

**Harmonising the process of procuring library management systems: a feasibility study**

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## **Abstract**

A new library management system is a significant investment for libraries, but the procurement of a system is, for most organisations, an infrequent activity with little opportunity for librarians to build on or consolidate their experience. Problems encountered by librarians in producing a specification are compounded by new developments in technology. The process of specifying the operational requirements of a system can be problematic, time consuming and expensive for a library. There is no standard guidance available on the format and content of the specification. The procurement process is also difficult for potential system suppliers who, in order to sell a system, must respond to specifications which are very variable in terms of content, format and quality. The aim of this research, therefore, was to determine the feasibility of developing and disseminating a model system specification which could be used to assist and guide libraries in the procurement of library management systems. Forty-one specifications, collected from libraries which had recently acquired a library management system, were analysed. The results demonstrate that the specifications included the same broad categories of information and requirements, with the majority specifying requirements for all or most of the core modules (Cataloguing, Acquisitions, Circulation, Serials). The functional requirements specified for each of the core modules had strong similarities both within and across the sectors (public, academic, special). Some 'additional' (i.e. non-core) features were required within the sectors. There was wide variation both between and within sectors in the format, organisation, level of detail and terminology used in the specifications. A survey of UK system suppliers was also undertaken to determine the collective view of suppliers on the role, content, quality and usefulness of the specification as a procurement tool. Suppliers expressed frustration with the tendency for specifications produced by librarians to be dominated by lists of functional requirements which were present in all library management systems on the market today. The Report concludes with recommendations for the development of a plain English guide to new technological developments and their implications for libraries, the development of an annual short course for middle managers currently involved in procurement, and the development of a toolkit of basic functions which can be expected in all library management systems. A recommendation for further research on common requirements for computer based management of resources in libraries is also made.

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## 1. Introduction

Computerised library management systems have long provided the essential infrastructure for the delivery to customers of the services they use most frequently – registration, OPAC, issue & return of material, inter-library loans, serials and acquisitions. Consequently, the process of acquiring or replacing a system is a key professional activity to ensure appropriate functionality, accuracy in processing and ease of use. A business analysis of the library systems market undertaken by KPMG (1994) revealed, however, that the procurement of a library management system was a problematic process for both the purchasing library and the library system suppliers. Whilst librarians were critical of the lack of technologically advanced systems available, suppliers accused them of not really knowing what they wanted and of demanding new technology for its own sake.

There is substantial evidence that the specification has long been regarded as a 'critical document' (Myhill, 2000) in the process of procuring a library management system. This consistent view can be traced historically in the literature since the early days of library automation to the present day (e.g Myhill, 2000; Stowe, 1999; Lilley, 1996; Glogoff, 1994; Clayton & Batt, 1992; Rowley, 1989, Nicholson, 1987). A 'specification', termed variously as a statement of operational requirements (OR), Request for Proposal (RfP), or Invitation to Tender (ITT) is a specification of systems requirements for a library or other computer-based information system, drawn up by, or on behalf of, the purchasing organisation. The specification is sent to potential system suppliers who reply with a proposal. The proposals are then used as a basis for selection. The UK Government's Central Unit on Procurement (CUP) has described the specification as 'a statement of needs to be satisfied by the procurement of external resources. It defines what the purchaser wishes to buy and, consequently, what the supplier is expected to provide. ...Preparing a specification should thus be seen as a key part of the procurement planning process. A good specification also ensures that you observe the principle of open and effective competition which is a requirement of all procurement activities' (H.M. Treasury, 1991, para. 3.O.1).

The specification of the operational requirements for a system can be a problematic, time consuming and expensive process for a library. There is no standard guidance available on the format and content of the specification. Many libraries employ independent consultants to undertake the production of a specification of systems requirements (Muirhead, 1997). Buying a library management system can be a significant investment for libraries, but the procurement of a system is, for most organisations, an infrequent activity with little opportunity for librarians to build on or consolidate their experience. Problems encountered by librarians in producing a specification are compounded by new developments in library systems. The procurement process is also difficult for potential system suppliers who, in order to sell a system, must respond to specifications which are very variable in terms of content, format and quality .

In this context, it is surprising that few moves have been made towards providing the library community with a standard, template or toolkit for specifying basic functional requirements of a library system. A directory of library systems which incorporated a summary checklist of functions was first produced in 1989 and updated in 1995 by Leeves and Russell. In the absence of any other form of guidance, the checklist provided a key source of information for the library manager embarking on a system procurement programme. The directory and checklist have not been updated since 1995 and there are no plans to do so. There have been numerous advances in technology since 1995. Raven (2000) has highlighted problems facing the key players in the procurement process in commenting that 'if companies are running fast to keep up with what clients need, some potential customers must be finding it hard to keep track of what is being provided' (p.32). Akeroyd (1999) contends however that the

library management system is becoming marginalised in the context of ICT developments currently taking place within the library sector because suppliers have failed to keep up with such developments, or have been more concerned with keeping up with the changes in the core functions.

The aim of this research, therefore, was to determine the feasibility of developing and disseminating a model system specification which could be used to assist and guide libraries in the procurement of library management systems. The premise was that if a core set of requirements for library management systems, as articulated by purchasing libraries, could be identified, it followed that it would be feasible to develop a model specification or 'toolkit' on which procuring libraries could draw. Identification of a potential core set of requirements could be identified primarily by undertaking analyses of specifications produced by libraries for the tendering process in acquiring a library management system. Thus forty-one specifications were collected from libraries which had recently acquired a library management system, and these were subjected to various levels of analysis. The results are reported in Section 4.

Secondly, it was decided that as library system suppliers were in receipt of large numbers of specifications produced by procuring library authorities they were in a strong position to comment on the feasibility, and desirability, of developing a model specification. Thus, a survey of UK system suppliers was undertaken to determine the collective view of suppliers on the role, content, quality and usefulness of the specification as a procurement tool. The results of the survey are reported in Section 5.

A detailed account of the methods used in this Study is provided in Section 3.

The next section (Section 2) provides a review of the literature on the role and content of specifications, and identifies weaknesses in approaches to producing specifications for the purchase of library systems.

## **2. Background and context**

### **2.1 Introduction**

This section examines the literature on the use of the specification in the process of procuring library management systems. The role of the specification, its contents and approaches to writing the specification are discussed in the first part. In the second part, weaknesses to these arguments are examined. The section concludes with a brief discussion of related developments in museum, archives and records management domains.

### **2.2 Role of the specification**

Rowley (1994) has described the library system specification as having 3 fundamental roles:

- as a communication document to aid in communication with staff, communication with system suppliers, communication among the project team as a basis for discussion, development and crystallisation of ideas, and for management approval and decision-making
- as a reference document for the project team during evaluation, implementation and subsequent maintenance and review
- as a legal document as part of the contract with the supplier (p.28).

There is evidence that some libraries have indeed dispensed with the functional specification in acquiring a library system. In Murray's (1997) study to assess the effects of new generation library systems, only 5 out of 10 in his sample of libraries used a specification to negotiate with suppliers, and 2 of these specifications were based on outcomes rather than requirements.

Lilley (1996), however, has cautioned against dispensing with specifications in the library system procurement process in that 'more care is needed than often apparent when buying packaged software. The same system complexity is present but the fact that it is a product rather than a bespoke system can lull the buyer into a false sense of security. So called proven packages that may be satisfactory for other organisations may be unsuitable for yours' (p.16). The Central Unit on Purchasing has cautioned prospective purchasers in UK Government departments not to wait for the results of a market survey before writing a specification, but to define requirements before approaching suppliers, advising that 'if you approach industry too early in the process you run the risk of deciding the solution to the problem before it is fully defined' (H.M. Treasury, 1991, para. 5.0.3).

The need to design the specification with great care and with substantial reference to colleagues who will use the new system is frequently emphasised by practitioners who are experienced in the process library automation, including the migration to subsequent systems. Lilley (1996) summarises the process of producing an RfP as serving as a mandate to articulate the library's vision for what it needs in a system; serving as an educational process for library staff to learn about available technologies in the marketplace; allowing staff to participate in selection process; bringing together diverse needs in large library settings; serving political demands (staff input); ultimately, the vendor's response is incorporated into the contract to provide an understanding of what they promised to deliver. Similarly, Clayton and Batt (1992) have commented that the OR document should be compiled to the highest standard because it sharpens the library's perception of its needs, ensures that potential suppliers are in no doubt about the library's needs, facilitates the evaluation stage and facilitates the inclusion of a clear statement of requirements in the final contract. Glogoff (1994) has suggested using the RfP to test how forward looking vendors are.

CUP Guidance (H.M. Treasury, 1991) states that a good specification should state the requirements clearly, concisely, logically and unambiguously. It should contain enough information for potential suppliers to decide and cost the goods or services they will offer; permit offered goods or services to be evaluated against defined criteria by examination, trial, test or documentation; state the criteria for acceptance of supplies by examination, trial, test or documentation; contain only the essential features or characteristics of the requirement; provide equal opportunity for all potential suppliers to offer a product or service which satisfies the needs of the user and which may incorporate alternative technical solutions; and comply with any legal obligations e.g. under UK law, the EEC Treaty, an EC Directive or the GATT Agreement on Government Procurement'. The CUP guidelines also state that the specification 'should not over-specify requirements, or contain features that directly or indirectly discriminate in favour of, or against, any supplier, product, process or source (H.M. Treasury, para. 4.0.2).

Myhill (2000) warns that the degree of detail must be sufficient to avoid ambiguity but not so much that the potential vendor is tied to an over-defined set of instructions, echoing the CUP's view that 'a specification should be sufficiently tight so that the product or service fits the user's needs but not so explicit that it prevents negotiation and discourages the supplier from using expertise to propose innovative solutions and offer better value for money.' (3.0.1).

### **2.3 Content of specifications**

Numerous writers on library automation (eg. Nicholson, 1987; Rowley, 1989; Clayton and Batt, 1992; Stowe, 1999; Boss (1990); Wilkinson & Thorson (1995) have articulated their views on the content of specifications. Broad consensus on the elements which should or may be present in a specification includes:

- Functional requirements, including mandatory and desirable system functions
- Hardware & software platforms
- Networking requirements
- Response times required
- Requirements for support and training
- Technical documentation and user manuals
- Timescale for implementation
- Timetable for the evaluation process
- Contract conditions
- User satisfaction with vendor/software
- Vendor vision
- Supplier finances and company stability
- Instructions to Suppliers on how to respond in their Proposals
- Evaluation criteria (prioritised), and evaluation procedures
- Library vision statement
- The library context/environment
- Library statistics

In the KPMG survey (1994) it was found that functionality was the most important reason for selecting a library system. In 1998, Chris Smith of Inheritance Systems defined the criteria which customers use when choosing a system as 'functionality, aftercare and design – and in that order' (Duncan, 1998, p.34). Akeroyd (1999) has

suggested that there is an increasing need for the library system developers to provide even more enhanced functionality, and perhaps more importantly, to interface to other systems in order to keep pace. Raven (2000) noted that functionality is now becoming more complex, with the emergence of cross-platform products, expanded graphical client-server capabilities, desktop applications, intranet/web applications, support for distance education, digital collection management, Java, XML, Unicode – Web-based support for EDI, z39.50 to client & server, telephone notification systems, full-text, images, document delivery; windows & web applications.

Functional requirements generally constitute the main body of library systems specifications. It was recognised in the KPMG Study (1994) that many of the basic functions required by libraries were supported by the library systems available on the market and the need for the development of a model library system specification was identified. Leeves and Russell (1995) provided a useful checklist of functions in their directory of library systems but there has been no subsequent update.

#### **2.4 Approaches to determining requirements**

A strong advocate of the use of systems analysis and design techniques, Rowley (1994) has proposed a systems methodology for the implementation of library management systems. Rowley's methodology for systems development in libraries involves 5 key stages:

- Definition of objectives
- Specification of requirements
- Systems selection
- Systems implementation
- Systems evaluation

Characteristics of systems methodologies that might be reflected in any approach for the introduction of library & information systems include 'heavy reliance on the systems specification. This is drafted early in the project and is revised as more insight into requirements and constraints is gathered' (p.42).

It is a daunting prospect for librarians who are embarking on the production of a specification towards the procurement of a system and there is an understandable tendency to seek assistance from outside sources. Leeves and Russell's (1995) directory (or 'buyer's guide') although now dated, has been one such source, providing a detailed checklist of functions which may be required in a system, or could be found in current systems on the market and included a description of systems available from 25 UK suppliers. The descriptions covered standard features such as catalogue, OPAC, Acquisitions, Circulation, Serials, ILL and other 'value-added' features were noted (eg records management, e-mail, access to CD-ROM, EDI).

It is also common practice, however, for librarians embarking on the process of writing a specification for a new library management system to 'borrow' recent specifications from other libraries which have recently acquired a new system through the specification process. There is a thriving network among libraries for the exchange of specifications, and the use of another library's specification in the production of one's own is positively encouraged (e.g. Stowe, 1999). In the USA a library's specification may be mounted on its website. The site 'Integrated Library System Reports' (URL: <http://www.ilsr.com/>) includes links to a number of these. Public dissemination of specifications is not common practice in the UK – they are exchanged on a more informal basis and some libraries in the past have been known to charge for them (Nicholson, 1987). Stowe (1999) has noted that the use of another library's specification in drafting one's own has significant advantages in that

'there's no reason to reinvent the wheel when our colleagues who have gone through this process have expertise to share and are happy to do so. While many RfPs deviate in the boilerplate areas of the document based on the requirements of the institution, the core is made up of functional specifications' (p.60). Stowe's team 'quickly mined these documents for their gold'. (p.61)

## **2.5 Weaknesses of specifications**

Heseltine (1989), a former supplier's representative, criticised the specification as a basis for library procurement in that even though the specification plays a major part in the long and difficult process of buying and selling library systems, many specifications continued to be written as if they were intended as design documents. Heseltine's view was that specifications fail as written documents to acknowledge that little or nothing changes directly in a system as a result of a specification in that 'specifications are normally intended to describe in exact terms a product which is going to be developed or built. It is assumed that a productive process of some kind will take place as a means of meeting the specification. In the library automation industry this is not the case' (p.50), and concluded that specifications are 'largely a waste of effort' (p.52). This sentiment was also echoed by Wanniger (1990) who stated that the RfP process was 'a wicked waste of time and money' (p.87) and that libraries should acquire automated systems the same way general consumers go about purchasing any expensive item such as a new car.

