

AN ANALYSIS OF INFORMATION AND COMMUNICATION SYSTEMS
SELECTION FOR FREIGHT FORWARDERS

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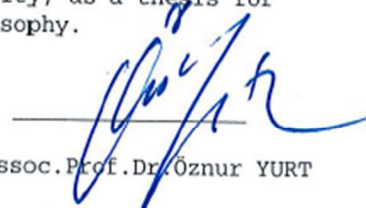
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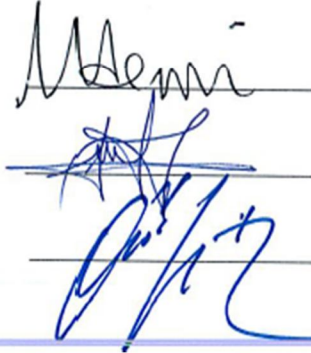
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ABSTRACT

AN ANALYSIS OF INFORMATION AND COMMUNICATION SYSTEMS SELECTION FOR FREIGHT FORWARDERS

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The aim of this study is to develop a managerial approach toward the information and communication systems selection process for freight forwarders in Turkey.

The main objective of freight forwarders is the management of the door-to-door transportation by determining the most appropriate and efficient transportation mode, based on their customers' priorities and needs. However it should be noted that, rather than the freight forwarders themselves, it may be their suppliers who are the direct service providers to the customers. Under these circumstances, the role of freight forwarders involves not only consolidating or organizing transportation, but also using efficient information and communication systems to support their services and decision making process. Information and communication systems are therefore crucial to the long-term survival of freight forwarders in this competitive world. In this study, questionnaires are used to collect opinions from the logistics sector in order to gain a greater understanding of companies' attitudes to information and communication system investment, and the ways in which they calculate the return on such investment. Analyses of the questionnaires are used to develop several

propositions for the selection process for information and communication systems in the freight forwarding industry, and a focus group method is used to verify those propositions.

In the literature there are many studies on information and communication systems. These studies highlight factors leading to successful investment, and also point out the causes of failures. The purpose of this study is, to contribute to the existing literature, specifically in relation to the freight forwarding sector, and to develop an approach to decision making processes regarding information and communication investment in the sector.

Keywords: Freight forwarders, 3PLs, outsourcing, information and communication systems

ÖZET

TÜRKİYE’DEKİ NAKLİYE MÜTEAHHİTLERİ İÇİN BİLGİ VE İLETİŞİM SİSTEMLERİ SEÇİMİ ÜZERİNE BİR ANALİZ

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Bu çalışmanın amacı, Türkiye’deki nakliye müteahhitlerinin, bilgi ve iletişim sistemleri seçim sürecini inceleyerek, bu sistemlerin kullanımı hakkında yönetsel bir yaklaşım geliştirmektir.

Nakliye müteahhitlerinin temel görevi, müşterilerinin ihtiyaç ve taleplerini de göz önünde bulundurarak, en uygun ve en etkin taşıma şeklini belirleyerek kapıdan kapıya taşımaları organize etmek ve böylece müşterinin ihtiyacına çözüm olabilmektir. Buradaki önemli nokta, nakliye müteahhitlerinin tedarikçisi durumundaki hizmet sağlayıcılarının da aynı müşterilere hizmet verebilecek olmasıdır. Bu durumda nakliye müteahhitlerinin tek farkı yükleri toplamak ve organize etmek değil, aynı zamanda etkin bilgi ve iletişim sistemlerini kullanarak müşterilerinin hizmetlerini desteklemek ve karar süreçlerini bu sistemleri kullanarak geliştirmektir.

Bilgi ve iletişim sistemleri, nakliye müteahhitlerinin gelecekte ayakta kalmalarını sağlayacak önemli etkenlerden biridir. Bu çalışmada öncelikle, lojistik sektöründeki yetkililer ile firmaların bilgi ve iletişim sistemleri ile ilgili yorumlarını almak ve yaptıkları yatırımlara bakış açılarını anlamak için soru formları hazırlanmıştır. Bu soru formlarından elde edilen veriler analiz edilerek, nakliye müteahhitlerinin bilgi ve iletişim sistemleri seçimi üzerine öneriler geliştirilmiştir. Bu öneriler daha sonra odak grup yöntemi kullanılarak doğrulanmaya çalışılmıştır.

Literatürde bilgi ve iletişim sistemleri üzerine birçok çalışma mevcuttur. Bu çalışmalar; yatırımın başarısını destekleyici faktörleri, başarısızlık nedenleri ve başarılı bir yatırım için gerekli faktörler gibi konuları temel almıştır. Mevcut literatüre katkı olarak bu çalışmanın amacı; nakliye müteahhitleri açısından bilgi iletişim ve sistemlerine yatırım karar sürecine yönelik yönetsel bir yaklaşım geliştirmektir.

Anahtar kelimeler: Nakliye müteahhitleri, üçüncü parti lojistik hizmet sağlayıcıları, dış kaynak kullanımı, bilgi ve iletişim sistemleri

To my love “Enis”

AEK

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CHAPTER 1

INTRODUCTION

Information and communication technology industry is a huge industry as itself, and also has become an important source for all sectors. It is not only a branch of engineering which deals with computers or telecommunications; it also covers lots of areas including hardware manufacture like mobile devices, to software and networking, and the internet. Information technology is the new technology's "updated" name, as authors of Harvard Business Review, Leavitt and Whisler (1958) mentioned the term of "information technology" first time in their article published in 1958.

From the first day that information and communication technology concept has been used, until today information and communication technology is reshaping the organizations' and industries' structures (Evangelista and Sweeny, 2006). By reshaping them, also those systems provide competitive advantage for companies (Remenyi et al. 1993; Segars and Grover, 1994; Piccoli and Ives, 2005) by improving their organizational progress. Improved organizational process increases the company's efficiency and the increased efficiency increases the customers' satisfaction (Tait, 1998). Within this point of view, it is sure that logistics industry, whose main aim is the customers' satisfaction, is one of the important industries which are directly related to information and communication technology industry's improvement. But information and communication systems alone are not enough to achieve target customers' satisfaction levels or success. As Powell and Dent-Micallef (1997) studied, the success is achieved with the combination of information and communication systems itself and human and business resources. Even the

companies use information and communication systems, due to lack of human or/and business resources most of the system selection and implementation projects fail, budgets overruns, or timescale are not matched. Also, to understand and to coordinate the relationship between information and communication systems' resources with company strategies and information and communication systems' investment evaluation are important to provide continuous improvement and also to take action in order to avoid organizational failure. However, organizations also fail to evaluate their information and communication systems' investments. As information and communication has become an important element for logistics industry and provides high level of supply chain integration (Lewis and Talalayevsk, 1997), information and communication investment and evaluation have become very hot topic for every business sector; and logistics industry is one of the largest information and communication technology investors (Jeffers et al., 2008) that's why we decide to investigate the information and communication systems selection process of freight forwarders in Turkey, due to their logistics functions.

As a chicken and egg situation, it is hard to say if the globalization supports the information and communication technology, or vice versa. However both concepts are becoming more and more important day by day in our social life and in commercial community. Today, nothing is unreachable, nothing is unobtainable as far as information and communication systems are concerned. We have same television that our friend in United States of America has, or we use the same computer or same iPhone that our uncle in China has. We might summarize as today the product is not much important as it used to be. Today, there is a common awareness that the competitive advantage comes from the delivery process of the product not the product itself (Sheffi, 1990; Muller, 1991).

As underlined, instead of product itself, the delivery process is getting more important; customer satisfaction and customer service is understood permanent than cost saving; meaning the “delivery process of final good to final consumer” which explains supply chain management basically, logistics functions have become the key activities. It is well accepted today that effective logistics management will deliver better customer service (Razzaque and Sheng, 1998; Fawcett et al, 2008). All practices aim better customer service within supply chain, force all parties in the chain to outsource some parts of their logistics activities (McKinnon, 1999). However because logistics activities need a large commitment of capital and a good know-how, most of the companies choose to outsource their logistics activities (Razzaque and Sheng, 1998).

Third parties are a service providers for shippers which do not prefer to transport their own cargoes from point A to point B for several reasons (Berglund et.al, 1999; Boyson et.al, 1999; van Laarhoven et.al, 2000; Wilding and Juriado, 2004; Ashenbaum et.al, 2005). For every shipper, this reason can be different, such as lack of experience, lack of capital, or the need for extra services which might be hired from service provider company.

Companies outsource their logistics activities; the companies to services providers, such as carriers, freight forwarders or third party logistic service providers. It should be noted that:

- A common carrier is a transporter who undertakes for hire or reward the transport the goods of any who may choose to employ him, from place to place over a definite route and according to a regular schedule.

- Common carriers are generally of two descriptions; carriers by land and carrier by water (shipping lines) ¹
- Shipping line (carrier by water) is a service provider company which have own ship and which provide shipping services –cargo or passenger- for their customers. Mostly cargo shipping lines give liner services by containers, for the rotation that they decide. They can give port-to-port or door-to-door services within their rotation. ²
- As most common logistics intermediaries, a freight forwarder is “*an international specialist who can provide a variety of functions to facilitate the movements of cross-border shipments*” (Murphy and Daley 1992, p.36). For freight forwarders, it’s important to make decisions that guarantee to send/receive the cargo on time, with minimum risk at minimum cost. They need to choose not only the right shipping line for sea transportation but the right transportation mode or the combination of transportation modes with the right service providers.
- Traditional freight forwarders did do transportation, warehousing and distribution. But now, today’s modern freight forwarders do transportation, warehousing, distribution, custom clearance, insurance, etc., they become third party logistics companies (3PL) for their customers, a third part logistics providers who typically specialize in integrated operations . 3PLs are defined as a firm provides services to its customers for their logistics services for at least three, or all of their supply chain functions. This was the main difference with traditional freight forwarders.

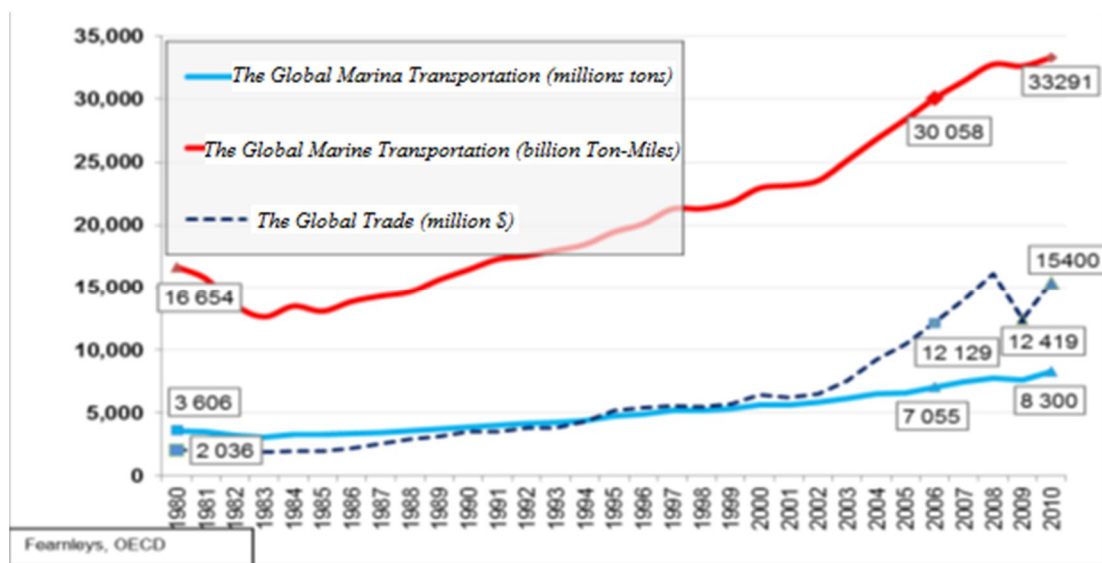
¹ <http://www.lectlaw.com/def/c069.htm>

² <http://www.lectlaw.com/def/c069.htm>

Considering all above issues; increase the need of experience about custom procedures and the knowledge about the destination countries. This increase leads companies to use third parties' services, such as freight forwarders or 3PLs (Razzaque and Sheng, 1998):

- The shorter product life cycles, increasing number of different product types, more demanding customers raised the need of logistics functions (Gopal and Cahill, 1992)
- The growing importance of the globalization
- The use of foreign resource –outsourcing-, as a result of globalization

Graphic1. Global Marine Transport (Billion Ton-Miles)



Source: Turkish Chamber of Shipping, “Maritime Sector Report 2010”, Istanbul 2011

World trade volume is increasing year by year. As shown on Graphic1, from Maritime Sector Report of 2010 of Maritime Chamber of Commerce, industrial production has increased by 15%, and global trade has increased by 40% at the first half of 2010 as compared to 1980. It is been expected that these rates will be higher in 2011.

These increasing volumes of transportation also increase the competition between traders, manufacturers, suppliers and of course between logistics services providers. The increasing competition leads the world changes and forces the companies to evolve. This evolution forces also to change the profile of the logistics players.

In 90s and 2000s, the carriers were concentrated on their core business; transportation. Accordingly, they left the non-value added services to third parties (such as freight forwarders or third party service providers). But after global effects in the world – such as crises, economic growth, increasing competition- their strategy has changed. Actually even the statistics shows the global trade volume increase; the profitability of companies in this global trade does not increase as much as the trade volume does (Maritime Sector Report 2010, published in 2011). Thereby shipping lines have been trying to become logistics providers such as freight forwarders, not only a carrier. They have tried to give full service –including custom clearance, or local inland haulage operations-, not only transportation. Now they are establishing sister companies who provide inland services, custom clearance services or other value added services. And they use their financial power to make new investments on information technology (IT) and on people –human resources-.

Shipping lines have become more flexible and more agile. They have tried to differentiate their service with their IT strategy to increase their customer satisfaction and their profitability. The rapid market change forces the logistics system to become more efficient and flexible and force especially freight forwarders to improve their customer service level, in order to survive (Stough, 2001). This change forces freight forwarders to evaluate themselves.

Hardaker, et al. (1994) in their article, “The Use of IT in Freight Forwarding in UK”, underline the importance of information and communication technology as follows;

“... the investment and adoption of IT is becoming the rule and is essential if freight forwarders are to survive in the future...”

As Van Hoek (2002) mentions, information and communication system has specific role for third parties which aims customized operations for customers. Information and communication systems provide competitive advantage by increasing the value by providing value added service through information technology (IT) applications (Crowley, 1998).

That is the starting point of this research, and with this study, we will be able to answer these questions;

- How do freight forwarders decide on which information and communication systems they select?
- What are the information and communication systems investments objectives of freight forwarders?
- How do they select their information and communication systems service providers?
- How do they evaluate their information and communication systems investments? How do they assess the effectiveness?
- Is there a common attitude for all freight forwarders?

The motivation of this study was my personal experiences during my professional life. I have experienced the process in which a freight forwarder has changed their information and communication system to well-known ERP (Enterprise Resource Planning) software.

1.1.Aim of the Study

An exploratory study is conducted to understand information and communication systems selection process of freight forwarders in Turkey. We focus on the Turkish freight forwarders.

Main aim of this study is to give answers to research questions determined in the preceding subsections.

According to UTIKAD (Association of International Freight Forwarding and Logistics Service Providers), there are 352 (according to 14.04.2012 statistics from UNTIKAD's web site) logistics companies – freight forwarders registered in UTIKAD. Among these companies, there are companies with large capital and volume, or smaller companies who offer a limited range of services. Among those companies there are local and/or internationally operated companies with assets or non-assets. Also there are some inactive companies, which are only a name in the list.

We chose only international freight forwarders (IFFs) which have their own branches at the foreign countries and which operate internationally. Since, we focused on information and communication systems investment process of freight forwarders, it was important to select the companies which have their own offices at abroad to measure and understand the volume and quality of information flow between their offices and their customer, which are 50 companies registered at UTIKAD.

The study consisted of two stages. Firstly, we gathered data from these selected freight forwarders. We asked them to fill a questionnaire. Based on the results, we provided an overview on the information and communication technology usage and its adaptation in the selected Turkish freight forwarders. This investigation assisted

us to develop several propositions to understand the outsourcing process and to question information and communication systems investment effectiveness in the same organizations. At the second stage, we tried to verify these propositions through a focus group and tried to contribute with a managerial approach.

We believe that the small companies in Turkey –as in the world- have two options (Evangelista and Sweeney, 2006);

- To survive by giving lower prices in the low-cost world of carriers (suppliers of large companies or commodity providers)
- To become value creating service provider by using technology, to follow the expensive and problematic path (advanced –integrated- logistics providers)

In light of those two opinions, the aim of the study might be summarized as below;

- To investigate the research questions by gathering data from informants
- To evaluate the attitude of freight forwarders towards information and communication systems investments and their benefit identifications
- To develop a managerial approach for freight forwarders sector

Before the methodology part, literature reviews on the critical concepts are given in Chapter 2.

CHAPTER 2

LITERATURE REVIEW

In this chapter, the concepts of logistics and supply chain, third parties, outsourcing, information and communication systems outsourcing and all related subjects are defined in details. Also the factors in selecting freight forwarders, carrier/agent selection criteria of freight forwarders, outsourcing, internet use of freight forwarders and their benefits, the use of information technologies and its importance and its effects on customer services, the factors to be discussed before information and communication systems investment evaluation, their investment evaluation process are explained.

2.1. Concepts of Logistics Management and Supply Chain Management (SCM)

Logistics is in our life starting the first organized form of trade, it is actually more than thousands of year old (Sambandam, 2001; Stock and Lambert, 2001). It has become an interesting study topic in 1900s.

Logistics was basically a military activity (Tseng et al. 2005), but the concept of logistics management was born and noticed within the costs and factors affecting farm products (Crowell, 1901) as a way to support the organization's business strategy, and as a way of providing time and place utility (Lambert et al. 1998; Stock and Lambert, 2001), again it is developed and redefined with World War II. In Gulf War, in 1991, the world has watched a war of two countries, which are approximately more 12.000 kilometers distance. Millions of equipment and thousands of people have been transported. This was a good example to understand

the importance of logistics; even wars might be won with powerful logistics (Christopher, 1992).

Logistics includes the flow of materials and services in both manufacturing and service sector. Within this expression, logistics might be understood the same as transport but in the literature it is well accepted that logistics covers transportation:

- Transportation is a physical movement of goods and people (Miller, 2003; Stefansson, 2006)
- Logistics covers all transportation activities in the supply chain (Boske and Cuttino, 2003)
- Transportation is a function of logistics which creates value or place utility (Stock and Lambert, 2001).

D'Este (1996) mentioned that logistics should compose of three elements: cost, time and risk (reliability). The aim of logistics is to deliver the goods/services at the right time, at the right place with the same quality, which has when it's produced, and at the right cost.

These features that mentioned will lead us to the definition of logistics management. Council of Supply Chain Management Professionals (CSCMP) (2005) – former Council of Logistics Management (1991) - created official definition of logistics management³ as following:

“Logistics Management is that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverses flow and storage of goods, services and related information between the point of

³ <http://cscmp.org/aboutcscmp/definitions.asp>

origin and the point of consumption in order to meet customers' requirements."

