Integrated Library Management Systems: Overview

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ABSTRACT

In this article we review the development of Integrated Library Management Systems, and look at some broad trends in their development. An Integrated Library Management System is a computer-based system used to manage internal and external resources including tangible assets, financial resources, materials, and human resources. It performs library automation and collection development tasks broken down into different modules that are focused on simplifying tasks such as acquisition, cataloguing, and circulation commonly done in any library. It is built on a centralized database and normally utilizes a common computing platform and consolidates all library operations into a uniform and enterprise wide system. The purpose of this paper is to compare the merits and demerits of open source and commercial library management systems widely in use. More and more core functions and special features have been integrated into library systems, and there has been a move towards industry standard databases, operating systems and architecture.

INTRODUCTION

Integrated Library Management Systems (ILMS) have their origins in the late 1970s; they grew out of systems which had been developed to cope with one or more discrete functions within libraries. These were essentially co-operative systems, designed to ease the burden of cataloguing by sharing records and resources. ALS and the LIBERTAS system had their origins in simple library issue systems but which eventually expanded to include other functionality. These early systems were soon joined by purpose specific ILMS, sometimes aimed at specific types of library such as schools, colleges or research Universities. There has been a surprisingly consistent flow of new systems over the years despite the obvious limitations of the market, though new systems tend not to provide significant levels of innovation except perhaps in pure technology.

EVOLUTION OF ILMS

UNESCO defines Integrated Library Management System as "an automated library system that is capable of managing the operations of more than one basic library functions". A Snapshot of the Evolution of LMS since the introduction of mainframe computers in mid 1950s till the present day concept of Web 2.0 is discussed below in five different phases;

First Generation Systems (1950s – 1960s) Stand-alone un-integrated applications beginning with, circulation No standard metadata in use. The emphasis was on library housekeeping efficiencies, little for user access Vendor interest in LMS negligible; and Mostly main-frame computer based and batch processed systems.

Middle generation systems (1960s – 1970s) Metadata standard for bibliographic records (MARC) became available; Emphasis was on exchanging bibliographic data, centralized cataloguing and distribution of catalogue cards; Systems were developed by vendors which leveraged the catalogue data in other modules such as circulation, acquisitions; First generation integrated LMS came into being; Mostly mini-computer based; character-based interfaces.

Pre-Internet generation (1970s – up to 1990s) Networking via LANs and WANs became possible and libraries started networking of closely related libraries; Microcomputer-based systems with richer interfaces;

Internet generation - Web 1.0 (1900s – 2000) Initially only the OPAC was hosted on a web server Rich GUI front ends using tools like Visual Basic, Visual C++ New client server systems that used the web for data storage and transaction processing became available with the invent of cheap INTERNET connectivity Platforms like JAVA and .NET became the development options for web applications.

The Web 2.0 Era (2000 onwards) The Web became the platform of choice for Software Development The web has become from an information delivery only platform to a participative platform. Ordinary individuals contributed via blogs, wikis, podcasts and social networks. This has impacted the expectations that library users have from libraries and LMS; Web services, greater interoperability, RSS/Atomfeeds, enhanced user experience in discovery applications, e.g., Amazon, e-bay; Open source entry into the marketplace; Dissatisfaction with the monolithic nature of the LMS and the OPACs

EVALUATING OF INTEGRATED LIBRARY MANAGEMENT SYSTEMS

The task of evaluating integrated library systems is necessary to choose the most appropriate library management system that will answer the needs of the library in automating its operations. In considering options between open source and commercial software choices, the following should be considered: • Cost considerations should be viewed in totality. While cost is an important issue, it is usually not the sole determining factor for a procurement decision. • In any software deployment, the total required manpower should not be underestimated. Options are available in the market today for suitably skilled and trusted manpower for the support of a software platform to be retained in-house or obtained from an outsource vendor. It is essential that the entire range of manpower required be taken into account in the evaluation and selection of the software product. • To enable the use of a product securely and reliably, there needs to be a shared responsibility between the customer and the software provider. The software provider has the responsibility to develop the software in accordance with best practices in security, to rigorously stress-test the LMS and to develop updates and patches rapidly when vulnerabilities are subsequently uncovered. On the part of the customer, suitable and adequate resources should be allocated to ensure the correct installation, deployment and maintenance of the software. • If a security review of the source code is required, appropriate expertise should be made available to meaningfully scrutinize the source code of the components to be deployed. It should not be assumed that because the source code has been made publicly available that it has, in fact, been sufficiently reviewed. • Requirements for flexibility in modifying the acquired software should be carefully considered against whether the expertise to exploit such flexibility is available, and if the necessity for flexibility is fundamental or merely incidental. The long term support implications for non standardized modifications to the software should also be factored into the purchase decision.

