# 25 YEARS OF ELECTRONIC RESOURCES COLLECTION DEVELOPMENT AT THE UNIVERSITY OF SALFORD: SOME ISSUES AND CHALLENGES

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## Abstract

*The information landscape is changing rapidly; the reasons for these changes are discussed. The paper outlines the acquisition of electronic resources at Salford University along with the chronological history and expenditure as a percentage of the overall learning resources budget. Past, present and future developments for providing access to expanding e-resources collections are discussed. The paper further discusses the implications for managing e-resources*

**Keywords**: Electronic Information Resources, collection development, academic libraries, UK

## 1. INTRODUCTION

The information landscape is changing rapidly. There are many reasons for this change.Firstly, users increasingly demand resources in Electronic format because of the associated advantages (such as their ubiquitous presence, searchability, manipulability and easy accessibility). Secondly, more and more library staff are now at ease with ICT and are happy to explore the functionalities of the software/ hardware to the maximum extent. Librarians are also becoming proactive and creating partnerships with the academia to design environments where ICT is being integrated into the new teaching and learning experience. Thirdly, the library & computing services are being integrated to support users. Fourthly, the number of remote users is growing fast and demand access to resources from their homes, work places and while on the move. Fifthly, universities are slowly developing institutional repositories where the information generated by its staff is archived and made freely available worldwide. Sixthly, information publishers, suppliers and agents are more aware of the developing market for electronic resources and are eager to supply electronic resources / services as well as print based materials only. Further, the World Wide Web (www) is an important platform for the delivery of information and provides a basis for the paradigm shift from ownership of physical collections to access on demand. WWW being a real time information delivery channel has also made CD-ROM based delivery superfluous.

Paradigm shift is not only taking place within the library but throughout the University of Salford. This is because of the changes in curricula structure, distance education provision and delivery of teaching though VLEs, using the www platform.

However, current Library Management Systems are not very helpful in the management of electronic collections as they were primarily designed for print based resources and lack the capability to manage electronic resources. Dedicated Electronic Resources Access & Management Systems are now appearing on the market and some old LMS' are also adding Electronic Resources Management modules to upgrade their systems. These new generation systems will also help in the shift to electronic resources.

Some new problems like complex pricing structures, licensing limitations, copyright issues and intellectual property rights not withstanding, according to Gregory, V.L (2000) Electronic resources collections indeed are going to become the essential mainstay of every library's collections.

This case study describes the journey of electronic resources collection building at the University of Salford.

## 2. BACKGROUND INFORMATION

**The University**

The present University of Salford was granted its charter in 1967 but traces its origin to the Royal Technical Institute which was founded in 1896.

The University of Salford is internationally recognised as an enterprising university, seeking innovative ways of extending its capabilities. The university is closely attuned to the needs and problems of business, industry and the community. It has a reputation for high quality teaching and research and academic enterprise. It has an international student population of around 20,000 and 2,500 staff. The University is one of the largest higher education institutions in the North West of England.

**The Information Services Division (ISD)**

ISD is a converged service and responsible for the University's core network infrastructure, library and information services, academic & administrative computing services, virtual & physical help desk support, telephony services and a Learning technology centre to support e-Learning activities. ISD has five site libraries which house stock of around 637,000 volumes, 8000 journal titles (print & electronic), over 200 databases,16000 e-books, 24 archives and special collections. ISD employs over 240 staff that includes librarians/ information scientists, programmers, analysts, network and other highly trained specialists.

ISD also provides services to the user population of NOWAL (North West Academic Libraries), other UK universities' users under the UK Libraries Plus and to the local population of Salford through the Salford Access Scheme.

