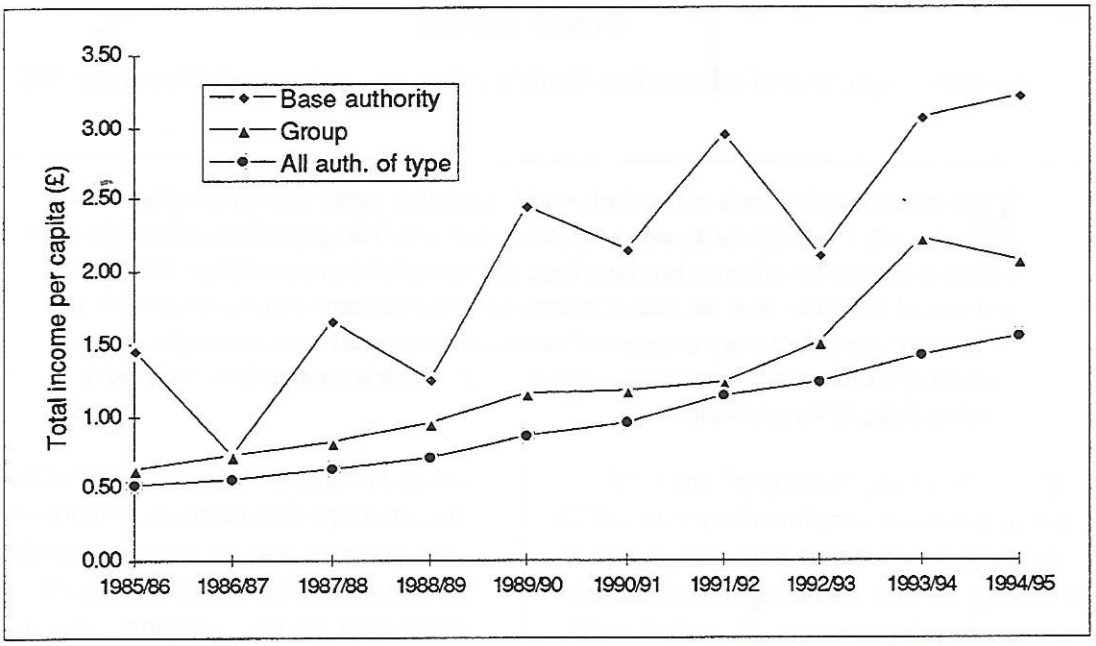
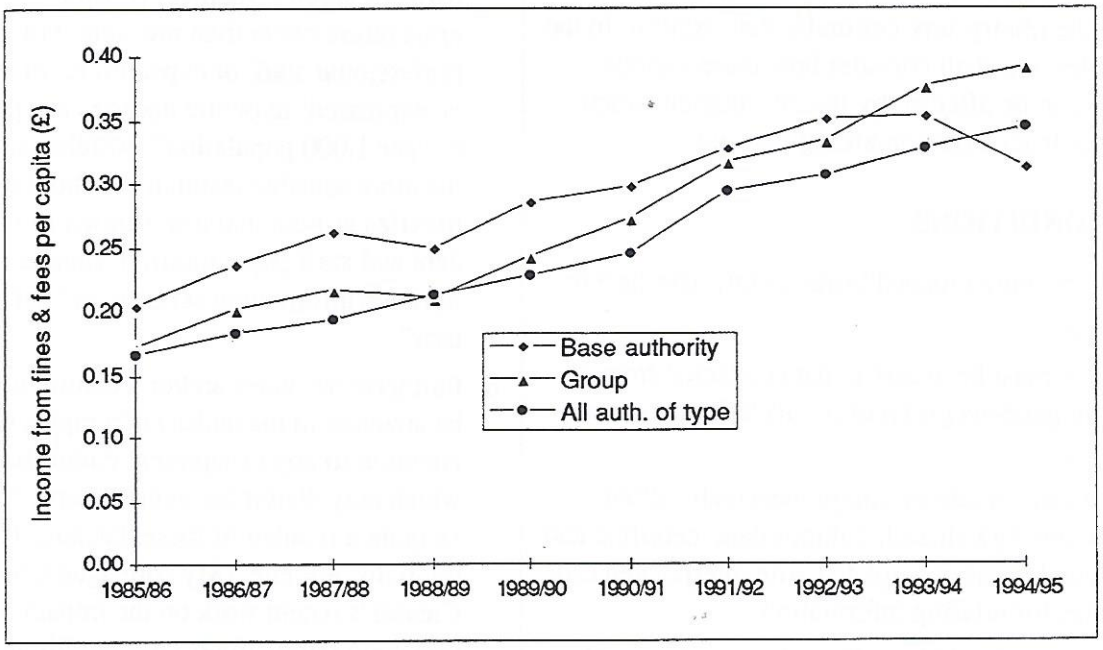


Figure 2
Income from fines and fees per capita



much to be said for having an outside body, with no axe to grind, making the comparisons - particularly if a library authority wishes to use the findings as a case for additional funding, or for some controversial or unpopular course of action.

BENCHMARKING IN PUBLIC LIBRARIES

I should like to give a few examples, starting with some applications from UK public library authorities. These are based on benchmarking work carried out by LISU over the past two years. Although all the data used are publicly available, I have removed the names of the base authorities, not wishing to make any invidious comparisons publicly.

The first example (Figure 1) looks at income per capita, comparing the base library authority with a small family and also with all the English authorities of the same type. The point made is (at least on the face of it) an obvious one: the authority's

Figure 3
Expenditure on books per capita

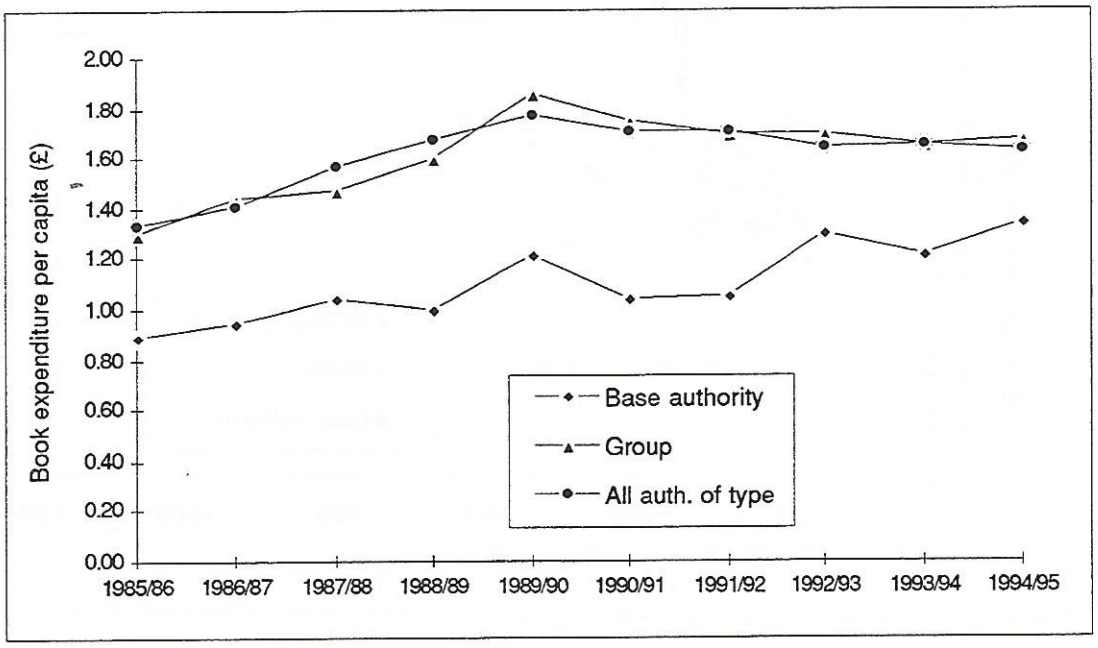
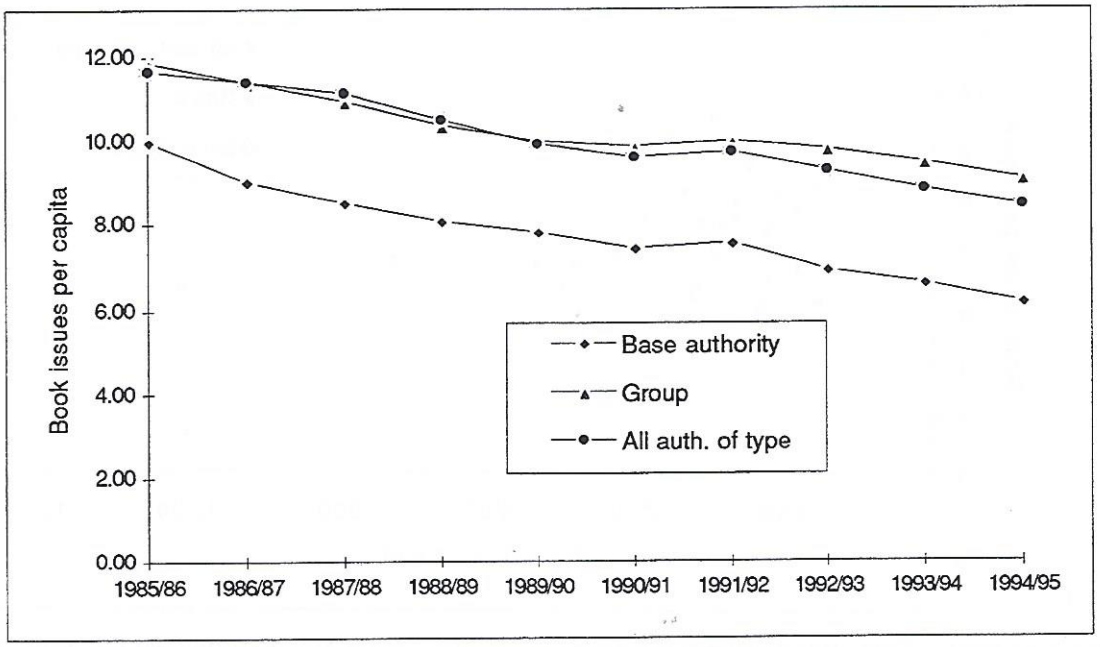


Figure 4
Book issues per capita



income-raising schemes have been successful and creative, but subject to wild profit and loss swings - like the progress of an erratic but inspired gambler in a Las Vegas casino. The graph underlines the need for long-term planning of revenue income.

