

# 3

## Relationships with suppliers

### Introduction

In the 1970s it was commonplace for the larger libraries to be almost completely self-sufficient. The processes associated with selection, ordering, cataloguing, classification and processing of books were all handled in-house. Circulation of stock was achieved by large numbers of clerical staff, as was maintenance of card, sheaf and guard-book catalogues. The larger libraries had in-house binderies.

Over the past 30 years, the landscape has changed. The advent of e-resources is an obvious difference: now a large portion of current journal stock will be held by external agencies. Equally, many of the repetitive processes associated with hard-copy stock have also been farmed out to suppliers, who offer benefits deriving from economies of scale and specialization. To achieve these benefits, libraries have had to open up their systems, processes and procedures to suppliers, bringing about a fundamental change in relationships. Libraries are contracting in both senses: they carry out fewer functions (such as binding) in-house; they also rely more and more on relationships with suppliers that are governed by contracts.

This chapter examines the relationships with suppliers of:

- hard-copy materials
- electronic resources
- library management systems
- virtual learning environments.

### Suppliers of hard-copy materials

The start of the acquisition process is book selection. Particularly in the academic

library, this is viewed as a core professional task, since stock is so closely identified with learning, teaching and research. If a lecturer recommends that 200 students read chapters six to ten of Jones's book on macroeconomics, there is no point in having only Smith's book, no matter how good it may be. The library would also be failing in its duty to support teaching if it acquired only one copy of Jones, and placed it on long loan. Subject or faculty librarians pride themselves on their integration into the academic and research processes, not only providing recommended texts, but also developing collections in line with academic programmes and research, discovering and evaluating new resources and alerting academic staff. (Dale, Holland and Matthews (2005) give a full treatment of the role of the subject librarian and integration with the academic process.)

## **Supplier selection**

### *Public libraries*

Entrusting book selection to suppliers may therefore seem to subject librarians an abdication of a core responsibility. It has, however, been tried with some success in public libraries. Capital Planning Information (1999, 13, 33) identified the possible benefits to public libraries as: release of staff for other stock management; wider range of publishers and titles supplied, because of suppliers' specialist knowledge; supply of books at publication date. The study demonstrated that supplier selection was practicable and achieved most of these benefits. Fundamental to success is the development both of detailed stock management and selection policies by libraries and of partnerships with suppliers based on respect, understanding and the open exchange of information.

One of the best known examples of supplier selection occurred in Liverpool Libraries and Information Services (Naylor, 2000). Here the impetus was the introduction of 'best value', which necessitated a response to a steady decline in the number of book issues. Supplier selection was introduced for all new books, with library staff themselves selecting for the maintenance of core stock. This division was felt to reflect the knowledge and expertise of both sides of the supply equation. It was recognized that the choice of titles selected by the suppliers could only be as good as the specification of requirements by Liverpool. Much effort was invested in the latter, which reached its 17<sup>th</sup> edition within a year. The chosen suppliers were closely involved throughout the process of developing the concept and service, visiting libraries and advising on specifications.

It seems that Liverpool has benefited from supplier selection, particularly in

terms of the range of stock available in libraries, speed of supply and saving in staff time. However, some caution remains, for instance about the range of non-fiction publishers supplied. There is a fear that the stock of the libraries will come to mirror that of the popular high street bookshop, and large proportions of the non-fiction book-fund, especially for the more academic areas covered by the large central reference library, are still spent by library staff. There is some evidence to support this fear of homogeneity: Chapman and Spiller (2000, 22) distinguish a trend towards public libraries spending a much smaller proportion of book-funds on material more than a year old, and attribute this in part at least to the effect of supplier selection.

Supplier selection seems at best patchy still in public libraries, mostly evident on the small scale, for instance for popular fiction authors or to stock a new library, rather than on the large scale tried by Liverpool. One inhibitor identified by Muir and Fishwick (2000, 12–13) is the lack of data and information about the populations served by public libraries: without such information it is impossible to write a proper specification for the service.

The Liverpool experience demonstrates the importance of the specification, both for tendering and for monitoring the service provided. It also highlights that the relationship with suppliers needs to be one of partnership rather than opposition.

