

ERP Implementation Issues and Challenges in Construction Industry

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Abstract--Recent years a significant number of major construction industries embarked on the implementation of integrated information technology solutions such as enterprise resource planning (ERP) systems to better integrate various business function. However, these integrated systems in the construction sector present a set of unique challenges, different from those in the manufacturing or other service sectors. There have been many cases of failure in implementing ERP systems in the past, so it is critical to identify and understand the factors that largely determine the success or failure of ERP implementation in the construction industry. This paper identifies factors associated with the success and failure of ERP systems, and analyzes the relationships between key factors and the success of such systems. The goal of the study is to evaluate, plan, and implement ERP projects and help senior managers to make better decisions while considering the implementation of ERP systems in their organizations.

Index Terms : Enterprise Resource Planning, Construction Industry, Vendors

I. INTRODUCTION

In the age of information technology companies can take advantages of IT in terms of Hardware and Software. Companies use various standalone systems to maintain the business process and operation by scatter and loosely coupled application. These scattered and legacy applications are not integrated with each other and there is no easy way to integrate them in a better way to easily maintain and get a high level output. To maintain this application required high amount of man power and cost. To integrate branches, department, process and business vertical in a wide area network required an integrated application. ERP – Enterprise Resource Planning is enterprise wide information system which consolidates information from various functions/departments of an organization. Multi state companies required to implement an application which can integrate their business process to improve their operation, procurement, resource management, cost control, timely report, accounting.

Previously the companies used various small applications to manage their business and operation like payroll system, accounting system, procurement system, tender system, attendance system. This application is not integrated and all different branches, worksite offices use their own application and to get output and error free reports in a central location is required very large time. The construction companies

decided to implement ERP system to overcome above problem and reduce operation time to control their business in better way and get competitive age over their competitor.

II. REVIEW OF LITERATURE

Boo Young Chung et al. (2008) Enterprise resource planning (ERP) systems offer many benefits to the engineering–construction industry. Many construction firms recognize the benefits of ERP system implementation; however, they still hesitate to adopt these systems due to high cost, uncertainties, and risks. The derived success factors should help senior managers in construction firms make better decisions and improve their business value by implementing the most effective ERP systems.

BooYoung Chung et al.(2009) Significant number of major construction companies embarked on the implementation of integrated information technology solutions such as enterprise resource planning (ERP) systems to better integrate various business functions. However, these integrated systems in the construction sector present a set of unique challenges, different from those in the manufacturing or other service sectors. There have been many cases of failure in implementing ERP systems in the past, so it is critical to identify and understand the factors that largely determine the success or failure of ERP implementation in the construction industry.

Yu-Cheng LIN et al. (2003) Enterprise Resource Planning (ERP) is the latest high-end solution information technology has lent to business application. Enterprise resource planning systems are highly complex information systems. The implementation of these systems is a difficult and high cost proposition that places tremendous demands on corporate time and resources. Many ERP implementations have been classified as failures because they did not achieve predetermined corporate goals. The paper identifies main success factors critical to a successful implementation.

Tambovcevs, Andrejs et al. (2019) ERP systems are an increasingly important source of organizational change with major implications for the organization and management of work. Potential benefits include drastic declines in inventory, reduction in working capital, abundant information about what customer wants and needs, along with the ability to view and manage the extended enterprise of customers, suppliers, and alliances as an integrated whole. Common problems associated with cost over-runs, technical problems and inadequate training and documentation are well known. Less well known are the longer term and more profound implication for the organization work, the size and shape of the organization, the dynamic of power and control in the organization and the skills used by employees and needed by the organization post-ERP.

