A Systematic View of ERP Implementation

Carin Chuang, Assistant Professor, Dept of Computer & Information Technology, Purdue University North Central, Westville, IN 46391,
P: (219) 785-5723, cchuang@pnc.edu

Kuan-Chou Chen, PhD, Associate Professor, Dept of Information Systems, Purdue University Calumet, Hammond, IN 46323,
P: (219) 989-2336, kchen@calumet.purdue.edu

ABSTRACT

This paper presents a system model of ERP implementation based on nowadays case study and literatures. The relationships in the model are designed to be simple and functional and do not necessarily represent any particular business environments. It is meant to be a generic ERP implementation conceptual model with implications for any business processes. It allows ERP administrator to move away from the discrepancy between the empirical applications and body of knowledge. The interrelationships of five primary sectors that are at the database security system are presented in this paper. The ERP implementation system model consists of five sectors: [1] company characteristics, [2] ERP implementation plan, [3] communication, [4] user, and [5] technology management.

INTRODUCTION

Enterprise resource planning (ERP) is a cross-functional enterprise system that serves as a framework to integrate and automate many of the business processes that must be accomplished within the manufacturing, logistics, distribution, accounting, finance, and human resources functions of a business. In other words, it attempts to integrate all departments and functions across a company onto a single computer system that can serve all those different departments' particular needs. The integrated approach can have a tremendous payback if companies have well planned implementation. Many companies report significant reductions in transaction processing costs and hardware, software, and IT support staff compared to the non-integrated legacy systems that were replaced by their new ERP systems. ERP can assist in reducing cost from operation management standpoints (O'Brien, 2006). Also, from enterprise agility viewpoints, ERP can be used in breaking down many former departmental and functional walls, which results in more flexible organizational structures, managerial responsibility, and work roles. The result is a more agile and adaptive organization and workforce that can more easily capitalize on new business opportunities.

ERP serves as the vital backbone information system of the enterprise, helping a company achieve the efficiency, agility, and responsiveness required to succeed in a dynamic business environment. However, properly implementing ERP systems is a difficult and costly process that has caused serious business loses for some companies, who underestimated the planning, development, and training that were necessary to reengineer their business processes to accommodate their new ERP systems (Olson, 2004).

This study will demonstrate the critical factors of ERP implementation challenges in order to identify the key components causing the failures. These key components will serve as foundation information to build a conceptual system model explores the implementation system behavior. The system model will guide the ERP decision makers and administrators as they attempt to steer the implementation clear of these obstacles. Specifically, this paper demonstrates a model of ERP implementation system based on nowadays real case study, theory and expert knowledge. The relationships in the model are designed to be simple and functional and do not necessarily represent any particular business environments. It is meant to be a generic ERP implementation system model with implications for scenario planning sequences. It allows ERP related administrators to move away from the discrepancy between the real world symptoms and simple software installation. The interrelationships of five primary sectors that are at the ERP implementation system are presented in this paper. They include [1] company characteristics, [2] ERP implementation plan, [3] communication, [4] user, and [5] technology management. There are interactions within each of these sectors depicted by system loop map.

AN ERP IMPLEMENTATION SYSTEM MODEL

The literature provides some guideline for a generic course development model of a Web security model. Web security features that are commonly listed under part of information security include operations systems, legal and ethical issues, network security, risk management, and technical disciplines. Some of these features are necessary for or related with other courses. For example, risk management needs to have legal and ethical discipline up front.

Based on our review of the literature and our examination of current ERP implementation problems, we propose an ERP implementation system model consists of five sectors: [1] company characteristics, [2] ERP implementation plan, [3] communication, [4] user, and [5] technology management. How these areas function together and interact with each other is shown in Figure 1.

Company characteristics

Three factors are behind the ERP implementation progress: industry characteristics, organizational structure, and company size. In this

Figure 1. An ERP implementation system model
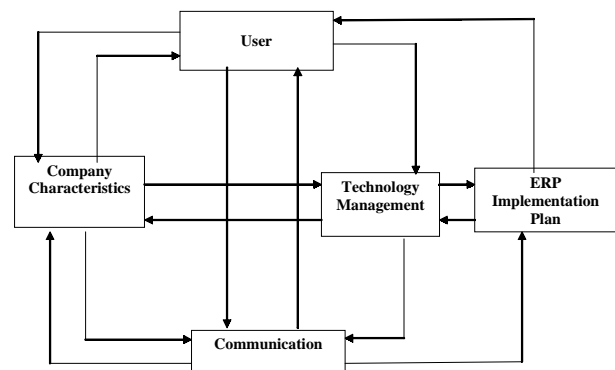
sector, we look at interrelationships between these three factors. For example, the company size will have impacts from cost/budget system to ERP investment decision. Also, organizational structure will be related to resources administration and affect the ERP control. In general, more sophisticated organization structure will have more resistance from the each segment because the resources and information sharing always have the human factors and politics involved. Industry characteristics are the key to be successful for ERP implementation. More IT related industry will have more intention to organize resources in ERP. More sensitive data related industry (e.g. accounting) would have less interest in using ERP.

