



THE ROLES OF IT CAPABILITY AND ORGANIZATIONAL CULTURE ON LOGISTICS CAPABILITY AND FIRM PERFORMANCE

İ. Bihter KARAGÖZ, Gebze Technical University, Turkey
Ali E. AKGÜN, Gebze Technical University, Turkey

Abstract

Logistics capabilities have been demonstrated to be a critical source of competitive advantage. However, the lack of internal ability to streamline, integrate and communicate the logistics processes constitutes a barrier for successful logistics management. This study, which is based on the resource based view (RBV), aims to correlate information technology (IT) capability and organizational culture with the logistics capability in order to explain logistics performance and eventually firm performance achieved. Through the PLS (Partial Least Squares) method we found by empirically analyzing 80 international logistics firms located in Turkey that; (1) organizational culture affects logistics capability, (2) logistics capability has a positive effect on firms' logistics performance, (3) IT capability has a direct positive effect on logistics performance, (4) logistics capability of firms affects their performance and (5) logistics performance of firms affects their performance. Results indicate that building a logistics capability relies on the organizational culture. Yet, achieving logistics performance depends on the effects of IT capability and logistics capability simultaneously through their direct influences which enhance firm performance. In this regard, results of this study contribute theoretically to logistics literature as well as practically to the logistics industry.

Keywords: IT Capability, Logistics Capability, Logistics Performance, Firm Performance, Organizational Culture.

1. Introduction

Researchers have suggested that firms competing in today's global economy need to leverage existing logistics capabilities or build new logistics capabilities to achieve sustainable competitive advantage. Today, the real success depends on going beyond the customer satisfaction and directing their expectations by developing products and services that haven't demanded by customers yet (Hameland Prahalad, 1996). Under these circumstances, effective logistics management is seen as a key component for increasing competitive advantage and

profitability of businesses (Stock and Lambert, 2001) and, specifically, logistics capability becomes central focus for firm's effectiveness and efficiency in performing logistics activities namely logistics performance (Cranfield, 2008; Fugate et al., 2010) and therefore previous studies have emphasized that developing distinctive logistics capabilities has become a prerequisite for businesses to compete on the basis of differentiated logistics services. Despite this strong emphasis in the literature, there is still limited research effort on how logistics capability is built in firms to achieve logistics performance and reinforce firm performance.

In today's competitive world, businesses need to develop competitive strategies and make these strategies flexible to adapt to organizational and market conditions for survival. There is no doubt that knowledge based technologies are the most important capabilities and tools to achieve this goal (Peppard, 1993). Information technologies are considered a critical tool for supply-chain and logistics companies for more than 20 years (Allen and Masters, 1988; Closs et al., 1997; Forman and Lippert, 2005; LaLonde and Masters, 1990). However, IT capability has rarely been empirically examined in logistics management context.

Accessing the right information at the right time at the right conditions and at the right place makes that information valuable as well as increasing the efficiency of logistics firms (Closs et al., 1997). Therefore, information technologies plays an important role to provide cost-effective and high-quality logistics services in integrated logistics system by bringing all parties – including customers and suppliers– on a single platform (Gunasekaran et al., 2007). Although previous research implicitly suggests the effect of IT on logistics capability (Rai et al., 2012), limited empirical effort has been made in the logistics literature regarding the relationship between IT capability and logistics capability for leveraging logistics performance.

In this regard, the main objectives of the study are as follows: (1) to perform a literature review on capabilities, information technologies and logistics in particular; (2) to create research hypotheses and develop a conceptual model that cover the effects of organizational culture on the relationships between IT capability, logistics capability, logistics performance and firm performance concepts; (3) to test the research hypotheses by a questionnaire prepared for companies that render international logistics services; (4) to present suggestions for further studies by discussing the theoretical and practical contribution of the study results.

2. Literature Review and Hypotheses

Relationship between the IT Capability and Logistics Capability

Bharadwaj (2000) defines IT capability as the ability to mobilize and deploy IT-based resources in combination with other resources and capabilities. IT capabilities refer to the relative capabilities that help an organization to create technical and market knowledge and facilitate intra-organizational communication flow. Logistics management is one of the contributing operations that encompasses activities ranging from customer service, order processing, inventory management, transportation, distribution, warehouse management, packaging, demand estimation, production planning, location selection, purchase and procurement. All of these operations are supported by enormous information flows (Celebi et al., 2010).

Closs et al. (1997) showed that IT capabilities have a significant effect on the overall competence of logistics providers. A successfully implemented IT can have a significant effect on the choices about the practical implementation of logistics strategies and organizational structure (Zhao et al., 2009).

Shang and Marlow (2005) have examined the relationships between informational capabilities, logistics performance and financial performance, and found that IT capability has an influence on financial performance through logistics performance indirectly. In addition, De Carolis (2003), basing these on resource-based view and core competencies, addressed that technological capabilities helps to develop inimitable capabilities and make a difference in firm performance. Technology, product development, manufacturing process, production and logistics capabilities allow firms to reduce their costs and/or differentiate their offerings (Desarbo et al., 2005).

Sauvage (2003) noted that in a highly competitive businesses, technology becomes a critical variable and a significant tool for differentiation of logistics services. Information technology capability is considered as a catalyst in preventing failure in supply chain management (SCM). It affects the overall logistics capabilities significantly by improving these services and reducing costs simultaneously.

Fawcett (1991) asserted that logistics capabilities and technological innovation were positively related to the ability of firms to coordinate their production activities. Information technology facilitates the logistics integration and contributes to the supply chain success by improving the delivery performance (Dubois and Gadde 1997; Williams et al., 1997; Stenger et al., 1993; Chopra and Meindl, 2001, c.f. Shang and Marlow 2005). Businesses require information and an ability to share that information in order to develop contingency plans, to manage the planning process, and to control their daily operations (Kaplan, 1991).

According to the literature review, effective use of information technologies can have an impact on logistics capabilities.

H1: There is a positive relationship between information technology capability and logistics capability.

Relationship between Organizational Culture and Logistics Capability

According to Deshpande and Webster (2004), the organizational culture is "the shared patterns of values and beliefs" that help individuals to understand the operation of the organization. Organizational culture consists of basic assumptions that given group has invented, discovered or developed in learning to cope with its problems of external adaptation and internal integration and that have worked well enough to be considered valid and therefore to be taught to new problems (Schein, 1984). The organizational culture was studied on the basis of "employee orientation", "customer orientation", "innovativeness", "social responsibility", and "systematic management and control" dimensions.

When faced with opportunities and threats, organizational culture affects decisions, feelings and behaviors of individuals (Ozigbo, 2012). According to Tsui et al. (2006), firms with a strong culture share general characteristics shaped and strengthened through a set of rules, systems and norms created by cultural examples.

The capabilities, knowledge and skills of employees are developed through employee orientation. Employees play a significant role for achieving competitive advantage in logistics firms in the service industry, and, the issues on creating programs for recruiting, training and orienting time-based employees in a challenging area is one of the most important issues of the decade we are in perhaps (Bowersox, 1998). By means of various management systems implemented in firms, a good fellowship and team spirit have been established in firms by

encouraging teamwork. Although firms investigate the expectations of their customers at their core, they do generally not want to ignore expectations and demands of their employees as well. Considering the characteristics of their customers and employees, firms, which focus on their customers, should create an innovative organizational culture in which employees can effectively adopt the system they are a part of; have responsibility for the customers and their environment; and meet the demands of customers; in addition, firms should also adopt this created culture in their all activities and functions. Concordance of the cultural substructure of the logistics system of firms and existing or created cultural substructure of firms enables them to step forward in the competitive market.

Abilities of firms to understand customer demands and needs, to acquire and assimilate external knowledge, and to transform it into new or more improved products are organizational capabilities required for successful product innovation. Customer orientation highlights the significance of understanding the customer and customer needs and the importance of improving services for customer loyalty (Kantsperger and Kunz, 2005).

