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Identifying and ranking the effective factors on selecting

Enterprise Resource Planning (ERP) system using the combined

Delphi and Shannon Entropy approach

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Abstract

Despite the fact that during the last decade, many of the ERP projects have led to considerable tangible and intangible development in different areas and also to attain competitive advantages for organizations, there are a variety of stories of organizations failure in performing the ERP. One of the most important causes of failure is the organizations' indifference in identifying the most important criteria of an appropriate system and therefore the insufficiency of selecting phase of the system. The present article tries to identify the most important criteria of ERP selection that organizations should put into account in the process of their selection, through a complete study on the past literature and researches and also including the experts' view- points. Therefore, we have used a combined approach in this study. After a thorough review on literature and extracting all the identified criteria through the previous valid studies, using Delphi method, the following factors: cost, software quality, vendor and software capability were identified as the main factors which should be considered by the organizations. These criteria were, then, ranked using Shannon Entropy technique and the vendor was identified as the most important criterion.

Key words: Enterprise Resource Planning, Selection Phase, Delphi, Shannon Entropy;

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1. Introduction

Performing the ERP system is one of the most difficult investment projects, because of the complexity of high expenses and compatibility risks. Companies expend millions of dollars and devote many working hours on starting the ERP software systems. Therefore, the exact selection of software and choosing a conforming product with the organizations' need will lead to a decrease in the time and cost of performing the system and will increase the success of organizing the system [1]. Whatever causes the failure of the ERP is the fact that most of the project managers for performing the system, pay attention only to the technical and financial aspects of the project and ignore the other aspects. The exact selection of a suitable choice is of great importance to authorize a vast system like an organization since it has an intensive effect on acceptability, usefulness and creating cooperation in the organization. The organization should choose the most appropriate ERP system according to predefined and rational evaluating criteria. This process should follow the policies and procedures of the organization to achieve the final goal. According to the results of the study, the studies of fast execution are not estimated in these projects and as a result, excessive expenses have imposed on investing companies.

On the other hand, these failures have led to an increase in the market risk of these products and to the pessimism of managers and investors towards them. Recently, this issue and recognizing one of the important factors of project failure, i.e. lack of appropriate criteria, has caused the researchers to identify the effective Criteria in choosing these projects become vital and important. Since there is an emphasis on special criteria in each of the researches, a complete account of these factors has not been presented. Also, the high and different numbers of the suggested Criteria by a variety of studies, causes a kind of confusion in the experts and managers who intend to use the experiences of real cases and findings of the studies. The high number of Criteria may also cause the selection process to be a time and money-consuming which can make a problem especially in medium and small organizations. So, it seems necessary to do a thorough research on effective criteria in choosing the ERP so that most of the factors and Criteria of selection be identified and then the most important factors specified from among these criteria.

2. Literature review:

Making decision on choosing a suitable ERP software package from a right vendor is one of the important decisions which is done through a correct and well-organized estimation of the producers and vendors of these software in ERP market. In choosing a suitable ERP system for the organization many parameters and factors are involved. If these factors are not studied well, performing the ERP will confront serious difficulties and may lead to the project's failure. Hecht [2] was one of the first researchers who presented some criteria to choose and estimate the ERP systems. Siriginidi [3], also mentioned the following factors: the stability and history of the ERP supplier, last 12 month track record of ERP sales, implementation support from suppliers and improvement in ERP packages as the most important factors of selection and estimation of ERP system

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