Khalid Al Marri (2014) identifies technologies such as enterprise resource planning in conjunction with the knowledge management process can help reduce redundancy, minimize cost, integrate operations, and improve quality. This report introduces ERP as a solution to the problems identified as weaknesses in project tracking, resource management, and decision-making of project-based organizations in the construction industry. The implementation of an ERP system along with improving the knowledge management infrastructure at these organizations will enable them to realize many benefits through improving their products, cutting costs, and gaining real time information needed for an effective decision making process. To support the use of ERP and the improvement of KM infrastructure, two case studies will be presented. The findings of these case studies will be re-used to suggest solutions for the PBO to gain similar outcomes. Three alternatives of ERP systems from SAP, Oracle, and Microsoft will be introduced with their respective merits. In addition to the re-used alternatives, an additional alternative, C-ERP will be recommended. The merits of this option will be detailed to allow for establishing a direct link to the scope of the construction PBO. Finally, a four-stage implementation plan for PBO will be introduced, in addition to a six-phase implementation plan for the vendor to complete the installation and commissioning of the system

III. NEED AND STUDY OBJECTIVES

In the construction business, opportunities are abundant – but capitalizing on them has never been more challenging. Today, success is determined by what you know about your projects and when you know it. Your crews in the field may have all the high-tech tools and state-of-the-art equipment they need – but when information determines success, your management team needs to be similarly equipped. Unfortunately, many construction companies struggle with nonintegrated, multiple-vendor legacy systems that provide untimely, inaccurate information and make it difficult to adapt to changing business requirements. Hence the study is to focus on how to evaluate, plan, and implement ERP projects and help senior managers to make better decisions when considering ERP implementation systems in their organization. This research paper aims to understand the ERP implementation in the Construction Industry, the process of ERP implementation and the issues and its Challenges in implementation

V. METHODOLOGY

The study was designed as descriptive in nature, both primary and secondary data used for the study. Primary data has been collected through a structured questionnaire while using a structured questionnaire. Random sampling technique was used to gather the data. The ERP team members were considered as a sampling unit. The sample size was restricted to 25 construction companies.

VI. RESULTS AND DISCUSSION

Twenty eight percent of the companies are using other software applications. Thirty six percent of the respondents are in management team. Thirty six percent of the respondents were hired during implementation of ERP to meet their requirement. Ninety six percent of the companies implemented all modules. Thirty six percent of the companies preferred product price. Eighty percent of the companies preferred outside consultants'. Thirty two percent companies used the vendor consultants. Sixty percent companies expecting efficiency. Fifty Two percent companies need better management tools. Thirty percent of the companies need to transform the way ERP is used. Forty Eight percent companies on schedule. Forty Four percent of the companies are having technical issues in HR. Forty percent of the companies are having financial issues.

ERP implementation require key people throughout the organization to create a clear, compelling vision of how the company should operate in order to satisfy customers, empower employees, and facilitate suppliers for the next three to five years. Successful implementations require strong leadership, commitment, and participation by top management. The existing organizational structure and processes found in most companies are not compatible with the structure, tools, and types of information provided by ERP systems. ERP team should be composed of top-notch people who are chosen for skills, past accomplishment, reputation, and flexibility. These people should be entrusted with critical decision making responsibility. Successful ERP implementation requires that the organization engage in excellent project management. Data accuracy is absolutely required for an ERP system to function properly. Because of the integrated nature of ERP. If someone enters the wrong data, the mistake can have a negative domain effect throughout the entire enterprise. Training is probably the most widely recognized critical success factor, because user understanding and buy-in is essential in implementation of ERP System.

VII. CONCLUSION

An ERP implementation is a huge commitment from the organization, causing millions of rupees and can take up to several years to complete. However, when it is integrated successfully, the benefits can be enormous. A well-designed and properly integrated ERP system allows the most updated information to be shared among various business functions, thereby resulting in tremendous cost savings and increased efficiency. When making the implementation decision, management must consider fundamental issues such as the organization's readiness for a dramatic change, the degree of integration, key business processes to be implemented, e-business applications to be included, and whether or not new hardware need to be acquired. In order to increase the chance of user acceptance, employees must be consulted and be involved in all stages of the implementation process. Providing proper education and appropriate training are also two important strategies to increase the end user acceptance rate. The organization is also going through a drastic change, with changes in the way businesses are conducted, the organization being restructured, and job responsibilities being redefined. To facilitate the change process, managers are encouraged to utilize the eight-level organizational change process. Managers can implement their ERP

systems in several ways, which include the whole integration, the franchise approach, and the single-module approach.

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