Communication

Communication is a key implementation consideration because there are so many user groups impacted by an ERP program both internal (e.g., Stakeholders, System Operators) and external to the Company (e.g., investors). A communication strategy that includes tactical methods of disseminating ERP program information both top-down and bottom-up via diverse communication channels is an effective approach that contributes to implementation plan success (Enterprise Solution Competency Center Report, 2006).

ERP Implementation Plan

Business managers and IT professionals have been the major cause of ERP failures. The reason given is that these individuals underestimate the complexity of the planning, development, and training that are needed to prepare for a new ERP system that would radically change their business processes and information systems. Failure to involve affected employees in the planning and development phases and change management programs, or trying to do too much too fast in the conversion process, are also typical causes of failed ERP projects. Insufficient training in the new work tasks required by the ERP system, and failure to do enough data conversion and testing, are other causes of failure. In other cases, ERP failures are also due to over reliance by company or IT management on the claims of ERP software vendors or the assistance of prestigious consulting firms hired to lead the implementation. Identify the factors that led to the development of Enterprise Resource Planning (ERP) systems. It will assist the distinguishing characteristics of ERP software. Also, exploring the pros and cons of implementing an ERP system will enhance ongoing developments in ERP (Roa, 2000).

In non-ERP development projects, the conventional wisdom is to include users on the project team. In an ERP implementation, the parallel is to include users from across the affected functional areas. This insures that consensus is reached on requirements an also helps buy-in to occur. If the people in the different departments that will use ERP don't agree that the work methods embedded in the software are better than the ones they currently use, they will resist using the software or will want IT to change the software to match the ways they currently do things. This is where ERP projects break down (Koch, 2006).

ERP users are the company's employees. A company's employees are the most valuable asset to the company. Companies realize that a well-trained and experienced employee is very valuable and have begun to use the term "human capital management." Good management of employees is even more important in a large organization. Effective information systems can help manage employees (Jiang, 2005).

Technology Management

In technology, ERP implementation will involve software selection, data conversation, integration, testing, software customization and data analysis. Based on Deloitte Consulting survey of 64 Fortune 500 companies, one in four admitted that they suffered a drop in performance when their ERP system went live. Performance becomes the

difficulty in ERP implementation. It is very costly to have customization efforts to modify the ERP software to fit with powerful users' needs. Customizations make the software more unstable and harder to maintain when it finally does come to life. Because ERP covers so much of what a business does, a failure in the software can bring a company to a halt, literally. It is important to have implementation plan of how ERP controls the flow of information for the each department (Summer, 2000).

CONCLUSION

Enterprise resource planning is a cross-functional enterprise system that integrates and automates many of the internal business processes of a company, particularly those within the manufacturing, logistics, distribution, accounting, finance, and human resource functions of the business. Thus, ERP serves as the vital backbone information system of the enterprise, helping a company achieve the efficiency, agility, and responsiveness required to succeed in a dynamic business environment. ERP software typically consists of integrated modules that give a company a real-time cross-functional view of its core business processes, such as production, order processing, and sales, and its resources, such as cash, raw materials, production capacity, and people. However, properly implementing ERP systems is a difficult and costly process that has caused serious business losses for some companies, who underestimated the planning, development, and training that were necessary to reengineer their business processes to accommodate their new ERP systems. However, continuing developments in ERP software, including Web-enabled modules and e-business software suites, have made ERP more flexible and user-friendly, as well as extending it outward to a company's business partners.

Training of end users is a key success factor to achieving benefits. The users must relearn the process and training is the key to getting back up-to-speed. Productivity can suffer in an implementation until uses get up-to-speed.

