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THE ELECTRONIC INFORMATION RESOURCES IN LIBRARY MANAGEMENT

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Abstract:

This paper demonstrates that advanced technologies and the increasing acceptance of academic open access e-journals offer an opportunity to reconsider their form and function as a medium to enhance scholarly communication. The paper investigates the impact of the changing information environment on the Expectations of academic libraries in terms of the functionality of their Integrated Library Management System (ILMS). This research finds that libraries still strategically rely on their ILMS for their services and are adding functionality from their system vendors as it becomes available. "Add-on" systems (non ILMS) are being used to cater for the requirements of digital data but at this stage does not dominate. A working model for academic open access e- journals is presented. This model is intended for open source communities involved in designing, developing, and/or improving open access academic e-journals.

Introduction

The first purpose of this paper is to explore how technologies and the growing acceptance of aca- demic open access e-journals offer an opportunity to rethink their form and function. The second purpose of this paper is to describe a model that contains essentials elements inherent to the success of academic open access e-journals. Until recently the place of the Integrated Library Management System (ILMS) within the service context of libraries has been unchallenged. ILMS represent considerable technology investment by libraries. In 2002, libraries spent more than US$600 million on library systems and related services, with vendors making 39% of their estimated overall revenue from maintenance of such systems [1]. For libraries, the ILMS is the corporate system. The success of library process change and information retrieval has been built around the functionality, or otherwise, of the ILMS. These systems have provided a solid foundation for both collection management and resource discovery. This paper will look at the pressures the changing information environment is placing on the continuing development of the ILMS as the central point of access to library mediated information resources. The focus of this research is the academic library environment.

The hypotheses used to shape this research were:

Hypothesis 1 (H1):

ILMS cannot cope with the range of E-Service requirement s of libraries and their users, as they are bound to the MARC format and the bibliographic record. ILMS are being bypassed in their support of Library E-Services.

Hypothesis 2 (H2):

E-Service requirements are met by a range of different systems – some proprietary, some home-grown, some even part of the ILMS. The range of systems required is causing dissatisfaction with current ILMS and introducing complexity into the management of library systems.

Literature Review

There can be no doubt that much of the literature in this area speculates on the future role of libraries – none of which is particularly clear, or what Tenopir calls the "post web world", libraries have been seen as in danger of "substitution" [3]. The web is becoming "a ubiquitous source of information" giving an "illusion of depth and comprehensiveness" [2] that leads to a questioning of the value of libraries and their collections. This review will not speculate on these future roles, but will focus instead on the certainty of changing technology, increasingly digital information resources and societal shifts that have changed user expectations of library services

Strategic Role of the ILMS within Libraries

The ILMS is "a key piece of infrastructure of the library" [14] its key value to libraries is its ability to offer a catalogue and to manage workflows. The ILMS is still seen as preeminent in offering "intelligent and convenient access to catalogue data i.e. effective access points which translate user needs with great precision and multi-layered end user. Interfaces which can be adjusted to different levels of user sophistication [5] It is also seen as the most cost effective way to handle infrastructure tasks such as "acquisitions, cataloguing and circulation" [14] In fact its most cost effective feature is this integration of "workflows and processes ... closely tied to data flow", even if this "integration of technical services often don't get equal weight in library decision criteria" [8].

Academic Libraries: a user context

New technologies and developments have altered the perceived link between information and libraries. For students of previous generations the library stood clearly as the first place to "begin" research and offered a number of options within its physical locations including "librarian, journal indexes or perhaps the more modern CD ROM" [13] These students were "educated in a world dominated by the physicality of libraries" and as a result thought of "information residing in a particular place" [7].

The coming of the "digital age" has fundamentally altered this. Research is no longer tied to a physical location. This next generation of students described variously as the "millennial generation", "digital generation", "Generation Y" "dot com generation" or "n-gen" may not be able to remember a time when their home did not contain a personal computer. They are characterised by the use and processing of information for education and learning. Their entire education "probably involved technology" [15] This generation is often adept at "multiprocessing", undertaking several tasks simultaneously, such as using their computer while listening to music or talking on the phone [10]. In locating information their first instinct is the search engine rather than a library. In 2002 the U.S. based Pew and Internet Life project

published findings that indicated that 73% of the current college students participating in their sample used the internet more than the library for information searching [4]. This same study also confirmed the preference for multitasking, describing students "browsing web pages while working on an assignment" [4].

Related to this change in access to information and technology are the fundamental changes that have occurred in views of education and its role in society. Lifelong learning is the major educational movement discussed in relation to learners of this generation. Education as a continuing process throughout life in order to "maintain employment" coupled with the quest for "self improvement" and enhanced ability to solve multiple problems are major drivers for this [12]. Seely Brown refers to a "new literacy" going beyond text and image and encompassing information navigation [10] Tapscott expands on this idea with his "eight shifts of interactive" learning. He outlines a number of key differences between the old "broadcast learning" and the new "interactive learning". The areas of major shift include the move away from linear learning to hypermedia, the importance of discovery as opposed to instruction, an emphasis on learner - centred customisation and learning how to learn. The move to lifelong learning and the role of teacher as facilitator are also important elements of this model [11].

The range of services, functionality and "instant gratification" [6] offered by sites such as Amazon and Google has much to do with the transformation of user expectations. Libraries need to incorporate the best features of commercial services into the best aspects of their own services. Pace suggests "not until consumer sites' features are folded into our traditional interfaces can libraries hope to make a library experience as engaging as an online experience" [9]. In noting that "Amazon.com is used by many in lieu of public access catalogs", Kenney et al raises the idea that libraries need to adopt some of the practices of these services including "recommending like materials" or quantifying the value of information to the potential client [5].

