

Focus on Critical Success Factors in ERP Implementation

S.Mala¹, Dr. K. Alagarsamy², A.Saranya³

¹Research Scholar, Madurai Kamaraj University, Madurai, Tamil Nadu.

²Associate Professor, Madurai Kamaraj University, Madurai, Tamil Nadu

³Assistant Professor, V.V.V College for Women, Virudhunagar, Tamil Nadu

Abstract

Many learn in journalism have shown the significance of ERP system in companies' efficiency, and this is since ERP organization have become one of the major fundamentals, a price of entry, and a strong and included IT infrastructure for many companies enabling them to struggle in the local and global marketplace, and ensure them to gain a destructive assistance in the universal financial system predominantly with the current e-business period. In this paper will examine the critical success factors that can play a role during the completion process and will recognize the critical success factors that affecting ERP organization realization success during the three implementation stages which are pre-implementation stage, implementation stage and post-implementation stage.

Keywords --- Critical Success Factors, ERP, realization.

I. INTRODUCTION

An ERP organization is a put together commerce software organization that allows a company to mechanize & incorporate the greater part of its business processes, and share ordinary data and practice across the entire endeavor. ERP also create and admittance information in a real-time atmosphere. A lot of business use ERP software to incorporate the enterprise-wide information and process for example their economic, human resources, developed, logistics, sales and marketing functions. ERP was designed chiefly to provide a total, included company's reserve to supervise the business process competently and successfully.

The reputation of ERP software began to rise and has grown-up to become one of the most extensive software applications used in organization activity wide business processes. One of the overriding features of the ERP marketplace is that eagerness for ERP systems in the manufacturing area such as chemicals, IT, electronics, textiles, and even in the public sector.

Today's ERP system is a product of Materials Requirement Planning systems. As MRP evolved to MRP II, it began to include economic control and the dimension, master manufacture preparation, and ability planning. Now, ERP has been comprehensive not only to imprison whole functions in the activity but also to be included with additional functions such as commerce cleverness and Decision Support Systems. When companies come to ERP realization, they share the common goals, a quick and smooth execution that does not disrupt business process with realization system glitches. Though, ERP systems can't promise to live up to companies' expectations in all cases. As Darke, Parr, and Shanks mentioned that ERP systems were widely documented as both difficult and likely to swarming time and budget allocations.

ERP system release and accomplishment is normally measured to be composite, costly, and highly challenging. It can distribute great rewards and opportunity, but the risks embedded are uniformly great. The success or failure of ERP conclusion is closely related to how the companies switch the process. The ERP implementation process could differ in every company. The difference might concern to the accomplishment goals, the scope, or the obtainable resources. But among all the differences in the every realization process there are some universal points that are significant in the process and would strongly result in the success or failure in the implementation. Those significant points were documented as critical success factors. Critical success factors are distinct as those few critical areas where things must go right for the business to thrive. Understanding the critical success factors in ERP realization would give some guidelines on what factors that should be given more thought in order to bring the realization process into success. The critical success factors could either be a risk or chance, depends on how the association handle them.

II. LITERATURE REVIEW

A. ERP Organization

An ERP organization is a knowledge transportation that can help a company in integrates information from all interior departments with suppliers and customers. It links all areas of a company’s interior functions and process with the external ones in order to generate a close affiliation between customers and suppliers. ERP also allows information to be shared between dissimilar partners, supports the efficiency of the supply chain management, and improves the flow of information. These should facilitate managers to make better decisions based on more exact and up-to-date information.

The ERP organization was introduced by ERP supplier, such as SAP (Systems, Applications, & Products in Data Processing), Oracle, PeopleSoft, and others to eliminate inheritance system problems, provide single and incorporated technical platform, and thereby help companies in gaining a competitive advantage and thus competing internationally. However, implementing ERP system requires changes in the managerial culture as a whole, takes a long time to realize, and consume a significant amount of money. Consequently, companies need to know clearly what ERP scheme is and in what ways the system could influence the company before thinking of implementing the system. ERP organization have been measured by many researchers and practitioners as one of the most pioneering improvement in Information Technology and one of the most well-known IT solutions for this decade, and this is in fact since ERP system has become one of the main fundamentals and the backbone of e-business time.