Ten years after Heseltine's controversial statement, another supplier's representative (Grant, 1999) again questioned the role of the specification in the procurement noting that 'the questions asked in the RfP do not vary substantially from the RfPs that were received ten years ago....Frequently the questions go into massive detail on functionality that has long since been perfected by any vendor with any significant market experience. As vendors we will ask ourselves the question 'Why do we have to keep answering these questions? – There has to be a better way' (Grant, 1999. p. 303).

Heseltine (1989) has advocated that the content of the library system specification should not be rooted in system requirements, but in finding out what systems can do.

'Instead of a series of prescriptive statements (the system must do A,B,C), there should be a series of questions (How does the system deal with the following practical situation?) If prescriptive statements are included, they must only say what the system must do, not how. The specification should operate as an information-gathering document for more than the functionality of the applications software. Areas such a system performance, system expansion paths, customer services, development strategy – all these aspects are still under-represented in the documents sent to suppliers. ...yet these are perhaps more vital than functionality....When a library is choosing a system , it is also choosing a system supplier and needs to challenge suppliers to provide as much information about themselves, their services and their plans as possible' (p.52).

A long held view by some system suppliers has been that elaborate system analysis and design methodologies which in any event libraries have no time to apply, have no place in the system evaluation process. Heseltine (1989) identified 3 fundamental flaws in conventional library system specifications:

1. Design oriented specifications are not well-adapted to eliciting full and accurate information from suppliers.

They make statements but do not ask questions. The supplier confronts a series of design requirements which in the nature of things he must appear as far as possible to meet. At worst this encourages ambiguity, evasion and a certain economy with the truth. (p.51)

2. There may be a poor match between the design assumptions on which the specification is based and the fundamental designs of the systems under evaluation
3. Conventional specifications express requirements in system terms. They speak the language of the system itself stating what must be provided in order to meet generally unstated real-world situations and needs.

Heseltine concluded that 'little or nothing changes directly in a system as a result of a specification. The systems do what they do. All elements of prescription, all design statements should be ruthlessly eliminated' (p.51).

The dangers of utilising another library's specification in drafting a library's own have also been highlighted. Glogoff (1994) noted that if the RfP is virtually a carbon copy of another library's it sends a few messages, mainly being that the library hasn't invested time and effort to address local issues properly and that the librarians are not comfortable with technology. Boss (1990) has advised that the safest use of another library's RfP (or specification) is to follow structure of document & use as a guide in determining general areas to be covered.

Previous research has identified several problem areas encountered in drawing up the specification. In Dover's (1991) survey of 95 public library authorities it was found that problems experienced were not necessarily alleviated by previous experience of automation. Dover identified two reasons for this:

- (a) the expansion of a system to cover new functions, the upgrading of a system to a higher level of sophistication, or the nature of technological advances, may mean staff encounter new situations, and
- (b) the turnover of staff may outrun the turnover of technology, leaving libraries without staff with experience.'

Rowley (1989) found a preponderance of vague statements and a lack of clarity in her analysis of a sample of specifications. Key omissions noted included any references to the user interface and system ergonomics. The series of verbal statement which characterised the specifications were usually supported by some appropriate statistics on the library service, which Rowley commented, were 'useful for checking off points that are covered..but are no safeguard to ensure that some requirements are not overlooked.

Stowe's (1999) detailed personal account of a system procurement noted that the challenge in compiling the document with a large number of writers and sections was to eliminate redundancy. For example, each module had many of the same searching requirements but there were specialised requirements for certain areas.

'Rather than repeat the same requirements in multiple sections of the document, we ultimately detailed them in the online public catalogue section and outlined specialised needs only in the other sections. This is illustrated in the locally mounted databases section: *'Access to other types of databases must be fully integrated with the OPAC. Search retrieval and output capabilities must be the same as those described for the OPAC, or at the option of the user, search engines native to the database can be used'*. Meshing our criteria and co-ordinating these cross references so that the same criteria were not repeated in each section was a large task, and one which could have been streamlined had we realised we were building in unnecessary redundancy at the outset. We would have benefited by writing specifications for commonalties across modules as the first step, so that each team did not need to spend time writing the same criteria. In addition to search retrieval and output, other candidates for this grouping might include print and download capabilities' (p.62).

Stowe also noted a tendency to write specification according to what was familiar. In her experience, the staff view of library system functionality was influenced by functionality of the system which the library was using at the time, and 'there was also a proclivity to prescribe exactly how the vendor's system should carry out how a particular activity rather than documenting what it should do'. Stowe identified the need to strive for generic terminology rather than current systems jargon.

'After all, what other vendor would know that when we ask if their system requires 'garbage collecting of the indexes', that what we mean is whether their system requires that the indexes be balanced, or that when we ask about BTPROD, we are really investigating their system's MARC validation tables'. (p. 62).

In addition, Stowe highlighted the problems incurred in writing functions of which staff had no experience (eg serials, authority control) and concluded that 'selecting a system you can fit to your library's workflow, rather than fitting your workflow to the system is critical' .

## **2.6 Costs**

The cost to suppliers of a procurement which is heavily dependent on the specification has been demonstrated by Grant (1999) who has estimated that each response to an RfP (specification) by a supplier costs the supplier around US\$5,100. He makes the point that such costs will not be borne solely by the supplier, particularly when a sale does not result, but will be loaded on to the cost of the systems supplied to purchasing libraries.

'In effect, the libraries transfer the cost of doing a sole source procurement from themselves to the vendors by submitting RfPs to firms whose products they have no intention of purchasing but to whom they need to submit a response in order to justify the procurement of the system they actually want to purchase. The effect is obvious – Consider a vendor that answers 100 RfPs a year. This represents a cost of US\$500,000. If that same vendor sells 30 systems in that year, \$16,666 of the cost paid by the library buying the system is to pay for the cost created by them as well as those libraries that did not buy but wanted an answer to their RfP (Grant, 1999. p.303).

There is generally little sympathy for the commercial suppliers amongst the library community, but it is true that a lack of profits for vendors has driven many vendors from the field in recent years or resulted in numerous downsizings, mergers and acquisitions over the last few years. Suppliers are increasingly reluctant to respond to Invitations to tender when there is little likelihood that a sale will result.

The costs to libraries incurred in the process of procuring a library system have not been quantified. There is considerable evidence, however, of hidden costs in terms of (not least) time and effort expended by librarians. Stowe (1999) observed that some libraries were moving away from the RfP process because it was too time consuming, too costly, that too many staff were involved, and that RfPs included more detail than was necessary.

## **2.7 Related activity**

There is evidence that moves are being made in other library-related institutions towards facilitating the process of systems procurement. In museums, some progress has been made towards harmonising the system procurement process. SPECTRUM Profiles were developed in 1996, to support and guide museums in selecting commercially available museum management systems. The Profiles have a number of different uses and users. For museums, they act as a tool to identify what procedures are supported by a system and for software suppliers they act as a tool to identify the scope of the system. A key benefit of the Profiles is that they serve as a

common language between museums and systems suppliers (Dawson, 1998).

The LASSI (Larger Scale Systems Initiative) was a consortium of UK museums which formed, together with the UK Museums and Galleries Commission (MGC), to specify and procure collections management software that would meet all their various needs (Keene, 1996). The venture drew on significant work which had taken place in the development of standards for museum management such as SPECTRUM and the MGC's Standards in the Museum Care of Collections. The Consortium wished to take advantage of their joint purchasing power to benefit themselves and other museums.

LASSI aimed to encompass the needs of the whole variety of museum collections without compromising specialist requirements. Types of collections ranged from easel paintings to natural history; from science and industry to decorative arts; from photography to transport collections. The specification covered not only collections but also the data requirements for actually managing museum collections: processes such as loans, object location and movement, conservation, reproduction and copying. The software contract detailed a sound individual contractual relationship between the supplier and any museum purchasing the software. The project concluded successfully in 1996, when a five-year Framework Enabling Agreement was made between the UK Museums & Galleries Commission and Willoughby Associates from the USA. The Agreement enabled any UK museum to purchase Willoughby's Multi MIMSY software without competitive tendering, and to the Consortium terms and conditions. Surprisingly, there is no evidence of any interest by the library community in the LASSI initiative.

In the Archives arena, the UK Public Record Office, in collaboration with the CCTA, were awarded Government funding under the 'Invest to Save' initiative in 1999 to develop a generic specification for an Electronic Records Management system (Public Record Office, 1999). In the Project, a Statement of Functional Requirements (or 'toolkit') which was intended to assess currently available software packages against the needs expressed in the Statement was produced. This project was led by the Public Record Office working in conjunction with the CCTA, with the participation of eleven other government departments and agencies. A working group of members from these organisations developed a set of generic requirements which were published for use by government departments and agencies who were developing their own detailed specifications and requests for proposal. The toolkit was intended as a benchmark which could be used by a wide range of government organisations to generate many more specialised versions of the Statement of Requirements, rather than simply copying verbatim. The rationale for the toolkit was that government departments could benefit from:

- the substantial critical thinking and discussion from the inter-departmental working group of records specialists which has gone into its production
- an explicit framework of requirements to react against, which mapped out the territory of electronic records management
- an assurance of consistency with the guidance on electronic records produced to date by the Public Record Office (Public Record Office, 1999).

The stated intention was that that use of these requirements would

(a) foster commonality and compatibility of electronic records management systems between government departments and agencies, consistent with exchange of electronic records and joint working arrangements; and

(b) that it would encourage the software supplier industry to develop appropriate products towards a growing market in UK government for this type of application.

These generic requirements were not intended to be a full specification. Instead, they formed a baseline which set out, in the mandatory parts of the requirement, the

minimum necessary to undertake 'credible electronic records management'. The statement also contained desirable requirements whose inclusion would provide an improved quality of electronic records management. It was recognised that each government department or agency who wished to make use of these requirements would have its own specialist needs, and would be approaching the implementation of electronic records management from an existing situation, and the different departments were advised to tailor the functional requirements outlined in the generic statement to their own situation

Departments were advised to make their own assessment of the relative importance of non-functional requirements, and the technical operating environment in which electronic records management were to be situated. The functional requirements which formed the bulk of the generic Statement were 'intended for use by a wide range of departments and agencies – large or small, centralised or geographically dispersed, LAN-based or Intranet-based, with or without existing document management facilities, whose technical and operating needs will vary considerably.' An outline of non-functional requirements was, however, also included 'as an informative (rather than normative) section' and departments who made use of the Statement of Functional Requirements were exhorted to consider their own needs for:

- size, scalability, numbers of users
- performance factors and response times
- usability factors
- existing technical operating environment
- training and installation consultancy needs
- applicable technical standards.

The functional requirements made 'as few assumptions as possible' about the software, hardware and network environment in which they would operate.

## **2.8 Conclusions**

There is clearly a divide between library practitioners and commercial suppliers of library management systems on the value of the specification in the procurement process. Experienced library managers recognise a number of benefits of the library specification in both the process of its production and as a mechanism for choosing and acquiring a library system solution. Some practitioners (eg. Stowe) have through their own experience, identified potential flaws in the content and process of developing a specification and there is evidence that librarians charged with compiling specification documents need to seek guidance on the format and detail to be included. System suppliers, across a decade have been critical of the lengthy procurement process which has the specification at its heart. A mechanism for streamlining what is evidently a time-consuming and cumbersome process for both librarians and suppliers is clearly desirable. There has been some activity towards harmonising and rationalising the process of systems acquisition in museums as a result of the LASSI project, and the Public Record Office, recognising the need for a model specification for the procurement of Electronic Records systems, has developed a set of generic requirements for use by government departments and agencies who were developing their own detailed specifications. Such initiatives provide evidence that the use of a set of standard requirements, or model specification, is feasible and potentially beneficial to both purchaser and vendor.

### **3. Methods**

#### **3.1 Introduction**

The aim of the Study was to determine the feasibility of developing and disseminating a model system specification which could be used to assist and guide libraries in the procurement of library management systems. The research was conducted between October 1999 and March 2000.

A number of different strategies were employed to achieve the overall aim. In summary these were:

- collection and analysis of secondary data from an ongoing literature review
- collection and analyses of primary data, comprising:
  - systems specifications recently produced by libraries, and
  - questionnaires distributed to and returned by system suppliers.

#### **3.2 Literature review**

The literature review was undertaken both as an initial activity, and one that continued throughout the project. Structured searches were carried out in, for example, *BIDS*, *Dialog* and on the World Wide Web. Key themes and topics were identified and searched, using appropriate search terms and strategies. Topics and themes were:

- Library system requirements, specification and procurement process
- Museums collection management systems, system requirements, specifications and procurement
- Specific museums initiatives, such as the work of the LASSI consortium.
- Archives/records management system requirements, specifications and procurement
- Specific activities of the archives/record management community, such as by the Public Record Office

#### **3.3 Collection and analysis of library management systems specifications**

A key aspect of the project was the collection and analysis of recently produced systems specifications, covering public, academic and special libraries. The justification for this was to conduct analyses of specifications both vertically, within sectors, and horizontally, across sectors, to determine common approaches and commonalities in system requirements within and across library sectors

Fundamental to these analyses was the collection of library management systems specifications detailing operational requirements gathered from the UK academic, public and special library sectors. A first step was to identify libraries which had recently ('97-'99) procured a library management system. This was done by examining news items in *Program*, *Biblio Tech Review* and library management system suppliers' web pages. One hundred and ten libraries were so identified. No particular sector was heavily over- or under-represented in this target population.

In November 1999, these 110 libraries were contacted by letter (see Appendix A) and asked to contribute a copy of their library's system specification for analysis. Forty-one specifications were received. Some libraries gave a negative response, including:

- a public library that 'decided not to produce a system specification',

- a special library that did not want to 'give out' their specification, and
- a group of libraries which had actually produced a joint specification with other libraries (which had been also been contacted).

Table 1 shows the number of libraries contacted and specifications received, by sector. Approximately forty percent of libraries who were contacted provided a specification. More than half the academic libraries contacted provided a specification, compared with a third or less of the public and special libraries.

<b>Specifications</b>	<b>Public</b>	<b>Academic</b>	<b>Special</b>	<b>Total</b>
Requested from libraries	30	39	31	110
Received from libraries	10	24	7	41

**Table 1 Libraries contacted and returning specifications, by sector**

In addition to hard copies, 24 libraries also submitted an electronic version of their specification (4 public, 13 academic, 7 special).