A second example (Figure 2) shows how benchmarking can focus on more specific problems in income generation. This graph - from a different authority - again gives a clear message: until 1992/93 the authority's income from fines and fees (shown "per capita") was well in excess of that from the comparator groups, but then it fell away sharply. There may be a good reason for this (such as local policies on restricting fines) but, after seeing the graph above, the authority's managers are, at the very least, likely to review their "fines and fees" policy.

Benchmarkers often use different comparisons, side by side, to probe areas of interest or concern. Figure 3 shows an authority's annual expenditure

Figure 5a
Book issues per capita, scattergram, 1985/86

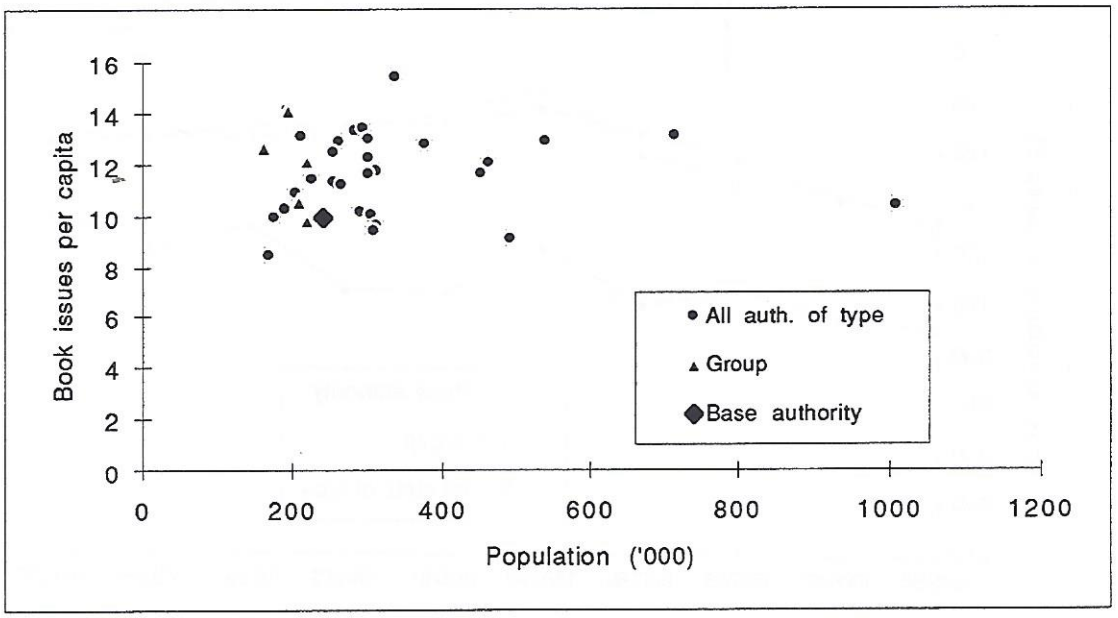
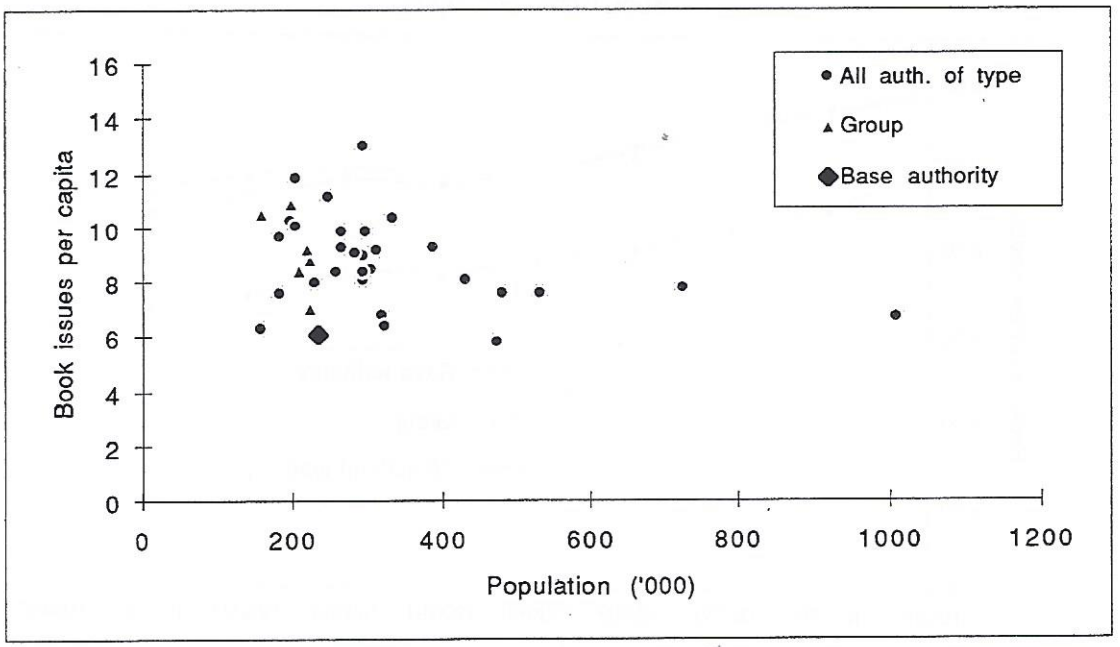


Figure 5b
Book issues per capita, scattergram, 1994/95



per capita on books. Since this starts from a much lower base than the two comparator groups it is no surprise to note, in Figure 4, that the same authority has correspondingly lower issues. That news is bad enough for the authority's managers, but it can at least be used to underpin a case for increased funding. But there is also a down-side *without* a silver lining. Since 1985/86 expenditure increased, relative to the two comparator groups, yet issues continued to fall in much the same ratio as in the comparators. It is obviously time to look closely into whether resources are being properly directed.

The linear graphs shown so far summarise the performance of a group of comparator authorities, but cannot reflect their individual showings. Where it is necessary, the overall picture can be enhanced by the use of scattergrams. Figure 5 is a translation of Figure 4 on book issues, showing how the base authority's issues compare with those of other individual authorities used in the comparisons.

Let us now look at some comparisons of staffing. Figures 6 and 7, for another base authority, com-

Figure 6
Total staff in post per 1,000 population

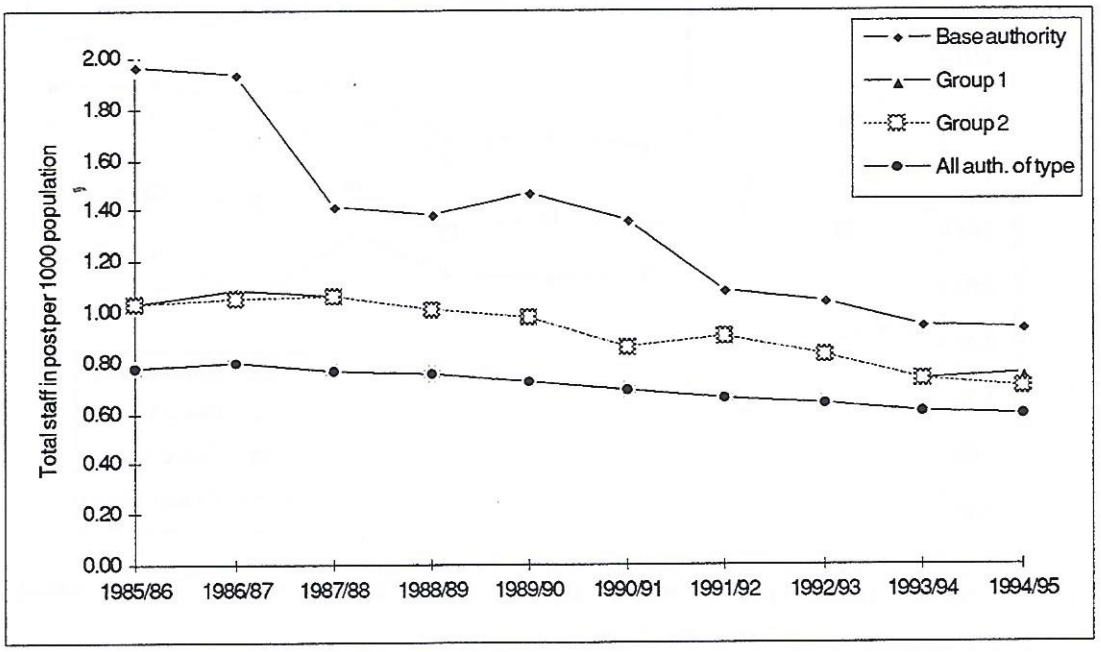
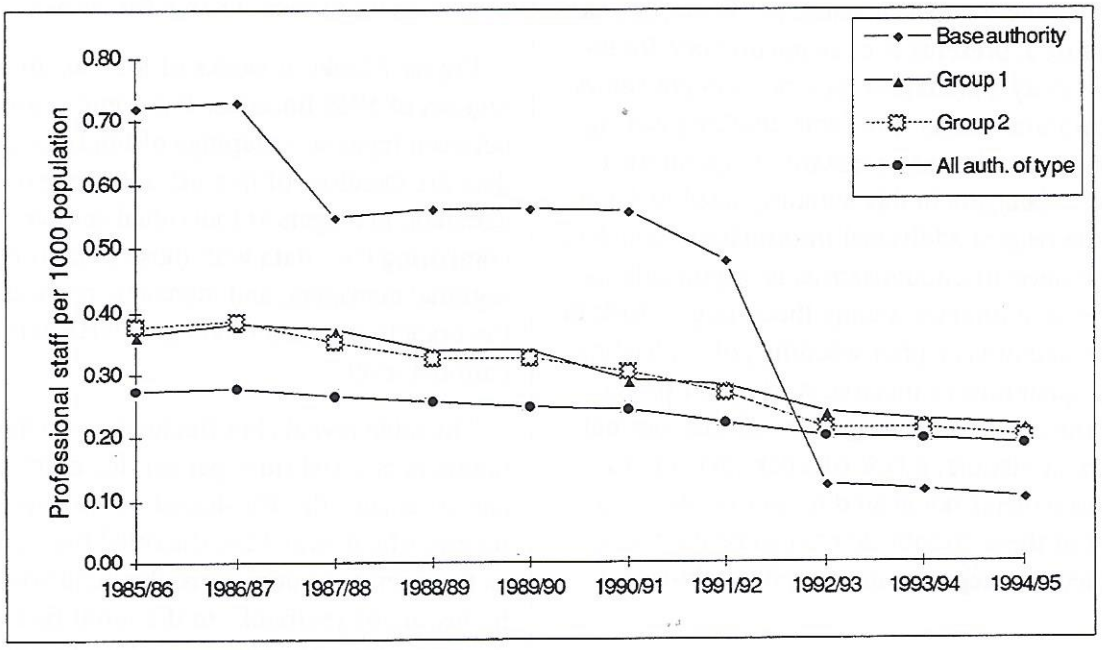