**Electronic Resources Collection at the University of Salford**

The University of Salford began its journey towards building its electronic resources collection in 1980 with a subscription to DIALOG-an online information retrieval service. Chronological developments are given below.

| Year | Description of Electronic Resource Service |
|------|-------------------------------------------|
| 1980 | Subscribed to DIALOG information retrieval service. Online searches were conducted by the librarians for library users using telephone line and modem. |
| 1989 -1990 | End user searching era; stand alone CD-ROM databases were acquired and made accessible through stand alone CD-ROM workstations. |
| 1991 | Online terminals using modems and telephone lines were replaced with connection to JANET (Joint Academic Network). Users were able to conduct their own searches via the university network.BIDS (Bath Information and Data services) ISI (Institute of Scientific Information) was made available. Database services provided access to Arts and Humanities citation Index and the Index to Scientific and Technical Proceedings. This database contained an index to over 7000 journals. |
| 1993 | CD-ROM network using Saber Menu was implemented making available three heavily used databases (Applied Science and Technology Index, Biological and Agriculture Index and MLA Bibliography). In a very short period over 50 CD-ROM databases were made available through the CD-ROM network. |
| 1995 | The Library website which was used to market electronic resources and to provide online user guides was set-up. Later, links to full text electronic resources were created from the subject web pages. |

| 1996 | Acquisitions of full text journals began. Over 250 full text electronic journals published by Academic Press (IDEAL), Blackwell Science and Institute of Physics were made available (free of charge to Higher Education institutions) under the Pilot Site License Initiative (PSLI). PSLI was a real catalyst in encouraging the use of electronic journals at Salford. These journals were accessed via web using ATHENS authentication system. |
|------|------|
| 1998 | Demand for off campus access to electronic resources had grown greatly. Existing CD-Rom network was replaced with IRIS – ULTRANET CD-ROM network. Off Campus access was provided through Citrix software and using proxy server. |
| 1999 | The integration of electronic resources with print began through cataloguing of electronic resources. |
| 2003 | Salford began building its electronic book (e-book) collection with the purchase of 12000 NetLibrary books as a part of NOWAL (North west Academic Libraries) consortia purchase. Access to e-books was provided through library catalogue and ISD web pages. |

Until now the electronic resources collections were considered supplemental to print collections. However, electronic journals are fast becoming the main stream form of scholarly communication and we hope that over the next 3-5 years, our journal collection would be predominantly be of electronic journals.

**Electronic Resources Expenditure Trends**

The expenditure outlined below only includes expenditure for the purchase of electronic information resources and excludes expenditure on equipment, specific software, network infrastructure and JANET connection fee. It also excludes expenditure on staff development, staff time, and training. Drexel University considers the full cost of an electronic journal to be about double the subscription cost. (Montgomery, Carol Hansen, 2000).

The percentage of acquisitions expenditure spent on electronic resources is one of the key performance indicator which tries to assess how far the library is committed to building its electronic resources collections. It also shows the library's engagement with the market place and its users.

| Academic Year | E-resources expenditure(as a percentage of total acquisitions expenditure) | Annual increase in E-resources expenditure | Academic year | E-resources expenditure (as a percentage of total acquisitions expenditure) | Annual increase in E-resources expenditure |
|------|------|------|------|------|------|
| 1980/81 | 1% | - | 1993/94 | 8% | 2% |
| 1981/82 | 2% | 1% | 1994/95 | 7% | -1% |
| 1982/83 | 1% | -1% | 1995/96 | 11% | 2% |
| 1983/84 | 1% | 0% | 1996/97* | 17% | 0% |
| 1984/85 | 2% | 1% | 1997/98 | 15% | -2% |
| 1985/86 | 2% | 0% | 1998/99 | 17% | 3% |
| 1986/87 | 2% | 0% | 1999/2000 | 16% | -1% |
| 1987/88 | 4% | 2% | 2000/01 | 16% | 0% |
| 1988/89 | 5% | 1% | 2001/02 | 22% | 6% |
| 1989/90 | 4% | -1% | 2002/03 | 24% | 2% |
| 1990/91 | 6% | 2% | 2003/04 | 23% | -1% |
| 1991/92 | 7% | 1% | 20004/05 | 38% | 15% |
| 1992/93 | 6% | -1% | | | |

* Salford University College & College of Midwifery & Nursing merged with the University of Salford in 1996.

