

Enterprise Resource Planning and Organizational Performance: A Conceptual Perspective

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Abstract:

The study conceptualized enterprise resource planning (ERP) and organizational performance. This was achieved by improving effective communication among departments to meet delivery dates. ERP framework was reviewed to reduce work in organization. Integration of industries activities, intra organizational communication and wider collaboration were some of the pillar considered in the review to achieve a reduction in working firms. A conceptual research method is used in the study that is mainly dependent on the available literature. Numerous existing roadmaps are reviewed to expose the gaps and inconsistencies. This study would be useful for practitioners in providing the stages to implement the ERP system in their organisations.

Key words: ERP, Organizational Performance, Planning, Perspective, Conceptual Perspective

1. INTRODUCTION

The advancement in information technology (IT) infrastructure is the backbone of Enterprise Resource Planning (ERP) system implementation in firm's operation [1]. Organization that is implementing ERP solutions may have multiple locations of operation and control [2]. Therefore, on line data transfer is done across locations where enabling technologies are used

such as Workgroup, Workflow, Groupware, Electronic Data Interchange (EDI), Internet, Intranet and Data warehousing, to facilitate transactions. Much has been discussed about the challenge in implementing ERP systems. One of the issues is that ERP system implementation cycles and implementation transition team that resulted in loss of assets knowledge, experience, and tutor of knowledge transfer [2]. Previously, businesses have been functioning as an organizational structure which had separated the functional fields; therefore, each functional field has separated the departments. In this way, every department is completely isolated from other departments. For instance, marketing and sales might be separated from supply chain management. Thus, it might conclude that what happens in one department is not closely related to other departments.

The sustainability concept has been profoundly incorporated into the extended value chain in organisations as it is gradually more vital in the business [1]. Some researchers [3] argued that this massive transformation affected the emergence of overexploitation of resources problem, which includes human, natural, and economic resources. ERP is one the latest technologies that many organizations have undertaken [4]. ERP system is an enterprise-wide package that integrates all necessary business functions into a single system with a shared database. These software packages can be customized up to a certain limit to the specific needs of each organization. ERP was characterized as the most important development in the corporate use of technology in the 1990s. Unfortunately, many ERP projects have not been effective enough and hence have been unable to achieve all the results envisaged. As the cost of an ERP implementation project is very high, it is critical for an organization to make the project a success and start obtaining benefits out of it as fast as possible. One of the most prominent factors impacting firms and employees nowadays is technological change and advancement

overall labour changes, organization of work. In particular, the prominence of information technology (IT) has grown substantially in recent years.

Also other study undoubtedly demonstrates that recent ERP methods unsatisfactorily provide the opportunities needed to enhance the performance of an organization and the computer knowledge workers to shape the performance challenge in the computer-based environment [5]. Essentially, problems arise due to lack of ERP, which serve as a basis for the enhancement of the organizational performance. Furthermore, extensively neglected issues concern information and communication systems standardization and missing coordination between departments as a result of traditional method adapted [6]. Therefore, it is against this background, that this study reviews the implementation of ERP implementation for enhancing organizational performance.

2. REVIEW OF RELATED WORK

ERP is defined as a method for the effective planning and controlling of all resources needed to take, make, ship and account for customer orders in a manufacturing, distribution or service organization [2]. Such an integration of functions, can be achieved through a software package solution offered by vendors to support the seamless integration of all information flowing through the company, such as financial, accounting, human resources, supply chain as well as clients' information. Usually, firms treat each transaction separately, as they are built around strong boundaries of specific functions that a specific application is meant to cater for. ERP stops treating transactions as stand-alone activities and consider them as part of the interlinked processes that make up the business. It is premised on the principle that the whole is greater than the sum of its parts [2].

ERP production planning module: –this seeks to optimize the utilization of manufacturing capacity, parts, components and material resources using historical production data and sales forecasting
ERP purchasing module: it streamlines procurement of required raw materials, as it automates the process of identifying potential suppliers, negotiating prices, placing orders to suppliers, and related billing processes [2].
ERP inventory control module: facilitates the process of maintaining appropriate level of stock in the warehouse through identifying inventory requirements, setting targets, providing replenishment techniques and options, monitoring item usage, reconciling inventory balances and reporting inventory status
ERP sales module: its key functions are order placement, order scheduling, shipping and invoicing. This is key as revenues from sales are the life blood of the organizations.
ERP marketing module: it supports lead generations, direct mailing campaign and trends in customer tastes.
ERP financial module: this the core module of ERP software systems, as it gathers financial data from various departments and generate reports such as balance sheet, general ledger, trial balance as well as quarterly financial statements.
ERP human resources (HR) module: It routinely maintains a complete a complete employee database to include contact information, salary details, attendance, performance evaluation and promotion of all employees. It is key in optimizing the utilization of the expertise of all employees [2].