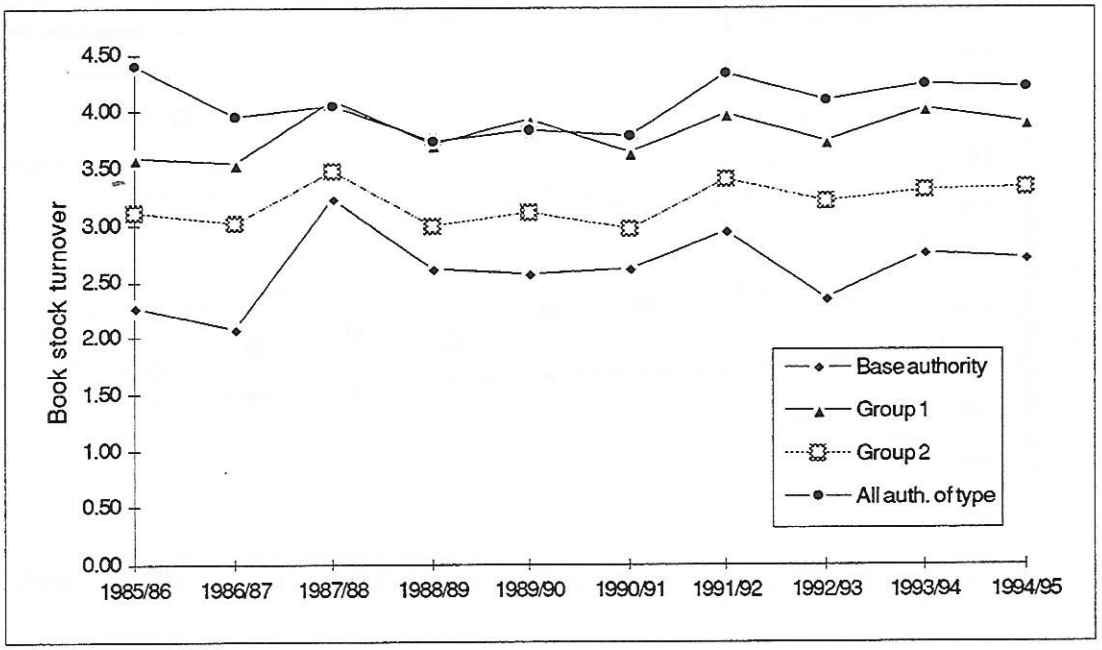
Figure 7
Professional staff in post per 1,000 population



pare its staffing with that of three comparator groups. Figure 6 shows a fall in the numbers of total staff per 1,000 population, from a very high ratio to one which is considerably lower, yet still above all the comparator groups.

Figure 7 examines *professional* staff in the same system, and shows a dramatic change. Heavy cuts in professional staffing have left the authority substantially below the comparator groups in terms of "professional staff per 1,000 population". (A scattergram would show that it has the lowest ratio of all the authorities included.) And this is so despite the above average levels of overall staffing shown in the Figure 6. The implications for the service in that authority - and particularly for the impact upon information services - can well be imagined. It may be that its managers have consciously opted for a supermarket approach to services, minimising the need for qualified staff. The graphs provide a very sharp focus for discussion and decision-making on these controversial developments.

Figure 8
Book stock turnover



Finally from the public library arena, Figure 8 examines one authority's book stock turnover: that is, the average number of issues per book per year. The picture it presents is a disquieting one for the base authority's managers, but the example shows with particular clarity how benchmarking can signal a problem without necessarily pinpointing a solution. Managers in this authority need to decide - with the help of additional information - which of a combination of circumstances is responsible for the poor performance, among them: larger stock in the base authority; a poor weeding policy, leading to large quantities of inactive stock; poor promotion of the services, leading to lower than normal numbers of visitors; a lack of stock revision; or selection policies not geared to user needs. Only the first of these circumstances can be precisely quantified and depicted in a graph or tabular format.

BENCHMARKING IN SPECIAL LIBRARIES

We now turn to some examples from special libraries. For various reasons - notably the disparate nature of libraries in the work-place, and their need for confidentiality - there are generally less reliable data available in this sector. However, the Regional Librarians Group of the UK National Health Service (NHS) has produced data covering over 450 libraries funded (or part-funded) by the NHS (Barton, 1997). The Group's initiative will serve them well, both in managing their own resources, and in demonstrating to NHS managers their concern to secure value for money.

Figure 9 looks at stocks of journals in the 17 regions of NHS libraries. The comparisons here are between regional groupings of libraries, and the data are therefore of interest to three levels of management: managers at individual service points, comparing their data with those of their region; regional managers; and managers responsible for the organisation and funding of NHS services at a national level.

The table reveals big fluctuations in the average numbers of serial titles per service point and average costs per title. We should - as always - note any factors which may have distorted the figures - such as the number of donations, the inclusion (or non-inclusion) of yearbooks in the serial figures, and the acquisition of multiple copies of printed serial titles by individual service points. Even so, the information yielded by the table can inform discussions at regional and at national level on key issues such as co-operative acquisition and interlending.

Further light is shed on interlending issues by Figure 10, which shows the numbers of photocopies per year *received* by NHS libraries from three different sources: their own NHS region, BLDSC, and other sources. Again there are big fluctuations - for instance, in the percentage of

Figure 9
Journal stock

	Journal titles	*No incl*	Ave no of *journal* titles	Cost per title	*No incl*
North East Thames	3,210	*21*	153	£114.22	*19*
North West Thames	1,969	*17*	116	£133.56	*9*
South East Thames	4,248	*41*	104	£116.38	*33*
South West Thames	3,374	*28*	121	£145.74	*16*
South Western	3,009	*25*	120	£104.51	*20*
Wessex	2,486	*22*	113	£105.48	*17*
East Anglia	1,765	*13*	136	£116.95	*12*
Oxford	3,197	*24*	133	£118.78	*20*
West Midlands	4,193	*51*	82	£171.43	*1*
Trent	2,853	*26*	110	£104.09	*18*
North Western	3,766	*41*	92	£115.34	*36*
Mersey		*0*			*0*
Northern	2,748	*27*	102	£ 94.52	*22*
Yorkshire	2,930	*19*	154	£ 95.14	*19*
Wales	3,668	*19*	193	£137.94	*18*
Scotland	4,249	*34*	125	£111.71	*28*
Northern Ireland	1,963	*41*	48	£136.48	*13*
TOTAL	49,628	*449*	111	£115.20	*301*

Figure 10
Interlibrary lending receipts (photocopy)

	From region	From BLDSC	From other libraries	TOTAL	*% of inter-loans from BLDSC*
North East Thames	8,460	6,506	4,060	19,026	*34*
North West Thames	10,272	7,315	4,430	22,017	*33*
South East Thames	24,533	9,235	5,636	39,404	*23*
South West Thames	28,078	20,445	6,452	54,975	*37*
South Western	19,173	13,595	14,112	46,880	*29*
Wessex	33,533	5,436	5,998	44,967	*12*
East Anglia	8,734	4,622	2,181	15,974	*29*
Oxford	18,855	12,210	7,406	38,471	*32*
West Midlands	19,831	10,456	8,656	38,943	*27*
Trent	11,461	13,937	9,669	35,067	*40*
North Western	30,239	8,676	6,761	47,360	*18*
Mersey					*0*
Northern	9,803	9,054	2,446	21,303	*42*
Yorkshire	5,369	8,011	2,922	16,302	*49*
Wales	14,124	16,122	6,419	36,665	*44*
Scotland	14,936	8,915	3,611	30,506	*29*
Northern Ireland	5,713	997	0	6,710	*14*
TOTAL	263,114	155,532	90,759	514,570	

photocopies received from BLDSC compared with other sources - which draw attention to probable cost implications. The data considerably enhance the information available to regional managers in making choices.

Finally, we show two tables which compare the staffing of health libraries with 14 other UK special library sectors, using data obtained by the UK information consultants, TFPL (Creaser and Spiller, 1997).

Figure 11 looks at average staff numbers in the 15 sectors, showing the number of responses in each sector, and the mean and median for each. (Given the small number of large institutions at the top of the scale in most sectors, the median is probably the better indicator of the average.) "Health" emerges, along with the voluntary sector, as the least well staffed in terms of numbers - and this impression is reinforced when one looks at other tables comparing volume of activity in the various sectors.

The staffing numbers provide in themselves a strong argument for NHS library managers urging increased funding for their operation. That argument can only be strengthened by referring to data on staffing budgets - in Figure 12. Here health emerges - unequivocally - as the sector with the lowest staff budgets amongst all 15 sectors. Given their volume of activity, health library managers may on the one hand legitimately construe this as a measure of efficiency, whilst at the same time advising management that their staff are both overworked *and* underpaid.

Acknowledgement

I should like to acknowledge the major contribution to this paper of my colleague Claire Creaser - LISU's statistician - who was responsible for drawing up the graphs and tables.