Companies are beginning to appreciate that in order to live on in the worldwide business atmosphere they must get better not only their managerial

capability, but also their whole supply chain. This is since resistance today is not limited between companies only, but it has completed to be among their supply chains as well. These reasons force many companies to keep up to date and make large savings in mounting and implement better technologies and system such as ERP organization.

ERP organization can be a useful tool for companies to build a strong information systems infrastructure and to enable the management to commence better decision-making based on precise and on-time information. ERP system can improve product superiority and client openness and also enhance information sharing and information quality among dissimilar departments inside the corporation, as well as expand beyond the company’s boundaries to suppliers, customers, and other partners in the supply chain. Eventually, this should improve overall business presentation to help achieve competitive advantage in the global financial system and progress long term productivity.

B. ERP Scheme implementation

Many companies around the world began execute ERP organization. The main reason behind the realization of ERP system is to re-engineer business processes during a uniform information system. Businesses worldwide have exhausted billion per annum on ERP systems. Though, in the previous little years, ERP systems seem to have been onwards and this has led to a fundamental decline in the ERP market. Many leading international companies have successfully implemented ERP systems. These companies have experienced the credible payment of ERP organization. An order with Autodesk Software Company that used to take two weeks is now completed within four hours. ERP organization enabled it to cut costs and substantially increase its proceeds.

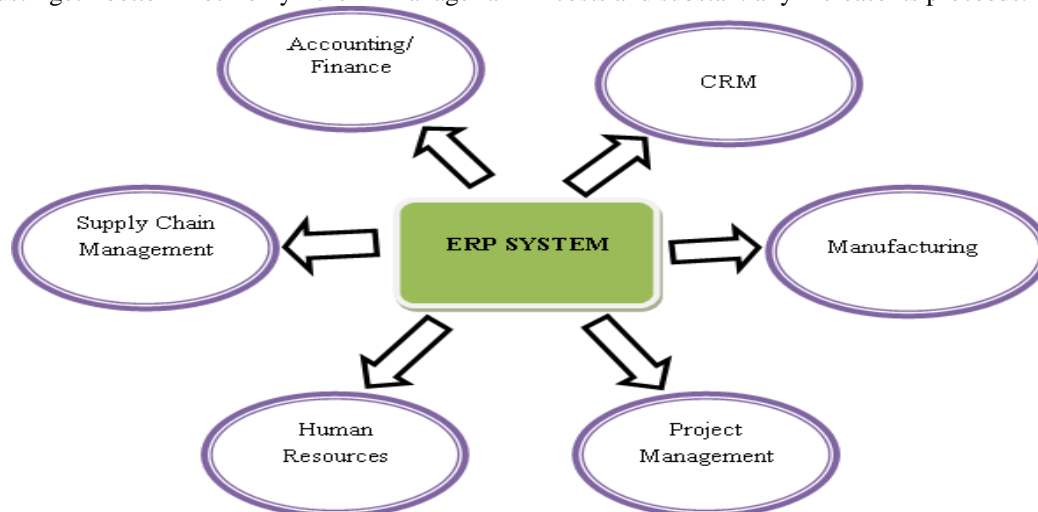


Fig.1 ERP Organization

Accomplishment of ERP organization is very costly and takes a long time to be executed. This reason prevents many companies from implementing ERP system and limits the market share of ERP systems. Though, in order to solve this problem, top ERP vendors need to develop special ERP packages to meet the need of small size companies to increase the market share of ERP systems. With this solution, small and medium sized companies can also advantage from ERP organization. This solution also enables the international propagation of ERP systems.

Implementing technical solutions and techniques such as ERP scheme could develop and integrate the interior and exterior flow of information within an association. Such innovations would also improve SCM presentation, improve decision-making based on correct information and develop the relationship, teamwork, and replace of information. It would improve the association of goods and services to outsource suppliers, customers, and other partners in the supply chain and to conclude attain an aggressive advantage and increase productivity.

