T.C.
MARMARA UNIVERSITY
INSTITUTE FOR GRADUATE STUDIES IN
PURE AND APPLIED SCIENCES

OUTSOURCING LOGISTICS IN MILITARY: A MODEL PROPOSAL

Ufuk TÜREN

THESIS

**FOR THE DEGREE OF DOCTOR OF PHILOSOPHY
IN
ENGINEERING MANAGEMENT**

**SUPERVISOR
Asst. Prof. Dr. Bahar SENNAROĞLU**

İSTANBUL, 2008

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ACCEPTANCE AND APPROVAL DOCUMENT

The jury established by the Executive Board of the *INSTITUTE FOR GRADUATE STUDIES IN PURE AND APPLIED SCIENCES* on May 28, 2008 (Resolution no: 2008 /13-14) has accepted Mr. Ufuk TÜREN 's thesis titled "*Outsourcing Logistics in Military: A model proposal* " as Doctor of Philosophy thesis in Engineering Management.

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DIRECTOR OF THE INSTITUTE

The views and opinions expressed in this Thesis are those of the author and do not necessarily represent the established policy of the Ministry of Defense, Turkish Armed Forces, Turkish Land Forces or the unit where the author works.

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June, 2008 **Ufuk TÜREN**

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ÖZET

SİLAHLI KUVVETLERDE LOJİSTİĞİN DIŞ KAYNAKTAN SAĞLANMASI: BİR MODEL ÖNERİSİ

70'li yıllardan itibaren hızlanan ulaştırma vasıtaları, telekomünikasyon ve bilgi sistemleri şebekelerinin dünya yuvarlağının neredeyse tamamını kapsamasının sonucu küreselleşme kavramı ortaya atılmıştır. Bu olgunun ekonomik ve askeri tüm işlemleri etkisi altına almasıyla artan ve sertleşen rekabet ortamı, örgütleri maliyetleri konusunda daha dikkatli olmaya itmiştir. Ayrıca bu durum tüm dünyadaki hizmet ve mal üreticileri ile rekabet etmeye hazır olmak demektir ki, yalnızca hepsinden daha kaliteli ve güvenilir olmayı hedeflemek ile gerçekleşebileceği çok açıktır.

Küçülen dünyamızda değişen bu şartlar öncelikle sivil örgütlerde stratejik seviyede, Soğuk Savaşın bitmesi ile beraber öncelikle ABD'de ve sonrasında batı ordularında yapısal bazı değişikliklere neden olmuştur. Günümüzde silahlı kuvvetlerin bütçeleri ve maliyetleri çok sık tartışılan bir husus haline gelmiştir. Soğuk Savaş döneminde her türlü fonksiyonunu kendi bünyesinde bulunan organları ile yerine getiren ve kendi organik kuruluşu ile kendine her yerde yetmeye yönelik tasarlanmış olan ordular, küçülme ve kendi bünyesinde topladığı fonksiyonların bir kısmını dış kaynak kullanarak yerine getirmenin yollarını arar olmuştur.

Dünyada bu değişimler yaşanırken Türkiye'nin bunlardan etkilenmemesi mümkün değildir. T.S.K., özellikle K.K.K. son yıllarda kapsamlı ve planlı bir küçülme ve yeniden yapılanma sürecine girmiştir. Bu süreç dâhilinde çeşitli birimlerde, özellikle muharip olmayan bazı fonksiyonlarda, dış kaynak kullanımına gidildiği gözlense de bu uygulamalar kurumsal hale gelmemiştir. Küçülme ve yeniden yapılanma sürecini tamamlamayı hedefleyen ordunun maliyetleri düşürme ve kendi asli görevi olan muharebe sahası ana fonksiyonlarına odaklanmasını sağlamak maksadıyla dış kaynak kullanımının karar vericiler tarafından değerlendirilmesinin uygun olacağı düşünüldüğü için bu çalışmaya başlanmıştır.

Çalışmamızın amacı lojistik hususlarda dış kaynak kullanımı, silahlı kuvvetlerde lojistiğin dış kaynaktan sağlanması hakkında gerekli temel bilgileri bir sistematik ışığında sunmak, silahlı kuvvetlerde lojistiğin dış kaynaktan sağlanması

hakkında bir yatkınlık modeli ortaya koymaktır. Tugay seviyesinde lojistik ve muharip birimlerde görev yapan subay ve astsubaylara bir alan çalışması uygulanmıştır. Toplanan veri çoklu istatistik yöntemleri ile çözümlenmiş ve yorumlanmıştır.

ABSTRACT

OUTSOURCING LOGISTICS IN MILITARY: A MODEL PROPOSAL

The term "globalization" emerged as result of speeding up transportation vehicles, telecommunication and information networks which have been covering almost whole surface of the globe since 1970's. Increasing and hardening competition influencing economic and military transactions has urged organizations be careful about their costs. Besides, this situation requires being prepared for competition with global service and commodity producers and also requires aiming to have better quality and reliability than others.

In our decrescent world, changing conditions caused some strategic level changes in civilian organizations, after Cold War some structural changes primarily in USA and then all western armies. The budgets of armed forces have become frequently debated issue lately. The armies, designed as self sufficient in the Cold War era, have been seeking ways to downsize and outsource some of the functions performed by military units before. While those changes emerging in the world, it is impossible for Turkey not to be influenced. Turkish Armed Forces, especially Turkish Land Forces is in the process of gradual and planned reorganization and downsizing in recent years. Although outsourcing some functions, which are especially non-combatant, has been observed, those applications have not become institutional yet. This research is launched because it is believed that outsourcing logistics in military should be considered by the decision makers of the army who are determined to finish its process of reorganization and downsizing with the aim of focusing into its core competences, reducing costs and increasing efficiency.

The purpose of our study is to present basic knowledge about outsourcing, outsourcing logistics in military systematically and propose an intention model of outsourcing for military. A field survey is conducted to army professionals; the commissioned officers and Non-commissioned Officers who are working in brigade level different logistics or combatant positions. Multivariate data analysis methods are used to analyze and interpret the gathered data.

June, 2008 **Ufuk TÜREN**

CLAIM FOR ORIGINALITY

OUTSOURCING LOGISTICS IN MILITARY: A MODEL PROPOSAL

The value of a research study can be judged by contributions it makes to the knowledge base in that area. This study contributes to a better understanding of logistics outsourcing intention of the professionals in Turkish Land Forces through the application of theory to military, research methods, scale purification and development and causality relationships affecting the logistics outsourcing intention score of the Commissioned Officers and Non-commissioned Officers.

This research makes its most important contribution to an application of theory in logistics outsourcing in military through empirical testing the relationships. The empirical study of relationships between economic and managerial incentives and outsourcing disincentives, and logistics outsourcing intention of military professionals has never been conducted before. Most previous researches have focused on civilian logistics outsourcing performance and its underlying factors, and the effects of outsourcing applications in military. Besides, most of these studies are theoretical.

In addition to making a contribution to theory development, this study investigated logistics outsourcing intention based on not only the incentives and disincentives of military logistics outsourcing but also the knowledge of outsourcing. To conduct this investigation, measures for economic and managerial incentives and outsourcing disincentives were developed. This development was necessary because valid scales were not currently available. Thus, new scales for measuring the incentives and disincentives of logistics outsourcing in military were designed and tested. On the other hand, for measuring the intentions of logistics outsourcing of military professionals, 45-item logistic functions list, derived from combat service support functions of army, conducted to subjects for three different national defense situations; peace, war and internal security operations. The mean of those data sets were put into the analyses as dependent variable. Finally the effects of independent variables on dependent variable were tested to support proposed theory.

June, 2008 **Asst. Prof. Dr. Bahar SENNAROĞLU** **Ufuk TÜREN**

ABBREVIATIONS

3PL	:	Third Party Logistics
4PL	:	Forth Party Logistics
ACP		Administrative Cost Prospect
ANOVA	:	Analysis of variance
BTS	:	Bartlett's Test of Sphericity
CO	:	Commissioned Officer
CRP	:	Cost Reduction Prospect
CSS	:	Combat Service Support
DMU	:	Decision Making Uncertainty
EFA	:	Exploratory Factor Analysis
EOD	:	Explosive Ordnance Disposal
ERL	:	Environmentally Responsible Logistics
HOP		Hollowing Out Prospect
ICT	:	Information and Communications Technology
Int.Sec.Ops.		Internal Security Operations
IT	:	Information Technologies
KMOMSA	:	Kaiser-Meyer-Olkin Measure of Sampling Adequacy
LOIS	:	Logistics Outsourcing Intention Score
LSP	:	Logistics Service Providers
MEP	:	Macro –Economic Prospect
MLO	:	Military Logistics Outsourcing
NCO	:	Non-commissioned Officer
PCA	:	Principle Component Analysis
PSM	:	Purchasing and Supply Management
QIIP	:	Quality Improvement & Innovation. Prospect
SCM	:	Supply Chain Management
SCRM	:	Supply Chain Risk Management
TCCP	:	Turning to Core Competences Prospect
TLF	:	Turkish Land Forces
TUAF	:	Turkish Armed Forces
VIF	:	Variance Inflation Factor

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PART I: INTRODUCTION AND OBJECTIVES

With the globalization of businesses, the world has become a big village through rapid transportation and telecommunication possibilities and information networks covering almost whole surface of the globe. Organizations have found themselves in a violent global competition. Domestic markets have been opened to international sellers and buyers. This environment necessitates the ability of organizations to deliver customer adapted products or services all over the world quickly and on time (Sohail and Sohal, 2003) and specialization and labor division.

In the history, division of labor had debated by many philosophers and scientists from Plato to Taylor.

> *"Well then, how will our state supply these needs? It will need a farmer, a builder, and a weaver, and also, I think a shoemaker and one or two others to provide for our bodily needs. So that the minimum state would consist of four or five men...." (Plato, 390 BC: 221)*

After industrialization age during the 18th and 19th centuries, the division of labor, which had been initiated and applied by Taylor (1911) in Bethlehem Steel Company, has transformed into **inter-organizational labor division** for the last two decades. In this process, organizations have gradually tried to eliminate most of their non-core functions or activities and focused their core business competencies. This evolution in the business world has created highly expert sector firms keeping their business portfolio narrower than before. To remain competitive, organizations seek to deliver to their customers high-quality products in the right time at the right price (Abdel-Malek et al., 2005). This extensive motive caused those vertically integrated self-sufficient corporations generally have abolished their non-core functioned departments in order to exploit much more professional suppliers' capabilities existing in competitive markets. This application in the business world has been called "outsourcing".

As Prochaska (2003) claims that the term outsourcing could be loaned from the US private economy and is derived from the expression "outside resource using", The American Heritage® Dictionary (2006) defines outsourcing as "the procuring of

services or products, such as the parts used in manufacturing a motor vehicle, from an outside supplier or manufacturer in order to cut costs".

The term "**economies of scale**" is another macro economic concept that should be considered strategically by the governments under outsourcing umbrella. Outsourcing non-core function to an expert, professional party having relatively low overhead and transaction costs, provides not only satisfactory income for logistics service providers but also macro economic benefit for the nations.

Though it has been emphasized as a new concept in contemporary business literature, outsourcing is a phenomenon that has been in use for hundreds of years and is utilized across industries throughout the world. Industry's goal with outsourcing is to shift those operations that do not relate to their core competencies to separate less expensive facilities. In theory, this not only lowers the company's bottom line, but also allows them to focus only on their primary capabilities (Warren and Fagan, 2005). It has been defined in a number of ways, but essentially, it is the transfer of a function previously performed in-house to an outside provider. It involves the movement of work, but not often the transfer of responsibility and accountability or oversight, to the external provider. Outsourcing is also rapidly becoming one of the dominant practices particularly in logistics (Cardinali, 2001) naturally since the logistics operations cover the heaviest burden among all non-core activities in the organization. In this business environment, companies beginning to focus their main /core business area, try to look for secure and reliable outsourcing partners. Those partners mostly are professional logistics firms. Although there have been various terms used to describe this phenomenon such as "logistics alliance", "operational alliances in logistics", "contract logistics", "contact distribution" (Sohail and Sohal, 2003) they are widely called "**third party logistics providers**" (3PL).

There were a few main motives behind the outsourcing efforts of organizations:

1. reducing or controlling costs,
2. improving the organization's focus on its core competency,
3. getting access to world-class capabilities,
4. sharing the risks and rewards of its business with others,
5. accelerating re-engineering of the organization (Pena, 2001).

During those changes in the business world, the Cold War was finished in the early 1990s. The governments began thinking about the high public and military cost

of the nations and decided to diminish especially military costs without compromising military force power and quality of security services. Outsourcing is widely accepted as quality improving and cost reducing method by western governmental agencies and armed forces. Vertically integrated, highly hierarchical, self sufficient, majestic armies of west have marched the route of outsourcing non-combatant activities. If those non-combatant activities are scrutinized briefly in the literature, Cardinali (2001) reports a number of military support functions such as food service, sanitation and showers, recreation, construction, laundry service, translation services, running base camps, communication and maintenance, either outsourced or privatized in the US military since the Gulf War in 1991. On the other hand, Torsten (2005) implies that after changing threat against Sweden, the immense conscript Sweden army transforms into an agile modern army and enters into the path of outsourcing maintenance and logistical functions to industry and service providers outside its own structure to focus its core business functions, optimize logistics support functions under budget constraints imposed by politicians and increase efficiency of supply chain management.

It is quite clear that the question of "how to outsource" as much important as "what to outsource" must be answered systematically. As Prochazka (2003) emphasized on the efforts of outsourcing similar non-combatant tasks, he proposes some criteria for outsourcing implementation decision of functions in Czech Republic Army. Those criteria are;

- Private entrepreneurial subjects must be able to run their activities in peace, crisis and/or war.
- The outside resource must not replace execution of basic military activities.
- The activity must be backed by a competitive market to develop a pressure for raising the quality, effectiveness, and price-cutting.
- There must be motivation for continuous improvement of services.
- The outsourcing implementation must result in the highest value.
- The specific area must have a clear potential for raising the effectiveness in a long-term economic perspective.

Another perspective of military logistics outsourcing (MLO) is to strengthen the military service companies which should be considered in family of defense

industry. The highly developed countries having robust defense industry always gets the biggest part of the cake from any conflict all around the world using their technological advantages. In order to satisfy the demand created by western armies in many hot spots, civilian logistics providers market has been recently accruing domestically and internationally. Although the nature of the business is extremely risky to support an army of a developed country in any territory, it is considered a lucrative sector for developing countries' defense industry not having the competing technological advantages.