From 1980-1996 the investment in electronic resources was modest but from 1997 the investment increased dramatically. There were many reasons for this sudden increase:

- The University of Salford increased dramatically in size as a result of the merger with the two colleges. Its user population doubled, hence the increase in demand for electronic resources. The Library became a merged service with a dynamic computer scientist as its head. Its vision and priorities changed significantly.

- Electronic resources were gaining wider acceptability and were becoming widely available in the market place.

- Computers, associated equipment and telephony were becoming affordable.

A considerable increase in electronic resources i.e. 15% in 2004/2005 is the result of consortia purchase of the NetLibrary electronic books and the appointment of Electronic Resources and Metadata Team Leader, who actively seeks, persuades and influences information resources purchasing decisions. We are sure as we now have a staffing structure in place to grow, nurture and manage the electronic resources collections and the growth will be faster than the previous years.

## 3.    SOME ISSUES AND CHALLENGES

The pace of managing the shift from print to electronic resources depends on various factors such as institutional culture & structure, technological developments, e-resources availability, pricing strategies, budget, etc. Each issue is discussed below in detail. Hence, the speed of move to e-resources will differ in each institution.

**Culture Change**: The convergence of the computing and library services in 1988 was one of the reasons for culture change at Salford. Librarians became more aware of technology and technical issues, whilst computing colleagues developed better service orientation. Later, in 1990 Electronic Library (eLib) Programme became a major catalyst for the change in library culture. JISC (Joint Information Systems Committee) was mandated to provide guidance on the management of institutional change, electronic resources developments, develop technological solutions & provide advice. These projects raised awareness, removed fears of uncertainty, provided exemplars and also developed technical solutions to facilitate e-resources services.

Although academics now had the facility to read journals in the privacy of their own offices, but they still resisted cancelling print subscriptions.

Another push for culture change in academic institutions in the UK came in 2003 when the Department for Education and Skills established the e-learning strategy for the whole education sector. (Secker, J, 2004). At Salford all these factors helped to breakdown passive resistance to the provision of electronic resources.

Currently, e-Learning environment at Salford enables academics, learning technologists, administrators and librarians work more closely.

**Organisational Structure**: The delivery of e-resources depends heavily on the network infrastructure, hardware, software expertise, as well as the information management. To bring all this expertise under one umbrella, computing and library services have been restructured a number of times to ensure the structure is fit for purpose. New posts to manage and further develop e-resources have been created. ISD is also reviewing its help desks (virtual and physical) staffing structure in the light of growing demand for technical support

**Developing Technology:** At Salford the provision of e-resources have moved from telephone line to high speed campus gigabit network. During this journey we have faced numerous problems such as, platform incompatibility to run suppliers' software, too many formats and no standards, different user interfaces with each interface requiring customisation and support, band width problems and growing demands for more equipment (PCs and printers). Recognising the growing demand to provide electronic resources/ services remotely and on wireless devices, Salford has implemented a wireless network in the recent past. Whatever challenges were presented by technology, ISD staff developed appropriate solutions.

**Access**: One of the major issues with regards to e-resources is the plethora of user interfaces and the diversity of resource types (e-books, e-journals, gateways, blogs). This has required librarians to develop their skills in cataloguing to provide integrated access to e-resources through the library catalogue and developed HTML skills to provide access through the subject web pages as well as performed their traditional routine duties. Here at the University of Salford we currently have three main access points to our electronic resources, the OPAC, the ISD website e-resources pages and the subject pages.

The advantage of the library catalogue is that it provides access to e-material from more than one provider but the disadvantage is that it is only suitable for some types of basic item level searching. When users search for e-books or e-journals from the library catalogue they are limited to the search capabilities of the catalogue and loose the added value functionality gained from the e-book or e-journal providers own interface, such as full text searching and alerting services.

