Enterprise Resource Planning Systems and its Evaluation and Selection in Iran

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Abstract
This article will discuss human resource planning system and its status in Iran and also provides a strategic model to meet organizational needs. This paper attempts to overcome the shortcomings of implementation, selection and operation of the enterprise resource planning system in Iran. The study also mentioned some of the benefits of implementing an enterprise resource planning system to encourage the managers in making appropriate decisions to use this system.

Keywords: enterprise resource planning systems, productivity, selection

Introduction

Increasing competition in the business environment and the need for rapid and timely information from all resources within the organization are the main factors shaping enterprise resource planning systems. These systems create integration within the organization’s operations to increase the speed and ease of business process and the possibility of continuing and providing a competitive market.

Enterprise resource planning system providers claim that their product has already been subjected to examination and testing and has been made according to many established practices. Using this system enables managers to provide extraordinary solutions for different sectors of industry and services and this is a tangible reality for many organizations, but experience shows that using this system in many other organizations failed to be useful. Therefore, to address the critical success factors of enterprise resource planning systems in various organizations has been one of the major challenges facing researchers since the advent of enterprise resource planning. Senior managers consider the identification of model or models of implementing the enterprise resource planning as one of the major challenges in their organizations and companies. Another constraint faced by managers is the costs and economic
justification for such expenses as well as to spend a long time to implement and deploy enterprise resource planning.

**Theoretical framework and research background**

Enterprise resource planning system is a wide software package that has been created to support the integrated development of data in different parts of the organization such as manufacturing, financial and human resources. The companies that engage in the implementation of Enterprise Resource Planning systems cause a value chain within their organization. These systems try to integrate and stimulate the organizational processes and the flow of information within the organization. (Almashary, 2002). These systems are computer-based systems that have been designed to process the transaction. and their aim is to facilitate the planning, production, and response time to customers in the integrated environment (Elri, 2002). Enterprise Resource Planning Systems are classified Information systems that their Processes and related information are integrated in various functional areas (Kumar et al, 2002). The most important thing in all these definition is more focus on "Enterprise" in ERP than the other phrases such as Planning and Resource. Because these systems operate beyond the planning and despite the focus on resources, involve elements beyond it. On the other hand, standards and integrity of the ERP system has the most significance. And these two important aspects of enterprise resource planning systems separate them from other integrated information systems. According to Davenport Enterprise Resource Planning Systems is the most important function of information technology for organizations in the 90 century. With the help of this software in organizations, an effective mutation has occurred due to the increased effectiveness. (Davenport, 1998). Enterprise resource planning systems require the integration of computer programs in various businesses. In these systems, a central database covers the whole process of system integration. These systems allow managers to control the flow of information to the entire organization and provide timely access. . In this regard, enterprise resource planning systems remove the processes and create the unity in the organization. These systems were created when the process improvement as a strategic issue was raised. In recent years, enterprise resource planning systems have been discussed as the systems necessary to manage the business and create competitive advantage. (Mabert et al, 2000).

In ERP software system, there are three main characteristics to support the access to knowledge between the task and software. Essentially, the data need only to be entered once by a series of modular applications, and so should be available to everyone in the supply chain. Data dictionary is the first feature. The second feature is the software that launches the database and application. ERP software includes modules to achieve a complete business solution that is needed to coordinate and this feature causes the company to easily track information to know where and what data is needed for a given situation. The third feature is called repository that holds the semantic concepts of processes, business objectives and models in the organization. The
technical characteristics enable ERP software systems to coordinate all business functions together. (Timur, 2008).

The studies conducted by Buker Institute show that today’s manufacturing enterprises should measure their performance to establish the effective operational systems. This will help the effective management of their business operations and achieving the business and financial goals. In ERP large enterprises, the company’s activities were expanded from productive activities within the firm to its outside namely involving the customers and suppliers. In this paper, four levels of senior management planning measurement, middle management planning, operations management and feedback in ERP closed loop have been proposed.

Kwong and colleagues have shown that performance measurement is considered a critical factor for commercial performance improvement. They suggest that IT creates a performance measurement system that is multi-dimensional and collect and analyze the related data automatically.

Due to the multidimensional nature of organizations performance, Slez and colleagues developed a process management system (PMS), including financial and non-financial performance indicators. According to PMS framework, there are different aspects and performance indicators in an organization and economic enterprise that should be measured.

**What is Enterprise Resource Planning System?**

Enterprise resource planning is defined well when the resources of a firm or an organization is known. In general, these resources are divided into four main resources among which the most valuable is the human resources that cover the knowledge and skills of individuals.

Knowledge can be divided into two types:

- Real and tangible knowledge
- Intangible knowledge or in other words, the knowledge that is hidden in the human mind

The other three include materials, machines and money. According to what was said, enterprise resource planning can be defined from different angles; enterprise resource planning as procedure as a solution and software package.