I.1. OBJECTIVE OF THE THESIS

Since the end of the Cold War in the early 1990s, western policy makers have been reducing the size of military and contracting out many non-combatant jobs. Outsourcing logistics is a widely used issue of today's modern armies. Turkish Armed Forces (TUAF), which is known to be one of the most powerful and modern armies in the world and known as the most powerful in its region and according to CIA Factbook (2003) having a $12.155 billion budget doesn't outsource logistics functions as much as the other modern western armies. TUAF performs almost all support duties itself with its indigenous personnel and equipment. Although TUAF is highly organized, well functioned and self-sufficient, it is evaluated that Turkish Army should consider the advantages of outsourcing non-combatant functions, which provides freeing up soldiers for strictly combat operations and cost reduction.

According to the author of this study, outsourcing logistics in Turkish military should be studied in the field and also a statistical model must be constructed. This covering model will be a guide for application of outsourcing in the military. The aim of this study is to investigate up to date MLO applications and create an outsourcing intention model concerning logistics.

I.2. SCOPE OF THE THESIS

To keep our scope manageable, we focused on to construct a logistics outsourcing intention model for the military. For an organization, which is highly hierarchical, disciplined and well-organized overall Turkey, an outsourcing concept is considered very important as a guide for the decision makers in every different level. The critical factors, dimensions and measures that influence the outsourcing intention of the officers and NCOs of Turkish Land Forces (TLF) are demonstrated.

Chapter 2, Literature Review; provides the basic background information to give the reader a quick insight into the concept of logistics, supply chain management, outsourcing logistics, and outsourcing logistics in military.

Chapter 3, Research Method; provides the proposed framework and the description of the research method.

Chapter 4, The Results; includes statistical analyses of the field survey; reports the empirical results of construct validation procedure including Exploratory Factor Analysis and Reliability Tests for the theorized model, and presents hypothesis tests, statistical analyses and interpretations.

Chapter 5, Conclusion; summarizes the major findings of the analyses, and theoretical and practical implications of this study, and provides limitations and several research areas that deserve further investigations.

.

PART II: GENERAL BACKGROUND

The purpose of this chapter is to review the relevant literature dealing with outsourcing logistics in military. To reach this purpose it is considered necessary to integrate observations, theories reported or studied in army logistics, outsourcing logistics and outsourcing logistics in military literature. In addition, before beginning these issues, the wide most covering concept of procurement theory of organizations shall be defined to make the frame more comprehensible, this term is supply chain management (SCM). The studies referred in this section are the main source for building measures and relationships of the proposed model of conceptual framework. This chapter first reviews SCM theory to draw clear picture of the frame. Second, an overview of outsourcing logistics, outsourcing army logistics, advantages and disadvantages of outsourcing applications in army logistics functions. In addition, 94 empirical studies concerning outsourcing in different business areas scanned from the literature are examined and summarized in a form of table including five different fields; reference, basic variables, aim, sample space, and findings. This table is presented in Appendix B.

II.1. SUPPLY CHAIN MANAGEMENT

As far back as history records, the goods that people wanted were not produced where they wanted to consume them, or these goods were not accessible when people wanted to consume them (Ballou, 2004: 1). Even today, the time and location difference between production site and consuming site is one of the most rigid constraints of business world. Logistics activities provide the bridge between production and market locations that are separated by time and distance (Ballou, 2004: 3). An integrated management approach to logistics factors emphasizes on the coordination and collaboration among the members of logistics interactions practiced. This understanding of business logistics covers the processes from the point where raw material exists to the point where final products are ultimately disposed. Logistics is also concerned with the flow of services as well as physical goods.

Supply chain is another term that has emerged in recent years that captures the essence of integrated logistics and even goes beyond it. Supply chain encompasses

all activities associated with the flow and transformation of goods from the raw material stage (extraction), through to the end user, as well as the associated information flows. Materials and information flow both up and down the supply chain (Ballou, 2004: 5).

A supply chain can be viewed as a corporation plus its supply network, its distribution network, its alliance network, and its end users involved in procuring, producing, and delivering products and services to customers. The last decade has witnessed an explosive growth in supply chain applications in the industry (Deshpande, 2000).

Reference Encyclopedia (2006) defines SCM as the process of planning, implementing, and controlling the operations of the supply chain with the purpose to satisfy customer requirements as efficiently as possible. SCM spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point of origin to point of consumption.

Firms today increasingly consider SCM to be a major vehicle to gain a competitive advantage in turbulent markets. While firms have traditionally acted as sole economic entities in the market, they have begun to form strategic alliances with other firms, integrating their business processes, and consolidating their resources (Kwon et al., 2007). It has been accepted as a branch of management science, and SCM professionals have emerged in the business world. On the other hand, it is one of the most studied issues in the scholars of Engineering Management, Industrial Engineering, and Business Administration.

According to the Global Supply Chain Forum, SCM is defined as the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders (Lambert and Cooper, 2000). Parallel to definition above SCM enables firms to identify the efficient inventory level while increasing inventory turnover by utilizing logistics database. Also, it increases logistics efficiency and flexibility through quality and productivity enhancement, efficient machine operations, and production space reduction (Kaeli, 1990). In addition, firms can have a stronger market position and greater customer satisfaction from better responsiveness to customers, and economies of scale from the best and stable relationship through long-term strategic alliances and networks with suppliers (Kim, 2007) stressing the importance of building relationships and business processes that deliver optimal

value to customers by ensuring that value is created at each stage of the supply chain (Yemisi et al., 2007) through well performed applications. It also stresses the alignment of supply chain strategies and processes between business partners enables service improvements to be achieved at less cost. By releasing value in this way, prices can actually be reduced if necessary whilst still maintaining the supplier's margin (Christopher and Gattorna, 2005).

The period of 1960-1980 produced a great variety of publications, ranging from articles to textbooks discussing the subject of logistics management. The roots of SCM can be localized in logistics literature. The term was first mentioned by the management consultants Oliver and Webber in the early 1980's to shift attention to cross-functional integration (Delfmann and Albers, 2000) since they saw logistics problems at strategic management level and considered "logistics management" term as narrow. Very different usage of term can be observed in the literature. Delfmann and Albers (2000) report a brief overview of different understanding of SCM (Table II.1).

Table II.1 Understanding of SCM (Delfmann and Albers, 2000: 2)

Understanding (SCM is seen as …)	**Author/s**
Approach	Johannsson (1994)
Concept	Bechtel / Jayaram (1997), Schary / Skjott-Larsen (1995)
Perspective	Ellram (1991)
Philosophy	Cooper / Lambert / Pagh (1997), Lambert / Cooper / Pagh (1998), Cooper / Ellram (1993)
Technique	Turner (1993)

SCM is a set of approaches used to efficiently integrate suppliers, manufacturers, warehouses, and stores, so that merchandise is reduced and distributed in the right quantities, to the right locations, and at the right time in order to minimize system-wide costs while satisfying service level requirements (Jeong, 2006). These definitions clearly indicate the wide scope of supply chain management and also draw attention to the importance of tracking material flow, information flow, and capital flow (Figure II.1).

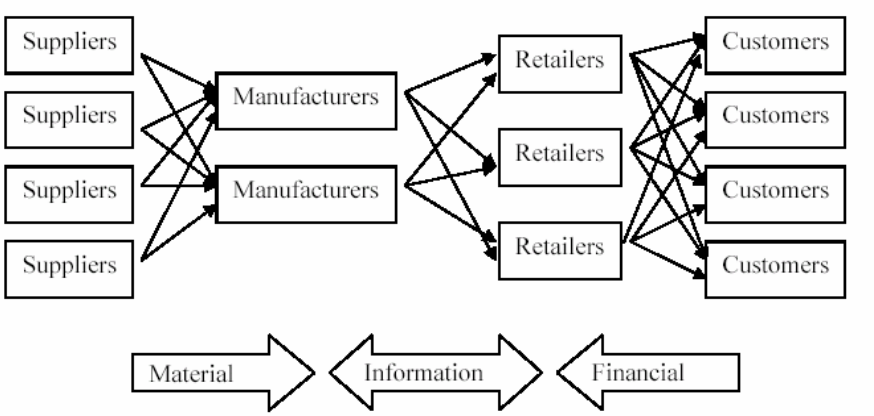

Figure II.1 Supply Chain Flows (Jeong, 2006: 51)

The actors practicing in supply chain network are called logistics partners. Logistic partnership is scrutinized in the frame of SCM. Knemeyer et al., (2003) reports types of SCM relations in their study. The partnership types (I, II, III) as parts of the spectrum of supply chain management types are shown in the Figure II.2.

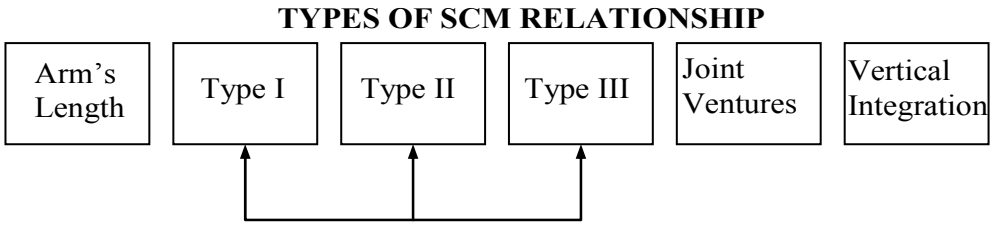

Figure II.2 The Types of SCM Relations (Knemeyer et al., 2003: 79)

In this categorization arm's length refers a classical way of procurement which dictates customer to go to market and find most suitable product or service with best price whenever a demand occurs.

In Type I sides recognize each other as partners and the relationship as a limited partnership. This relationship includes coordinating activities and planning typically in short term focus and a scope of only a few areas within each organization. Type II partnerships provides not only coordination and planning but also integration of activities. This type has a longer-term view towards the partnership and involves multiple areas within both firms. Finally, Type III partnerships involve organizations sharing a considerable level of operational and strategic integration. Parties see the relationship almost everlasting and each other as an extension of their own organization. As relationships move from Type I to Type III, a customer party will have a decreasing number of partnerships. Type III

partnerships are called fourth party logistics (4PL) in some works in the literature (Figure II.3).

The logistics consulting firm **Accenture** registered 4PL as a trademark in 1996 (Lynch, 2005), and defined as the use of a consulting firm (the 4th party) to integrate and manage a company's logistic resources and providers, including 3PLs and transportation companies (Marino, 2002). Andersen Consulting has defined 4PL as: "A supply chain integrator who assembles and manages the resources, capabilities, and technology of its organization with those of complementary service providers to deliver a comprehensive supply chain solution" (Skjoett-Larsen, 2000).

Bade et al. (1999) reports that; while outsourcing third-party logistics is now accepted business practice, 4PL is emerging as a breakthrough solution to modern supply chain challenges....to provide maximum overall benefit.

As it can be seen in Figure II.3 and Figure II.4, 4PL providers are supply chain coordinators that integrate and direct its own resources, capabilities, and technology with those of other complementary service providers to offer an overall supply chain service. Since 4PL provides supply chain solutions for multiple clients, the investment in technology is spread across the clients. Thus, the investment required in technology will be minimized in a 4PL relationship. The 4PL will integrate the client's supply chain activities and supporting technologies across these "best of breed" service providers, with the capabilities of its own organization.

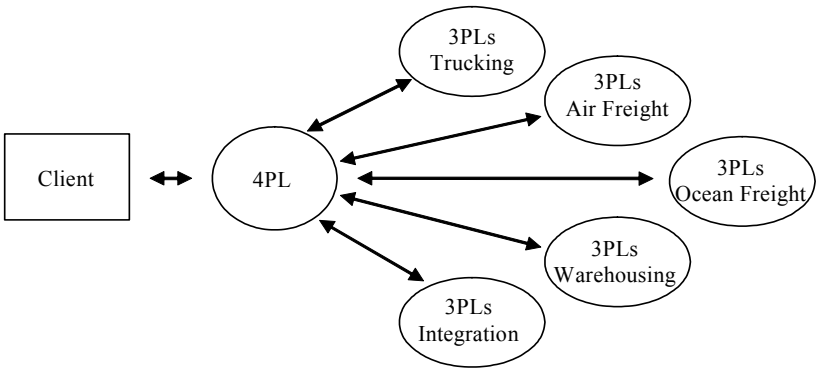

Figure II.3 Fourth Party Logistics (Peters, 2006: 5)

4PL differs from 3PL in several respects (Skjoett-Larsen, 2000); (1) The 4PL organization is often a joint venture between a primary client and one or more partners; (2) The 4PL organization acts as a single interface between the client and multiple logistics service providers; and (3) All, or a major part, of the client's supply chain is outsourced to the 4PL organization.

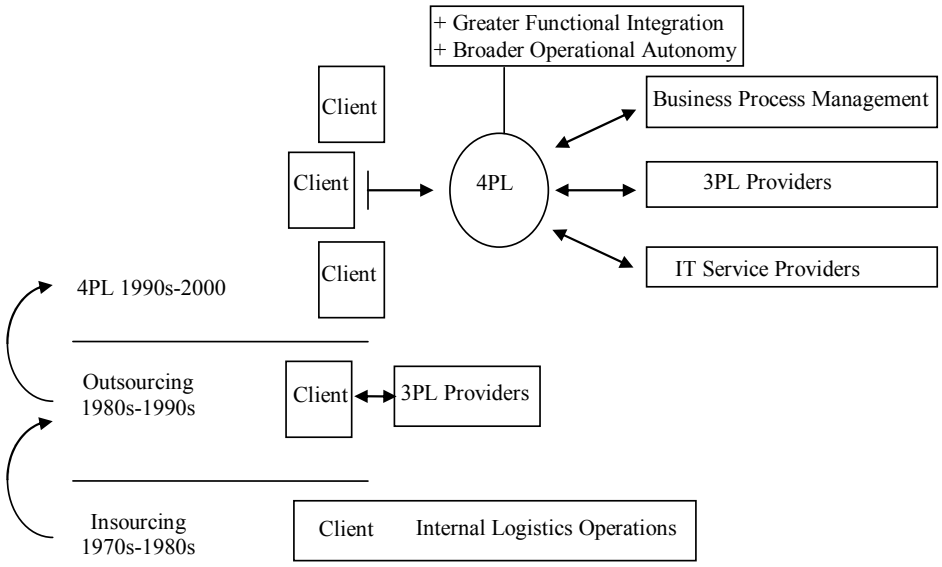

Figure II.4 Evolution in Supply Chain Outsourcing (Bade et al., 1999: 7)

The three types of partnerships reflect increased strength, long-term orientation, and level of involvement between the parties. It should be noted that no particular type of partnership is better or worse than any other. The key is to try to obtain the type of relationship that is most appropriate given the business situation (Knemeyer et al., 2003). Luke et al. (2004) adds two extra types of outsourcing to four types of outsourcing, namely "Total Outsourcing", "Total Insourcing", "Selective Outsourcing" and "De Facto Outsourcing" which were defined by Willcocks et al. (1997); "Offshore outsourcing" and "Business Process Outsourcing."

