ERP and SCM Integration: The Impact on Measuring Business Performance

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ABSTRACT

Organizations rely on various types of information systems (IS) to manage day-to-day business and make decisions such as enterprise resource planning (ERP) and supply chain management (SCM) systems. Organizations rely on ERP systems to replace their legacy systems, integrate core business processes and to help adding value and increasing visibility. Additionally, SCM systems help organizations to enhance relationships with supply chain members. It is essential for organizations to measure their business performance by taking into consideration intra-organizational and inter-organizational indicators. Therefore, the integration between ERP and SCM systems is a key to enable more business performance; that were otherwise hidden. Accordingly, the motive for this paper is to study the influence of ERP-SCM integration on enabling more business performance measures. For this reason, a business performance measures framework was constructed and then tested on two organizations using multi-case study qualitative research approach. Analysis results indicated that integrating ERP and SCM systems would render more performance measures and hence enable better and wider-scope evaluation. Consequently, managers are more informed and accordingly are able to make high quality decisions.

Keywords: Business Performance, Enterprise Resource Planning (ERP), Performance Measures, Supply Chain Management (SCM)

INTRODUCTION

In their seek towards automating day-to-day businesses, organizations rely on different types of information systems (IS). Some of these systems are classified as enterprise systems; those are the systems that their scope is the enterprise instead of a precise function. Enterprise resource planning (ERP) systems, customer relationship management (CRM), knowledge management systems (KMS), and supply chain management (SCM) systems are types of enterprise systems. ERP are systems that integrate all the data about core business processes into one system and one central database (DB). Whereas SCM are systems that monitor the flow of material, information, and financials from where organizations source materials till where they deliver final product or service to end customer.

DOI: 10.4018/jeis.2013040106
Traditionally organizations have relied on ERP systems to replace their legacy systems with the aim of adding benefits to the organizations such as, allowing transactions to proceed rapidly, reducing the cycle time and being able to manage financial transactions in a better manner (Su & Yang, 2010). ERP systems reveal the difficulty of information disintegration in organizations (Sohrabi & Vanani, 2011). Accordingly, ERP systems are employed by organizations with the aim of allowing the accurate flow of information throughout their business processes (Pham & Teich, 2011). ERP systems are implemented to serve as a backbone for manufacturing as well as service organizations (Sohrabi & Vanani, 2011). Additionally, organizations are focusing on SCM to rationalize internal operations with the purpose of increasing plant productivity, quality of goods, decrease in manufacturing cost, and rapidly responding to the customer requests and changes. Thus material, information, and financial flows among the member organizations of the supply chain should be transferred efficiently, accurately and with a precise manner.

RESEARCH GAP

Previous research aimed at studying the impact of implementing either the SCM or ERP system on the business performance, other research focused on the overall organization’s benefit after the ERP and SCM integration (Stefanou, 2001; Tarn et al., 2002; Akkermans, et al., 2003; Kova’cs & Paganelli 2003; Burca et al., 2005; Wieder et al., 2006; Bose et al., 2008; Daghfous & Barkhi 2009; Ge & Vob 2009; Su & Yang 2010; Yang & Su 2009). Other researches studied the technical details of integrating the two systems i.e., ERP and SCM (Helo et al., 2005; Goosseenaerts et al., 2009).

To our knowledge, too little research efforts were exerted to study the influence of ERP and SCM systems integration on business performance measures (BPM). Based on previous researches, major business processes have been identified at each functional area within its corresponding organizational level. This research is investigating the ERP-SCM integration on each of those business processes presented in the BPM framework. For this reason, the research is to provide an in-depth analysis of performance measures aligned to the business processes and organizational units for organizations with ERP-SCM systems. The research is an exploratory investigation for providing organizations - regardless of its size and industry - with various performance measures to assist managers in the decision making process and measuring their organization’s performance.

The research question is “what is the influence of the ERP-SCM integration on business performance measures?”

BENEFITS OF ERP AND SCM INTEGRATION

The benefits of ERP-SCM integration are classified into intra-organizational and inter-organizational. Organizations implement ERP systems to replace legacy systems, accordingly adding benefits to the organizations such as allowing transactions to run faster, reducing the cycle time and finally managing the financial transactions in a better form (Su & Yang, 2010). ERP systems are considered to be a core component for enterprise information systems as their implementation aim to ensure the accessibility of needed information throughout the entire organizations (Folinas & Daniel, 2012). The implementation of ERP started by focusing on intraorganizational integration and then moved on to interorganizational integration, which requires integration with other information systems such as SCM and CRM (Rao & Mandal, 2011). Accordingly, the implementation of ERP systems allows significant influence on the decision making of organizations and their business processes (Pharm & Teich, 2011). Furthermore, organizations are focusing on supply chain to rationalize internal operations with the aim of increasing plant productivity, enhancing quality of goods, decreasing manufacturing cost, and...
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