**Enterprise resource planning as a method**

A method in manufacturing, trading and services companies with an integrated system in order to effectively plan and control all enterprise resources, for receiving, production, sending order and meeting customers' needs.
As a solution

A systematic IT-based solution that provides the organization’s resources as an interconnected and integrated system with speed, accuracy, and high quality for the different levels of managers to do the optimized enterprise resource planning.

As a software

A commercial software package with the aim of integrating the information and flow of information between all departments, including human resources, finance, and supply chain and customer relationship management.

Major market of enterprise resource planning in the world and Iran

Experts evaluate enterprise resource planning market in three areas:

1. Market for large companies: companies that have over 1,000 employees or their income is more than $350 million.
2. Market for large and medium companies: companies that have 100 to 200 employees or their income are between 250 to 25 million dollars.
3. Market for small to medium companies: Companies that have less than 200 employees or their income is below $25 million. These companies typically use common and local software. The purchase of global enterprise resource planning software will not cause the increased benefits.

Enterprise resource planning market in Iran is examined in the two following areas:

1. Market for large companies: There are 10 companies in Iran including Iran Khodro, Iran diesel....
2. Market for medium companies: there are 5000 companies that all require integrated systems of enterprise resource planning such as auto parts makers......

Enterprise Resource Planning status in Iran

Unlike the evolution of enterprise resource planning at the first level of industries and organizations, this system emerged in Iran as a healing drug for the traditional organizations. Those who are familiar with the industries and Iranian organizations claim that the weaknesses in the management and planning, traditional thinking, inertia and lack of dynamism are the main obstacles to development and globalization in Iran.

Imagine that a manufacturing company is tired of the lack of a simple programming system for materials and inventory control and it suddenly decides to implement enterprise resource planning and solve all the company’s problems. It should be noted that Enterprise Resource
Planning in Iran has become an epidemic fever that has affected all large and small organizations.

Ignoring the facts and waiting for a miracle from the system is waste of time and the thought is totally a mistake. Implementation of enterprise resource planning systems exerts a heavy price on organizations. Due to this, these costs should be estimated carefully in, the initial assessment prior to implementation. In this regard, one of the best ways to do feasibility studies as an essential prerequisite before any action. The studies are the missing rings of the implementation in Iran that have been considered more in recent years. It seems that the factors are qualitative and their transformation to quantitative ones is difficult and the Feasibility of these systems to examine the factors has special complexity. For example, how to measure and assess the benefits of implementing enterprise resource planning at the strategic levels and organizations’ decision making or how to estimate the competitive advantage resulting from this system in a competitive market that should be well defined and the necessary methodology and tools to evaluate them should be determined.

**Strategic Assessment Model and Selecting the Enterprise Resource Planning**

Many models include only one part of the implementation steps. In this model, the main objective is to focus on activities and processes of implementation of enterprise resource planning.

Step 1: Enterprise resource planning as an organizational goal

Step 2: Performance evaluation of enterprise resource planning in organization

Step 3: Features of organization

Step 4: Evaluating the success of enterprise resource planning project due to various risks in enterprise resource planning model

In this model, the process of introducing, identifying potential risks resulting from the implementation of enterprise resource planning, decision making and, ultimately, selecting and implementing the enterprise resource planning have been expressed.

In the proposed Enterprise resource planning model all stages from decision making to implementing are expressed and the figure below shows the proposed model for enterprise resource planning.
## Strategic model of evaluation and selection of Enterprise Resource Planning

<table>
<thead>
<tr>
<th>Tools</th>
<th>Tasks</th>
<th>Procedure stages</th>
<th>Steps</th>
<th>Organization levels involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studies within organizations and interviews with managers</td>
<td>Review the current status of goals and enterprise applications on enterprise resource planning</td>
<td>Is the usage of ERP helpful in the organization? (ERP efficiency review in the organization)</td>
<td>Strategic</td>
<td>orientation</td>
</tr>
<tr>
<td>PARTD &amp; Capability Analysis Audit &amp; Checklist</td>
<td>Diagnosis of major problems in organizations Evaluation of potential problems with regard to enterprise resource planning Does Enterprise resource planning have the ability to solve problems or should use other systems?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feasibility (Finance &amp; Budget)</td>
<td>Reasons for moving to Enterprise Resource Planning In this section, financial feasibility and economic feasibility of management as well as to attract enterprise resource planning is done</td>
<td>Does the organization have the ability of ERP acceptability?</td>
<td>Decision</td>
<td></td>
</tr>
<tr>
<td>Questionnaire</td>
<td>Major risks in the implementation of enterprise resource planning (organization / technology / humanities / management, etc.) are evaluated with regard to your Questionnaire.</td>
<td>The evaluation of ERP success rate with regard to ERP risks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field studies and surveys of elite</td>
<td>Here the technical feasibility of implementing an enterprise resource planning system should be done (in terms of network expertise, hardware ...)</td>
<td>Technical feasibility and performance of the organization</td>
<td>tactical</td>
<td>feasibility</td>
</tr>
<tr>
<td>The expert team</td>
<td>Here the necessary requirements for the design of enterprise resource planning (such as hardware platform, network and software ... computer consultant, expert, etc.) are identified.</td>
<td>Needs assessment of the ERP project</td>
<td>Infrastructure</td>
<td>tactics</td>
</tr>
<tr>
<td>CM &amp; Tender Management</td>
<td>Here the enterprise resource planning system to absorb the information requested is sent Here Request for Proposal for Enterprise Resource Planning is provided</td>
<td>RFP preparation and understanding of Vendors</td>
<td>Selection</td>
<td>Implementation</td>
</tr>
<tr>
<td></td>
<td>Omission, establishment, implementation and use by users</td>
<td>RFP preparation and understanding of Vendors</td>
<td>Implementation</td>
<td></td>
</tr>
</tbody>
</table>
First phase: orientation