### *Academic libraries*

The misgivings about supplier selection in the public library sector have no doubt reinforced the reluctance of academic librarians to experiment with it. Supplier selection is, however, widespread in academic libraries in North America, where it masquerades, rather misleadingly, under the title of ‘approval plans’. In the most complete form of the approval plan, the library specifies the material it wishes to purchase (which may be by subject, geographic area, publisher, etc.) and sets budgetary limits; the vendor supplies material meeting the specification without further intervention by the library. A halfway house is the ‘slip plan’: the supplier sends notifications of titles meeting the specification (generally electronically) to designated library staff, who initiate the selection and ordering process.

The US survey by Brown and Forsyth (1999, 232) shows five major vendors supplying 291 academic libraries with significant approval plans. The marketplace seems stable, with half the responding libraries having the same supplier(s) for more than four years; over 61% used one or two suppliers only.

The marketplace does, however, show a trend towards consolidation: a previous survey 15 years earlier (Reidelbach and Shirk, 1984, 158–9) shows eight vendors rather than five.

This is not surprising. Approval plans entail major continuing investment in both systems and staff by suppliers, and are complex to manage and implement for both libraries and suppliers alike, since they mesh with so many library operations and departments. Brown and Forsyth (1999, 253) note that libraries rank ‘corporate reputation and business practice’ as the third most important factor in selecting approval plan vendors, close behind technical performance measures. This is a reflection of concern about the long-term viability of companies that become an integral element of library processes, requiring stable relationships. The adoption of approval plans will, therefore, emphasize the trend towards increasing dominance of the market by large suppliers and lack of movement by libraries between suppliers.

### ***Benefits***

As we have seen, approval plans are widespread in North America, and there are major benefits for the library, if the plans work well. The amount of staff time spent on the selection process is greatly reduced: the supplier’s staff and systems do the work previously duplicated across many libraries. Suppliers are able to offer higher discounts because the terms on which they trade with publishers are more favourable: instead of ordering single copies of individual titles piecemeal against firm orders, they are able to order once in bulk to satisfy all approval plans.

In addition, the way in which the suppliers work, profiling books for approval plans only when they are published, brings benefits. The traditional method of libraries entering firm orders for titles often means that books are ordered before they are published, or even before they are written: librarians and academics work from publishers’ advance notices of books in press. The approval plan has the effect of shortening the average time of supply, measured from date of order to date of receipt in the library. It also means that libraries make much more effective use of their institutions’ money: it is spent on books that come into stock almost immediately, instead of lying fallow, committed to purchase of materials not yet, or even never to be, produced. There is the added efficiency gain of not having to administer committed but unspent funds, or to cancel unfulfilled orders.

There is also some evidence that approval plans work well for specialist collections or libraries. Jenkins (2003, 180) maintains that approval plans identify publications in disciplines, such as nursing and education, not adequately

covered by traditional selection and reviewing tools. The experience of the College of Mount St Joseph Library shows that the approval plan doubled the number of titles acquired for four vocational disciplines within a year. Brown and Forsyth (1999, 259) report that, while approval plans traditionally have been considered ideal for larger libraries, smaller libraries with budgets of less than \$100,000 found that approval plans served them well too.

### **Concerns**

There are also, of course, concerns about the effects of approval plans. Only the large suppliers can afford to develop and implement them. They therefore become yet another barrier to competition, tending to keep the smaller suppliers out of the marketplace. They also mean that libraries become even more dependent on their suppliers. This combination, of increasing reliance on suppliers and a marketplace that is open to less and less competition, may be dangerous for libraries in the longer term.

Professional concerns are evident too. Supplier selection, or the approval plan, introduces another filter between publisher and library as customer. Willett (1998) makes the case that the alternative press does not figure in supplier-selected materials; reliance on suppliers could therefore tend to homogenize collections and accentuate the dominance of established publishers. This does indeed raise what must be an underlying concern. How do the suppliers pre-select books or publishers for inclusion in plans? However, this has always been a problem with selection aids used by librarians and academics. How, for instance, do journal publishers select books for review? Taking an approval plan does not necessarily imply the dormancy of professional awareness, or the absence of pressure on suppliers to meet libraries' requirements. Nor does it imply sole sourcing: it can indeed be argued that the approval plan frees staff time to concentrate on the esoteric, the out-of-the-way, the hard-to-source publications.