The specifications collected were analysed in two ways, with increasing levels of detail.

- All 41 specifications were scrutinised in order to make general observations concerning the purpose of the specification, the extent of collaboration between libraries, the use of guidelines and guidance when preparing specifications and to provide an overview of contents and format.
- Twelve of the 41 specifications (4 from each library sector) were coded and further analysed to determine detailed functional requirements using ATLAS/ti content analysis software. The 12 specifications were selected as representative of the sample collected based on type of library and length of specification. Codes were developed, based on Leeves and Russell's (1995) checklist, plus additional functions identified, and the codes were assigned to each functional requirement. Using ATLAS/ti enabled the retrieval of the number of incidences that specific requirements (which had been coded in the sample of 12) were referred to in specifications. In addition, the use of content analysis software allowed for the retrieval of the actual terminology and phrasing that was used to specify the requirements and therefore to provide evidence of the different ways in which the same requirements were specified.

### **3.4 Survey of system suppliers**

A questionnaire was designed in order to investigate the views and opinions of library management system suppliers on the role, quality and usefulness of the specification in procurement process. After testing and revision, the questionnaire was sent to the 25 UK suppliers in January 2000. A copy of the questionnaire is provided in Appendix B.

Fourteen of the 25 suppliers contacted returned questionnaires. A general impression of responses was that these suppliers were concerned about making the procurement process more effective, and less costly, and hence were willing to spend time and effort in their responses. Analysis of returns is presented in Section 5, whilst total responses are included in Appendix C.

### **3.5 Limitations of the research**

Time and resources constraints placed a number of limitations on the scope of the Project. There were two aspects which would have been further explored given the opportunity. Firstly, of the 110 libraries which were identified as recently acquiring a library management system, 59 of these did not respond. It would have been useful

to explore reasons for non response, as it is not known how many were because they did not produce a specification as a basis for buying a library system. The proportion may have been sufficiently significant to warrant further investigation into alternative approaches to systems procurement.

Secondly, although all of the 41 specifications received were scrutinised for comparability of requirements at a general level, only 12 specifications (4 from each sector) were subjected to detailed content analysis due to time constraints. Further detailed analysis at this level of all specifications would have been desirable to produce more a more robust set of findings than are presented here. The results presented in section 4.5 are therefore difficult to generalise, but they are indicative of the issues and problems.

## 4. Results: Analysis of specifications

### 4.1 Introduction

Forty one specifications were received from libraries which had acquired library management systems within the previous three years. These included specifications from 10 public library authorities, 24 academic libraries and 7 special libraries.

The specifications collected were subjected to analysis on 2 levels:

- The total sample of 41 specifications were analysed to determine
  - **general observations**, which identified the purpose of their creation, extent of collaboration between libraries, and the type of guidelines used when preparing specifications. General observations are reported in Section 4.2.
  - **contents of specifications**, which identified the categories of information and requirements included in specifications. The analysis of contents is reported in section 4.3.
  - **presentation of specifications**, which identified variations in length, structure, format and terminology used. Discussion of presentation styles is reported in Section 4.4.
- Twelve specifications (4 from each library sector) were analysed to identify examples of detailed **functional requirements** in the core modules of Catalogue, Acquisitions, Circulation and Serials. For each of the core modules, the following results are reported in Section 4.5:
  - Coverage of the module in specifications: varying approaches and level of detail
  - Requirements relating to the 'main functions' (ie. those enumerated in the Leeves and Russell (1995) checklist)
  - 'Additional' features (i.e. those not enumerated in the Leeves and Russell (1995) checklist)
  - Specific examples to illustrate the differing ways libraries state similar requirements.

### 4.2 General observations

#### 4.2.1 Function of the specification

Most of the 41 specifications had been created for the purpose of inviting several suppliers to tender for the supply of a system, including, for example, timetabled details of 'briefing for all suppliers', 'review supplier proposals', 'demonstrations', 'shortlist..' and '...Final shortlist compiled ... Presentation by final shortlisted suppliers...'.

The specification, or suppliers response to the specification, was often required to form part of the contract between the library and system supplier. For example, a university library stated that:

*The Specification (or an amended version of it), Requirement, and the Tenderer's responses to the Questionnaire will form part of the contract between the successful Tenderer (the Contractor) and [organisation name]. Following evaluation of tenders, and the selection of the eventual Contractor, the contract conditions proposed during the tendering stage may be amended to reflect any changes that are deemed appropriate.*

Specific examples of legacy systems were evident. For example, one public library specification consisted of requirements based on the functionality of the current

system . Another public authority was seeking an upgrade from its existing supplier. Comments in the specification included:

*Circulation Control Function*

*The system must provide all the functions that are already present in the existing [system name] system. The following points should also be noted.*

One public library authority's expressed requirements were explicitly addressed to a specified supplier, namely that which had supplied the system currently in use:

*... [The Authority] is seeking to upgrade its existing [system name] system and associated IBM mainframe system ... with a single integrated system. It is anticipated that this will comprise a [system name] system with the Acquisition, Cataloguing, Circulation Control and Local Society functions.*

One specification by a special library appeared to be a checklist for internal use, including such statements as:

*Most systems provide the basic modules. [We] need to compare functionality.*

*To be able to hold scanned images. ([personal name] is interested in this facility)*

Some specifications showed evidence of (a) specifying the library's future requirements, (b) asking the supplier to suggest solutions/visions, and (c) asking suppliers to outline future system developments. Whilst libraries may look to the future by specifying the growth of file sizes, several specifications went further in the consideration of their developments. Two example of this, from special libraries were:

*There are several new developments in IT which may affect acquisitions in the future e.g. several library suppliers have developed packages which allow customers to examine their account, state of standing orders, to order on-line and to check bibliographic databases. There should be provision for accessing such data, and suppliers should indicate EDI capability. There should be a provision for items not ordered via the system e.g. telephone orders.*

and

*Circulation (loans) control*

*There is no current requirement for circulation control to be implemented – this is a reference collection. 'Issue' is restricted to books and journals sent to binding, and a small stock which may be used by staff only. This might change in future, so . . . .*

*5.2.6.1 RFI Please append to the response to the Invitation to Tender a technical description of the standard circulation / reservations / inter-library loans software available for the proposed software package. Future developments may be cited.*

Some specifications included examples of a library asking the supplier for suggestions and visions for a system, in addition to questions relating to specific functions (i.e. 'can the system do this, that, the other?'). The following examples are from libraries in the three different sectors:

*C8 further information required from suppliers...*

*3 Identify any areas which are perceived to be shortcomings in the [library name] tender.*

*4 Provide information on features and facilities which are not currently required by [library name] but may be of interest at some future date....*

*Suppliers are encouraged to offer additional features where relevant.*

*MANDATORY (M) : A requirement which must be satisfied by the tender. In some cases, marked M\* to indicate 'mandatory but negotiable' the function specified is mandatory, **but just how it is to be achieved is flexible**. The [organisation name] is prepared to negotiate with the supplier as to the viability and acceptability of the approach proposed.*

One academic library in particular concentrated on this type of approach. It had included descriptive sections on the vision of library/information provision and asked suppliers for comments on the scenarios, and included the following statement:

*Whilst every endeavour has been made to give Tenderers an accurate description of the requirements, Tenderers should form their own conclusions about the methods and resources needed to meet those requirements.*

Some libraries asked for suppliers to identify future product developments. For example:

*Future Strategy*

*Please describe your information technology strategy for the future development of the system with reference to processing and communications technologies.*

Some libraries requested an indication of the cost of developing features if they were not currently available, but an academic library specification had a mandatory requirement that if a particular function were not currently available that a 'strategy and timetabling for delivering it must be proposed'.

#### *4.2.2 Collaboration between libraries*

Five of the 41 libraries indicated that their specification was for a joint tender with one or several libraries. Three public libraries indicated a collaborative project with other public authorities. Two academic institutions had also prepared a joint specification, one with another academic library and one with a special library.

#### *4.2.3 Use of guidelines and guidance*

A number of libraries relied on various guidelines when writing specifications, for example:

- Parent organisation: general terms and conditions of purchase, and standard contracts
- Institute of Purchasing and Supply: Model Form of Conditions of Contract for the Supply and Installation (purchase) of Computer Equipment
- CCTA: procurement guidelines (Total Acquisition Process) and model agreement
- An academic library based their specification on the Scholar specification.
- Checklist of functions included in Leeves, J and Russell, R. *libsys.uk: a directory of library systems in the UK* (LITC, 1995). :A public library had, along with their listed requirements, included a copy of Leeves and Russell checklist of functions as a basis for the supplier's response. An academic library's list of functions to 'assess system suitability' was based entirely on Leeves and Russell's checklist. Another academic library's specification included a number of direct quotations from the Leeves and Russell checklist.
- There was also evidence of compliance with statutory instruments such as the Public Supply Contracts Regulations (evidenced by the advertisement of tender in the Official Journal of the European Community) and the Construction, Design and Management Regulations.

- Use of other library’s specifications. Six libraries, all from the academic sector, indicated in covering letters submitted to the research team with their specifications that they had used other library’s specifications when writing their own.

### 4.3 Overview of specification contents

Table 2 represents an overview of the contents of the 41 specifications. The content has been grouped into 8 categories which are each discussed below.

It should be noted that the detail of such content varied considerably between specifications.

Content categories		Public (10)	Academic (24) <sup>1</sup>	Special (7)	Total (41)
(i)	Procurement process	9	20	4	33
(ii)	Functions and features				
	- core modules	10	24	7	41
	- additional features	8	12	2	22
(iii)	Technical	10	21	7	38
(iv)	General system features	10	22	7	39
(v)	Maintenance	7	14	5	26
(vi)	Supplier information	5	7	2	14
(vii)	Library/organisation background	10	20	7	37
(viii)	Support and customer service	8	18	6	32

**Table 2 Content of specifications**

#### 4.3.1 Procurement process

Most of the public and academic sector libraries, and around half of the special libraries, include information about the ‘procurement process’ in their system specifications. Such content included general comments on the specification and procurement process, organisation procedures, implementation (such as acceptance tests).

Some libraries detailed their evaluation criteria for specifications. Table 3 represents an extract from a university’s specification.

One public library’s specification detailed the weightings appropriated for each statement in the specification (i.e. as ‘= 1’, ‘= 100’ or ‘= 10,000’).

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<sup>1</sup> Note: one academic library specification had a separate document for ‘procurement process’ and ‘supplier’ sections (‘tender’ document).

<i>For the guidance of suppliers, a non-exhaustive list of criteria that will be considered during the evaluation process is provided below. The criteria are presented in alphabetical order, not order of priority.</i>	
<i>Criteria</i>	<i>Factors to be evaluated</i>
<i>Company</i>	<i>Financial stability, market position, customer base</i>
<i>Costs</i>	<i>One-off costs and recurrent costs of equipment and software, maintenance, support, implementation, training and documentation.</i>
<i>Customer care</i>	<i>Ability of the supplier to form effective and helpful relationships with [university name] and Library staff</i>
<i>Delivery.</i>	<i>Ability to meet the specified schedule</i>
<i>End-use</i>	<i>Ability to satisfy [university name] personnel and users, in the areas of interface and information retrieval capabilities.</i>
<i>Functionality</i>	<i>Closeness of fit to the specific requirements of [university name].</i>
<i>Integration</i>	<i>The ease of integrating the solution with other applications, possibly satisfied by products from alternative suppliers.</i>
<i>Management</i>	<i>Staff competencies, support mechanisms, upgrade provisions, reporting procedures.</i>
<i>Organisational</i>	<i>General ability of the product to match [university name] organisational structure, policies and style</i>
<i>Reliability</i>	<i>Configuration and design features which improve resilience and minimise risk.</i>
<i>Security</i>	<i>Stratification and compartmentalisation control mechanisms</i>
<i>Service levels</i>	<i>Availability, time to repair, performance</i>
<i>Standards</i>	<i>Adherence to standards, compatibility policies</i>
<i>Strategy</i>	<i>Ability to fit with [university name] Information Strategy and vision for the future of information services</i>
<i>Training</i>	<i>Quality of user training and supporting documentation provided</i>
<i>Upgradeability</i>	<i>Ability to upgrade hardware and software in an efficient, cost-effective manner</i>
<i>Value for money</i>	

**Table 3 Example of evaluation criteria (university library).**

Instructions to suppliers frequently included the format for response to specifications, the number of responses needed, to whom responses were to be addressed, to whom requests for further information should be addressed. To illustrate, the following extract is taken from a public library specification:

*Suppliers must indicate how their system matches the functionality described in the functional specification and in any response should refer to the relevant paragraph numbering in this document. The checklist must be completed.*

*Suppliers are not required to describe in detail existing functionality which matches the specification. Suppliers must, however, indicate any areas where their system does not meet the specification. If it is intended to introduce the functionality in a future software release they must give a date at which the software will be released. Where suppliers are asked to provide more information or suggest solutions, it is expected that they will provide clear and sufficient information for an evaluation to be made.*

Extract from an academic library:

*Responses to this section must be given in the order given below, and with clear reference to the item (e.g. MR 8.2) which the response is intended to answer. When any feature or facility is described which is not directly part of or by default available in or as part of the proposed system, the details and additional cost of any additional equipment or software required to implement such a feature or facility must be clearly stated. Tenderers may, if they so choose, complete this questionnaire by using the electronic copy of this document as a Microsoft Word 'form'*

Some proposed contracts were part of the specification document; some were appended. Some libraries also requested copies of the suppliers' standard contracts (for example covering purchase of software or for provision of support). Several libraries also referred to Escrow agreements for access to source code.

Some specifications included a detailed timetable for the selection and implementation of a system. The timetable detailed, for example, dates for the submission of proposals, demonstrations, contract awarded, acceptance tests and projected 'live' date for the system.

Some specifications included details of costings required, such as capital and recurrent; or cost breakdowns required such as for equipment installation, hardware, system and application software, training, support, documentation, customisation of system, etc.

#### *4.3.2 Modules*

All specification referred to some or all of the standard core modules of library management systems: catalogue, OPAC, acquisitions, circulation, management information, serials and inter-library loans.

A number of specifications also stated requirements for additional functions and features, such as a community information module, advance bookings, etc.