II.2. OUTSOURCING LOGISTICS

Outsourcing is one of several elements of supply chain management generally applied toward increasing efficiency in operations. For the most part, many companies see outsourcing as a cost reduction mechanism and many firms have several third-party contracts (Aghazadeh, 2004).

Traditionally, outsourcing in its original understanding is an abbreviation for "outside resource using". "Outside" means creating value not within the own company. With this outside perspective, a company's borders become more and more interesting. The idea of borderless organization is the integration of external partners for creating and adding value to end customers (Arnold, 2000). Through the establishment of strategic networks supported with IT, early supplier participation becomes an important aspect for organizations. Third-party logistics was identified

as a separate industry and service only in the late 1980s, and there have been numerous studies of the industry as it has grown. (Ashenbaum et al., 2005).

In his book, Post-Capitalist Society, Peter Drucker (1993) referred to outsourcing as a needed, radical change in business philosophy. He wrote that this change

> *"...means that the big business, the government agency, the large hospital, the large university, will not necessarily be the one that employs a great many people. It will be the one that has substantial revenues and substantial results-achieved in large part because it, itself, does only work that is focused on its mission; work that is directly related to its results; work that it recognizes, values, and rewards appropriately. The rest it contracts out." (Lynch, 1998).*

Outsourcing is a strategic decision to contract out one or more activities required by the organization to a third-party specialist. In today's competitive world, successful outsourcing is a powerful tool for companies to generate value and gain competitive edge over rivals. Companies can focus on their core competencies and rely on their outsourcing partners for non-critical processes and operations.

According to Millen et al. (1997) outsourcing should not be seen as an "all or nothing" kind of decision. Their analysis suggests that a mixed system, combining the use of in-house and third party facilities, may prove the best. A recent study among transport managers in the US food industry also found that 38 per cent of the companies have outsourced between 25 and 99 per cent of their transport These arguments lead to the question of whether logistics outsourcing decisions are perceived as "all or nothing" propositions or do companies prefer the combined use of 3PL and in-house resources (Wilding and Juriado, 2004).

II.2.1. Advantages of Outsourcing

Outsourcing activities have become one of the most important organizational functions in the 21st century. Firms in developed countries no longer undertake all the operations in the supply chain because they focus on their core business, which means outsourcing logistics activities in the first place, followed by other organizational functions (Aktaş and Ülengin, 2005). Few phenomena in public or private management and organization have raised so much scholarly attention in such a short period of time as cooperation, strategic alliances and partnership between complementary or competitor organizations (Zineldin and Bredenlow, 2003). Inter-organizational labor division and cooperation were scrutinized from wide range of

theoretical viewpoints including management, economics, and sociology. There are many advantages of outsourcing including the following principle areas: cost reduction, customer service improvement, increased competitive advantage and company profitability, as well as the opportunity to focus on the company's core competence and to expand its markets.

In an era of information, where "knowledge", "managing for value", "customer services" and "customer care" in addition to issues of scale economies have become the primary levers of competitive advantage, managers are required to balance synergies as "managing for value" and "customer care", against "cost discipline" and "economic profit"(Kakabadse and Kakabadse, 2000).

The main reasons for outsourcing reported by Wilding and Juriado (2004) presents an overview of the main reasons for outsourcing as established by previous studies as "cost reduction", "improvement of service levels", "increase in operational flexibility", "focusing on core competencies", "improvement of asset utilization", and "change management".

Kakabadses (2001) reports four main benefits of outsourcing partnership; "specialization", "clarifying configurational arrangements", "flexibility", "cost savings" and four main cost; "hollowing out", "loss of skills and corporate memory", "weakened innovative capacity", "transition and switching costs".

Kujawa (2003) summarized the following categories of reasons to outsource and the benefits sought by Greaver (1999). These are "Organizationally driven reasons", "Improvement driven reasons", "Financially driven reasons", "Revenue driven reasons", "Cost driven reasons", and "Employee driven reasons".

Embleton and Wright (1998) give the following list of outsourcing advantages in their study: "Cost savings", "Time savings", "Discovering hidden costs", "focusing on core activities", "Cash infusion", "Reaching talents not available in house", "Re-engineering", "Improving corporate culture and change", "Increasing shareholder value through cost reduction", "Greater flexibility", "Accountability through controlling expenditures", "Labor peace", "Freeing up in-house staff", "Access to specialists", "Greater productivity", "Chance to handle distant problems", "Relieving management from different staff functions", and "Improving quality".

II.2.2. Disadvantages of Outsourcing

In many ways, the outsourcing decision is one of the most difficult decisions that an individual organization must make. Besides the advantages reported above, there are naturally some threats caused by outsourcing phenomena.

In the literature of outsourcing there have been many reasons cited by scholars to decide not to outsource. Kujawa (2003) reports some of them; (1) The company's control would be diminished by outsourcing. (2) Service commitments by the company to its customers would not be met. (3) Costs would not be reduced by outsourcing. (4) The company has adequate expertise to perform the particular activities in-house. (5) The particular activity, function or process being considered for outsourcing is too important to outsource. (6) Outsourcing is too complex to be considered and thus that the possibility for success is too slight. According to Handfield and Nichols (2002: 129), a company assumes a great risk if it chooses the wrong supplier to provide the product or service. The supplier's capabilities may have been misstated, the process technology may be obsolete, or the supplier's performance may not meet the expectations. After a period of time it may be too late to react since the market for the final product may be already captured. Moreover, while it may cause loss of control over the processes, it is also the potential for losing key skills and technology which may weaken an organization future competitive position. Al-kaabi et al. (2007) posit that outsourcing as process is, not risk free, making an organization vulnerable to supplier opportunism, such as the rising of prices or the loss of key capabilities in the short term.

II.3. MILITARY LOGISTICS

Logistics is the lifeblood of armies

(Anonymous)

Logistics is the process of moving, storing and handling materials, components and finished products, and related information from point of origin to point of consumption in a manner that meets or exceeds the customer's requirement for least total cost. Its major subcomponents are transportation, inventory planning and management, warehousing, materials handling, administration, and logistics information systems. In some industries, the total cost of these logistics operations represents the single highest cost of operations (Prater, 1999).

Although the term logistics has many different definitions, a widely accepted definition of logistics was provided in 1998 by the Council of Logistics Management;

> *"Logistics is that part of the supply chain process that plans, implements, and controls the efficient, effective flow and storage of goods, services, and related information from the point of origin to the point of consumption in order to meet customers' requirements"*

The logistics as a concept had been used in all the mobilization effort of the armies since very beginning of the warfare history. The most famous conquerors or combat philosophers like Alexander the Great, Cengiz Khan, Mehmet the 2nd, Selim the 2nd , Napoleon and Sun-Tzu emphasized on the importance of logistics factors in military operations (Chung, 1999). In most of the Ottoman campaigns, the most thoroughly planed factors were logistics factors (Yıldız, 2006: 15).

> *"The more I see of war, the more I realize it depends on administration and transportation…It takes little skill or imagination to see where you would like your army to be and when; it takes much knowledge and hard work to know where you can place your forces and whether you can maintain them there. A real knowledge of supply and movement factors must be the basis of every leader's plan; only then can he know how and when to take risks when those factors, and battles are won only by taking risks".*
>
> *Napoleon*

Perhaps no other words can best summarize the important roles military logistics plays in the conduct of warfare than the about said by Napoleon himself (Chung, 1999).

According to Thorpe (1986: 2) who was an army officer, strategy is to war what the plot is to the play; Tactics is represented by the role of the players; Logistics furnishes the stage management, accessories, and maintenance. The audience, thrilled by the action of the play and the art of the performers, overlooks all of the cleverly hidden details of stage management.

The primary function of the military logistics system is the planning, movement and sustainment of combat forces in the execution of a military strategy and operations. The functional areas represent a blend of civilian and military interaction which includes supply systems, maintenance systems, general engineering systems, and health services. These areas carry out the logistics process which is represented by four elements: acquisition, distribution, sustainment, and

disposition. At the strategic level, the logistics system, through these functional areas, ensures the necessary logistics resources are procured, allocated, and distributed to the operational commanders to generate combat forces, sustain their operations and achieve maximum combat effectiveness (Potvin, 1996).

Historian Stanley Falk describes logistics on two levels. First, at the intermediate level, logistics is essentially moving, supplying, and maintaining military forces. It is basic to the ability of armies, fleets, and air forces to operate-indeed to exist. It involves men and materiel, transportation, quarters, depots, communications, evacuation and hospitalization, personnel replacement, service, and administration. Second, at a higher level, logistics is: …economics of warfare, including industrial mobilization; research and development; funding procurement; recruitment and training; testing; and in effect, practically everything related to military activities besides strategy and tactics (Rainey and Scott, 2004). Ironically, Logistics, in the words of one irreverent World War II supply officer, is "the stuff that if you don't have enough of, the war will not be won as soon as" (Falk, 1986).

The effectiveness of the logistics system rests on the shoulders of the military commanders. When operational commanders experience difficulties in formulating and implementing strategy and tactics, their counterparts in the logistics system are responsible to eliminate or minimize these complications, obstacles, or delays in the operational plans. If these complications are significant enough, without the effective support of the logistics system, the strategy can fail internally even before it is put into action (Potvin, 1996).

Turkish Armed Forces traditionally have provided logistic support through in-house arrangements in four separate echelons of support. Firstly lines, which is the organizational term for where the support is provided – First at the unit (battalion), Second or intermediate at brigade or division, Third at depot and Fourth with industry, usually the original equipment manufacturer. Level of Support refers to the complexity of support undertaken, usually referring to maintenance. First is driver/operator level, second is unit technicians undertaking minor work at battalion, Third is major work at intermediate and depot and fourth is major overhaul at depot or in industry. These well tried and tested arrangements whilst inherently sound are expensive in military manpower, training, facilities and spares holdings and require a long logistic tail to support them. The continuation of a seamless system makes the

demarcation line between the levels less visible as organizations and functions interweave within each one. Figure II.5 depicts this system.

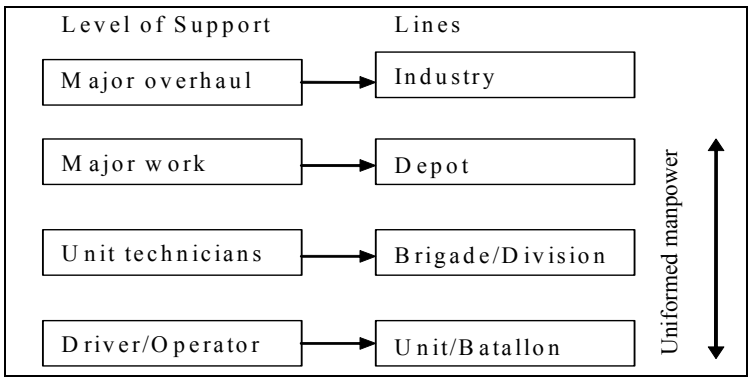

Figure II.5 Traditionally in-house logistic support arrangements

When tailoring a support force for a particular plan or crisis response, logisticians must consider that regardless of the size of the support force, support will move through the logistics system to produce the sustainment needed.

II.3.1. Principles of Military Logistics

Logistics principles represent the guiding factors in the formulation of logistics techniques and are based as much on political will and national economic capabilities as they are a product of operational necessity. Logistics principles are distinguished from logistics techniques – the former having a relatively high degree of endurance, while the latter may change very rapidly with advances in technology. Logistics techniques have changed as often as military technology changed; logistics principles have not changed significantly. However, the priorities placed on certain logistics principles have changed as national strategies have changed (Potvin, 1996). The following logistic principles are not a checklist but rather a guide for analytical thinking and prudent planning (FM 100-10, 1995: 1-2).

Responsiveness: It is the right support in the right place at the right time. This is the keystone of the logistic principles, for all else becomes irrelevant if the logistic system cannot support the concept of operations of the supported commander.

Simplicity: It is avoidance of complexity and often fosters efficiency in both the planning and execution of national and theater logistic operations.

Flexibility: It is the ability to adapt logistic structures and procedures to changing situations, missions, and concepts of operations. Logistics plans and operations must be flexible to achieve both responsiveness and economy.

Economy: It is the provision of support at the least cost. This element must continually be considered.

Attainability: Attainability (or adequacy) is the ability to provide the minimum essential supplies and services required to begin combat operations. An operation should not begin until minimum essential levels of support are on hand.

Sustainability: It is a measure of the ability to maintain logistic support to all users throughout the theater for the duration of the operation. This focuses the supporting commander's attention on long-term objectives and capabilities of the supported forces.

Survivability: It is the capacity of the organization to prevail in the face of potential destruction. Active measures must include a plan for ground defense of logistic installations with provisions for reinforcement and fire support. Passive measures include dispersion, physical protection of personnel and equipment, deception, and limiting the size and capabilities of an installation to what is essential for the mission.

II.3.2. Combat Service Support

The logistics in military is often called as a name for some functions of **combat service support** (CSS) in the tactics and field manuals.

> ***"Combat Service Support:*** The essential capabilities, functions, activities, and tasks necessary to sustain all elements of operating forces in theater at all levels of war. Within the national and theater logistic systems, it includes but is not limited to that support rendered by service forces in ensuring the aspects of supply, maintenance, transportation, health services, and other services required by aviation and ground combat troops to permit those units to accomplish their missions in combat. Combat service support encompasses those activities at all levels of war that produce sustainment of all operating forces on the battlefield..." (FM 100-10, 1995: 1-1).

According to Field Manual FM 100-10 Combat Service Support (1995), the functions of service support in the combat theatre are summarized below.

II.3.2.1. Supply.

