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A study on Web based Library Administration Using ERP Software

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Abstract - Technology is dominated by two types of people*: those who understand what they do not manage, and those who manage what they do not understand - Putt's Law. The advent of the IT-led era and the increased competition has forced Academic to react to the new changes in order to remain competitive. Enterprise resource planning (ERP) systems offer distinct advantages in this new academic environment as they lower operating costs, reduce cycle times and (arguably) increase user satisfaction. This study examines, via an exploratory survey of more academic, the underlying reasons why Institutions choose to convert from conventional information systems (IS) to ERP systems and the changes brought in, particularly in the Library Management process. The aim is not only to understand the changes and the benefits involved in adopting ERP systems compared with conventional IS, but also to establish the best way forward in future ERP applications. The empirical evidence confirms a number of changes in the Library Management process introduced with the adoption of ERP systems*

***Key words**: - ERP in Library's, Management in Libraries, Information systems of ERP, Library ERP in Web…*

1. INTRODUCTION

Enterprise resource planning (ERP) systems integrate internal and external management information across an entire organization, embracing Library Management including, Books transactions, periodical entry, web OPAC etc. ERP systems automate this activity with an integrated software application. The purpose of ERP is to facilitate the flow of information between all academic functions inside the boundaries of the organization and manage the connections to outside users. ERP systems can run on a variety of computer hardware and network configurations, typically employing a database as a repository for information In 1990 Gartner Group first employed the acronym ERP as an extension of material requirements planning (MRP), later manufacturing resource planning and computer-integrated manufacturing. Without supplanting these terms, ERP came to represent a larger whole, reflecting the evolution of application integration beyond manufacturing. Not all ERP packages were developed from a manufacturing core. Vendors variously began with Library Management, maintenance and human resources. By the mid–1990s ERP systems addressed all core functions of an enterprise. Beyond corporations, governments and non–profit organizations also began to employ ERP systems.

ERP systems are software that can integrate across multiple functional areas by focusing on processes, rather than the individual functions. At one level, ERP systems provide transaction processing capabilities that help to integrate all of a firm's transaction processing. At another level, using that transaction processing information, the firm can plan their activities, such as production. This suggests that Library management can be used for a range of activities, e.g., transaction processing support. Architecturally, ERP systems generally are based on a relational database system, such as Oracle SQL. Using a relational database and appropriate process redesign allows the firm to capture data once they are generated. Then, reports can be generated so that all users have access to the same information. This allows for "information congruence," e.g., so that each functional area makes use of the same sales forecast, resulting in fit between key areas of the firm, such as marketing and production. As a result, some Library management may be able to exploit the underlying information and database structure, as is seen in the prototype system developed below. Both large and small firms have adopted ERP systems. It has been estimated that virtually all of the Fortune 500 firms have either implemented an ERP system or are implementing an ERP system. In addition, small- to medium-sized enterprises also have adopted ERP systems. As a result, the Library management needs can vary substantially across different clients. Implementation of ERP systems has grown to be important consulting Institutions. During the late 1990s, it was estimated that roughly one-third to one-half of the consulting done by the major consulting firms has to do with choosing, implementing, or using ERP systems **(Public Library Management Report, 1998)**. Further, additional consulting often is done after the ERP system has been installed, e.g., improving configuration and security. As a result, there is a large potential for Library management through the life cycle, both for consultants and the academic implementing the software. ERP systems are large. As one measure of their size, Quantum's implementation of Oracle's ERP application reportedly has over 40,000 tables. In addition, increasingly, ERP implementations are accompanied by large data warehouses, and designed to facilitate data access and improve the reporting capabilities. Because of their size and cost, academics can benefit from substantial Library management efforts. As a result of all of these

developments, Library management systems are emerging as important tools to support ERP systems. Accordingly, the purpose of this paper is to discuss some of these Library management system developments across the entire ERP life cycle of choosing, implementing, and using ERP systems.

1.2. LIBRARY TO LIBRARY (L2L)

Interlibrary loan – L2L is a service whereby a user of one library can borrow books or receive photocopies of documents that are owned by another library via ERP. The user makes a request via web with their local library, which, acting as an intermediary, identifies owners of the desired item, places the request, receives the item, makes it available to the user, and arranges for its return. The lending library usually sets the due date and overdue fees of the material borrowed. Although books and journal articles are the most frequently requested items, some libraries will lend audio recordings, video recordings, maps, sheet music, and microforms of all kinds. In many cases, nominal fees accompany interlibrary loan services. The term document delivery may also be used for a related service, namely the supply of journal articles and other copies on a personalized basis, whether these come from other libraries or direct from publishers. The end user is usually responsible for any fees, such as costs for postage or photocopying. Commercial document delivery services will borrow on behalf of any customer willing to pay their rates.