Socially responsible firms accomplish the moral, economic, legal, ethical and discretionary expectations of a society; and, social responsibility actions of a firm hold the potential for promoting positive acceptance of the organization, thus increasing its competitive position in relationship to its industry rivals (Murray and Montanari, 1986). In recent years, researchers have suggested that the role of logistics must expand to encompass social responsibility (Bowersox 1998, Poist 1989, Stock 1990), as well as the environmental, safety and human rights issues brought forward, in additions to various general issues of logistics (Carter and Jennings, 2002). The study findings of Carter and Jennings (2002) show that logistics managers can influence the Logistics Social Responsibility (LSR) positively by creating a corporate culture which facilitates and encourages to have features such as willingness to be a good corporate citizen.

Systematic management and control promotes an active and open dialog between the team members as well as motivating them to better understand the market, follow the proper procedures for acquiring technical knowledge and spread the correct response model (Akgün et al., 2010).

Studies indicate that innovation increases firm performance by encouraging the members of organization to produce new products and services in order to cope with technology and market changes (Matsuo, 2006). Innovative firms develop particular types of capabilities and knowledge that become embedded in their organizational culture (Knight and Cavusgil, 2004). Logistics innovation is necessary precisely because of this constant change (Flint et al., 2005). According to a study by Daugherty et al. (2011) on the logistics service capability, developing a logistics service innovation capability can differentiate a firm and improve its performance, and a proper structure may enhance its innovation capability. Innovative firms develop particular types of capabilities and knowledge that become embedded in their organizational culture (Knight and Cavusgil, 2004).

All these factors draw attention to the relationship between organizational culture and logistics capability.

H2: There is a positive relationship between organizational culture and logistics capability.

Relationship between Logistics Capability and Logistics Performance

Morash et al. (1996) refer to capabilities as "those attributes, abilities, organizational processes, knowledge and skills that allow a firm to achieve superior performance and sustained

competitive advantage over competitors". Logistics performance is defined as the degree of effectiveness, efficiency and differentiation related to the implementation of logistics activities.

Anderson and Naruse (1995), Daughert, Stank and Ellinger (1998), Cho and Ozment (2005) noted that many firms focus on the logistics capabilities to achieve competitive advantage and differentiation. In terms of firm performance, Bowersox and Daugherty (1995), Eckert and Fawcett (1996), Morash et al. (1996), Clinton and Closs (1997), Michigan State University Global Logistics Research Team (1995), Lynch (1998), Ellinger et al. (2000) stressed that logistics activities have an impact on cost reduction as well as increase in income. As suggested by Morgan and Hunt (1999), competitive advantages are realized only when the firms combine basic resources in such a way that they achieve a unique capability that is valued by the customers. Lambert et al. (1998) considered logistics management as a key opportunity to improve competitive performance and profitability of a firm; and, previous studies (Lynch et al., 2000) have shown the correlation between logistics operations and excellence in capabilities and superior organizational performance.

Functional performance has a great impact on overall firm performance. In order to improve a whole, its parts should be improved first. Increased or improved capabilities is one of the reasons of the increased overall performance. Firms which want to improve their performance within the framework of services or products provided, they inevitably also need to improve their logistics service capabilities to be used during production or marketing in order to improve logistics performance. In addition to the "speed" concept, which is the most prominent outcome of the changes in the world, "capability" and "efficient utilization of resources" have a positive effect on logistics performance in terms of the logistics capabilities framework.

Morash et al. (1996) identified four strategic logistics capabilities (delivery speed, reliability, responsiveness to target market, and low-cost distribution), and emphasized that these capabilities are significantly related to the performance measures. Ellinger et al. (2000) have stated that the relationship between performance and logistics capabilities contributes to integrated activities and other functional areas such as finance, operations and marketing. Stank and Lackey (1997) have emphasized that the logistics capabilities linked to integration and agility competencies are especially vital to logistics performance. According to Bowersox et al. (2000), logistics performance is a reflection of the superior supply chain. The use of logistics capabilities is significant in creating differentiation. Cho et al. (2008) have found in their study that logistics capability has a significant and positive impact on firm performance.

According to the framework of resource-based performance management, managing the cross-functional integration or the effectiveness of the integration requires a capability for performance. Studies show that logistics performance has a great impact in improving the logistics capabilities. Consequently, this suggests that firms need to attach importance to logistics capabilities.

And, according to Knight and Cavusgil (2004), logistics capabilities improve logistics performance. Hayes et al. (1988) identified five logistics capabilities as the leading strategy to deliver superior value to customers: cost, innovation, quality, delivery, and flexibility. The importance of logistics increases because of its capacity to provide a competitive advantage through competence in delivery speed, reliability, responsiveness and low-cost distribution (Morash et al., 1996).

Nowadays, competition is one of the issues that all businesses need to concentrate on. Firms utilize their resources, hence their capabilities, to have an edge over their competitors. That is to say, their performance is affected by their capabilities, and, all these factors highlight the relationship between the logistics capabilities and logistics performance.

H3: There is a positive relationship between logistics capability and logistics performance.

Relationship between Information Capability and Logistics Performance

Looking at the literature, it is seen that there is a focus on importance of the relation between IT capabilities and competitive priorities of firms (Sanders and Premus, 2002). Previous studies show that IT can contribute to the development of organizational performance (Brynjolfsson and Hitt, 1996; Kohli and Devaraj, 2003; Mukhopadhyay et al., 1995).

There are numerous studies indicating a positive correlation between IT capability and firm performance (Bharadwaj, 2000; Kearns and Lederer, 2003; Santhanam and Hartono, 2003); and, the results of these studies show that the IT capability increases the competitive advantage of a firm. De Carolis (2003) addressed that technological capabilities make a difference in firm performance by developing and exploiting inimitable capabilities. Closs et al. (1997) stated that there is a positive relationship between logistics performance and IT. Logistics research continuously show the critical importance of IT management in terms of logistics performance; in addition, IT and knowledge-based skills are increasingly accepted as key decisive factors in firm performance (Zhao et al., 2001).

Sanders and Premus (2005) have found a direct correlation between performance and IT capability, which is measured in terms of improvements in cost, product quality, launch times of new products and delivery speed. Sanders and Premus (2002) have also noted that the use of IT provides a significant competitive advantage for firms, and the results of their study show that use of IT should be linked to organizational competitive priorities. Previous studies support the argument that there is a significant and positive relationship between IT capability and firm performance (Sanders and Premus, 2002).

The impact of IT on logistics performance has been studied in logistics research frequently (Bowersox et al., 1999; Fawcett et al., 1996; Gustin et al., 1995; Williams et al., 1997; Global Logistics Research Team at Michigan State University, 1995). Several studies on IT suggest that improving organizational performance and gaining competitive advantage is possible with an IT capability basically (Bhatt and Grover, 2005; Santhanam and Hartono, 2003). A positive relationship between IT and logistics performance was also stated by Bowersox and Daugherty (1995). According to the study by Zhao et al. (2009), IT capability has a significant impact on financial performance.

Today's logistics firms recognize the importance of knowledge not only for improving basic skills of the firms, but also for providing an auxiliary service to their customers and stakeholders (Chapman et al., 2003). Kwan (1999) showed that IT capability allows firms to provide necessary coordination with their suppliers. In addition, IT helps to overcome many of the major problems in the supply chain. IT is needed to improve operational quality and overall company performance by reducing processing lead time, improving efficiency, and eliminating errors (Brah and Lim, 2006; c.f. Esper et al., 2010).