In order to better explain the concept of logistics, supply chain concept has to be defined. Supply chain management covers all activities of material/services and information from supplier to end-user. For supply chain management definition, Council of Supply Chain Management Professionals (2005) also created an official definition⁴ as following:

"Supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies."

Logistics might be a part of supply chain but is a broad function which consists of series of activities related to each other.

2.1.1. Main Activities of Logistics

Logistics is the physical side of the supply chain, so its activities have physical components. There are several classifications for logistics activities and decisions (Lewis and Talalayevsky, 1997; Stock and Lambert, 2001; Bowersox, 2008).

Bowersox (2008) defined logistics as the process of transporting and warehousing of the cargo to meet customers' need at the lowest possible cost. Considering this

⁴ <http://cscmp.org/aboutcscmp/definitions.asp>

definition a facility network consists the related logistics functions, is figured (Figure 1).

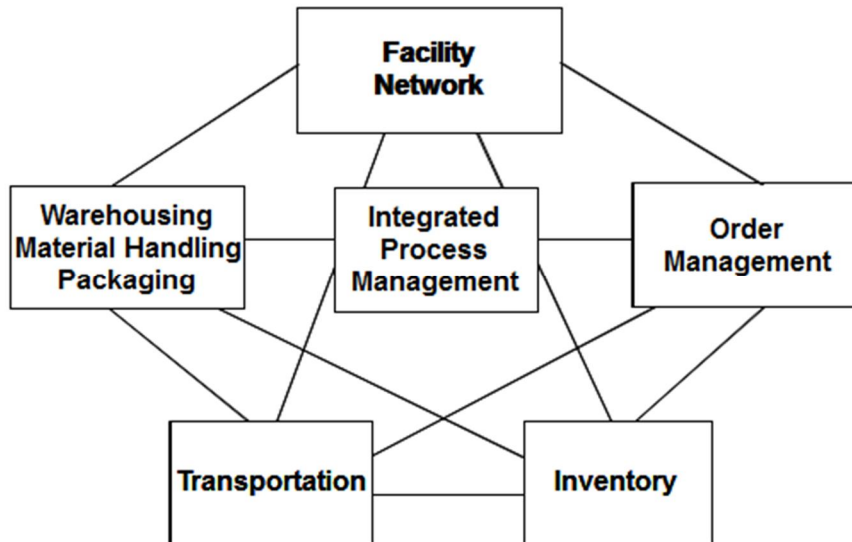


Figure1. Logistics Structure

Source: Bowersox, D.J., 2008

Stock and Lambert (2001) listed below logistics activities, to achieve logistics outputs, such as competitive advantage, time and place utility and efficient delivery to customer:

- Customer service
- Demand forecasting
- Inventory management
- Logistics communications
- Materials handling
- Order processing
- Packaging
- Parts and service support
- Plant and warehouse site selection

- Procurement
- Reverse logistics
- Traffic and transportation
- Warehousing and storage

LaLonde et al. (2007) made a survey to understand the most common activities of companies in logistics and results were: Transport (%93 of replies), warehousing (%86), inventory management (%75), procurement (%67), forecasting (%65) and customer service (%63).

The main point is not to determine all activities certainly or draw boundaries, but to understand what should be done for an efficient flow of goods, services or communications. To achieve efficient logistics flow, Witkowski (2011), during his course in Wroclaw University, listed below logistics decisions to make;

- Cooperate with marketing function (to achieve also customer service levels)
- Right facility location decisions
- Transportation selection (transportation mode selection, vehicle selection, schedule selection, carrier selection, etc.)
- Inventory control (inventory forecasting, planning by coordinating with the planning, economic order quantity (EOQ) calculation, etc.)
- Information flows and connection to proper order processing and delivery
- Materials handling, warehouse locations
- Packing and packaging decision (proper dimensions for container shipment of truck shipment, etc.)

To find the receipts of well managed efficient logistics flows, the past and the present of logistics should be well studied and understood.

2.1.2. Evolution of Logistics and Supply Chain Management

In the past, the scope of the logistics was not known sufficiently. The management practice was limited and it was not sufficient to coordinate the whole chain. Also, the total cost concept covered only some certain activities such as transportation or warehousing (Ballou, 2006). Today, supply chain has become integrated as accepted by CSCMP and in the practice, but cost pressure is increasing day by day and the need to access to information is increasing as well (Bowersox, 2008).

The evolution of logistics and supply chain management have been studied by many academicians (e.g. Stock and Lambert, 2001; Ross, 2002; Tseng et al. 2005; Ballou, 2006). Military logistics developments, transportation deregulations, competitive pressures, information technology, channel power and profit leverage are commonly accepted factors which effect the development of logistics (Stock and Lambert, 2001). Figure2 demonstrates the evolution of logistics and supply chain management concepts. We also briefly mention the major developments of related years.

Before 1950s : Until 1950s, logistics management concept was not been known and logistics functions were been managed by different departments with different responsibilities. There were mass production based facilities which were focused on only cost. Each department was trying to reduce the cost of its own operation, but sometimes they had conflicts with other departments. They had difficulties to act as one (Orhan, 2003). In this period, after-sales marketing concept has appeared, logistics concept has become important (Stock and Lambert, 2001). At the end of 1950s total cost analysis (Lewis et al. 1956) concept was discussed at first time and added a new perspective to logistics field.

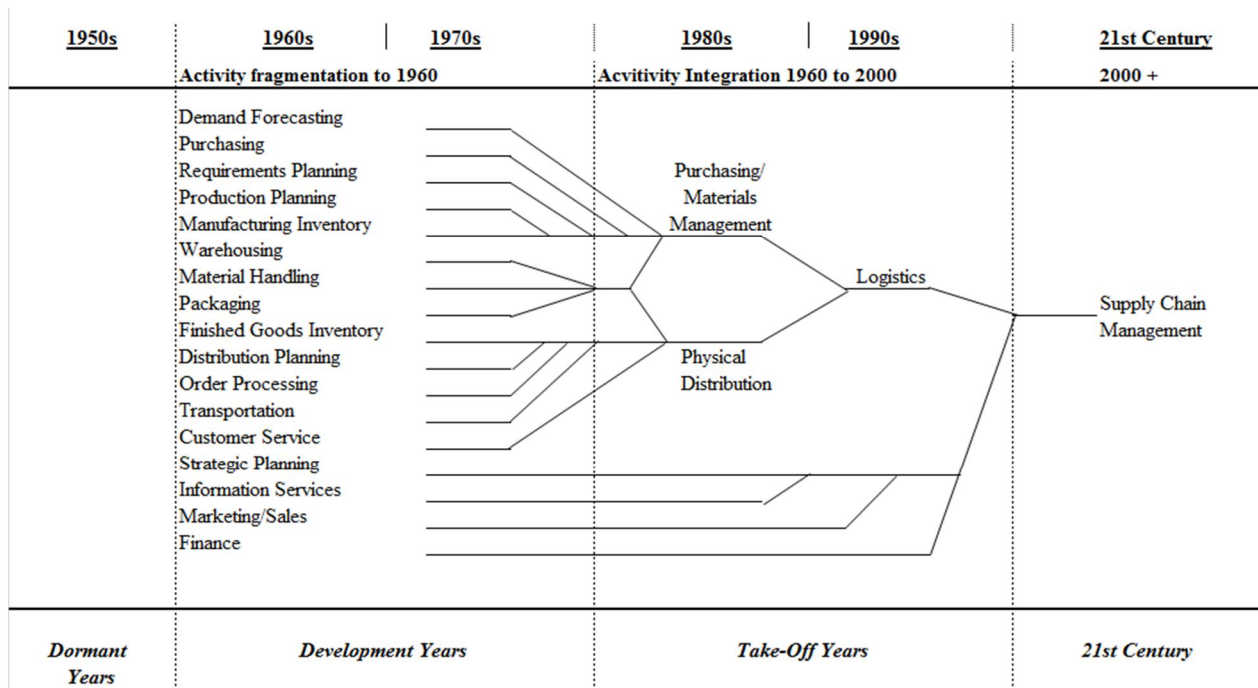


Figure2. Evolution of Logistics and Supply Chain Management

Source: Adapted from Tseng et al. 2005; Ballou, 2006

Between 1950s-1960s: Within this period, distribution channels were unplanned and disorganized. Producers were fulfilling the manufacturing processes, retailers were selling and somehow the goods were delivered to the stores. There was not a real connection or a control mechanism between distribution channels (Rushton et al., 2006). In 1950s, first time, in business papers, some concepts such as physical distribution, inventory control, supply management and distribution management were used as references (Coyle and Bardi, 1980).

Between 1960s-1970s: Companies were concentrated on new marketing strategies to create and secure customer loyalty (Handfield and Nichols, 2002). In 1960s, business logistics concept has been born. Because mass production has decreased, companies passed to lower production volumes with wider range. Within this period, there was not generally accepted and a standard definition of logistics (Ross, 2002). As an

important progress, The Council of Logistics Management (today's Council of Supply Chain Management Professionals (CSCMP)) has been established in 1963.

Between 1970s-1980s: This decade is important, because the concept of distribution was developed within this period. Some companies have defined distribution as a part of the functional management (Rushton et al., 2006).

Between 1980s-1990s: Logistics concept has begun to be used by a large audience. Logistics concept has been evolved and supply chain management has developed. Quality focus era was begun. The main reason of this evaluation is the rapid improvement on information technologies and communication technologies. With the expansion of business networks in the world and EDI (Electronic Data Interchange), the shift to supply chain management has begun (Karagöz, 2007).

Between 1990s-2000s: In the beginning of 1990s, the companies which tried to survive in the new hot competitive market environment, have changed their production attitude, and improved an integrated logistics management approach that included all companies in the chain (Ross, 1998).

2000 and after 2000 : Logistics concept has broadened day by day, and now it has become an important component of business strategies and it has become a must to create a competitive advantage in the market (Karagöz, 2007).

Understanding the past and observing the present, assists to understand what might be in the future. According to Bowersox (2008), in the future, “nano-genome supply chain technology” is waiting for us, like Captain Kirk say “Beam me up Scotty!” in Star Trek movies.

Before detailing and extending our work, in the further section we analyze the components of supply chain and logistics.

2.1.3. Main Concepts of Supply Chain

According to Johansson (2002), supply chain is mostly perceived as “*a system whose constituent parts include material suppliers, production facilities, distribution services and customer linked together via the feed-forward flow of materials and the feedback flow of information*”. Most commonly it is accepted that there three main flows in supply chain (Spekman et. al, 1998): Material flow, information flow and cash flow. Also service flow is an important, on which service supply chain concept is based (Ellram et al, 2004; Sengupta et al, 2006; Baltacioglu et al, 2007; Niranjana, 2007; Spring, 2008).

We considered, supply chain management can be divided into four flows:

- The **material** flow includes moving goods from supplier to consumer, as well as dealing with customer service needs.
- The **information** flow includes order information and delivery status.
- The **cash** flow includes the flow of funds
- The **service** flow which is an output that is transformed by using organizations resources –skills and knowledge- to deliver a customized solution (Iakovaki et al, 2009).

These flows are both ways from/to “upstream” (with a company’s suppliers) and to/from “downstream” (with a company’s client), which is illustrated in Figure3.

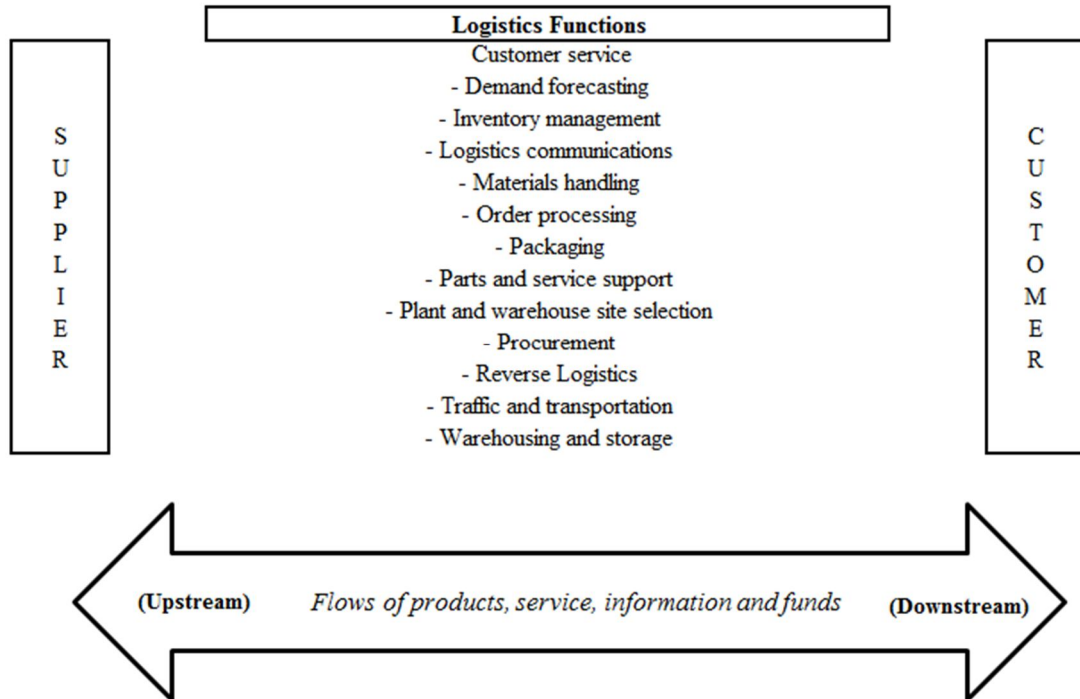


Figure3. An Illustration of a Supply Chain

Source: Adapted from Spekman et al. 1998; Iakovaki et al. 2009

Within this flows, there are players which should be integrated vertically or virtually for an effective supply chain.

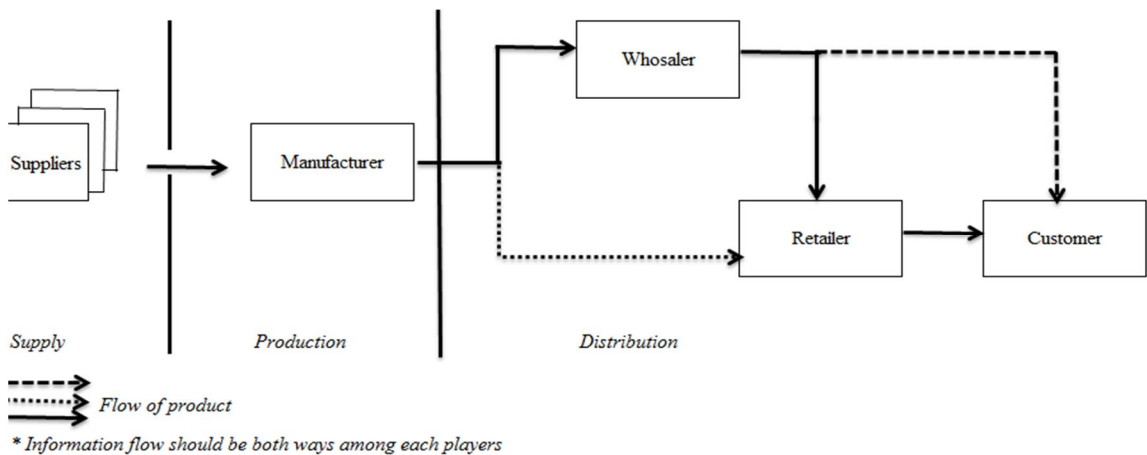


Figure4. A Supply Chain Model with Players

Source: Adapted from Perona et al. 2001; Stock and Lambert, 2001

- **Supplier** (vendor) is the player who provides raw material (good or service) to a company
- **Manufacturer** is the player who transforms raw material into finished goods for use or sale
- **Wholesaler** is the player who sells the goods to retailers or other professional business users
- **Retailer** is the player who sells the goods from a fixed location. Retailers buy goods in large quantities, and then sell smaller quantities to end-user
- **Customer (end-user)** is the player who uses a product, the consumer.

As we describe all activities covers the flow between players as logistics, we must also mention about the relationship between logistics service providers and players.

- **First party** : Manufacturer, wholesaler, retailer or shipper
- **Second party** : Direct customer (buyer) of the first party
- **Third party** : Logistics intermediaries, freight forwarder, service provider, carrier, bonded-warehouse manager, etc.

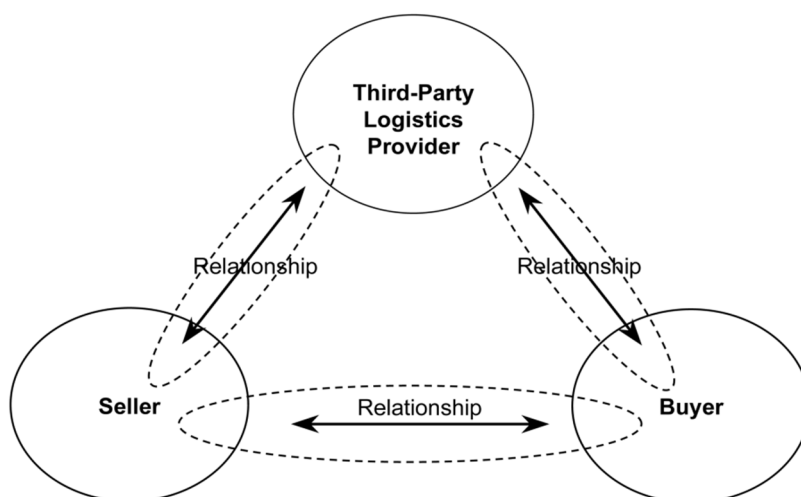


Figure5. Relationship between logistics service provider and SC's player

Source : Bask (2001)

- **Forth party** : The business which coordinates and integrates all logistics process of goods/information and finance (Van Hoek and Chong, 2001)

The roles of the members may change from chain to chain. A manufacturer may be also a raw material producer or on the other hand a wholesaler may also be a retailer in the supply chain. The coordination and collaboration between the members creates efficiency and value among the chain, especially for the customer (end-user) (Fugate et. al, 2006). By analyzing the relationship between chain members and the value created through the chain, literature finds itself a wide area to be searched.

2.1.4. Outsourcing

“Outsourcing” concept has been included in the literature in 1982 (Sahin and Berberoglu, 2011), it was defined as the supply of products or services, which were produced in-house before from external sources (Rajabzabeh et al, 2008). Outsourcing has started from procurement and purchasing, but then it shifted on business activities and functions (Galahitiyawe and Musa, 2011). Therefore, today outsourcing is based on shifting of an internal process or function to an external organization. By shifting the process or function, also the control is always transferred to an external body (Lee, 2001; Li and Choi, 2009).

Marshall et al. (2007) classified outsourcing literature into three main work areas:

- Transaction cost economies (TCE) which focus on short-term operational performance evaluation. The main purpose is to gain benefits from incurred costs (Byramjee et al, 2010) into business-to-business transactions. However, there are some critiques, such as the problems to consider institutional capabilities (Holcomb and Hitt, 2007), to consider the aspects of organizational behavior and to analyze the outsourcing strategy broader

(Galahitiyawe and Musa, 2011). This approach is not recommended under uncertain conditions (Kobate and Mol, 2009).