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Figure 11

Estimated average total staff per library

	1996 (fte)			
	Mean	**Median**	**Total reported**	***Number included***
Pharmaceutical	7.7	4	207	*27*
Chemical & plastic	9.0	3	206	*23*
Energy etc.	5.3	3	208	*39*
Misc. manufacture	6.7	3	161	*24*
Finance	5.6	4	515	*92*
Legal	4.7	3	253	*54*
Info. providers	5.0	3	379	*76*
Media/publishing	12.8	5	629	*49*
Machinery manuf.	5.6	3	218	*39*
Total industrial & commercial	6.6	3	2,777	*423*
Central gov't	15.3	6	1,254	*82*
Health	**4.0**	**3**	**187**	*47*
Local gov't	8.2	4	409	*50*
Museums etc.	13.8	5	193	*14*
Voluntary org.	3.8	2	164	*43*
Prof. societies etc.	7.5	5	636	*85*
All	**7.5**	**3**	**5,620**	***745***

Figure 12

Estimated average staff budget per library (1994/96)

	1996 (fte)			
	Mean £'000	**Median £'000**	**Total spend £'000**	***Number included***
Pharmaceutical	170	93	4,075	*24*
Chemical & plastic	138	83	2,750	*20*
Energy etc.	149	61	5,663	*38*
Misc. manufacture	144	55	3,025	*21*
Finance	142	82	12,088	*85*
Legal	108	55	5,375	*50*
Info. providers	93	49	6,663	*72*
Media/publishing	192	83	8,238	*43*
Machinery manuf.	101	45	3,638	*36*
Total industrial & commercial	132	66	51,513	*389*
Central gov't	239	131	18,175	*76*
Health	**63**	**44**	**2,813**	*45*
Local gov't	96	70	4,325	*45*
Museums etc.	229	92	2,975	*13*
Voluntary org.	74	43	2,875	*39*
Prof. societies etc.	162	77	12,300	*76*
All	**139**	**68**	**94,975**	***683***

Performance Measurement in Document Delivery: The Case of Impala, the Belgian Document Ordering System

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The paper gives an overview of the Belgian libraries document ordering system. Impala aims to create a climate of continuous improvement by informing the user libraries of their performance in document delivery and that of suppliers in Belgium and Europe. Reliability, satisfaction rate and the speed of supply are featured. Supply times have shortened and satisfaction rates have increased. Details are given of performance indicators, measures and ratios, and of other Impala activities. New developments are described, and the future of Impala is envisaged, including the introduction of electronic document supply from electronic full-text sources, and direct access for end users to information on the quality of the document supply service, from the point of request to receipt of the document.

INTRODUCTION

This paper deals with performance measures and performance indicators in the Impala electronic document ordering system for research libraries in Belgium. The performance measurement system of Impala aims to create a climate of continuous improvement by informing suppliers and requesters about the quantity, quality and costs of ILL.

IMPALA

Impala (Instant Mailing Procedure for Automated Lending Activities) provides Belgian libraries with a system for sending out electronic interlibrary loan (ILL) requests to a number of Belgian and foreign document suppliers (Impala, 1997; Van Borm, 1995; Van Borm, 1996). It is used for returnables (books) as well as for non-returnables (photocopies). The online ordering system is linked into the Belgian union catalogue for periodicals Antilope (Antilope, 1997) and the holdings of a number of major document suppliers such as the British Library Document Supply Centre (BLDSC), INIST in France and three major centres in the Netherlands (Wageningen, Delft and NIWI, the successor of the Library of the Royal Academy of Sciences in Amsterdam). Moreover, some 120 libraries all over the world can be reached by a central fax server. However, the use of fax transmission considerably reduces the follow-up of the requests and puts some constraints on the performance measures and indicators derived therefrom.

Having located the item in one or more of the catalogues, requesting libraries can select a range of suppliers, so that if the first solicited library is unable to supply, the request is automatically passed on to the next supplier in the sequence. At any point, requesting libraries have access to the latest information available about the request and are informed when the request is satisfied.

Unlike some other systems, Impala does not try to spread requests across the potential suppliers according to a fixed maximum load per day. Requesters are free to make their requests to libraries from which they expect the best quality of supply. Hence the importance of performance indicators of good service for the Impala libraries.

Another feature of Impala is the elimination of individual invoice payments for each transaction, once common practice in Belgium as in so many other countries. The handling costs of each minor bill often exceed the cost of the delivery of the requested item (Bakken et al, 1997). Therefore, charging is carried out according to the clearing-house principle, a debit and credit system, whereby net-requesting libraries are billed quarterly: one single invoice for all Belgian transactions (Van Borm, 1992).

Sitting in a multilingual country (Dutch, French) and serving also an international community, mainly but not exclusively in Brussels, Impala operates in three languages (Dutch, English and French).

Messages can be provided by the supplying library in one of these languages and read in the requesting library in another language. The system translates these encoded messages into the language of use in the requesting library. The system also controls the actual use of the encoded messages. Out of a total of 29 encoded messages only 13 are used over 50 times per year (see Figure 1). Based on these findings Impala has been reluctant to expand the list of encoded messages.

The University of Antwerp holds the rights to Impala. Copies of the system are in use for regional public library interlending in Belgium and the Netherlands.

Regular monitoring via performance measures and indicators is one of the main features of Impala in order to ensure that quality is being maintained or to study the impact of change aimed at improving the system.

VOLUME

Impala grew out of a regional network for interlending in Antwerp in 1992 (25 participating libraries) to an all-Belgium network of 103 users, 55 supplying libraries online connected to Impala and 120 extra suppliers via the fax server. The number of requests reflects the growth of the network in the past five years from 10,000 requests in 1992 to well over 100,000 requests in 1996. It is estimated that the total volume of ILL in Belgium is about 200,000 (Vervliet and Rousseau, 1990) (Figure 2).

PERFORMANCE MEASUREMENT IN ILL

The toolbox of the European Library performance indicators and library management tools - also called the PROLIB/PI study - provides guidelines on the implementation and analysis of a variety of measures and indicators. It mentions only two measures and three indicators for ILL (Ward et al, 1995) (Figure 3). The term **measure** is used when something is measured directly. The term **performance indicator** is used when performance is inferred from one of these measures.

In the core measures of the PROLIB/PI study all this is reduced to just one measure: the number of ILL requests received from other libraries. In Europe the PROLIB/PI study rapidly became a de facto standard, taking into account the ISO 11620 standard (ISO, 1995), the work done by IFLA (Poll and Boekhorst, 1996), HEFCE in UK for research libraries (Joint . . , 1995) and UNESCO for public libraries (Moore, 1989).

Under the third call for proposals (1993) in the libraries area of the *Telematics applications in areas of general interest programme* (Third Framework Programme of the European Community) four projects were funded in the field of performance measurement:

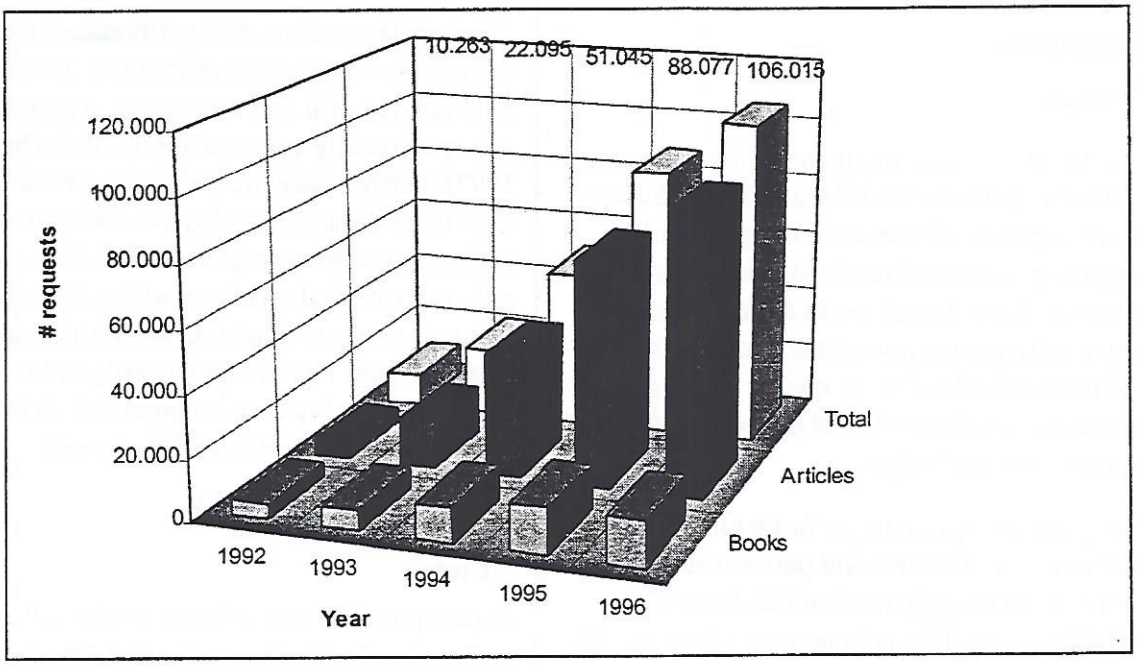
- DECIDE (DECIDE, 1997)
- DECIMAL (DECIMAL, 1997)
- EQLIPSE (EQLIPSE, 1997)
- MINSTREL (MINSTREL, 1997).

Figure 1
Usage of coded messages 1996

1.	Not in library collection	1,995
2.	Supplied but use restricted to reading room	1,319
3.	Unavailable for loan	805
4.	Reference incorrect	491
5.	Volume/part missing	437
6.	Publication on loan	402
7.	Temporarily unavailable (BLDSC)	215
8.	Book temporarily lost	193
9.	Issue not (yet) received	118
10.	Book lost	108
11.	At the binders	99
12.	Cannot be delivered in due time	88
13.	Incomplete reference	58
	. . .	

Figure 2

Number of requests via Impala 1992-1996



These four projects are based partly on the PROLIB/PI study. In the field of ILL, EQLIPSE includes in the dataset four items for assessing the speed of supply (ISO B223A):

- date item is requested
- date item is ordered
- date item is received
- date user is notified.

In 1995 the Andrew W. Mellon Foundation awarded the American Association of Research Libraries (ARL) a major grant for a study (July 1995 to August 1997) on the performance of inter-library loan operations. In the second phase of the project factors such as fill rate (success ratio), user satisfaction and costs will be investigated (Jackson, 1997).

Most of the ILL performance studies so far have centred around volume of transactions, total and unit costs (Bakken et al, 1997; Bjarno, 1994; Gould, 1997; Huse, 1995; Jackson, 1997; *Measuring . . ,* 1987; Willemse, 1993). The ASIDIC (USA) and EUSIDIC-EUROLOG (Europe) surveys on document delivery services supply more information (ASIDIC, 1996; EUSIDIC-EUROLOG, 1996):

- number of users;
- document types (journal, book section, other);
- methods of ordering (online, e-mail, fax, mail, other);
- fulfilment rate;
- order receipt;
- delivery methods;

Figure 3

PROLIB/PI ILL measures and indicators

Measures	
Cost	External cost of interlibrary loan services
Use	ILL requests made to other libraries
	ILL requests received from other libraries
	ILL items sent to other libraries
Indicators	
Timeliness	Time taken to satisfy ILL requests
Use: use	Proportion of interlibrary loans to total loans
Use: population	ILL per capita

- analysis of non-receipt of documents;
- turnaround time;
- charges/costs;
- copyright.