Perhaps a more fundamental concern is raised by Gasson's report of his interview with Philip Blackwell (2002, 22). In the context of discussing the level of discount allowed by publishers to booksellers, Gasson notes the power of library suppliers to influence book sales. Philip Blackwell comments: 'we profile over 40,000 titles a year for targeted approval plans . . . and that definitely drives sales. Does the margin we are given [by publishers] really reflect the investment that we have made to sell those books?' The profiling book supplier has three options to recoup the investment: bargain with the publisher for a bigger

discount; pass the cost to the library, and become less competitive; or stop profiling the publisher. For librarians this is a sobering reminder that suppliers are commercial entities, driven by the bottom line. When entering and monitoring contracts with suppliers, librarians need a high level of commercial awareness in order to reconcile the supplier's concern for the bottom line with the interests of the library's users.

## **Shelf-ready materials**

While supplier selection may seem somewhat controversial outside North America, there is growing acceptance and implementation of the shelf-ready book. Suppliers have for many years carried out the physical processing of books, adding, for instance, date labels, ownership stamps and security tags. Now more and more libraries are outsourcing cataloguing and classification to their suppliers too: files of data are sent to the library, generally by electronic data interchange (EDI) when books are despatched from the supplier's warehouse, and are uploaded into the library management system (LMS). Quality checks are carried out on both the data and the standards of cataloguing, classification and physical processing of the books; otherwise the books are sent straight to the shelf on unpacking.

An early academic experimenter in the UK was the University of Huddersfield, which found considerable savings in the cost of acquisition and cataloguing, and in through-put time (Weaver et al., 1999, 29–30). Staff also compared classification numbers and subject indexing supplied with that done in-house, and found external supply to be satisfactory.

The trend towards shelf-ready books has been intensified by the regional purchasing consortia, which since the late 1990s have required provision of a full shelf-ready service from their book suppliers. More and more libraries are obtaining at least a part of their stock shelf-ready, particularly those with large book-funds, which tend in the UK to be the newer universities with their emphasis on teaching.

There are obvious advantages and attractions in this development. What is, *pace* the cataloguers, in the majority of cases a repetitive and fairly undemanding process is completely farmed out to the supplier. Both professional and paraprofessional staff are freed for other, more user-oriented work. The backlogs that accumulate so easily in cataloguing departments, because staff resources are limited and unable to cope with the peaks of new acquisition, are eliminated: suppliers operate with much larger pools of staff, geared to high volumes, that

tend to obviate peaks and troughs. The time elapsing between an order being placed and the book being available to the user is much reduced.

Elements of the shelf-ready process may, however, be problematic. To achieve cost savings, libraries must use standard classification schemes and cataloguing practices. Suppliers may accommodate the application of optional elements within the current edition of, say, Dewey, but will understandably charge for eccentric elements, common in many libraries, such as the use in particular subject areas of an earlier edition of Dewey or of a classification scheme developed in-house.

Another service, which is as yet fairly uncommon, is the shelf-ready serial. Most of the serials agents offer a 'consolidated' service. This was generally developed to decrease the costs for libraries of procuring serials from abroad: individual issues of different serials are consolidated by the agent into a single shipment from the country of publication, thus saving freight costs. However, the agents will also process the serial parts using stationery supplied by the library, and supply check-in data that can be uploaded into the LMS. Taken together these elements, originally developed for the supply of serials from abroad, constitute a shelf-ready service.

## Lessons

There is a readily identifiable trend towards libraries contracting out more and more processes once regarded as core professional practice. (For a full discussion of the implications, see Chapter 5.) In some areas, such as supplier selection or classification, librarians may feel that they are surrendering too much control over professional standards to a commercial supplier, and that service to the user may be reduced, as for instance classification becomes inconsistent with former in-house practice. There is also a perceived danger, common with any form of outsourcing, of becoming too reliant on external agencies. Suppliers do go bankrupt; ownership may change: what are the effects then on a core element of library operations?

Against these fears must be set the clear advantage of being able to divert staff time from repetitive processes to service that is focused on the user and the particular demands of the library's clientele. All librarians should question the opportunity cost of continuing to select, catalogue and process books and serials in-house, when suppliers will do it more efficiently.