- Resource based view (RBV) has not got the disadvantages of TCE approach and recognize institutional capabilities and features. Wu and Park (2009) mentioned RBV focused on the competencies of internal resources to create competitive advantage. Some academicians accept TCE and RBV as complementary (Marshall et al, 2007), however some suggested them as inter-connected (Leiblein, 2003). Despite all positive sides, BRV has a negative part that it does not consider the strategic outsourcing point of view.
- Knowledge based view (KBV) is a work area covers especially the outsourcing of information system. KBV accepts the main competency of a firm as knowledge –or experience- which creates value for the organization (Kroes and Ghosh, 2009). Information sharing, joint decision making and mutual learning are key features of KBV. This approach focuses on improving competitiveness.

At the end, each theories and approaches were used to consider different sides of the outsourcing process. However, despite all complexity of the approaches, in simply way as mentioned above, outsourcing is transferring of an internal function or process to an external party. Within this point of view, there are two main actors: buyer and seller (Frenceschini et al, 2003). Buyer (customer) outsources his/her requirements and during outsourcing process, mostly four stages have been proceeding (Figure6).

This recommended process which is described in Figure6 might be customized considering the selected outsourced function.

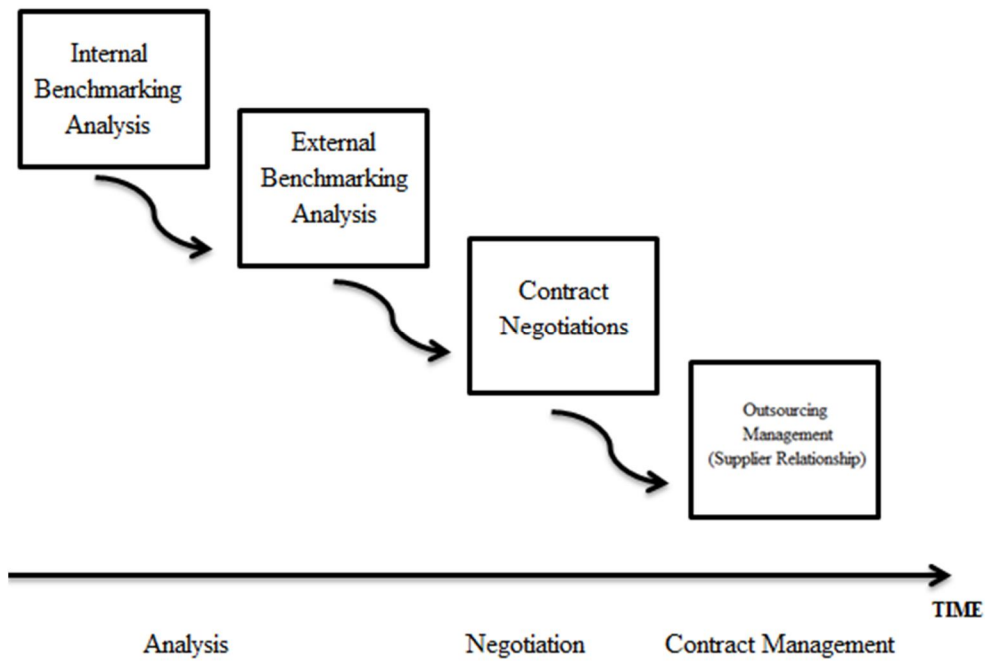


Figure6. Outsourcing Process

Source: Franceschini et al. 2003

Within this study, because our study focused on logistics and freight forwarder industry, first we studied the outsourcing of logistics functions and its drivers.

2.1.4.1. Outsourcing of Logistics Functions

Outsourcing function also is defined as “*a greater willingness to buy more goods and services from outside vendors when they can be obtained cheaper and better that way*” in “Marketing Management” by Kotler (2000, p. 680). Main aim of outsourcing is to maximize value and to minimize cost (Watson and Pitt, 1989; Razzaque and Sheng, 1998).

However outsourcing of basic logistics functions like transportation or warehousing; has different story. Actually most of the time it is hard to classify these activities as outsourcing because services within certain transport modes, like rail or sea, were

never performed in-house and only very few companies may own ships or airplanes to transport the goods they produced (Giloith and Van Dort, 2011).

It is not important to classify as being able or unable to perform in-house, the benefits and drivers of outsourcing decision in logistics area are the same. Some authors analyzed the sets of main benefits and drivers as an ex-ante (before outsourcing) perspective some as an ex-post (after outsourcing) perspective we summarized all as below;

- Cost reduction (e.g. van Laarhoven et al, 1994; 2000; van Damme and van Amstel, 1996; Sink and Langley, 1997; Razzaque and Sheng, 1998; Boyson et al., 1999; Weber and Engelbrecht, 2002; Lynch, 2004; Langley et al., 2005)
- Improvement of service level / Service quality (e.g. van Laarhoven et al, 1994; 2000; McGinnis et al, 1995; van Damme and van Amstel, 1996; Sink and Langley, 1997; Weber and Engelbrecht, 2002; Lynch, 2004)
- Focus on core business/core competencies (e.g. van Laarhoven et al, 1994; McGinnis et al, 1995; van Damme and van Amstel, 1996; Sink and Langley, 1997; Razzaque and Sheng, 1998; Boyson et al., 1999; Lynch, 2004)
- Changes in cost structure (elimination of fix costs) (e.g. McGinnis et al, 1995; van Damme and van Amstel, 1996; Sink and Langley, 1997; Razzaque and Sheng, 1998; Weber and Engelbrecht, 2002; Langley et al., 2005)
- Gaining flexibility (e.g. van Laarhoven et al, 1994; van Damme and van Amstel, 1996; Sink and Langley, 1997; Razzaque and Sheng, 1998; Weber and Engelbrecht, 2002; Lynch, 2004)
- Know-how usage (e.g. Damme and van Amstel, 1996; Sink and Langley, 1997; Boyson et al., 1999; Weber and Engelbrecht, 2002)

Although there are many researches that study the benefits and drivers of outsourcing, there are also some researches evaluating the risks related to outsourcing (Damme and Amstel, 1996; Sink and Langley, 1997; Razzaque and Sheng, 1998; van Laarhoven et al, 2000).

Sink and Langley (1997), Razzaque and Sheng (1998) emphasized loss of control as the main concern in logistics outsourcing. But van Laarhoven et al (2000), with their empirical work suggested that there are other more important problem after the organization outsources their logistics functions, actually the companies do not leave the control totally to the outsourced company after outsourcing (Razzaque and Sheng, 1998). At the opposite, the companies are afraid of being dependent on a same service provider (Damme and Amstel, 1996; van Laarhoven et al 2000). For some articles (Damme and Amstel, 1996) their main concern is the risk brought about by sharing their confidential data which prove their lack of confidence to their service providers (Razzaque and Sheng, 1998).

The good relationship between supply chain members lead to obtain good benefits, but this is a bilateral relationship. Both sides should be ethic and open, both sides should trust each other. Otherwise there would be business failure or increasing costs. Sometimes the failure even would not be noticed on time. (Aktolug, 2008)

By considering these pros and cons the firms should be more careful while they choose their logistics functions' providers.

2.1.4.2. Third Parties – Freight Forwarders vs. 3 PLs-

Lambert and Stock (2001), classified third parties as “*other transport options*” (p.332) and listed them as below;

- Transportation brokers
- Freight forwarders
- Shipper's associations
- Intermodal marketing companies
- Third-party logistics service providers.

Third parties serve in three areas;

- In inbound logistics (from supplier to company)
- Within internal process of the company
- In outbound logistics (from company to suppliers)

Third parties are an outsourcing method for the companies who do not want to make their own cargoes' transportation from point A to point B for several reasons (Berglund et. al, 1999; Boyson et. al, 1999; van Laarhoven et. al, 2000; Wilding and Juriado, 2004; Ashenbaum et. al, 2005). For every company this reason can be different. Considering this outsourcing method, with the above definition, outsourcing might be understood in a narrow scope and limited with one type of service – transportation- (Lieb et al, 1993). Actually the outsourcing covers all processes and functions during the “delivery process” of the cargo between requested points (Bradley, 1994).

Although there are various definitions of freight forwarders and third party logistics companies in the literature, boundaries are not still specified exactly (Lieb et al, 1993; Daugherty et al, 1996; Maloni and Carter, 2006).

Murphy and Daley (1997), suggested a definition for international freight forwarders (IFFs), which is also accepted for this study, mentioned as “*An international trade specialist who can provide a variety of functions to facilitate the movement of cross-*

border shipments, the functions provided by international freight forwarder (IFF) company include; delivery and distribution services; handling payment arrangements; assistance in paperwork required for deliveries; and organizing local and international shipping; information services; insurance; custom services; warehousing and consolidation services” (p.3).

According to the Council of Supply Chain Management Professionals (2012), 3PL is defined as *“a firm (that) provides multiple logistics services for use by customers. Preferably, these services are integrated, or “bundled” together, by provider. Among the services.. (3PLs) provide are transportation, warehousing, cross-docking, inventory management, packaging and freight forwarding.”*

Although it is difficult to give practical examples for 4PLs, the concept has to be defined as well in order to clarify the 3PL concept. 4PL is defined as; *“a supply chain integrator that assembles and manages the resources, capabilities, and technology of its own organization with those of complementary service providers to deliver a comprehensive supply chain solution”* by Anderson Consulting who got the trademark of 4PL in 1996, but then was abandoned in 1998. Due to trade mark, some researches prefer to use the term Lead Logistics Providers instead (Giloth and Van Dort, 2011).

Many third parties have been classified due to their functions like Muller (1993) did. First, he proposed two basic types: operation-based and information-based third party logistics provider. Then he modified his classification as follows; (Razzaque and Sheng, 1998)

- Asset-based vendor: companies which offer their service by using their own assets, like a truck fleet and/or own warehouses.

- Management-based vendor : companies which do not have their own assets, but give logistics management services or consulting.
- Integrated vendor: companies which own their own assets but at the same time use other vendors'/logistics service providers' assets. So they integrate both opportunities.
- Administration-based vendor: companies which give administrative management services such as freight financing.

Africk and Calkins (1994) proposed a quite similar classification for third parties: Asset-based, non-asset-based and hybrid service providers. The asset-based providers dedicate their capacity and assets to serve their multiple customers. They need to balance their capacity and assets properly because their customers buy their certain capacity; they pay for the guaranteed capacity usage. If the vendors could not balance they might have difficulties to match the demand for their sold assets. The non-asset-based providers mostly provide human resources and their experience. The hybrid is between asset-based and non-asset-based vendors (Razzaque and Sheng, 1998).

For freight forwarders there are classification due to their expertise like air freight forwarders, rail freight forwarders, sea freight forwarders or road freight forwarders.

Also there are classifications due to their functions, such as;

- Asset-based freight forwarders
- Non-asset based freight forwarders
 - o Information Technology (IT) based freight forwarders
 - o Non-Information Technology (IT) based freight forwarders

The definitions and classifications of freight forwarders and 3PLs might be perceived almost similar, but there are differences between them (Deveci, 2012).

Basically, freight forwarders move cargo from one point to another and 3PLs move, store and process inventory. In doing so, 3PLs may provide traditional forwarder services. But actually it is believed that because freight forwarders know the market very well, offer cheaper transportation charges than 3PLs. The freight forwarder is a specialist that focuses on the cost and logistics of transportation. The 3PL is usually a generalist who expects to be compensated for providing an overall service. This compensation may or may not be cost effective (Dechter, 2008).

Within the context of third parties, and the expectations of customers from third parties, this study focuses on international freight forwarders.

Coyle et al. (1996) mentioned that for a company which has limited experience about international shipping relations, freight forwarders are the answers. Also Lambert and Stock (1993) suggest that every international company uses freight forwarders' services in some way, and should use it anyway.

It is sure that the freight forwarders has existed in the business life much more years ago. Their history expresses slightly that freight forwarding concept has evolved too fast including its definition and scope. That's why one parts of our discussion is to understand freight forwarders' current profile and to understand their future profile with the effects of technology. Before analyzing today's profile, we studied freight forwarders' current accepted definition by their own organization (FIATA) and their current situation.

2.2. Freight Forwarders

FIATA currently defines the freight forwarding and freight forwarders in their website as follows⁵:

“Freight forwarding is all about the smooth flow of international trade. The freight forwarder is the party who ensures that internationally traded goods move from point of origin to point of destination to arrive;

- *At the right place,*
- *At the right time,*
- *In good order and condition,*
- *At the most economic cost.*

To accomplish this, expertise is required in a number of areas:

- *Logistics*
- *Statutory compliance*
- *Risk management*
- *Finance and payment*
- *Cross functional integration”*

FIATA’s main objectives are;

- *“To unite freight forwarding industry worldwide,*
- *To represent, promote and protect the interests of the industry by participating as advisors or experts in meetings of international bodies dealing with transportation*

⁵ <http://www.fiata.com/index.php?id=99#c374>

- *To familiarize trade and industry and the public at large with the services rendered by freight forwarders by developing and promoting uniform forwarding documents, standard trading conditions, etc.*
- *To assist with vocational training for freight forwarders, liability insurance problems, tools for electronic commerce including electronic data interchange (EDI) and barcode.”⁶*

To achieve these objectives and to define the related parties and their responsibilities, FIATA has announced “FIATA Model Rules for Freight Forwarding Services”.

The Model Rules consist of 4 parts which explain the general definitions and forwarders’ liability briefly;

1. General Provisions: This part covers the general definitions freight forwarding, freight forwarders, carrier, customer, goods, valuables, such as. Also in the mentioned part it is underlined that no insurance will be covered by freight forwarder, unless customer instructs it. Freight forwarder may cancel the contract or transportation because of the hindrance or risk of any kind (including the conditions of the goods) not caused by any fault or neglect of him, but he would be full paid and will be considered successful. Freight forwarder is fully charged to decide route, procedure, handling, stowage, storage or transportation of the goods, if he is not well instructed in the contract with customer.
2. The Freight Forwarder’s Liability : Freight forwarders acts both ways; as principal and non- principal.

⁶ <http://www.fiata.com/index.php?id=100>

When a freight forwarder acts non- principal, a freight forwarder has no responsible for acts and omissions of third parties, but he has to protect all rights of his customer against them, and has to select, instruct and monitor the third parties properly.

When a freight forwarder acts as principal, when he performs the carriage himself by his own and when a freight forwarder issues his own transport document. Also for the other activities except transportation, like storage, handling, packing or distribution he will be responsible with the respect of the same conditions. Freight forwarder will be responsible from third parties that he engaged to perform the contract with his customer. There are also some exclusions that freight forwarder is not liable;

- Undeclared valuables or undeclared dangerous goods within the contract
- Loss of delay unless it is agreed in the writing contract
- Indirect or consequential loss, such as loss of profit or loss of market

Freight forwarder will not be liable for any damage or loss of the cargo if the amount does not exceed 2 SDR (Special drawing rights⁷). Also the customer might treat the goods as lost, if the cargo has not been delivered within ninety days after the date that the cargo should have been delivered.

The loss of or the damage of cargo, if it's apparent should be noticed while the cargo is being delivered to the consignee and the loss or the damage should be written in the delivery proof document. There are some time limits for every step for each part which is also mentioned in this section.

⁷ Special drawing rights (SDRs) are supplementary foreign exchange reserve assets defined and maintained by the International Monetary Fund (IMF). Not a currency, SDRs instead represent a claim to currency held by IMF member countries for which they may be exchanged.

3. The Customer's Obligations and Liability: In the unexpected circumstances, when freight forwarder acts in the best interest of his customer, customer should pay the extras which would occur. The customer should pay all costs – including the contract total- without asking any reduction or without claiming. If not freight forwarder has the right to arrest customer's goods stored. Except the situations that freight forwarder is not liable –listed in previous article-, for the rest freight forwarder would be against customer.
4. Disputes and Mandatory Law: In this part the legal details are discussed, such as which country's law will be placed during jurisdiction.

With those definitions and regulations freight forwarders' scope and responsibilities are defined by FIATA. However, today logistics activities are not only limited within those regulations; and freight forwarders are not dependent on transportation or warehousing anymore. Now they have wide a range of services which call for tactical measures like reduced inventory, or shorter cycles. Their existence is now depends on their reliability and their ability to match their customers' needs (Jeffers and Joseph, 2010). To understand better, freight forwarders' existence, in the further section, we studied the position of freight forwarders in logistics industry and in different countries.

2.2.1. Freight Forwarders in Logistics Industry and in Different Countries

The effects of globalization in world trade and the effects of new technologies are felt on logistics industry and on transportation sector. Logistics, which almost has direct connection with all industries, has key role to gain competitive advantage in the sector (Stock and Lambert, 2001). The essence of logistics activities is to deliver

cargo/service faster and in a more economical way to the target markets one step before the competitors.

Freight forwarders need to survive with the increasing demands and needs of customers, increasing technologic environment and with new regulations to match the global trade needs, in a wild competitive environment. information and Communication systems with effective use will provide the success that freight forwarders are looking for (Hardaker, 1994). Because now the companies are looking for more from freight forwarders than a “provider”, they are looking for a “partner”.

Today, to stimulate the regional and national economies, means to support the developments on international trade and seaway transportation and to lean the business processes, freight forwarders have important roles to support manufacturers and/or companies with their know-how. That’s why freight forwarders should follow the economic, political, cultural and legal changes in the world wide. It is important for them to know also freight forwarders’ features in different countries.

As example for their different features, in Germany, the legal regulations called freight forwarder as “spediteur” –transporter-. At the same time, in French Commercial Law, freight forwarders are called as “commissionnaire de transport” – broker of transportation. And in French Commercial Law, in the definition it has been mentioned that “freight forwarders are the institutions which organize the transportation and all other sub services which are related to transportation” (Sezer, 2008).

In the United States of America (USA) the system is more complex. The U.S. companies which organize transportation domestically, which charge domestic freight must be registered in the U.S. Department of Transportation’s Federal Motor

Carrier Safety Administration. Other forwarders which is paid for international transportation freight, and whose become “carriers” and issues their own bill of lading, is defined in the US law as; “... *freight forwarder; means a person holding itself out to the general public (other than as a pipeline, rail, motor, or water carrier) to provide transportation of property for compensation and in the ordinary course of its business – (A) assembles and consolidates, or provides for assembling and consolidating, shipments and performs or provides for break-bulk and distribution operations of the shipments; (B) assumes responsibility for the transportation from the place of receipt to the place of destination; and (C) uses for any part of the transportation a [surface carrier] carrier subject to jurisdiction [of the Department of Transportation] under this subtitle*”⁸.

International freight forwarders in USA who arrange their shipments from/to USA should be licensed by Federal Maritime Commission as “Ocean Transportation Intermediary”. But there are two types of Ocean Transportation Intermediaries; an ocean freight forwarder or a non-vessel operating common carrier (NVOCC). A freight forwarder is a company or an individual that organizes shipments from United States on behalf of shippers. They organize the needed documentation and all related activities, and they book space via common carrier and arrange space for these shipments. An NVOCC is a common carrier whose issues its own bill of lading and related documents, who is known as “carrier to shipper” but who does not own a vessel, and does not operate a vessel. Companies may act in both roles, freight forwarders acts as shipper or consignee to common carrier, and NVOCC is a carrier to shipper or consignee. Freight forwarders are not responsible of loss or damages

⁸ http://en.wikipedia.org/wiki/Freight_forwarder

because they are not issuing their own bill of lading, but NVOCCs are responsible because they are issuing their own bill of lading as carrier⁹.