The figures in these studies stem from a survey of 120 participants in the USA and 189 in Europe who over a period of one week kept a record of documents ordered and received, and for two (Europe) or three (USA) weeks thereafter kept a record of delivery (or not) of the documents. A survey of this kind relies on the quality of the questionnaire and on the method of sampling. Moreover it requires an extra budget.

The goals set by Impala go further than the European set of measures and performance indicators for ILL and supply most of the ASIDIC-EUSIDIC figures. This is in no way a criticism of the European set of measures intended for single libraries. An organisation such as Impala created for the sole purpose of ILL should give more information to its users. This information should be instant, integrated and fully automated, requiring a minimum of extra effort and resources both on the part of the organisation and on the part of the libraries using the system.

THE IMPALA MEASURES AND PERFORMANCE INDICATORS

The Impala measures and performance indicators do not rely on sampling techniques. Instead the total volume of ILL is monitored. Aggregate figures are publicly available on the Web (Impala, 1997). Performance measures and indicators of individual libraries are also available on the Web, but are password protected, so that they are known only to individual members within the Impala consortium. Being available on the Web these aggregate and local figures can be easily uploaded in a standard spreadsheet or incorporated in the upcoming performance measurement systems.

Measures

- Costs

Impala provides cost information for filled requests (borrowing and lending). The Belgian standard cost of an ILL is 200 BEF (= £3.15) for the loan of a volume or a photocopy of up to 30 pages. 200 BEF is built in as the default value but can be replaced by the supplying library by any other value. These values of credit and debit are used in the clearinghouse system for billing the net-lenders and crediting the net-borrowers. This information is constantly updated and available on the Web, and it is printed out every four months (Figure 4).

Figure 4
Clearinghouse information

Library X — Period:01/01/1997 - 30/04/1997

	pays to			receives from		
library	art	monogr.	obj	art	monogr.	obj
KUL-C	216	0	0	0	0	0
KUL-M	0	0	0	1000	0	0
MESA	0	0	0	832	0	0
RUCA	0	0	0	400	0	0
RUG-B	0	0	0	200	0	0
UCL-S	0	0	0	800	0	0
Ulg-BFM	0	0	0	200	0	0
ULg-V	0	0	0	200	0	0
Tot.Doc.	216	0	0	3632	0	0

	pays for	receives for
Doc.	216	3632
Fax	0	-
Impala	17	-

To receive from Clearinghouse **3.339 BEF**

- Number of ILL requests made to other libraries.
- Number of ILL requests made to other libraries without success.
- Number of ILL requests made to other libraries with success.
- Number of ILL requests received from other libraries.
- Number of ILL requests received from other libraries and not satisfied.
- Number of ILL requests received from other libraries that were satisfied.
- Frequently asked titles.

Each Impala library receives at the end of the year a list of all frequently asked titles, indicating the frequencies of demand (Figure 5). Participating libraries are expected to use this frequency list for the evaluation of their local holdings of journal titles. This information could also be used to limit the number of requests for articles from the same journal title (cf. USA CONTU guidelines for fair dealing in copyright). It is unlikely, however, that fair dealing/fair use is going to survive in the European copyright environment.

Performance indicators

- *fulfilment rate (success ratio)*

Total number of requests minus failed requests divided over books and journal articles, a classical performance measure in interlibrary lending.

The fulfilment ratio of Impala has been quite stable over the past five years for journal articles

Figure 5

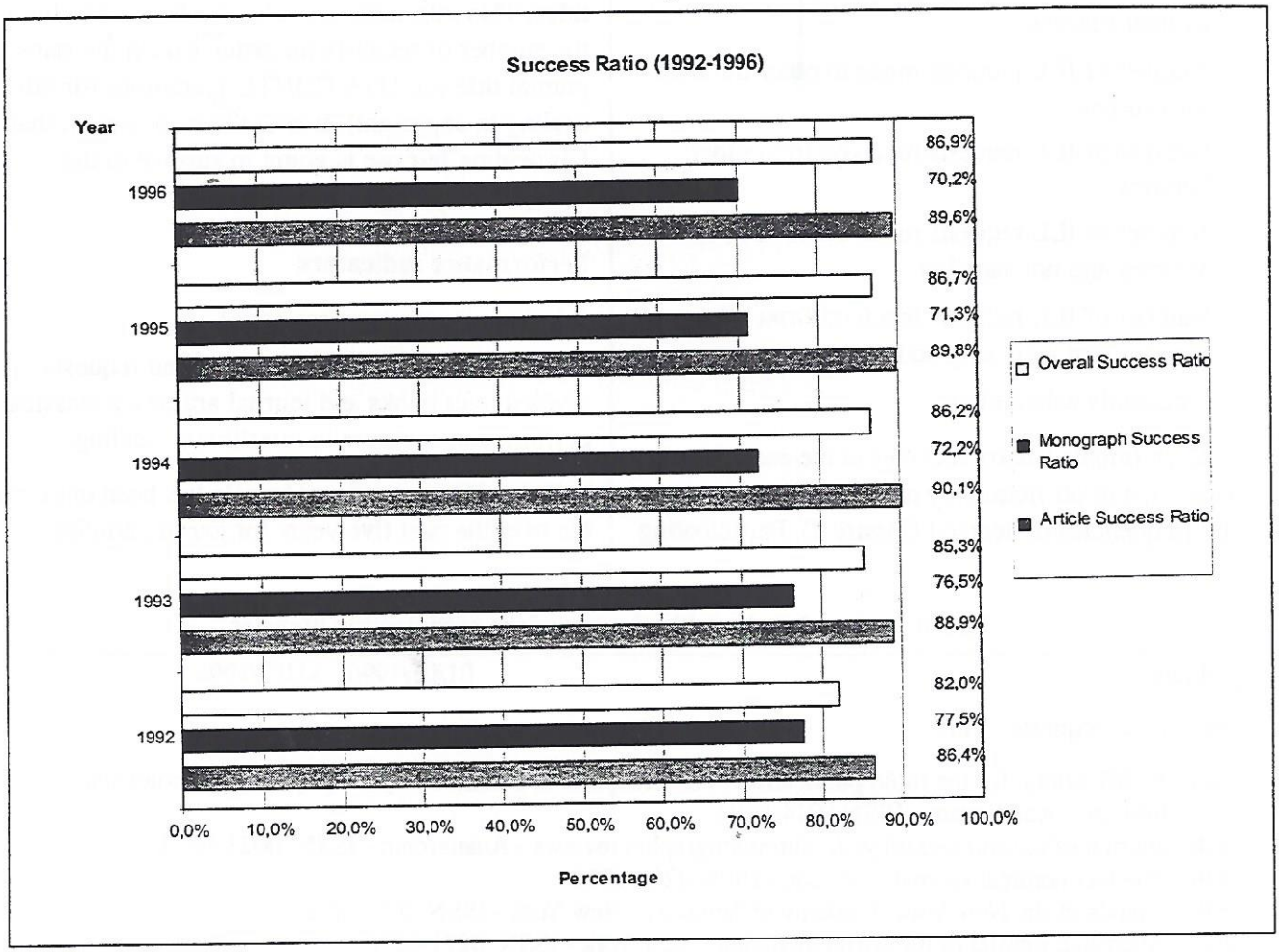
List of frequently asked titles by one of the participating libraries

Library X 01/01/1996 - 31/12/1996

Number of requests - Title

#43 - FEBS letters: for the rapid publication of short reports in biochemistry, biophysics and molecular biology - Amsterdam - ISSN 0014-5793
#40 - Journal of chromatography: A: chromatographic reviews - Amsterdam - ISSN 0021-9673
#39 - The biochemical journal - London - ISSN 0264-6021
#38 - Annals of the New York Academy of Sciences - New York - ISSN 0077-8923
#34 - American journal of industrial medicine - New York - ISSN 0271-3586
#33 - Journal of zoology - London - ISSN 0022-5460
#33 - Analytical biochemistry - New York, N.Y. - ISSN 0003-2697
#33 - Free radical biology and medicine - New York - ISSN 0891-5849
#31 - Copeia - Washington, D.C. - ISSN 0045-8511
#30 - Neuron - Cambridge, Mass. - ISSN 0896-6273
#26 - Journal of neurosurgery - Charlottesville, Va - ISSN 0022-3085
#26 - Brain research - Amsterdam - ISSN 0921-8246
#25 - Journal of neurochemistry - Oxford - ISSN 0022-3042
#24 - American journal of physical anthropology - Philadelphia, Pa - ISSN 0002-9483
#23 - Archives of biochemistry and biophysics - New York, N.Y. - ISSN 0003-9861
#22 - The journal of neuroscience - Baltimore, Md - ISSN 0270-6474
#22 - Neurology - Minneapolis, Minn - ISSN 0028-3878
#22 - Journal of neurology, neurosurgery and psychiatry - London - ISSN 0022-3050
#22 - Journal of experimental biology - London - ISSN 0022-0949
#21 - Praxis des internationalen Privat- und Verfahrensrecht - Bielefeld - ISSN 0720-6585
#20 - The journal of investigative dermatology - Baltimore, Md - ISSN 0022-202X
#20 - Experimental nephrology - ISSN 1018-7782
#19 - Journal of pediatric surgery - New York - ISSN 0022-3468
#19 - Herpetologica - Lawrence, Kans. - ISSN 0018-0831
#18 - Biochimica et biophysica acta: G: general subjects - Amsterdam - ISSN 0304-4165
#18 - Proceedings of the Royal Society of London: B: biological sciences - London - ISSN 0962-8452
#18 - Journal of personality assessment - Burbank - ISSN 0022-3891
#18 - Canadian journal of fisheries and aquatic sciences = Journal canadien des sciences halieutiques et aquatiques - Ottawa - ISSN 0706-652X
#17 - Canadian journal of zoology = Journal canadien de zoologie - Ottawa - ISSN 0008-4301

Figure 6
Fulfilment rate in Impala 1992-1996



(90%), but has been declining steadily for books (1996: 70.2%) (Figure 6). Impala provides aggregates as well as subsets for the group of university libraries, the major foreign document suppliers linked into Impala and the fax suppliers, all this in the quest for a better service to the partners (Figure 7).

