Estimating the Impact of ERP Systems on Logistics System

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ABSTRACT

This paper estimates the benefits and challenges of the Enterprise Resource Planning (ERP) on the Logistics system of an enterprise. By identifying the needs and challenges for the efficient development of an ERP system, the authors understand how an ERP directly contributes to the achievement of operational, strategic, tactical, and organizational benefits. In order to achieve these aims, a research was applied carrying out a closed question survey across Information Technology (IT) practitioners, the majority of who are located in Asia Pacific and Japan, comprising of Enterprise Architects, IT Architects, EAS (Enterprise Application Services) practice leaders, EAS Sales Leaders (Client Principals) all of whom have experience as ERP and logistics practitioners. The findings of the survey show that the biggest challenge concerning the usage of an ERP is not technological, but relates more to issues of trust, collaboration, integration, lack of agility, poor user adoption, implementation timelines, and lack of customer focus. Consequently, understanding how an ERP influences each one of them, will highlight the importance and strategic value of an ERP in terms of the logistics system efficiency.

Keywords: Enterprise Resource Planning (ERP) Systems, Impact of Information Systems, Logistics, Supply Chain Management, Survey

INTRODUCTION

Customers are the undisputed driver of the logistics, deciding on what they want, how and when they want it. Therefore, it is the obligation of the logistics system to ensure they get it. This is why the logistics system needs to be agile and responsive, to meet the dynamic requirements of the customers, as it is through customer service mainly that an organization would be able to achieve sustainable competitive advantage and improve customer loyalty (Bolumole et al., 2003).

Moreover, the enabler of a dynamic, agile and responsive logistics system is Technology. The key to meeting the customers’ demands is first, understanding what they need and then making everybody along the company understand those needs and work collaboratively towards addressing them. This means managing the entire cycle from the supplier to the customer as a whole, avoiding sub optimization and working towards a surplus. To manage the entire logistics system, an organization would need to collect data, transform it into information and share it with all the departments who

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would now have an understanding of what they need to do to excel in meeting the demands of their customers. Thus, they gain the knowledge needed to achieve competitive advantage over their competitors. The quest for this knowledge has led to the wide implementation and usage of the ERP systems. By using an ERP system an enterprise can plan, execute and control effectively and efficiently its logistics resources and processes.

At first, we need to define the ERP paradigm in terms of logistics needs. In the literature there are many definitions of an ERP system (Table 1).

From the definitions it is evident that the integration of logistics system’s processes and resources is a key element of an ERP system. Moreover, it is highlighted that an ERP system is an integral and most important component of an EIS, as it influences the entire supply chain of an organization, from the customer to the supplier by ensuring they have accessibility to the needed information. Information sharing can increase logistics flexibility and improve the agility and adaptability of the organization so as to be responsive to the business conditions and eventually lead to the creation of new knowledge that may provide competitive advantage (Liu & Kumar, 2009). Information visibility allows an organisation to be able to reduce levels of inventory as information and knowledge are equal to inventory. With the help of an ERP, organisations (members of the supply chain) will be able to capture and process information directly from the point of sales systems allowing for better understanding of their customers’ needs and patterns.

Logistics integration is crucial for an organization as it creates opportunities to cut costs, increase revenues and improve utilization of assets thereby allowing organizations to avoid duplication of resources and giving them an opportunity to improve their operating profits (Yang & Su, 2008; Kauremaa et al., 2009; Rao & Mandal, 2011). Benefits gained from a cost efficient logistics system cannot be ignored (Murtaza, Gupta, & Carroll, 2004; Joo, Kwon,

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Table 1. Definitions of ERP systems

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<tr>
<th>Author(s)</th>
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<tr>
<td>Gartner (2011)</td>
<td>ERP is defined as the ability to deliver an integrated suite of business applications. ERP tools share a common process and data model, covering broad and deep operational end to end processes such as those found in finance, human resource, distribution, manufacturing, service and the supply chain.</td>
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<td>Nour and Mouakket(2011)</td>
<td>ERP systems are integrated, enterprise-wide systems that provide automated support for standard business processes within organizations.</td>
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<td>Su and Yang (2010)</td>
<td>An ERP system is an integrated enterprise computing system that is designed to automate the flow of material, information and financial resources among all functions within an enterprise on a common database.</td>
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<td>Ge and VoB (2009)</td>
<td>An ERP system is a highly integrated Enterprise Information System (EIS) to manage all aspects of the business operations of an enterprise including production, purchasing, engineering design, manufacturing, sales, marketing, distribution, accounting and customer service, etc.</td>
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<tr>
<td>Botta-Genoulaz and Millet (2005)</td>
<td>An ERP system is an integrated software package composed of a set of standard functional modules (production, sales, human resources, finance, etc.) developed or integrated by the vendor, which can be adapted to the specific needs of each customer. An ERP system attempts to integrate all departments and functions across a company onto a single computer system that can serve all departments.</td>
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<tr>
<td>Yusuf, Gunasekaran, and Abthorpe (2004)</td>
<td>ERP system is a software application that helps to integrate the flow of information throughout the company. With the help of an ERP system organizations will be able to manage their corporate business and integrate individual functional systems such as manufacturing, finance, procurement and distribution.</td>
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