Sanders and Premus (2002) reported that use of IT clearly contributes to the improvement of organizational performance by serving as a tool to increase business functions; however, they also stated that it's not a panacea for the competitive problems of the organization. Shang and Marlow (2005) examined the relationships between IT based capabilities, logistics performance and financial performance, and found that IT capability has an influence on financial performance through logistics performance indirectly. It has also been stated that information technologies are needed to improve operational quality and overall company performance by reducing lead time, improving efficiency, and eliminating errors (Brah and Lim, 2006).

Advances in IT reduce the cost of logistics processes and contribute to the development of communication between organizations (Lewis and Talalayevsky, 1997). Information systems increase organizational flexibility and responsiveness, and allow organizations to implement strategy and develop plans by making decisions more effectively and quickly. As a result, increased use of IT supports efficiency in decision making, information sharing and communication (Hall et al., 2012). Van Hoek (2002) pointed out that the use of specific technological capabilities may improve logistics services and facilitate effective integration across companies in the supply chain. According to Bharadwaj (2000), creating superior capabilities leads firms to achieve superior performance.

IT capability has a significant impact on logistics performance (Zhao et al., 2001), since IT capability is seen as a key factor, distinguishing successful firms than others. Bharadwaj (2000) states that IT capability increases firm performance due to increased income and reduced operation costs. And, from a perspective of competitive strategy, strategic integration reflects the capability of IT to support and shape low-cost, different or niche strategies. From a resource-based perspective, however, this reflects the extent to which IT capabilities support the deployment and development of a firm's assets (Rivard et al., 2006). Shang and Marlow (2005) suggested that information based capability has an impact on financial performance through logistics performance indirectly. Floyd et al. (1990) argue that IT capability helps to provide reliable service, reduces the mistakes in business processes and improves the performance.

The most important feature of the IT is the ease of use of the customer data and procurement data within the functional units of firms. Improving logistics performance is an important factor in terms of capabilities. Thus, effective use of information technologies has a direct or indirect effect on the functional competencies of firms. One of the most important principles of logistics functions is to provide efficient and coordinated use of information.

All these factors draw attention to the relationship between IT capability and logistics performance.

H4: There is a positive relationship between IT capability and logistics performance.

Relationship between Logistics Capability and Firm Performance

Logistics capabilities have important contributions for firms to achieve superior performance and sustainable competitive advantage over their competitors (Cho and Ozment, 2005). Hayes and Pisano (1994) stated that a firm's logistics capability is perceived as one of the important parameters to exceed customer expectation and enhance financial and market performance.

There are examples about the impact of logistics capabilities and strategies in the logistics literature. These studies emphasized the significant contributions of logistics capabilities in achieving sustainable competitive advantage and superior performance (Sezhiyan and Nambirajan, 2011). Several studies suggest that logistics capability has a positive effect on the firm performance (Fawcett et al., 1997; Yang et al., 2009; Zhao et al., 2001) and competitive advantage (Morash et al., 1996).

In today's competitive environment, one of the greatest challenges of firms is to maintain performance, rather than improving it. Firm performance has an effect on their activities and customers. In addition to social and quality-wise contributions, fulfilling the customer demands and needs is what expected by customers from firms. Firms are forced to improve their performance in meeting the expectations of customers because of the pressure from customers and competitors. With the help of information technologies, every firm is able to access

information on production now. They are aware of the fact that the areas of differentiation are not limited to internal layout of the firm or the products they produce. Functional differentiation and improved integration, that is to say improved capabilities, may be effective on the performance. Therefore, in addition to improving other capabilities used in functional activities, firms have to improve their logistics capabilities, hence their performance as well.

Many researchers have examined the relationship between logistics capabilities and firm performance (Porter, 1980; Dess and Davis, 1984; Miller, 1986; Barney, 1991; Day, 1994; Hayes and Pisano, 1994; Droge et al., 1994; Bowersox and Daugherty, 1995; Daugherty and Pittman, 1995; Global Logistics Research Team, 1995; Eckert and Fawcett, 1996; Morash et al., 1996; Clinton and Closs, 1997; Huselid et al., 1997; Lynch, 1998; Lynch et al., 2000; Ellinger et al., 2000; Zhao et al., 2001; Hafez et al., 2002; Vickery et al., 2003; Ray et al., 2004). These researchers found that logistics capabilities have a large contribution on the strategy and performance of firms in achieving competitive advantage (Wardaya et al., 2013).

It was suggested that logistics capability is a source of competitive advantage (Bowersox et al., 1999; Lynch et al., 2000; Zhao et al., 2001); and, Hayes and Pisano (1994) stated that a firm's logistics capability is perceived as one of the important parameters to exceed customer expectation and enhance financial and market performance. The study by Fawcett et al. (1997) emphasized that superior logistics capabilities help to improve performance of organizations. In a study on the effects of logistics capabilities on firm performance, Zhao et al. (2001) have put forward that customer-oriented logistics capabilities directly affect firm performance, and knowledge-oriented logistics capabilities have an indirect effect on the firm performance.

Studies by Morash et al. (1996), Lynch et al. (1998), Ellinger et al. (2000) and Michigan State University Global Logistics Research Team (1995) have found a positive relationship between logistics capabilities and the firm performance. Ellinger et al. (2000) have emphasized that the relationship between performance and logistics capabilities contributes to integrated activities and other functional areas such as marketing, finance and operations. Fawcett et al. (1997) have concluded that the firms with higher logistics capabilities achieve higher performance than the firms with poor logistics capabilities.

Shang and Marlow (2005) have examined the relationship between logistics capabilities and financial performance. And, they have stated that the knowledge-based capability, comparison capability and responsiveness capability have a significant impact on logistics performance. Cho and Ozment's (2005) study is also consistent with other study findings on the positive relationship between logistics capabilities and firm performance. Cho and Ozment (2005) have also emphasized that logistics capabilities affect the firm performance positively, and the logistics capabilities have important contributions for firms to achieve superior performance and sustainable competitive advantage over their competitors. The study also supports that the firms need strong logistics capability in order to achieve a better performance in both traditional and e-commerce markets, and that logistics capabilities play a more important role for e-commerce firms. In addition, Cho and Ozment's (2008) study supports that strong logistics capabilities improve performance of firms in both traditional and e-commerce markets.

Lynch et al. (2000) have assessed the relationship between capability, strategy and firm performance within the logistics framework, and emphasized that capabilities and strategies of firms should be consistent to achieve superior firm performance. Mentzer et al. (2004) stated that logistics capability help firms to increase their competitiveness by creating economic (cost leadership) and market-oriented (differentiation) values. Differentiation is a core strategy in ensuring a competitive advantage (Mahoney, 1995). A firm positioned as a business leader (e.g., a company focused on the competitive strategy of the lowest cost) should employ simple,

consistent, effective and proactive logistics capabilities (Lynch et al., 2000). According to Wardaya et al. (2004), studies revealed that logistics capabilities contribute to strategies and performances of firms to a large extent, providing a competitive advantage. In their study on the relationship between service capability and performance of the 3rd Party Logistics (3PL) providers, Liu and Lyons (2011) found that the 3PL providers with service capabilities that meet key priorities of customers will gain a superior financial performance through better operational performance.

Other studies (Stank et al., 2001) however, consider performance to be a mix of financial and operational (including logistics and marketing performance) measures. The financial performance of a firm is an indication of the perceived profitability of that firm. To measure the firm performance, generally the financial-oriented measurement methods are used, and measuring intangible indicators such as knowledge, competition, employee satisfaction and customer loyalty are quite difficult (Reiner, 2004).

In a time and quality-oriented competitive environment, logistics capability is of critical importance. Logistics capability is the source of the competitive advantage, besides its productivity function. Thus, logistics capability contributes to the competitive strength of firms by creating economic (cost leadership) and market-oriented (differentiation) values (Mentzer et al., 2004). In their study, Morash et al. (1996) have correlated business success with competitive advantage and strategic logistics capability. Competitive capabilities, thereby improve the overall firm performance (Rosenzweig et al., 2003).