The benefits can be achieved only by working in close partnership with suppliers, on a basis of trust and openness. There has to be substantial

investment on both sides, at least of staff resources. For the benefit of both sides, the relationship has to be based on clear, full specifications of the services to be provided and on clear contractual arrangements. Because of the substantial investment required of suppliers, and of the integration of suppliers into library systems and processes, there is a trend towards long-term relationships with a few large suppliers.

## **Suppliers of electronic resources**

Chapter 2 notes a major difference between hard-copy and electronic resources: the shift from product to service. Having bought a physical product, the hard-copy book or journal, libraries can do with it as they will, as long as intellectual property rights are not infringed. They can keep it for 500 years, or throw it away; they can lend it to staff, students, external borrowers or another library; they can transfer it to a partner college or sell it. However, generally libraries do not buy electronic resources outright: they buy access to them – a service not a product.

## **Licence constraints**

The conditions of access to any commercially provided information resource are tightly controlled by a licence, which will specify how long the access will last, where the resource may be used, by whom and for what purposes. Libraries now buy access to many different resources from many different providers. Each provider may well have its own form of licence, which of course brings challenges for both library staff and users. However, in the UK, many resources will be bought under arrangements made by NESLI or Eduserv/CHEST; these are covered by standard licences, developed to reflect the activity of the sector while recognizing the interests of the publisher.

The standard Eduserv licence (Eduserv, 2004) covers usage for the normal business of a university, taken to include ‘teaching; research; personal educational development; administration and the management of the Licensee’s organization; development work associated with any of the above’. Specifically excluded are ‘consultancy or services leading to commercial exploitation of Product; work of significant benefit to the employer of students on industrial placement or part-time courses’. Generally, remote access, whether by distance learners or others, is permitted. However, use by retired members of staff, alumni and walk-in users (i.e. anyone not belonging to the institution) is not allowed (Eduserv, 2003).

Many resources are of course not available under standard licences; the terms of these individual licences may restrict use even more. Librarians need to be alive to these restrictions and negotiate appropriate access, for instance for the distance learner, whether studying at a FEC or simply remote from the university's campus.

Licences add to the complexity of provision today. It is clear from the discussion of the HE context in Chapter 1 that it is commonplace for universities to enter many different types of relationship with other institutions. These relationships may spring from the core business of teaching: universities are encouraged to sub-contract the teaching of courses to FECs (often misleadingly known as franchise courses – see Chapter 6 for a full discussion); they validate the HE courses of institutions without degree-awarding powers; they franchise their courses to commercially run colleges. Other activities, arising from research and knowledge transfer, seek to generate income: consultancy, applied research leading to product development, teaching company schemes. These activities are also encouraged as part of HE's mission to power business through knowledge transfer. Many university libraries also offer subscription membership to local companies and institutions, helping to fulfil the requirement of universities to engage with the local community.

Many of the latter activities involving relationships with the commercial world may not be covered by the standard licence (which excludes, for instance, consultancy). It is also not clear that students on courses validated by a university, although technically registered as its students, are eligible to access resources under the standard licence.

As with all contracts there are some fine judgements and interpretations to be made. One rule of thumb is to consider the direction in which money flows in any relationship. If the university is paid for an activity, such as consultancy or validation, the use of the licensed resources is suspect: the university can be seen to be selling on the resources as part of a service, and the publisher has potentially lost a sale. However, if the university pays another institution, such as a FEC teaching its courses, use of the resources is allowed.

## **The big deal**

Another major difference between hard-copy and electronic resources is that libraries are more often dealing directly with publishers rather than intermediaries. If one does not like the service or prices offered by an intermediary or aggregator, such as a bookseller, one can move business to a competitor. The

purchasing consortia have been particularly successful in exploiting this competition. Booksellers, for instance, are keen to increase their share of the market at the expense of their competitors. They have therefore been willing to offer high discounts to consortia to achieve this; the discounts are a portion of the margin offered by the publisher to the bookseller.

As noted in Chapter 2, publishers, on the other hand, are monopolists: only they own the rights to their content and determine the terms. In the environment of consumer publications, there is some substitutability: instead of buying *The Times* one can buy *The Independent*; they are different brands but with very similar news content. However, in the academic world there is virtually no substitutability of primary content: if researchers in an academic department's specialism publish in *Journal A* and *Journal B*, *Journal X* and *Journal Y* are of no interest.