Unfortunately in Turkey, freight forwarder concept is not well defined as it is in USA.

2.2.1.1. Freight Forwarders in Turkey

Freight forwarding concept is discussed in the transportation activities section of Turkish Trade Law. In the law, freight forwarders are called as “transportation activities broker”.

“Transportation activities broker’s” basic feature is to assist to find expert and trustworthy carriers, which is needed in the market, for those who want to transport goods. “Transportation activities broker” is described in the 808th article of Turkish Trade Law. According to the mentioned article, to accept a person as “transportation activities broker”, he should work for a fee but on his own behalf and on behalf of a client account, and he should consider it as a profession.

With this feature, “transportation activities broker” differentiates from carrier who undertake the transportation activity on itself. Because in the 762nd article of Turkish Law, “carrier” is described as a person who takes the transport responsibility on his own, for a fee. However, “transport activities broker” main responsibility is to select the carrier who transport the cargo and to make a contract with him. That means that “transportation activities broker” is not the carrier on the contract that he does with carrier, he is the shipper¹⁰.

⁹ http://en.wikipedia.org/wiki/Freight_forwarder

¹⁰ **TBMM**, *Türk Ticaret Kanunu*, Beşinci Ayırım, Madde 1097-1118
<http://www.tbmm.gov.tr/tutanaklar/TUTANAK/TBMM/d10/c012/tbmm10012083.pdf>

As mentioned earlier, this definition is not sufficient to explain the responsibilities and activities of freight forwarders in the practice. That's why instead of using Turkish meaning as "transportation activities broker" even in Turkey, it is used "freight forwarder" expression in English to describe the profession.

The concept of "transportation activities broker" was not common in 1956 when Turkish Trade Law become active. But they become more and more active, and evolved during last 30-40 years (Battal, 2005).

In the past, transportation brokers were professionals, who did not have their own vehicles, trucks to organize their own transportation but who had before, and who had a good reputation among transporters. By using their reputation as an advantage, near city centers and near crossroads, they started running their own businesses. They did match the cargo and the truck, means they meet the shipper and transporter (Doganay, 1981).

Year by year, this kind of brokerage has been evolved in Turkey. Freight forwarding concept becomes heard and in 1986 UTIKAD (Association of International Freight Forwarding and Logistics Service Providers) was founded.

2.2.1.2. UTIKAD in Turkey

Now, 352 (according to 14.04.2012 statistics) forwarding and logistics companies are members of UTIKAD. Among the members, there are companies focused on road, rail, sea, air or all modes –called multimodal transportation-¹¹.

The profile of UTIKAD is composed of logistics companies whose main activities are warehousing, customs clearance, packaging, distribution. 95% of member

¹¹ <http://www.utikad.org.tr/eng/default.asp>

companies' expertise on rail and air transport, 65% expertise on ocean and road transportation activities¹².

UTIKAD, as an active member of FIATA (International Federation of Freight Forwarders Associations) announces its objectives as follows, in their formal web site:

- *“To represent, promote and protect the interests of the logistics industry,*
- *To promote a high standard of professional conduct among its members, including ethics and financial viability by establishing and continuously updating the industry's standard trading conditions,*
- *Make efforts to achieve standardization in the industry,*
- *Help improve the quality of human resources in the industry by arranging vocational training programs and publications,*
- *Give a helping hand in planning, development and maintenance of the international freight service industry in Turkey,*
- *Support the expansion of the Turkish trade worldwide”*

Especially within the last 10 years, the development of the logistics industry has reflections on Turkish market and economy as the importance of the logistics is increased day by day.

Today, Turkish freight forwarders are offering such logistics activities¹³ according to UTIKAD;

- International and intercity transportation
- Export-import processes and customs clearance

¹² <http://www.utikad.org.tr/eng/default.asp>

¹³ <http://www.utikad.org.tr/eng/default.asp>

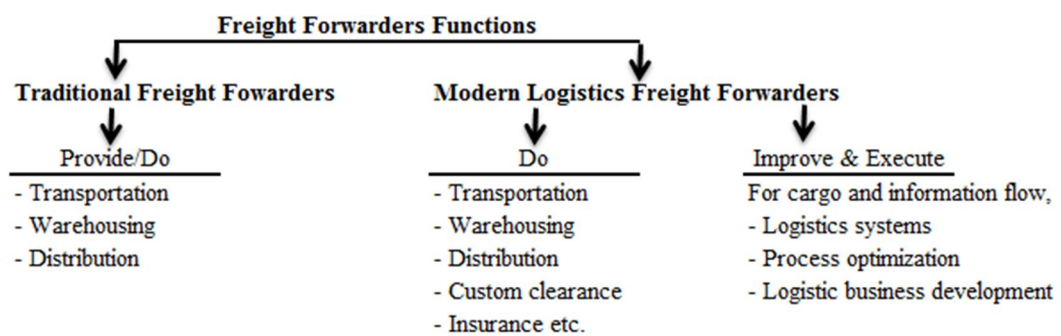
- Deciding on the transportation mode (land/sea/air/railway/multimodal transportation –no river transportation in Turkey yet-)
- Transport management and carrier selection
- Organizing the transport contract and defining the scope
- Preparing the transportation documents
- Consultancy service about international laws and regulations
- Operation and shipping management
- Cost planning
- Insurance
- Warehousing
- Handling
- Packaging, barcoding and labeling
- Marketing
- Customer Relationship Management
- Banking operations
- Providing coordination and communication among all parties by using information technologies

We can say that freight forwarders' functions evolved during years. They were only match makers at the beginning, but become transportation experts (including warehousing and distribution).

Freight forwarders become key players in the supply chains. Coyle et al. (1996) suggested that *“for a company with little international shipping expertise, the freight forwarder is the answer”* (p.99). Today, not only for little experienced companies, also for global companies with good experience, freight forwarders become the answer.

Freight forwarding activities are called as outsourced activities of focal company, but freight forwarders should act as in house department of the company. Their experience, their know-how, their human resources and their own investments (on new facilities, on information technology) are used always in their customer interest to optimize their processes, to improve their logistics systems.

Table1. Freight Forwarders Functions



Source: Oelfke W et al, (2002)

Literature does not focus on the definition of freight forwarders especially but anyway, freight forwarding and third party logistics companies have become a wide research area. Instead of a “common” definition, each researcher adopted his own definition of freight forwarding and most studies are focused on below topics;

- Selection criteria for freight forwarders
- Carrier/Agent selection criteria of freight forwarders
- EDI and Internet use in freight forwarders and their benefits
- The use of information technologies and its importance

2.2.1.3. Selection Criteria for Freight Forwarders

The factors in selecting freight forwarders are important issues to understand that freight forwarders differ from other service providers such as 3PLs. Freight forwarders try to give a specific service to their customers, 3PLs could not be as flexible as freight forwarders are. In some articles, this specific service of freight forwarders is described as “tailor-made” service (Razzaque and Sheng, 1998). Freight forwarders create a tailored service to their customers; exactly what their customers need, like a tailor sews a dress, to his customer, which fits like a glove. On the other hand, Ramberg (2002) summarized freight forwarders’ functions as willing to forward/carry the goods. But he underlined that mostly freight forwarders do not undertake the carriage itself, but find reasonable carrier to do. Freight forwarders has the responsibility to carry but without performing the carriage itself.

Although there are many more researches about freight forwarders selection criteria (e.g. McGinnes et al, 1995; Coyle et al., 1996; Murphy and Daley, 2001; Aguezzoul, 2009), most of them agreed on a set of common criteria, so we chose two extensive studies.

In their study “Investigating Selection Criteria for International Freight Forwarder”, Murphy and Daley (1997) collected data from mail survey. They sent 375 e-mails to the randomly selected firms who are members of the Council of Logistics Management (CLM), and made an investigation about selection criteria for international freight forwarders, and results showed that the important factors include;

- The forwarder’s expertise,
- Reliability of service,

- Ability to provide relevant information,
- Personal attention,
- Company reputation,
- Reasonable price, and
- The financial condition of freight forwarders.

In the more recent research “Key Factors in Selecting an International Freight Forwarding Company”, Perlman et al. (2009) conducted a two-part questionnaire and e-mailed to 200 Israeli exporters and importers that currently use freight forwarders’ services and they found the importance of international freight forwarder (IFF) selection factors. In order of importance, the below factors have been identified;

- Reliability of service
- Deadlines
- Competitive prices
- Reliable information
- Expertise
- Customization
- Personal Attention
- Flexibility
- International deployment (number of branches/offices worldwide, number of countries in which the IFF is represented)
- Information availability
- Quality certification
- Additional logistics services
- Business experience
- Online pricing

This study shows that first most significant issue is the ethical part, human part; the scope and the qualification of service are second, and do not have importance as much as reliability.

2.2.1.4. Carrier/Agent Selection Criteria of Freight Forwarders

For freight forwarders also, outsourcing is an important issue, because freight forwarders mostly outsource all their activities. They act as an outsourcing manager, which is why the manufacturer and/or any trading companies prefer to consult freight forwarders for their logistics activities because freight forwarders know the market very well, and can guide their customer to the convenient one. As the aim is to deliver the right product, at the right time at the right place, so the freight forwarder should choose the right carrier to match these aims. For some cases freight forwarders act as consultant but for some cases freight forwarder is an undertaker. We mentioned about those different liabilities –principal and non-principal- of freight forwarders in FIATA Model Rules section.

We have studied two researches concerning the carrier selection criteria of freight forwarders. There were several researches (e.g. Murphy et al 1992; Menendez et al, 2004; Kokkinis et al, 2006) but we selected Saatcioglu and Sezer (2008), because the study was focused on Izmir market. The possibility was high, that the participants of their research and our research to be same. Second research was selected because it was from a Turkish forwarder's perspective.

Saatcioglu and Sezer (2008) studied about multi criteria decision making systems to find the most convenient carrier selection criteria. They interviewed with selected forwarders in Izmir, and identified same carrier selection criteria with Ozen (2006),.

We can summarize the headlines of carrier selection criteria as below,

- Transportation cost and price tariff/ freight
- Conformance to lead (delivery) time
- Effective customer service
- Financial structure of carrier
- Transportation/cargo responsibility/protection against risks
- Safety of transportation process.

Freight forwarders do not only choose the carrier, sometimes they choose their representative abroad agencies. Of course, before using an abroad agent, firstly the need of using an agent should be well considered. Aktolug (2008), in his Ph.D. thesis titled “International Freight Forwarders’ Agent Selection Criteria in Abroad”, tries to identify freight forwarders’ agent selection criteria through interviews and web based questionnaires. He claims in his thesis that “*freight forwarders decide to work with foreign agents to reduce their risks, to solve their problems, and to reduce their costs*” (p.186).

Freight forwarders prefer to work with abroad agencies, to collect additional information to solve their operational or any kind of problem and to urge their market entry, than they can recover back their investment in short term.

We earlier in Chapter 1 mentioned that freight forwarders scope is evolving. Today they have more to decide to create customized services. Considering our study scope we focused on their information and communication systems selection process, we studied the decision making process, the benefits and costs of information technology in another title with details.

2.3. Information and Communication Systems in Logistics Sector

With the invention of the internet, a new era has begun. As the internet affected our personal lives, it also affected our business lives. There are several researches (e.g. Ozsomer et al, 1993; Teo and Tan, 1998; Werner, 1999) about internet and information and communication technology of freight forwarders and its benefits, we could mention only some of them.

Murphy and Daley (2000), in their study titled “An Empirical Study of Internet Issues among International Freight Forwarders”, made an e-mail survey within 431 international freight forwarders that were listed in a recent edition of The Official Intermodal Guide to understand their perception about internet and their usage of internet.

They summarized below findings;

- Freight forwarders view internet as a complement to EDI (electronic data interchange)
- Freight forwarders use the internet for their business operations
- There are benefits of internet such as quick access to information but also there are some barriers to easy access such as time wasting while surfing in the internet.

Chow and Wong (2004) present a web-based information system, designed for shippers, operators, co-loaders, shipping lines and overseas agents, to facilitate operations and data exchange in the freight forwarding industry. This system would be able to assist users on below topics;

- Provide an e-booking platform for shippers and forwarders. Shipper would be able to check their cargoes' routing, and forwarders would exchange their cargo according to their route or price, like in a cargo exchange market.
- The system would provide a decision making tool to select the correct container type and the correct allocation of the cargo in the container for all parties.
- It would facilitate information sharing among the parties.

But the collaboration of all parties is extremely needed for this kind of system. Also all parties should accept the transparency, which is not easy in such a competitive world.

Murphy and Daley (1999), in their article named "EDI Benefits and Barriers: Comparing International Freight Forwarders and Their Customers" studied the importance of information management and especially the importance of EDI (Electronic Data Interchange) with their advantages and disadvantages.

Chow and Wong (2004), in "A Web-Based Logistics Information System for Sea-Freight Forwarders", offered a web-based information system to meet all players in shipping logistics chain, such as shippers, local freight forwarders, co-loaders, carriers, international freight forwarding agents, and consignees, and to facilitate operation processes and data exchange. Chow and Wong (2004), for their article, accepted the definition (Murphy, 1991) of freight forwarder as "*an agent intermediary which arranges for carrier and commercial document, insurance, licensing requirements, visas, custom clearance, and ocean, air, and/or surface transportation*".

Hardaker et. al. (1994) analyzed the information and communication systems used by freight forwarders in United Kingdom and emphasized the importance of use those systems.

The competitive advantages of using information and communication technology are summarized in the study that;

- It helps to increase customer awareness
- It helps to reduce the cost of moving goods through EDI, tracking system, invoicing, etc.
- It speeds up analysis
- Many manufacturer would only deal with agents who are computerized to their level
- Operating costs are reduced
- It increases the demands on industry (small transporters would not satisfy the customers' needs in the future)

Research on information and communication systems is vast:

In the study of Jeffers et al. (2010), the information and communication technology applications that are used in freight forwarding and 3PL industry are listed as below (Armstrong & Associates Third Party Logistics Directory);

- Warehousing and Transportation: Warehouse Management System (WMS), Transportation Management System (TMS), Integrated WMS and TMS
- Customer Interaction : Customer Relationship Management (CRM), Demand and Supply Forecasting, Internet Customer Access
- Network and Process Modeling: Network Modeling, Transportation Optimization, Enterprise Resource Planning (ERP) Interface

- Data Exchange: Freight Billing, Automatic Brokerage Interface, Paperless Logging, EDI
- Visibility and Tracking: Worldwide Freight Tracking and Tracing, Global Visibility, Bar-Coding, Radio Frequency, Satellite Vehicle Communication
- Others such as human resources, office locations, etc.

Ozen (2006), with her master thesis, titled “Decision Approaches of Freight Forwarder and Information Technologies in Sea Transportation”, tries to determine basic activities and organizational structure of freight forwarders during their decision making process by analyzing software, such as SOFT, STARNET and SELECT.

As conclusion, it is mentioned that the investments which logistics companies and sea transportation companies made on information and communication systems, return as;

- Access to professional resources and opportunity to back up operation
- Provide all required information from one point
- Speed of problem resolving, tracing of the problem, recording of the problems
- Contribution to focusing on major activities and contribution to technology projects
- Reducing the risks of implementation and operation
- Reducing the need for additional resources
- Reducing risks of human resources
- Engaging new applications very quickly
- Reducing research time/learning time/application time for new applications

- Sharing of information between agencies, and preventing the possibility to miss the needed information sent by e-mail or fax
- Reducing time cost
- Correct and efficient management of receivable and payable accounts
- To control of customers' risks and financial losses
- Monitoring of income and expenses
- Defining the profit centers in hierarchical order like company, branch, and operation group and monitoring their performances by giving them periodic and quantitative targets – information and communication systems are used as decision making tools with assistance of stored data in them-.

Information and communication systems capability is maximizing time, form and space utilities from a logistics perspective (Jeffers and Joseph, 2010). This capability grows, as the technology grows and the new business opportunities occur, the globalization and the evaluation has changed everything, the current definitions and features will also be changed. There would be new definitions, communication through internet; web based communication will be added in the current ones. New definitions will mainly involve “e-definitions” like e-logistics, e-commerce or maybe e-forwarding.

Actually the changing process is not easy. The fast development of information technology provides new obstacles as well as new opportunities to all sectors. This is the reason that, in the literature information and communication technology is discussed a lot to understand and eliminate those obstacles. We analyzed several topics about information and communication technology literature, and because our study aimed to give some contribution to logistics industry and freight forwarding, those are the sectors which are directly influenced by the rapid changes in

information technology, we also mentioned the importance of information and communication systems in the logistics business processes.

The outline of further sections is arranged with respect to information and communication systems' investments steps. First we investigate the factors which should be analyzed before investment, such as to determine the information and communication systems' investment objectives. Then we analyzed the information and communication systems' evaluation topic, by studying information and communication systems 'costs and benefits and by pointing to the underlying difficulties during information and communication systems' evaluation.

2.3.1. Information and Communication Systems Outsourcing

Information and communication technology outsourcing is defined as the “*significant contribution by external vendors in the physical and/or human resources associated with the entire or specific components of the IT infrastructure in the user organization*” (Loh and Venkatraman, 1992, p.9).

Information and communication technology outsourcing depends on the physical resources and human resources of the user organization. These resources might be contributed by user or by vendor, on different levels. Several activities of information and communication technology infrastructure might be outsourced, such as data center, system design, software, and telecommunication/network. These outsourced activities might be directly related to each other, so to outsource one activity may affect the other, as a result the following activity also would have been outsourced. Ultimately, different activities might be contracted separately with in different time frames. This separate contracted system may also affect the whole system (Loh and Venkatraman, 1992).

The key point for outsourcing is to consider relative cost advantage, economies of scale and scope. To outsource the information and communication systems infrastructure to an information and communication systems vendor means to benefit from vendor's experience, skills and experience also used by other companies. Loh and Venkatraman (1992) suggest that information and communication systems governance of a company depends on its business competence, business governance and information and communication systems competence. In their study below points are accepted within their empirical results:

- Considering business competence of the company, the positive relationship between business cost structure and the degree of information and communication systems outsourcing is accepted. With strong financial structure, the company's information and communication systems (with high numbers of plant and equipment) will be crucial to control whole chain of the business, so the company prefers the variable costing by outsourcing their information and communication systems instead of fixed costing, with this way they minimize their risks.
- Considering information and communication systems competence, the positive relationship between information and communication systems cost structure and the degree of information and communication systems outsourcing is empirically supported. Outsourcing is being considered as a solution to reduce the information and communication systems costs. The companies begun to outsource their financial or payroll operations to reduce their information and communication systems outlays.
- Considering again information and communication systems competence, there is a negative relationship between information and communication

systems performance and the degree of information and communication systems outsourcing. The productivity of information and communication systems might be measured through reliability, quality, timeliness etc. But the IT executives concentrate on the low economic return on investment of information and communication systems outsourcing. So economic measures are more valid to affect the degree of information and communication systems outsourcing.

