

# **Applying Project Management Perspective for ERP Implementation: A Case Study**

Li-Man Liao\*, Ching-Jen Huang, Xiang-Yu Lin

Department of Industrial Engineering and Management, National Chin-Yi University of Technology, Taichung, Taiwan.

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## **Abstract**

The case-study company is a well-known enterprise whose primary product is precision locknuts in Taiwan. With the rise of sales performance, the legacy enterprise resource planning (ERP) system does not provide the degree of reliability and maintainability the case company needed. In order to meet the growing needs of enterprise, the case company faces to the challenge of application integration within the enterprise. The ERP implementation success depends on the rigor of the project management processes. In this research, firstly, case study approach is adopted to investigate how poor project management imperil the implementation of an ERP system. Having learned the lessons from the failure of its first ERP implementation, the case company applies the theory of business process reengineering (BPR) to explore and rationalize the business processes, and design its project management practices to successfully carry out its second ERP implementation. And the goal directed project management (GDPM) principles are applied to develop a proper ERP implementation plan. The summary descriptions of the important aspects of ERP implementation are stated that the sponsor or the client of the project, the goals, and limitations on the project, and time are included. This study explores and identifies the critical elements of project management to provide an effective guidance for the first implementation stage.

**Keywords:** ERP, project management, BPR

## **1. Introduction**

The market trend of industrial nuts and bolts tends to positive growth, the value of industrial nuts and bolts within Taiwan has achieved almost 731 billion NT dollars in 2016. The case company is a well-known enterprise and specializing in production of precision locknut in Taiwan. Differentiated capability becomes a basis for survival within a globally competitive marketplace where various capabilities compete intensely. Recently, it has devoted to the 'small-volume production of a wide range of different products' transformation, and confronts the challenge of information integration to carry out self-requirement within the enterprise. A suitable enterprise resource planning (ERP) system can integrate the processes of internal organization and provide many benefits, including improving productivity, enhancing competitive advantage and satisfying customer demands. Despite the advantages of ERP system, failure cases of ERP implementation occur frequently. Therefore, it is critical how to execute and manage the ERP implementation to avoid the lack of oversight on any mistakes of systems implementation stage lengthy and over budget.

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\* Corresponding author. E-mail address: t10066@cc.kyu.edu.tw

Tel.: +886-7-6077138; Fax: +886-7-6077959

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The ERP implementation includes are three phases which are evaluation and selection, installation and transformation of a new ERP system, and inspection and adjustment. This study focuses on the first phase: evaluation and selection and refers to the goal directed project management (GDPM) relates to many principles to develop the ERP project plan [7]. There are 11 steps are developed in the first phase. In order to achieve the company's expectation what the project plan is completed in May 2017. Firstly, the company constructs a project team cross-functional cooperation, reviews the current processes to aggregate and finds out the critical bottleneck. Secondly, a Gantt chart is developed which is project schedule for the estimate time of execution of each activity. In the meantime, the project team collects information of ERP system vendors, contacts with ERP system vendors, provide a RFP (request for proposal) of ERP system evaluation as reference for those candidate vendors. And the candidate vendors present their system function, technique supporting capability, and competitive advantage. Finally, a satisfaction questionnaires survey is made by members of the project team and critical participants, and obtain the quotation of an information system from the first priority candidate of the ERP system vendor.

## 2. System Architecture and Principles

### 2.1. Enterprise resource planning (ERP)

ERP is an excellent business application in modern business operations which is designed to coordinate information system and integrate business processes [9]. Despite the advantages of ERP system, the failure rate of ERP implementation is still high [2, 10]. Numerous authors have identified the critical factors of a successful ERP implementation to avoid company trapping into a loss control failure situation. A structured and disciplined approach is applied to greatly facilitate the ERP implementation. The most prominent factors include a clear understanding of strategic goals, excellent implementation project management, a great implementation team, top management support, extensive education and training as well as organizational change management, etc. Saini et al. [10] proposed their hypothetical success factors model which was validated from the data collected by questionnaire. They also found the business culture to impact the ERP implementation in organizations. Umble et al. [11] compiled a list of 11 important steps for successful implementation from four existed works, and described the critical factors for successful ERP implementation and system selection guidelines in a company.