CIRCULATION SYSTEMS

Self service An important recent innovation has been self-issue and self-renewal. The difficulty with self-issue is not with software, but has more to do with the need for security and for desensitising securely tagged material. But it is a potentially massive time saver. At Hull 20% of issues are now self issue, as Diane Leeson points out in her article below.

E-mail overdues Another recent development has been the use of e-mail to send notices and overdues, which both simplifies the paperwork involved in notification and can provide significant savings in labour. Implementations are becoming more and more sophisticated, as Sudell and Robinson point out, the Aleph system can handle multiple user addresses posting overdues to students to term time and vacation addresses as appropriate.

Automatic telephone reservations, renewals, reminders Ameritech's Telecirc product for example, allows users to phone up and find out what they have on loan, and renew books - interacting directly with the library system, without human intervention. Reservation and overdue notifications can also been done automatically.

 Radio Frequency ID technology This ultimately promises stock checking with the wave of a wand and the issuing of books without the user visiting the library counter. The cost of the labels (and inserting them into existing books) is the limiting factor. There have been developments since coverage in a previous issue of VINE with 3M following Checkpoint by fully committing to the technology.

THE MANAGEMENT INFORMATION SYSTEM

The MIS attached to the ILMS has perhaps promised a lot but actually delivered very little. Many systems now provide a standardised interface to analytical tools such as Excel and often a standard set of reports or indicators such as issue figures, items catalogued, expenditure and so on. And there might even be an opportunity for greater degrees of standardisation to

provide for interlibrary comparisons. The MIS arguably remains underdeveloped and under-utilised in most systems. It is rare, for example, for the acquisition process to be driven by the MIS, despite the often-quoted benefits of this.

FUNCTIONS

Over the past few years the systems vendors have added other important library functions, many of which interlink with the core functions of cataloguing, circulation and OPAC. These include: • Journals receipt, check-in and binding control: and also journal circulation, a common requirement of special libraries. In many respects these aspects of systems are only just maturing, and libraries are just beginning to reap the full benefits of automation in these areas. • Inter library loan, which perhaps is not as common in the UK as in Europe as libraries in the UK have grown more used to working directly with one main provider, BLDSC. But ILL systems can usefully interface with the circulation and item database to provide direct reader access to the status of requests etc.

DEVELOPMENTSWITHIN LIBRARY SYSTEMS

In summary there are many worthwhile new types of service being built into the latest library systems, such as • Self service • Automated telephone services RFID • Sirsi's Workflows: improving efficiency by building natural work patterns into the screens itself. This improves efficiency, reduces training needs. The library can also customise the workflow to its precise pattern of work. • Many of the vendors are working with third party developers to offer enhanced OPAC for those with disabilities. • The vendors have also developing experience of digitisation projects, community information projects and so forth. • Housebound modules with full functionality. Alongside these improvements in service, much of the vendors' effort in the last few years has been taken up with the migration of existing systems to keep pace with wider developments in computing standards such as windows, client server, the web (and of course year 2000 compliance).9 • GUI interfaces for ease of use (e.g. cut and paste). • Client / Server architecture, ideally multi-tiered, for reliability and speed of operation. • Web enabled. • Based on industry-standard relational databases management system. • Providing an NT version as well as a Unix system. • Year 2000 compliance. • Adding support for UNICODE - which permits bibliographic displays in any lan guage character set. • Adopting wider standards e.g. ILL protocol, Z39.50 Standards. In theory when the standards have been developed and adopted it will be possible to have modules from different library systems working together. Complying to the NISO circulation protocol Geac's GeoWeb could in theory be used this way, according to Peter Evans.8 Both Ameritech and Innovative have products that can be used to authenticate users with remote databases, using information stored in the database of library users.

CONCLUSION

The need to bridge the widening digital divide in developing countries has led to the introduction of initiatives of open source software so as to reduce the initial cost of owning the computing technology. An organization procuring software should state in clear and objective terms the functionality and requirements that it needs fulfilled, and allow all vendors, including both open source and commercial software vendors, to submit their proposals to the organization for consideration. The specifications should contain criteria such as the functionality, security requirements and performance characteristics that the user needs. The core functions of Libraries will always remain the same, viz. collection, organization and dissemination of information and knowledge. The ways to carry them out, however, are undergoing change thanks to development and application of Technology. The systems we have briefly described here have many features that may appear in the next generation of library system: the ability to personalize content, to draw in information from desperate sources and integrate it, to link people as well as information, to archive information and apply version control and copyright management and, of course, to have the system designed for free.

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