Supply is the acquiring, managing, receiving, storing, and issuing all classes of supply, except Class VIII, required to equip and sustain Army forces (see Table II.2). This wide-ranging function extends from determining requirements at the national level to issuing items to the user in theater.

Table II.2 Classes of Supply (FM 100-10, 1995: A-1)

Classes of Supply	
Class	**Supplies**
I	Subsistence, gratuitous health and comfort items.
II	Clothing, individual equipment, tentage, organizational tool sets and kits, hand tools, unclassified maps, administrative and housekeeping supplies and equipment.
III	Petroleum, fuels, lubricants, hydraulic and insulating oils, preservatives, liquids and gases, bulk chemical products, coolants, deicer and antifreeze compounds, components, and additives of petroleum and chemical products, and coal.
IV	Construction materials, including installed equipment, and all fortification and barrier materials.
V	Ammunition of all types, bombs, explosives, mines, fuzes, detonators, pyrotechnics, missiles, rockets, propellants, and associated items.
VI	Personal demand items (such as health and hygiene products, soaps and toothpaste, writing material, snack food, beverages, cigarettes, batteries, and cameras—nonmilitary sales items).
VII	Major end items such as launchers, tanks, mobile machine shops, and vehicles.
VIII	Medical materiel including repair parts peculiar to medical equipment.
IX	Repair parts and components to include kits, assemblies, and subassemblies (repairable or non-repairable) required for maintenance support of all equipment.
X	Material to support nonmilitary programs such as agriculture and economic development (not included in Classes I through IX).
Miscellaneous	Water, salvage, and captured material

II.3.2.2. Field Services

Field services are essential services to enhance a soldier's quality of life during operations. They consist of clothing exchange, laundry and shower support, textile repair, mortuary affairs, preparation for aerial delivery, food services, billeting, and sanitation.

Transportation Support: Transportation is moving and transferring units, personnel, equipment, and supplies to support the concept of operations. Transportation incorporates military, commercial, and multinational capabilities. Transportation assets include motor, rail, air and water modes and units; terminal units, activities, and infrastructure; and movement control units and activities.

Ordnance Support: Ordnance support, often called Maintenance, entails actions taken to keep materiel in a serviceable, operational condition, returning it to service, and updating and upgrading its capability. It includes performing preventive

maintenance checks and services; recovering and evacuating disabled equipment; diagnosing equipment faults; substituting parts, components, and assemblies; exchanging serviceable materiel for unserviceable materiel; and repairing equipment.

Health Service Support: Health service support consists of all services performed, provided, or arranged to promote, improve, conserve, or restore the mental or physical well-being of personnel in the Army and, as directed, for other services, agencies, and organizations. It conserves the force by preventing disease and nonbattle injuries; clearing the battlefield of casualties; providing far-forward medical treatment and hospitalization; providing en route care during medical evacuation; providing veterinary, dental, combat stress control, and laboratory services; and ensuring adequate Class VIII supplies, medical equipment, and blood are available.

Human Resource Support: Human resource support provides all activities and functions to sustain personnel manning of the force and personnel service support to service members, their families, Department of the Army civilians, and contractors. These activities include personnel accounting, casualty management, next-of-kin notification, essential personnel services, postal operations, and morale, welfare, and recreation. Joint doctrine refers to human resource support as personnel service support.

Band Support: Army band support is the provision of music to instill in soldiers the will to fight and win, foster the support of citizens, and promote National interests at home and abroad. Bands support information operations, provide music to the civilian community, promote patriotism and interest in the Army, and demonstrate the professionalism of Army forces.

II.4. DEFINING TLF'S NON-CORE COMPETENCIES TO OUTSOURCE

Outsourcing process starts with defining the non-core functions of the organizations. Defining the non-core functions requires first defining the core ones. During the last decade, the theory of competence-based competition has drawn a considerable amount of attention from academics and practitioners alike. The theory asserts that in order to fully exploit the business opportunities and resists

environmental threats, it is essential that firms should understand the portfolio of their competencies (Hafeez et al., 2006).

Core competency represents a business term that found its way into the military's lexicon in the 1990s. The origins of the term trace back to a work published by the business strategist Hiroyuki Itami, in his 1987 work titled *Mobilizing Invisible Assets*. Itami's principal argument was that "the essence of successful strategy lies in "*dynamic strategic fit*", the match of external and internal factors as well as the content of the strategy itself. Itami's "invisible assets," such as technological know-how or customer loyalty, equated to a firm's core competencies. Other authors have elaborated on Itami's *invisible assets*, calling them the *core competencies* of a firm (Rudesheim, 2001). In their Harvard Business Review article, Prahalad and Hamel (1990) define core competence as "the collective learning in organization, especially how to coordinate diverse production skills and integrate multiple streams technologies". There is a distinction between corporations with a portfolio of competencies and corporations with a portfolio of businesses. In the long run, competitiveness derives from an ability to build, at lower cost and more speedily than competitors, the core competencies that spawn unanticipated products. Prahalad and Hamel (1990) analogize a diversified company as a large tree, the trunk and major limbs as core products, the smaller branches as business units, the leaves as end products and the .root system providing nourishment, sustenance and stability as core competence, and suggest companies to focus on their core competences for success. Many researchers have pointed out that competences should be identified from firm capabilities rather than resources, must be very valuable in business operations and help to sustain the competitive advantage, and must be unique in marketplace and collective in nature (Hafeez et al., 2006). The real sources of advantage are to be found in management's ability to consolidate corporate wide technologies and production skills into competencies that empower individual businesses to adapt quickly to changing opportunities.

For several years there has prevailed a trend that manufacturing companies focus their operations on core activities and outsource some of their other activities, such as logistics operations, to third parties (Huiskonen and Pirttilä, 2002). This trend is not only for manufacturing sector but also for service sector.

It is very thorough process for organizations to distinguish the concept of core competence from an organizational capability. A capability is also a core competence

when the following three conditions are met: (1) the capability is valued by the customer, (2) can be applied across multiple business units or products, (3) is unique and cannot be easily imitated by competitors (Handfield and Nichols, 2002: 122). If all three conditions hold, there is an opportunity that a function under scope is a real core competence for an organization.

Among contemporary business trends today is a movement by many firms to revise their priorities and focus their resources on a limited number of selected activities and processes. As a rule, specialization contributes to economies of scale and helps simplify organizational structures. Proper logistic outsourcing permits the armed services to focus on their respective core competencies. In short, outsourcing frees personnel to focus on what they do best (Rampy, 2005). Parallel to outsourcing applications in business world, outsourcing or contracting in military primarily needs to define the core competences of TLF. The core competences naturally vary from nation to nation but most of the lists of core competences of modern democratic state armies are similar to each other. TLF's core competencies are the essential and enduring capabilities of service. While some of them are not necessarily unique to army, they define our fundamental contributions to our national security. The following Core Competences are derived from Army Field Manual - 01 (2001).

- Shaping the Security Environment
- Prompt Response.
- Mobilize the Army
- Forcible Entry Operations
- Sustained Land Dominance
    - Close With and Destroy Enemy Forces
    - Precision Fires and Maneuver
    - Information Superiority
    - Command and Control of Joint and Multinational Forces
    - Control and Defend Land, People, and Natural Resources
    - Conduct Sustainment Operations
- Support Civil Authorities.

The Army is expected to remain capable of defending the country and nation, and prepared to perform any other mission across the spectrum of conflict. The core competencies enable TLF to carry out any mission, anytime, anywhere in any region. Despite the fact that military logistics is one of the most important functions for the success of above mentioned core competencies it is not mentioned among them. In other words, CSS is the most convenient issue that can be considered for outsourcing. All of the issues listed above as core competence are related with the main functions of the combat theater. For TLF, the military logistics or CSS has been

considered as the first issue for outsourcing applications. If it is scrutinized under three conditions mentioned by Handfield and Nichols (2002), army logistics doesn't satisfy any of them. The customer of the armed forces is the nation since it produces security service for whole country. The logistics capabilities are not the final products of the institution. Adversely, they are inputs for the process to reach the final product, namely security. Thus, SCC is not valued by the customer. The second condition does not hold for army logistics since army does not sell SCC to other parties. The third condition never holds for SCC because army logistics can be easily imitated by other parties in civilian sector. Naturally, there are many 3PL supporting troops in different nations' armies.

II.5. 3PL FIRMS IN THE BATTLEFIELD

Supply chains are integrated by having various parties enter into and carry out long term mutually beneficial agreements usually called 3PL. The general idea behind it is that one organization allows a specialist company to provide it with one or more logistics functions (warehousing, transportation, maintenance, etc.) (Murphy and Wood, 2003: 47). The outsourcing of military support services to private companies has been one of the most notable features of the reform and transformation of western militaries in the 1990s. Originally the majority of public private partnerships involved the outsourcing of military services to private companies which provide efficiency with their expertise of private business and mostly employ ex-military professionals (Krahmann, 2003). Several of the currently active companies have been in business for decades, providing various support functions – logistics, security services, crime prevention, and the like. Publicly known contracts of this kind, and the number of companies openly willing to be party to such contracts, have been, in fact, quite limited. However, in 2003, a consortium of 36 companies, the International Peace Operations Association, offered to assist the United Nations in the peacekeeping operations in the Congo (Fredland, 2004; Singer, 2001).

Bures (2005) reports a useful categorization to understand the current role of private military companies in Table II.3, in terms of the activity types they undertake. It is these combat-related firms that have been most controversial, and much of the professional and popular literature has been devoted to examining their activities. There has, in fact, been relatively little publicly known contractual activity

of this kind, and few firms are apparently willing to undertake such tasks (Fredland, 2004).

Table II.3 Functions performed by private military companies (Bures, 2005: 536)

Combat Support	Logistics, Procurement, Training, Miscellaneous	Security Services
Combat operations and leadership	War material and arms equipment procurement	Personal protection & VIP escort services
Counter-insurgency operations	Force development and training	Security for key installations and personnel
Force multipliers	Strategic planning	Surveillance services
Operation and maintenance sophisticated weaponry	Research and threat analysis	Security for humanitarian aid delivery
Military intelligence and analysis	Logistical support and maintenance facilities	Crisis management advice (e.g. regarding kidnapping)
Artillery support	Demining	Computer cracking
Military engineering	Tax collection	Secure communications
Aviation services	Staff security training	Signal interception
Military advice and planning	Risk analysis	Security audits

Private military contractors have become an integral part of the Western armed forces; the line between military and civilian has been blurred. Civilian firms now provide logistic support in conflict zones—during the 1990–91 Gulf War, one of every 50 people on the battlefield was an American civilian under contract—and to peacekeeping missions, such as the one in Bosnia–Herzegovina (Cilliers, 2002).

As modern armies become more capital intensive, troop numbers shrink and the pressure to employ private contractors increase. At the time of the Gulf War, the U.S. had 780,000 soldiers in its army; today it has some 480,000. Most Western governments have adopted broad policies that favor outsourcing of government services for reasons of cost efficiency. The duties of military personnel have been tapered and now centre on explicit combat functions, while non-military employees conduct tasks previously reserved for uniformed staff (Cilliers, 2002). Over the last decade, the use of private contractors to support deployed military operations significantly has increased in scale and scope. Contemporary commentators tend to assume that defense outsourcing is a post-Cold War phenomenon and that the presence of "contractors on the battlefield" marks a recent departure from a paradigm of military self-sufficiency (Uttley, 2005). The pressures on defense budgets, the advent of expeditionary warfare and lean logistics require armed forces logisticians to look at ways to reduce this bill. The MLO concept passes the responsibility for a significant proportion of the logistic chain to industry, throughout the life of the equipment, thereby reducing the military logistic tail in manpower and facilities, and

should be contracted to reduce costs and enhance value for money. Balance has to be struck between seeking to reduce costs through MLO whilst still maintaining military logistic capability, which will always be required on operations when the situation is hostile. The question will always be how far forward in the logistic chain can contractors be allowed to operate without endangering themselves or impairing operational effectiveness (Figure II.6).

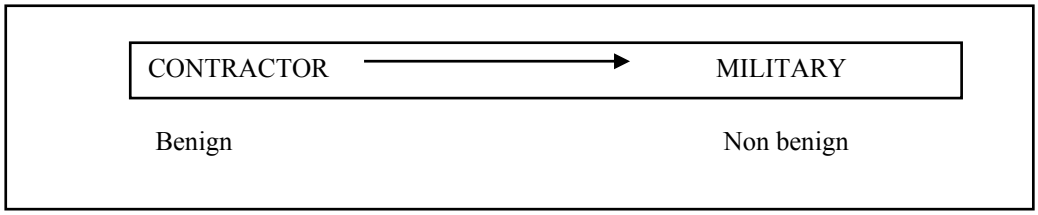

Figure II.6 Logistic contractors in the operational battle space

On the other hand a contractor's status in a hostile-fire area is a big question because of the ambiguity of international law concerning the status of contractors. The armies frequently contract CSS functions have some troubles in applications. Two questions are mentioned by Rampy (2005);

*What legal obligation does the Army have to protect its contractors?

*Should civilian contractors receive the same kind of physical protection in the battlespace as military CSS forces?

Although the world community generally recognizes an international legal precedent for civilians to provide support during war, advances in weapons systems and changes in warfighting strategies have blurred the lines between support and combat, combatant and noncombatant, and civilian and soldier.

Another problem is that the army does not command and control contractors in the way it commands and controls military units and soldiers. The army only manages contractors through contract signed. A contractor is obliged to perform only that which is specified in the contract. Leaders who want to make changes in the contract must coordinate them through the contracting officer.

In US Army the recently launched revolution in military affairs has fostered increased interest in developing an integrated and reliable logistics system. Both military commanders and civilian policy makers are attempting to increase logistics efficiency by reducing unnecessary spending on the military tail, but regrettably, existing studies of what might constitute an integrated, 21st century logistics system are often inadequate. Tapscott and Caston (1993), Ferris and Keithly (1997) and

Wilson and Browm (1999) discusses the outsourcing centered new efficient and reliable logistics system in their scholars.

Almost all of the logistics roles are carried out by 3PLs in US military. Brown & Root is the biggest logistics provider serving as a contractor in the fields of "engineering", "construction", "base camp operations and maintenance", "structure maintenance", "transportation services", "road repair and vehicle maintenance", "equipment maintenance", "cargo handling and railhead operation", "water production and distribution", "food services", "laundry operations", "power generation", "refueling", "hazardous material and environmental services", "staging and onward-movement operations", "firefighting", "mail delivery" (Singer, 2003: 144).