Chapter 2 demonstrates that it makes no economic sense for publishers to discount to the library sector: they simply lose profitability and market share as savings are spent elsewhere. So instead of discounts, they have offered electronic access to additional content in the form of the so-called big, or all-you-can-eat, deal. This is particularly prevalent in the field of e-journals, but may also be seen in the field of e-books.

### ***Presumed benefits***

Under the big deal, a journal publisher will grant access to all content for three or five years. There is an annual subscription, often based on and higher than the cost of the subscriber's previous print subscriptions, with some built-in increase for inflation and generally a no-cancellation clause. Libraries and their users will therefore have access to all of the publisher's content spanning however many years are available in the electronic archive.

There are potential benefits for both sides. Users have immediate access to material previously not subscribed to, at no incremental cost. Libraries can predict inflation over the term of the agreement, and save money from the interlibrary loans budget. Publishers have a stable revenue stream for a number of years, with no cancellations.

But things are seldom as straightforward as they seem. There is some statistical evidence to show that users are downloading or hitting articles well outside the range of the previously subscribed core of hard-copy titles. Understandably, this has caused librarians a fair amount of anguish, since it implies that their past collecting policy has been ill advised. However, one has to

treat this evidence with some caution. It has not been collected for very long: it offers a short time-series at the start of a new service. There is no real comparison with previous data: librarians have generally not collected usage data for their hard-copy journals, partly because much consultation of them has been within the library. There is also the sweet-shop syndrome: children suddenly given the freedom of a sweet shop will gorge initially far beyond the value of their pocket money before their appetite stabilizes. The take-up of articles by academics may decline too over time as the novelty disappears. Also, we may be observing the substitution of full article hits or downloads for previous use of abstracting services: because the download or consultation is free, academics may use that mechanism where they would previously have been satisfied with an abstract. In other words the distortion noted in Chapter 2, arising from the divorce of the user from the cost of the information, is magnified.

The prima facie case that the big deal offers major benefits in terms of access to information is not necessarily proved; indeed there is some countervailing statistical evidence. Hamaker (2003), for instance, notes that 28% of *Science Direct* titles accounted for 75% of downloads at the University of North Carolina; 34% of titles had five downloads or fewer; 40% of usage occurred in a single month for 57% of titles. Nicholas and Huntington's pilot study of the Emerald big deal (2002, 149, 151) shows that 45% of subscribers viewed only one journal out of 118; another 40% viewed between two and five journals. So 85% of subscribers viewed less than 5% of the available titles. 44% of subscribers viewed only one subject area out of about ten; a further 19% viewed only two subject areas. The core collection, it seems, is still alive and well, and only camouflaged by the big deal.

## **Challenges**

There is a hidden danger in the apparent benefit of the full output of some of the bigger publishers being made available through libraries. Guédon (2001, 24) traces the influence of the citation indexes' documentation of impact factors for journals in creating a core collection of must-have journals for particular disciplines. He also posits an increase in citations of the journals of big deal publishers (understandable given their availability) in the research output of subscribing universities. There is, therefore, potentially a vicious circle, where the journals in big deals have higher and higher impact factors, to the detriment of journals outside the big deals. The effect on the marketplace will be to undermine the financial viability of such journals and their (generally smaller) publishers.

The big deal is also challenging for librarians. Under it, libraries no longer take the decisions on developing collections that they have been used to: they will increasingly decide on content not at the journal level but at the publisher level. This is a qualitative change and one that does not necessarily work in the favour of libraries and their users. The user is focused on the article, to a lesser extent on the journal title, and most certainly not on the publisher. In the electronic environment, where the physical package – the title – is no longer necessary for purchase, the aim of libraries and users surely should be to increase the granularity of decision making, not decrease it.

The big deal may presage a further unwelcome effect on the marketplace. It commits a library to either buy or cancel the entire content of a monopolist: the monopoly is thereby intensified. The monopoly is intensified even further in the case of national deals covering an entire library sector such as HE. Such intensification cannot be in the interests of the purchaser.

There is also a danger that, at renewal time, publishers can offer libraries a stark choice: pay an additional 50% (or more) for the big deal or cancel. Few academic libraries will be able to refuse the big deals, because they contain so many must-have titles. The inflation apparent with hard-copy titles, enabled by the disconnection of user from price paid, will now be further fuelled by bundling into the big deal. The consequence will therefore be that journals outside the big deals will be cancelled. Publishers, particularly the smaller ones will cease trading, and there will be further consolidation in the market.