III. CSF'S IN ERP SYSTEM IMPLEMENTATION

According to Yu most of the literature on ERP organization focused on two main domains. The first one estimates the fittingness of ERP systems' software, vendors, and authority. The second domain looked at the CSFs that affect ERP system's realization success, such as ERP Teamwork & Composition, Top Management Support, Business Plan & Vision, Effective Communication, Project Management, Project supporter, suitable Business, and inheritance Systems.

An ERP implementation is classically a large new project, the likes of which companies will have never experience before. Accordingly, prior to ERP realization, companies need to understand their own competency such as their ability to use the system successfully, provide preservation, and to take advantage of system opportunities in terms of progress and modernism.

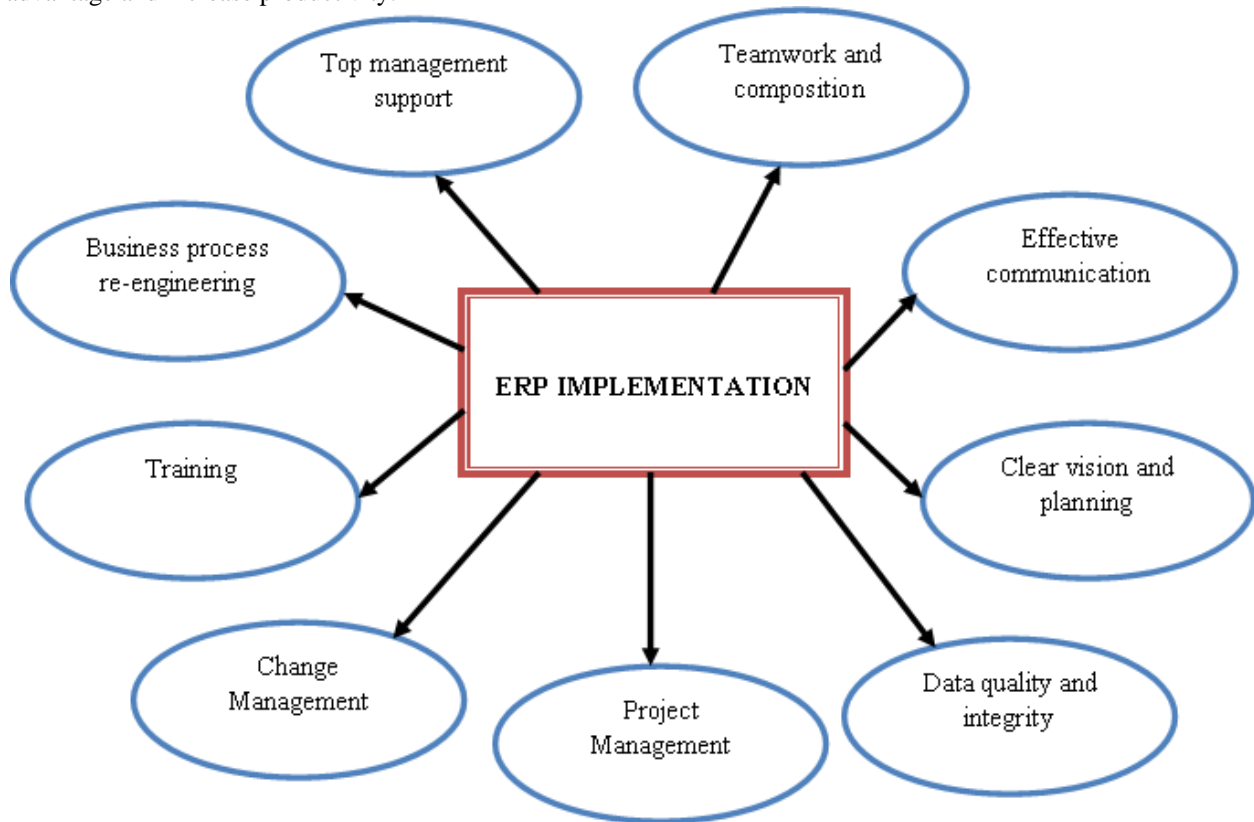


Fig 2. ERP Scheme Implementation

Therefore, companies need to start with necessary changes in their own business processes required in the implementation of ERP processes, and