Most libraries, across the three sectors, required a system that has cataloguing, acquisitions and circulation functionality as well as providing an OPAC and management information (i.e. reports and statistics). Most of the academic and public sector libraries also required inter-library loan management. The ILL module was required by less than half of the special libraries. Most of the academic and special library specifications contained the requirement for serials management, but was required by only 6 of the 10 public libraries. Table 4 represents the frequency with which libraries required particular core modules.

A number of additional functions and features were also identified as requirements. Many of these were specified by public and academic libraries and related to 'circulation' functions. For example, additional functions mentioned by public libraries included mobile library facilities, school library service, and the features specific to housebound readers. Materials booking and collection/copyright management were included as requirements by a number of academic libraries. Relatively few extra modules were included by special libraries, but some did require facilities to manage 'enquiries received' and 'materials booking.'

Six of the ten public libraries specified 'community information' as a requirement.

#### *4.3.3 Technical requirements*

Most libraries specified 'technical' requirements such as hardware required, software (OS, DBMS), networking and communications, system capacity, standards and protocols (such as Z39.50, EDI related), Y2K compliance, etc.

<b>Core modules</b>	<b>Public (10)</b>	<b>Academic (24)</b>	<b>Special (7)</b>	<b>Total (41)</b>
Acquisitions	10	23	6	39
Catalogue	10	24	7	41
Circulation	10	24	6	40
ILL	10	20	3	33
Serials	6	20	6	32
OPAC	10	24	7	41
Management Info	10	23	6	39

**Table 4 Frequency with which requirements for core modules were specified.**

#### *4.3.4 General system features*

Most libraries specified features that may be categorised as 'general system features'. These included help, interface, library definition/parameters/customisation, record formats, retrospective conversion/migration, system security, barcode formats, etc.

#### *4.3.5 Maintenance*

A number of specifications included detail on system maintenance issues, such as backup routines for system data, upgrades of software, and procedures in the event of system failures, etc.

#### *4.3.6 Supplier information*

Five of the public libraries and a small number of the academic and special libraries indicated that the supplier should provide certain extra information. The type of information required included a list of existing users, references from existing customers, requests for annual reports, company history, financial history, commitment to system development, support staff qualifications, details of sub-contractors, etc. In some specification a separate supplier questionnaire was included in the specification document.

#### *4.3.7 Library/organisation background*

All of the specifications from the public/special and most of the academic sector included background information about the library or organisation in their specification documents. This type of information included descriptions of existing information services, current library management system in use, hardware, networks, software, etc.

#### *4.3.8 Support and customer service*

Most libraries included information about support/customer service requirements: documentation, training, user groups, and cost options for helpdesk, response times, remote diagnostic support, etc.

#### *4.3.9 Other contents*

Other specification contents related to other requirements and included, for example, the supply of furniture, insurance, warranties, and project management.

#### **4.4 Presentation of specifications<sup>2</sup>**

##### *4.4.1 Length and detail*

The length of the 41 specifications varied greatly, from 3 to 150 pages. There was wide variation in length within the library sectors, but little distinction between library sectors. Those from public libraries were between 14 and 150 pages, from academic libraries between 3-140 pages; and from special libraries between 23-100 pages.

The length of the specifications was clearly related to the level of detail of requirements. To illustrate, the requirement for 'Fund accounting' by an academic library was expressed in a single statement (in a 4 page specification) as follows:

*4.6.1 The system will offer full budgetary allocation and control.*

In contrast, a public library authority (in a 33 page specification) expressed the requirement for 'Fund accounting' as follows:

*Fund accounting*

*The following functions MUST be available separately for the two authorities:*

*10.1.1 Recording commitment and expenditure under a number of cost heads. These records MUST be linked so that all transactions automatically update allocated, committed, received, invoiced and balance values as appropriate.*

*10.1.2 Fund reporting based on net values.*

*10.1.3 Access to the accounts data from a number of points (e.g. supplier, fund code)*

*10.1.4 Ability to calculate discount, based on supplier and material type, with a default option*

*10.1.5 Ability to set limits on commitment or expenditure for each cost head, with the option to block further orders being made against the fund once this limit has been reached.*

*It MUST be possible to override this facility*

*10.1.6 Warning generated when commitment and expenditure of any cost head reaches a predefined limit*

*10.1.7 Ability to distinguish pro-forma payments*

*10.1.8 Ability to handle sundry payments (e.g. postage, servicing), with an explanation of how this is achieved.*

*10.1.9 Ability to handle credit notes*

*10.1.10 Ability to transfer outstanding commitments from one financial year to the next and to produce a corresponding list of sundry creditors for Finance Department use.*

*10.1.11 Ability to produce periodic financial statements and reports, including a comparison between expenditure and budget, to be available on screen and in hardcopy printed formats.*

*10.1.12 Ability to accommodate library accounting functions other than book and periodical funds (e.g. binding)*

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<sup>2</sup> It should be noted that the specifications analysed for this report may not reflect the total communication to suppliers. For example, libraries may have sent out covering letters with specifications, one university had a separate tender document and another university notes in the specification that one section should be read in conjunction with the instructions for tender documents enclosed.

*10.1.13 Provision of satisfactory audit trail*

*10.1.14 Ability to handle costings in more than one currency, including the Single European Currency.*

*10.2 Interfaces with Finance Departments*

*Suppliers should indicate what provision (if any) is made for linking the library system with the two authorities financial systems, with a view to automatically updating finance departments' files and triggering payment of invoices.*

The level of detail for other specific functions is further discussed in section 4.2.6.

*4.4.2 Organisation*

Most specifications included detailed contents pages, providing a useful map and overview of the document. Two specifications (respectively 31 and 68 pages in length) did not.

A number of specifications included appendices to the specifications commonly comprising information relating to number of volumes held by the library, equipment inventories and network descriptions. In one example the specification itself was an appendix (annex to a university's tender).

Many specifications were clearly arranged in sections under headings. The following headings (extracted from a public library specification) are typical of those used, for example, for Acquisitions.

*3 Acquisition Function*

*3.1 Pre-publication data*

*3.2 Dealing with requests*

*3.3 Placing Orders*

*3.4 Standing Orders and Subscriptions*

*3.5 Receipting Orders*

*3.6 Reminders etc.*

*3.7 Budgetary Control*

Many exceptions to this form of logical organisation were observed, however. The nature of these exceptions is summarised below:

- no headings. In one special library's specification, functional requirements were in one list and headings were not used to indicate any logical sequence
- some specifications had common sections that applied across different functions. For example, a special library stated

*Online Help*

*The system must provide a context-sensitive help facility which is available to users online at any point in any process within the system...*

- some specifications had a general section plus additional function-specific sections on the same requirement. For example, a special library had 'Reports' sections throughout for each module and also in the 'General' section
- there was evidence of specific functionality requirement in 'general' section For example, a public library had details relevant to acquisitions/fund accounting in a 'general facilities' section
- some 'general' points were made in function specific sections. For example, in the 'Catalogue requirements' section, a special library's specification indicated the requirement for

*Seamless movement around screens and modules without risk of losing data.*

- In some instances, the same requirements were in different sections in different specifications. For example the requirement that 'the 'on order' status of items should be displayed in the catalogue' is in the *catalogue requirements* section in a public library specification as

*The Service shall maintain details of items on order, and their locations within the catalogue*

and in the *acquisitions requirements* section of an academic library specification

*...flag ordered items in the catalogue ...*

- There was much evidence of repetition within the specifications. For example a public library's requirements for 'maintenance and support' were in two different sections as follows:

*2 General*

*2.1... Please also indicate the likely costs for maintenance and support services.*

*The supplier should state separately what hardware, software and support will be provided in order to meet the requirements of this specification.*

.....

*7 Implementation and Operation*

*7.4 Please provide full details of the maintenance and support services it is proposed will be provided for the new system, including details of any Help Desk support for users. (Contractual provisions relating to the maintenance support services to be provided will be drafted and incorporated into the Agreement based on the information provided in response to this request.)*

- in some instances, functional requirements were subsumed within the stated requirements for other functions such as, for example, OPAC requirements in 'cataloguing' sections.
- there was also some evidence of cross referencing. For example some libraries referred back to acquisitions functions when detailing serials management requirements.
- a public library specification included a section on acquisitions with some acquisitions functions, such as order cancellation and order enquiries, separated into another section headed 'procedures and authority control'.
- Some headings were unclear. For example, a public library specification had a section 'stock selection' (in a higher level 'stock management' section): some of the content in this section referred to cataloguing or acquisitions requirements, and some of the section referred to management information/statistical data requirements.

#### 4.4.3 Numbering

Each requirement in the specifications were usually numbered. For example, a public library specification:

*5 Counter Routines*

*5.1. User File Maintenance*

*5.1.1 General*

*The system must ensure that:*

*5.1.1.1. Full user details are accessible on-line, and that those details can be amended in real time.*

Some specifications had continuous numbering throughout. For example:

*Check-in*

.....

*21.23 The system should provide routing lists and facilities for printing these out.*

*21.24 Check-in history must be kept indefinitely, and be easily displayed.*

*21.25 OPACs must display holdings records and latest issue received.*

*21.26 The system must have provision for dealing with back issues and binding records and payments.*

*Claiming*

*21.27 The system must automatically identify issues which have not been received for all active titles and print claims notices, in either paper or electronic format, and allow for manual claiming.*

.....

One special library used un-numbered headings and bullet points:

- *Acquisitions*
  - *Ordering a new book*
  - *Essential*
  - *No part of the acquisitions module should be accessible to the public, though it should be possible for the public to enquire whether an item is on order via OPAC screens.*

In another special library specification, main sections (eg 'Catalogue') were numbered and then whole pages of continuous text in lengthy paragraphs: For example:

*When cataloguing an item the user should be prompted for all relevant fields dependent on the media type. Prompts must be user definable. It must be possible to input to the catalogue using both point and click and control keys. Indexing must be in real time. There should be a repeat facility when entering duplicate data in fields. There should be a spell check facility. There must be a facility to import structured data into the database.*

#### *4.4.3 Format of specifying requirements*

A number of different formats for the specification of system requirements were observed. In the majority of the specifications (36 of the 41), requirements were phrased as statements in one of the following ways:

- Each statement was in the form of 'the system must...', 'the system should...', for example:

*15.4 There must be a facility to generate numerical and financial counts of all appropriate processes.*

*15.5 There should be facilities for data transfer into other standard word-processing and spreadsheet packages, preferably Microsoft office products.*

- Statements were grouped under headings, for example:

*MANDATORY requirements are:*

*5.1.1 The use of UKMARC formats for storing bibliographic data. Natural language forms for the input and manipulation of catalogue data MUST be provided.*

5.1.2 *The ability to handle and sort a very large number of records. ...*

5.2 *The following facilities are HIGHLY DESIRABLE*

5.2.1 *Authority file for uniformity of headings*

5.2.2 *The facility to carry out global changes to headings in certain fields and/or subfields. This need not be done in real-time...*

Twenty three of the forty one specifications used either of the above approaches (and were particularly common in the public library sector where 7 out of the 10 specifications were in this format).

- In two specifications all requirements were listed under one heading of

*The functions specified in the following pages are considered essential*

and

*The following functions must be provided*

- Each statement was associated with an indication of the required information (such as 'mandatory', 'desirable' or a 'request for information'; commonly abbreviated to, for example, 'm', 'd' and 'rfi' respectively). An example, from a special library, is:

*5.2.3.29 RFI Suppliers should show how the identification of items for binding is handled within the proposed software.*

*5.2.3.30 M\* The system should hold details of binding suppliers.*

*5.2.3.31 HD The system should hold the following binding instructions for individual titles:...*

In addition to the above types of statements, 5 specifications also included

- columns for indicating if the requirement was operational, a planned development, etc.
- a table consisting of columns for compliance (Y/N) and status (e.g. optional, bespoke, chargeable)
- provision for indicating 'yes/no' and comments for each statement
- space for 'detail', a column for 'yes/no'
- repeated requirements as a summary checklist for suppliers at the end of the specification

Formats for specifying requirements within 5 (public or academic sectors) of the 41 specifications were as follows:

- Requirements listed for each function under the heading of 'key criteria'
- Each statement was accompanied by a weighting
- A list of statements only (probably for internal use only)
- Statements only and the supplier was instructed to reply if the requirement was fully, partially, etc. met by the system
- Specification consisted of Leeves and Russell's (1995) checklist only

In some instances, requirements were expressed in vague terms making it potentially difficult for the supplier to provide an accurate response. A frequently stated, requirement was for

*User friendly, attractive OPACs*

#### 4.4.4 Terminology

Variations in terminology were found. There were examples of different terms being used to indicate a standard function eg. *return - discharge*. Technical terms for features were also found to vary. For example, a hypersearch (or 'related works') facility was referred to, in a special library specification, as

*Ability to select words/phrases/headings/authors etc. from retrieved records and add to search e.g. a search retrieves an article by J. Bloggs: ability to highlight and search on J. Bloggs.*

Table 5 provides examples of the terminology libraries used to specify the requirement of a 'web cat'.

Public	<i>Suppliers should indicate what provision is made within the system network for public access to and from other local networks and the Internet.</i>
Public	<i>State whether the system is capable of being accessed via the Internet as [name of library] would like to provide access to the OPAC facilities via the Internet.</i>
Academic	<i>Suppliers should note that anonymous access to the OPAC is required over a range of access methods including telnet and web, and must comment on how this can be achieved in a secure manner.</i>
Academic	<i>Users must have access to the OPAC via the World Wide Web from outside ... as well as across the University's own networks.</i>
Academic	<i>[general requirements...] Web OPAC The OPAC will be available across the [organisation] network and via its dial-in service, and through the [organisation] website.</i>
Academic	<i>Viewing OPAC via WWW</i>
Special	<i>to provide an online search facility of the catalogue via the Internet</i>
Special	<i>a WWW model OPAC service</i>
Special	<i>Accessibility of Books Catalogue data via the Internet</i>

**Table 5 Examples of expressed requirements for a web catalogue**

#### 4.5 Functional requirements

This section reports the results of an in-depth analysis of a sample of **12 specifications** - 4 each from the public, academic and special library sectors. The focus of this level of analysis is on the four core modules of LMS: catalogue/OPAC, acquisitions, circulation and serials management.