Logistics capabilities have been shown to be a source of competitive advantage for firms (Bowersox et al. 1999; Lynch et al. 2000; Zhao et al. 2001). Logistics capability is the source of competitive advantage (Zhao et al. 2001; Lynch et al., 2000; Bowersox et al., 1999; Olavarrieta and Ellinger 1997; Morash et al., 1996; Bowersox and Closs 1996; The Global Logistics Research Team, 1995). Evangelista et al. (2011) have found in their study that there is a positive correlation between operational/interactive capability (packaging, labeling, order management, maintenance-repair, returns management and warehouse management), productivity (improved asset utilization) and efficiency (process improvement, customer service improvement and flexibility management) and performance. According to Daugherty et al. (2011), focusing on logistics service capabilities leads to competitive advantage.

Hayes and Pisano (1994) suggested that a firm's logistics capability is perceived as one of the important factors to exceed customer expectations and enhance financial and market performance. Dividing the eight strategic logistics capabilities into demand-oriented capabilities and supply-oriented capabilities, Morash et al. (1996) found that one supply-oriented capability – low-cost distribution– and three demand-oriented capabilities –delivery speed, reliability, and responsiveness– were most significantly related to firm performance. Morash et al. (1996) characterized these four capabilities as "true order winners for a sustained competitive advantage.

In their study, Ralston et al. (2013) drew attention to the importance of logistics capability in logistics service differentiation. Logistics service differentiation represents a valuable business capability. Morash et al. (1996), Fawcett et al. (1997), Lynch et al. (2000), Zhao et al. (2003), Vickery et al. (2003) have found a positive relationship between the logistics capability and firm performance. The development of logistics capabilities and their utilization in the market via the provision of services plays an important role in the evolution of logistics providers (Evangelista, 2012).

Cho et al. (2008) have found a positive relationship between the firm performance and logistics capability, which was defined in terms of variables of the distribution-logistics performance. Capabilities such as quality, delivery, flexibility and cost contribute to firm performance (Ozdemir and Aslan, 2011). Research on logistics indicate that a high performance in logistics activities and capabilities affects organizational performance (Fugate et al., 2010).

In their study, Ralston et al. (2013) focused on the impact of logistics capability on logistics performance. Cho and Ozment's (2005) study is also consistent with other study findings on the positive relationship between logistics capabilities and firm performance. Bowersox and Daugherty (1995), Global Logistics Research Team (1995), Eckert and Fawcett (1996), Morash et al. (1996), Clinton and Closs (1997), Lynch (1998), Ellinger et al. (2000) have pointed out that logistics activities are effective in increasing income as well as reducing costs. Anderson and Narus (1995) and Daugherty et al. (1998) noted that many firms focus on the logistics capabilities as a means to achieve differentiation and competitive advantage (Cho and Ozment, 2005).

All the factors above highlight the relationship between the logistics capability and firm performance.

H5: There is a positive relationship between logistics capability and firm performance.

Relationship between Logistics Performance and Firm Performance

Many studies have investigated the relationship between logistics and firm performance (Christopher and Ryals 1999; LaLonde 2000; Lambert and Burduroglu 2000; Ellram and Liu 2002). It has been shown that logistics capabilities are valuable factors in allowing firms to respond to changing business conditions in an effective and efficient manner. Multiple processes and sub-processes are involved in fulfilling a demand from supply to distribution of products to customers. Thus, managers need to be aware of how capabilities, and particularly logistics capabilities, can be used to respond to market turbulence (Gligor and Holcomb, 2012).

Bavarsad et al. (2013) have found a significant relationship between logistics performance and organizational performance (financial and market performance). Tracey et al. (2005) stated that the outcome of logistics performance has an effect on the firm's market performance through increased organizational and competitive performance. In the logistics literature, it is generally assumed that outstanding logistics performance is related with high-financial performance obtained through higher revenues, low costs and effective and efficient asset utilization (Toyli et al., 2008). There is a relationship between perfection in logistics performance and superior operational performance. Compared to competitors, firms with superior logistics performance achieve success (e.g. differentiation) (Fugate et al. 2010).

Shang and Marlow (2005) have examined the relationship between logistics capabilities and financial performance. For this purpose, a study was conducted with 1200 companies in Taiwan, and as a result, the knowledge-based capability was found to have a significant impact on logistics performance. Study results of Fugate et al. (2010) suggest that the overall performance of the logistics function should produce high levels of logistics efficiency, effectiveness and differentiation in order to affect the performance of the organization positively.

Resultant high revenues, low costs and effective and efficient asset utilization obtained from a high-logistics performance are assumed to reflect on the financial performance of the firm through higher productivity and profitability as well as opportunities to grow faster than competitors in a certain industry (Toyli et al. 2008). According to Carter and Rogers (2008),

logistics and supply chain management affect environmental, social and economic performance. Schramm-Klein and Morschett (2006) found logistics performance, measured in terms of logistics quality and costs, to have a high-positive impact on the financial performance of retail firms. In his study, Bobbitt (2004) found that improvement in logistics performance increase organizational performance through competitive advantage as well. Increased competitive performance was also an outcome of good logistics performance, such as the reliability of the delivery process and the accuracy of informative data (Piriyakul and Kerdpitak, 2011).

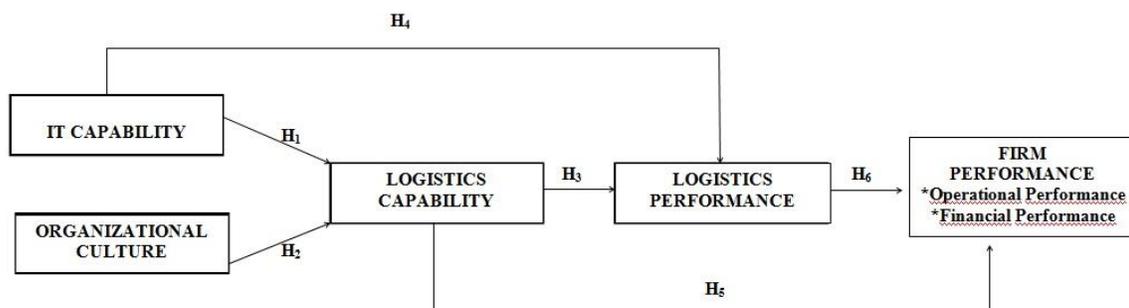
Tracey et al. (2005) have investigated the significance of supply-chain management capabilities on the perceived product value, customer loyalty, market performance and firm performance in their study with a wider perspective, and found that the supply chain management is an important source of competitive advantage and indicator of firm performance.

Green et al. (2008) have stated that logistics performance is affected by the supply-chain management strategies positively, and affect financial performance through its direct effect on the market performance. Logistics performance may have a significant effect on all elements of the supply chain, as in other business functions in supply chain management. After all, any increase in functional performance of the firm also increases performance in other functions. The firms with strong logistics performance achieve higher customer satisfaction, and resulting customer loyalty leads to high financial performance through strong competitiveness in the market. Therefore, as in seen in the studies reviewed, logistics performance was thought to have a significant impact on firm performance. Improvement in logistics performance is effective on firm performance through increased information, integration and physical needs met. The firms with strong logistics performance achieve higher customer satisfaction, and resulting customer loyalty leads to high financial performance through strong competitiveness in the market.

All these factors draw attention to the relationship between logistics performance and firm performance.

H6: There is a positive relationship between logistics performance and firm performance.

Figure 1. Conceptual Model



3. Research Methods

3.1. Scales Used

To test the above hypotheses, we adopted multi-item scales from prior studies for the measurement of variables. Scales used in this study consist of standard scales used in a variety of studies previously, with proven validity.