may eventually improve the entire supply chain, thus, gaining a competitive advantage in the marketplace. Implementation was one of the most critical issues for

industrial companies in literature. Critical factors for successful implementation of ERP system include ERP Teamwork & Composition, Top Management Support, Business Plan & Vision, Effective Communication, Project Management, Project Champion, Appropriate Business & Legacy Systems, Change Management Program & Culture, Business Process Reengineering (BPR) & Minimum Customization, Software Development, Testing & Troubleshooting, and Monitoring & Evaluation of Performance. When companies plan to put into practice ERP systems, they have to pass through three stages:-

1. Pre-implementation stage: where companies need to make a decision why they want to apply ERP systems,

what they expect for from this system, what they need to arrange before begin ERP execution, and what are the CSFs that could help them to attain successful realization.

2. Implementation stage: which necessitate the company to expect and be prepared for the coming challenges and problems predictable during the implementation stage. Managerial and technical issues typically happen during realization.

3. Post-implementation stage: at this phase companies need to keep side by side of the latest knowledge in order to be able to deal with any new technology.

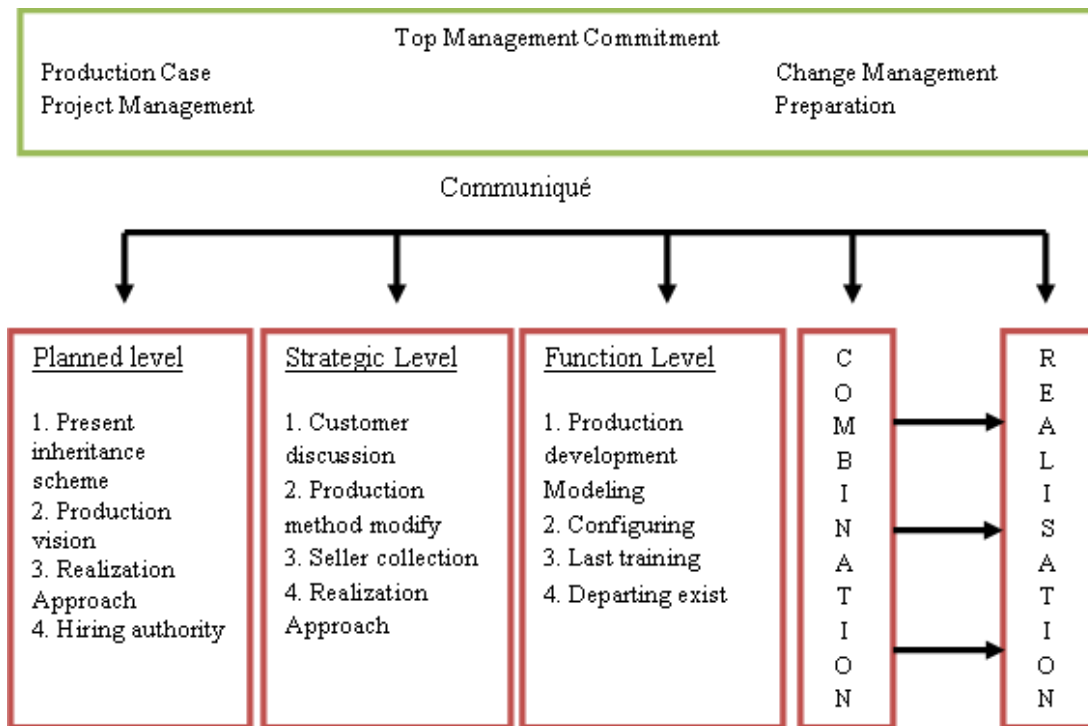


Fig 3. Critical Success Factors in ERP system

Exchange from a conservative business procedure to a new way of conducting business during implementing a new information system such as an ERP system and therefore abandoning the legacy system in order to run the new business processes, is measured a difficult task and may cause a system failure, which in turn may lead to insolvency. Though, there are successes stories with ERP systems, there are also cases of failure for some companies. Due to these failures, many companies are still vacillating on making a massive speculation,

paying a large sum of money, and investing in a lengthy period for implementing such new system.