The approach taken was to compare the detailed content of specifications with the 'main functions' of each module, as described by Leeves and Russell (1995). For example, for acquisitions this is:

- Ordering
- Electronic Data Interchange (EDI)
- Receipt and invoice processing
- Claiming
- Fund accounting
- Enquiries
- Reports and statistics

Each of the following sections focuses on the analysis of :

- (a) Coverage of the module in specifications: varying approaches and level of detail
- (b) Requirements relating to the 'main functions'.
- (c) Additional features

Some specific examples are also included to illustrate the differing ways libraries state similar requirements.

#### 4.5.1 *Catalogue, catalogue access and OPAC*

For the purposes of this section the functions of catalogue, catalogue access and the OPAC are taken together. This is because (1) it is difficult to separate out relevant functionality; Leeves and Russell's checklist refers to the catalogue access functions when detailing OPAC functions and (2) the libraries' specifications all deal with such functionality differently: some specifications did not have a separate OPAC section, and in some specifications requirements were spread throughout several sections.

To illustrate this latter point, a public library specification had one section on 'cataloguing functions', which included a single statement to specify catalogue access/OPAC requirements:

*Provision of Catalogue Data - Catalogue records must be available on-line for staff and public access.*

A special library had one section labelled 'cataloguing' with OPAC functionality subsumed in a sub-section on 'catalogue searching' with a general statement is that:

*The OPAC must provide substantially the same functionality as for all mandatory items in general catalogue search*

The specifications which were subjected to detailed analysis covered catalogue and OPAC functionality, in varying levels of detail ranging from less than one page to 15 + . Other examples included (and these were not from the particularly brief specifications) a university specification that had one sentence for authority control and for catalogue access:

*The system must allow for complete authority control*

*and*

*The system must allow records to be searched in various ways, e.g. ISBN, acronym etc.*

In another university library specification, the only reference to 'catalogue access' was

*Searching the bibliographic database must be possible from within all modules.*

Only about half of the libraries actually provided any detail about 'catalogue access' *per se*.

Conversely a public library specification, which was one of the longest of the 41 collected, was very detailed with, for example, half a page on 'withdrawal' and 2 pages on 'conversion'.

All of the 12 specifications covered the same 'main functions' (if only just a mention) i.e. data entry and amendment, authority control, record import, catalogue access, OPAC, and catalogue output.

In 10 of the 12 specifications, the requirement for 'boolean operators' was stated.

Table 6 demonstrates the differing ways that libraries asked for this same

functionality:

Library	Section	Stated requirement for boolean operators
Public	cataloguing	<i>Suppliers are asked to specify the search options available on their system (e.g. Boolean, fuzzy logic)</i>
Public	OPAC - search strategy Staff enquiry - searching / indexing	<i>[the system must...] Provide a search strategy which includes a wide range of options. e.g. Boolean operands.  [the system should offer...] Boolean search</i>
Academic	Enquiry/OPAC	<i>Provision to limit/expand search. (Boolean Operators)</i>
Academic	OPAC	<i>The OPAC will offer users a wide range of options for catalogue searching, including the ability to perform advanced Boolean searches.</i>
Academic	OPAC	<i>Search functions must include implicit Boolean operators.</i>
Academic	OPAC	<i>Boolean searching, truncation and/or wild-card operators must be available in all keyword searches.</i>
Special	general searching requirements	<i>[essential functions ...] Able to cope with complex Boolean search strategies, nested searches etc. e.g. (diabetes or asthma) and (elderly or geriatric) and community.</i>
Special	no sections	<i>Boolean searching facility, defaulting to 'AND' searches</i>
Special	catalogue searching	<i>The free text search must include Boolean command line formats, at least as an option.</i>
Special	catalogue enquiry	<i>use of Boolean 'and' 'or' 'and not' in any or all fields</i>

**Table 6 Examples of expressed requirements for Boolean operators**

In addition to specifying standard requirements, most libraries also detailed 'additional' requirements (i.e. functions other than those in the Leeves and Russell (1995) checklist). For example, most libraries specified extra 'search features', such as spelling check, proximity searching, save searches and sort results.

Table 7 details the frequency of expressed requirements for particular catalogue and OPAC features.

A number of conclusions can be drawn from this tabular representation:

(a) There are a number of examples of features that are raised by libraries *across the three sectors*:

- Access to/links to the web/internet from OPAC (all academic, 2 public and 2 special libraries).
- Web cat, i.e. access to the OPAC via the web/internet (all academic/special libraries and 2 public libraries)
- Catalogue/OPAC-related management information/reports and statistics (2 public, 2 academic and 2 special). These libraries clearly stated catalogue/OPAC related management information requirements, for example the number of items catalogued in a time period and the number of failed searches. The other 6 libraries all mentioned management information, but in general terms only.
- Z39.50 compatibility
- Multimedia capabilities

<b>Catalogue/OPAC features</b>	<b>Public (4)</b>	<b>Academic (4)</b>	<b>Special (4)</b>	<b>Total (12)</b>
Web cat (i.e. access to OPAC via web)	2	4	4	10
Multi-media cataloguing	4	3	4	13
Access to/links to the web/internet from OPAC	2	4	2	8
Access to CD-ROMs	3	1	3	7
Catalogue/OPAC related management information / reports and statistics	2	2	2	6
Multi-media capabilities	1	3	2	6
Relevance ranking	1	2	1	4
Self service e.g. renewals, reservations, etc.	2	2		4
Thesaurus			4	4
Abstracts		2	2	4
Ability to catalogue web/internet pages		2	1	3
Templates for data entry, based on GMD	1	1	1	3
Access to external databases (other than web/internet) e.g. online systems	1	2		3
Regions	3			3
Community information (the public libraries require a separate module)	2		1	3
Charging e.g. for printing OPAC searches	2		1	3
Bulletins			3	3
Reading list		1	2	3
Stock check		1	2	3
Multi site considerations e.g. decentralised cataloguing	2		1	3
Z39.50 communications protocol	1	1	1	3
Catalogue specific EDI	2			2
Metadata		1	1	2
Cataloguing full text documents			1	1
Access to internal organisation databases			1	1
Verification by senior staff	1			1
Smartcards (customer interface)	1			1
Record creation by third party	1			1
Floorplan			1	1
Hypersearch			1	1
Ordering items from library, email/print form			1	1

**Table 7 Frequency of expressed requirements for catalogue and OPAC features**

A number of references to multimedia were made. For example, the ability to link images/pictures to catalogue records was highlighted by 3 academic, 1 public and 1 special library. Reference to sound/audio and video was made by 1 academic and 2 special library. General reference to the term 'multimedia' was made by one library from each sector. Two libraries' specifications indicated the need for dealing with 'digitised' documents/text. Eight universities and 2 special libraries also referred to electronic journals.

(b) Some features were raised by libraries from 2 of the 3 sectors, for example:

*Public and academic libraries*

- Self service (2 public and 2 academic libraries - requirements vary from just ability to place reservation to reservation, renewals, bookings, etc.)

*Special and academic libraries:*

- Abstracts (2 university and 2 special libraries)

(c) A number of requirements were specified by one sector of libraries only, for example:

*Public libraries:*

- Regions (3 public libraries)
- EDI (2 public libraries - to book suppliers to aid book selection visits and EDI messages)

*Special libraries only:*

- Thesaurus (all special libraries)
- Bulletins (3 special libraries)

All except one academic library mentioned the range of media types that need to be catalogued. Typically this was as a list of standard media types, for example books, journals, maps, photographs video cassettes, compact discs/CD- ROMs, audio cassettes etc. Two specifications included recently emergent types of materials. e.g.:

*course materials (i.e. not published)*

*information and learning objects*

*online tutorials*

*dynamic objects*

*research projects*

*documents in progress*

*projects in progress*

*electronic materials*

*web pages*

Several libraries specified the fields required in catalogue records. In addition, one academic library requested the facility for tracking resources used to assignments, marks and records of student progress.

(d) Some features which might be regarded as 'essential' features for all libraries were often a minority interest. For example, 'Z39.50' was required by only 3 of the 12 libraries in the sample (2 academic, 1 special, 0 public) and the ability to catalogue web pages was required by only 1 in 4 libraries from each sector.

#### 4.5.2 Acquisitions

All but one (a special library) of the 12 specifications stated that an acquisitions

module was a requirement. The level of detail for specifying acquisitions functions varied from a twelve lines to several pages.

Two public libraries specified very detailed requirements for fund accounting. The detail included VAT, discounts, etc. Some of the other specifications detailed such functionality in a couple of lines.

The eleven specifications which included the requirement for an acquisitions module specified the requirement of all the 'main functions' i.e. ordering, Electronic Data Interchange (EDI), receipt and invoice processing, claiming, fund accounting, enquiries, and reports and statistics.

Requirements were stated in various ways. Table 8 represents a sample of expressed requirements for EDI from 5 specifications.

<b>Library</b>	<b>Section</b>	<b>Stated requirement for EDI</b>
Public	<i>networking and communications</i>  <i>acquisitions</i>	<i>The authorities have an agreement with FirstEdition for the supply of library EDI services. The supplied system MUST be fully compatible with their software, communications protocols and messaging standards to allow EDI trading with library materials suppliers.</i>  <i>[the module must...] Allow for orders to be transmitted in hard copy or electronically.</i>
Public	<i>acquisitions (general requirement)</i>  <i>acquisitions – placing orders</i>  <i>acquisitions – receipting orders</i>	<i>It must be able to communicate with the Authority's contracted suppliers over an EDI network, and possibly the Internet in due course. At present these suppliers are Askews; Holt Jackson, Books for Students and Macaulay.</i>  <i>to forward such orders to the appropriate supplier using standard EDI links.</i>  <i>Please describe how the EDI links will operate.</i>
Public	<i>acquisitions section</i>  <i>data input and import</i>	<i>The Service shall be capable of using EDI for acquisition</i>  <i>The Service shall enable the use of EDI for the full range of interaction with vendors including selection, orders, invoices, progress reports, notifications, and cancellations.</i>
Academic	<i>acquisitions</i>	<i>transmit orders direct to suppliers (Blackwells, Interlibrary Loan)</i>
Academic	<i>acquisitions</i>	<i>The system will provide EDI facilities</i>

**Table 8 Examples of expressed requirements for EDI**

A number of 'additional' features were raised in specifications. There is little evidence of different requirements across the 3 sectors of libraries, or of specialist requirements within sectors Table 9 illustrates the distribution of requirements for a number of features required for Acquisitions.

<b>Acquisitions features</b>	<b>Public (4)</b>	<b>Academic (4)</b>	<b>Special (3)</b>	<b>Total (11)</b>
Multi-site practices e.g. centralisation/decentralisation of acquisitions procedures	3	1	1	5
Audit trail	1	2	1	4
Link with finance system in organisation	2	2	2	6
Security/authorisation	1	1	1	3
Ordering of non-bibliographic material	1	1		2
Archive/historical order data	3		1	4
Centralisation/decentralisation of acquisitions	3			3
Stock selection procedures e.g. request management, showroom visits, automatic generation of stock suggestions, etc.	2			2
Notifications (to requesters) by email		1		1

**Table 9 Frequency of expressed requirements for Acquisitions features**

#### *4.5.3 Circulation*

Of the sample of 12 specification, all libraries specified the requirement for circulation control, with the exception of one special library that did not require such functionality in the short term, but highlighted it as a possible future requirement.

As with the other modules, libraries specified requirements in differing amounts of detail: ranging from 6 lines to 40+ pages for this module. There was generally much more detail given by the public and academic sectors. There were few 'additional' functions raised by special libraries (i.e. functions other than those in Leeves and Russell checklist).

All of the 11 libraries covered the same basic functionality i.e. parameters, issue, return, renewal, fines/charges, reservations, user file, enquiries, notices, and reports and statistics.

Two of the three special libraries specifying circulation control functions detailed the need for fines/charges.

Similar requirements were stated in a variety of ways. Table 10 provides several examples of phrases used to specify the requirement for incorporating a range of borrower/user categories .

A number of 'additional' features were raised by different libraries, as indicated in Table 11.

A number of requirements were specified by the public library sector only, for example:

- Family groups (3 public libraries)
- PLR (2 public libraries)
- Postcode database (3 public libraries)

Academic	<i>16.8 The system must handle a wide range of borrower categories, which may have different borrowing rights and policies and assign different privileges to each category.</i>
Academic	<i>6.2 The system must handle a wide range of user categories, which may (or may not) have different borrowing rights and policies, and assign appropriate privileges to each category.</i>
Special	<i>Library to define the following categories: borrower categories, loan categories, loan periods, number of renewals permitted on each loan category, fine levels, including grace periods and maximum fines and other debts, calendar; days closed, vacations, etc.</i>
Public	<i>It is possible to assign a user type to each record which can control the following:</i> <i>a. The number of items in total which the user may have on loan</i> <i>b. The number of items of a given material type which the user may have on loan</i> <i>c. Whether a user should pay a loan charge for a given material type</i> <i>d. Whether a user should pay fines on a given material type</i> <i>e. Whether a user should pay reservation charges on a given material type</i> <i>f. Whether a user should be sent any system generated correspondence such as overdue letters</i>
Special	<i>4.4.1 The system will permit the creation of differing user profiles.</i>
Academic	<i>4.5.1.5 The system must allow for a range of user categories. The Library currently has 17 user categories and 16 library administrative categories.</i>
Special	<i>3.1.2 The system must be able to utilise multiple user categories including pseudo, borrowers such as, 'Binding', 'New display', 'Cataloguing' (M), It is desirable that there should be no limit to the number of these pseudo borrowers.</i>
Academic	<i>MR 7.4 Multiple patron types, definable by library staff, must be supported: tenderers should indicate any limits which apply. The following is an indication of user types which will be required but is NOT an exhaustive list: Academic staff: full-time Academic staff: part-time Support staff: full-time Support staff: part-time Student: full-time* Student: part-time* Student: short course* External borrower External reader * Students must also be differentiated by level of study</i>

**Table 10 Examples of expressed requirements for establishing user categories**

Some features which might be regarded as 'essential' features for all libraries were a minority interest. For example, 'short term loans' were specifically required by only 2 of the 4 academic libraries in the sample, and the 'recall' facility by only 1 public and 2 academic libraries (See Table 11).