The "Information Technology Capability Scale" used in the study was developed by Desarbo et al. (2005). Six questions developed in this context were included in the questionnaire. These questions were about new product development, cross-functional integration, development of internal communication system, and producing information on market and technology. "Logistics Capability Scale" was created by adapting the scale developed by Morash et al. (1996). This scale has 12 items. These were intended to measure market-oriented and demand-oriented logistics capabilities. To measure the "Logistics Performance Capability", 5 questions, adapted from the scale developed by Fugate et al. (2010), were asked. The "Environmental Uncertainty Scale", was created by adapting the scale developed by Desarbo et al. (2005). This scale has 18 items. These items measure market uncertainty, competitive uncertainty and uncertainty in the technological setting. In order to measure the organizational culture, the "Organizational Culture Scale" adapted by Akgün et al. (2010) was used. This scale consists of 24 items. These items measure employee orientation, customer orientation, innovation, social responsibility and systematic management and control. Finally, to measure the firm performance, the "Firm Performance Scale" developed by Ellinger et al. (2002) was adapted, and 13 questions were asked in this context. These questions measure competition and financial performance.

The scoring used in the scales ranges from 1 to 5 with equal intervals. For measuring the items in the scales, a 5-point Likert-type scale was used (1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree).

3.2. Sampling and Data Collection

The study population consists of 259 logistics companies, which have C2 Certificate of Authority (a type of certificate given to natural and legal entities that will ship goods nationally and internationally for commercial purposes), operate in the Province of Istanbul, Turkey, and are members of the Uluslararası Nakliyeciler Derneği(UND). Questionnaires were applied to middle and senior managers of these companies by, in part, face-to-face interview method, and by sending electronic mail method mostly. Schillewaert et al. (1998) stated that electronic mail method is an effective method, if the universe uses Internet technologies. In this regard, the data collection process was carried out between July and December 2013, and the number of questionnaires returned and completed for analysis was found to be 80.

Basic information about the companies and individuals who completed the questionnaires on behalf of companies in the sample is shown in the following table.

Table 1. Sample Characteristics

Capital Structure	n	%
Domestic Capital	46	57.5
Foreign Capital	22	27.5
Commonality	12	15.0

Activity Period	n	%
1-5 years	10	12.5
6-10 years	13	16.3
11-15 years	14	17.5
16-20 years	4	5.0
21 years or more	39	48.8
Number of Employee	n	%
20-250 employees	35	43.8
251-500 employees	13	16.3
501-1000 employees	13	16.3
1001 employees or more	19	23.8
Position	n	%
Business Development Manager	4	5.0
Area Manager	3	3.8
Warehouse Manager	1	1.3
Sales Manager	10	12.5
Information Systems Manager	2	2.5
Project Manager	2	2.5
Member of Board	2	2.5
Director	2	2.5
Supervisor	9	11.3
Department Manager	7	8.8
Marketing and Sales Manager	4	5.0
General Manager	5	6.3
Strategic Planning and Marketing Manager	2	2.5
Project and Business Development Manager	1	1.3
Operation Manager	26	32.5

Of the companies in this study, 57.5% was found to have a domestic capital structure. It was also observed that the lifespan of these companies participating in the study was higher. Accordingly, 48.8% of the companies were operational for 21 years or more. Of these companies, 43.8% has 20-250 employees. Operation managers constitute 32.5% of the people who participated in the study, followed by sales managers by 12.5%.

4. Data Analysis and Results

4.1. Scale Validity and Reliability

After the data collection, we assessed the reliability and validity of the scales by employing a data purification (Anderson and Gerbing, 1988; Fornell and Larcker, 1981).

Factor analysis was applied to the questions of all variables in order to test their factor loadings. In the analysis, Varimax Rotation was used to achieve a more meaningful factor structure. Table 2 shows the results of the explanatory factor analysis of the study. When

performing factor analysis, certain questions, explained by more than one factor, were excluded from the scales. All factor loadings were above 0.5.

Table 2. Factor Analysis and the Resulting Factor Loadings

Item	IT Capability	Logistics Capability	Logistics Performance	Employee Orientation	Customer Orientation	Innovativeness	Systematic Management and Control	Social Responsibility	Firm Performance
ITC1	.862								
ITC2	.858								
ITC3	.805								
ITC4	.769								
ITC5	.729								
ITC6	.711								
LC1		.713							
LC4		.841							
LC5		.805							
LC6		.847							
LP1			.735						
LP2			.835						
LP3			.620						
LP4			.710						
LP5			.836						
OCEO1				.800					
OCEO2				.861					
OCEO3				.832					
OCEO4				.622					
OCEO5				.734					
OCEO8				.629					
OCCO2					.649				
OCCO3					.813				
OCCO5					.534				
OCI1						.783			
OCI2						.808			
OCI3						.846			
OCI4						.857			
OCSM2							.863		
OCSM3							.774		
OCSR1								.812	
OCSR2								.846	
OCSR3								.763	
FP1									.692
FP2									.664
FP3									.638
FP4									.859
FP5									.858
FP9									.695
FP10									.691
FP11									.845
FP12									.753
FP13									.767

ITC= IT Capability, **LC**= Logistics Capability, **LP**= Logistics Performance, **OCEO**= Employee Orientation, **OCCO**= Customer Orientation, **OCI**= Innovativeness, **OCSM**= Systematic Management and Control, **OCSR**= Social Responsibility, **FP**= Firm Performance.

In this study, reflective scales were used for all variables. In the calculation of the reliability of the scales, the composite reliability (CR) and average variance extracted (AVE) were used. For all measurements, it is seen that PLS-based CR value exceeds the threshold value of 0.70, and the AVE values exceed the threshold value of 0.50 (Table 3).

The organizational culture variable was defined as a second level variable and is a combination of Employee Orientation (0.791), Customer Orientation (0.829), Innovation (0.769), Systematic Management and Control (0.766), and Social Responsibility (0.765) variables. Values in parentheses indicate the factor loadings between organizational culture and its components.

Table 3. Composite Reliability, Average Variance Extracted, Explanatory Power and Predictive Power Coefficients

Variable Name	CR	AVE	R ²	Q ²
IT	0.9	0.61	-	-
Organizational Culture	0.88	0.61	-	-
Logistics Capability	0.9	0.7	0.423	0.298
Logistics Performance	0.89	0.62	0.473	0.289
Firm Performance	0.92	0.55	0.311	0.160

Following the validity of this combination, differentiation validity of the measurements was tested. As stated by Fornell and Larcker (1981), AVE values calculated for each variable were higher than the squared latent factor correlations between the variable pairs (correlations are shown in Table 4). Thus, it is seen that the measurements meet the criteria of validity and reliability.

Table 4. Means, Standard Deviation Values and Correlation Coefficients of the Variables

	Mean	Standard Deviation	IT Capability	Organizational Culture	Logistics Capability	Logistics Performance	Firm Performance
IT Capability	4.1521	0.7259	(0.78)				
Organizational Culture	4.3261	0.6083	.376***	(0.78)			
Logistics Capability	4.075	0.6312	.447***	.563***	(0.83)		
Logistics Performance	3.4942	0.4228	.354***	.615***	.525***	(0.78)	
Firm Performance	4.2125	0.7268	.302***	.493**	.225**	.523***	(0.74)
* p < .1, ** p < .05, *** p < .01							
Note: The numbers on the diagonals represent the square roots of the AVE values. All of the correlation coefficients were smaller than the square root of the AVE values.							

Table 4 shows the correlation coefficients, means and standard deviation values of the variables in the sample. Correlation coefficients indicate the existence of an identical and significant relationship among all independent and dependent variables.