REFERENCES

1. Enterprise Solution Competency Center (2006). http://www.army.mil/aeioo/erp/keyic.htm
2. Jiang, Y. (2005). Critical sucess factors in ERP implementation in Finland. The Swedish School of Economics and Business Administration. Unpublished Mater Thesis.
3. Koch, C. (2003). The ABCs of ERP. from http://www.cio.com/research/erp/edit/erpbasics.html
4. Monk, E., & Wagner, B. (2006). Concepts in Enterprise Resource Planning. Boston: Course Technology.
5. O'Brien, J. A. (2006). Management Information Systems. New York: Irwin/McGraw Hill.
6. Olson, M. (2004). Managerial issues of Enterprise Resource Planning Systems. New York: McGraw-Hill.
7. Ptak, C., & E., S. (2000). ERP: tools, techniques, and applications for integrating the supply chain. Boca Raton: Lucie Press.
8. Roa, S. (2000). Enterprise resource planning: Business needs and technologies. Industrial Management & Data Systems, 100(2), 81-88.
9. Summer, M. (2000). Risk factors in enterprise-wide/ERP projects. Journal of Information Technology, 15(4), 317-328.
10. Turban, E., Leidner, D., & McLean, E. R. (2006). Information Technology for Management. Edison: John Wiley & Sons.
11. Umble, J. E., Haft, R. R., & Umble, M. M. (2003). Enterprise resource planning: Implementation procedures and critical sucess factors. European Journal of Operational Research, 146, 241-257.
12. Vervill, J., & Haingten, A. (2003). A six-stage model of the buying process for ERP software. Industrial Marketing Management, 5560, 1-10.

The Wireless Impact on the Legal System: A Case Study of a Law Firm

Stan Lewis & Ernest W. King

118 College Drive, # 5178, The University of Southern Mississippi, Hattiesburg, MS 39406-0001, 601-266-6924, s.lewis@usm.edu

Eddy J. Burks , Frostburg State University, Frostburg, MD 21532-2303

ABSTRACT
Ongoing research was conduced on the impact of technology on a law firm handling tort (civil) cases in the U.S. legal system. The firm used in the study is heavily involved in mass tort litigation and was the subject of a study previously reported at the IRMA 2005 International Conference [1]. The current research is the second of several planned studies on individual law firms and the legal system usage of technology.

ORGANIZATION BACKGROUND
Research being conduced is limited to four areas of interest related to tort law within the category of civil law within the U.S. legal system: (1) to develop an initial descriptive technology-usage-and-trend benchmark for a single law firm handling tort (civil) cases in the U.S.; (2) to determine the costs and time currently known to provide existing professional services in the tort (civil) case area in the U.S. (cost versus benefit); (3) to use the findings in (1) and (2) as a basis in expanding the study into a study of representative, comparable firms with similar practices in the area of tort law; and (4) to collect and analyze data on the nature of the impact of technology on the U.S. legal system. The law firm in this study is identified only as the Professional Law Firm (PLF) was chosen because it was accessible, and it is heavily involved in mass tort litigation which is one of the major health and litigation issues in the U.S.

REVIEW OF LITERATURE
In the May 2004 issue of Government Technology, the National Consortium for Justice Information and Statistics or SEARCH recommendations for nine milestones is presented. These milestones are: (1) Initiate the process and institutionalize a governance structure, (2) continue planning, (3) develop and use performance measures, (4) analyze information exchange, (5) adopt or develop standards, (6) create sound integration architecture, (7) develop the infrastructure, (8) improve agency and organization applications, and (9) establish interfaces [3].

The Dennis Kennedy.com web site that is immensely popular within the legal profession describes the complexity of issues facing the legal firm and justice system as a whole. Two quotes are worth repeating and allow the researchers to drill down through the justice system to the level of the law firm and the environment in which a firm operates. "The courts are very serious about moving to e-filling and judges want to get attorneys moved to electronic systems."   "Computer forensics and electronic discovery tools have become standard tools for some of the best litigators. Increasingly, the evidence you may need exists in the form of e-mail or never was printed out onto paper." [4]

CASE DESCRIPTION
The law firm [PLF] used as the basis for this case study is considered a specialty firm that coordinates litigation efforts by legal firms located in thirty-five states that are involved in class action suits related to

health care. The required legal documents (paperwork) and information change exponentially with the addition or deletion of new plaintiffs to existing litigation. A concurrent requirement is a database to permit the firm to manage the required coordination between separate suits in each separate legal jurisdiction.