## **E-books**

Until now, this section has focused on e-journals, which consume a large and growing portion of library budgets. E-books, which are becoming more and more important, offer some interesting similarities with and differences from e-journals.

The technology offers the possibility of greatly enhanced granularity, allowing subscription at the level not of the title but of the chapter or even page. Generally this is not yet happening. Indeed there is a tendency to bundling, either the whole of an aggregator's offering or discrete libraries of several hundred or a thousand texts. This is generally disliked by librarians, for the same reasons cited above for e-journals. However, one aggregator does allow libraries to change the titles subscribed to month by month.

E-books are generally more expensive than their printed equivalents, as are e-journals. As the section in Chapter 2 on business models for e-books points

out, this difference will increase if sales to students of hard copy textbooks decline. However, large-scale adoption by libraries to replace short loan collections and other heavily used texts offers the prospect of substantial savings in particularly labour-intensive areas. These savings of staff costs may well be greater than with e-journals.

One important difference from printed books for the library is that the cost of e-books tends to be recurrent (annual subscription to a service) rather than one-off. The implications of this shift have not yet been fully recognized. As e-books proliferate and if subscription remains the predominant model, less and less of libraries' spending will be discretionary. Spending on hard copy will suffer, as spending on monographs has suffered during times of high inflation in journal prices. The big publishers, with bundled deals, will gain.

Business models tend to be linked to or indeed mimic hard-copy business models. NetLibrary, for instance, currently charges for each title a one-time licence fee, roughly the published price for hard copy, plus an annual access fee of 15%, or a fee of 55% for permanent access. The base cost of owning an e-book for five years is 155% of the hard-copy price. Since most UK university libraries are members of purchasing consortia, they gain substantial discounts on hard-copy prices. Depending on the level of discount, the premium on owning an e-book for five years can therefore be between 70% and 90% on top of the price paid for the hard-copy equivalent.

Other aggregators offer only bundles. Some prices can be advantageous, if all or the majority of the titles would have been bought anyway. Other prices are not so advantageous. One aggregator offers 2600 titles at a cost of \$32,000 per annum; over five years the cost is \$160,000. Assuming a shelf-life of five years for an academic title, and an average cost of \$50 per title, 3200 hard-copy volumes could be bought for the price of 2600 in electronic form. Given, indeed, that a fair proportion of these titles would not have been bought in hard copy, the pricing is certainly not advantageous to the library.

In the UK, value added tax (VAT) is a distorting factor. It is charged at 0% on hard-copy books and journals, but at the standard rate of 17.5% on electronic materials. It should be possible to make some savings in resource, distribution and production costs if selling electronic texts. However, if publishers are to match the actual hard-copy price paid by a library or end-user, they have to absorb the differential created by VAT, while still offering intermediaries a margin similar to that of the hard-copy retailer. According to models using this assumption developed for Education for Change (2003, 81–4), print-only publication of textbooks is more profitable for publishers over a period of six years than

electronic-only publication, or parallel publication with significant migration to e-book purchasing.

## **Lessons**

E-resources offer many benefits for librarian and user, notably flexibility and access from anywhere at any time. However, they can also be problematic. Licences bring constraints unknown with hard copy. There are real threats, not only to library budgets, but also to the continued existence of journals and smaller publishers. The technology offers the possibility of subscription or purchase at the level of the article or chapter, a degree of granularity that matches the way the resources are used. However, in many cases publishers have taken control of the business models, subverting this possibility and forcing libraries to buy in huge bundles. Given their position as monopolists, it is difficult to wrest this control from them; the next chapter offers some strategies and techniques.

## **Suppliers of library management systems**

Apart from buildings, the library management system (LMS) is probably the most expensive investment a library will make. Breeding (2004, 22) estimates that over the first ten years of its life, an LMS will typically cost the library \$776,000, or nearly \$78,000 per year. Generally, this sum is made up of an initial capital cost for the software licence and thereafter annual maintenance charges of 10–20% of the initial cost.

There are a number of mature LMSs for the large library, some with a development history of 20 years. All have the traditional core functionality for acquiring and managing hard-copy materials, and for managing borrowers. This core functionality generally extends to communication between library and book supplier for ordering; the mechanism for supporting the purchase of shelf-ready books and serials generally exists, but may need some technical customization.