### 2.2. Project management of ERP system

Plex, management plays an important role in organizations and has a major impact. Successful ERP implementation requires an excellent project management while enterprise must have an effective business strategy and tactic. The main phases of the project life cycle are varied depending upon the industry involved. It is important to ensure that the project life cycle used on the project is appropriate and the detail within each of these distinct manageable phases. A project management should have implicit trade-off among time, budget, and function. Gray and Larson [3] described the common phases of the whole length on project life which are definition, planning, execution and delivery phases and shown as Fig. 1. So far the case company has been implementing for ten months. The ERP definition phase has done which yields the business processes to implement the actual ERP system, and the planning phase has started since six months ago and the works have been progressing.

The project governance requires a set of “check and balances” to ensure that the right decisions were made [6]. Metaxiotis et al. [7] presented an overview of goal directed project management (GDPM) which aims at the facilitation and effective guidance for the ERP systems installation process. The GDPM principles indicate the three parts of planning, organization as well as control, which support the implementation and optimal adaption (IOA) of ERP system. They also proposed five steps in the life cycle of ERP project to offer a progressive and smooth passage by ERP system. Chen et al. [2] explored and identified critical elements of project management, which connected with “what” and “how” aspects of the ERP project failure, and adopted or avoided them for the second ERP implementation.

According to the technique report of Cisco systems, Inc. [1], an ERP system must meet business needs that would require heavy involvement from the business community. It is critical that select the very best people to build the implementation team who includes enterprise’s key-men, vendor of ERP software and consultants. The implementation team is constructed and provides inter-departmental communication that can bring the centripetal force of the entire enterprise. It is responsible for creating the initial, detailed project plan or overall schedule for the entire project, assigning responsibilities for various activities and determining due dates. Saini et al. [10] described that consultant selection could share knowledge and experience for the company. Umble et al. [11] refer to the request for proposal (RFP) which contains the feature and function list, create an initial of all implementation schedule for the project. The planning and execution stages consume most of time of ERP implementation, therefore enhancing the development of project schedule is critical. The stage provides a forecasted duration for the project activities to avoid high of the overall project budget and lengthy execution time for project stakeholders.

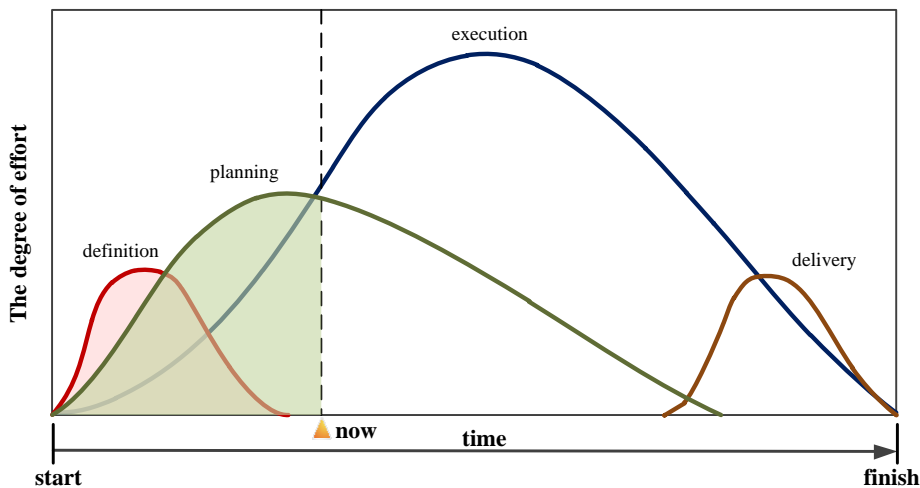


Fig. 1 Project life cycle [3]