1.3. RESOURCE SHARING NETWORKS IN ERP

Libraries have established voluntary associations, often on a regional basis, to provide an online union catalog of all the items held by all member libraries to access web on ERP Systems. Whenever a library adds a new title to its catalog, a copy of the record is also added to the union list. This allows librarians to quickly determine which other libraries hold an item. Software then facilitates the request and supply tasks. In the U.S., Online Computer Library Center (OCLC) is used by public and academic libraries. Formerly, another network RLIN (Research Libraries Information Network) was used primarily by academic libraries but merged with OCLC on October 1, 2007. Australia and New Zealand use Libraries Australia and New Zealand Libraries' Catalogue respectively, the national bibliographic networks of those countries.

Online requests are usually submitted via OCLC's WorldCat or FirstSearch in the United States. Libraries without access to either can participate in interlibrary loan by submitting requests by postal mail, fax, email, or telephone. These are referred to as manual requests. Manual requests can be submitted in the United States by using an ALA (American Library Association) Interlibrary Loan Form.

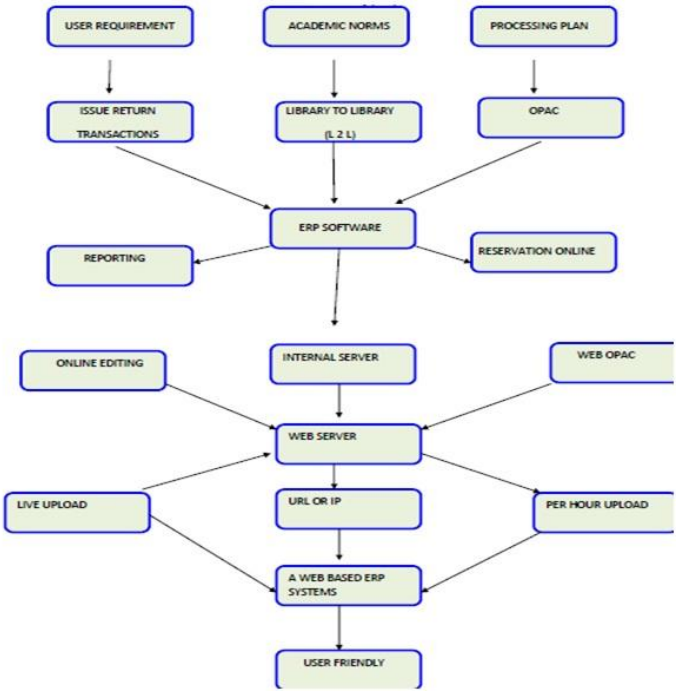
Some libraries establish reciprocal arrangements with each other to supply loans and copies for free. Examples of such arrangements in the United States include Libraries Very Interested in Sharing (LVIS), Amigos, Mid-America Association of Law Libraries (MAALL), Bibliographical Center for Research, and the Greater Western Library Alliance (formerly the Big 12 Plus Library Consortium). Sometimes these arrangements include other services such as the Trans-Amigos Express (TAE) courier services which will ship and deliver items to Amigos members on the TAE route. Individual libraries can agree to reciprocal arrangements between each other.

1.4. ESTABLISHING ERP SYSTEMS

Establishing ERP systems can result in a number of issues that can benefit from Library management, including supporting implementation difficulties and managing system changes. Developing ERP systems requires that multiple users and developers coordinate their implementation efforts. As users and developers find problems during an implementation, they need to keep a record of those problems; in order to make sure that the problems are addressed and that solutions are found. The problems and the solutions become the cases. In some cases, users may have the same or a similar problem. If the problem has been solved, then users need to be able to find out about the previous solutions to the case. In addition to previous solutions, the Library base can keep track of the ‘‘who’’ issue: who solved the problem and what is their contact information. If the problem has not yet been solved, but others have the same problem, then there needs to be a coordination of case solution efforts because, otherwise, resources will be misallocated with the development of duplicate solutions. As an example, as part of the development of an ERP, a ‘‘Big 5’’ consultant developed a Library base that would capture problems and allow tracking of their solutions.