Comparing the Impala fulfilment figures with the already mentioned ASIDIC and EUSIDIC studies, one may notice that Impala is doing slightly better in supplying journal titles and is not as good for the supply of books (Figure 8). This is explained mainly by the difference between the document delivery of a section of a book (ASIDIC) and the loan of a book (Impala). Moreover, requests for books were being launched in 1996 without proper checking in the CCB, the Belgian union catalogue for books (CCB, 1997).

- *borrowing-lending ratio*

The co-operative idea still stands for some of the participating libraries (Line, 1997). Some libraries therefore wish to keep an eye on the balance between debit and credit in the interlending activities. This information on the borrowing-lending ratio is split according to the matrix

- type of publication (journal article, monograph)
- source of title information (union catalogue, free request not looked up in a union catalogue, and thirdly uploaded requests from other ILL systems).

Impala supplies this information via the built-in clearinghouse system (see Figure 4).

- *timeliness*

Each supplying library and each requesting library receives ample information on the timeliness of the ILL transactions. The time between sending out the request and the reception of the article or book is automatically split up into four segments:

R-B: received to busy
Impala, being an online system, sends out the requests as soon as a request is keyed into the sys-

Figure 7

Fulfilment rate for books by type of document suppliers 1994-1996

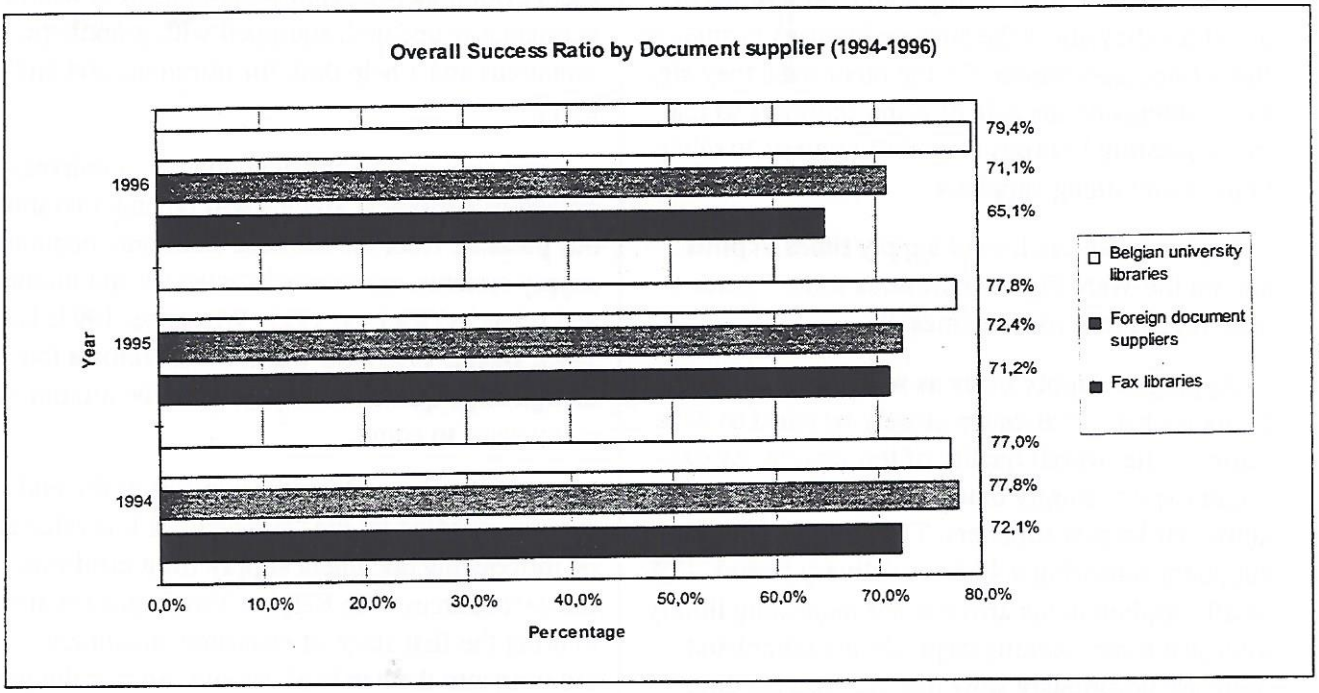


Figure 8

Fulfilment rate Impala compared to USA and Europe

	Books (sections)	Journal articles
ASIDIC (USA)	85.9%	89.5%
EUSIDIC (Europe)	not available	83.6%
Impala (Belgium)	70.2%	89.6%

tem. This is the point R. Point B (busy) indicates the very moment whereby the solicited library is looking at the request for the first time. This is a performance indicator for the way the ILL service is organised in a particular library (alertness).

B-F: busy to fail

Fail is the moment whereby the supplying library states that the item cannot be supplied. The request is then automatically transferred to the next supplier in the sequence or, if the list is exhausted, sent back to the requesting library.

B-S: busy to success

Supplying libraries change the status at the moment the photocopy has been made or the book has been readied for supply.

S-D: success to delivered

The status of a request changes from success to delivered whenever a requesting library acknowledges receipt of the item. This last segment is in fact a conglomerate of three activities. Sending out the requested book or journal article is part of the transaction time in the supplying library. Then comes the carrier that brings the item to the requesting library (postal service, university van delivery system, fax, courier service). And finally there is the delay at the requesting library in unpacking and acknowledgement in the Impala database.

Time is expressed in the system by days or interval of days, whereby weekends and (Belgian) holidays are omitted and whereby a day is reduced to the time between 9 am and 5 pm (the standard working time of library staff).

Most ILL statistics still count turnaround times (supply times) in terms of one week, two weeks etc. Given the fact that timeliness in ILL is of extreme importance, there should be much more emphasis on the results in the first week (24- or 48-hour service) than in the weeks thereafter. Hence the decision by Impala to have a day-by-day analysis for the first five days, followed by segments of five working days for the rest of the month.

These rather unique features of Impala give a real insight into the timeliness of the operations in the solicited libraries. Being split over a series of activities they allow the lending libraries to analyse the service they render. On the other hand they signal problems on the side of some suppliers so that the requesting libraries may shift requests to other better functioning suppliers.

Impala produces lists of supply times in print and on the Web. Figure 9 presents some figures with regard to response times.

Aggregate supply times as well as supply times by individual libraries are closely watched so as to improve the overall quality of the service. As one might expect, supply times are not equally spread across all Impala suppliers. There are excellent suppliers achieving a 48-hour delivery period. 17% of all supplied items arrive at the requesting library after just three working days. On the other hand there are notoriously slow libraries still needing two to three weeks to supply the requested item. With the help of the Impala performance indicators these slow ones can easily be detected and possibly blacklisted, unless no other library can supply the requested title. At least the major Impala suppliers have this clearly understood. Their scores are far better than the overall Impala scores (see Figure 9: all Impala libraries, and Figure 13: major Impala suppliers).

A study has just been launched whereby the way of dispatching the items is being investigated (post, university van delivery system, fax). This study will give information on the cost effectiveness of the various methods of transferring the item to the requesting library.

THE FUTURE OF IMPALA

By the end of 1997 the Impala system will be posted on the Web and will be linkable to local user-centred document ordering and delivery systems. The new WWW-oriented software will have built-in mechanisms both for non-mediated and mediated use. Performance measures and indicators will be permanently updated, equipped with graphic presentations and a help desk for librarians and end users.

From now on any classical document delivery system of periodical articles will be under continuous pressure from the full-text electronic document supply systems, especially in sciences and biomedical sciences (Kleiner, 1997; Willemse, 1993; Line, 1995; Baker, 1995). So will it be for Impala too, though large quantities of paper will be around for many years to come.

Impala has to work on the comfort of the end user by speeding up the "classical" ILL service and by introducing document supply from electronic full-text sources. The Belgian VirLib project aims to bring the first stage of electronic document ordering into the hands of the end users in the participating libraries (University of Antwerp, Université libre de Bruxelles and the Royal Library) (VirLib, 1997). The end user after proper authorisation and (electronic) authentication will be able to consult the online union catalogues: Antilope (periodicals) and CCB (monographs in Belgian libraries), and a journal contents database: SwetScan being linked with Antilope. Increasingly locators on the Web (URLs) of the full-text version will have to be supplied as well.

Using this documentary chain some experienced academic users properly logged into the account server may get direct access to electronic full-text documents, thus avoiding any time consuming and delaying control by librarians. Traditional photocopy requests, however, will be stopped for proper checking by librarians.

VirLib also wants to reduce the time span between ordering and actual delivery to the user by supplying electronic versions, either full-text elec-

Figure 9
Response times for all Impala libraries

	1994	1995	1996
Busy to fail =< 2 days	38%	36%	36%
Busy to success =< 2 days	41%	45%	56%
Success to delivered =< 5 days	31%	25%	30%
Success to delivered =< 10 days	67%	61%	67%