In fact, these cases of failure deter many companies from implementing ERP system as they are terrified of having the same experience of panorama of insolvency. As a result, Enterprise Systems seem to have been forgotten and becoming redundant. Consequently, technology dispersal between companies may be decreasing which may adversely affect the growth of new technology innovations.

These were a result of unwillingness from many companies to spend enormous amounts of time and money in the accomplishment of an ERP system which could potentially fail or cause objectionable outcomes. Table I presents the main factors and the degree of citation for each factor in text.

IV PROPOSED SYSTEM

Our action research has become the origin for recognize the most significant CSFs for the ERP system realization in communal management. We have also used our experience in the field of ERP systems achievement. Those methods as well as the critical thinking and inductive reasoning led us to indicate the four groups of Critical Success Factorss (Table 2):

- Communal procurement process;
- Government processes organization
- Development group capability and
- Project administration.

Table 1 Critical Success Factors in text

Critical Success Factors in text	Degree of citation in text
Top management support	High
Monitoring and evaluation of performance	High
Project champion	High
User training and education	High
User association	High
Business Plan & Vision	Medium
Careful package selection	Medium
Change readiness & Culture	Medium
Clear Goals & purpose	Medium
Learning capability	Medium
Minimal customization	Medium
Project administration	Medium
Business Process Reengineering	Medium

A. Communal procurement process

Factors connected with the communal procurement process are very significant as they officially boundary the choice of functionality of a

realize ERP organization. If the supplies are not defined, they are not a subject to the agreement and, so, the IT Company has no basis for their implementation. Furthermore, it moderately often happens that due to a lack of information of ERP systems accomplishment very short and unrealistic deadlines for the system completion are set. It may also be connected with a long-term procurement procedure, which aims to select the most beneficial offer. As a consequence, the first date of the realization is postponed in time, while the conclusion date of the implementation, which was provided for in the procurement, remains un-changed.

Clear goals and objectives of the ERP system realization are always particular in the announced public procurement and usually there are no ambiguities here. Nevertheless, they are included in this group of factors, because they largely decide the success of realization.

B. Government processes organization

Regarded as the most significant factors related to management direction processes are freezing information requirements, identified government process, and direction process reengineering.

Conducting the examination of information requirements and management processes is an completely necessary constituent of adopting the ERP system to the requirements of public management. Government process reengineering is very often essential in order to improve processes and increase their efficiency. Those all elements add up to the success of the ERP system realization.

C. Development group capability

The most significant factors for ERP system realization in communal management are related to development group capability. This refers to both the project team members, who are the employees of the IT Company, as well as the government organization. Employees of the IT Company should have knowledge and capability in implementing an ERP system in general, and particularly in public administration.

Furthermore, government organization employees, who are a part of a design group, should have information about government processes which will be supported by the ERP system and about information which it will provide. Their knowledge should cover the functional scope of the system. The government organization team should benefit from the information of business analysis and information system implementation consultants. Support of research centers is also highly recommendable here.