No matter how efficient or skilled the private military firms and their employees might be, the use of private contractors is not uncomplicated. As has already been brought to the reader's attention, the incentives of private companies to turn profit might not always be in line with the public good. The armed forces of a State is under the scrutiny of the public eye, and are regulated by the laws of war, military controls and structures and are the responsibility of the government. A soldier that breaches the law will be court martialed. The same can not be said for the private firms or their employees. Private military contractors lie outside the military chain of command. They can not be court martialed. A private contractor can always refuse to carry out a job if it seems dangerous or if it is not profitable enough. The private contractor is only bound by his contract and can at any time leave the private military firms (Möller, 2000).

II.6. EXISTING MODELS OF OUTSOURCING

There is a clear consensus in the literature of the importance of the outsourcing decision and some general guidance on the factors that should be considered including cost analysis, associated risks, supplier influences and a strategic perspective. A consistent theme throughout the literature is a consideration of the factors involving warnings on the difficulties and importance of the task (McIvor, 2000). In this part, the practical accounts of a methodical approach to the outsourcing process to be found in the literature are presented.

Arnold (2000) proposed an outsourcing model consists of four major elements Figure II.7. First, "**Outsourcing subject**" is the economic institution which plans to

outsource (or not). The subject has to make the strategic outsourcing decision. Second, "**Outsourcing objects**" are processes or process results which might be outsourced. The activities of a company were distinguished as (1) the company core activities (all activities which are necessarily connected with a company's existence), (2) core close activities (directly linked with core activities), (3) core –distinct activities (supporting activities), and (4) disposable activities (activities with general availability). Third, "**Outsourcing partners**" are all possible supplier for activities considered for outsourcing.

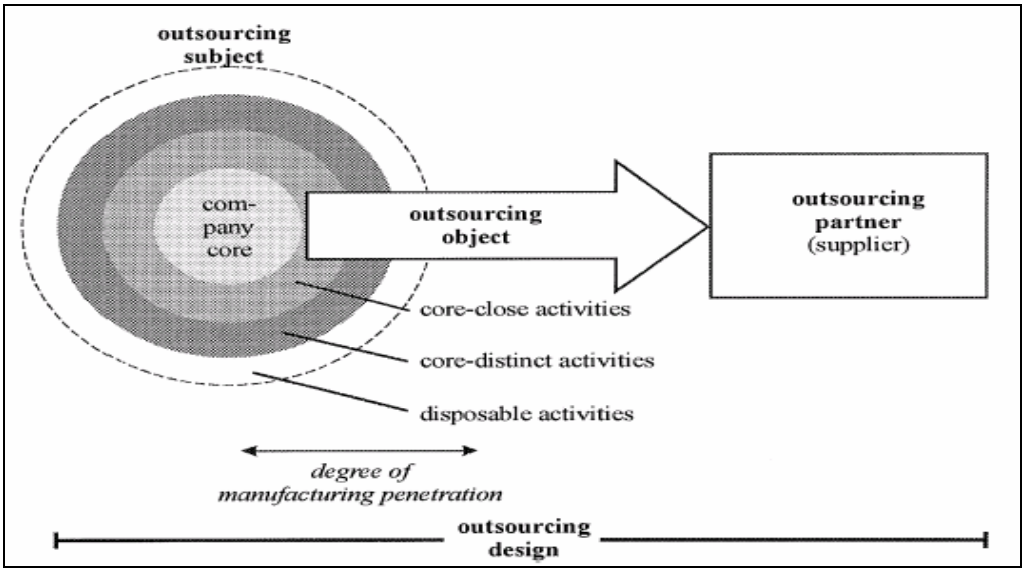

Figure II.7 Outsourcing Model (Arnold, 2000: 24)

And forth, "**Outsource design**" refers the structure of outsourcing relationship between outsourcing objects and partners varying **from in-sourcing to outsourcing** due to "*market condition*", "*hierarchical condition*", "*specificity of the activity*", and "*strategic importance of the activity*".

Authors such as Jennings (1997) identify issues including the role of competitive advantage and environmental change, cost, capability, the need to retain and develop essential relationships, choice of technology and the monitoring and revision of sourcing decisions. McIvor et al. (1997) describe the assistance of knowledge-based systems technologies and multi-attribute analysis to an organization in evaluating its internal capabilities with that of external suppliers. Marshall et al., (2004) develop a descriptive conceptual model of outsourcing process based on a four-year explorative study of nine outsourcing programs. The four stages in their process of outsourcing are given in Table II.4. The model includes feedback loops from each stage back to the previous stages, making it a

dynamic model (De Boer et al., 2006). According to Rao and Young (1994), five key factors emerge as interacting drivers to either utilize third parties or retain in-house capabilities to execute logistics international functions; centrality of the logistics functions to core competency, risk liability and control, operating cost/service tradeoffs, information and communications systems, and market relationships.

Table II.4 Stages in a descriptive process of outsourcing (Marshall et al., 2004: 554)

Stages	Activities/characteristics
Initiation stage	Idea generation Formation of motives Go/no go regarding further evaluation
Evaluation stage	Evaluation of internal and/or external options Formal or informal Possibly halt of the process
Management stage	Transfer of assets and people
Outcome stage	Reflection Possibly terminate, re-tender, continue or renew contract

Probert (1996) has attempted to rectify the situation by proposing a four-stage process to the make or buy strategic decision. The various stages in his methodology are: "**Initial business appraisal"**; Data collection on company, competitors and suppliers, as well as an evaluation of strategic issues which face the firm. "**Internal/external analysis"**; Identifying major component families, manufacturing processes, cost allocations and alignment of parts and technologies on the technology competitiveness/importance matrix. "**Evaluation of strategic options**"; Assessment of the various sourcing options which are identified in Stage 2 in conjunction with data obtained in Stage 1 (Figure II.8).

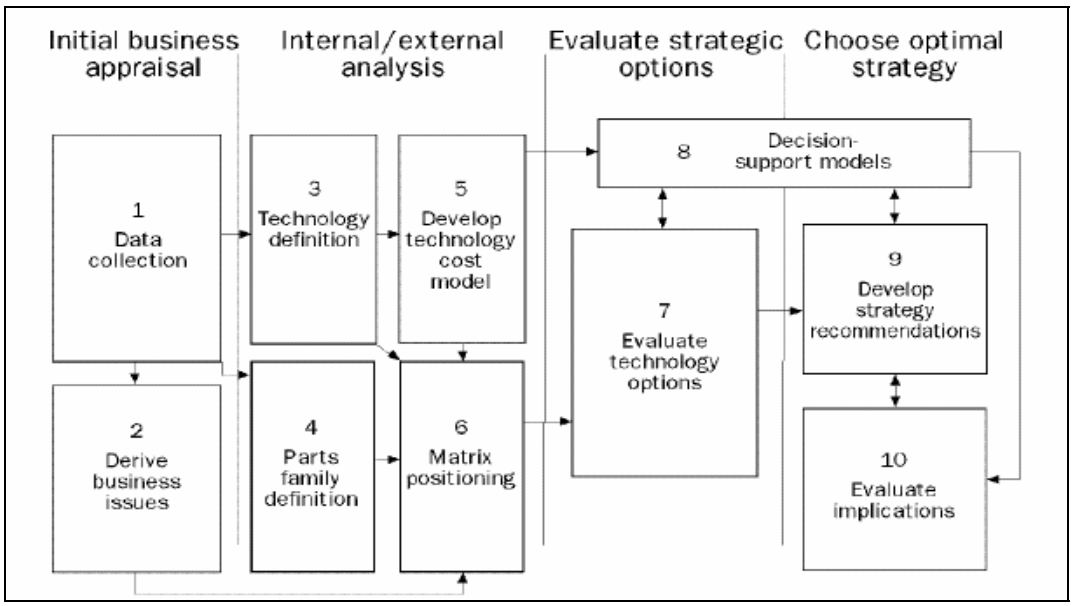

Figure II.8 Strategic make or buy decision (Probert, 1996: 9)

Most models basically consist of a limited number of steps. According to De Boer et al. (2006), common aspects although not necessarily appearing in similar steps and/or in all models are:

(1) definition of core competences and strategy;

(2) assessment of integral costs;

(3) analysis of suppliers and competitors.

Hata! Başvuru kaynağı bulunamadı. Table II.5 provides a summary of the steps suggested in a selection of the contributions found in the literature.

Table II.5 Summary of steps in prescriptive outsourcing models (De Boer et al., 2006: 13)

Author(s)	Step 1	Step 2	Step 3	Step 4	Step 5	Scope
Welch and Nayak (1992)	Assess technology's role in providing competitive advantage	Assess maturity of process	Assess competitors' process technology positions	Make a tentative decision		Activity to be outsourced assumed given
Probert (1996)	Derive business issues	Definition of product architecture and manufacturing technology	Assessment of product architecture and manufacturing tech.	Evaluate technology, subsystem and parts family options	Develop strategy recommendations and implications	Top down analysis
Vining and Globerman (1999)	Formulate expectations about transaction uncertainties	Identify opportunism potential at different stages	Identify contract provisions to attenuate opportunism and assess consequences of preferred strategies	Implement relevant strategies prior to initiation of outsourcing		Activity to be outsourced assumed given
McIvor (2000)	Define core activities of the firm	Evaluate relevant value chain activities	TCO analysis of core activities	Relationship analysis		Top down analysis
Fill and Visser (2000)	Examine contextual factors	Examine strategic and structural factors	Examine the costs associated with the function	Management consideration and judgment	Outsourcing	Activity assumed given
Momme and Hvolby (2002)	Competence analysis	Assessment and approval	Contract negotiation	Project execution and transfer	Managing the relationship. Contract termination	Top down analysis
Arlbjørn et al. (2004)	Mapping process flow activities. Assessment of activities.	Rough screening of activities	Profitability evaluation	Search for suppliers	Assessment and decision.	Top down analysis
Tayles and Drury (2001)	Determine strategic nature of product or process	Perform cost of make vs buy	Capital spend analysis	Assess availability of internal resources and external suppliers		Activity assumed given
Bagchi and Virum (1998)	Define objectives and selection criteria	Identify vendors, articulate needs, evaluate bidders, IS integration	Implement and manage the relationship	Measure performance and analyze deviations	Redefine goals and objectives	Activity assumed given
Sink and Langley (1997)	Identify need to outsource logistics	Develop feasible alternatives	Evaluate and select a supplier	Implement service	Ongoing service assessment	Activity assumed given

PART III: RESEARCH METHODOLOGY

The purpose of this chapter is to discuss the research hypotheses, the research design, and the methods of analysis used in the study. Presented first is a conceptual model along with the hypotheses to be tested. This is followed by the planned research design and sample participants. This section provides details for the research settings and sample characteristics, data collection procedures, proposed model and hypotheses, variables to represent concepts in the theory, and methods to be employed including exploratory factor analysis, reliability analysis, analysis of variance, and multiple regression analysis and their detailed theory and assumptions.

III.1. RESEARCH DESIGN AND PARTICIPANTS

A preliminary survey instrument was pretested by four academic researchers, six army officers familiar with the army logistics systems and a Turkish Literature teacher. Pretest participants were asked to comment on wording, presentation, and face validity of items in the instrument. Suggestions for rewording and repositioning the items were incorporated into the latest survey instrument. Additionally, pretested survey instrument was sent to TLF Command for inspection and permission for conducting army COs and NCOs. It was inspected by the headquarters and given permission to be applied in Sarıkamış Garrison.

Because the army COs and NCOs are serving in different garrisons all around the country and being appointed for 2 to 8 years, the sample conducted in Sarıkamış Garrison is assumed to represent the professionals of TLF

III.1.1. Data Collection and Response

Totally 302 survey instruments were handed to COs and NCOs in Sarıkamış. This survey instrument consists of a cover letter and questionnaire (Appendix 1). There were 291 questionnaires returned. This resulted in an effective response rate of approximately 96% (291/302). This response rate was extremely higher than that of the other private sector surveys scrutinized. Eleven non-respondents conveyed lack of time as a reason for noncompliance. Among returned survey instruments, twelve were dropped because of insufficient data and blank parts. 279 questionnaires were found convenient to be put into the statistical analyses process (279/302= 92%). Data

obtained from questionnaires have been analyzed by using SPSS 11.0 (Statistics Package for Social Sciences) for Windows. This package program can be used for generating frequencies, descriptive statistics, such as the mean and standard deviation, correlations, t-test, the ANOVA, multiple regression, factor analysis, reliability and validity analysis and for drawing graphs and tables. The analyses in this research have been performed at 95% confidence level which is generally accepted level of confidence in managerial sciences.

III.1.2. Sample Description

The subjects of this research are commissioned and non-commissioned officers of TLF. In accordance with the permission of TLF Command, survey instrument was just conducted to Sarıkamış Garrison. The sample space is grouped according to five different attributes. The variable "service" is included in the survey because it is necessary to utilize opinions from different services. The second variable is commission type of the subjects as commissioned and non-commissioned officers. Third one is work place being used to investigate the work places of the subjects. Service time is the forth variable measuring the subject's time spent in his/her current career. The fifth variable is the age of the subjects. The summary of descriptive statistics is presented in Table III.1 supporting the homogeneity of the sample which is assumed to represent the whole space of the data.

III.2. CONCEPTUAL MODEL AND HYPOTHESES

Logistics Outsourcing Intention Score (LOIS) is defined as the dependent variable of the model. It is the average value of three different intention scores regarding three different defense situations; peace time, war time and internal security operations (Int.Sec.Ops.).

Possible economic advantages of MLO assumed as a group of independent variables which are expected to have positive affect on logistics outsourcing intention concept. Besides, the managerial advantages are assumed another group of independent variables anticipated to have positive impact on the dependent variable. On the other hand, possible disadvantages of MLO are considered as a group of independent variables having negative effect on the dependent variable.