<b>Circulation features</b>	<b>Public (4)</b>	<b>Academic (4)</b>	<b>Special (3)</b>	<b>Total (11)</b>
History	3	1	2	6
Multi site considerations e.g. routing slips, authorisation	3	1	1	5
Email notices	1	3	1	5
Bulk renewal	2	1	1	4
Fall back/back up/offline	2	1	1	4
Transfer user data to system	1	1	1	3
Recall	1	2		3
Family groups	3			3
Short term loans		2	1	3
Advance bookings		2	1	3
Public Lending Right facilities	2			2
Smartcard	1	1		2
Stock taking	1	1		2
Mobile	1			1
Housebound	1			1
(Possibility of) voice technology	1			1
Other income (e.g. photocopiers)	1			1
Credit card/DD payment of fines/charges			1	1
Use of existing equipment	1			1
Collections management (e.g. stock exchanges)	1			1
Interface with other systems				
Student records/membership database		1	2	3
Authentication system		1		1
Postcode database	3			3
Database to find replacement costs for invoicing	1			1

**Table 11 Frequency of expressed requirements for Circulation features**

#### *4.5.4 Serials management*

Three of the 12 library specifications (one in each library sector) did not specify the requirement of *serials management*. These three did however address some aspects relating to serials: two required the facility to catalogue serials and the other required *serials management* to be available as an extra module at a future date.

Some of the libraries when specifying serials management requirements, referred to the acquisitions section and catalogue section of their specifications. For example, from a public library.:

*It is assumed that some aspects of serials management will be subsumed within the cataloguing and acquisitions/fund accounting modules*

In a public library specification, serials and acquisitions requirements were contained in one section :

*'Acquisitions function(s)' includes any separate serials function or package throughout this section, except where specified.*

Several extra requirements specifically relating to serials were then made, such as the ability to order back runs, or to deal with the cataloguing of serial title changes.

In a university library's specification many basic acquisitions functions were repeated in the serials management section, (e.g. the ability to print orders) and a few serials specific requirements are then also included, such as numbering variety, combined issues, etc.. A special library specification also had repeated information from the acquisitions section.

In a special library's specification serials management was covered in 2 sections: 'acquisitions of serials' and 10 pages later, 'binding and journals'.

A university library stated that

*The system must have at least the functionality of the existing SAILS system used at [library name] and provide the following: acquisitions; automatic & manual generation of issues; check-in; claiming - automatic & manual; financial control; enquiry (title, supplier & financial); report generation; binding control; standing orders.*

A public library detailed the serials management functionality required, but also stated that the supplier may not provide a serials management module, but instead make links to the existing serials management software.

Serials management functionality was defined in varying levels of detail in the 9 specifications, from 10 lines to several pages. The **cataloguing** of serials was dealt with in either the catalogue or serials sections of the specifications.

Main functions

All of the 9 libraries specifying a serials module included coverage of the 'main functions', i.e. ordering and subscription control, check-in, routing, claiming, binding, fund accounting, enquiries, and reports and statistics as in the Leeves and Russell (1995) checklist.

Requirements were stated in various ways. Table 12 provides examples of various ways in which the requirement for the system to predict frequencies was expressed.

Additional requirements were noted in the nine specifications which had requested Serials management, but there was little commonality (See Table 13).

Academic	<i>4.8.4.1 The prediction of receipts must be capable of handling all of the frequencies and anomalies which actually occur in serial publication, including combined issues, irregulars, supplements and indexes, and supplementary material on computer discs, CD-ROMs, videos etc. Examples of frequencies include daily, weekly, fortnightly, monthly, quarterly, annually, two yearly, seasonally, and very occasionally, but this should not be regarded as an exhaustive list. The prediction patterns must allow issues to be recorded by multiple hierarchies, e.g. series, volume and part numbers, as well as dates recorded by any combination of year, day, month or other period according to the style of the serial itself.</i>
Academic	<i>5.2.5.5 It must be able to apply a variety of prediction patterns.M</i>
Special	<i>5.2.3.16 M The system must allow for the automatic generation of forecasts of issues to be received based on item frequency.</i>
Academic	<i>MR 11.4 The system must support a variety of user-defined prediction patterns, including irregular patterns.</i>
Special	<i>M273 Provide a predictive capability based on library defined patterns of receipt.</i>
Academic	<i>9.24 The system should provide both automatic and manual prediction of issues (including regular combined issues and regular indexes and title pages) with expected dates of arrival.</i>

**Table 12 Examples of expressed requirements for prediction patterns in Serials**

<b>Serials management features</b>	<b>Public (3)</b>	<b>Academic (3)</b>	<b>Special (3)</b>	<b>Total (9)</b>
Barcode check-in/scanners	1	1		2
Contents pages e.g. scanning/retrieval		2	1	3
Email notifications to staff		1		1
Electronic rights management (for accessing electronic holdings and journal articles)			1	1
Circulation list transferable to Web/E-Mail		1		1

**Table 13 Frequency of expressed requirements for Serials functions**

#### **4.7 Summary**

The majority of specifications were produced with the intention of issuing these to a range of suppliers in an invitation to tender, with the specification becoming a key component of the contract between the system supplier and the purchasing library. In some instances, however, specifications were intended for a named supplier, usually that which had supplied the existing system, and the library was seeking an upgrade. There was some evidence of collaborative working within the public and academic sectors with specifications being produced for joint tenders. Six academic libraries had indicated that they had drawn on other libraries' specifications when producing their own.

The content of all specifications included the same broad categories of information and requirements, with the majority specifying requirements for all or most of the core

modules. Some 'additional' (i.e. non-core) features were required within the sectors. In the public libraries, requirements were expressed for specific system capabilities for mobile libraries, housebound readers and school library service, whilst in the academic libraries, requirements were specified for copyright management and materials booking.

There was wide variation both between and within sectors in the format, organisation, level of detail and terminology used in the specifications. The practice of indicating a functional requirement as 'mandatory' or 'essential' or 'desirable' was common, and requests for information on a system's capabilities in handling a particular function were fairly frequent. Requests to suppliers for 'solutions' were also evident but less common.

The functional requirements specified for each of the core modules (Cataloguing, Acquisitions, Circulation, Serials) had striking similarities both within and across the sectors. In all cases, the basic requirements comprised the functions listed in a checklist by Leeves and Russell in their 1995 directory but there were variations in terminology used. This evidence suggest that there is an urgent need for a model specification of basic functional requirements which can be agreed by both librarians and systems suppliers so that basic functions which have been embedded within all systems no longer require detailed specification, nor confirmation, but are standard.

## 5. Survey of UK library system suppliers

### 5.1 Introduction

A questionnaire was distributed to 25 UK-based library system suppliers. Fourteen completed questionnaires were returned, constituting a response rate of 56%. The respondents represented suppliers across a spectrum of what may be described as 'large' to 'small' library systems. The main markets for these were Public libraries (8), Universities (6), College (11), Special (11) and School (3). Five suppliers indicated that they also supplied systems in 'other' categories, including national libraries.

Suppliers were asked to indicate, by the use of ticked responses and written comments, their views on the following:

- how useful they found a library's specification as a mechanism for determining a potential customer's requirements;
- what they thought of the general quality (e.g. clarity, style, comprehensiveness etc) of the specifications received;
- what, in their opinion characterised 'good' and 'poor' specifications;
- whether they thought that librarians were generally aware of leading edge developments, able to provide a precise specification of their requirements and were clear about what they want from a library system;
- whether they thought that a generic basic 'toolkit' of systems requirements would benefit librarians and suppliers;
- whether they had ever costed the process (e.g. labour, consumables, travel etc) of producing a proposal.

This section reports the results of the survey with a focus on suppliers' perceptions of the usefulness and quality of specifications, and perceived problems in communicating with librarians as customers. The section concludes with a summary of suppliers views on the potential value of a model specification or 'toolkit' of requirements in the procurement process. A detailed quantitative analysis of the questionnaire responses is included in Appendix C along with all comments provided.

### 5.2 Usefulness of the specification

Ten of the fourteen respondents expressed the view that the specification was of 'limited' or 'partial' use as a mechanism for determining a potential customer's requirements. A major concern frequently expressed was that the requirements outlined in specifications received by suppliers comprised large numbers of questions asking for confirmation that absolutely standard and minimal functionality could be provided. It was felt by several suppliers that 90- 95% of such basic requirements can be met by all of the library systems on the market, and that such statements and questions as '*The system **must** be able to store the patron's name*' and '*Does your overdues module produce overdues?*' are unnecessary and time-consuming for the supplier to respond to in every proposal. As one supplier commented:

*Mostly, people have statements like 'The system should be able to issue books for a user-defined period'. To be blunt, if the library system doesn't do this, it will not last on the market for too long.*

Comments from several suppliers concurred with the view expressed by one who thought that the preparation of, and responses to, detailed requirements statements were of little value in the selection of library automation systems, and could even be harmful in that this form of selection encouraged libraries to document their current practices as if they are new requirements, rather than seeking new technologies '*as it*

*is harder to 'invent' new requirements', and favoured older systems that are about to become obsolete 'as points are awarded for depth and historical features, not breadth and innovation'. Comparison of systems by librarians on the basis of detailed specifications of functional requirements 'tends to hide the differences between systems (by awarding many points to basic and common functionality, and fewer points to genuine innovations and discriminators)' and 'under-values factors like corporate strength, customer references and service'.*

Another supplier expressed the view that the specification can be misleading in terms of what is excluded, in that *'there are specific functions which the librarian will not put into the functionality spec because they do not know it exists and the supplier won't put it in because (a) the librarian hasn't asked and (b) they do not take that function to be anything special. Also, the feel of the system is a key thing and this can be assessed in an hour demo when the librarian should ask themselves 'could I work with this interface?' A system can have all the functionality but be cluttered and poorly laid out. Putting a question in for a supplier to answer like 'Is this screen easy to navigate' – the supplier will never say 'No – it's an absolute nightmare'. You need to see the system for questions like that'.*

Other views expressed by suppliers represented a considerable sense of frustration with the use of the specification. The points of concern centred around the amount of work required by suppliers to produce proposals in response to specifications, when *'librarians have obviously decided what they want and are using your company to make up the numbers – the specification will be totally centred around another system'.* Another commented *'I do despair at the amount of work necessary to respond to certain documents when I know I could answer every question with (a) a system functionality description and (b) a 2 hour demo'.* At most, the expected response to basic functionality should be expressed, it was thought, in the form of tick-boxes.

Many complained of a lack of clarity in specifications on which points are essential to the library, and of the inclusion of pre-conceived ideas of how a process or transaction should be handled by the system. A fairly representative view overall was that *'most specifications show that a lot of work has been put into the document. It is rare that this work is well considered to ensure that the supplier provides the information actually required or gives the supplier essential information'.*

In their responses to the questionnaire, four suppliers indicated that the specification was 'very useful' as a mechanism for determining a potential customer's requirements, although emphases were on the benefits to librarians rather than to suppliers. One commented that the production of the specification was a 'valuable exercise' for librarians to undertake, and another stated that the specification was a useful basis for the librarian to compare systems. One response was qualified with the comment that *'Specifications are useful when the issuing organisation knows and understands their needs, both present and future. Many specs are designed around existing products and emphasise strengths of those products rather than providing a more open approach to new technologies. Many questions need not be asked as all such systems should meet a minimum level of functionality and user operability'.* One supplier indicated that *'specifications are useful, BUT they are not as useful as librarians believe'.*

### **5.3 Quality of specifications**

The overall quality of the specifications received in terms of clarity, style and comprehensiveness was thought to be 'variable' or 'poor' by 12 suppliers, whilst only two suppliers perceived the specifications which they had received as generally quite good in these terms. The most frequently articulated criticism concerned the structure of specifications produced by libraries. Structural weaknesses included: the mixing of background statements, requirements and requests for information throughout the

document; repetition of the same questions in different sections (and sometimes in the same section); multi-disparate requirements in one sentence; the absence of question numbering; questions tucked away in appendices – all leading to a lack of clarity in what was required in the supplier's response.

Specifications were often multi-authored. Suppliers criticised the lack of editorial control which often resulted in the inclusion of multiple formats, inconsistent terminology, duplication of requirements expressed and sometimes conflicting requirements.

Other points of criticism centred around either a lack of information on how the supplier was expected to respond or, at the other extreme, libraries' demands could be too rigid on the layout of the supplier's response, particularly in the presentation of costs information. Several suppliers commented on the lack of background information needed on services which the supplier was expected to provide. For example, if data was to be converted, a data sample should be provided or a complete breakdown of all fields and export formats. On training requirements, one supplier noted – *'I have only seen a couple of documents that state the amount of staff requiring training and to what level – the question always states 'You will provide training' but not what the expectations are'*.

Frequent reference was also made to supply of specifications by libraries in hard-copy only. Suppliers expressed a wish to receive specifications in electronic format in addition to paper versions.

#### **5.4 Librarians as customers**

Eight of the 14 suppliers who responded to the questionnaire thought that librarians responsible for purchasing systems were limited in awareness of recent developments and unclear about what they wanted from a library system. Seven suppliers perceived that librarians were unable to provide a precise specification of their requirements.

Some suppliers noted an unwillingness to embrace new technologies and practices, and a general reluctance to invite new solutions to old problems, commenting on librarians' tendency to focus on *'middle management'* or *'operator' features'* and *'mundane attributes'*, rather than allowing emphasis on *'radical workflow changes'*, *'efficiency features'* and *'process improvements'*. One supplier commented that *'they never explore design. They merely include or exclude suppliers on the basis of whether or not a function is included. The nearest they get to this generally is to ask feeble questions such as 'is your OPAC screen easy to understand?...''*

There were several comments to the effect that, often, librarians included *'buzzwords'* or requirements such as *'Z39.50'*, *'Unicode'*, *'Web solutions'* in the specifications without understanding what the terms meant. A view expressed by several suppliers was that specifications should be written only after the market *'offerings'* and system capabilities have been reviewed by the procuring librarians.