Communal procurement process	Government processes organization	Development group capability	Project administration
<ul style="list-style-type: none"> • Clear and precisely defined tender specification (information and government processes requirements, technological requirements, organizational requirements) • Realistic and chronologically arranged schedule • Clear goals and objectives of the ERP system implementation 	<ul style="list-style-type: none"> • Frozen information requirements • Identified government processes • Government process reengineering 	<ul style="list-style-type: none"> • Project group capability on ERP systems • Project team capability on communal management • Use of consultants • Cooperation with re-search centers • Knowledge in IT 	<ul style="list-style-type: none"> • Top management support • Clear project of roles and responsibilities • Change organization • Risk organization • Participation ERP system end-users • Interdepartmental communication • Use of proven project management method • Effectual monitoring and control

Table 2. CSFs for ERP System implementation

4. Project administration

Project administration, particularly need of top management support and clear project of roles and responsibilities may inauspiciously affect the realization. In addition, the use of established project management method, especially for large projects, is essential. With-out proper project administration method there is a risk of scheme realization failure. It is also significant to use change administration and risk administration. ERP realization brings many changes, which increase the risk of failure. Therefore, it is significant to supervise them correctly. Also, end user participation is not without significance. They will advantage from the implemented ERP system and should be involved in its completion as soon as possible to be able to believe the changes.

Also, the communication between team members and between end users from dissimilar departments has a collision on successful implementation. Effectual monitoring and control

should be used to organize the team’s work as well as their potential collaboration with consultants and research centers. The obtained research results show that CSFs of ERP implementation in communal management can be classified into four groups: communal procurement process, government production organization, development group capability, and project administration. These groups are comparable to the CSFs for ERP systems realization demonstrated in the literature in universal, but they have exact nature regarding communal management.

V. PERFORMANCE ANALYSIS

Table 3 designates the top ten CSFs level by managers as most significant from the factors identified by the text. The managers agreed on these factors as the top ten critical factors that helped them to realize successful realization of the ERP system within their organizations.

Category	Mean	CSF in ERP Level
Monitoring & Evaluation Of Performance	4.03	High
Project Champion	4.04	High
Top Management Support	3.96	High
Clear Goals & Objectives	3.91	High
User Involvement	3.85	Medium
Strategic IT Planning	3.82	Medium
User Training & Education	3.74	Medium
Teamwork & Composition	3.71	Medium
Vendor Support	3.69	Medium
Education on new Business Processes	3.68	Medium

Table 3. CSF level



Fig. 4 CSF in ERP level

VI. CONCLUSION

The expedition of ERP organization begins with the realization of the scheme, and continues post-implementation. Though, continued endeavor is needed after the go-live of ERP scheme in order to reap the full payback of the scheme. In information, the expedition of ERP organization starts after the implementation stage. Consequently, the CSFs should make certain the continued success of ERP system as well as reduce the likelihood of the scheme breakdown during the three stages of an ERP system's life cycle. The continued obligation and carry of the major CSFs from the commencement to the end of ERP system project is very vital for the success of the scheme and for its effectual crash on industry presentation.

In order to make possible the incessant success of ERP organization and to make certain a better crash on the industry presentation, CSFs should be involved with the ERP system during the implementation of ERP system. ERP organization passes during three major implementation stages of system life cycle and that includes pre-implementation stage, implementation stage, and post-implementation stage. This study concludes that ten CSFs should be considered during the ERP implementation as the most important factors from the factors acknowledged by the text. These factors are Top administration Support, customer participation, Clear Goals & Objectives, planned IT Planning, User Training & Education, Vendor Support, Teamwork & Composition, Project defender, Monitoring & assessment of Performance, and Education on new Business Processes. These top ten critical factors can help companies to attain successful realization of ERP organization.