Table III.1 Descriptive Statistics of the Sample

Variable		frequency	%	Valid %	Cumulative %
Service type					
Valid	Combatant	124	44.4	44.8	44.8
	Combat Support	55	19.7	19.9	64.6
	Combat Service Support	98	35.1	35.4	100.0
	Total	277	99.3	100.0	
Missing		2	.7		
Total		279	100		
Commission type					
Valid	COs	141	50.5	50.9	50.9
	NCOs	136	48.7	49.1	100.0
	Total	277	99.3	100.0	
Missing		2	.7		
Total		279	100.0		
Working place					
Valid	unit	187	67.0	68.8	68.8
	Institution	41	14.7	15.1	83.8
	Head Quarters	44	15.8	16.2	100.0
	Total	272	97.5	100.0	
Missing		7	2.5		
Total		279	100.0		
Service Time (years)					
Valid	1-5	26	9.3	9.4	9.4
	6-10	65	23.3	23.5	32.9
	11-15	101	36.2	36.5	69.3
	16-20	62	22.2	22.4	91.7
	21 and beyond	23	8.2	8.3	100.0
	Total	277	99.3	100.0	
Missing		2	.7		
Total		279	100.0		
Age					
Valid	21-25	17	6.1	6.2	6.2
	26-30	55	19.7	19.9	26.1
	31-35	104	37.3	37.7	63.8
	36-40	69	24.7	25.0	88.8
	41 and beyond	31	11.1	11.2	100.0
	Total	276	98.9	100.0	
Missing		3	1.1		
Total		279	100.0		

N = 279

The hypotheses presented in this study pertain to the paths in Figure III.1 is an illustrative conceptual model providing a conceptual military logistics outsourcing intention model proposed by the author. The first set of hypotheses (H_1 to H_{4c}) deals with the expected effects of MLO knowledge of the subjects on latent variables of incentives and disincentives. The second set of hypotheses (H_{5a} to H_{9c}) deals with the effects of the attributes of the subjects (demographic variables) on latent variables of

incentives and disincentives. The hypothesis 10 (H_{10}) is exploring the effects of three different defense situation on subjects' logistics outsourcing intention. These situations are "Peace", "War", and "Int.Sec.Ops."

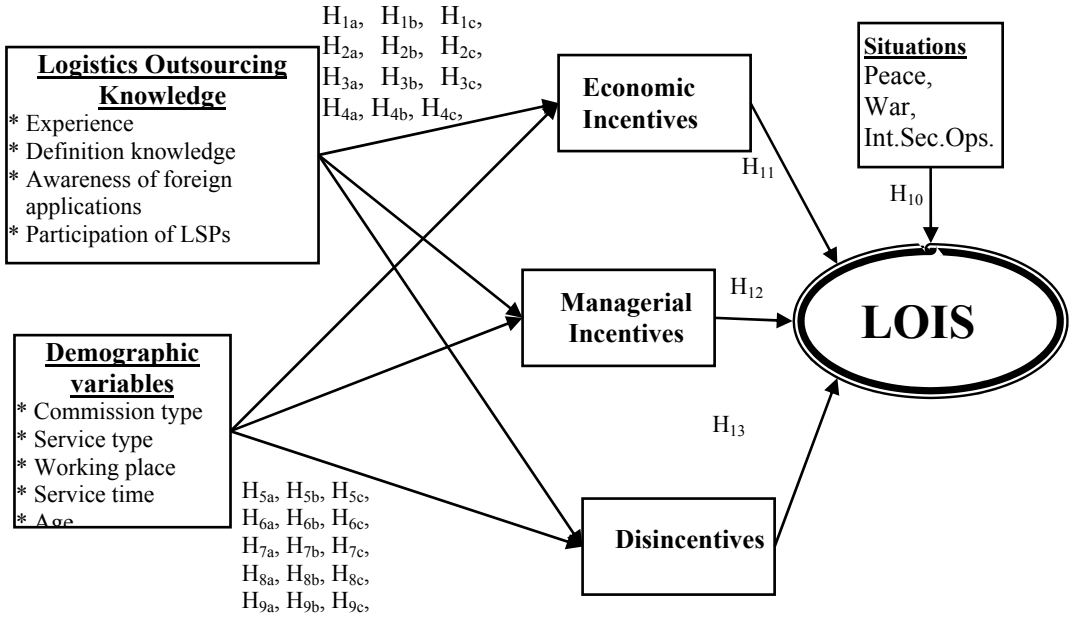

Figure III.1 Proposed Model of the Relationships

The other hypotheses (H_{11} to H_{13}) are investigating expected positive effects of the latent variables of economic and managerial incentives and the expected negative effects of the latent variables of disincentives on logistics outsourcing intention which are important for outsourcing decision.

The items proposed to explain this concept extracted through literature survey and researcher's reasoning studies and experience. Based on the preceding theoretical and empirical literature review, it is hypothesized that the variables grouped as incentives (economic and managerial) and disincentives affect outsourcing intention positively and negatively respectively. The specific research hypotheses tested in this study are presented below.

H_{1a}: Experience in logistics outsourcing process significantly explains the variance in the latent constructs of economic incentives prospect.

H_{1b}: Experience in logistics outsourcing process significantly explains the variance in the latent constructs of managerial incentives prospect.

H_{1c}: Experience in logistics outsourcing process significantly explains the variance in the latent constructs of outsourcing disincentives prospect.

H_{2a}: Knowledge of outsourcing definition significantly explains the variance in latent constructs of economic incentives prospect.

H_{2b}: Knowledge of outsourcing definition significantly explains the variance in latent constructs of managerial incentives prospect.

H_{2c}: Knowledge of outsourcing definition significantly explains the variance in latent constructs of outsourcing disincentives prospect.

H_{3a}: Awareness of foreign military outsourcing applications significantly explains the variance in latent constructs of economic incentives prospect.

H_{3b}: Awareness of foreign military outsourcing applications significantly explains the variance in latent constructs of managerial incentives prospect.

H_{3c}: Awareness of foreign military outsourcing applications significantly explains the variance in latent constructs of outsourcing disincentives prospect.

H_{4a}: The more logistics functions are performed by LSPs in subjects' units creates the higher level of latent constructs of economic incentives prospect.

H_{4b}: The more logistics functions are performed by LSPs in subjects' units creates the higher level of latent constructs of managerial incentives prospect.

H_{4c}: The more logistics functions are performed by LSPs in subjects' units creates lower level of latent constructs of outsourcing disincentives prospect.

H_{5a}: The levels of latent constructs of economical incentives prospect of combat service support service members will be lower than that of combatants and combat support service members.

H_{5b}: The levels of latent constructs of managerial incentives prospect of combat service support service members will be lower than that of combatants and combat support service members.

H_{5c}: The levels of latent constructs of outsourcing disincentives prospect of combat service support service members will be higher than that of combatants and combat support service members.

H_{6a}: The levels of latent constructs of economical incentives prospect of commissioned officers will be higher than that of NCOs.

H_{6b}: The levels of latent constructs of managerial incentives prospect of commissioned officers will be higher than that of NCOs.

H_{6c}: The levels of latent constructs of outsourcing disincentives prospect of commissioned officers will be higher than that of NCOs.

H_{7a}: The levels of latent constructs of economical incentives prospect of army professionals working in field will be higher than that of army professionals working in HQ or institutions.

H_{7b}: The levels of latent constructs of managerial incentives prospect of army professionals working in field will be higher than that of army professionals working in HQ or institutions.

H_{7c}: The levels of latent constructs of outsourcing disincentives prospect of army professionals working in field will be higher than that of army professionals working in HQ or institutions. H_{8a}: Service time of the subjects will significantly affect latent constructs of economical incentives prospect positively.

H_{8b}: Service time of the subjects will significantly affect latent constructs of managerial incentives prospect positively.

H_{8c}: Service time of the subjects will significantly affect latent constructs of outsourcing disincentives prospect positively.

H_{9a}: Age of the subjects will significantly influence latent constructs of economical incentives prospect positively.

H_{9b}: Age of the subjects will significantly influence latent constructs of managerial incentives prospect positively.

H_{9c}: Age of the subjects will significantly influence latent constructs of outsourcing disincentives prospect positively.

H_{10}: Subjects' intentions of logistics outsourcing will vary significantly according to three different situations (peace, war and internal security operations).

H_{11}: Latent constructs of economic incentives will significantly explain the variance in the subjects' level of intention of logistics outsourcing.

H_{12}: Latent constructs of managerial incentives will significantly explain the variance in the subjects' level of intention of logistics outsourcing.

H_{13}: Latent constructs of logistics outsourcing disincentives will significantly explain the variance in the subjects' level of intention of logistics outsourcing.

As it is distinguished, the hypotheses, except H_{10}, make reference to latent variables which could be clarified after validation and verification / data reduction processes. Thus, the hypotheses referring to latent variables could be expected to be divided into some more hypotheses.

III.3. MEASURES

The variables investigated in the field survey are determined in two categories. The variables which are used to predict the other variable are called independent variables. On the other hand the variables which are expected to be predicted by one or more independent variables are called dependent variables. The measures of this research are presented in this systematic. While the survey instrument has some more question parts, all parts are not used in this thesis.

In factor based parts, Likert-type scale was used for the response categories, which were coded for analysis such that 5 = "very significant" and 1 = "very

insignificant". A neutral midpoint was included. High scores indicate that the respondent considers the related statement relatively important. Low scores indicate that the respondent considers relatively insignificant.

III.3.1. Independent Variables

The independent variables are categorized in five parts; those are "investigation the outsourcing knowledge and experience of the subjects", "Economic Prospects" and "Managerial Prospects" of MLO, "Disincentives of MLO" and "Demographic variables" reflecting the attributes of Turkish Army. The variable types of the independent variables are presented in Table III.2.

Table III.2 Independent variables and their types

Part	Investigated Concept	Variable type
1	Outsourcing knowledge and experience of the subjects	Item based
2	Economic Prospects of Military Logistics Outsourcing	Factor based
3	Managerial Prospects of Military Logistics Outsourcing	Factor based
4	Logistics Outsourcing Disincentives in Military	Factor based
5	Demographic variables	Item based

III.3.1.1. Logistics Outsourcing Knowledge

In this part of the survey instrument, four variables are designed for measuring the personal knowledge or experience of the subjects on the concept of outsourcing logistics in the army (Table III.3).

The first question is asked to define the experience of the army professionals. It is considered that the experience in the logistics outsourcing issue could influence the opinion of the subjects on MLO. The subjects having seen the applications of outsourcing in any logistics area in any place in TLF can respond easily to the questions about benefits and malign aspects of outsourcing. The second question is asked to determine whether an army professional knows the definition of outsourcing or not. It is thought that knowledge of definition should be a strong determiner of the subject's reliability in the field survey. Though all the subjects either knowing or not knowing the definition are included in the research, this variable is used to measure the impact of its own to different variables. The third question was asked to measure awareness of the subjects about the foreign MLO in the world. This awareness is also considered as a good determiner for know-how level. The forth question was asked to reveal current state of undertaking of logistics in the unit of each subject. These

variables are also employed to investigate each of their own effects on latent factors of independent item groups.

Table III.3 Variables measuring logistics outsourcing knowledge

Code	Variables
V01	Have you ever participate in any process of military logistics outsourcing? a. have participated b. have seen an application but haven't participated c. haven't participated
V02	Which one of the following statements defines outsourcing best? a. process of sourcing the functions which are not considered in the core competences of an organization from outside expert organizations. b. process of organizational buying of some works, which are not considered suitable to be performed in the organization, from some outside organizations known the best in the market via long term contracts. c. process of organizations' getting some works, which are difficult to be performed inside, done by the firms claiming cheaper price, with the support of a consulting agent, and checking the quality in the provider's site.
V03	Military logistics outsourcing is a common method in the armies of the West. Do you agree? a. no b. don't know c. yes
V04	How is logistics functions performed in your unit at the moment? a. by military personnel b. by military personnel and civilian contractors c. by civilian contractors

III.3.1.2. Logistics Outsourcing Incentives

In this part, 27 variables are designed for measuring the concept of logistics outsourcing incentives. These variables are presented in the Table III.4.

There are two different groups of items in this list. The first group is dealing with "economic prospects"; the second one is about "managerial prospects". The items of those two groups are presented mixed in the questionnaire on purpose. to test the reliability of the population in discriminating and converging relevant variables mixed each other. The results of the validation and verification process are expected to support the latent two groups in 27 item question list.

Table III.4 Possible incentives of military logistics outsourcing

Code	Variables
	Outsourcing logistics in the Army_____
F01.	_____reduces defense costs.
F02.	_____is a force multiplier for the success in combat theater.
F03.	_____provides soldiers with focusing on their core competences and improving their combatant aspects.
F04.	_____creates quality improvement via competition.
F05.	_____provides country with emerging new military logistics provider sectors.
F06.	_____encourages the expert and not hierarchical civilian sector to find faster innovative solutions for problematic fields.
F07.	_____decreases logistics related investment cost. Thus, it can increase and accelerate the modernization and investments devoted to combat.
F08.	_____provides scale economies. Expert private firms offer cheaper unit costs than enlisted military personnel.
F09.	_____offers higher quality than amateur enlisted military personnel can do.
F10.	_____offers faster services than amateur enlisted military personnel can do.
F11.	_____provides army with introducing latest technology using the private firms' facilities.
F12.	_____gives Army the chance of assigning combat service support personnel to combat and combat support position.
F13.	_____increase the number of soldiers in the training in the period of peace.
F14.	_____provides resource allocation to Army modernization.
F15.	_____minimizes the uncontrolled costs since the objective of the private firm is cost reduction.
F16.	_____reduces the costs via concurrent and collective usage of private firm's facilities.
F17.	_____creates mutual relations and interactions providing army with gaining know-how in performing tasks more efficient.
F18.	_____provides commanding officials with decision flexibility.
F19.	_____increases motivation level of the soldiers by giving them the opportunity to focus on their core competences.
F20.	_____improves the quality of CSS.
F21.	_____provides expert services in the areas where Army doesn't have any.
F22.	_____decreases the stock levels in different echelons and reduce inventory costs.
F23.	_____provides works being done in due dates or before via reducing bureaucracy.
F24.	_____the costs of logistics provided by contractors are lower because of their aim of revenue
F25.	_____accelerates any type of supply and completion.
F26.	_____accelerates the organizational process of learning and applying innovations.
F27.	_____provides expert distinguished firms which could support others nations' armies in any region on earth and supply foreign currency for the country and be help of national economy.

III.3.1.3. Logistics Outsourcing Disincentives

In this part, ten variables are designed for measuring the concept of logistics outsourcing disincentives. There are many jarring options about outsourcing concept in the literature. The items related to possible disadvantages of logistics outsourcing in military are gathered according to characteristics of TLF are presented in Table III.5.