Managing, and providing access to, electronic resources is, however, another matter. Traditional LMS catalogues function at the title level, for both books and serials; however, users require access to e-journals at the article level, and increasingly to e-books at the chapter level. The user will therefore search one or a number of bibliographic databases, and expect to link directly to an electronic copy or to holdings information for hard copy. There is no difference in the fundamental approach of using secondary sources to point to hard-copy primary sources; however, there is a major difference in the expectation of

seamless linking between these sources from a single desktop PC. The LMS is therefore expected to interface with, or provide, link resolvers that take the user to the appropriate copy of an article (i.e. one to which the library subscribes).

E-resources are administratively much more complex than their hard-copy equivalents. Typically, as has already been discussed, usage is governed by licences, limiting such matters as period of access, number of simultaneous users, whether remote access is allowed, classes of user covered, subscription terms. While LMSs may generally have the detailed functionality for managing print subscriptions (check-in, prediction patterns, claiming missing issues, etc.), they are generally not as yet fully hospitable to electronic resource management. Given the number and complexity of individual licence agreements a single library may enter, a system of electronic resource management is becoming essential.

Also essential in the modern environment of electronically held records and data interchange is the facility for the LMS to operate successfully with other systems, such as student records, accounts and electronic payment. Other targets for integration are the managed and virtual learning environments. Over the next five to ten years, all universities will implement these environments; the standard LMS, if still in use, will need to exchange information on resources and borrowers with these environments, as well as with student record systems.

The architecture for this interoperability has still to be developed. Will the LMS evolve to provide the functionality required for the future? Or will the LMS wither, dealing only with a shrinking legacy of hard-copy books and serials, while new systems are developed to manage and link electronic resources?

As custodians of the resources and the systems that enable their exploitation, libraries need to influence as far as possible the development of systems and ensure their interoperability, whether managing books or serials, hard-copy or electronic resources, whether they are internal to the university or run by suppliers or intermediaries.

## **Suppliers of virtual and managed learning environments**

Neither the concept nor the underlying technology of virtual learning environments (VLEs) is new, having their roots in computer-based learning materials. A VLE is defined by JISC (2000) as referring to the components of a system 'in which learners and tutors participate in on-line interactions of various kinds, including on-line learning'. Common features of a VLE include:

- controlled access to a curriculum that has been mapped to elements that can be separately assessed and recorded
- tracking student activity and achievement against these elements
- support of online learning, including access to learning resources, assessment and guidance
- communication between the learner, the tutor and other learning support specialists
- links to other administrative systems, both in-house and externally (Porter, 2002).

Typically, a lecturer will assemble a collection of information resources; these may be produced in-house, such as lecture notes, videos of lectures; they may also be hard-copy or electronic resources available through the library, or links to resources and websites held elsewhere. There will also be assessment and tracking mechanisms and the means for students to communicate with lecturers and their peers (e-mail, bulletin boards, chat facilities). The student logs into their personal VLE account on the university's web server through a standard web browser, and interacts with the materials and the lecturer. The VLE will record data about how each student is using the system.

The term 'managed learning environment' (MLE) refers to the VLE and all the administrative and information systems and processes of the university, including student records, the LMS, etc.

There are a number of suppliers of VLEs, some offering free or open source software. The two commercial leaders in HE are Blackboard and WebCT, both of which promise a degree of integration between their products and the LMS. Some suppliers also offer access to published material.

Clearly, there are challenges here. University librarians will want to integrate library resources as seamlessly as possible into the local VLE, with the minimum number of clicks; they will also want to ensure that data are exchanged between LMS and VLE. This again demonstrates the importance of the interaction between systems and of the three-way relationships between libraries and suppliers of both systems and resources.

## Conclusion

It is clear that suppliers are undertaking more and more tasks traditionally carried out in-house. Fundamental to reaping the benefits from this trend and to ensuring quality of service, are partnerships with suppliers, based on a good

specification and tight contract management. While electronic resources bring great benefits, they also bring risks for libraries that are difficult to manage. The complexity of the systems environment and architecture is increasing. Chapter 4 discusses in detail the strategies and techniques for managing suppliers and the market.