

## Chapter 3

# Improving Logistics Costs Through ERP Alignment

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### ABSTRACT

*This paper examines the alignment success factors necessary to improve logistics cost when implementing an ERP system taking a work system theoretical perspective. Organizations attempting to decrease logistics costs via an ERP implementation must consider the processes and activities involved in aligning participants, information, technology, and business process in these ERP implementations. We used a two-step approach, conducting a confirmatory factor analysis (CFA) to assess the psychometric properties of our measures and then conducting an independent sample t-test between two groups, one which experienced decreased logistic costs and the second which experienced the same or increasing logistic costs. This research has provided more insight into the practice of ERP implementations and has reemphasized the need to judge ERP success relative to impact on firm performance.*

### INTRODUCTION

Enterprise wide software solutions address the problem of disparate information in business organizations (Muscatello & Chen, 2008; Themistocleous, Zahir, & Love, 2004). They serve as the starting point for information capture and dissemination via a variety of mathematical models that continue to grow as technology innovation grows. Enterprise Resource Planning Systems have moved into the maturity phase of their lifecycle serving as the platform of choice for most manufacturing firms. In fact, ERP has shown a level of maturity where simple issues related to implementations are known by vendors and businesses (Han, Swanner and Yan., 2010; Capaldo and Rippa, 2009; Jacobs & Weston Jr., 2007).

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ERP implementations frequently come with new software and hardware systems and business processes that substantially alter workflow and jobs (Monk and Wagner, 2013; Boudreau & Robey, 2005; Soh & Sia, 2005). These alterations change processes, job responsibilities and often lead to major training and other organizational initiatives. These organizational changes are usually positive, however, significantly higher value is achieved if the most appropriate types of information sharing are used, while other types of information sharing rather contribute to decreased value (Jonsson and Mattsson, 2013). Enterprise resource planning (ERP) systems have been used in integrating information and accelerating its distribution across functions and departments with the aim to increase organizations' operational performance. Thus, it is worth measuring ERP system performance based on its impact to critical performance of an organization (Shen, et al, 2015).

ERP initiatives lead to organizational improvement by more consistently providing information to organizations in a standardized, centralized, and cost efficient manner (Olson, Chae, & Sheu, 2005). Successful implementation of ERP systems, including new software and business processes, report positive benefits including greater efficiency and effectiveness at the individual employee and organizational levels (Muscatello & Chen, 2008; Olson et al., 2005; Venkatesh, 2008). Evidence also suggests that a firm's profitability increases after full implementation of an ERP system (Hendricks, Singhal, & Stratman, 2007). Other benefits that have been documented include: drastic declines in inventory, increasing cash flow and working capital, improved customer service information, and an increased ability to manage the extended supply chain of suppliers, alliances, and customers as an integrated system (Davenport & Brooks, 2004; Goodpasture, 1995; Muscatello, Small, & Chen, 2003).

ERP implementations require significant managerial and technical challenges, huge financial investments and impactful organizational change (Amid and Kohansal, 2014; Muscatello & Chen, 2008). ERP is a challenging project that causes major change and disruption for an extended period of time in the implementing firm (Boudreau & Robey, 2005; Soh & Sia, 2005). Despite annual investments of several billion dollars in ERP systems, estimates indicate that more than half of all ERP systems fail (Han, swanner and Yang, 2010) and such failures have been observed even in highly successful organizations, such as Hershey and Nike (Koch, 2002, 2004). ERP also has the reputation of being notoriously over-sold and under-delivered (Millman, 2004). Major Operational disruptions at Hewlett Packard, Whirlpool, Fox-Meyer Drugs and Hershey Foods have been caused by poor ERP implementations (Becerra-Fernandez et al., 2004). Therefore, a firm must be diligent and prudent in their implementation of an ERP system.

Supply chain is of significant importance when implementing ERP (Amid and Kohansal, 2014; Shaul and Tauber, 2013). Successful implementations will clearly affect the supply chain of a firm. Logistics, as defined by the Council of Supply Chain Management Professionals ("CSCMP Supply Chain Management," 2013), is the process of planning, implementing, and controlling procedures for the efficient and effective transportation and storage of goods including services, and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirements. Several authors have pointed out that the importance of finding a better way to move product was identified as early as 1776 when Adam Smith detailed the connections between manufacturers and markets and transportation inefficiencies in *The Wealth of Nations* (Grawe, 2009).

The US Department of Transportation estimates final users purchase or consume 9% or close to \$1 Trillion of the goods and services in the GDP basket to serve their transportation needs (2014). An effective logistics operation can provide a competitive advantage for a firm and increase market share (Monk and Wagner, 2013; Daugherty, Autry, & Ellinger, 2001; Mentzer, Keebler, Min, Nix and Smith, 2001). There is no wonder that businesses are diligently working to reduce their logistics costs as a huge area of opportunity.

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