Table III.5 Possible disincentives of military logistics outsourcing

Code	Variables
Z01.	Outsourcing logistics in the Army causes Army's logistics related abilities and know-how to vanish gradually
Z02.	If any logistics function was given to a LSP, it is very difficult and costly back transformation to re-establish it in the Army
Z03.	Although the contract has the initial prices based on competition, some changes can cause costs to increase in the course of time
Z04.	It cannot be expected a LSP to give priority always to the Army since it has other customers
Z05.	Revenue has the biggest importance in private firms so they can operate against national interest to increase revenue
Z06.	The time spent for managing the contract cause the cost of outsourcing to increase.
Z07.	The civilian type interpersonal relationships of the private firm influence negatively the relationships among military personnel. This can harm the military commanding system and
Z08.	It should not be expected from firms, which are offering the cheapest prices, to create innovation in processes of manufacturing or service
Z09.	Any contractor who cannot perform its tasks in difficult situations can cause a failure in reaching military objectives.
Z10.	Outsourcing logistics in the Army can create a sector for current expert logistics soldiers and causes critical personnel loss for the Army.

III.3.2. Dependent Variable

Dependent variable is the variable representing the concept of core which is tried to be predicted using independent variables. Since there is no overall standardized logistics outsourcing application for TLF, imperatively the intentions of army professional on logistics outsourcing are defined as dependent variable. This intention and the relationships between other independent variables can be considered as the reflection of the decision process of the subjects conducted in this research.

In this part, 45 questions were asked to subjects. This group of questions, derived from FM 100-10 Combat Service Support (1995), includes most of the logistic functions performed by army logisticians and consumed by combat and combat support units.

Those logistics function presented in the Table III.6 were inquired in three conditions; peace, war and internal security operations. The opinion of the subjects about the statement of "following logistical need can be outsourced" is requested in three different situations so the number of total items in this part is 135.

Likert-type scale is also used for the response categories, which were coded for analysis such that 1 = "strongly disagree" and 5 = "strongly agree". A neutral midpoint was included. High scores indicate that the respondent agrees that the related function should be outsourced. Low scores indicate that the respondent does not agree that the function should be outsourced.

Table III.6 Logistics Functions

Code	Service
L01.	Food services
L02.	Sheltering services
L03.	Weapon maintenance and repair in unit level
L04.	Weapon maintenance and repair in brigade level and beyond
L05.	Motor vehicles maintenance and repair in unit level
L06.	Motor vehicles maintenance and repair in brigade level and beyond
L07.	Engineering equipments maintenance and repair in unit level
L08.	Engineering equipments maintenance and repair in brigade level and beyond
L09.	Signal – peculiar equipments maintenance and repair in unit level
L10.	Signal – peculiar equipments maintenance and repair brigade level and beyond
L11.	Commissary equipments maintenance and repair in unit level
L12.	Commissary equipments maintenance and repair in brigade level and beyond
L13.	Medical equipments maintenance and repair in unit level
L14.	Medical equipments maintenance and repair in brigade level and beyond
L15.	Rescue and discharging services
L16.	Combat emergency repair services
L17.	Communications and information systems services
L18.	Constructions and building repairs
L19.	Patient and wounded discharging and medical treatment (up to battalion level)
L20.	Patient and wounded discharging and medical treatment (brigade level and beyond)
L21.	Food inspection services
L22.	Fighting against contagious diseases and vaccination services
L23.	Waste disposal services
L24.	Disinfection and hygiene services
L25.	Canteen and other facilities
L26.	Bathing and laundry services
L27.	Clothing services
L28.	Veterinary services
L29.	Psychological support and consulting services
L30.	Transportation services
L31.	Water supplying and purification services
L32.	Power plant and power distribution services
L33.	Emergency bridge, road, airport and seaport construction
L34.	Military band services
L35.	Military base construction and management (field services)
L36.	Firefighting services
L37.	Food, bait and cleaning materials supply
L38.	Main equipment and spare parts supply
L39.	Petrol and derivatives supply
L40.	Munitions and explosive material supply
L41.	Prisoner of war, refugee and civilians related services
L42.	Explosive Ordnance Disposal services
L43.	Traffic management services
L44.	Funeral services
L45.	Wrecked material and vehicle collection services

The aim of this variable group is to measure logistics outsourcing intention of each subject in each situation and overall. Four different mean scores were calculated by getting their average value. First score is logistics outsourcing intention in peace time, second is logistics outsourcing intention in war time, third is logistics outsourcing intention in internal security operations and the forth is overall intention based on mean score of the first three scores for each subject. LOIS is decided to be the dependent variable reflecting the overall logistics outsourcing affinity of the subjects covering three different defense situations.

III.4. DATA ANALYSIS METHODS

The statistical methods employed in this study are discussed in this section. Those methods are Exploratory Factor Analysis, Cronbach's Alpha test for validation and verification of the variables, and ANOVA, Non-Parametric tests and Multiple Regression for testing hypotheses.

III.4.1. Validation and Verification of Measures

Basic goal of science is to provide theoretical explanations for behavior. As a prerequisite, it is necessary to investigate the degree of correspondence between abstract constructs and their measures. This process is known as construct validation and it is a necessary condition for theory development and testing (Peter, 1981). It is used for grouping different criteria meaningfully and for the explanation of the variation among a set of interrelated groups. Validity of a measuring instrument is defined as "the extent to which differences in scores on it reflect true differences among individuals on the characteristic sought to measure, rather than constant or random errors" (Selltiz et al., 1976). Construct validity is the most vital and the most difficult type of validity to establish (Churchill and Gilbert, 1979). Not only must the instrument be internally consistent but it must also measure what it was intended to measure. That is, each item in the instrument must reflect the construct and must also show a correlation with other items in the instrument (Churchill and Gilbert, 1988: 324). Thus, construct validity is captured in two different ways: convergent and discriminant validity (Fink et al., 1995).

Convergent validity, which is defined as "the confirmation of a relationship by independent measurement procedures" (Churchill and Gilbert, 1988: 325), can be established when there is high degree of correlation between two different sources

responding to the same measure (Sekaran, 1992: 173) and **discriminant validity** requires that a measure not correlate too highly with measures from which it is supposed to differ (Hair et al., 2006: 355). Correlations that are too high suggest that the measure is not actually capturing an isolated trait or that is simply reflecting **method variance**, which is the variation in scores attributable to the method of data collection (Churchill and Gilbert, 1988: 325). In rotated component matrix of the factor analysis, there are factor loadings referring to the correlation between each of the original variables and the newly developed factors (Hair et al., 2006: 592). The higher the loadings of items in a factor, the better the items measure the same underlying construct (convergent validity). And the lower items' loadings in other factors than the highest loaded one; the more the items of the construct have discriminant validity.

Aspects of construct validity were assessed in the following order: reliability, and measure validation which involves convergent and discriminant validity. The internal consistency or homogeneity is a measure of reliability since reliability means "the similarity of results provided by independent but comparable measures of the same object, trait or construct (Campbell and Fiske, 1959). The results of factor analysis will confirm whether or not the theorized dimensions emerge and measures which are developed by first delineating the dimensions, so as to operationalize the concept.

III.4.1.1. Exploratory Factor Analysis

As the name suggests, in exploratory factor analysis (EFA) we are interested in exploring the dimensions or common structures underlying the data without any theoretical hypothesis in mind (Dillon and Goldstein, 1984: 57) that could have caused correlations among the observed variables. In case of confirmatory factor analysis (CFA), the researcher is interested in testing whether the correlations among the observed variables are consistent with the hypothesized factor structure. Thus while EFA deals with theory building CFA deals with theory testing. The term FA generally means EFA (Gaur and Gaur, 2006: 132).

EFA reveals whether the latent dimensions are indeed taped by the items in the measure. In the interpretation only factors with an eigenvalue in excess of 1.0 were considered significant; all factors with latent roots less than one are considered insignificant and disregarded (Hair et al., 1984: 231). Further, only variables with a

factor loading greater than 0.45 were included in the analyses. Since this research aim to conduct EFA, SPSS™ is exploited for statistical analyses. EFA is a technique based on the correlation matrix of the variables involved, and correlations usually need a large sample size before they stabilize. UCLA (2007) cites that Comrey and Lee's (1992) advise regarding sample size: 50 cases is very poor, 100 is poor, 200 is fair, 300 is good, 500 is very good, and 1000 or more is excellent. Hair et al. (1998: 99) claim that preferably the sample size should be 100 or larger and as a general rule the minimum is to have at least five times as many observations as there are variables to be analyzed. Sample size of 279 in this research close to 300 can be accepted as good for EFA process.

The ultimate goal of this analysis is to distinguish contributing variables strongly influencing the LOIS of the subjects. To this end, the research will investigate the variables found in the data set for the analytical appropriateness of an EFA using principle component analysis (PCA) one of most preferred technique transforming the original set of variables into a smaller set of linear combinations that account for most of the variance of the original set aiming to determine factors (i.e. principle components) in order to explain as much of the total variation in the data as possible with a few of these factors as possible (Dillon and Goldstein, 1984:24). Accomplishment of this is through selection of two tests available in the SPSS™ statistical software program: Bartlett's Test of Sphericity (BTS) and the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMOMSA). In PCA the analysis uses BTS to evaluate the initial solution for each sets of data. PCA requires that the probability associated with BTS be less than the level of significance ($p<.05$). EFA requires that the KMOMSA be greater than 0.50 for each individual set of variables. Hair et al. (1998: 99) suggests as a guideline that 0.8 or above meritorious; 0.7 or above, middling; 0.6 or above, mediocre; 0.50 or above miserable; and below 0.50, unacceptable.

Rotation of the reference axes often aids with interpretability of factors in PCA. Component loadings can be rotated; i.e., described by a different system of coordinates, either visually or analytically. Depending on angular separation of the reference axes, the rotation can be either orthogonal or oblique (Schwab, 2005). The most popular orthogonal analytic rotation method is Varimax, which was developed by Kaiser in 1958, is a simple solution means that each factor has a small number of large loadings and a large number of zero or small loadings. This simplifies the

interpretation because, after a varimax rotation, each original variable tends to be associated with one or a small number of factors, and each factor represents only a small number of variables. In addition, the factors can often be interpreted from the opposition of few variables with positive loadings to few variables with negative loadings (Abdi, 2007).

Obtaining a factor solution through PCA is an iterative process that usually requires repeating the PCA procedure a number of times to reach a satisfactory solution. Analysis of the PCA begins by identifying a group of variables whose representation by a smaller set of components parsimoniously accounts for the variance. The result of the PCA tells which components represent which variables, and which variables are to remain as individual variables because the component solution does not adequately represent their information (Schwab, 2007). In factor analysis, interest is usually centered on the parameters in the factor model. However, the regression-like estimated value of common factors, called "factor score" (Johnson and Wichern, 2002: 511) is composite measure created for each observation on each factor extracted in factor analysis. Conceptually the factor score represents the degree the degree to which each individual scores high on the group of items that have high loadings on a factor. Thus, higher values on the variables with high loadings on a factor will result in a higher factor score. The factor score then can be used to represent the factor(s) in subsequent analyses. They are standardized to have a mean of 0 and a standard deviation of 1 (Hair et al., 1998).

III.4.1.2. Reliability Analysis (Internal Consistency)

Reliability refers to the ability to obtain similar results by measuring an object, trait, or construct with independent but comparable measures. Evaluating the reliability of any measuring instrument consists of determining how much of the variation in scores due to inconsistencies in measurement. The reliability of instrument should be established before it is used for a substantive study and not after (Churchill and Gilbert, 1988: 325).

In this study the internal consistency reliability is used parallel to EFA in the process of operationalization or purification. The reliabilities of scales reported are based on the constructs emerged after the EFA iterations, which are determined by assessing the extent to which there is low measurement error on each scale. Low

measurement error is assessed by determining the degree to which scale items were stable over repeated measurements of the same construct.

Internal consistency by means of coefficient alpha is used for each independent variable which is based upon the average correlation among items and the number of items within each scale. Alpha provides the lower limit of scale's reliability, and in most situations, it also provides a conservative estimate of the measure's reliability (Carmines and Zeller, 1979: 23). This, the most popular means of estimating reliability, measures the degree of co-variation, which exists among the scale items (Churchill and Gilbert, 1976). It is tool for measuring the internal consistency of both the different factors and criteria that make up these factors. Reliability here refers to how accurate the estimation of the true score in a population is. This is a test of consistency of respondents' responses all the items in a measure. Internal consistency of measures is indicative of homogeneity of the items in the measure that tap the construct. In other words, the items should "hang together as a set" and be capable of independently measuring the same concept such that the respondents attach the same overall meaning to each of the items.

Sekaran (1992: 287) states that the closer Cronbach's alpha is to 1, the higher the internal consistency reliability. As a standard of reliability, while Nunnally (1978: 245) suggests that coefficient of 0.50 to 0.60 are satisfactory in the early stages of research, while coefficients of 0.70 and higher are highly satisfactory for most research purposes, Hair et al., (2006: 374) claim that a value of less than 0.6 would typically indicate marginal to low (unsatisfactory) internal consistency.

III.4.1.3. Conditions for Validity and Reliability of Constructs

The analysis subjects the initial solution to review for the following conditions. First three conditions reported by Shay (2005) and the last three are defined by the author himself to establish the precision of the analysis:

1. The derived components explain 50% or more of the variance in each of the variables, i.e. have a communality greater than 0.50.

2. None of the variables have loadings, or correlations, of 0.40 or higher for more than one component, i.e. do not have complex structure.

3. None of the components has only one variable in it.

4. None of the items have highest loading with conceptually irrelevant items.

5. None of the variables have an "if item deleted Alpha value" greater than Alpha score of the component, if Alpha is less than 0.7 satisfactory threshold.

6. None of the variables have an "item to total correlation" value less than 0.4

The analysis removes any problematic variables and the PCA repeats until the components contain only compliant variables.

III.4.2. ANOVA

When the outcome measurements across the groups are continuous variables and certain assumptions are met, a methodology known as analysis of variance (ANOVA) is used to compare the means of the groups. In a sense, the term "analysis of variance" which was coined by Sir Aylmer Fisher who defined it as "the separation of variance ascribable to one group of causes from the variance ascribable to the other groups" (Landau and Everitt, 2004: 129) appears to be misnomer, because the objective is to analyze the differences among the group means. However, through an analysis of the variation in the data, both among and within a number of groups, it is possible to draw conclusions about possible differences in group means. In ANOVA, we subdivide the total variation in the outcome measurements into that which is attributable to inherent variation within the groups. "Within group" variation is considered "experimental error", while "among group" variation is attributable to treatment effects (Levine et al., 2001: 472).