Changes in Information Resources and Services

The University Library ranks 38th out of 38 University Libraries in terms of serial acquisitions and 35th in terms of monograph acquisition. Its material allocation budget has remained relatively stable over the past three years at around IN $2.5 million, with its most notable expenditure characteristic being the increasing dominance of electronic information resources. This trend has been especially noticeable in the last three years, with electronic information resources moving progressively from consuming 13.73% (2001) of the serial budget to 18.6% (2002) to now being estimated at 50% of the 2003 serial budget. At the end of 2002, the Library held 32,048 electronic serial titles "accessible via the University Network" and had "in addition 5,118 hard copy subscriptions" (Annual Report, 2002). The expected impact of digital monographs has not really occurred.

Post the Digital Copyright Amendment legislation in 2001, the use of electronic reserve has exploded, with views per quarter climbing steadily in 2003 from 25,000, to 35,125, to this current quarter being 100,727. There is increased pressure for more online resources. In 2002 there was a 41% increase in the use of online database services. Some difficulty has been experienced in restructuring to cater for the 'virtual campus', as it is difficult to shift staff to the new job roles of web page maintenance as well as maintenance of electronic information resources and license management. New service support initiatives have also been launched to

support this new environment, such as our email reference service (874 email enquiries received YTD in 2003). There has also been a move toward the use of online forms by clients for interlibrary loans and making book purchase suggestions.

Library System Development

Table one reproduces a timeline of system developments reported in the Victoria University Library Annual reports. The key characteristics are the burgeoning system development post, as well as the noticeable commitment to adding features to the current ILMS. Additional systems are incorporated but do not dominate development. For the sake of clarity, non-ILMS developments are bolded to indicate differentiation.

Integration with Workflows

This series of questions was to do with the use of ILMS as strategic infrastructure support. The questions were around the cataloguing of electronic aggregations, and integration of acquisition and serials workflows

Comments on ILMS and E-Services

In order to get a general impression of participants' overall view on their ILMS and E- Services current performance and areas for future development, matching questions were asked:

- In your opinion what are the main strengths and weakness of the current functionality of the ILMS/E-Services?
- What features are you hoping will be developed in the next 2-3 years?

ILMS-Strengths

Electronic Reserve, Open URL servers and federated search products were some of the newer Client-focused developments mentioned as strengths. One respondent indicated that their System "develops new functionality with the changing environment" and another mentioned "self-service options" as strength as they what one Library referred to as "
Patron empowerment".

E-Services-Strengths

Several libraries placed value on "comprehensive", "integrated" or "seamless" access to these E-Services from within the catalogue . Other responses nominated the idea of the catalogue as the main point of access and discovery for materials of any type "All materials accessible from library catalogue" and, not surprisingly, with particular emphasis on "Integration of both print and electronic resources". Keeping interfaces and systems "simple", "easy to use" and "user friendly" was suggested by a number of libraries as strength of their e-services, and

authentication was a related area that was important. Maintaining a "good authentication environment" was seen by one library as "enabling strong click-through access to services.

Conclusion

The academic open access e-journal is yet another manifestation of that historic process. The aca- demic open access e-journal is a response to scholars' needs; needs that at their core have not changed in nearly a millennium. But there is a qualitative difference. When the open source communities choose to synergize existing and/or new technologies with sound design and func- tionalities in a system, the academic open access e-journal is capable of enhancing scholarly communication on a global scale at a speed and "richness" never anticipated. In many ways the ILMS is being overlooked rather than "bypassed" (H1). Some libraries appear to be choosing to look for solutions in other systems, even when their ILMS can accommodate the function they are attempting to implement. It would take an additional study to determine the reasons for this, but it may be possible to speculate that they include local specifications and integration, cost and ability to interface with other systems. For the future, and particularly for end users, the ILMS will need to offer more than the presentation of the library catalogue. ILMS vendors and developments must continue to incorporate more of an ability to customise, to allow client-centered development to reflect new learning styles and expectations(H2) is supported by the survey results. Libraries are using a range of solutions to meet their overall E-Service needs and do not appear to be completely satisfied with the patchwork of systems that results. Areas for future developments must allow for new areas of services such as portals, EPrint repositories and linkages to teaching systems, but cannot be too staff intensive, as there is a general agreement that increasing financial constraints are creating a tension for resourcing of this area. Based on the survey results and this study, the following issues will be important for the future of the ILMS,

E-Services and their strategic position in the service infrastructure of the library. For libraries, the key questions relate to the place of the ILMS in the broader context of their E-Service environment and looking critically at what functions and services it can enable. The ILMS is a large investment in human and financial resources and maximizing the usefulness of the system for both workflow and as a client centred interface to a "collection", whether physical or virtual, will continue to be an important challenge. For ILMS vendors, there is another set of challenges relating to the pace of development, interoperability and customisation of systems. Technology is more accessible than it has ever been, and there is no reason to believe that the proliferation of "add-on" or "third party" systems will disappear.

Vendors need to look at this technological landscape for how they can integrate or enhance their ILMS to work with the best aspects of these systems. They also need to continue observing developments in client expectation and learning styles. These need to be reflected in any ILMS of the future so that it is not "bypassed

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