Similarly, the native interfaces have disadvantages of their own e.g. each provider only provides access to items that particular publisher or aggregator has, so the user is forced to carry out the same search in a number of databases until they find what they want. This is time consuming for the user but it also requires users to know which data base or aggregator covers the subject area they are interested in and have an understanding of multiple interfaces and search strategies. An additional but related problem is that a library may have partial subscription to the full text of the content made available from the native interface, so the user will need to check whether a particular item they require is available in print format or available from another provider. While making the native interfaces and the OPAC both available to users as a solution to the disadvantages inherent in both, it is an imperfect compromise. This is being addressed by the means of link resolving and cross or federated searching products.

**Administration and Management:** Unlike their print equivalents electronic resources are dynamic in nature and require far greater ongoing maintenance. The traditional library management systems (LMS) are unable to adequately deal with the complexity and inconsistency of electronic resources.

Further electronic resources, particularly electronic journals require high ongoing maintenance. This is partially a result of the increase in bundled collections along with the increase in the provision of full text journals within databases such as Business Source Premier. Changes occur to these journal packages or the interface to these packages on a regular basis and while attempts are made to monitor the situation it is inevitable that these changes are sometimes missed. This constant changing to urls, user guides and holdings information is extremely time consuming for staff and we are looking to alleviate some of these by the implementation of a link resolver. There are not any immediate solutions to this problem although new electronic resources management modules are being developed by LMS providers.

**Authentication**: Publishers generally limit access to e-resources by password or Internet Protocol (IP). But the IP access presented problems for home users where as separate passwords for each product became unmanageable. However, ATHENS authentication system got over this password problem by developing a central database for most products. However, ATHENS is not flexible to be used for every need i.e. it is not integrated with internal institutional systems and users still have to memorise a layer of usernames and passwords.

**Archiving**: Uncertainty of availability of material after termination of subscription is the biggest hindrance to build electronic resources collection. Therefore, we continue to subscribe to dual formats both print & electronic thus doubling the expenditure. Secondly, academics are reluctant to move to e-only journals and cancellation of print version. Although we strongly prefer electronic journals with back files but the choice is very limited.  Archiving issues appear to be in limbo as yet.

**Underdeveloped pricing strategies and Library fund allocation models**: Pricing models for e-journals and e-books are still immature e.g. e-books and e-journals are being priced individually, in subject clusters, cross disciplinary deals or aggregators. The distinction between non-recurrent in case of e-books is disappearing because suppliers increasingly ask libraries to migrate from one time purchase to ongoing payment. Is collection of e-books considered as monograph collection or database?

Traditional library fund allocation models were designed for the acquisition of print material and were not satisfactory for e-resources deals. At Salford we are using a mixed approach i.e. top slicing for cross disciplinary resources; individual titles are purchased from individual subject funds and e-strategy money for purchasing new resources. E-strategy money is a good way to encourage colleagues to move to e-resources. However, e-strategy money is only available for a limited period and subject librarians will have to fund these resources in the future from their subject funds.

**Costs:** E-resources costs come under three categories:

- **Equipment and network infrastructure costs**: requirements for equipment (PC, printers) and network infrastructure have evolved over the years. ISD have introduced three year PC replacement cycle and installed high speed (Gigabit) network to meet growing demand. ISD devote a considerable amount of funds to implement new technologies as they become available.

- **Staffing, training & development**: Since e-resources are complex to manage, we have had to assign dedicated staff. Developments in the e-resources market & technology are happening so fast, there is a need for continuous staff training & professional development among librarians and computing specialists. ISD had to invest considerable funds in staff development. However, there are some potential savings on staff time by moving to e-resources

- **Costs of Subscriptions**: E-resources are often dearer than their print equivalents because in UK, libraries also have to pay 17.5% VAT in excess of journal prices.