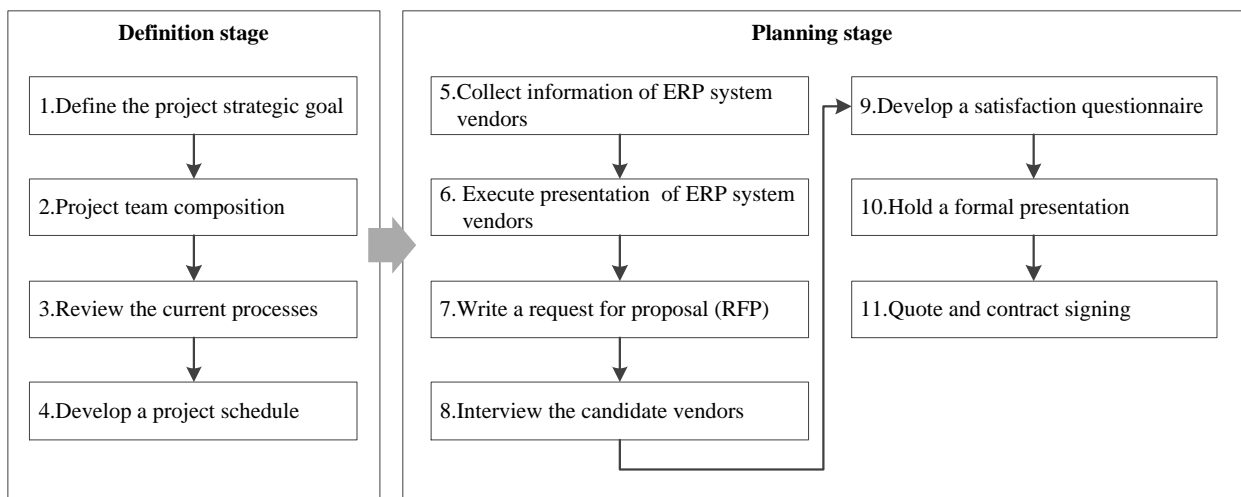


Fig. 2 The ERP system introducing evaluation framework

2.3. Business process re-engineering (BPR)

As the developing trend for modern business moves toward a collaborative model, the own business practices and procedures should be improved to remain its competitive. Business processes are actions that firm involves in accomplishing each business task to achieve business purpose. Many ERP implementation failures have been due to the lack of focus on the business process and change management. Managers must describe the current business processes and rationalize those processes to develop a new best practices model from the ERP application. Business process re-engineering (BPR) is closely tied to ERP implementation, a large amount of re-engineering should take place iteratively and usually has the significant challenge of ERP systems. Kemp and Low [4] focused on organizational behavior which implemented ERP system with re-engineering of the related business processes incorporating change management. The BPR includes the change management, organization culture as well as operation processes to re-planning and carry out. Umble et al. [11] mentioned that organizational change management is one of the critical factors for successful ERP implementation. For sustaining the effectiveness of the reengineering efforts, redesigned processes must correspond with realignment in organizational control.

Organizational culture is defined as the deeply rooted values, beliefs and assumption that are shared by personnel in an organization. It involves all participants of each department and the process of the whole enterprise. A business with excellent culture could sustain the long-term competitive advantage. An ERP system has been credited with rescuing the idea of BPR which focused to redefine and redesign the workflows to fit the new software [9]. Clearly, this is a good chance for enterprises to implement BPR as the new ERP system is introduced. In order to obtain an excellent BPR, the organization must have the objective of regulating the whole framework, executor power for decision making, commitment by top management, and the great channel of communication, etc.

3. Developing the Project Planning

A project is undertaken for a specific purpose with tangible value in a given duration. This section mainly describes how to implement project management of ERP system for the case company. The ERP implementation is divided into three phases: evaluation and selection, setup and transformation of a new ERP system, and check phases. The first phase has two stages which are definition and planning and shown as Fig. 2.

This case study describes the first ERP upgrade project at the Dead Sea Works (DSW) chemical company.

The case company has an implemented experience from the existing ERP. A project team consists of top managers and key members which is responsible for creating the initial, detailed project planning and making all necessary demands will be available on the second ERP system. The case company has a consultancy, Corporate Synergy Development Center, which provides essential assistance to identify the important elements of the ERP project. Therefore, this study proposes the ERP implementation project plan via literatures review and the consultant’s suggestions. Because the top managers have a great vision and determination to overcome all the obstacles to ERP implementation; moreover, almost employees are young and have a strong will to participate the changeover of the new ERP system.