4.2. Hypothesis Testing

The *Partial Least Squares Regression-Structural Equation Model* (PLS-SEM) was run to analyze the research model. There are several reasons for the preference of the PLS-SEM method in this study. First, it is possible to use PLS-SEM, which is described as second-generation analysis modeling, in complex models, where a variable can be both independent and dependent variable (Tabachnick and Fidell, 2013). Second, PLS-SEM is able to test the hypotheses in the case of relatively small sample size as well. Third, PLS-SEM focuses on the extent to which dependent variables are explained (Hair et al., 2011), which is consistent with the purposes of this study, rather than focusing whether the whole model fits to the relationship network observed in the data.

The *bootstrapped-resampling method* was used in the Smart-PLS 2.0 software, in order to evaluate the statistical significance of the defined relationships (Ringle et al., 2005). This procedure involves bootstrapping 5000 sub-samples, selected randomly to replace original data (Hair et al., 2011). Path coefficients (β) were obtained for each randomly selected sub-sample, and the values of t-statistics were calculated.

According to the results given in the Table 3 obtained using PLS, the IT and organizational culture explain 42% of logistics capabilities, IT, organizational culture and logistics capabilities explain 47% of the logistics performance, and the logistics performance explains 31% of the firm performance. The predictive relevance (Q^2) coefficients of the dependent variables are presented again in the same table; and, values greater than zero indicate that independent variables are able to explain dependent variables (Hair et al., 2011).

Table 5. Hypotheses Path Coefficients and Results

Hypotheses	Relations	f ²	q ²	Beta	RESULTS
H1	IT Capability → Logistics Capability	0.084	0.048	0.32	NO SUPPORT
H2	Organizational Culture → Logistics Capability	0.014	0.006	0.06***	SUPPORT
H3	Logistics Capability → Logistics Performance	0.132	0.061	0.44***	SUPPORT
H4	IT Capability → Logistics Performance	0.161	0.045	0.46***	SUPPORT
H5	Logistics Capability → Firm Performance	0.044	0.006	0.25**	SUPPORT
H6	Logistics Performance → Firm Performance	0	-	0.55***	SUPPORT
* p < .1, ** p < .05, *** p < .01					

As shown in Table 5 the results support the substantial part of the hypotheses. Looking at the premises, there was no support for a positive relationship between IT and logistics capability. Therefore, H1 was not supported. However, H3 was supported since there was a positive

relationship between organizational culture and logistics capability ($\beta = 0.44$, $p < 0.01$). And, H2 and H4 were supported since there was a positive relationship between logistics performance and IT ($\beta = 0.06$, $p < 0.01$) and organizational culture ($\beta = 0.46$, $p < 0.01$). H5 was supported due to the positive relationship between logistics capability and logistics performance ($\beta = 0.25$, $p < 0.05$). Finally, it was observed that H6 was also supported since there was a positive relationship between logistics performance and firm performance ($\beta = 0.55$, $p < 0.01$).

5. Discussion and Implications

In today's global economy, the progress experienced in communication and trade gradually increases the importance of logistics. This study aims to identify the effects of IT capabilities on logistics capabilities and firm performances; and the research model was created with this objective in mind. In the model developed, the relationships between organizational culture and logistics capabilities, between logistics capability and IT capability and logistics performance, and between logistics performance and firm performance were tested within the framework of the hypotheses developed. The findings obtained in this study show similarities with the previous studies. Only the positive relationship between IT Capabilities and Logistics Capabilities is not supported, against the predictions in hypothesis. Another major claim of the study, the positive relationship between IT Capabilities and Firm Performances is supported in line with the previous studies.

Although there may be various reasons for the lack of positive correlation between IT capability and logistics capability in the industry, one of the reasons for the lack of this relationship in Turkey, despite the positive relationship found in other country economies in the literature, is the relatively new nature of logistics concept in Turkey and the failure to consider information technologies as a competitive resource that may lead to differentiation by the firms both providing and procuring the logistics services; that is to say it's due to the considerable adaptation difficulties experienced by these firms. For example, the ports in Turkey become incomplete and weak in the face of global competitors in terms of technological adaptation and working time. As required by the rapid breakthroughs experienced in the logistics industry in Turkey, the companies operating in a highly competitive environment will use technology more effectively in the coming years as in the countries abroad; otherwise, they will be powerless in the face of their competitors administratively and operationally.

As a result of the findings, organizational culture was found to have a positive effect on the logistics capabilities. And, this shows that logistics perspective of the firms has an important place in structuring their organizational culture. Businesses are able to create an effective integration, hence the organizational culture, in the outsourced logistics activities, as well as the integration of their own activities.

Logistics capability was found to have a positive effect on the logistics performance. Logistics activities, which is new in Turkey, are growing in line with the increased outsourcing. It can be observed that firms which offer logistics services develop their capabilities in a resource-based perspective. Thus, the activities exerted through developed logistics capabilities can lead to an increase in operational performance and improvement both in the companies providing and procuring the logistics services.

Previously, it was identified that the IT capability has no effect on the logistics capability, indirectly indicating that it has no effect on the logistics performance as well. However, based on the findings it was found that IT capability has an impact on the logistics performance, without indirect route of the logistics capability. In line with the studies conducted in the literature in this

regard, improved IT capabilities will increase activities, and hence the performances, of the businesses offering logistics services.

There is a positive relationship between logistics capability and firm performance similar to the one between logistics capability and logistics performance. Improved logistics capabilities has a positive effect on the overall firm performance, and hence on the integrated business activities.

The findings obtained indicate a positive relationship between the logistics performance and firm performance. Businesses that operate in highly competitive environments should develop their logistics perspective and should increase their logistics capabilities to ensure superiority over competitors; by this way, they will be able to increase their firm performance as well as the performance of their end customers and industrial customers in line with their increased logistics performance.

As a result, it was demonstrated in the study that the logistics firms and their customers may show a performance-oriented improvement using integrated logistics systems and information technologies. It is obvious that logistics was improved and entered into the process of industrialization. It can be said that the major drawback of the companies operating in Turkey in the face of global competitors is related to the adaptation of the information technologies.

Most important limitation of this study was the number of samples. With more participant firms and guidance, more comprehensive results could be obtained. Therefore, in future studies, it will be useful to increase the number of samples. Another limitation of the study was its limited spatial scope, which is the city of Istanbul. Future research can be extended through the inclusion of logistics firms from other cities. In this study, the logistics capabilities were addressed in general; however, in future studies, more detailed results can be obtained by addressing each variable separately. Furthermore, in future studies, more detailed information can be gathered for the logistic sector by asking research questions to firms who need logistics services.

References

- Akgün A. E., Keskin H., and Byrne J. C. (2010). Procedural Justice Climate in New Product Development Teams: Antecedents and Consequences, *Product Development & Management Association*, 27, 1096-1111.
- Balabanis G., Phillips H. C., and Lyall J. (1998). Corporate Social Responsibility and Economic Performance In The Top British Companies: Are They Linked?, *European Business Review*, 98(1), 25-44.
- Barney J. (1991). Firm Resources and Sustained Competitive Advantage, *Journal of Management*, 17(1), 99-120.
- Bharadwaj A. S. (2000). A Resource-Based Perspective on Information Technology, Capability and Firm Performance: An Empirical Investigation, *MIS Quarterly*, 24(1), 169-196.
- Bobbitt L. M. (2004). An Examination of the Logistics Leverage Process: Implications for Marketing Strategy and Competitive Advantage, Unpublished Ph.D. Dissertation, The University of Tennessee.
- Bowersox D. J. and Closs D. J. (1996). *Logistical Management: The Integrated Supply Chain Process*, McGraw-Hill, New York.