Phase I – Future Strategic Considerations
The PLF at the conclusion of Phase I of the study reported that it was studying the potential that web-enabled messaging via wireless (cell) phone technology and personal digital assistants (PDA) devices appear to offer to the firm. Internet-enabled cell phones with attached applications (cell phones with a 'brain'). Becoming a standard device and contain WAP microprocessors for Internet access. Previously the firm identified the following advantages to the firm through the use of this technology:

- Professional and non-professional staff carrying a cell phone or PDA wherever they go affords the firm and its clients to be in immediate contact when needed.
- Ubiquity or availability of a mobile terminal in the form of a smart phone or a PDA can fulfill the need both for real-time information and for communication anywhere, independent of the user's location.
- The convenience of devices that store data are always at hand and are increasingly easy to use via connection to Internet, etc.
- Eliminate the need to boot up a PC or place a call via a modem to gain access to the databases at the office.

Phase II – Current Strategic Planning
The PLF strategic planning was delayed due to Hurricane Katrina but remains as a priority for the firm. The PLF has identified an initial set of issues since its recovery from the impact of Hurricane Katrina that must be included in the strategic planning and include the following wireless-enabled areas of interest by the firm:

- WiFi-capable laptops,
- Email capabilities using wireless devices,
- Combination phone-PDA devices, and
- Pc anywhere capabilities

The POM at the PLF currently has the IT staff developing a set of alternatives for consideration by the firm. These alternatives include, but are not limited to, the use of BlackBerry devices and smart phones using Microsoft Pocket PC software, and the Good brand of smart phone-PDA devices. Once the IT staff presents the alternatives including costing and capabilities to the POM the professional staff will be given an opportunity to provide input to the partners that will ultimately make the decision.

There is heightened awareness by the firm that the recovery efforts related to Hurricane Katrina will have significant ramifications on the decisions to be made by the firm. Since many of the court document repositories have been damaged or destroyed, the recovery effort

undertaken by the courts for filing and maintaining records will shape the opportunities that exist to fundamentally change the legal system; this will, in turn, impact the direction individual firms will need to go regarding the filing and processing of tort litigation.

CONCLUSIONS

Currently the PLF is actively involved in strategic planning that is designed to allow the firm to migrate to the latest wireless technology. No specific time-frame was identified by the firm since the legal system in the area impacted by Hurricane Katrina is still addressing more immediate recovery needs.

REFERENCES

[1]   Lewis, Stan; King, Ernest W.; Hsieh, Chang-Tseh; and Chen, Kuo-Lane; "Impact of Technology on the Legal System – An Initial study of a Law firm;" 2005 Information Resources Management Association International Conference Proceedings; San Diego, California; May 15-18, 2005; pages 922-923.
[2]   "Outline of the U.S. Legal System: The Civil Court Process," http://usinfo.state.gov/products/pubs/legalotln/civil.htm
[3]   Harris, Blake, "Building Blocks," Government Technology, Vol. 17, Issue 5, May 2004, 27-28.
[4]   Kennedy, Dennis, "2004 Legal Technology Trends: Do We Stand on the Threshold of the Next Legal Killer App?," http://www.denniskennedy.com/pred2004.htm.

Related Content

User-Driven Innovation in E-Health Change Processes

Synnøve Thomassen Andersen (2019). *Handbook of Research on the Evolution of IT and the Rise of E-Society (pp. 424-437).*

www.irma-international.org/chapter/user-driven-innovation-in-e-health-change-processes/211626

Information Systems on Hesitant Fuzzy Sets

Deepak D.and Sunil Jacob John (2016). *International Journal of Rough Sets and Data Analysis (pp. 71-97).*

www.irma-international.org/article/information-systems-on-hesitant-fuzzy-sets/144707

The Role of Case-Based Research in Information Technology and Systems

Roger Blake, Steven Gordonand G. Shankaranarayanan (2013). *Information Systems Research and Exploring Social Artifacts: Approaches and Methodologies (pp. 200-220).*

www.irma-international.org/chapter/role-case-based-research-information/70717

A Survey of Tasks Scheduling Algorithms in Distributed Computing Systems

Nutan Kumari Chauhanand Harendra Kumar (2021). *Encyclopedia of Information Science and Technology, Fifth Edition (pp. 233-244).*

www.irma-international.org/chapter/a-survey-of-tasks-scheduling-algorithms-in-distributed-computing-systems/260189

Securing Stored Biometric Template Using Cryptographic Algorithm

Manmohan Lakheraand Manmohan Singh Rauthan (2018). *International Journal of Rough Sets and Data Analysis (pp. 48-60).*

www.irma-international.org/article/securing-stored-biometric-template-using-cryptographic-algorithm/214968