Researchers [7] have developed a component of the ERP master plan, which is the ERP roadmap, using the project management concept. ERP master plan consists of three components: roadmap, framework, and guidelines. Each component needs to be developed and evaluated for completing the structure of the master plan. Figure 1 presents the overview of the ERP master plan.

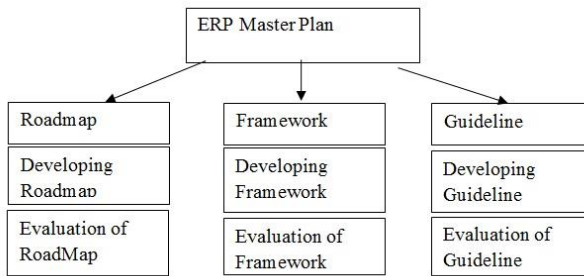


Figure1: ERP Master Plan

Source [7]

Introduced a regenerative sustainability implementation framework for architecture engineering and construction organizations that includes three dimensions of sustainability and four elements' corporate essentials. They used an empirical research to review sustainable assessment systems in various industries and organizations. The framework was then developed based on their best practices in those industries and organizations [8].

Another work [9] proposed a VE-based framework that combines the system dynamics (SD) method to support the implementation of ERP systems. Within the framework, VE is a systematic, functionally oriented method for generating decision alternatives, whereas SD can simulate the possible outcomes in terms of the generated decision alternatives so that a suitable strategic decision for the ERP implementation can be evaluated and selected. However, the Value Engineering (VE) and SD methods are commonly used for framing, understanding, and discussing complex issues and problems emerged during the system implementation by using mathematical modelling. Since ERP system has not been widely implemented in organizations, therefore, these methods are not appropriate to be used to initiate the ERP system implementation.

Other authors [10] applied a non-additive fuzzy integral method to develop an ERP performance measurement

framework. Similar to VE and SD methods, the non-additive fuzzy integral is generally used for analysing the performance of a system implementation. Hence, this method is also not suitable for developing the ERP master plan. Some [11] have identify and create a model of how companies make the process of transfer knowledge from the external ERP implementation to perform together for benefit of the internal company, which in turn can generate knowledge worker or knowledgeable workers (for individuals and organizations) and in this study SECI model becomes the mediator between external and internal for knowledge transfer process. See figure 2.

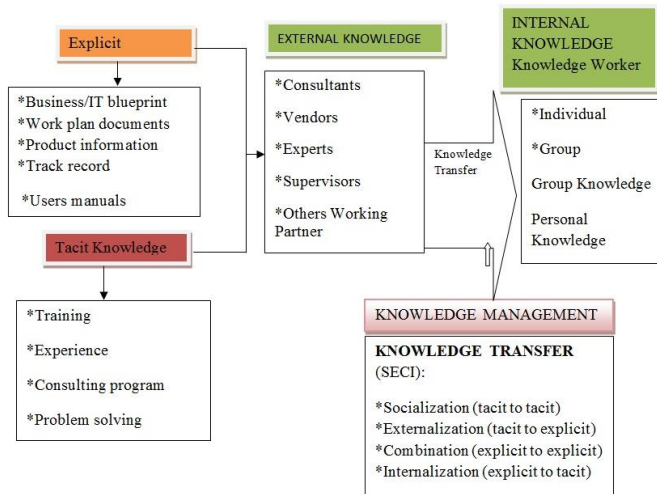


Figure 2: ERP performance measurement framework

Source [11]

Scholars [12] proposed a master plan, named Development Strategy Formulation and Evaluation Methodology (DSFEM), of sustainable large-scale developments by employing BIM-based decision supports methods. The master plan was designed to evaluate and visualize development scenarios and their metrics in sustainable large-scale developments. It integrated multiple attributes including work-based structure

in project management in order to define the relationship among activities, sequence, and duration.

A web-based human resources management system was developed which would have helped organization in making decisions appropriately but the system could not handle employment planning and reports, wages and salaries, etc [13]. Again, a knowledge-based system was developed for matching applicants to job that could be used in a networking environment, it was not user friendly. The system also attracts low maintenance because of its relational structure. In addition, it can be used in the present world of computing because it could be launched on the Internet. However, since users are geographically distributed, we need a better system and the best online human resources management system program that took care of the shortcomings [14].

An integral storm water management master plan was developed to solve various problems, such as eutrophication, flood risk, water shortage, and high maintenance cost, during the beginning of the Oriental Sun City construction in China. This master plan was developed based on the concept of LID. They developed and applied a large number of LID and green storm water infrastructure (GSI) approaches in the community to replace traditional storm water drainage systems completely. As a result, the master plan solved the problems effectively and yielded economic and ecological advantages [15].