Figure 10

Status change to fail: all Impala libraries

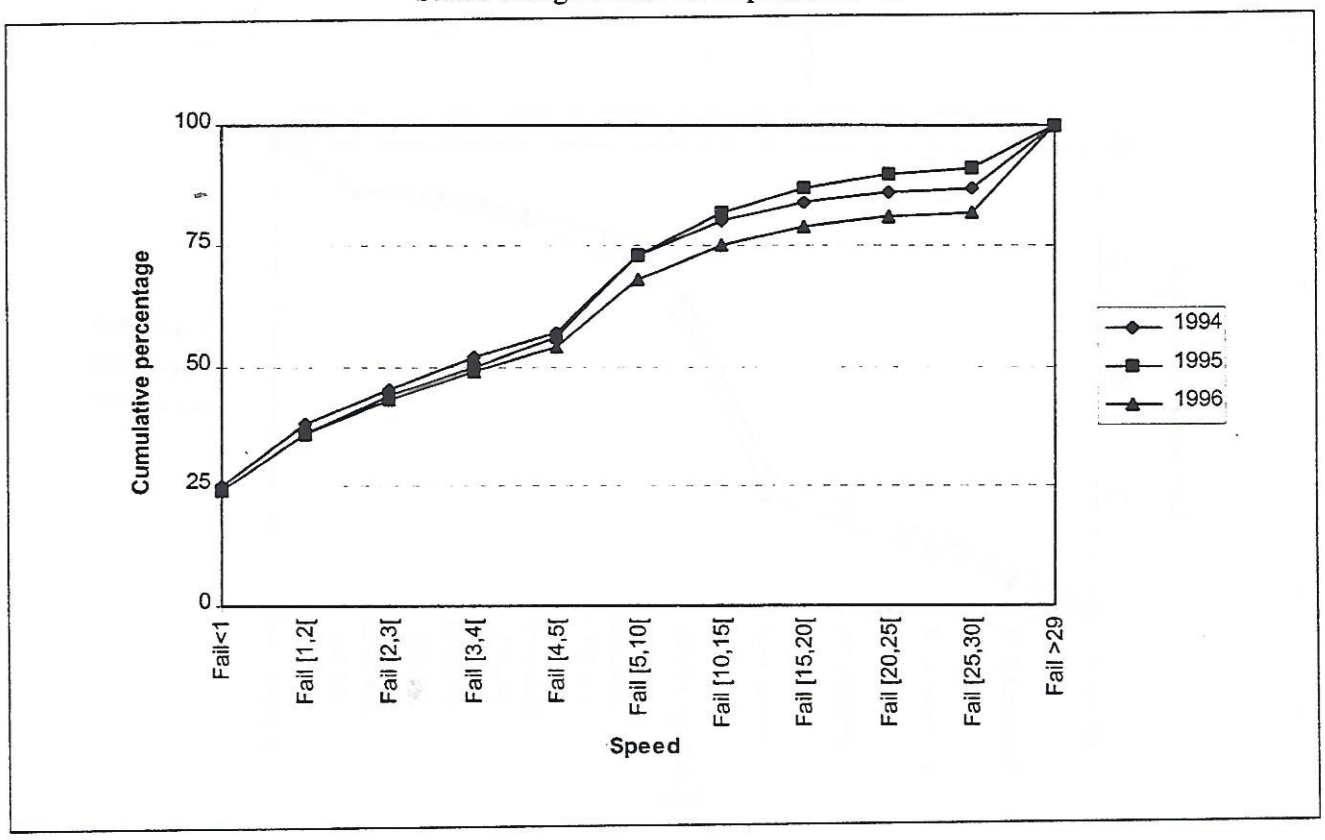


Figure 11

Status change to success: all Impala libraries

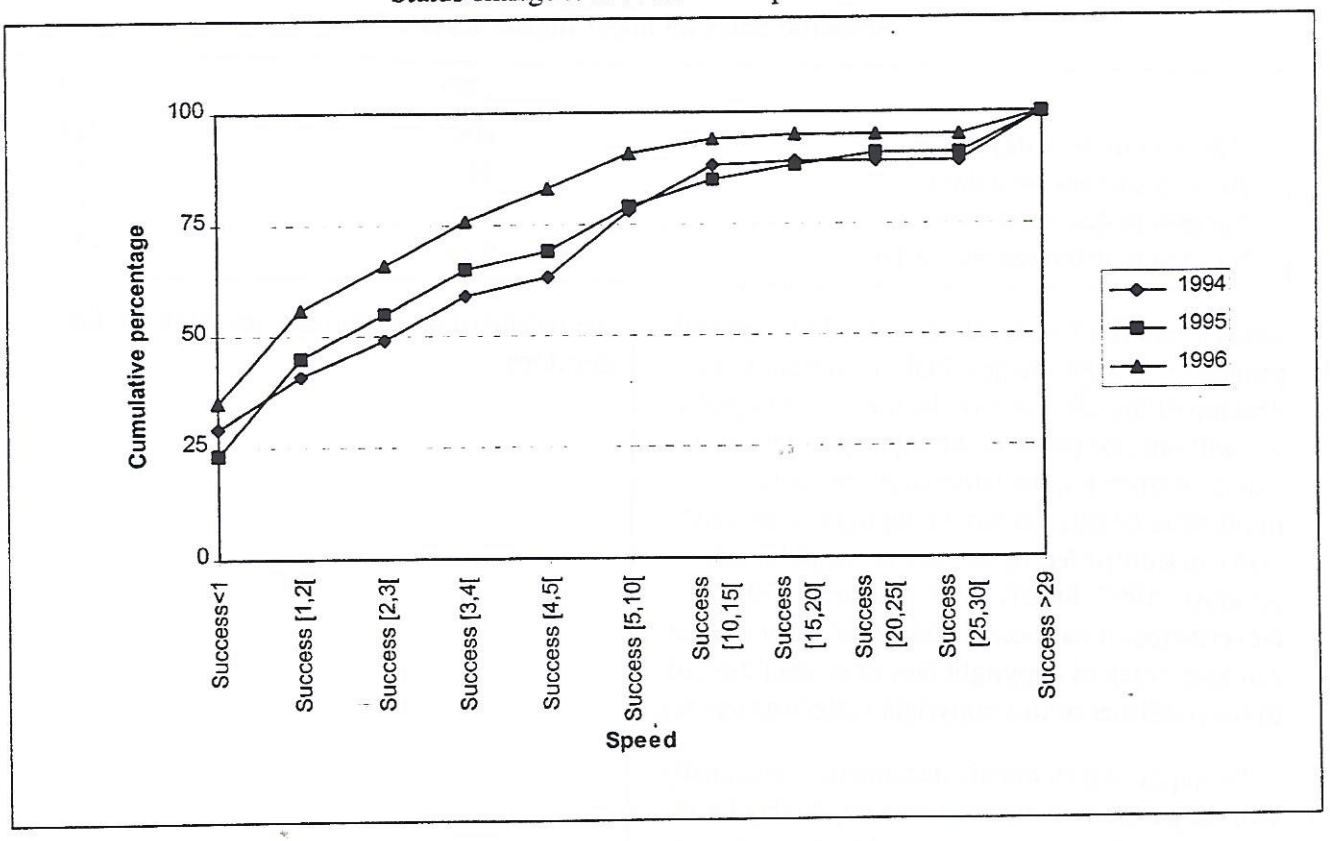


Figure 12
Status change to delivered: all Impala libraries

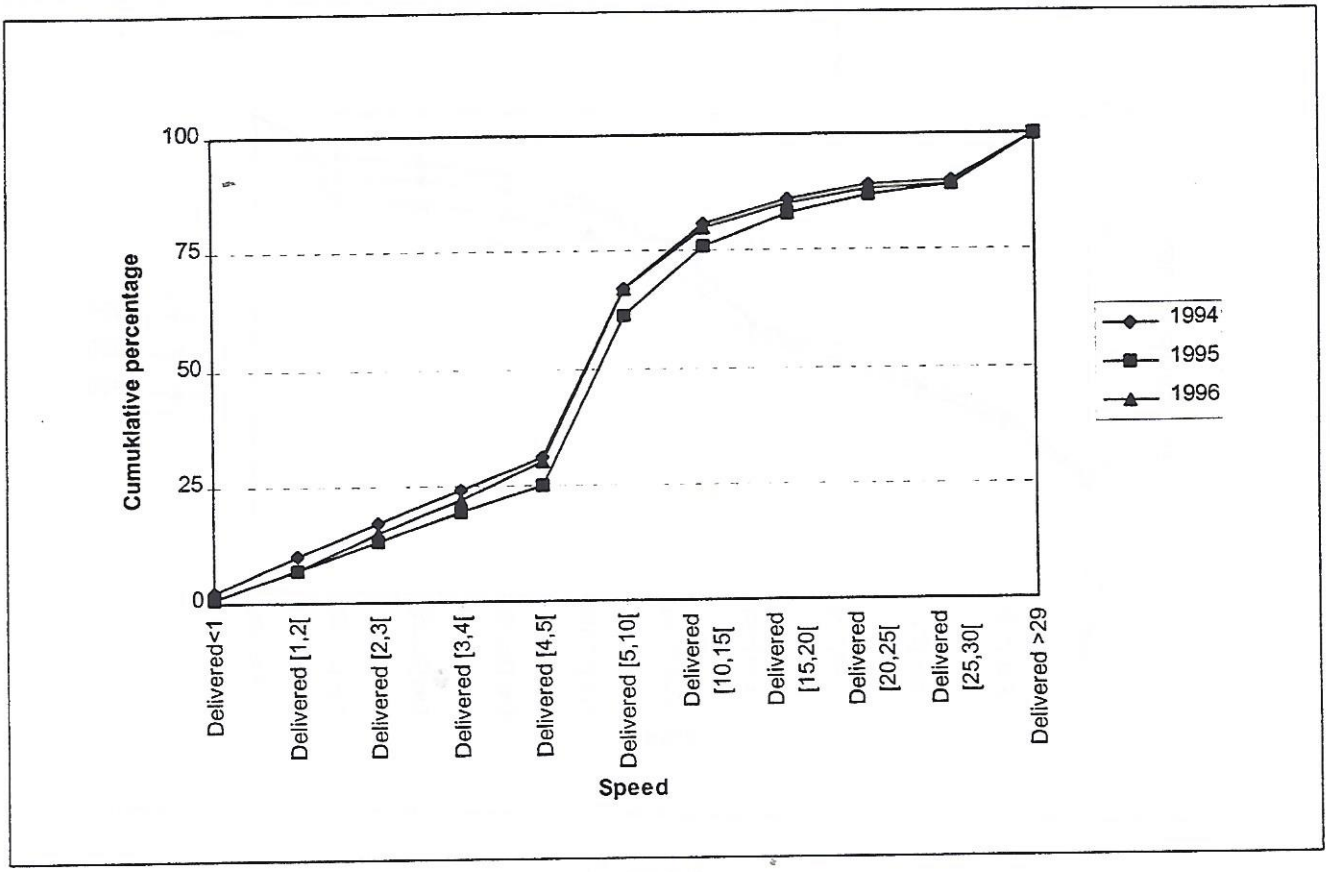


Figure 13
Response times for major Impala suppliers

	1995	1996
Busy to fail =< 2 days	80%	81%
Busy to success =< 2 days	75%	78%
Success to delivered =< 5 days	83%	85%
Success to delivered =< 10 days	91%	92%

tronic versions or scanned versions of the original printed text (TIFF images, PDF files) right to the desktop of the user. Where the former most probably will only be possible through a properly established consortium, the latter might be totally impossible because of strict copyright rules, especially in Europe fed by the anxiety of publishers (Cornish, 1997; ECUP, 1997; Giavarra, 1997). Nevertheless it has been demonstrated that Impala can keep track of copyright fees to be paid directly to the publisher or to a copyright collecting agency.