Originally, the system was developed in order to provide a quick fix to track an overwhelming number of user support requests. In addition, there had been duplicate inquiries that ultimately led to redundant efforts, which the Library management system now minimized. As time went on, there were an increasing number of problems and solutions added to the system, resulting in a large database of cases of problems and solutions. Future plans included changing the computing environment and migrating the system to Lotus Notes. In addition, they planned to extend the Library base. A case-based system is now being designed, couching the data as cases in order to more fully exploit machine processing capabilities of the cases

FIG.1. Structure on web based library administration using ERP Software



1.5. USING ERP SYSTEMS: DEVELOPING DATA FOR OUTPUT

Reporting capabilities for ERP systems are generally perceived as difficult to use. As a result, academic have taken a number of strategies to make the information available, including intranets and portals.

1.5.1. Intranets

Starting with Microsoft's implementation of SAP, there has been a push to make ERP report information available on corporate intranets (O'Leary and Markus, 2001). As a result, ERP report information increasingly is being treated as part of firms' Library management systems. In the case of Microsoft, expert users were expected to use the reporting capabilities of the ERP system. However, for less expert and casual users, a wide range of information generated from the ERP was made available on the intranet. In addition, in making the information widely available, the move of information to the intranet minimized ERP costs that Microsoft incurred, since ERP system costs were based on a per-seat level of usage.

1.5.2. Portals

Not long after firms began to make ERP information available on intranets, ERP vendors began to release plans for portals to their ERP systems. Perhaps the best known of those portals is SAP's ''MySAP.com.'' Others include (e.g., O'Leary, 2000) J.D. Edwards' ''ActiveEra'' and Lawson's portal. These portals are not only seen as vehicles for providing users with output information. In addition, they are seen as central in ERP vendor Library management strategies (e.g., SAP, 2000).

1.5.3. Data warehouses for ERP systems

Increasingly, firms are making ERP information available on their intranets. However, typically, ERP-based reports are designed for a single month, quarter, or year. As a result, some users are now interested in analyzing the available data. As a result, firms are implementing data warehouses to facilitate access to a broader range of the data over longer time periods, such as multiple years. If data are available in data warehouses, then those same data can be analyzed from a knowledge discovery perspective. Relationships between different variables can be explored and ultimately converted into usable knowledge

1.6. CONCLUSIONS

This study has presented some new evidence from academics adopting ERP systems and their web based library management processes. The survey results suggest that academic adopting ERP systems are driven by the needs of this increasing competitive environment in order to survive and succeed. That is, integration of applications, real-time information, and particularly information for decision making are the underlying motives for ERP adopters. This further confirms that ERP systems are currently becoming a necessary tool for academics to remain competitive in this new institutions environment rather than constituting a new strategic move. Nonetheless, ERP systems also offer the opportunity for academics to re-engineer their activities
and revamp both their IS and practices. The empirical evidence confirms a number of changes in the Library Management processes introduced with the adoption of ERP systems. The most frequently quoted ones involve the introduction of an internal audit function, the use of non-Transactions performance indicators, and profitability analysis at segmental/product level. It is noteworthy though that these changes stem from the main advantages of ERP systems, which have also been the driving force for managers adopting them. This is further reinforced by respondents' most highly rated perceived benefits for adopting ERP systems. That is, the integration of Library Management applications, increased flexibility in information generation, and improved quality of Transactions reports and decisions based on timely and reliable Library Management information. Further, the fact that some changes in the Library Management processes have not been so widely applied and the potential benefits from adopting ERP systems have not been highly rated has been attributed to the infancy of these systems.

Specifically, as these academics have only introduced ERP systems relatively recently, their impact on Library Management practices cannot be fully appreciated at this stage. Furthermore, the complexity of ERP systems requires some time to elapse before users can reap all the benefits. In essence, the benefits from the ERP implementation are accrued in the longer-term (Poston and Grabski, 2001). However, these changes and the benefits associated with them do not constitute innovation per se, but rather keeping up with the changes in the business environment. The increased demands in this highly competitive, highly automated, IT-driven business environment forced academics to resort to ERP systems to remain competitive. Further research may examine the impact of both technical and "softer" factors in bringing radical changes in Library Management processes. The latter might involve cultural issues, including employee resistance to change. It is inevitable that ERP implementations require a reorganization of business processes and organizational structure but, most importantly, a change of management style and culture (Wood and Caldas, 2001). Therefore, top management support, collaboration within the organization and between the organization and the ERP provider and employee training/participation appear to be successful ingredients in ERP applications. Furthermore, accountants need to have good IT skills to apply their Library in this new IT-led work environment. Therefore, examining their skills and abilities in coping with this new demanding role might also provide an explanation for these findings.

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