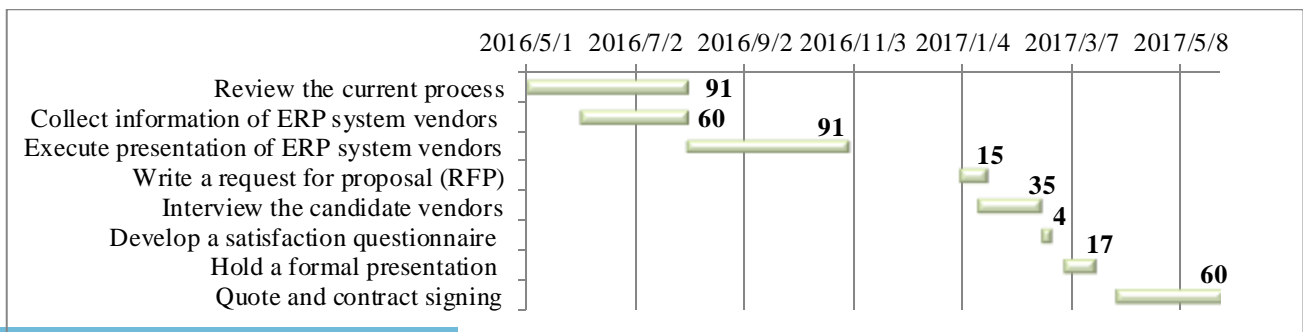


Fig. 3 The Gantt chart of evaluation and selection phase at ERP project

According to the goal directed project management (GDPM) principles by Metaxiotis et al. [7], the sponsor must have a description of the critical aspects of the IT project. In May 2016, the information department started up the ERP project plan and named it “The project management of case company’s ERP system replacement assessment”. The director of information department is the sponsor who forms the ERP project team. Firstly, the current processes are reviewed to find out the key process bottlenecks, and rationalize the internal processes of each department and eliminate the obstacles of across department boundaries. The project must be constructed with time schedule and all the activities have to identify and be performed. Therefore, the project team develops a project schedule to estimate the input resources for the execution of each activity. The Every activity is recorded into calendar to ensure that the ultimate goals of the project are achieved.

Secondly, the director of information department contacts with ERP software vendors and collects data relative to ERP implementation, and the qualified vendors are sifted out. Each qualified vendor must present his own system functions, available resources and previous successful cases. Thirdly, a request for proposal (RFP) of the case company is proposed. The RFP contains the purpose of the project planning, current operational processes, and demands of each department for the ERP system. The contents make the staffs of the case company and the vendors understand the project goal and implement procedures.

After the vendors’ presentation takes place, the project team and participants evaluate the fitness of ERP software via questionnaire survey as a preliminary assessment for the vendors. Finally, the project team determines the first priority vendor who provides the quotation and signs the contract. The contract had done in May 2017. The objective of this study is the assistance that progressive and smooth passage of the enterprise is provided by the new ERP environment.

#### **4. Conclusion**

This study mainly identified the critical elements and procedures of evaluation and selection stage of ERP project implementation. Owing to learning the lesson of the first ERP system, the case company pays attention to the new ERP implementation. The overall internal business processes and reporting sheets are reviewed and analyzed, and then are rationalized and aggregated via business process reengineering (BPR) approach. The fuzzy AHP approach is applied to evaluate three ERP systems, and VIKOR method is developed to determine the best-fit ERP system for the case company. The executive steering committee (ESC) team comprises the top executives, the leader of each functional department, staffs of information department of the case company, and the consultant. The ESC team focuses on the processes of each department to find out major bottlenecks, and integrates all demands as a reference of the new ERP system.

The ERP system is designed to integrate all information processing, so the case company implements business process reengineering (BPR) to identify the suitable operations for each department by ERP implementation. Besides, this study constructs an implementation framework of the ERP project, and develop a project schedule as a direction of the evaluation and selection stage of project management. Although the project implementation ever is idling about two months because of some problems cannot proceed immediately. Fortunately, the case company found a solution to overcome the problems. The case company has contracted with the first priority ERP vendor in May 2017, and the project proceeded to the next phase.

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