Outsourcing became an increasing trend since 1990s. We mentioned that the main objectives are to reduce the costs and to focus on core business (van Laarhoven et al, 1994; Razzaque and Sheng, 1998). In addition to the math of the outsourcing, the experience and the feeling of IT executives and general managers are important to decide.

Earl (1996) suggests a framework to assist decision makers. The parameters are the business value of information and communication systems and operational performance of the current information and communication systems. For example this framework accepts that if the operation performance is high and sufficient and the business value is high then the insourcing is suggested. The outsourcing is suggested only if the operational performance and the business value are low. He suggests the manager to ask why they should not insource information and communication systems services.

He emphasizes the risks of outsourcing after his discussions both with vendors and customers as;

- The risk of weak management: According to the framework, if the operational performance is weak especially within IT scores, the company is

attempts to outsource its information and communication systems. But the outsourcing is not a certain solution. Without an efficient IT management, outsourcing will be an additional problem to weak operation performance. To reduce the risk of outsourcing, the IT service should be managed efficiently and effectively at first. Then the companies should consider to outsource or insource.

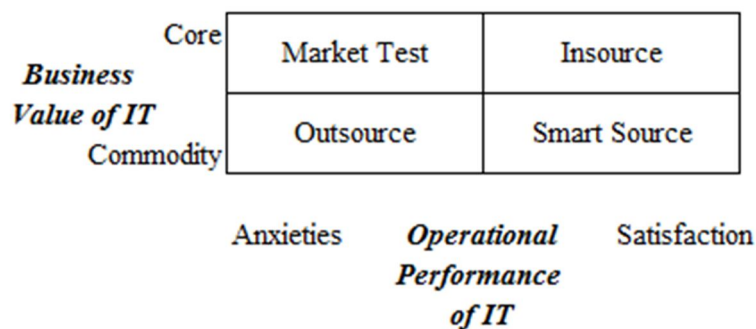


Figure7. Information and Communication Systems Outsourcing Strategies

Source: Earl, 1996

- Inexperienced staff: There is also another side of the coin; also the outsourcing company might have some weaker IT staff, or either the company or the third party might lose their experienced staff to other companies. A wiser employee policy is crucial to mitigate the risk of outsourcing.
- Business uncertainty : To decide on outsourcing due to cost reduction is a long-term decision. To reduce the cost, managers outsource lots of information and communication services replacing with their creative and experienced staff. But while reducing the cost, new opportunities for expansion raise, but it is noticed that there is no longer experienced staff to expand. According to another scenario, new acquisitions might occur in

order to grow, but the contract with the information and communication systems outsourcing company may not have appropriate contract terms to cover these acquisitions. To mitigate the business uncertainty risks, long term opportunity costs should be well considered.

- Outdated technology skills: As noticed, once the company decides to outsource its information and communication service, turning back will not be easy. Before deciding on the company tries to find the outsourcing information and communication systems company with high technology skills as addition to lowest cost company, but how they cannot be sure that the skills stay current for long time. The technology market is not mature in terms of skilled employees.
- Endemic uncertainty : The future is uncertain even if we plan for it very well. The same is true for information and communication operations. The technology is changing, new technology is risky, the needs of users change, business requirements change and the implementation process is unknown. The idea might be great but in the practice will not be that great in reality. The information and communication systems vendors prefer to sign long term contract, but companies want to minimize the risks of those uncertainties and prefer to sign short term contract or asking for more flexible contract terms, which are quite expensive if we consider that the aim of outsourcing is cost reduction.
- Hidden costs: The cost comparison between outsourcing and insourcing should be done in details. Because most of the time the setup costs or managerial costs are not considered and wrong decision is made. These

hidden costs –uncalculated- will be one of the risks of outsourcing, because they would be bad surprise after deciding on outsourcing.

- Lack of organizational learning: To determine the needs depends on the experiences that the company has. The organizational learning becomes more important. Management is learning by using the information system, and decides on their strategic development according to the learned processes and earned experiences. To build a information and communication strategy the organizational learning is essential.
- Loss of innovative capacity : With outsourcing, the chance to innovate is decreasing within the organization. Also the vendor might think that the reason to outsource is all about the cost, so the innovation might not be the main target. But the situation might be different in the market place, and competitive companies could innovate. The outsourcing company and the market should be well pursued by the company, not only to catch the day but to stay one step ahead.
- Dangers of an eternal triangle: Information and communication specialists have their own language; also the user of the company has their own. Sometimes there are intermediaries between these two parties called business analysts. As the communication chain is getting lengthened the risk of corruption increases. This risk will prevent the possibility to add value by information and communication services.
- Technological indivisibility: There are several functions/activities to be outsourced within the company. While outsourcing one, the indivisibility of the information and communication services should be well considered. The information and communication systems are integrated and interconnected,

the interface problem might occur between different vendors and different activities.

- Fuzzy focus: Outsourcing is considered as cost cutting and downsizing. Lots of managers accept as success and to match the targets these cost cuttings, without measuring the real performance of the system. They are not concentrated on the demand side, only concentrated on supply side.

Not always these above mentioned risks occur during information and communication systems outsourcing. But even a few of them is enough to think why the companies should not insource information and communication systems. The companies should also focus on creating value for shareholders, as such as on cutting costs (Earl, 1996).

As addition to above risks, freight forwarders should consider the government institutions as one of their partners in transport applications, e-government and e-transport applications which have vital roles in efficient transport management (Saatcioglu et al., 2009). But unfortunately, the integration of e-government is not easy and cannot be organized in a limited time (Ebrahim and Irani, 2005). It is more difficult in Turkey, because Turkey is in the beginning stage of e-government adaptation. As Yoon and Chae (2009) emphasized inadequate infrastructure, low level of information and communication technology human resources, poor financing structure and lack of information awareness reduce the effectiveness of integration in developed countries, such as Turkey. Turkish freight forwarders even it's quite challenging should develop strategies to increase e-government adoption.

After considering the effects and risks of information and communication systems sourcing, we analyze the processes of information and communication systems investment.

2.3.2. The Process before Information and Communication Systems Investment

With the information and communication improvement, logistics costs have reduced and better communication has occurred between organizations, through supply chain. The growth of information and communication systems might be explained with its success to achieve creating competitive advantage (Remenyi et al. 1993; Segars and Grover, 1994; Piccoli and Ives, 2005). Porter (1990) defined competitive advantage as “*an increasing function to how well a company can manage this entire system*” (p.3), today information and communication is not only a tool to improve the communication or to reduce costs; but it has become an important function to create value. But still, not every information and communication systems investment has achieved success. Information and communication investment has a high-risk, because information and communication investment is quite different from other investment types (Strassmann, 1997; Tingling and Parent, 2004). The difference is depends on the determining and evaluating the information and communication investment according to its costs and benefits. This difference –in the other word the risk-, as addition to other outsourcing risks, becomes a serious concern. The investment benefits should be considered in both types, tangible and intangible costs. Otherwise the failures affect negatively the information and communication investment’s credibility.

To avoid failures, first step is to determine the objectives of information and communication investments. Weill and Broadbent (1999) suggested determining four specific management objectives;

- Strategic objectives: Increases sales, provides competitive advantage, provides competitive necessity, improve the position in the market
- Informational objectives: Increases control, provides better information and integration, improves quality
- Transactional objectives: Cuts costs, increases throughput/productivity/efficiency
- Infrastructure objectives: Provides better integration, provides business flexibility, reduces marginal costs of business unit's IT, reduces information and communication costs over time, provide standardization

Companies are using information and communication technologies to create a business value while implementing new and developed strategies to achieve competitive advantage. Ward et al. (1996) emphasized the importance of management. He mentioned that most of the failures are caused by the failure of management, and he defined the information and communication system management benefits as;

“The process of organizing and managing such that potential benefits and arising from the use of IT are actually realized” (p.215)

Jeffers and Joseph (2010), in their resource-based view study, assumed “managerial capability” as one of the IT resources (with tangible and intangible resources) and underlined the importance of management to achieve desired targets. We also try to support the importance of management within our study.

Avison et al. (2004) mentioned that only determining the objectives would not be enough, the IT investment reasons should be aligned to company's strategic objectives. This alignment provides the maximization of IT investments return, support achieving at competitive advantage, provides flexibility. Today, many researchers believe that IT affects the efficiency (e.g. Rathnan et al, 1995; Lewis and Talalayevsky, 1997; Kock, 2003), but in the late 1980's, on the contrary, some believed (e.g. Strassmann, 1990; Brynjolfsson, 1993; Loveman, 1994) that IT investments would not affect the productivity positively because it could not be proved qualitatively. This concept is called "*IT productivity paradox*" by Brynjolfsson (1993). Brynjolfsson could not find the proof of the positive affect of IT, by using macroeconomic analytical techniques. But he improved his thesis, Hitt and Brynjolfsson (1996) argued that IT could affect positively the productivity and provide benefits, but this positive effect is improvable by using empirical methods.

As Newton (1995) mentioned, to evaluate IT investment benefits, the organizations should decide how they would measure the performance. As the second stage in this chapter, we reviewed the literature about evaluation process.

2.3.3. The Evaluation Process –Determining Costs and Benefits-

Information system evaluation is one of the key management issues (Kettinger and Lee, 1995). But there are several difficulties to in evaluating the system: the problems during determining the information and communication systems costs' and benefits'. This kind of problems cause failures and these failures lead to reductions in productivity and ability to manage.

In the following sections, we tried to analyze how information and communication costs and benefits could be determined and analyzed. It is a must that, the management should pay attention to involve all stakeholders during all processes.

Determining Information and Communication Systems Costs

There are not many studies about determining information and communication costs. In the examples from the literature, there are cases that information and communication systems investments overrun the expected budget (Willcocks 1996), and also there are cases that organizations add a contingency ratio on their project budget to be safe side (Hillam and Edwards, 2001). If the investment costs are not well defined, budgets ratios for other operations should be cut, and that may decrease the chance of success.

Even for the organization outsource or insource information and communication systems, the total cost of ownership have direct and indirect costs.

- Direct costs: These costs are directly related to information and communication systems implementation and operation. Hardware and software costs, installation costs, communication costs, training costs, maintenance costs, overheads (new equipment, etc.), infrastructure costs, etc. are included into direct costs, and can be calculated easily.
- Indirect costs: These costs are not directly related to information and communication systems, and are not easy to consider. Human and organizational costs are included. For example, human costs cover time and effort, training, and extra management time to integrate the system, to revise the strategies. Organizational costs cover opportunity costs (Deschoolmeester

et al, 2004) while the employee spends time and effort, productivity losses, down-time, business process reengineering.

In the literature also some academicians consider risk as a cost (e.g. Benaroch et al., 2006; Glass, 2006).

Determining Information and Communication Systems Benefits

It is expected from information and communication systems investment that it would increase productivity. For freight forwarders, it is expected to create a value; we mention about the value in use (value in service), because value in exchange describe the value of the product which worth as money. At the end as Strassmann (1990) mentioned, “*a computer is worth only what it can fetch at an auction*” (p.519).

Information and communication systems business value is defined by Melville et al. (2004) as:

“...the organizational performance impacts of information technology at both the intermediate process level and the organizational-wide level, and comprises both efficiency impacts and competitive impacts” (p.287).

Value in use is created with an efficient benefit management. As Ward et al. (1996) mentioned information and communication systems do not provide the benefits by itself. Businesses change and the practices to achieve those businesses also change. They should be determined before the information and communication systems investment process is started to clarify also the potential benefits, they should be monitored closely. For most of the project, project results are defined after implementation or sometimes even are not defined. The basic problem is that not

only to not describe the targets and benefits also, to not use appropriate methods to measure (Lubbe and Remenyi, 1999).

The evaluation of information and communication systems investment is not easy. There are lots of techniques in the literature (e.g. Farbey et. al, 1999; Hillam and Edwards, 2001; McBride and Fidler, 2003, Deschoolmeester et al, 2004). For example Berghout and Renkema (2001) mentioned about 65 techniques (such as financial techniques, multi-criteria techniques and portfolio techniques, etc.) to measure. But cost and benefit calculation are challenging as mentioned before. Cost-benefit analysis (CBA), return on investment analysis, traditional financial methods, multi-objective multi-criteria methods are most common techniques to measure information and communication systems investment benefits (Lubbe and Remenyi, 1999; Carcary, 2008).

It should be noticed that determining and evaluating are only the mile stones for further steps. After evaluating the current system, new action plans or revision of business processes should be considered if needed. In the further section, we discussed a suggested redesign concept and its effects on logistics sector.

CHAPTER 3

METHODOLOGY AND ANALYSIS

There are two major types of research methods or research paradigms (Creswell, 2003);

- Quantitative methods, which uses mathematical analysis (McDaniel and Gates, 2007), also known as traditional, positivist, experimental, or empiricist (Clarke, 2005).
- Qualitative methods, whose findings are not subject to quantification or qualitative analysis (McDaniel and Gates, 2007), also known as constructivist, naturalistic, interpretive and post-positivist (Clarke, 2005).

Qualitative research allows the researcher to be more interactive, and also is used for more subjective fields and topics. In the quantitative method, because the reality/subject is single, certain and objective, the researcher cannot be involved directly in the research. As a result, in quantitative research, the researcher is not allowed to share her/his own thoughts, perceptions or observations (Creswell 2003).

In the supply chain literature, the commonly used research method is quantitative method (Andiç, 2010). During our research, the sources that we studied were mainly used quantitative methods. A few used qualitative methods (e.g. Earl, 1996; Loh and Venkatraman, 1992; Lubbe and Remenyi, 1999) to have direct observations and to report observation in detail. Also qualitative methods provide the opportunity to analyze more than one variable at the same time. As the aim of the study to investigate the IT investment outsourcing process of freight forwarders, variables

were unknown because there could be unique for each freight forwarder; therefore, using qualitative methods was found to be more appropriate for this study.

For this study, we needed to collect data about freight forwarders and to explore, understand and investigate their information technology sourcing processes, by collecting data on these issues. Therefore, we chose to send questionnaires to the selected freight forwarders. We contacted most by e-mails, some by phone with some by face to face questionnaires.

As Pettigrew (1988) mentioned, there is a risk of “*death by asphyxiation*”, which means metaphorically to be smothered by too much information. We categorized the replies and our observations. Then, we developed several propositions on the information and communication investment process of freight forwarders. After that, we decided to conduct focus group method to increase understanding of the decision making process and the real opinions and thoughts after investment due to a number of constraints, based on selected freight forwarders’ replies that are explained in the further sections.

We could have used also survey method, but we chose to conduct focus group method instead. While this method reaches fewer people than the survey method, it produces more accurate and realistic information (Akyıldız and Tuna, 2007). The focus group method is one of the most common methods of qualitative research (including individual depth interviews) (McDaniel and Gates, 2007).

Delphi technique was also considered for use, but this technique is trying to agree on a subject and by using this technique a researcher is looking for a certain outcome (Barbour and Kitzinger, 2001; Sahin 2001). However, for our study we were trying

to understand a process, and Delphi method would not be appropriate, therefore we chose a focus group to observe the process of decision-making and evaluation.

The focus group is not an easy method to carry out, it has advantages and disadvantages; and it is vulnerable to careless and inappropriate use. Also, the results may be exaggerated or manipulated (Barbour and Kitzinger, 2001). Especially, each party, as participants and moderator, has important roles and great responsibilities.

As advantages, the interactions in the focus group provide an ideal environment for creative new ideas and innovations which are impossible to create during interviews or surveys (McDaniel and Gates, 2007). It is the ideal technique for exploring experiences, concerns and opinions (Barbour and Kitzinger, 2001). During the focus group, opposite ideas may create a synergy which can assist the study itself.

On the other hand, there are several disadvantages of focus group. Especially, the moderator has great responsibility. He/she needs to have good listening, communication and observation skills. He/she should pay attention to details (McDaniel and Gates, 2007) and maintain objectivity at all times. As Barbour and Ketzinger (2001) stated, *“the moderator should avoid being judgmental, presenting themselves as experts or making assumptions which close of exploration, but encourage everyone to participate”* (p.27). To eliminate these disadvantages, it is essential to prepare a clear discussion guide which covers the outline of the discussion. The rules of group interaction and objectives should be explained clearly to the participants before the session occurs.

3.1. Design of the Study

Within this study, as mentioned before, firstly the results of questionnaires were analyzed, in order to understand the freight forwarders' behavior regarding the use of information technologies.

These questionnaires involve freight forwarders in Turkey, which are either Turkish or foreign origin, but have their own offices in different countries all around the world. By selecting these companies which have offices abroad, we aimed to understand the behavior of companies which operate internationally.

For this survey, 50 companies were selected for a questionnaire. Out of these 50 companies, 8 Turkish origin and 7 foreign origin freight forwarders accepted our request. To request an appointment, we sent a formal e-mail explaining the aim and concept of study, with the questionnaire. Some companies preferred to reply questions via e-mail; others preferred face to face communication. We also contacted by phone the companies which preferred to send e-mails, to get more details. The English version of the e-mail and questionnaire can be found in Appendix-A and c, and the Turkish version in Appendix-B and D.

The data from the questionnaire concerned, the relationship between freight forwarders and information and communication systems selection and their satisfaction with the system. This data was analyzed and some propositions were determined.

While examining the literature, we reviewed several articles and master's theses using focus group (e.g. Lubbe and Remenyi, 1999; Akyıldız and Tuna, 2007; Andıç, 2010), and also studied some publications about focus group (Barbour and Ketzinger, 1999; Langford and McDonagh, 2003) for a clear understanding of the method.

The questions were finalized after several discussions with my supervisor, in regard to the propositions. The discussion guide and the questions which were used during focus group section can be found in Appendix-E and Appendix-G, in the English and Turkish versions respectively.

The focus group report has been analyzed, and as result, a managerial approach for information technologies outsourcing process has been developed.

3.2. Participants

As two methods were used, there are two categories for participants.

- For questionnaire;

There many companies which called themselves “logistics company” but have no connection with logistics. Therefore we used 352 (according to 14.04.2012 statistics in UTIKAD’s formal web site) members of UTIKAD as reference. Even in UTIKAD’s lists, there were such “title companies”. After researching with them, if they have their own abroad offices or if they are operating internationally, and how many overseas offices they have; we selected 21 Turkish origin freight forwarding/logistics companies and 29 foreign origin companies. The selected companies were been classified according to their activities (warehousing, transportation, forwarding, etc.) in order to understand their decision making process according their area of expertise. We all were sent an e-mail which explains the aim of the study, and 15 agreed to co-orporate with us.

- For the focus group;

A Turkish based freight forwarder company has been selected for focus group study. The selected company has been under a professional management since 1998 as part of a group of companies. The company was engaged in every section of the logistics activities in every mode, including air transportation, sea transportation, and road and rail transportation. The company has also a large agent web throughout the world; the company also has its own offices in Turkey, in the United States of America, in Romania, in Kenya and in the United Arab Emirates. The company also has bounded and non-bounded warehouses which are equipped with radio frequency terminals. The company has made a new investment in their information and communication system at the beginning of 2012, they have changed their system from SOFT to SAP in their central office in Istanbul and their Izmir Branch office. Some of the other offices of the company use different systems, some are not using any definite system. The company is in a transition phase and has lots of difficulties during this period.