A neural network web-based human resource management system model was proposed which is an improvement on the former ones was proposed. The proposed system will have a data bank of employment opportunities existing from different organizations and corresponding bank of potential applicants obtained through the Internet. The system will help organizations in getting the right professionals into appropriate jobs and training. Therefore, a proposed computer based human resources management system that with a data bank will handle all the human resource management to

enhance organizational performance need to be developed. The major components of the framework are the following, namely: knowledge base, database, inference engine, decision support system [16]. as in figure 3.

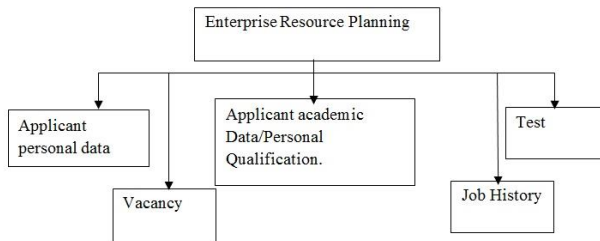


Figure 3 Neural network web-based human resource management system models

Source [16]

ERP roadmap was proposed for sustainability implementation by analysing the business process of an Italian company. The roadmap, named as Green Roadmap, comprised of three main layers including organisation, processes, and products. The authors argued that the business transformation towards sustainability needs to be initiated from a cultural change. Therefore, they considered organisational change as the initial component that required changes in the organisations [17].

3. ENTERPRISE RESOURCE PLANNING AND ORGANIZATIONAL PERFORMANCE

ERP system provides a number of advantages for firms to improve the organisation performance. Based on information perspective, ERP system adoption can improve the interaction between the business functions and the information is more reachable. For other issues related to the interaction between firm with the customers and suppliers, such as product delivery and inventory control management, have less influence [11]. ERP systems have more advantages in information quality and the integration of business processes and operations, but it does

not decrease the information technology costs. Based on another research [12], ERP systems have several benefits, which can be attained by organisation. These benefits are of five major benefits; include operational benefit, managerial benefit; strategic benefit, IT infrastructure, and organisational benefit. The research contribution is comparable to who identified the intangible benefits of ERP system implementation; include better customer satisfaction, improve vendor performance, increase flexibility, reduce quality costs, improve resource utility, improve information accuracy, and improved decision- making capability. Lu [8] identified tangible benefits of ERP system to include reduction of lead time, on-time shipments, double business, increase of inventory turns to over, cycle time, and work in progress. Even though the previous researches defined and categorised the ERP benefits, there are still few research that categorises these benefits into each of business functions and decisional area [18]. Moreover, these ERP benefits did not focus on particular industry. An EPR system is expected to affect specific performance. The work of other researchers [19] indicated a significant improvement in firm performance after implementation of its ERP system. also claimed that ERP development had a significant measurable effect on firm performance. Firm performance is one of the most important constructs in management research. The definition of firm performance could vary from one and another. According to researchers [20] organizational performance encompasses three specific areas of firm outcomes: financial performance (profits, return on assets, return on investment, etc.); product market performance (sales, market share, etc.); and shareholder return (total shareholder return, economic value added).

4. METHODOLOGY

The paper is a survey research and uses secondary sources of data. Being a review paper, all the data were collected from researches (articles) written by other researchers.

5. CONCLUSION

Through this newly formed concept, it is currently possible to systematically implement the ERP system in an organization. The research value of the master plan structure concept cannot be underestimated. In addition, each stage, dimension, and step in the master plan can also be used to generate various research areas in ERP system implementation thus proving that it can be an important research instrument. Organizations could use the master plan as a reliable method to implement ERP system. Furthermore, the master plan would give the practitioners a bird's eye view of the whole ERP system concept and its implementation process.

ERP has substantial research implications. The identification of the stages in the roadmap, dimensions in the framework, and steps in the guidelines that made up the master plan structure is an important contribution to the theory on ERP system researches. Through this newly formed concept, it is currently possible to systematically implement the ERP system in an organization. The research value of the master plan structure concept cannot be underestimated. In addition, each stage, dimension, and step in the master plan can also be used to generate various research areas in ERP system implementation thus proving that it can be an important research instrument. Organizations could use the master plan as a reliable method to implement ERP system. Furthermore, the master plan would give the practitioners a bird's eye view of the whole ERP system concept and its implementation process. Future study requires to be carried out

to investigate further development of the master plan. The researchers defined various possible areas that might be explored including the development and evaluation of an ERP roadmap, the development and evaluation of an ERP framework, and the development and evaluation of ERP guidelines.

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