Unleashing the Potential of SCM: Adoption of ERP in Large Danish Enterprises

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ABSTRACT

This article argues that with the present state of enterprise resource planning (ERP) adoption by the companies, the potential benefits of supply chain management (SCM) and integration is about to be unleashed. This article presents the results and the implications of a survey on ERP adoption in the 500 largest Danish enterprises. The study is based on telephone interviews with ERP managers in 88.4% of the “top 500” enterprises in Denmark. Based on the survey, the article suggests the following four propositions: (i) ERP has become the pervasive infrastructure; (ii) ERP has become a contemporary technology; (iii) ERP adoption has matured; and (iv) ERP adoption is converging towards a dominant design. Finally, the article discusses the general implications of the surveyed state of practice on the SCM research challenges. Consequently we argue that research needs to adjust its conceptions of the ERP concept towards ERP II in order to accommodate to the emerging practices.

Keywords: Denmark; enterprise resource planning (ERP); enterprise systems (ES); supply chain management (SCM); survey

INTRODUCTION

SCM (supply chain management) is perhaps the most critical logistics issue in the majority of today’s businesses. The challenge of SCM is to integrate and to coordinate activities across organizational boundaries in order to manage the entire supply chain as a whole. Various enterprise systems (ES) and above all the most recent ERP systems from the major vendors include new technologies to integrate the supply chain. The ERP system provide a platform for SCM and businesses can adopt the new functions offered by the new generation of enterprise systems, thus taking advantage of the technological innovations.

ERP (enterprise resource planning) is a constantly changing and evolving concept (Klaus, Rosemann & Gable, 2000). The ERP systems have gradually been designed, developed and improved by the ERP vendors in response to new technologies and emerging business requirement
(Mabert, Soni & Venkataramanan, 2001). As a result, the contemporary ERP packages from the major vendors now include not only the basic ERP functionality but also e-business functions like CRM, EAI, and in particular SCM and other functions that previously were associated with other classes of systems (Callaway, 2000).

Research is less responsive to the emerging new business practices, and often we have seen ERP research using an outdated perspective. Most papers on ERP cite Davenport’s (1998) paper as a baseline for their perception of the ERP phenomena or the more generic concept of enterprise systems (ES). Another large body of ERP papers quotes forecasts from analyst like Gartner, Forrester or AMR to argue for the importance of ERP and the state of the ERP market. In general these sources are reliable but the research companies themselves are actors in the ERP industry and their predictions are often rather optimistic.

In the aftermath of a Danish research project on the implementation of APS (advanced planning and scheduling) and ERP, the discrepancies between the conceptions based on theoretical studies and the practices experienced in the case studies (Hørlück et al., 2001) led to a study of the adoption of ERP based on practitioner perception. Consequently, a study of ERP practices in large Danish enterprises was initiated (Møller, Kræmmergaard & Rotbøl, 2003). The aim of this article is to present an overview of the findings and to discuss the implications for SCM.

This article will first discuss the dynamics of enterprise systems concepts and the relation between the ERP systems and SCM. Based on this discussion the survey focus is established. Then the survey is outlined along with the research method. The findings from the survey are then presented and discussed in the proceeding section. Finally the conclusions are summarized and further research on ERP and SCM is proposed.

**ENTERPRISE RESOURCE PLANNING SYSTEMS**

The concept of ERP has often been explained through the historical development of ERP (Chen, 2001; Klaus, Rosemann & Gable, 2000; Markus & Tanis, 2000). The fundamental structure of ERP has its origin in the fifties and sixties with the development of the early inventory control (IC) systems and bill of material (BOM) processors. The progress continued during the seventies and eighties with the development of the material requirement planning (MRP) systems and the manufacturing resource planning (MRP II) systems. The vendors gradually integrated more areas into the scope of the standardized information systems and the advances peaked in the early nineties with the advent of the enterprise resource planning (ERP) system — often embodied in the SAP R/3 system (Bancroft, 1998).

ERP is a standardized software package designed to integrate the internal value chain of an enterprise. According to Nah (2002) the American Production and Inventory Control Society (APICS) defines ERP as: “a method for the effective planning and controlling of all the resources needed to take, make, ship and account for customer orders in a manufacturing, distribution or service company”. The APICS definition extends the concept of ERP from an IT system towards a technology to manage and organize the processes of an enterprise.

The research on ERP up until year 2000 is reasonably well documented and
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