The selected company's Izmir Branch's managers and supervisors were chosen as the focus group. The selected focus group members were in the process of implementation of the project group –the group to coordinate the needed educations and processes-, and contributed the process to change of the system. The ideal number of participants for a focus group is not clearly defined in the literature. Macaulay (1996) recommended 4-6 participants, whereas Nielsen (1993) suggested 6-9. Considering the number of employees, we have selected, for our study, a marketing manager, a sales manager, a pricing supervisor, an import operation supervisor, an export operation supervisor and an accounting manager, a total of 6 people. The group is very appropriate for giving a clear understanding of the selection process of a freight forwarder, and for testing the propositions.

3.3. Logistics of the Research

I –as the researcher- visited the companies which agreed to reply to the questionnaires at the interviewee’s facilities. Their Izmir facilities were selected as it thus made it easier to visit the companies. Some companies preferred to participate by e-mail and phone.

For focus group, the Izmir office was selected as location, because it is facilitated the process of organization of the group and was a convenient place to meet.

As one of the requirements of focus group method, we provided a tape to record the section into the tape.

3.4. Data Analysis and Results

3.4.1. Market Analysis

Data gathered from the questionnaires conducted are classified and analyzed according to the 9 headlines below, relating to the 9 main questions.

- Profile: The profile of the company is analyzed according to its business scope, its expertise areas, and its properties. Also, the profile of the interviewee is analyzed with respect to his/her position.
- Network: The locations of the company offices are examined according to their scope. The possibility of being different is checked.
- Information technologies: There are still some companies which prefer to use MS Excel for their daily operations whether they have an international system or not. On the other hand, there are some companies whose top managements are not aware of the information system they use and could not monitor the daily operations and periodic reports. Therefore, we researched the

percentage of companies with information systems, and how many of these think that they use efficiently.

- The differences of information technologies: It is aimed to understand the scope and the basic characteristics of the information technologies use.
- Insourcing or outsourcing: The aim is to understand how logistics companies make decisions, while selecting their information system; particularly if they use insourcing or outsourcing.
- Selection criteria: We aim to determine the main concern during the selection of information system. The main concern might only be the budget constraint (cost), but the cost may not be the only reason each time. The internal and external customers' opinions are also important.
- The time concept: The time may become a handicap, because the users are accustomed to the system so that they are unable to assess if the system is efficient or not. They may be reluctant to change their current information system. This fear of change might cause problems with their priorities. Therefore, this question analyses whether performance measurements are defined with the right concerns and are measured periodically.
- The benefits: The logistics companies should benefit from the information system which they use. The logistics companies are able to survive with the information available. The information might be of any kind. Sometimes even informal information can change the structure of the business –such as access to information about competitors' hidden projects or investments-, which are why to record “now”, would help to understand past and also predict the future. The benefits should be known and should be fully exploited.

- The future: The technology is improving day by day. The future will be shaped by the technology. The logistics company should use the power of technology to make a difference in the future. This question is asked to understand the awareness about the importance of future.

3.4.1.1. Results of Questionnaires

We aimed to get general information about freight forwarders opinions about information and communication systems, its usage and its effects. We tried to analyze the connection between information and communication systems selection drivers and those benefits. We looked for some connections between their profile and their network, and the features of their information and communication systems.

In fact, as the results show clearly there are no certain rules for freight forwarders and their information and communication systems characteristics. This might be the effect of constraints already listed. On the other hand, it is clear that each company has developed their own IT strategy taking into account their company needs.

Lubbe and Remenyi (1999) proposed an IT investment process and usage model, and compared this model with the process of IT realization. Regarding this model, they aimed to develop a managerial approach for companies in general. However, this model was not exclusively for freight forwarders. Freight forwarders are service providers, therefore customer satisfaction is essential to any company strategy. Considering their company features including their future targets, the performance criteria which aim to drive value adding activities are critical concern for freight forwarders and should be well defined. “Why do we want to measure?” and “What do we want to measure?” are the key questions to consider during the process of designing a performance measurement system. From the questionnaire study, we

conclude that freight forwarders' main reason for measurement is to get information about the past situation, to understand the current situation, and to support the decision making process regarding targets and aims, and to decide the path that will best achieve targets and aims, and to understand whether the aims and target are matched. The information gathered is used to determine the strategy of the company and the priorities.

Based on the literature review and the results of the questionnaires, we have developed several propositions for freight forwarders and their information and communication system selection process. We tried to define what information and communication system means for freight forwarders, and analyze reasons for use, costs and benefits, and the evaluation and improvement process.

The propositions are as follows:

P1 - For freight forwarders, information and communication system is a sourcing to invest that will pay back. (Strassmann, 1997; Tingling and Parent, 2004; Bakos and Kemerer, 1992; Lubbe, 1994; Hitt and Brynjolfsson, 1996)

- a. Information and communication system is an investment to information technology applications.
- b. Information and communication system is an investment at improving communication.
- c. Information and communication system is an investment aimed at improving cost control.
- d. Information and communication system is an investment aimed at improving service quality.

- e. Information and communication system, because it's an investment, to outsource or to insource would not make difference for success of the investment.

P2 – For freight forwarders, the usage of information and communication system depends on the characteristics of freight forwarders.

- a. The usage of information and communication system depends on the activity of freight forwarders.
- b. The usage of information and communication system depends on the financial strength of freight forwarders.
- c. The usage of information and communication system depends on the attitude of management.

P3 – For freight forwarders, it is difficult to calculate the exact costs incurred during the information and communication system selection and implementation process (Strassman, 1997; Tingling and Parent, 2004).

- a. It is difficult to calculate exact labor force cost during the information and communication system selection process.
- b. It is difficult to calculate exact management time cost (spent in integration IT into work practice and revising).
- c. It is difficult to calculate exact opportunity cost during the sourcing and implementation process.

P4 – For freight forwarders, it is difficult to calculate exact –tangible and intangible- benefits rates of information and communication system usage (Strassman, 1997; Tingling and Parent, 2004; Ward et al. 1996; Brynjolfsson, 1993, Remenyi et al. 2007).

- a. It is difficult to calculate the exact cost reduction benefit during information and communication system usage.
- b. It is difficult to calculate the qualitative benefits of information and communication system on decision making process.
- c. It is a difficult to calculate the exact competitive advantage benefit rate of information and communication system usage.

P5 – Freight forwarders do evaluate their information and communication system investments periodically for continuous improvements.

- a. Freight forwarders do evaluate their information and communication system investments according to their strategy and targets, and make new investments if needed.
- b. The satisfaction of both internal and external users is essential during the evaluation process.

P6 – Inefficiency in the information and communication system is caused by mis/poor – management. (Willcocks and Lester, 1999; Ward et al. 1996)

- a. The inefficiency in the information and communication system is caused by poor investment.
- b. The inefficiency in the information and communication system is caused by lack of qualified personnel.
- c. The inefficiency in the information and communication system is caused by lack of training.

3.4.2. Focus Group Analysis and Results

Questionnaire results assisted in the development of several propositions, and focus group assisted the discussion of those propositions.

Before going into the detailed data analysis, we listed the concepts and main headlines. This will give an indication of the path followed. The following is a list of the concepts we selected, and these headings are matched with the studies in the literature.

Information and Communication System perceived as:

- Communication tools (information and communication technology)
- Applications (listed in the study) (Mata et al., 1995; Powell and Dent-Micallef, 1997; Ray et al., 2005)
- Information (Boynton et al., 1994; Ray et al., 2005)
- Resource (Kroes and Ghosh, 2009)
- Investment (Willcocks and Lester, 1996)
- Outsourcing

Information and Communication System drivers:

- Strategy (Lubbe and Remenyi, 1999; Thompson and Strickland, 2006)
- Customer service / customer profile / quality of service (Lubbe and Remenyi, 1999; Ray et al., 2005)
- Management decision (Lubbe and Remenyi, 1999)
- Budget (Lubbe and Remenyi, 1999)
- Continuous improvement

Information and Communication System costs:

- Direct costs
 - Time (Effort, employee time)
 - Training
 - Increased staff turnover (Bannister et al., 2002)
- Indirect costs
 - Management time (spent in integration IT into work practice)
 - Down-time (Deschoolmeester et al., 2004; Irani et al. 1998)
 - Opportunity costs (Deschoolmeester et al., 2004; Irani et al. 1998)
- Risk (Willcocks and Lester, 1999; Benaroch et al., 2006; Glass, 2006)

Information and Communication System Benefits:

- Tangible benefits
 - Cost reduction (Lubbe, 1994; Weill and Broadbent, 1999; Gregor et al. 2006)
 - Increased productivity (Hitt and Brynjolfsson, 1996)
 - Improved service quality (Brynjolfsson and Hitt, 1999)
 - Provide financial benefits (Videira and da Cunha, 2005)
- Intangible benefits
 - Improved decision-making (Weill and Broadbent, 1999; Gregor et al. 2006)
 - Improved reporting (data accuracy) (Weill and Broadbent, 1999; Gregor et al. 2006;)
 - Security

- Increased capacity (opportunity to develop) (Farbey et al., 1995; Gregor et al. 2006)
- Competitive advantage (Remenyi et al. 1993; Segars and Grover, 1994; Piccoli and Ives, 2005)
- Increased organizational knowledge/culture (Farbey et al., 1995; Powell and Dent-Micallef, 1997)

Information and Communication System Evaluation Methods:

- Cost and benefit analysis (Lubbe et al. 1995; Ward et al. 1996; Farbey et al., 1999; McBride and Fidler, 2003)
- Multi-objective multi-criteria method (Farbey et al., 1994, 1999; Berghout and Renkema, 2001; Stewart and Mohamed, 2002; McBride and Fidler, 2003)
- Value analysis (tangible and intangible benefits) (Farbey et al., 1999)
- User information satisfaction analysis (Gemmell and Pagano, 2003; Hirschheim and Smithson, 1999)

Causes of Information and Communication System failures (Brynjolfsson and Hitt 1999; Bharadwaj, 2000; Kohli and Deveraj, 2003; Kwon and Watts, 2006):

- Lack of managerial ability (Ward et al. 1996)
 - Lack of communication
 - Lack of support
 - Inflexibility
- Lack of training
- System glitches
- Lack of system integration

- Lack of qualified personnel with technology capability

Table2 shows the frequency of occurrence of each heading. As focus group discussion were held in Turkish, the Turkish version of this table is given in Appendix-I.

Table2. Themes and Concepts

		Total Mentions	Theme Total Mentions
Information and Communication System	Communication tools (information and communication technology)	38	235
	Applications (listed in the study)	105	
	Information	68	
	Resource	2	
	Investment	20	
	Outsourcing	2	
ICS Drivers	Strategy	1	122
	Customer service/customer profile/quality of service	73	
	Management decision	21	
	Continuous improvement	10	
	Budget	17	
ICS Costs	Direct Costs	77	85
	Time (Effort, employee time)	60	
	Training	15	
	Increased staff turnover	2	
	Indirect Costs	8	
	Management time (spent in integration IT into work)	6	
	Down-Time	-	
	Opportunity cost	2	
	Risk	-	
ICS Benefits	Tangible Benefits	11	28
	Cost reduction	-	
	Increase productivity	3	
	Improve service quality	8	
	Provide financial benefits	-	
	Intangible Benefits	17	
	Improve decision-making	-	
	Improve reporting (data accuracy)	14	
	Security	-	
	Increase capacity (opportunity to develop)	3	
	Competitive advantage	-	
	Increase organizational knowledge/culture	-	
ICS Evaluation Method	Cost and Benefits Analysis	-	3
	Multi-objective Multi-Criteria Method	-	
	Value Analysis (analysis of tangible and intangible benefits)	-	
	User Information Satisfaction Analysis	3	

Table2. (Cont'd) Themes and Concepts

		Total Mentions	Theme Total Mentions
Cause of ICS failures	Lack of managerial ability	2	15
	Lack of communication	2	
	Lack of support	-	
	Inflexibility	-	
	Lack of training	8	
	System glitches	2	
	Lack of system integration	1	
	Lack of qualified personnel with technology capability	2	
Total Concepts Mentioned			488

Information and Communication System

In the proceeding chapters, we mentioned that the information and communication system itself and the new sourcing and new investments in information and communication systems are crucial for freight forwarders. However, it is also important to understand what “information and communication systems” mean to freight forwarders.

Table3. Mentioned Concepts about Information and Communication System

		Total Mentions	Theme Total Mentions
Information and Communication System	Communication tools (information and communication technology)	38	235
	Applications (listed in the study)	105	
	Information	68	
	Resource	2	
	Investment	20	
	Outsourcing	2	

In the focus group, the general understanding of information and communication system is a data base which is used to store the needed data and to provide the

opportunity to trace and to monitor all data. Such opportunities allow appropriate information to be given to customers at any time.

During the session, several concepts are mentioned to describe the usage of information and communication system, which are shown on Table3. They mainly mentioned the software systems that they used in the past and in the present. But at the same time, they underlined that the information and communication system is not only the software, it is set of technological tools which enables to access accurate data at any time. It is a set of tools which enables quick access to the needed combination of data from different sources. Also, some members in the group pointed out that even at the most primitive level, any communication tool is a information and communication system tool; but for other members, a tool becomes na information and communication system only when it connects to the internet.

The group mentioned that during outsourcing process, it is important to determine what the company needs and what the alternative suppliers and possible software systems offer to meet those needs. They also emphasized that while the company considering their needs, they should take into account;

- Their own branches-in the current country and at abroad countries- and if possible, their partners in the foreign countries
- Their customers' needs
- Their customers' customers' needs –until to the end user-
- Carriers (shipping lines, truckers, etc.)
- All other intermediaries (such as customs, warehouses, etc.)

From the focus group study, we conclude that, during the outsourcing process, all personnel, from the lowest level to top management, in the communication and

operation chain, including all related functions -such as marketing, operations and finance- should be involved in the process. This would clarify and determine the stakeholders' needs and allow the understanding of the whole chain and all functions.

To control and manage all the components of the whole operation is of course quite complex. All group members agreed on this difficulty. We concluded that that this is the reason for the key roles of the project managers and process managers during the outsourcing and implementation process. The focus group had negative experiences of the ineffective management practices of coordinators on this issue.

The focus company outsourced their information and communication system, but during the session, the group mentioned that perhaps the management should have considered the second option: insource. They considered that to insource their own software system with their own IT department may be more appropriate compared is either purchasing the software package or outsourcing the support service. They believed that choosing to insource the software, would increase probability of having a more successful and convenient system, for the personnel needs and company's scope. They underlined that insourcing would force the management to involve their-own personnel in the decision and implementation process. Also, by insourcing, they believed that at the same time management would share the responsibility with all the users', and the success, or possible failure would be shared as result. We observed during the session that, for freight forwarders which have several offices, to have a centralized management might be a disadvantage for training and practicing and practice the information and communication system with other offices. Information sharing at all levels is important.

Information and Communication System Drivers

The general advantages of information and communication are widely accepted, such as access all needed data, or saving time. For freight forwarders, there are additional reasons. Through the focus group, we sought reasons why information technologies are important for freight forwarders and why they invest in information and communication systems.

According to the literature, we determined the concepts below and examined for their effects on freight forwarders' industry through our focus group. Table4 shows the frequency of selected concepts during the session.

Table4. Mentioned Concepts about Information and Communication Systems Drivers

		Total Mentions	Theme Total Mentions
ICS Drivers	Strategy	1	122
	Customer service/customer profile/quality of service	73	
	Management decision	21	
	Continuous improvement	10	
	Budget	17	

The group emphasized that the basic driver of using or investing on information and communication system is to create value added services, as freight forwarders are service providers. From the focus group session, we observed that, for freight forwarders, the key benefit of using information and communication system, in addition to storing data or accessing it, is to provide solutions to their customers, to meet customers' demands and needs, and to secure an adequate level of service quality.

As an investment driver, they also mentioned the changing profile of freight forwarders, as discussed in the introduction. The carriers make investments to improve their accessibility to their current and target customers. They invest within their responsibilities -such as booking, scheduling and tracing. Freight forwarders also invest according to their responsibilities. As freight forwarders' scope and responsibilities have evolved, their information and communication system investments' attitude and scope has also evolved. The group mentioned that freight forwarders could not gain competitive advantage simply by matching the system used by carriers. To support the evolution of freight forwarders, one of the group members underlined that there are no longer "freight forwarders" at present, their title is changing to "logistics companies", because now their scope is not only to combine and trace shipments, but to monitor the cargo being stored in any related warehouses, and distributed through any channels. Actually as we observed during the session, their scope is wider than tracing; freight forwarders have become strategic partners of the companies.

The group also mentioned the security problem that they might face with their former information and communication system provider. According to the contact with their former service provider, the system provider had the right to access all data –past and current-. The focus company's management considered this point as a security issue, and immediately decided on to change their information and communication systems.

Perhaps due to its minor role in the decision making process, or the variable nature of the corporate culture, the group did not mention the company's current and further strategies or goals. They tried to meet their customers' requests and needs but only through the implementation of their management decisions, they had no role in the

making of these decisions. We conclude that there is a gap between the management and the daily operation level. Unfortunately this gap causes problems within all levels. For example, the group mentioned that they would not be involved in the budgeting process if there were any. Unfortunately, the management did not do budgeting. Because of some problems with their previous software company, they immediately changed their system therefore the real cost of the software could not be calculated.

Considering our session, we listed the discussed reasons of new information and communication system investments and sourcing below;

- Expansion of customer portfolio
- Expansion of the company (new companies in the holding)
- Increase importance of information due to increase in staff turnover
- Increase in number of offices
- Increase in volume
- Meeting the growing need for communication within the expanding company
- Security issues

Information and Communication System Costs

The group was not involved in the budgeting process, so we asked which costs they would consider if they were dealing with the budgeting. They mentioned several concepts about information and communication systems costs that we had listed in Table 5 from the literature. They mainly underlined the importance of time spent on the new system and the importance of training. This was because they believed that they had inadequate training, and had to spend extra time learning the software program.

They agreed that before sourcing the needs should be well defined and determined. After sourcing, any change on those descriptions or needs may not be met or the cost, moral and material cost, may be too expensive. Those unforeseen needs would be over budget and cause the failure of sourcing.

After describing the whole processes and requirements, they considered that the management should have contacted first with their previous outsourced company – the current company at the decision making period-. The management should have determined whether the software company could meet those requirements and if so what would be the cost of ownership. They believed that the total costs, including tangible and intangible costs, would be less expensive than to buy a new software system.

Table5. Mentioned Concepts about Information and Communication Systems Costs

		Total Mentions	Theme Total Mentions
ICS Costs	Direct Costs	77	85
	Time (Effort, employee time)	60	
	Training	15	
	Increased staff turnover	2	
	Indirect Costs	8	
	Management time (spent in integration IT into work)	6	
	Down-Time	-	
	Opportunity cost	2	
	Risk	-	

If they had decided to keep their previous software, the training cost, the time that the personnel spent adopting, and the management time would be saved and therefore, the opportunity costs also would be saved because the personnel had used the previous system for 6-7 years, and they were familiar with the basic format at least.