Frequent examples were given of specifications having been copied from those issued by other libraries rather than created by the procuring organisation. One supplier commented

*I become very concerned (and this has happened on at least 75% of responses) when I phone a librarian to clarify a question and the librarian does not understand the question you have asked. They say 'Oh, we just copied that from another document – I don't know what it means!'*

Several suppliers made general comments on the library-supplier relationship. One commented on the need for librarians to receive training in *'purchasing'*. Other views expressed were that *'many librarians are frightened by the procurement process and therefore don't communicate well with suppliers about problems or negative issues'*, and that *'..after the specification/demonstration phases, the librarian who does not*

*want your system generally never wants to speak to your company again, whereas suppliers could use a debriefing session to find out what the problems were.*

### **5.5 Cost**

Suppliers estimated an average cost to the supplier of £2,000 in responding to an RfP, with one supplier stating that the total cost of a sale to a supplier was closer to £20,000

### **5.6 A toolkit of requirements**

Eleven of the fourteen suppliers who responded to the survey indicated that the development of a generic basic 'toolkit' of systems requirements would benefit librarians and twelve thought that it would be of benefit to suppliers. Support was expressed for the creation of a standard set of minimum capabilities to be utilised in the library system specification alongside questions asking suppliers to state any areas in which their systems did not comply with this standard.

### **5.7 Conclusions**

Many of the respondents in this survey provided detailed comments in their replies. Much of the commentary was negative and reflected a frustration with the specification as a mechanism for determining their customers' requirements and with the system procurement process in general.

Much of the frustration lay with the tendency for specifications to be dominated by lists of requirements which are present in all library management systems on the market today. Such focus on the basic detail hinders the potential for librarians to articulate more strategic, or even visionary, requirements, and constrains suppliers in proposing solutions which take advantage of new technologies. A toolkit of basic requirements, agreed by librarians and system suppliers would clearly be welcomed in the suppliers' sector.

## 6. Conclusions

There is clearly a divide between library practitioners and commercial suppliers of library management systems on the role, content and value of the specification in the procurement process. Experienced library managers recognise a number of benefits of the library specification in both the process of its production and as a mechanism for choosing and acquiring a library system solution. Some practitioners (e.g. Stowe, 1999) have through their own experience, however, identified potential flaws in the content and process of developing a specification and there is evidence that librarians charged with compiling specification documents need to seek guidance on the format and detail to be included. The majority of specifications analysed for this Study were produced with the intention of issuing these to a range of suppliers in an invitation to tender, with the specification becoming a key component of the contract between the system supplier and the purchasing library. In some instances, however, specifications were intended for a named supplier, usually that which had supplied the existing system, and the library was seeking an upgrade. There was some evidence of collaborative working within the public and academic sectors with specifications being produced for joint tenders, and six academic libraries had indicated that they had drawn on other libraries' specifications when producing their own. Over-reliance on other specifications can lead to problems for both purchasers, in articulating their true requirements, and for suppliers in understanding the real needs of the libraries. More significantly, the practice of passing on specifications to other libraries serves to perpetuate an adherence to outdated ideas.

The content of all specifications analysed in this Study included the same broad categories of information and requirements, with the majority specifying requirements for all or most of the core modules. Some 'additional' (i.e. non-core) features were required within the sectors. In the public libraries, for example, requirements were expressed for specific system capabilities for mobile libraries, housebound readers and school library service, whilst in the academic libraries, requirements were specified for copyright management and materials booking. The functional requirements specified for each of the core modules (Cataloguing, Acquisitions, Circulation, Serials) had striking similarities both within and across the sectors. In all cases, the basic requirements comprised the functions listed in a checklist by Leeves and Russell in their 1995 directory but there were variations in terminology used.

System suppliers, across a decade, have been critical of the lengthy procurement process which has the specification at its heart. Suppliers in the survey expressed frustration with the tendency for specifications produced by librarians to be dominated by lists of requirements which are present in all library management systems on the market today. Such focus on the basic detail hinders the potential for librarians to articulate more strategic, or even visionary, requirements, and constrains suppliers in proposing solutions which take advantage of new technologies. This evidence suggest that there is an urgent need for a model specification of basic functional requirements which can be agreed by both librarians and systems suppliers so that basic functions which have been embedded within all systems no longer require detailed specification, nor confirmation, but are standard. A mechanism for streamlining what is evidently a time-consuming and cumbersome process for both librarians and suppliers is clearly desirable. There has been some activity towards harmonising and rationalising the process of systems acquisition in museums as a result of the LASSI project, and the Public Record Office, recognising the need for a model specification for the procurement of Electronic Records systems, has developed a set of generic requirements for use by government departments and agencies who were developing their own detailed specifications. Such initiatives may serve as pointers to the way forward in the library community.

In line with the objectives of the HARMONISE Project, Grant (1999) suggested the

development of a matrix of common features to serve as a basis of all RfPs by specifying that compliance with the matrix document is assumed and thus obviate the repeated asking of the same questions by each library. It would be the vendor's responsibility to file updates with the organisation charged with maintaining the matrix. Such a matrix, or 'toolkit' would have significant benefits - in keeping librarians up-to-date about new developments, in providing access to a standardised central source of information, in focussing concentration on the real task of discriminating between the various potential systems and suppliers, in allowing greater scope for suppliers in developing a standard response, changing the emphasis of the selection process - ultimately reducing both the real and hidden costs of procurement. In May 2000, a workshop was held at the Library and Information Show in Birmingham UK on the procurement process, and the desirability of a core specification (Evans, 2000). The Panel members comprising Juliet Leeves and representatives from commercial system suppliers agreed that the time was right for the development of a core specification, with the suggestion that initiatives should come from the suppliers.

The general lack of awareness of new technologies in the library community, as perceived by suppliers, is also a real problem. The 'hybrid' (traditional/digital) environment further complicates the situation. Not only do libraries have to acquire or configure technologies to manage their internal collections, but also to manage the resources made electronically available/accessible beyond their own organisations. There has been some significant progress in, and a number of projects on, the development of functional specifications for managing the external digital environment and on access to electronic resources on a large scale. These initiatives, however, have largely ignored the functional and technical requirements for the internal management of resources. It remains the responsibility of individual managers to acquire appropriate systems technologies and software to manage local collections and to integrate these with the external digital environment. Murray (1999) has noted that the 'digital library must integrate with traditional library automation system both in-house for the presentation of a holistic library environment, and remote libraries and information services to maximise resource sharing benefits' (p.175). There is clearly also a need for the idea of the model specification or toolkit, proposed here for library system procurement, to be extended to the range of technical solutions which may be implemented across libraries to manage both print and electronic resources.

## **7. Recommendations**

Evidence in this report suggests a number of recommendations to facilitate the harmonisation of procurement procedures across the library community, and especially where these are rooted in the use of the specification as the main tool in acquiring a library system. These are:

- Development of a 'plain English' guide to new technological developments and their implications
- Development of an annual 'short course' for middle managers currently involved in procurement.
- Development of a matrix or toolkit of basic functions which can be expected in all library management systems.
- Nominated agency to liaise with libraries and suppliers in keeping toolkit up to date.
- Encouragement of the publication of incisive case studies of the whole procurement and implementation process.
- Further research on common requirements for computer based management of resources in libraries

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## Appendix A

18 November, 1999

Dear

### **Harmonising the process of procuring library management systems: the HARMONISE project**

I understand that you have recently implemented a new library management system, and I am writing to ask if you would provide me with a copy of your system specification for the Library and Information Commission funded HARMONISE research project. The HARMONISE project will assess the feasibility of developing a model system specification which could simplify the time-consuming and difficult task of procuring a library management system.

A key activity within the project is the analysis of system specifications from a variety of libraries to identify their content. We would like to examine system specifications that have been produced in the last 3 years. We are asking a sample of libraries if they would like to participate in this project by making their specifications available to us. All specifications will be treated as confidential and anonymous. Your assistance will, however, be acknowledged in general terms in the final report to the LIC.

I enclose a leaflet which provides further information. If you would like to discuss the project further, please contact Shelagh Fisher (Project Leader, tel: 0161 247 6718) or Rachel Delbridge (Research Fellow, tel: 0161 247 6142).

If you are willing to contribute your library's specification, I would be grateful if you would send a printed copy to Rachel Delbridge at the above address. I would be extremely grateful, if you could also supply an electronic version, either by e-mail (to [r.delbridge@mmu.ac.uk](mailto:r.delbridge@mmu.ac.uk)) or on disk. Although not essential, an electronic version would assist us in analysing the specifications.

I look forward to hearing from you. Thank you (in anticipation) for your co-operation.

Yours sincerely

Shelagh Fisher  
Reader in Information Management  
HARMONISE Project Leader

## Appendix B

Centre for Research in Library and Information Management

Manchester Metropolitan University

Harmonising The Process Of Procuring Library Management Systems

(HARMONISE : A LIBRARY & INFORMATION COMMISSION FUNDED PROJECT)

### Questionnaire To Library System Suppliers

Please complete the questionnaire by ticking the appropriate boxes. Space is provided at the end of the questionnaire for any comments on the points raised.

#### SECTION 1      Your views on the specifications produced by libraries

.

**1. In general terms, how useful do you find a library's system specification as a mechanism for determining a potential customer's requirements?**

- Very useful                                            *Please tick one*
- Of partial use
- Of limited use
- No use at all

**2. What do think of the general quality (eg. clarity, style, comprehensiveness etc) of the specifications which you receive from librarians.**

- Generally good                                            *Please tick one*
- Of variable quality
- Generally poor

**3. What constitutes a 'good' specification? *Please list up to 3 features which, in your opinion, facilitate the process of producing a supplier's response (or proposal).***

**4. What constitutes a 'poor' specification? *Please list up to 3 features which, in your opinion, cause problems or difficulties in producing a supplier's proposal***

**5. What proportion of your systems sales are made in response to a library's specification?**

Please tick one

- |           |                          |                   |                          |
|-----------|--------------------------|-------------------|--------------------------|
| All       | <input type="checkbox"/> | About 25%         | <input type="checkbox"/> |
| About 75% | <input type="checkbox"/> | None              | <input type="checkbox"/> |
| About 50% | <input type="checkbox"/> | Your own estimate | _____ %                  |

**6. In your experience of specifications which you have recently received from librarians for the supply of a library system, would you say that, in general, librarians are:**

Please tick those which apply

- |  |                          |  |                          |
|--|--------------------------|--|--------------------------|
| Well aware of leading edge developments                              | <input type="checkbox"/> | Limited in awareness of recent developments                            | <input type="checkbox"/> |
| <b>Able</b> to provide a precise specification of their requirements | <input type="checkbox"/> | <b>Unable</b> to provide a precise specification of their requirements | <input type="checkbox"/> |
| <b>Clear</b> about what they want from a library system              | <input type="checkbox"/> | <b>Unclear</b> about what they want from a library system              | <input type="checkbox"/> |

**7. Do you think that a generic basic 'toolkit' of systems requirements would benefit librarians?**

Yes

*Please tick one*

No

**SECTION 2 *Your experience of producing proposals and supplying library systems***

**8. Do you have a 'model' proposal which you adapt for your responses to specifications?**

Yes

No

**9. Have you ever costed the process (eg. labour, consumables, travel etc) of producing a proposal?**

Yes

No

**9a** If 'Yes', please give an approximate cost £ \_\_\_\_\_

**10. Do you think a 'toolkit' of basic systems requirements would benefit you as a supplier in the procurement process?**

Yes

No

**11. Which of the following are your main markets in the supply of library management systems?**

University

College

School

Public

'Special'

Other

.....

**12. Please use this space to give general comments on the use, and usefulness, of library system specifications in the procurement process. Your comments would be particularly welcome on how the process of supplying library systems might be improved.**

Please continue overleaf if necessary.

**13. A draft report on the results of the Project will be available by mid-March 2000. Are you willing to provide us with comments/feedback on the draft report?**

Yes

No

**13a If YES, please give your name and contact details below. A copy of the report will be sent to you. All comments will be treated in strictest confidence.**

Name \_\_\_\_\_

Organisation \_\_\_\_\_

Address \_\_\_\_\_

Tel \_\_\_\_\_

Fax \_\_\_\_\_

E-mail \_\_\_\_\_

Thank you for your assistance in completing the questionnaire.

Please return, in the SAE provided, to:

Rachel Delbridge  
Research Fellow (HARMONISE Project)  
Centre for Research in Library and Information Management  
Manchester Metropolitan University  
Geoffrey Manton Building  
Rosamond St. West  
off Oxford Rd  
MANCHESTER M15 6LL

## Appendix C

A questionnaire (Appendix B) was distributed to 25 UK-based library system suppliers. The questionnaire was intended to gather data on the suppliers' views on the role of the specification in the procurement process, and to evaluate their experiences. Fourteen completed questionnaires were returned. The relatively small number of respondents provided extensive and illuminating commentary, which is reproduced in the following sections in its 'raw' state.

<b>Question 1. In general terms, how useful do you find the library's system specification as a mechanism for determining a potential customer's requirements?</b>
--

Responses

Very useful	4	29%
Of partial use	7	50%
Of limited use	3	21%
No use at all	0	0%

Respondents' comments

- Every library's needs are different. I need to know what modules someone requires and any 'unusual' functionality. Mostly, people have statements like 'The system should be able to issue books for a user-defined period'. To be blunt, if the library system doesn't do this, it will not last on the market for too long. As a librarian, I can understand the point of doing this (to cover yourself on purchase in case functionality doesn't exist) but 90% of the questions asked should really be 'tickboxes' (Y/N) with the opportunity for the supplier to add info. Many tenders insist that the most basic functionality be explained, which is a waste of my time. I can usually learn far more in five minutes of talking directly to a potential customer than I can from a seventy-page document.
- They [specifications] are useful BUT they are not as useful as librarians believe. I believe that the best method of assessing a system is the onsite demo. Functionality of most systems today means that they will all meet 95% of the librarians requirements. The extra 5% is usually only found out within an onsite demo as it is the 'Uniqueness' of the system that sells it. There are specific functions which the librarian will not put into the functionality spec because they do not know it exists and the supplier won't put it in because (a) the librarian hasn't asked and (b) they do not take that function to be anything special. Also, the feel of the system is a key thing and this can be assessed in an hour demo when the librarian should ask themselves 'could I work with this interface?' A system can have all the functionality but be cluttered and poorly laid out. Putting a question in for a supplier to answer like 'Is this screen easy to navigate' – the supplier will never say 'No – it's an absolute nightmare'. You need to see the system for questions like that.