By supplying electronic documents it eventually will be possible to measure on a day to day basis the real supply times experienced by the end users from the very moment of ordering the document to the receipt of the electronic document on their desktops.

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CONFERENCE REVIEW

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CONFERENCE REVIEW

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Although this paper is entitled "Conference Review", it is not my intention to give you a blow-by-blow account of each one of the 48 contributions we have heard during the Conference. Instead I want to try to extract and re-present what I think lies behind much of the research presented at the Conference and which informed many of the questions and discussions both in formal sessions and in more informal meetings.

I was challenged to do this by a comment made by Nancy Van House at the 1st Performance Measurement Conference here at Longhirst, when she suggested that the reason that performance measurement is important and worth spending so much time and energy on is that it helps us "to construct sense in an ongoing reconstruction within our libraries and within the larger organisation" (Van House, 1995). I was further challenged by a review of the Proceedings of that first Conference which contained the criticism of that event that it demonstrated "a strong sense of *status quo* characterizing the field rather than renewal and flow of new ideas" (Thomas, 1997). Even if we were to accept that criticism of the first Conference, I think we can refute it of this event, and I want to use this opportunity to try to demonstrate why I believe that to be the case.

The first evidence is provided by the excellent and thought provoking framework which Rowena Cullen gave us in her keynote address. She described her presentation as "a post-modern, relativistic analysis" providing "a multidimensional conceptual framework" - not, I may comment, the sort of language we are used to at these Conferences! She challenged us that during the Conference we should ask ourselves some fundamental questions, remembering always that the library is a social construct and meaningful only within its social context. There was emphasis in her paper, and this was reflected in later contributions also, on the measurement of outcomes, on asking ourselves what effect our service has on our users, rather than on simply measuring what is measurable. Again and again in this Conference we have been challenged to ask ourselves *what* we are measuring and *why*. Very often the answers have shifted us towards a greater concern with outcomes and a renewed concern for user satisfaction. But they have also provided a focus on just what these things we call "libraries" really are. The outward focus on impacts has been balanced by a very necessary reappraisal of our fundamental purpose: performance measurement forces us to ask the question "what are libraries for?".

In preparing my review of this Conference I was very aware that the benefits of participation have come from the discussions outside the formal sessions as well as the papers themselves. This was reinforced for me by a conversation I had with Rowena Cullen at the formal dinner. Despite her post-modern approach, Rowena is at heart a structuralist! We found ourselves arguing about what if anything is at the core of information management. I tried to argue that to a post-modernist information management need have no core, that it is an ever-shifting amalgam of ideas, theories and practices, often borrowed from elsewhere, swirling around a concept of information as a common good but never quite settling on an agreed conceptual framework. The post-industrial, post-modern, information society is characterised by constant change in which hard conceptual frameworks have no place.

My heart wasn't really in the argument. One of the themes which lies beneath the surface of much of the discussion of this Conference is that when we are forced to answer the questions "What are

we measuring?" and "Why?" we find ourselves searching for that core concept on which our services are built. My tentative conclusion is that the nearest we can come to an answer is to focus on that old triad of

Data **Information** **Knowledge**

but to take it beyond a static statement, and to lay to rest that familiar yet tired quotation from T. S. Eliot, by recognising that at the core of information management there is a dynamic. Information management deals with the transformation

Data *becomes* **Information** *which becomes* **Knowledge**

but it also deals with the reverse transformation

Knowledge *becomes* **Information** *which becomes* **Data**

Many of our concerns with user satisfaction and outcomes can best be understood as concerns with that outward transformation as data becomes information and information becomes knowledge. But there is also an inward transformation: the much neglected art of cataloguing is being reinvented by the geographers of cyberspace and renamed "metadata" as knowledge is captured as information and information is stored as data in the electronic environment - except that they don't really know how to do it!

Joe Hendry, in his after-dinner speech, reminded us that the transformations of *data to information to knowledge* and of *knowledge to information to data* are **social** processes. What is more the transformation of *data to information to knowledge* does not just transform some **thing**, but inextricably and fundamentally transforms individuals. In other words our core concern is with changing people's lives - usually in small ways but sometimes quite fundamentally.

Now before I get too carried away in a philosophical or even theological discourse on the power of the *data to information to knowledge* transformation, let me relate this back to performance measurement. What our discussions on performance measurement have been doing is to force us to focus on impacts - that word has been used again and again. But concern with impacts, when coupled with an acceptance that those impacts operate within a personal and social context, implies a very high understanding of the role of the library. There is no getting away from the fact that if we are serious about impacts then it is the transformation of individuals that we are seeking to measure. Whether it is the child transformed in very subtle ways by borrowing *Cinderella* from the public library, or the research team whose work hits the "Eureka" moment as they compare their results with those published by others working at the other side of the world, or the surgeon who changes the procedure he is using in an operation after reading a paper on mortality rates, impact is only meaningful in the transformation it engenders in people.

But let us not lose sight, also, of the other side of the coin. As a profession we are also concerned with the transformation *knowledge to information to data*. In the past, librarians have played a relatively minor role, concentrating on collection building and cataloguing rather than publishing itself - the process whereby individuals' knowledge is transformed into information and stored as data. Yet one of the intriguing things about the networked information society is that publication has become an almost trivial process. Unfortunately it is generally assumed that data is not only a free good but also has self-organising properties, so that the existence of the World Wide Web is thought to equate with the realisation of the global library. What is missing, of course, is the expertise to organise information and data, and the will to make suitable arrangements for long-term storage.

There is a danger that in our passionate concern for impacts we might lose sight of our responsibilities for the opposite transformation, the capture and making accessible of knowledge. That is why I think it is right for some of our speakers to remind us of the importance of measuring collec-

tions - whether printed or electronic, and why it is right for us to think deeply about the enduring importance of the library as a storehouse of knowledge. As Wilfrid Lancaster has just reminded us, the nature of library collections is changing: "items in collections, once considered discrete packages of information, are developing fuzzy boundaries . . . documents can now be dynamic and interactive in nature". The expertise of librarians in organising information is vital, and performance measurement needs to reflect this responsibility: alongside impacts, we need measures of the range and depth of resources offered, of the accuracy and ease of use of metadata, and catalogue, systems and of our achievements in preserving the knowledge of our own time for the benefit of future generations.

I do not have time to review in detail the ways in which the papers we have heard have addressed these issues, but in response to that rather unfavourable review of the last occasion I think we can claim to be looking forward. We have heard of work going on to tease out the performance of the traditional library, of the electronic library, of the "hybrid" - traditional **and** electronic - library, and of those who would take us beyond libraries into as yet uncharted waters. However, if those issues lie at the heart of our discussions, I found one other theme emerging during the Conference which deserves our careful attention. A number of speakers reported on and urged us to undertake further work on the benchmarking of our services, not just by comparing ourselves with one another but by looking outwards to other services, especially those in the not-for-profit sector. Let me recount to you an anecdote told by Charles Handy in one of his recent books:

> "'Help us to be better', a firm's management said to me once. They were not even clear about which areas they wanted to be better in. 'I cannot help you', I replied. 'But you will know some people who can. Think of the different organizations you have met whom you admire for some aspect of their work. Go to them, ask them if you can study their methods . . . then come back and apply them to your business.'
>
> "They went, they saw and they learnt - but not what they expected. They learnt no new techniques or pieces of electronic wizardry, but discovered instead that some firms expected failure rates up to 100 times better than theirs or had absenteeism levels ten times lower and, in one comparable case, new product development times five times shorter. Standards were different, that is all."

Handy continued: "This form of organized learning has recently acquired a label - benchmarking, the discipline of measuring yourself against best practice in any function or field, often in industries very different from your own. The label, however, reduces to a technique what surely ought to be an ingrained habit - to aim to be not just good enough but as good as can be, to look beyond oneself in setting standards for oneself, to shun complacency and the false comforts of talking only to people like oneself" (Handy, 1995).

That sentiment could provide both an accolade and a warning to us as we conclude our Conference. There have been many opportunities during the last few days to exchange experience with colleagues from many very different backgrounds and cultures. I congratulate the organisers on attracting so many visitors from across the world to this Conference, and I congratulate the speakers for the excellent and challenging papers we have heard. I congratulate the delegates for the open, friendly but at the same time inquisitive discussions that have taken place in the meeting rooms and corridors, over breakfast, lunch and dinner, and even on the woodland walks. But I also leave you with that challenge from Charles Handy. Let's look beyond our discussions and experiences to those examples of excellence we can find elsewhere. The aim of performance measurement is not, ultimately, to measure performance: it is, as the title of Rowena Cullen's keynote address put it, to

improve organisational effectiveness, to make us better at achieving our objectives and ultimately to make a difference to the customers we serve.

Let me end with a quotation, or almost a quotation, from the recent report on higher education in the UK, the Dearing Report (National, 1997). I have replaced the word "education" with the word "library":

"The purpose of libraries is life-enhancing: they contribute to the whole quality of life. This recognition of the purpose of libraries in the development of our people, our society and our economy is central to our vision . . . So, to be a successful nation in a competitive world, and to maintain a cohesive society and a rich culture, we must invest in libraries to develop our greatest resource, our people."

Well, we can dream!

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The **Conference** was opened by Professor Kenneth McConkey, Dean, Faculty of Arts and Design, University of Northumbria at Newcastle.

Conference Sessions were chaired by Ian Winkworth, Roswitha Poll, Dick Hartley; Lawraine Wood; and Professor Joan Day, Pat Dixon, Sandra Parker, Margaret Graham, Linda Banwell, Margaret Watson and Catherine Hare of the Department of Information and Library Management, University of Northumbria at Newcastle.

The **Conference Dinner** was hosted by Professor Joan Day, Head, Department of Information and Library Management, University of Northumbria at Newcastle. The after-dinner speaker was Joe Hendry, President of the Library Association, County Heritage Services Officer, Cumbria.

The **Sherry Reception** was provided by the Library Association Northern Branch and hosted by its Chair Margaret Watson.

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