**Non existent Performance Indicators:** It was difficult to quantify the use of print journals but their physical existence on the library shelves justifies the costs to some extent. However, electronic resources are more difficult to justify due to their invisible and intangible nature. Current statistical mechanisms are inadequate to justify the investment in e-resources.

In summary the challenges for us so far have been careful planning (collection policies & strategies), creative & timely use of technology, effective partnerships, developing staff competence and breaking the bonds of traditional thinking. These challenges have made our jobs exciting, challenging and provided opportunities to improve library services.

## 4.    CURRENT INITIATIVES

**Electronic Resources Collection Policy**

An Electronic Resources Collection Policy has been developed to ensure that the criteria for selecting and the methods of accessing our electronic resources collections are in line with the needs of the

University as a whole and our users and to provide guidelines to ISD staff. The policy seeks "to integrate traditional print resources with electronic resources to provide seamless access to information resources which support blended learning. An important step towards growing an e-resource collection is e-migration.

In the table below taken from the Electronic Resources Collection Policy we outline the projected move to e-only. As expected all but a small minority of our databases are online and there is a steady increase and culturally accepted move towards e-journals. There is no projected move to e-only books. Where a reading list print book is available electronically, ISD will endeavour to purchase at least one copy of this item as an e-book if it is applicable to the course programme. This will provide a value added service for all users, but will be of particular benefit to off campus users.

The main reason for not substituting print books with electronic is the relatively immaturity of the e-book market at the moment. However of equal importance is that we are not really sure how e-books are being used and their pros and cons for the users. Until we are sure on these matters we will not strongly pursue a print replacement policy.

| Collection Type | % of current stock | Availability in market place | % move to electronic by 2008 |
|---|---|---|---|
| E-journals | 41% | 58%(nominated suppliers) | 80% |
| Databases | 95% | 100% | 99%* |
| E-books | 3% | Not known -immature market | N/A - Not replacing but supplemental to print stock |

* Due to the opening of new Law School there maybe a need to increase the number of print indexes /databases

### Link resolver implementation

The main driving force for the purchase and implementation of this software is the difficulties outlined above and the growing need to compete with 'google' type search capability. Link resolver and federated searching technology has been available for a number of years but has been more widely employed within HE institutions within the last three to four years. There are a number of different products available but the underlying standards and technology are the same.

A link resolver is defined as a system which receives metadata, courtesy of the Open URL standard as input (metadata describing a journal article) and calculates links to the journal articles described by the input. A link resolver has a knowledge base of links and entitlements information per customer. As libraries often have multiple copies of the same article available, it is able to resolve to the appropriate copy of the article as defined by the customer.

At the University of Salford we are currently populating the knowledge base with our links and full text journal entitlement. This will enable users to access our full text holdings from within any Open URL compliant database, thus alleviating the need for users to repeat the same search in a number of different databases. An additional benefit of the link resolver's knowledge base is that it is partially auto updated by feeds from the suppliers. This is only true where changes are uploaded to complete packages and not our individual institutions subscriptions but it is at least a start in combating the continual need for awareness of and ongoing maintenance to our electronic journals access information.

### Future Developments

In the very near future we will be implementing federated / cross searching software (Metalib) which will help to overcome the problem of fragmentation of e-resources by presenting the user with unified interface to diverse resources such as e-journals, aggregators, OPACs etc. The search results are then delivered

as an integrated set. Unlike the link resolver this does not search a knowledge base of an organisation's full text holdings but rather queries the native interface of our electronic resources to retrieve references relevant to the users' search query. Once it has completed the search then it works with the link resolver to ascertain if the full text is available to them.

For the user this should alleviate the need to carry out the same search separately thereby removing the necessity for the user to be familiar with the content of a number of databases and the various individual interfaces. From the library's perspective a reduction in the number of queries and complaints from users unable to find relevant information sources will hopefully be reduce and time spent on training users in individual database interfaces should diminish. Evidence from other institutions that have already implemented this type of technology suggests that we should see some evidence of the above but in particular and perhaps most importantly a marked increase in the use of our electronic resources, ensuring greater value for money (HAMBLIN, Y and STUBBINGS, R. (1993).