<b>Question 2. What do think of the general quality (eg clarity, style, comprehensiveness etc) of the specifications which you receive from librarians.</b>
---

Responses

Generally good	2	14%
Of variable quality	10	72%

Generally poor            2            14%

*Respondents' comments*

- Most tenders show that a lot of work has been put into the document. It is rare that this work is well considered to ensure that the supplier provides the information actually required or gives the supplier essential information. There is often a lack of information on how the document is expected to be filled in. If it is, then no allowance is made to allow space for the supplier to respond. An electronic version is rarely supplied (should ALWAYS be supplied). If data is to be converted, data sample should be provided OR a complete breakdown of all fields and export formats. I have only seen a couple of documents that state the amount of staff requiring training and to what level – the question always states 'You will provide training' but not what the expectations are. These are all minor examples and there are a lot more. To summarise, far more background information is needed on services the supplier will be expected to provide so accurate answers can be given (e.g. training, support, data conversion, etc...)
- One of the problems with the specifications is that they are rather too utopian to begin with and we have had experience of 're-issued' specification following an unsuccessful conclusion to the first efforts.

<b>Question 3.    What constitutes a 'good' specification?</b>
--

*Respondents' comments*

- A pre-qualifier document which lists essentials.
- A section which covers uniform functionality across the system, to avoid revisiting how things work time again.
- A structured document.
- Automated version of the specification.
- Avoidance of duplication of points
- Categorisation (e.g. 'cataloguing', 'stock control' etc...)
- Clear and reasonable deadline (More than one week) for response.
- Clear indication of the costs required with information from the library to assist in producing these
- Clear structure and outline of requirements which outlines a broad vision, but allows an open approach to how it is delivered.
- Clearly set out in 'modules i.e. circ, cat, acq, opac, tech detail
- Copy in electronic format
- Easy to use soft copy- no badly constructed tables etc...
- Editorial control – often written by several people which can lead to repetition/contradiction
- Fewer, more difficult questions, rather than many rather easy questions are more interesting to respond to, and provide better discrimination between solutions.
- Functionality graded as essential necessary – nice to have clear split between library related functionality and technical background.
- More numerous but very specific questions, rather than fewer more general

questions are easier to respond to.

- Not written with current system in mind using specific terminology and expectations.
- One document to add answers in, rather than separate charts to fill in
- One that aids, but doesn't drive the review process
- One which enables key workflow and other efficiency features of systems to be incorporated into the decision making process.
- Proper numbering of questions, i.e. 1 question per number and logical numbering.
- Supplier has clear directions on how the document is to be filled in; responses are not expected to exceed Y/N for 90% of questions, though with the opportunity to add additional info; the librarian understands the questions they are asking (often phone to clarify a point to have the librarian say 'Oh, we just copied that from another document – I don't know what it means!')
- Tenders [should be] written after reviewing market offerings
- Tick boxes, rather than general questions, are easier to respond to.
- Well structured response, with no duplication of questions – occurs when different departments produce independent sections.

<b>Question 4. What constitutes a 'poor' specification?</b>
---

*Respondents' comments*

- Too rigid on layout of response
- No clarity on which points are essential to the library
- Too much repetition of questions in each section
- Lack of clarity as to where response is required to be written
- Rigid structure for presentation of costs
- Pre-conceived ideas of how something should/must be handled by the system
- One which borrows from other specifications for the sake of it, even if that functionality is not a firm requirement.
- Paper version only.
- Starts strong in terms of details and fizzles out to just heading.
- Unnecessary questions; e.g. does your overdues module produce overdues?
- Have obviously decided what they want and are using your company to make up the numbers – the spec will be totally centred around another system.
- 1 question number with about 5 separate questions on it or worse no question numbers.
- Useless formatting, i.e., questions tucked away in appendices – unclear what to answer.
- Long verbal descriptions of requirements.
- Specification designed around legacy system. Poor knowledge and understanding of technological developments. Unclear or ambiguous current and future requirements.
- Lack of structure. Insufficient description of requirements

- Urgent deadline (within 4 days)
- Lengthy questionnaires with questions that are irrelevant to product required
- Multi disparate requirements in one sentence.
- Fuzzy requirements.
- The reverse of 3 above (One which enables keyworkflow and other efficiency features of supplier systems to be incorporated into the decision making process). 2 above is often tacked into specifications as a cover all, but does not 'drive' the decision.
- Specifications are often copied rather than created by the organisation and dwell on mundane attributes. They focus on 'middle management' or 'operator' features rather than allowing emphasis on 'radical' workflow changes, efficiency features and process improvements.
- Large numbers of questions asking for confirmation that absolutely standard and minimal functionality can be provided, are unnecessary and time-consuming to respond to every time. eg 'Q347: The system *must* be able to store the patron's name.'
- Repetition of the same questions in different sections (and sometimes in the same section) is also generally unnecessary and time-consuming.
- A mixture of background statements, requirements and requests for information, make responses more difficult to prepare (and to read).

**Question 5. What proportion of your systems sales are made in response to a library's specification?**

10%	1	(7%)	50%	4	(29%)	
25%	6	(43%)	75%	1	(7%)	
40%	1	(7%)	85%	1	(7%)	(n = 14)

*Respondents' comments*

- 40%. Our aim is to reduce the number of mundane 'jump through the hoop' specifications we have to, respond to by offering lower cost solutions to those organisations who implement efficient processes for choosing and implementing new system i.e. those that waste our money should pay more!!

**Question 6. From your experience of specifications which you have recently received from librarians for the supply of a library system, would you say that, in general, librarians are:**

Well aware of leading edge developments	6 (43%)	Limited in awareness of recent developments	8 (57%)
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Able to provide a precise specification of their requirements	7 (50%)	Unable to provide a precise specification of their requirements	7 (50%)
Clear about what they want from a library system	4 (29%)	Unclear about what they want from a library system	8 (57%)

*Respondents' comments*

- Recent developments: There is a definite tendency to use a few buzzwords (e.g. Z39.50, Unicode, Web solutions) without actually having a comprehensive understanding of what these actually mean or having a practical application for them should they purchase the system. If you do not need Z39.50, why specify it (keeping up with the Jones's???) ; Precise specs: Without doubt, and this has happened on at least 75% of responses, when you phone up a librarian to clarify a question and the librarian does not understand the question you have asked ('we copied it from elsewhere'), I become very concerned; What they want: My main concern for this is that librarians buy systems for their current functionality requirements without considering how they want to operate in two years time. I have had far too many librarians tell me 'the system is far too comprehensive for our needs' as though this is a bad thing (cost is usually comparable). Where is the ambition??? If I was now selecting a system, I would buy one that meets all of my current needs and has enough additional functionality to allow me to expand and improve my services over the next 12 – 24 months at no/minimal additional cost.
- Sometimes too precise – replicate what they do rather than what they want.
- Another 'beef' about the specifications is that they never explore design. They merely include or exclude suppliers on the basis of whether or not a function is included. The nearest they get to this generally is to ask feeble questions such as 'is your OPAC screen easy to understand?' They also ask pedantic questions which require a 'yes' or 'no' answer but often there is an alternative answer, such as a way of achieving the same results but not strictly adhering to the commonly understood standard, e.g. Z39.50 versus web-based searching for other means.
- Generally, requirements statements are quite precise about how a library wishes to automate its existing practices. They are less clear on how they want to embrace new technologies, and practices, and less willing to invite new solutions to old problems.

**Question 7. Do you think that a generic basic 'toolkit' of systems requirements would benefit librarians?**

Yes 11 (79%) No 2 (14%) Don't know 1 (7%)

*Respondents' comments*

- No, because they will still tick everything.
- Depends on what went into that toolkit- and if the librarian would bother adapting it to suit their specific needs. I would include: modules required, ticklist for each module of functionality separated into areas with codes (Yes, No, In development,

Will develop for cost, for no cost, workaround, etc) but the librarian MUST remove the stuff they don't want (while keeping in mind that they may want it (e.g. reservations) in 12 months time!)

- A standard toolkit would allow us greater scope for developing a standard response but I would worry that onus moves away from Library people really thinking about what they want and instead deciding from a 'shopping list'. I do realise however that the 'Shopping list' could raise awareness about the possibilities. It would be necessary to include 'ranking' facilities within the toolkit to make the purchaser consider just how important certain things are.
- But see comments in response to Q12; the main benefit would be in changing the emphasis of the selection process, rather than in time-saving.

**Question 8. Do you have a 'model' proposal which you adapt for responses to specifications?**

Yes 7 (50%) No 7 (50%)

*Respondents' comments*

- No, each reply has to be specific.
- For a few questions but generally answer each one specifically.
- No – Standard set of supporting documents. Response created specifically for each tender.
- One thing we do is have a 60 page functionality specification of the main modules.
- It is in the form of a series of individual model answers

**Question 9. Have you ever costed the process (eg. labour, consumables, travel etc) of producing a proposal.?**

Yes 8 (57%) No 6 (43%)

*Respondents' comments*

- £5,000 for proposal; £20,000 for total sale
- Yes, £200.00 although it varies greatly depending on specification.
- No – but we will turn down some documents because estimated costs will be too high. Of the top of my head, we can charge £500.00 per day for a consultant. If it takes 5 days to respond to a tender, that's £2,500.
- Yes, it varies: Local authority systems and University systems are often very expensive to respond to when the whole process is taken into account. These organisations should cost out the time and energy they spend on the whole process. I think of it as an appalling waste of money!!

**Question 10. Do you think a 'toolkit' of basic systems requirements would benefit you as a supplier in the procurement process?**

Yes 12 (86%) No 1 (7%) Don't know 1 (7%)

*Respondents comments*

- Yes – but this toolkit should be developed in close conjunction with suppliers before giving it out to the librarians.
- No, not if it was more than 5 pages in length.
- Very useful for both supplier and customer, but must be kept up to date as technology moves on. A good example of this is our fingerprint recognition device, which we are about to introduce. Potential (or even existing) customers need to be kept aware of any new developments. Access to a central source of information would greatly help.

**Question 11. Which of the following are your main markets in the supply of library management systems?**

University	6	(43%)	Public	8	(57%)
College	11	(79%)	'Special'	11	(79%)
School	3	(21%)	Other	5 (incl national)	(36%)

**12. Please use this space to give general comments on the use, and usefulness, of library system specifications in the procurement process. Your comments would be particularly welcome on how the process of supplying library systems might be improved.**

- I would suggest that the best selection process is: Send out a 2 page functionality spec (to everyone) stating what modules need now, what will need in future, key functionality (3-5points) in each module (e.g. cataloguing – MARC, Unicode), service requirements (support, online, onsite, training, data conversion) and asking for some price estimates. From this, try to get a view of the system at exhibitions or ask supplier for a demo onsite so that can assess if like the interface. Then select main suppliers (top 5) and send out full specification Narrow to two and get a half-day demo of each.
- I do despair at the amount of work necessary to respond to certain documents when I know I could answer every question with (a) a system functionality description and (b) a 2 hour demo. I personally believe one of the main reasons for 'tenders' is to ensure when you buy the system, you get all the things the 'salesman' promised and you've got it in writing. System assessment should mainly be done with the system in front of you and a good checklist.
- Need to include information about how the application needs to contribute to future growth and development.
- Scoring systems can be misleading
- Only part of the selection process
- Pull out and feature any fixed factors, e.g. operating systems.,
- Librarians need training in purchasing. They are also often unable to fight internal

battles to get the system they want.

- I think that many Librarians are frightened by the procurement process and therefore don't communicate well with suppliers about problems or negative issues.
- After the spec/demo the librarian who does not want your system generally never wants to speak to your company again, whereas suppliers could use a debrief session to find out what the problems were.
- Procurement should be part of the library school curriculum. Specs vary in quality greatly. Some tips from me would be:- (I worked for 5 years responding to specs and I now manage the spec uniting team)
- Give suppliers adequate time to respond ( We often have 4/5 specs at once and need to schedule work).
- 1 question per question number.
- Read the document in its entirety, especially if written by several people.
- Make it absolutely clear what needs a response and what doesn't.
- Include clear responding instructions and response deadline at the beginning of the document – this is often just included in a letter.
- Use a logical, simple numbering system i.e. 1 –2496 is much easier to use than 1.4.9. a (b) especially when documents are issued in electronic format as word will keep re-numbering the document as we enter our response.
- Keep contracts and the spec separate.
- Specifications are useful when the issuing organisation knows and understands their needs, both present and future. Many specs are designed around existing products and emphasise strengths of those products rather than providing a more open approach to new technologies. Many questions need not be asked as all such systems should meet a minimum level of functionality and user operability.
- Requirements specification is a very valuable exercise for the librarian and a necessary item for a truly objective comparison of systems. A 2 stage requirement specification is helpful. A short one to start with to make a short list of possible suppliers (1 – 2 pages) then a more detailed list of requirements for the selected suppliers on the short list.
- We find that most librarians are generally ignorant of the technological limitations and also possibilities and often ask for systems, which cost substantially more than they can afford or require. I think they should look for a 'package' which meets their requirements.
- I think that the preparation of, and responses to, detailed requirements statements are of little value in the selection of library automation systems, and can be harmful. This form of selection:
  - encourages libraries to document their current practices as if they are new requirements, rather than seeking new technologies (as it is harder to 'invent' new requirements);
  - favours older systems that are about to become obsolete (as points are awarded for depth and historical features, not breadth and innovation);
  - tends to hide the differences between systems (by awarding many points to basic and common functionality, and fewer points to genuine innovations and discriminators);

- under-values factors like corporate strength, references and service.
- Compliance with this kind of detailed basic functionality should be a required minimum standard, and should be an important part of the contract between the library and the eventual supplier, but the selection process should be about identifying corporate strengths, unique capabilities and service style. One of the best requirements documents we have been asked to respond to set out the 20 things that the library liked and hated about their current system, and posed about 20 really difficult questions, like 'Can the user use the Web OPAC to change the pick-up location of an item after he or she has been notified that it is on the holdshelf, and how does the system notify staff of this change ?' This allowed the library to get an excellent view of how a new system and supplier might suit them.
- I would support the creation of a standard set of minimum capabilities, and a question asking us to state any areas in which our system did not comply with this standard. The standard would have to be prepared with care to ensure that it did not enshrine particular technologies or ways of doing things, and thus become a barrier to progress. There would also be considerable risk of libraries using this standard but also adapting it, or repeating it in their requirement statements, thus increasing workload and confusion.
- I have a vision that with such a document in place, it would not be a force to harmonise (and thus fossilise) requirements, but would help to concentrate on the real task of discriminating between the various potential systems and suppliers.