

Chapter 6

The Core Critical Success Factors in Implementation of Enterprise Resource Planning Systems

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ABSTRACT

The Implementation of Enterprise Resource Planning (ERP) systems require huge investments while ineffective implementations of such projects are commonly observed. A considerable number of these projects have been reported to fail or take longer than it was initially planned, while previous studies show that the aim of rapid implementation of such projects has not been successful and the failure of the fundamental goals in these projects have imposed huge amounts of costs on investors. Some of the major consequences are the reduction in demand for such products and the introduction of further skepticism to the managers and investors of ERP systems. In this regard, it is important to understand the factors determining success or failure of ERP implementation. The aim of this paper is to study the critical success factors (CSFs) in implementing ERP systems and to develop a conceptual model which can serve as a basis for ERP project managers. These critical success factors that are called “core critical success factors” are extracted from 62 published papers using the content analysis and the entropy method. The proposed conceptual model has been verified in the context of five multinational companies.

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BACKGROUND

An Enterprise Resource Planning (ERP) system is an integrated solution, which makes the organization capable of effectively and efficiently using its resources (e.g., materials, human resource, capital, information and so on) (Nah, Lou, & Kuang, 2001). The Implementation of ERP projects take considerable time and needs huge amounts of resources to be consumed from the organization. The growing popularity of ERP systems in multinational corporations (MNCs) and subsequently the increased expenditure in financial and human resources has motivated researchers to focus on implementation of ERP project and related issues (AMR Research, 1999).

Despite the fact that the implementation of an ERP system can have tangible and intangible benefits for the organization, there is some evidence indicating the failure of these projects. The project managers often emphasize on technical and financial aspects of the project and ignore the non-technical aspects such as human and organizational aspects. Therefore, in order to succeed in implementing an ERP project and avoid the failures, organizations need to know the critical success factors. Each success factor has their own specific effect, while they are not independent of each other (Esteves, Casanovas, & Pastor, 2003; Zairi, 2003).

The Implementation of ERP systems not only requires a huge amount of time and a flexible budget but can also lead to a state of confusion in the organizational culture; and sometimes such systems end in exploitation rate fall and a decrease of customer satisfaction in the short run. According to the research done by Standish group, over 90% of ERP implementations exceed their initially allocated budget and time. As a result, it is essential to study the factors resulting in the success of such systems (Parr, 2000; Umble, 2003).

METHODOLOGY

Extracting Core CSFs

In this study, after extracting CSFs from published literature, those CSFs which were most commonly mentioned in previous research were given higher priority and were selected as the core success factor. 62 papers from international journals and conference proceeding were selected, which were published during 2000 -2009.

In the next step, 60 CSFs were extracted from these articles. Since the core CSFs are those that have been identified by the majority of previous papers, the frequency of CSFs (the number of times that a CSF appears in the selected articles) is an appropriate criterion for extracting them. Thus, content analysis, a quantitative approach—counting the frequency of phenomena within a case in order to gauge its importance compared with other cases (Walliman, 2001), was employed. The Entropy method which quantifies the frequency of CSFs to the values that can be used for determining their degree of importance was utilized in the next step. In other words, when a CSF has been frequently identified by previous studies, it must be highly correlated with the level of importance and can be selected as a candidate for the core CSFs. We should also mention that, two CSFs with different titles but the same definition were assumed identical.

Developing the Conceptual Model

Determining Importance Coefficient of CSFs Based on Frequency

In this step, a CSF-Researcher matrix is constructed and then by using the entropy method, the importance coefficients of CSFs is calculated (Saaty, 1990). The main reason for which the entropy method is important in the probabilistic and algorithmic information theories is that it converts the probability of events to the values

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