REFERENCES

- [1] Akkermans, H. A., Bogerd, P., Insead, E.Y., and Insead L. W. (2000), The impact of ERP Systems on Supply Chain Management. Exploratory Findings from a European Delphi Study.
- [2] Al Hinai, H. S., Edwards, H. M., & LHumphries, L. (2013). The Changing Importance of Critical Success Factors during ERP Implementation: An Empirical Study from Oman. International Journal of Enterprise Information Systems, 9(3), in press. <http://dx.doi.org/10.4018/jeis.2013070101>
- [3] Al-Mashari, M. (2003), Enterprise resource planning (ERP) systems: a Research agenda, Industrial Management and Data Systems, Vol. 103 No. 3, pp. 22-27. <http://dx.doi.org/10.1108/02635570310456869>
- [4] Al-Mashari, M., and Zairi, M. (2000), Supply-chain re-engineering using enterprise resource planning (ERP) systems: an analysis of a SAP R/3 implementation case. International Journal of Physical Distribution & Logistics Management, Vol. 30, No.3-4, pp. 296-313. <http://dx.doi.org/10.1108/09600030010326064>
- [5] Beheshti, H. M. (2006). What managers should know about ERP/ERP II. Management Research News, Vol. 29, No. 4, pp. 184-193. <http://dx.doi.org/10.1108/01409170610665040>
- [6] Davenport, T.H. (1998), 'Putting the enterprise into the enterprise system', Harvard Business Review, July–August, Vol. 76, No. 75, pp.121–131.
- [7] Davenport, T. H., Harris, J. G., and Cantrell, S. (2004). Enterprise system and ongoing process change. Business Process Management Journal, Vol. 10, No. 1, pp. 16-25. <http://dx.doi.org/10.1108/14637150410518301>
- [8] Deloitte (1999), ERP's second wave-maximizing the value of ERP-enabled processes, Deloitte Consultant. Makin ERP spell ROI. Available at: <http://www.ctiforum.com/technology/CRM/wp01/download/erp2w.pdf>. Retrieved July 15, 2007.
- [9] Farmer, M.A., and Luening, E. (2001), i2-Nike fallout: a cautionary tale. CNET News.com, 9 March, available at: <http://news.cnet.com/news/0-1007-2005070729.html?tag¼prntfr>.
- [10] Hsu, L.L., and Chen, M. (2004), Impacts of ERP system on the integrated –interaction performance of manufacturing and marketing. Journal of Industrial Management & Data Systems, Vol. 104, No. 1, pp.42-55. <http://dx.doi.org/10.1108/02635570410514089>
- [11] Huang, Z., and Palvia, P. (2001), ERP implementation issues in advanced and developing countries. Business Process Management Journal, Vol. 7, No. 3, pp. 276-284. <http://dx.doi.org/10.1108/14637150110392773>
- [12] Klaus, H., Roseman, M., and Gable, G. G. (2000), What is ERP?. Information Systems Frontiers (special issue of The Future of Enterprise Resource Planning Systems), Vol. 2, No. 2, pp. 141-162. <http://dx.doi.org/10.1023/A:1026543906354>
- [13] Loonam, J., and McDonagh, J. (2005), Principles, Foundations, & Issues in Enterprise Systems. Ideal Group Inc., Ireland.
- [14] Mabert, V. A., Soni, A., and Venkataramanan, M. A. (2003), The impact of organization size on enterprise resource planning (ERP) implementations in the US manufacturing. The International Journal of Management Science, Omega, Vol. 31, No. 3, pp.235-246. [http://dx.doi.org/10.1016/S0305-0483\(03\)00022-7](http://dx.doi.org/10.1016/S0305-0483(03)00022-7)
- [15] Maguire, S., Ojiako, U. and Alsadi (2007), "ERP implementation in Omantel: a case study", Industrial Management and Data System, Vol. 110 No. 1, pp. 78-92. <http://dx.doi.org/10.1108/02635571011008416>
- [16] McNurlin, B. (2001). Will users of ERP stay satisfied?. MIT Sloan Management Review, Vol. 42, No. 2, pp. 14-21.
- [17] Nah, F. F., and Lau, J. L. (2001). Critical factors for successful implementation of enterprise systems. Business Process Management Journal, Vol. 7, No. 3, pp. 285-296. <http://dx.doi.org/10.1108/14637150110392782>
- [18] OIT Report (2013), Oman Information technology report, available at: <http://oneoman.com/2013/02/17/oman-information-technology-report-2013/> (accessed 27April 2013).
- [19] Rajagopal, P. (2002). An innovation-diffusion view of implementation of enterprise resource planning (ERP) systems and development of a research model. Information & Management, Vol. 40, pp. 87–114. [http://dx.doi.org/10.1016/S0378-7206\(01\)00135-5](http://dx.doi.org/10.1016/S0378-7206(01)00135-5)
- [20] SAP Forum (2013). SAP Forum in Oman. March 6, 2013- Muscat, Oman. Sheikh, K. (2003). Manufacturing Resource Planning (MRP II) with introduction to ERP, SCM, and CRM. New York: McGraw-Hill.
- [21] Soh, C., S. K. Sia, et al. (2003). Misalignments in ERP Implementations: A Dilative Perspective. International Journal of Human-Computer Interaction, Vol. 16, No. 1, pp. 81-100. http://dx.doi.org/10.1207/S15327590IJHC1601_6