Improving the previous system to calculate the total costs may have been easier. In the contrast, buying new software and outsource their support system was like “a deep black hole” for them.

They gave an example to define what they meant by “deep black hole”: a member of staff from the marketing department said that she had spent 25 minutes to prepare a quotation for a customer, which normally takes 2-3 minutes by e-mail. By sending her quotation through the new system, she lost the opportunity to send 10 other quotations, which means the potential loss of 10 customers. This kind of intangible costs have not been sufficiently taken into account, as the calculation of those kinds of costs is almost impossible.

The problem is not only in sales and marketing department; also finance department has been effected. A member of the accounting department mentioned that because she could not use new system effectively she could not trace the receivables and payables, and she did not know how much they lost during the transition period because they could not collect their receivables on time.

As a result, they have listed the information and communication systems costs which should be calculated, as below;

- Cost of ownership
- Training costs
- The costs of implementation of software to the company
- After sales consulting / supporting cost
- Opportunity cost –unknown time spent, which is described as “a black hole”-

However they all agreed that the cost of the time spent by personnel to understand and use the system efficiently is unknown. The capacity of each personnel is not the

same, and one person's negligence can cost two others to lose time. We concluded that the company knows only the price of the software bought and the annual fee to be paid to consulting company; all other costs are unknown, and actually undefined.

At the end, they underlined that the management should determine a specific budget to "information and communication systems investment" cost each year, to support continuous development. This investment should not be considered only as physical investment. An investment in human resources to develop their own information technology department or to make a public research to develop company's information technology (IT) strategy may also be a information and communication systems investment which should be considered periodically by management.

Information and Communication System Benefits

Determining information and communication systems benefits is another challenging issue in the literature. We have selected the concepts which are mentioned in the literature and could be related with the freight forwarders. Some of these were mentioned during the session, some were not. Table6 explains the selected concepts and their frequency.

The group already mentioned that the information and communication systems investment should be made considering all components in the chain. The main aim is not only to respond their customers' needs but to use the systems to get accurate data. For example, the group mentioned that they use their system to get past data needed to make new annual contracts with carriers. They make commitments based on the data gathered from their information and communication systems system. Thus, not only when giving the service, but also during receiving the service –to serve- they need an appropriate information and communication systems system.

When considering their purchasing processes and service creating processes, they mainly mentioned reporting and data accuracy as benefits but did not mention cost reduction or improving the decision making process. In fact these concepts are directly related with each other.

Table6. Mentioned Concepts Concerning Information and Communication Systems Benefits

		Total Mentions	Theme Total Mentions
ICS Benefits	Tangible Benefits	11	28
	Cost reduction	-	
	Increase productivity	3	
	Improve service quality	8	
	Provide financial benefits	-	
	Intangible Benefits	17	
	Improve decision-making	-	
	Improve reporting (data accuracy)	14	
	Security	-	
	Increase capacity (opportunity to develop)	3	
	Competitive advantage	-	
	Increase organizational knowledge/culture	-	

In group’s majority opinion, the main benefit of information and communication systems is “quickness”, which means speed in meeting requests. Also this speed separates freight forwarders/logistics companies from carriers and each other. During their transition period, because responsiveness to customers slowed, the customers’ complaints increased. After the system become stable, response speed increased and the complaints have decreased.

A group member declared that one of the reasons for changing their software is to connect all offices, including overseas offices, into one system. Because at present only the offices in Turkey use the current system, but they have offices in USA,

Dubai, Kenya and Romania, and the management's main target is to control all offices from the central office. We noticed that the focus group company is in the transition phase, but we conclude that one of the benefits of using information and communication systems is to support the companies' control and management mechanism and allow the opportunity to monitor all functions from one point.

Murphy and Daley (2000) emphasized that the use of the internet should not be underestimated, because it supports the traceability, but at the same time, it supports the documentation process. Similar to Murphy and Daley (2000)'s study, the group underlined that the system should be adapted to on-line making the all needed notifications. Although not mentioned during the focus group study, we noticed as another benefit of information and communication systems. The increased use of on-line notifications through systems –separate from e-mails- will decrease the use of documents and, this is directly related with an environmentalist perspective.

The focus group mentioned that ultimately, considering the current situation and usage level, the main aim is to go beyond fast processes or quick responses, it is to forward the customer what they might want to know and what they might need before they ask, -if they need any additional info, the solution is to provide accessibility-. The realization of this aim will eliminate communication pollution, and will decrease the communication density; thus to improve communication quality. These kinds of opinions brought the conversation to the definition of “perfect information and communication systems”, which one group member described as follows:

“It is not possible to have different technologies for each customer to meet their demands, but we might have one to meet all. That's why the most perfect

technology for us, a technology in which our scope is well defined, in which our all processes from the beginning to the end are well determined, in which we can enter all components of our service correctly, as a result this technology will meet our customers' current expectations and requests and also will predict what we can expect or our customers expect in the further steps. “

As a result we noticed that the group was not well aware the specific benefits of the information and communication systems that they are using, but they aware that using information and communication systems is essential for freight forwarders and the importance is always increasing.

Information and Communication Systems Evaluation Methods

The evaluation process covers ex-ante (before outsourcing) and ex-post (after outsourcing) processes (Farbey et al., 1999; Doherty and King, 2001). For evaluation, there is a need to determine the performance criteria –qualitative and quantitative criteria-, and then to select and source information and communication systems according to those criteria and to measure performance, according to those determined targets and goals, before selection.

In literature, Chan (2003), identified performance criteria for a supply chain both qualitative and quantitative criteria. Unfortunately, the focus company was only aware of some of these, such as customer satisfaction, supplier performance, sales maximization or minimization of delays, but they did not set or measure targets.

Adapting Chan (2003)'s criteria to the focus company the recommended criteria can be as follows,

- Qualitative criteria
 - Customer satisfaction : Internal and external customer satisfaction
 - Flexibility
 - Integration of information and material flow
 - Efficient risk management
 - Supplier performance
- Quantitative criteria
 - Cost-based criteria
 - Cost minimization
 - Sales maximization
 - Minimization of inventory investment
 - Maximization of return on investment
 - Criteria based on customer liability
 - Minimization of cargo delays
 - Minimization of customer delivery times
 - Minimization of transit times

After determining the key performance indicators, there are several methods and several views which can be used to evaluate investments or companies' efficiency. We have selected some which cover mostly qualitative and quantitative criteria. Unfortunately for the selected focus company, because the management did not clarify and set the criteria of the investment and its evaluation, it was not possible to get feedback on their evaluation process. But as they emphasized for many subjects they underlined again that for ex-ante and ex-post evaluation of investment, the users' feedback, means the personnel's' feedback- is crucial, and the management

should pay attention to this in the same way as they pay attention to customers' needs.

Table7. Mentioned Concepts about Information and Communication System

Evaluation Methods

		Total Mentions	Theme Total Mentions
ICS Evaluation Method	Cost and Benefits Analysis	-	3
	Multi-objective Multi-Criteria Method	-	
	Value Analysis (analysis of tangible and intangible benefits)	-	
	User Information Satisfaction Analysis	3	

During the session, we tried to find their information and communication systems selection criteria. They listed the points that were possible considerations for their management as possible.

- The number of users around the world is an important issue as freight forwarders serve globally
- The selected system popularity / the recognition of the system in the world among the customers
- A system specifically focused on logistics
- A broad-based system that gives the possibility of centralized control
- A system used by majority of the key customers
- A system open to integration
- A system that matches with the company's scope and services
- A system that matches different requests of different customers – means a system that can be customized and flexible
 - o A system matches the users' / personnel's needs
 - o A system matches the requests and needs of multiple offices in different locations with different services

- An easy-use system, which even a new staff member who does not know the system can understand in short period
- A system integrated with the regulations in the countries which it is used
 - o The selected system should follow the regulation more closely than the company and be ready on time (for example, to meet e-government regulations which will be applied soon)
- A secured system
 - o All data must be secured properly and allow no possibility of access by unauthorized third parties
- A system which predicts the users' possible errors and which make provision against those possible errors
- A system in which the possible risks might be defined, in this way the system may warn in advance about the possible problems, such as delays or documentation faults

After the pre-evaluation, the most convenient system should be selected. However, the group believed the job is not finished only with selection. After we start using the system, the users' satisfaction, including personnel, and customers, if any, should be analyzed. Moreover, the system should be updated periodically.

We could not talk about cost and benefits analysis or other analysis because lack of feedback during the meeting.

Cause of Information and Communication System Investment Failures

Not every investment is a success. Most of the time, even with a good project management, because of lack of training or lack of qualified personnel, budgets overrun or the results would not be as expected. It might be case that, in order to call

it “failure”, we need a conclusion agreed upon by all decision makers, that the implementation did not fit with what was planned. In the focus group because the members were not involved in the decision making process, it is difficult to definitely describe the information system investment is a failure. However, their opinions, thoughts and experiences during the investment and transition process assisted with the analysis of the cause of failure.

The focus group was clearly unhappy with their new system. Thus, their feedback about information and communication systems investments failures is important for us.

They mentioned about some of our selected concepts during the conversation, the selected concepts and their frequencies are shown in Table8. These mainly related to the lack of training. We noticed that this negligence is caused by lack of communication and missing managerial ability of the project managers.

Several times, they mentioned mistakes in data entry in the system. Because the data were entered wrongly, the feedback to customer or even the feedback to customer’s customer would be wrong. Not only for this example, but for any case correct data entry is essential to get true and proper feedback or reports. The correct entries need qualified personnel with technology capability. If the training plan or budgeting is prepared considering some level of personnel qualitative and if the majority’s level is lower than planned, the training program would fail.

During the discussion, the group underlined several additional concepts, such as corporate culture and company policy. The group noted that because they are from main office and the main office’s customer policy and attitude, the new system was not developed according to Izmir Office’s perspective. Therefore, Izmir Office could

not assimilate into the system, and had to ask for updates constantly. Each new update causes an additional cost and also additional work. In addition, their requests could not be done without the main office approval. Also they underlined that this bureaucracy decreases Izmir Office’s motivation and willing to use the system effectively. This is a handicap for the outsourced company also because for any subject, the main office and branch office may have inconsistent demands. The focus group study, demonstrates the lack of, or unsettled, corporate culture and lack of company strategy which caused the failure of investments.

Table8. Mentioned Concepts about Causes of Information and Communication System Investment Failures

		Total Mentions	Theme Total Mentions
Causes of ICS failures	Lack of managerial ability	2	15
	Lack of communication	2	
	Lack of support	-	
	Inflexibility	-	
	Lack of training	8	
	System glitches	2	
	Lack of system integration	1	
	Lack of qualified personnel with technology capability	2	

Another interesting point is that during the system selection, management did not take their IT department’s advice. This proves that this department is not an IT department in its real meaning. A real IT department should coordinate the communication between the company’s personnel, and information and communication system company. We believed that the language that operation staff uses, and the language that an IT software outsourced company uses were be different. The IT department should be careful to use language that everyone can understand. To support this proposition, some of the group members believed that

there should be a mediating authority to coordinate the communication between the software company and their company, in fact this opinion clearly underlined the deficiency of the company's IT department. But unfortunately, within this example, IT department is only a department which is responsible for purchasing physical equipment of information and communication technology that the company needs, considering cost and quality. It is not involved such outsourcing processes like looking for suitability of the system or adaptation processes. This might be one cause of the IT investment failures.

Considering the group's expressions and our observations we can summarize the cause of failures with the summary below;

- Users have difficulties to change old habits
- Users can not adapt to the new system
- Unsettled corporate culture
- Unsettled company quality policy (Izmir branch office is more concentrated on customers' satisfaction, but main office concentrated on profit maximization)
- Lack of managerial ability
- Poor project scope
- Lack of organizational learning
- Lack of standardization
- Lack of team work
- A psychology which is suspicious of new methods
- Unexpected and unplanned transition and management costs

These results also support some studies in the literature (e.g. Gonzalez et al, 2005; Sullivan and Ngwenyama, 2005; Mendez et al, 2006; Chow and Cao, 2007)

in the end we made a short questionnaire to measure their satisfaction about their new system. We assume that each question has the equal effect and importance and calculate the results. It is interesting that in spite of their dissatisfaction with their management, and the insufficient training program, they are pleased with their new system. In time, with additional training programs and by getting used to use the system, they believed that the efficiency and effectiveness of the system would increase.

Table9. Result of Questionnaire

	Very Poor 1	Poor 2	OK 3	Good 4	Very Good 5	Un-Sure 0	Comments?
1. What do you think the efficiency of IT system that is used now?			2				
a) Ease of use		1	2	3			
b) Reporting		1	2	3			
c) Daily operation			3	2			
e) Other?							
2. What is your perception of the convenience to your IT system to your different department?			4	2			
3. What is your opinion about outsourcing your IT system?			3	2		1	
4. What do you think about benefits of your IT system for the following points;				1			
a) Increase customer service			2	3			
b) Decrease cost control level			3	2			
c) Increase efficiency in operation level			2	3			
d) Increase monitoring in management level				3			
e) Opinion?	1						
	3	23	24			1	

Considering our observations during the study, to understand this contrast between the conclusions of the session, and the short questionnaire, we recommend that the managements should communicate closely and honestly. The focus group session helps group members to give their opinions and thought; they would like to be heard.

Generally speaking, main problem is not the system that they use for information and communication, but the quality of communication among the system users.

3.4.2.1. Limitations of Focus Group

There are some limitations of our focus group study, such as;

- The company that the researcher is working has been selected due to company profile, scope and its position in the market, but also due to easy access. Familiarity with the company and subject may have limited the group members' expressions and explanation on some points.
- The selected group member was not involved in the outsourcing process, such as budgeting or selection process. Therefore, they could only share their comments about those subjects, rather than the process of decision-making in the company.
- To allow easy access to the Izmir branch, Izmir branch's key personnel have been selected (One marketing manager, one sales manager, one pricing supervisor, one import operation supervisor, one export operation supervisor and accounting manager, total 6 people). But due to lower level positions of most of the members in this group, in addition to their non-participation in the outsourcing decision-making process, they may have incomplete or inaccurate information about the process.
- Some members dominated the discussion, and some members were unable to share their thoughts and comments. For some points we were unable to get everyone's opinion.

CHAPTER 4

CONCLUSION AND DISCUSSIONS

Information and communication system is one the key enablers of inter-organizational systems, and has three important roles for organizations: supporting business operations, supporting managerial decision making, and providing strategic competitive advantage (Saatcioglu et al, 2009). In this study, one of our aims was to understand the main information and communication systems selection drivers and freight forwarders' attitude to these. From questionnaires results we developed some propositions. After focus group study, considering those propositions we conclude that Turkish freight forwarders mostly are driven by their customers' requests and needs and their information and communication systems investment mainly aims to support their daily business operations. For freight forwarders, information and communication system is investments that will pay back, but because to calculate the exact costs and benefits are difficult they have difficulties to evaluate their investments. Freight forwarders develop and grow as much as their customers develop and grow. However, they are reluctant to go beyond these requirements, therefore, they tend to follow the market, not lead it. Especially in Izmir region that we studied, it is rare to make new investments is very rare and difficult as a result of this conservative strategy of Turkish freight forwarders.

The questions we set out to answer are as follows;

- How do freight forwarders decide on which information and communication systems they select? What are the information and communication systems

investments objectives of freight forwarders? How do they select their information and communication systems service providers?

Turkish freight forwarders are well aware of their changing profile; therefore, to create differentiated customer services, they tend to make new investments in information and communication systems/information technologies. Their basic investment driver is their customers' profile and their customers' requests. As we were able to observe from the focus group study, their portfolio and volume increase, and their structures expands, and enter new offices and they choose new markets in the world; as a result their need to increase control gains importance. This control requires them to use information and communication systems as a monitoring tool to closely follow business and financial activities. We concluded from the study results that freight forwarders should be more systematic and organized while identifying the reasons for their investments. They should avoid composing gap between the users and the management. A seamless communication chain and a well-accepted and well-adopted corporate culture are needed for success in every area.

- How do they evaluate their information and communication systems investments? How do they assess the effectiveness?

Unfortunately, as we observed from focus group study, freight forwarders consider their main driver as their customers' needs and requests; and they believe that the main benefits of using information and communication system is to store data to use when their customers need them, to save time. This is because most of freight forwarders could not clearly determine their performance criteria and therefore, could not measure them effectively. As we clearly experienced in the focus group session, there are informal assessments within the organizations among users, who

are dissatisfied, but most of the time these assessments could not be shared with the management or and if they could, they believe these assessments would not be considered by management. From our observations during the study we can conclude that actions should be taken; the criteria should be defined with the participations of all stakeholders, and they should be measured periodically. If needed, new targets and criteria should be set and continuous improvement should be provided.

- Is there a common attitude for all freight forwarders?

Considering our propositions, today, it cannot be clearly stated that freight forwarders use information and communication systems to support their decision making process or as a strategic tool. Information and communication systems are still a cost of information and communication applications. They were not able to exploit these as an investment because of management deficits, management errors, or lack of corporate culture. Thus, they could not even define their investments' costs and/or their benefits. On the other hand, freight forwarders are well aware of their need for change, but due the lack of strategic management, due to lack of know-how and lack of qualified human resources they do not know how to precede.

The selected focus company considering the title and the scope of the study was not an appropriate example, because the group members were not involved in the decision making process, and were not the right members. The group did not fully assist us in addressing this study's basic research questions but because the results showed that the freight forwarders' place in their process of institutionalization. However, we decided to not change the focus company. We can underline that Turkish freight forwarders have still a long process before they are able to institutionalize. Today's freight forwarders should become successful businesses at

first through education of management, with qualified personnel, and with seamless communication chains, and their strategy and culture; then they should decide to grow, develop and investment. Turkish freight forwarders have still internal management issues to solve unfortunately, thus, they lack a spirit of entrepreneurship which is the reason they could not become the leaders of the market.

4.1. Recommendations for Further Researches

Within this study there was only one selected company, but this study could be extended to more companies. More samples provide more comprehensive results and a greater contribution. On the other hand, the content of the study might be broadened to the other outsourcing functions of the logistics companies. Also some quantitative methods should be used.

The sector could also be diversified. If the context of this study was to be applied to manufacturer, a ground for comparison about the decision making of a service producer and a commercial good producer will be created. This comparison will assist companies to develop a decision making process according the output that they create, and also will assist IT companies to meet their customers' requirements.

In the study we mentioned different names of freight forwarders in different countries. This study should be extended to different geographies to understand geographical differences and to verify the results.

Finally, freight forwarders and logistics companies' investments in information and communication technology could be studied in relation to e-logistics, e-trade and e-government.

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APPENDICES

Appendix-A Informed E-Mail

(This e-mail format sent to companies to explain the concept of the study and ask for questionnaire request.)

Dear Mr./Mss./Mrs.,

I have reached you with the kind references of Mr./Mss./Mrs....

