Chapter V
Significance of Analytical Hierarchy Process (AHP) and Nominal Group Technique (NGT) in ERP Implementation

S. Parthasarathy
Thiagarajar College of Engineering, India

ABSTRACT

Enterprise Resource Planning (ERP) system is an integrated software system reflecting the business processes of an enterprise. Enterprise Resource Planning (ERP) system is a generic term for integrated systems for corporate computing that supersedes concepts such as Materials Requirements Planning (MRP) of the 1970s and, later, Manufacturing Resource Planning (MRP II) of the 1980s. The objective of customization in ERP implementation is to achieve a fit between the ERP system and the business process that the system supports. Literature review reveals that the customization is the major annoyance in most of the ERP projects. A solution is proposed using a process framework that incorporates participatory learning and decision-making processes based on Nominal Group Technique (NGT) and the evaluation methodology adopting the Analytical Hierarchy Process (AHP). A case study is presented to illustrate its applicability in practice. The upshot of the study is the identification of various customization possibilities for ERP implementation. This study is meant to help managers think about the various feasible customization options available to them. Future research work that can be done in ERP software customization is also indicated.
INTRODUCTION

According to the AMR Research Report (www.amrresearch.com), the ERP market had a spectacular year, with total revenue growing by 14% and license revenue up an amazing 18% from 2005. While sales of traditional ERP applications were very healthy in 2006, many vendors also saw substantial revenue growth from the acquisition of other software companies. Large organizations continue to roll out SAP or Oracle, while many SMEs or smaller divisions of the large organizations are still in the ERP selection process, searching for the right point product or upgrading applications. As per the AMR Research report on ERP called “Enterprise Resource Planning Spending Report, 2006-2007,” U.S. companies will increase their ERP budgets by 11.3% in 2007. It also states that the enterprise resource planning (ERP) applications market grew to $25.4B in 2005, reached $29B in 2006 and over the next five years, the market will grow at an average of 10%.

Growth in ERP spending is fueled by several factors. As midsize organizations fight for market share against increasingly diverse global competition, increased profitability, revenue growth, and customer satisfaction become priorities. In addition, with globalization, the pool of potential customers is ever growing, creating a need for streamlined processes to help meet demand. “We found that midsize companies, whether divisions of large enterprises or stand-alone small businesses, are prepared to make the necessary investments to support profitable growth in today’s global economy,” said Simon Jacobson, senior research analyst at AMR Research. In addition, by 2010, 43% of companies would like to employ a single, global financial and shared services ERP system.

The success of an ERP system is assured when there is a perfect fit between the ERP system and the organizational processes it supports (Holland & Light, 1999; Robey, Ross & Boudreau, 2002). The significance of ERP systems is that they are packaged software solutions rather than customized systems. The ERP systems come to the customers as a pack with all the required business processes. In traditional information systems development, the software is designed and developed to fit the organization.

A key issue in ERP implementation is finding a match between the organization's business processes and the ERP system by appropriately customizing both the system and the organization. One has to be very careful during the process of customization as over-customization will result in a system with reduced flavour of an integrated system and it fails miserably to reap the full benefits of a packaged software solution. ERP vendors deploy technical consultants and functional consultants for carrying out this hectic process. The objective of customization in ERP implementation is to achieve a fit between the ERP system and the process that the system supports.

In this paper, we use a framework proposed by Wenhong Luo & Strong (2004) for evaluating ERP implementation choices. This framework does not determine decisions for the management; rather it provides the possibilities for customization and indicates the level of technical and organizational change needed to implement each possible customization option. Hence, in this study, we enable the management to make decisions on ERP customization choices in two steps as follows:

- Step 1: Use the Nominal Group Technique (NGT) to define the criteria based on which the framework has to be viewed.
- Step 2: Apply the Analytical Hierarchy Process (AHP) to the framework for evaluating ERP implementation choices.
Related Content

Initial Adoption vs. Institutionalization of E-Procurement in Construction Firms: The Role of Government in Developing Countries
De Chun Huang, Quang Dung Tran, Thi Quynh Trang Nguyen and Sajjad Nazir (2014). International Journal of Enterprise Information Systems (pp. 1-21).
www.irma-international.org/article/initial-adoption-vs-institutionalization-of-e-procurement-in-construction-firms/119166/

Acceptance of Information and Communication Technologies in Education: An Investigation Into University Students' Intentions to Use Mobile Educational Apps
Siwei Sun, Chang Xiong and Victor Chang (2019). International Journal of Enterprise Information Systems (pp. 24-44).
www.irma-international.org/article/acceptance-of-information-and-communication-technologies-in-education/220397/

Investing in Online Privacy Policy for Small Business as Part of B2C Web Site Management: Issues and Challenges
www.irma-international.org/chapter/investing-online-privacy-policy-small/25858/

A Conceptual Framework for Developing and Evaluating ERP Implementation Strategies in Multinational Organizations
www.irma-international.org/chapter/conceptual-framework-developing-evaluating-erp/48534/

Architecture Leadership and Systems Thinking
www.irma-international.org/chapter/architecture-leadership-and-systems-thinking/80911/