- Bowersox D. J., Closs D. J., and Stank T. P. (1999). 21st Century Logistics: Making Supply Chain Integration A Reality, Council of Logistics Management, Oak Brook, IL.
- Calantone R. J., Çavuşgil S. T., and Zhao Y. (2002). Learning Orientation, Firm Innovation Capability and Firm Performance, *Industrial Marketing Management*, 31(6), 515-524.
- Carter C. R. and Jennings M. M. (2002). Logistics Social Responsibility: An Integrative Framework, *Journal of Business Logistics*, 23(1), 145–180.
- Chapman R. L., Soosay C., and Kandampully J. (2003). Innovation in Logistics Services and The New Business Model: A Conceptual Framework, *International Journal of Physical Distribution & Logistics Management*, 3 (7), 630-650.
- Cho J. K. and Ozment J. (2005). The Importance of Logistics Capability in The E-Commerce Market, *Journal of Transportation Management*, 16(1), 15-34.
- Cho J. K., Ozment J., and Sink H. (2008). Logistics Capability, Logistics Outsourcing and Firm Performance in an E-Commerce Market, *International Journal of Physical Distribution & Logistics Management*, 38(5), 336-359.
- Clinton S. R. and Closs D. J. (1997). Logistics Strategy: Does It Exist?, *Journal of Business Logistics*, 18(1), 19-44.
- Closs D. J., Goldsby T. J., and Clinton S. R. (1997). Information Technology Influences on World Class Logistics Capability, *International Journal of Physical Distribution Logistics Management*, 27(1), 4-17.
- Damanpour F., Szabat K. A., and Evan W. M. (1989). The Relationship Between Types of Innovation and Organizational Performance, *Journal of Management Study*, 6(6), 587-601.
- Damanpour F. and Gopaiakrishnan S. (2001). The Dynamics of The Adoption of Product and Process Innovations in Organizations, *Journal of Management Studies*, 38(1), 45-65.
- Daugherty P. J. and Pittman P. (1995). Utilization of Time-Based Strategies: Creating Distribution Flexibility/Responsiveness, *International Journal of Operations & Production Management*, 15(2), 54-60.
- Daugherty P. J., Stank T. P., and Ellinger A. E. (1998). Leveraging Logistics/Distribution Capabilities: The Effect of Logistics Service on Market Share, *Journal of Business Logistics*, 19(2), 35-51.
- Daugherty P. J., Chen H., and Ferin B. G. (2011). Organizational Structure and Logistics Service Innovation, *The International Journal of Logistics Management*, 22(1), 26-51.
- Day G. S. (1994). The Capabilities of Market-Driven Organizations, *Journal of Marketing*, 58(4), 37-52.
- De Carolis D. M. (2003). Competencies and Imitability In The Pharmaceutical Industry: An analysis of Their Relationship With Firm Performance, *Journal of Management*, 29, 27-50.
- Desarbo W. S., Benedetto C. A. D., Song M., and Sinha I. (2005). Revisiting the Miles and Snow Strategic Framework: Uncovering Interrelationships Between Strategic Types, Capabilities, Environmental Uncertainty and Firm Performance, *Strategic Management Journal*, 26, 47–74.
- Deshpande R. and Webster F. E. Jr. (1989). Organizational Culture and Marketing: Defining The Research Agenda, *Journal of Marketing*, 53(1), 3-15.
- Ellinger A. E., Daugherty P. J., and Keller S. B. (2000). The Relationship Between Marketing /Logistics Interdepartmental Integration and Performance in US Manufacturing Firms: An Empirical Study, *Journal of Business Logistics*, 20(1), 10-22.

- Ellinger A.D., Ellinger A.E., Yang B., and Howton S.W. (2002). The Relationship Between The Learning Organization Concept and Firm's Financial Performance: An Empirical Assessment, *Human Resource Development Quarterly*, 13(1), 5–21.
- Evangelista P., Mogre M., Perego A., Raspagliesi A., and Sweeney E. (2012). A Survey Based Analysis of IT Adoption and 3PLs' Performance, *Supply Chain Management: An International Journal*, 17(2), 172-186.
- Fabbe-Costes N. and Jahre M. (2008). Supply Chain Integration and Performance: A Review of the Evidence, *The International Journal of Logistics Management*, 19(2), 130-154.
- Fasanghari M., Roudsari F. H., and Chaharsooghi S. K. (2008). Assessing The Impact of Information Technology on Supply Chain Management, *World Applied Sciences Journal*, 4(1), 87-93.
- Fawcett S. E. (1991). The Status and Impact of Logistics Issues in The Success of Co-Production Via Maquiladoras, *The International Journal of Logistics Management*, 2(2), 30-41.
- Fawcett S. E., Stanley L. L., and Smith S. R. (1997). Developing Logistics Capability to Improve The Performance of International Operations, *Journal of Business Logistics*, 18(2), 101-127.
- Flint D. J., Larsson E., Gammelgaard B., and Mentzer J. T. (2005). Logistics Innovation: A Customer Value-Oriented Social Process, *Journal of Business Logistics*, 26(1), 113-147.
- Fornell C. and Larcker D. F. (1981). Evaluating Structural Equation Models With Unobservable Variables and Measurement Error, *Journal of Marketing Research*, 18(1), 39-50.
- Fugate B. S., Mentzer J. T., and Stank T. P. (2010). Logistics Performance: Efficiency, Effectiveness and Differentiation, *Journal of Business*, 31(1), 43-62.
- Gligor D. M. and Holcomb M. C. (2012). Understanding The Role of Logistics Capabilities, *Supply Chain Management: An International Journal*, 17(4), 438-453.
- Green K. W. Jr., Whitten D., and Inman R. A. (2008). The Impact of Logistics Performance on Organizational Performance in a Supply Chain Context, *Supply Chain Management: An International Journal*, 13(4), 317-327.
- Guimaraes T., Cook D., and Natarajan N. (2002). Exploring The Importance of Business Clockspeed as a Moderator For Determinants of Supplier Network Performance, *Decision Sciences*, 33(4), 629-645.
- Hair J. F., Ringle C. M., and Sarstedt M. (2011). PLS-SEM: Indeed a Silver Bullet", *Journal of Marketing Theory and Practice*, 19(2), 139-151.
- Hall D. J., Skipper J. B., Hazen B. T., and Hana J. B. (2012). Inter-Organizational IT Use, Cooperative Attitude, and Inter-Organizational Collaboration as Antecedents to Contingency Planning Effectiveness, *The International Journal of Logistics Management*, 23(1), 50-76.
- Hamel G. and Prahalad C. K. (1996). *Competing For The Future*, Harvard Business School Press, Boston, Massachusetts.
- Hayes R. and Pisano G. P. (1994). Beyond Worldclass: The New Manufacturing Strategy, *Harvard Business Review*, 72(1), 77-86.
- Hult G. T. M., Hurley R. F., and Knight G. A. (2004). Innovativeness: Its Antecedents And Impact On Firm performance, *Industrial Marketing Management*, 33(5), 429-438.
- Kantsperger R. and Kunz W. H. (2005). Managing Overall Service Quality in Customer Care Centers: Empirical Findings of a Multi-Perspective Approach, *International Journal of Service Industry Management*, 16(2), 135-151.
- Knight G. A. and Cavusgil S. T. (2004). Innovation, Organizational Capabilities and the Born-Global Firm, *Journal of International Business Studies*, 35, 124-141.