- [22] Turban, E., Leidner, D., McLean, E., and Wetherbe, J. (2008). *Information Technology for Management. Transforming Organizations in the Digital Economy*. Wiley Sixth Edition.
- [23] Yusuf, Y., Gunasekaran, A., and Abthorpe, M. S. (2004). Enterprise information systems project implementation: A case study of ERP in Rolls-Royce. *International Journal of Production Economics*, Vol. 87, pp. 251–266. <http://dx.doi.org/10.1016/j.ijpe.2003.10.004>.
- [24] Smith, H., & Fingar, P. (2003). *Business process management: The third wave*. USA: Meghan – Kiffe Press.
- [25] Somers, T. M., & Nelson, K. (2001). The impact of critical success factors across the stage of ERP Implementation. *Proceeding of the 34 Hawaii International Conference on System Sciences HICSS-34*, vol. 8. Washington: IEEE Computer Society.
- [26] Specht, T., Drawehn, J., Thränert, M., & Kühne, S. (2005). Modeling cooperative business processes and transformation to a service oriented architecture. *Proceedings of E-Commerce Technology, Seventh IEEE International Conference*, 249-256. Washington: IEEE Computer Society.
- [27] Subramanian, G. H., & Peslak, A. R. (2012). ERP Implementation model, research findings, and its applications to government. In S. Chhabra & M. Kumar (Eds.), *Strategic enterprise resource planning models for e-government: Applications and methodologies* (pp. 25-39). Hershey, PA: Information Science Reference. doi:10.4018/978-1-60960-863-7.ch002
- [28] Taylor, J. A., & Williams, H. (1991). Public administration and the information polity. *Public Administration*, 69, 171-190.
- [29] Tregear, R., & Jenkins, T. (2007). Government process management: A review of key differences between the public and private sectors and their influence on the achievement of public sector process management. *BPTrends*, October 2007. Retrieved September 15, 2012 from: <http://www.w.bptrends.com/publicationfiles/10-07-ART-Govt.ProcessMgt.-Tregear%20and%20Jenkins.ph.pdf>.
- [30] Trkman, P. (2010). The critical success factors of business process management. *International Journal of Information Management*, 30(2), 125-134.
- [31] Umble, E. J., Haft, R. R., & Umble, M. M., (2003). Enterprise resource planning: Implementation procedures and critical success factors. *European Journal of Operational Research*, 146(2), 241–257.
- [32] Wang, E. T. G., Shih, S. P., Jiang, J. J., & Klein, G. (2008). The consistency among facilitating factors and ERP implementation success: A holistic view of fit. *The Journal of Systems and Software*, 81, 1609–1621.
- [33] Weerakkody, V., Janssen, M., & Dwivedi, Y. K. (2011). Transformational change and business process reengineering (BPR): Lessons from the British and Dutch public sector. *Government Information Quarterly*, 28(3), 320–328.
- [34] Weske M. (2007). *Business process management: Concepts, languages, architectures*. Berlin: Springer.
- [35] Westrup, Ch., & Knight, F. (2000). Consultants and enterprise resource planning (ERP) Systems. *Proceedings of the 8th European Conference on Information Systems ECIS(2000)*, Vienna. Retrieved September 15, 2012 from: <http://is2.lse.ac.uk/asp/aspecis/20000198.pdf>