After determining the strategic status of IT in organization, the organization’s tendency of advanced information systems such as enterprise resource planning will be examined. Organizations may have a tendency to IT in their macro planning but have no sufficient information related to enterprise resource planning. This is the duty of supervisor to help senior managers to learn about systems integration and make decisions.

Second phase: decision making

In the second phase, managers make decisions According to the information needs of the organization and its relation to the implementation of advanced information systems and the familiarity to the enterprise resource planning and costs and benefits of implementing enterprise resource planning.

Third phase: feasibility

In the third phase, the feasibility of enterprise resource planning projects is arranged given the priority consideration and its main aim is accurate understanding of the situation and comparing it with favorable terms so that the correction could be done in the case of any differences.

Fourth phase: Analysis and Planning

First, the information of the current status is collected and compared with the parameters of each component and as a result the comparison between the ideal conditions is characterized.

Fifth phase: Infrastructure

Undoubtedly the main asset of the organization is manpower that plays an important role in the performance of the organization. Any system implemented by the organization should be run by HR Therefore, ignoring the cultural and educational issues can underlie resistance to change and lack of co-workers.

Sixth phase: Supplier selection

The previous phases showed the feasibility and study of enterprise resource planning status with the integration approach. After knowing the current status, deficiencies and weaknesses, the organization will use a good practice in order to fix the problems. In the next phase, the organization will do the implementation of intelligent systems and resource planning.

At this stage the organization is facing problems due to unreliable routes and Some organizations use to provide quick access to the system that will be close to the deletion stage of feasibility and needs assessment of a shortcut to get close to their target.
Seventh phase: Implementation

For successful implementation of enterprise resource planning, the following five steps should be followed:

Design, implementation, stabilization, continuous improvement and transformation

Eight phase: after implementation

Many organizations continue the enterprise resource planning your project and remove the post-implementation phase, while they ignore an important part of the project. At this phase the use of new software system is optimized and declares the demands related to the company to include the appropriate changes to the updated version. (Lankarani et al 2011).

Advantages of implementing Enterprise Resource Planning

Ease in collecting and entering data: Recording information that would happen as soon as information is updated and corrected.

Easy reporting: It provides the reporting of information from anywhere.

Improving the implementation process: Processes and practices will be lawful and consistent

Reducing the geographical distance: Geographical boundaries and barriers to implementation are removed.

Ability to make quick decisions: Easy access to information and reports required for decision makers.

Improving the response time to customers and clients: Ability to access and process information in different parts of the organization will provide the Best possible service to clients

Establishing an accounting system: All activities of the organization and delivery of customer orders and production planning are all integrated and then are maintained in the form of an accounting system.

Considering the factors in the business market: Quick response and resilience, predictable factors in relation to market conditions and business (Gunson and Paul 2003).

Disadvantages of implementing Enterprise Resource Planning

Implementation time: high volume of projects and the need for fundamental changes in the organization and related problems are the factors of long time of Implementation of Enterprise Resource Planning.
High costs: In addition to the purchase costs or system production, high costs must be paid for integration and consultation.

Security issues: Due to the complexity and breadth of the field of system performance, supplying security issues is harder and more complicated than usual and a lot of damage will be entered to the organization in the case of weakness of security systems.

Conclusions and recommendations

with the study of enterprise resource planning systems implementation models in the world and Iran we come to the conclusion that the implementation of this system was not done in many organizations with complete information. As a result the negative effects and disadvantages of implementing this system are more panache. So to avoid these problems, following the entire process of implementation is inevitable.

Considering that the disturbances might otherwise arise in all steps of model, the managers are recommended to implement the enterprise resource planning system by getting advice from the experts and authorities and avoid the implementation without thorough understanding of the needs and goals of organization and implementation constraints of the system.

According to evaluation of enterprise resource planning systems in the world and the models implemented in Iran, most organizations with information and studies attempted to implement these systems resulting in negative effects and disadvantages of the more glaring to implement this system. Thus, to prevent these problems, it is recommended that none of the stages of implementing enterprise resource planning systems should be removed.

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