We are hoping to implement devolve authentication by integrating Metalib with the University LDAP (Light Weight Directory Protocol) system. This will alleviate the need for managing the various e-resources user names and passwords.

The next challenge for us is to make electronic services available to our users within the context of their learning or research activity. We are exploring the ways to integrate e-resources within courses / learning modules in VLE. Learning technologists at Salford are also developing Learning Objects. Our metadata team has already started updating their skills to provide metadata records for these.

As David Lewis (2004) discusses that there have been two major transitions in libraries over the last fifty years. (1) The automated library began in 1960s and completed in 1990s. In automated library collections remained in paper format but bibliographic control was automated. (2) The electronic library started in 1990s with the development of full text journals & databases, the Internet and the World Wide Web. We think that at Salford even after 25 years of library automation and electronic library developments, we are still in a transitional state and we will be still in transition state at least for the next 5-10 years for the provision of journals. Transition period for books is difficult to predict for the reasons discussed earlier. The next major change i.e. deconstruction of journals into individual articles has just started. This change has emerged as a result of new standards such as the Open Archive Initiative's protocol for Metadata Harvesting. Institutional and other repositories of digital documents, e-prints and e-theses are being established throughout the world at fast pace. Establishing & managing such repositories requires a new set of skills such as strong advocacy & influencing skills along with new metadata skills and change of attitudes. Librarians have to learn handle articles collections rather than journal collections. This will have a major impact on the way we manage budget, deliver e-resources and user training. In the near future we intend to establish The University's institutional repository to preserve the digital content produced by the university academics & researchers. Hence, preparing ourselves to meet the challenge of the deconstruction of the journal.

## 6. GLOSSARY

- E-Learning: use of information and technology for learning.

- E-migration: The move from acquiring print information resources to acquiring the equivalent electronic information resources.

- NetLibrary: Was one of the first e-book services established in 1998. Now a division of OCLC and have over 90,000 e-books in its collection.

- VLE: A learning management software system that synthesise the functionality of computer-mediated communications (email, bulletin boards, news groups etc) and online methods of delivering course materials.
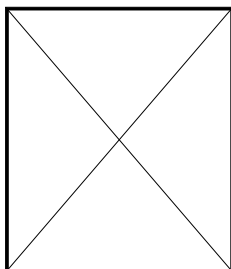
## 7.  REFERENCES

1.  Gregory, V, (2000), Selecting and managing Electronic resources. New York: Neal-Schuman

2.  HAMBLIN, Y and STUBBINGS, R. (1993), "The Implementation of Metalib and SFX at  Loughborough University Library - A Case Study."  Loughborough University: LISU – Library & Information Statistics Unit, Oct 1993

3.  Lewis, David W (2004), "The Innovator's Dilemma: Disruptive change and Academic Libraries." Library Administration & Management 18(2), pp 68-74

4.  Montgomery, Carol H (2000), "Measuring the impact of an electronic journal collection on library costs: a framework and preliminary observations." D-Lib Magazine Oct 2000. Available fromhttp://www.dlib.october00/montgomery/10montgomery.html

5.  Secker, Jane (2000) Electronic Resources in the Virtual Learning Environment: a guide for librarians. London: Chandos

**URLS for websites mentioned in text**

- Electronic Resources Collection Policy: http://www.isd.salford.ac.uk/about/servicestatements/collection/elecres.pdf

- ISD website: http://www.isd.salford.ac.uk

- E-resources pages: http://www.isd.salford.ac.uk/eresources/

- E-resources subject pages:  http://www.isd.salford.ac.uk/subjectresources/

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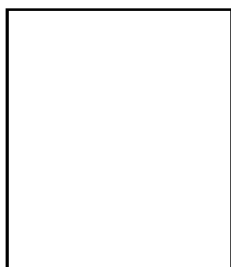
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