While I continue my duty as Operations Manager, I'm also trying to complete my master degree thesis. The selection criteria of information technologies in logistics companies are the subject of my thesis.

The aim of the study to investigate and to determine;

- Differences in information technologies used by companies in the Turkish or foreign origin,
- Differences in information technologies used by companies with / without their own assets,
- Differences in information technologies depends on the locations of their own offices,
- Differences based on their customer profiles.

Within this context, by guidance of enclosed questions, I request your valuable opinions and experiences. I would be glad if you do not mind answering the questions whether as face-to-face interview whether as internet interview.

Thank you in advance for your cooperation and your support, I wish you good work.

Appendix-B Informed E-Mail (Turkish Version)

(Konu elektronik posta çalışmanın içeriğini açıklamak ve anket randevusu talep etmek için seçilen firmalara gönderilmiştir.)

Merhaba ... Bey/Hanım,

Sizin detaylarınıza Bey/Hanım'ın referansı ile ulaştım.

İzmir Şube Operasyon Müdürü görevime devam ederken, aynı zamanda da yüksek lisans tezimi tamamlamaya çalışıyorum. Tezimin konusu lojistik firmalarda kullanılan bilgi teknolojileri seçim kriterleri.

Araştırmanın amacı;

- Türk ve yabancı menşeli firmaların kullandıkları bilgi teknolojilerindeki farklılıkları,
- Öz mal sahibi olan veya olmayan lojistik firmaların bilgi işlemleri sistem seçimlerindeki farklılıkları,
- Kendi ofislerinin bulunduğu bölgelere göre olan farklılıkları,
- Müşteri profillerine göre farklılıkları,

Eğer varsa belirlemek ve benzeri konuları araştırmaktır.

Bu amaçla ekli sorular paralelinde sizin değerli görüş ve tecrübelerinizi rica ederim. Eğer gerek yüz yüze gerek ise internet üzerinden cevaplayarak yardımcı olabilirsiniz çok sevinirim.

Şimdiden işbirliğiniz ve desteğiniz için teşekkür eder, iyi çalışmalar dilerim.

Appendix-C Questionnaire

- 1) Briefly, please tell us about yourself and your company?
 - a. What are your company's business activities?
 - b. How would you describe your field of expertise? (Sea, land, air, warehousing, etc.)
 - c. Does your company have their own assets / equipment?
- 2) In which countries do you have your own offices with your name? Are there any with different activities?
- 3) Are you using an information/operating system?
 - a. If you are using, including the management, are all aware of the system at least generally?
- 4) Are you using a single operations system? Yes / No
- 5) Or;
 - a. The system varies to their activity area?
 - b. For different customers of yours, you are using different operating system?
 - c. According to the countries where your own offices locate, the operating system that you have is changing?
 - d. If you are using different systems, please explain the reasons.
- 6) Are you using your own software or do you outsource it?
 - a. If you are using your own software, why?
- 7) What were the criteria which you evaluate while you are selecting or writing your operating system?

- a. Do you evaluate and consider the internal customers' (company's users) needs and use as much as you consider external customers' needs and use?
- 8) For how long are you using your current system? Do you plan to change it? On which period do you update it? On which criteria/data do you update your system?
- a. Do you measure internal customer's satisfaction in the term of ease of use, reporting performance, etc.? On which period?
 - b. Like you do with your employees, do you also measure your operating system performance with your customers?
 - c. Do you follow further technologies on the market?
 - d. What is your budget to spend to your operating system to develop / change and update?
- 9) In which area of use do you feel most the impact of using information technologies? Maybe the reduction of costs or the increases at acquisition of new customers or may be the increase of performance or may not be...
- 10) Do you believe that your company's future will be impacted by your current operating system?

Appendix-D Questionnaire (Turkish Version)

- 1) Kısaca kendinizden ve firmanızdan bahsedebilir misiniz?
 - a. Firmanızın faaliyet alanları hangileridir?
 - b. Uzmanlık alanınızı nasıl tanımlarsınız? (deniz, kara, hava, depo olarak tanımladığınız.)
 - c. Öz malınız var mıdır?
- 2) Hangi ülkelerde kendi isminiz ile ofisleriniz bulunmaktadır? Farklı faaliyet alanları olanlar var mıdır?
- 3) İşletim sistemi kullanıyor musunuz?
 - a. Kullanıyor iseniz, yönetim dâhil herkes sistemin geneli konusunda bilgi sahibi midir?
- 4) Tek bir işletim sistemi mi kullanıyorsunuz? Evet / Hayır
- 5) Ya da kullandığınız işletim sistemi;
 - a. Faaliyet alanlarına göre farklılık gösteriyor mu?
 - b. Farklı müşterilere farklı işletim sistemleri kullandığınız oluyor mu?
 - c. Kendi ofislerinizin bulunduğu ülkeye göre işletim sistemlerinin değiştiği oluyor mu?
 - i. Farklı işletim sistemleri kullanıyorsanız nedenleri nelerdir?
- 6) Kendi yazılımınızı mı kullanıyorsunuz yoksa dışarıdan mı tedarik ettiniz?
 - a. Eğer kendi yazılımınızı kullanıyorsanız neden?
- 7) Kullandığınız işletim sistemini seçerken veya yazarken değerlendirdiğiniz kriterler nelerdi?
 - a. Dış müşterilerin ihtiyaçları ve kullanımını düşündüğünüz kadar iç müşterilerinizin (şirket çalışanlarının) da ihtiyaçlarını ve kullanımı değerlendirdiniz mi?

- 8) Ne kadar zamandır bu sistemi kullanıyorsunuz? Bu sistemi deęiřtirmeyi dūřünüyor musunuz? Güncellemelerini hangi aralıkla yapıyorsunuz? Güncellemeleri hangi verilere/kıstaslara göre yapıyorsunuz?
- Çalışanların, kullanım kolaylığı, raporlama performansı, vb. etkenler dūřünülererek, iřletim sisteminden memnuniyeti ayrıca ölçüyor musunuz? Hangi aralıklarla ölçüyorsunuz?
 - Çalışanlarınız ile deęerlendirdiđiniz gibi, müşterileriniz ile de iřletim sisteminizin performansını ayrıca ölçüyor musunuz?
 - Alternatif bilgi iřletim sistemlerini de takip ediyor musunuz?
 - İřletim sisteminizin gelişmesi/deęiřmesi/güncellenmesi için ne kadarlık bir bütçe ayırıyorsunuz?
- 9) Bilgi işlemleri sistemi kullanmanın etkisini en çok hangi alanlarda hissettiniz? Maliyetlerin azalmasında olabilir veya yeni müşterilerin kazanımı olabilir veya performansın artması olabilir...
- 10) Şirketinizin geleceđinde kullandığımız iřletim sisteminin etkisi olduđuna inanıyor musunuz?

Appendix-E Discussion Guideline (English Version)

Thank you for your time to participate our study today. I'm Ahu Yiğittekin, the main researcher and here is Asst. Prof. Öznur Yurt, my supervisor.

The session will last approximately one and half hour. We have several questions to discuss about freight forwarders and information technologies, and a small questionnaire to fill in.

With your approval, we would like to tape this session, the record will assist us during our analysis. That's why it is important that we speak one at a time.

This is not a judgmental study, we are not looking for right or wrong, all of your comments and opinions are important to us, we would be glad if you can share all.

If you feel uncomfortable during the session or you do not understand the questions clearly, please let us know, feel free to ask any thing you need at any time.

Appendix-F Discussion Guideline (Turkish Version)

Bugün, bu çalışmaya katılmayı kabul ettiğiniz ve zaman ayırdığınız için çok teşekkürler. Ben Ahu Yiğittekin, bu çalışmadaki asıl araştırmacıyım. Sn. Doç Dr. Öznur Yurt ise bu çalışmadaki akademik danışmanım.

Tartışmamızın yaklaşık olarak 90 dakika sürmesini planlıyoruz. Freight forwarderlar ve bilgi teknolojileri üzerine soracağımız bazı sorular ve doldurmanızı istediğimiz ufak bir anketimiz olacak.

Sizin de onayınız ile toplantımızı kayıt almak istiyoruz. Bu kayıt bize görüşmemizi değerlendirme sürecinde yardımcı olacaktır. Bu sebeple tek tek konuşmaya özen göstermenizi rica ederiz.

Ayrıca belirtmek isterim ki, bu araştırma doğru veya yanlış arayan, sorgulayan bir çalışma değildir, anlamaya yönelik bir çalışmadır. Bu sebeple her birinizin ayrı ayrı fikirleri bizim için çok önemli. En ufak bir fikrinizi bile bizimle paylaşmanızı rica ederiz.

Eğer toplantı boyunca kendinizi rahatsız hissederseniz veya soruları tam açıklayıcı bulmazsanız lütfen hemen bildirmekten çekinmeyiniz.

Appendix-G Focus Group Questions (English Version)

- 1- What is information technology?
 - a. Different concepts are understood when information technology is mentioned, what is its definition in your opinion?
 - b. What its definition for freight forwarders?
 - c. Is it essential?
 - d. Is it necessary to manage?
- 2- What are the sub-processes, or what are the stages of the processes?
- 3- Do you think that the use of information technology gives an advantage to freight forwarders, or gives what kind of advantages?
 - a. Is information technology a tool for more effective communication with clients and within the company?
 - b. What are the positive effects of shared information?
 - c. Does provide a competitive advantage?
- 4- Do you think information technology is necessary for more effective management of internal processes (such as operational and marketing – in terms of sales)?
- 5- Do you think that your need for information technology and its applications differentiate from other organizations, because you are freight forwarders?
- 6- What is understood when IT investment is mentioned? (Outsourcing process must be understood)
- 7- What are the sub-processes?
 - a. How the decision of supplier is made?
 - b. Who were involved in the information technology investment process?

- c. How did the process work?
 - d. With which stage the process has begun?
 - e. How the budgeting was made?
- 8- How do your company's IT investment process has changed and evolved until now? *(the aim is to define the process from the time that the company used excel till today and to define how this process develop, and if there are failures, to understand the causes of failures)*
- a. What has effect this change?
 - i. Customer demand and request
 - ii. The extension of customers' portfolio
 - iii. The development of company's financial power
 - iv. To have assets / the increase of number of assets
 - v. Is safety / risk management a factor?
 - b. In the investments up to now, are there any investments which you called as a failure?
 - i. How do you define the failure?
 - 1. Wrong investment/project?
 - 2. Wrong project management?
- 9- In the investment process (to change and/or develop), on which criteria the invested information technology was determined?
- a. According to what these are decided?
 - b. What are the roles of upper-lower-middle level management in this process?
 - c. Who got involved in the decision-making process?
 - d. What are the positive and negative points in this process?

e. How the appropriate process should be defined?

10- Are investment process management / information technology outsourcing important? What are your comments and experiences in this topic?

11- What are the benefits gained after the investment?

a. Maybe tangible and intangible benefits?

i. When you compare with the benefits which are targeted before the investment, do you find the results successful?

ii. Before all targets are identified properly and shared with all stakeholders?

12- How should be a perfect information system?

a. Should managerial systems and operational systems be separated?

Have developed special versions according to the user or the system must be customized?

13- Instead of outsourcing, if you were source your system in-house, worse or better, do you think that the process, outcomes or benefits would be different?

(the topics like the importance of management or the competence of the users should be evaluated)

a. Do you think that you will be providing a cost advantage?

14- To have your own abroad offices or the extension on your range of services, how those points change your needs of information technology?

a. Do you use an integrated system with their foreign partners?

b. If they do not, what are the advantages and disadvantages?

15- In the future, has the information and communication technology importance to the change in the freight forwarders' profile? What will be its impact?

(APL?)

Appendix-H Focus Group Questions (Turkish Version)

- 1- Bilgi teknolojileri nedir?
 - a. Bilgi teknolojisi denildiğinde farklı kavramlar anlaşılabilir, sizce tanımı nedir?
 - b. Bir freight forwarder için tanımı nedir?
 - c. Olmazsa olmaz mıdır?
 - d. Yönetilmesi gerekli midir?
- 2- Alt süreçler nelerdir, ya da sürecin aşamaları nelerdir?
- 3- Sizce bilgi teknolojileri kullanımı freight forwarder'a bir avantaj sağlıyor mu veya ne gibi avantajlar sağlıyor?
 - a. Bilgi teknolojileri şirket içi ve müşterilerle iletişim daha etkili olmasında bir araç mıdır?
 - b. Bilgi paylaşımının olumlu etkileri neler olabilir?
 - c. Rekabet avantajı sağlıyor mu?
- 4- Sizce bilgi teknolojileri, şirket içi süreçlerin(operasyonel ve pazarlama – satış anlamında) daha etkin bir şekilde yönetilmesi için gerekli midir?
- 5- Sizce freight forwarder olmanız bilgi teknolojileri ihtiyacınızı ve uygulamalarınızı diğer organizasyonlara göre farklılaştırıyor mu?
- 6- IT yatırımı denildiğinde ne anlaşılıyor? (Tedarik süreci anlaşılmalı)
- 7- Hangi alt aşamalar var?
 - a. Tedarikçiye nasıl karar verildi?
 - b. Bilgi teknolojileri yatırımına kimler dâhil oldu?
 - c. Nasıl işledi süreç?
 - d. Hangi aşama ile başladı?
 - e. Bütçe çalışması nasıl yapıldı?

8- Firmanızın IT yatırım süreçleri şu zamana kadar nasıl değişti ve gelişti?

(Excel kullanımından bugüne kadar olan süreci ve bu sürecin neye göre nasıl geliştiğini tanımlamak ve eğer başarısızlık varsa, başarısızlığın sebeplerini anlamayı amaçlanmakta)

a. Bu değişime ne etki etti?

i. Müşteri talebi

ii. Firmanın portföyünün genişlemesi

iii. Firmanın finansal gücünün gelişmesi

iv. Öz mal sahibi olması / Öz malın artması

v. Güvenlik/risk yönetimi bir etken mi?

b. Şu zamana kadar ki yatırımlarınızda başarısız olarak nitelendirdiğiniz var mı?

i. Başarısızlığını nasıl tanımlarsınız?

1. Yanlış yatırım/proje?

2. Yanlış proje yönetimi?

9- Yatırım süreçlerinde (değiştirilecek ve/veya geliştirilecek) bilgi sistemleri ne gibi kısıtlara göre belirlenmişti?

a. Bunlara neye göre karar verildi?

b. Üst-alt-orta kademe yönetimin bu süreçteki rolü nedir?

c. Karar sürecine kimler dâhil olmuştur?

d. Bu süreçteki eksiler/artılar nelerdir?

e. Olması gereken süreç nasıl tanımlanmalıdır?

10- Yatırım süreç yönetimi/bilgi teknolojilerinin dışarıdan temini önemli midir?

Bu konudaki tecrübe, deneyim ve yorumlarınız nelerdir?

11- Yatırım sonrası elde ettiğiniz faydalar nelerdir?

- a. Somut ve soyut faydalar olabilir?
 - i. Yatırım öncesi hedeflediğiniz faydalarla kıyasladığınızda sonucu başarılı buluyor musunuz?
 - ii. Öncesinde gerçekten hedefler doğru belirlendi ve tüm kullanıcılar ile paylaşıldı mı?

12- Kusursuz bir bilgi sistemi nasıl olmalıdır?

- a. Yönetimsel sistemler ayrı, operasyona dayalı sistemler ayrı mı olmalı? Kullanıcıya göre özel sürümler mi geliştirilmeli, yoksa sistem özelleştirilebilir mi olmalı?

13- Sisteminizi dışarıdan değil de kendiniz yazmış olsaydınız, iyi veya kötü, sürecin, sonuçların, faydaların daha farklı olacağını düşünüyor musunuz? *(Yönetimin önemi, kullanıcıların yeterlilikleri gibi konuların değerlendirilmesi gerekli)*

- a. Maliyetlerde bir avantaj sağlayacağınıza inanıyor musunuz?

14- Yurtdışında kendinize ait ofislerinizin olması veya hizmet yelpazenizin genişliyor olması, bilgi teknolojilerine olan ihtiyaçlarınızda ne gibi değişikliklere sebep oldu?

- a. Yurtdışı acenteleri ile bütünleşmiş bir sistem mi kullanıyorlar?
- b. Kullanmıyorlarsa bunların avantajları, dezavantajları neler?

15- Gelecekte freight forwarder'ların kimlik değişiminde bilgi ve iletişim teknolojilerinin önemi olacak mıdır? Nasıl bir etkisi olacaktır? *(4PL?)*

Appendix-I Themes and Concepts (English vs. Turkish)

	English	Turkish	
Information and Communication Systems	Communication tools (information and communication technology)	İletişim	Bilgi ve İletişim Sistemleri
	Applications (listed in the study)	Uygulamalar	
	Information	Bilgi	
	Resource	Kaynak	
	Investment	Yatırım	
	Outsourcing	Tedarik	
ICS Drivers	Strategy	Strateji	BİS Faktörleri
	Customer service/customer profile/quality of service	Müşteri talebi	
	Management decision	Yönetim	
	Continuous improvement	Sürekli iyileştirme	
	Budget	Bütçe	
ICS Costs	Direct Costs	Direkt Maliyetler	BİS Maliyetleri
	Time (Effort, employee time)	Zaman	
	Training	Eğitim	
	Increased staff turnover	Ayrılan çalışanlar	
	Indirect Costs	Dolaylı Maliyetler	
	Management time (spent in integration IT into work)	Yönetim zamanı	
	Down-Time	Sistemin durması	
	Opportunity cost	Fırsat maliyeti	
Risk	Risk		
ICS Benefits	Tangible Benefits	Somut Faydalar	BİS Faydaları
	Cost reduction	Maliyet avantajı	
	Increase productivity	Üretkenlik/Verimlilik	
	Improve service quality	Servis/Hizmet kalitesi	
	Provide financial benefits	Finansal fayda	
	Intangible Benefits	Soyut Faydalar	
	Improve decision-making	Karar sürecine etki	
	Improve reporting (data accuracy)	Raporlama	
	Security	Güvenlik	
	Increase capacity (opportunity to develop)	Gelişim aracı	
	Competitive advantage	Rekabet avantajı	
	Increase organizational knowledge/culture	Artan örgüt kültürü	
ICS Evaluation Method	Cost and benefits analysis	Fayda maliyet analizi	BİS Değerlendirme Yöntemleri
	Multi-objective Multi-Criteria Method	Çoklu-Amaç Çoklu-Kriter Yöntemi	
	Value Analysis (analysis of tangible and intangible benefits)	Değer analizi	
	User Information Satisfaction Analysis	Kullanıcı memnuniyeti	

Appendix-I (Cont'd) Themes and Concepts (English vs. Turkish)

Cause of ICS failures	Lack of managerial ability	Yönetim eksikliği/yönetimsizlik	BİS Başarısızlık Etkenleri
	Lack of communication	İletişim eksikliği/iletişim sorunu	
	Lack of support	Desteksizlik	
	Inflexibility	Katılık	
	Lack of training	Eğitim eksikliği/eğitimsizlik	
	System glitches	Sistem sorunu	
	Lack of system integration	Entegrasyon sorunu	
	Lack of qualified personnel with technology capability	Kalifiye personel eksikliği	