- Kwan A. (1999). The Use of Information Technology to Enhance Supply Chain Management In The Electronic and Chemical Industries, *Production and Industry Management Journal*, 40(3), 7-15.
- LaLonde B. and Masters J. (1990). Logistics: Perspectives for the 1990s, *The International Journal of Logistics Management*, 1(1), 1-6.
- Lambert D. M., Cooper M. C., and Pagh J. D. (1998). Supply Chain Management: Implementation Issues and Research Opportunities, *The International Journal of Logistics Management*, 7(2), 1-19.
- Lewis I. and Talalayevsky A. (1997). Logistics and Information Technology: A Coordination Perspective, *Journal of Business Logistics*, 18(1), 141-157.
- Liu C. -L. and Lyons A. C. (2011). An Analysis of Third-Party Logistics Performance and Service Provision, *Transportation Research Part E*, 47, 547-570.
- Lynch D. F., Keller S. B., and Ozment J. (2000). The Effects of Logistics Capability and Strategy on Firm Performance, *Journal of Business Logistics*, 21(2), 47-67.
- Mahoney J. T. (1995). The Management of Resources and The Resources Management, *Journal of Business Research*, 33(2), 91-101.
- Matsuo M. (2006). Customer Orientation, Conflict and Innovativeness in Japanese Sales Departments, *Journal of Business Research*, 59(2), 242-250.
- Mentzer J. T., Min S., and Bobbitt L. M. (2004). Toward a Unified Theory of Logistics, *International Journal of Physical Distribution & Logistics Management*, 34(8), 606-27.
- Morash E. A., Droge C. L. M., and Vickery S. K. (1996). Strategic Logistics Capabilities for Competitive Advantage and Firm Success, *Journal of Business Logistics*, 17(1), 1-22.
- Morgan R. M. and Hunt S. (1999). Relationship-Based Competitive Advantage: The Role of Relationship Marketing in Marketing Strategy, *Journal of Business Research*, 46(3), 281-290.
- Murray K. B. and Montanari J. R. (1986). Strategic Management of The Socially Responsible Firm: Integrating Management and Marketing Theory, *Academy of Management Review*, 11(4), 815-827.
- Olavarrieta S. and Ellinger A. E. (1997). Resource-Based Theory and Strategic Logistics Research, *International Journal of Physical Distribution & Logistics Management*, 27(9/10), 559-587.
- Ozigbo N. C. (2012). The Implications of Human Resources Management and Organizational Culture Adoption on Knowledge Management Practices in Nigerian Oil and Gas Industry, *Communications of the IIMA*, 12(1), 91-104.
- Özdemir A. İ. and Aslan E. (2011). Supply Chain Integration, Competition Capability and Business Performance: A Study on Turkish SMEs, *Asian Journal of Business Management* 3(4), 325-332.
- Peppard J. (1993). *IT Strategy for Business*, Pitman Publishing, New York. Piriyaikul M. and Kerdpitak C. (2011). Mediation Effects of Logistics Performance on Collaboration and Firm Performance of Palm Oil Companies: PLS Path Modeling, *Journal of Management and Sustainability*, 1(1), 90-98.
- Poist R. F. (1989). Evolution of Conceptual Approaches to The Design of Logistics Systems: A Sequel, *Transportation Journal*, 28(3), 35-39.
- Ralston P. M., Grawe S. J., and Daugherty P. J. (2013). Logistics Salience Impact on Logistics Capabilities and Performance, *The International Journal of Logistics Management*, 24(2), 136-152.

- Reiner G. (2004). Customer-Oriented Improvement and Evaluation of Supply Chain Processes Supported by Simulation Models, *International Journal of Production Economics*, 96(3), 381-395.
- Richey R. G., Daugherty P. J., and Roath A. S. (2007). Firm Technological Readiness and Complementarity: Capabilities Impacting Logistics Service Competency and Performance, *Journal of Business Logistics*, 28(1), 195-228.
- Ringle C. M., Wende S., and Will A. (2005). Smart PLS, Hamburg, Germany, <http://www.smartpls.de>, Erişim Tarihi: 25 November 2014.
- Rivard S., Raymond L., and Verreault D. (2006). Resource-Based View and Competitive Strategy: An Integrated Model of The Contribution of Information Technology to Firm Performance, *Journal of Strategic Information Systems*, 15, 29-50.
- Rosenzweig E. D., Roth A. V., and Dean Jr J. W. (2003). The Influence of an Integration Strategy on Competitive Capabilities and Firm Performance: An Exploratory Study of Consumer Products Manufacturers, *Journal of Operations Management*, 21(4), 437-456.
- Sanders N. R. and Premus R. (2002). IT Applications In Supply Chain Organizations: A Link Between Competitive Priorities and Organizational Benefits, *Journal of Business Logistics*, 23(1), 65-83.
- Sanders N. R. and Premus R. (2005). Modeling The Relationship Between Firm IT Capability, Collaboration and Performance, *Journal of Business Logistics*, 26(1), 1-23.
- Sauvage T. (2003). The Relationship between Technology and Logistics Third-Party Providers”, *International Journal of Physical Distribution and Logistical Management*, 33(3), 236-253.
- Sezhiyan D. M. and Nambirajan T. (2011). The Impact of Supplier-Selection, Supply Effort Management, Logistics Capabilities and Supply Chain, *The Journal Contemporary Management Research*, 5(1), 30-46.
- Shang K. and Marlow P. B. (2005). Logistics Capability and Performance in Taiwan’s Major Manufacturing Firms, *Transportation Research Part E*, 41, 217-234.
- Sinkovics R. R. and Roath A. (2004). Strategic Orientation, Capabilities and Performance In Manufacturer – 3 PL Relationship, *Journal of Business Logistics*, 25(2), 43-64.
- Stock J. R. and Lambert D. M. (2001). *Strategic Logistics Management*, 4th Edition, McGraw Hill/Irwin, Boston.
- Tabachnick B. G. and Fidell L. S. (2013). *Using Multivariate Statistics*, Pearson Education, Inc. New Jersey.
- Talaja A. (2013). Innovative Capabilities, Firm Performance and Foreign Ownership: Empirical Analysis of Large and Medium-Sized Companies Form All Industries, *BEH-Business and Economic Horizons*, 9(3), 69-78.
- Tan M. I. bin I. and Ibrahim I. S. Bt. (2010). Supply Chain Management and E-Commerce Technology Adoption Among Logistics Service Providers in Malaysia, *World Academy of Science, Engineering and Technology*, 41, 451-456.
- Tippins M. J. and Sohi, R. S. (2003). IT Competency and Firm Performance: Is Organizational Learning A Missing Link?, *Strategic Management Journal*, 24, 745-761.
- Töyli J., Hakinen L., Ojala L., and Naula T. (2008). Logistics and Financial Performance an Analysis of 424 Finnish Small and Medium-Sized Enterprises, *International Journal of Physical Distribution & Logistics Management*, 38(1), 57-80.
- Tracey M., Lim J., and Vonderembse M. A. (2005). The Impacts of Supply Chain Management Capabilities on Firm performance, *Supply Chain Management: An International Journal*, 10(3), 179-185.

- Tsui A. S., Zhang Z. X., Wang H., Xin K. R., and Wu J. B. (2006). Unpacking The Relationship Between CEO Leadership Behavior and Organizational Culture, *The Leadership Quarterly*, 17, 113-137.
- Williams L. R., Nibbs A., Irby D., and Finley T. (1997). Logistics Integration: The Effect of Information Technology, Team Composition and Corporate Competitive Positioning, *Journal of Business Logistics*, 18(2), 31-41.
- Yang C. -S., Marlow P. B., and Lu C. -S., (2009). Assessing Resources, Logistics Service Capabilities, Innovation Capabilities and The Performance of Container Shipping Services in Taiwan, *International Journal of Production Economics*, 122, 4-20.
- Zhao M., Droge C., Theodore P., and Stank T. P. (2001). The Effects of Logistics Capabilities on Firm Performance: Customer-Focused Versus Information-Focus Capabilities”, *Journal of Business Logistics*, 22(2), 91-107.
- Zhao F. (2005). Exploring The Synergy Between Entrepreneurship and Innovation, *International Journal of Behaviour and Research*, 11(1), 25-41.
- Zhao Q., Yeung J. H. Y., Zhang M., and Bei X. (2009). The Effect Of It, Geographical Coverage, Services and Managerial Competence on 3PL Service Providers Performance in China, *The 9th International Conference on Electronic Business*, Macau, November 30 - December 4, 459-465.