Whereas the t-Test would indicate whether or not there is a significant mean difference in a dependent variable between two groups, ANOVA will help to examine if there are significant mean differences among more than two groups. The results of ANOVA will indicate whether or not the means of various groups are significantly different one another or not. If there are significant mean differences among the groups as indicated by the significance level of F statistic, there is no way of knowing from the ANOVA results alone where the differences lie. That is whether the significant difference is between groups A and B, or between B and C, or A and C and so on. Here it would be unwise to use multiple t Tests, taking two groups at a time, because the greater the number of t-Tests done, the lower is the confidence we can place on the results. For example, doing three t-Tests simultaneously decreases the confidence from 95 percent to 86 percent $(.95)^3$. However, several tests such as Scheffe's test, Duncan Multiple Range test, Tukey's test, Student-Newman-Keul's test, and Least Significant Difference (LSD) test are available and can be used to

detect where exactly the mean difference lie (Sekaran, 1992: 268). In the analyses of this study, LSD test is used to reveal the place of real significant mean differences if there are more than two levels in the independent variables.

Before employing one-way ANOVA F test, we must make certain assumptions about the data being investigated. These three major assumptions are "randomness and independence", "normality", and "homogeneity of variance" (Levine et al., 2001: 483).

Randomness and independence: This assumption always must be met, because the validity of any experiment depends on random sampling and/or randomization process. To avoid biases in the outcomes, it is essential that either the obtained samples data be considered as randomly and independently (Levine et al., 2001: 483).

Normality: This assumption states that the values in each sampled group are drawn from normally distributed populations having close to zero values of skewness and kurtosis. Just as in the case of the t-test, the one-way ANOVA F test is usually not affected by lack of normality, particularly for large samples (Tabachnick and Fidell, 2007: 80; Levine et al., 2001: 483). In this study, since the sample is large enough, it is thought that all hypotheses, tested through ANOVA, conform normality assumption.

Homogeneity of variance: It states that the variance within each population should be equal for all populations (that is $\sigma_1^2 = \sigma_2^2 = ... = \sigma_c^2$).This assumption is needed in order to combine or pool the variance within the groups into a single within-group source of variation. If there are equal sample sizes in each group, inferences based on F distribution might not be seriously affected by unequal variances. If, however, there are unequal sample sizes in different groups, unequal variances from group to group can have serious effects on any inferences developed from the ANOVA procedures. Thus, when possible, there should be equal sample sizes in all groups. SPSS ^{TM} calculates the Levene statistic to test for the equality of group variances (Levine et al., 2001: 484). If Levene statistic's p value is significant (for this study $p<0.05$), this situation means that the variances of groups are different from each other. Other wise, homogeneity of variances assumption conforms.

III.4.3. Nonparametric Tests

Parametric tests like ANOVA are more powerful than their nonparametric counterparts since for any given N, the parametric tests of significance (those assuming normally distributed populations with the same variance) entail less risk of a Type II error. They are more likely to reject H_0 when H_0 is false. The parametric test should be employed so long as its underlying assumptions are fulfilled (Runyon and Haber, 1991: 459). The weakness of nonparametric comes from transformation of data to ordinal scale before testing procedure. But they are frequently almost as efficient as procedures that make strict assumptions about the population (Neter et al., 1993: 435).

When the assumptions behind the standard ANOVA like normality and / or equal variances are invalid or suspect, using the nonparametric procedures should be considered to test for the significance of the difference between multiple groups (Bowerman et al., 2001). They are called nonparametric because they make no assumptions about the parameters (such as the mean and variance) of a distribution, nor do they assume that any particular distribution is being used (USF, 2007). In this study, in the case of problems in conforming the assumptions of ANOVA, the Kruskal-Wallis nonparametric test for multiple independent samples is used to test the equality of medians for two or more populations (SPSS, 2006: 405). This test is reported by W.H. Kruskal and W.A. Wallis in 1952 requiring only ordinal level (ranked) data and no assumptions about the shape of the populations (Lind et al., 2008: 688) and a generalization of the procedure used by the Mann-Whitney test and, like Mood's Median test, offers a nonparametric alternative to the one-way analysis of variance (Landau and Everitt, 2004: 147, Doane and Seward, 2007: 709). The Kruskal-Wallis hypotheses are:

H_0: the population medians are all equal versus

H_1: the medians are not all equal

The Kruskal-Wallis test is a one-way analysis of variance by ranks. It tests the null hypothesis that multiple independent samples come from the same population (SPSS, 2006: 423).

III.4.4. Multiple Regression

In simple regression the model consists of one independent variable is used to predict the value of a dependent variable. It is often the case that a better fitting model can be developed if more than one independent variable is considered. This statistical method is called Multiple Regression, in which several independent variables can be used to predict the value of a dependent variable (Levine et al., 2001: 616).

Whereas the correlation coefficient r indicates the strength of relationship between two variables, it gives us no idea of how much of the variance in dependent variable will be explained when several independent variables are theorized to simultaneously influence it.

Several tests of significance may be applied to the results of multiple regression analysis. Two of them are presented here: **(1) test of R^2:** This statistic involves testing the significance of the overall regression equation as well as specific partial regression coefficients. **(2) tests of regression coefficients**: If the overall null hypothesis is rejected, one or more population partial regression coefficients have a value different from zero. To determine which specific coefficients (β_i's) are nonzero, additional tests are necessary. Testing for the significance of the β_i's can be done in a manner similar to that in the bivariate case, by using t-Test (Aaker, 2004: 527).

There are three major assumptions of regression. The first assumption, **normality**, requires that errors around the line of regression be normally distributed at each value of X. Regression analysis is fairly robust against departures from the normality assumption. As long as the distribution of the errors around the line of regression at each level of x is not extremely different from a normal distribution, inferences about the line of regression and the regression coefficients will not be seriously affected.

The second assumption, **homoscedasticity**, requires that the variation around the line of regression be constant for all values of independent variable. This means that the errors vary by the same amount when independent variable is a low value as when independent variable is a high value (Levine et al., 2001: 582). In other words, homoscedasticity means that the variance of errors is the same across all levels of the independent variable. When the variance of errors differs at different values of the

independent variable, **heteroscedasticity** is indicated. According to Tabachnick and Fidell (2007: 127) slight heteroscedasticity has little effect on significance tests; however, when heteroscedasticity is marked it can lead to serious distortion of findings and seriously weaken the analysis thus increasing the possibility of a Type I error. Examples of homoscedasticity and heteroscedasticity are shown in Figure III.2.

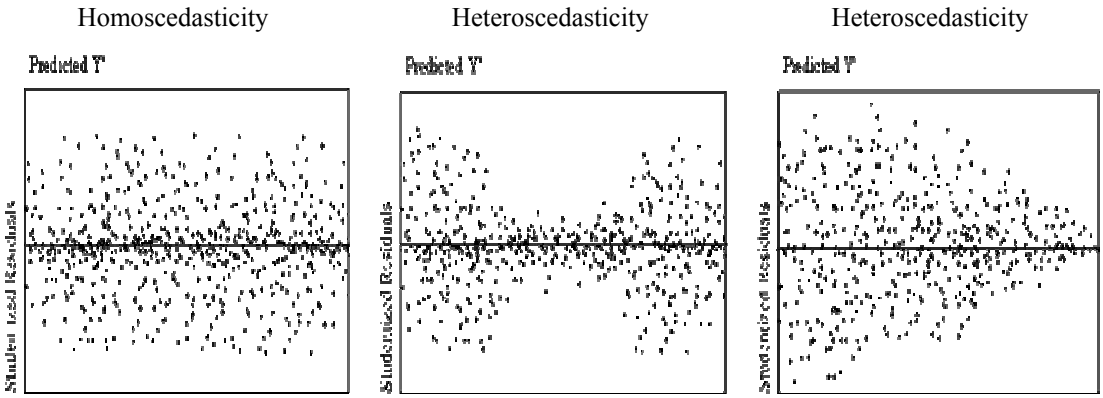

Figure III.2 Examples of homoscedasticity and heteroscedasticity (Osborn and Waters, 2002: 2)

The third assumption, **independence of errors**, requires that the errors should be independent for each value of independent variable. This assumption is particularly important when data are collected over a period of time. In such situations, the errors for a particular time period are often correlated with those of the previous time period (Levine et al., 2001: 582).

This assumption can be evaluated by plotting the residuals in order or sequence in which the observed data were obtained. Data collected over periods of time sometimes exhibit an autocorrelation effect among successive observations. In these instances, there exists a relationship between consecutive residuals. Such a relationship, which violates the assumption of independence, is readily apparent in the plot of the residuals versus the time at which they were collected. This effect is measured by the Durbin-Watson Statistics (Levine et al., 2001: 585). The Durbin-Watson statistic is used to test for the presence of serial correlation among the residuals. The value of the Durbin-Watson statistic ranges from 0 to 4. As a general rule of thumb, the residuals are not correlated if the Durbin-Watson statistic is approximately 2, and an acceptable range is 1.50 - 2.50 (Schwab, 2005). A value greater than 2 indicates a negative correlation between adjacent residuals whereas a value below 2 indicates a positive correlation. While positive autocorrelation makes the estimates of error variance too small, and results in inflation of the Type 1 error

rate, negative one makes the estimates too large, and results in loss of power (Tabachnick and Fidell, 2007: 128).

In the scholars, four more assumptions can be traced. In addition, researchers should consider the following assumptions which are as important as above mentioned assumptions.

Multicollinearity: One of the key assumptions of multiple regression analysis is that the independent variables are not correlated with each other. If the independent variables are correlated, then the estimated b values (regression coefficients) will be biased and unstable. Near linear dependencies render it more difficult to sort out the impact of each regressor on the response (Myers, 1990: 125). Conventional wisdom says that this is not a problem if the regression model is developed strictly for purposes of prediction. However, when the goal of the analysis is to determine how each of the predictor variables influences the dependent variable, the fact that the b values are biased due to collinearity is a serious problem (McDaniel and Gates, 1996: 601). If the number of dependent variables is more than two, it is called "multicollinearity" in many sources.

The simplest way to check for collinearity is to examine the matrix showing the correlations between each variable in the analysis. One rule of thumb is to look for correlations between independent variables of 0.3 or greater. If correlations of this magnitude exist, then the analyst should check for distortions of the b values. One way to do this is to run regressions with the two or more collinear variables included and each of them separately. The b values in the regression with all variables in the equation to the b values computed for the variables run separately (McDaniel and Gates, 1996: 602).

In the worst case, if the variables are perfectly correlated, the regression cannot be computed. SPSS guards against the failure to compute a regression solution by arbitrarily omitting the collinear variable from the analysis. In SPSS output sheet, the last column in the coefficients table is Collinearity Statistics. In this column we get statistics for testing multicollinearity in the model. Collinearity Statistics gives two values – Tolerance and VIF (Variance Inflation Factor). As one can see Tolerance is just the inverse of VIF. A value of VIF higher than five (or Tolerance less than 0.2) indicates the presence of multicollinearity (Gaur and Gaur, 2006: 116). If collinearity is discovered in the regression output, the interpretation of the relationships should be rejected as false until the issue is resolved. Multicollinearity can be resolved by

combining the highly correlated variables through factor analysis (Hair et al., 2006: 574), or removing some independent variables which are highly correlated to reduce multicollinearity (Gaur and Gaur, 2006: 117).

Causation: Although regression analysis can show that variables are associated or correlated with each other, it cannot prove causation. Causal relationships can be confirmed only by other means. A strong logical and theoretical basis must be developed to support the idea that there is a causal relationship between the independent variables and the dependent variable. However, even a strong logical base coupled with statistical results demonstrating correlation is only indicators of causation (McDaniel and Gates, 1996: 602).

Scaling of coefficients: The magnitude of the regression coefficients associated with the various independent variables can be compared directly only if they are scaled in the same units or if the data have been standardized (McDaniel and Gates, 1996: 602).

Sample size: The value R^2 is influenced by the number of the predictor variables relative to sample size. A number of different rules of thumb have been proposed and suggest that the number of observations should be equal to at least 10 to 15 times the number of predictor variables (McDaniel and Gates, 1996: 603).

Absence of outliers: Extreme cases have too much impact on the regression solution and also affect the precision of estimation of the regression weights. With high leverage and low discrepancy, the standard errors of the regression coefficient are too small; with low leverage and high discrepancy, the standard errors of regression coefficients are too large. Neither situation generalizes well to population values. Therefore, outliers should be deleted, rescored or the variable transformed (Tabachnick and Fidell, 2007: 124).

PART IV: RESULTS

The purpose of this chapter is to report and discuss the findings of the study including investigation of the construct validity by means of exploratory factor analysis method and Cronbach's Alpha procedures for each scale to examine internal consistency reliability. It also presents the tests of hypotheses proposed through ANOVA, Kruskal-Wallis nonparametric test, Regression, and Multiple Regression analyses and their interpretations as well.

IV.1. OPERATIONALIZATION OF MEASUREMENTS

After the iterations of purification of variables in three sets of variables, KMOMSA for all variables included in the analysis was greater than 0.5 (0.888 for Economic Incentives, 0.862 for Managerial Incentives and 0.859 for Outsourcing Disincentives), supporting their retention in the analysis. The variables in the three data sets successfully surpassed the criteria of the KMOMSA and BTS tests; therefore, the data is appropriate for examination with PCA.

The extracted variables after EFA iterations and extraction reasons are presented in Table IV.1 and Table IV.2.

Table IV.1 The variables removed after EFA iterations

Construct	Number of Variables			Variables removed
	Initial	Remaining	Removed	
Economic Incentives	14	12	2	F01, F07
Managerial Incentives	13	13	-	
Outsourcing Disincentives	10	9	1	Z05

Table IV.2 The extracted variables and extraction reasons

Code	Variable	Violated condition
F01	Outsourcing logistics in the Army reduces defense costs	5 and 6
F07	Outsourcing logistics in the Army decreases logistics related investment cost. Thus, it can increase and accelerate the modernization and investments devoted to combat.	Used as a crosscheck item with F014 measuring the same fact and removed from the model
Z05	Revenue has the biggest importance in private firms so they can operate against national interest to increase revenue	2

The repetitive PCA procedure for the Economic Incentives Construct data resulted in 2 components, each with more than one variable loading on them. The repetitive PCA procedure for the Managerial Incentives data resulted in 2 components, each with more than one variable loading on them. The PCA's are comprised of components that explained at least 50% of the variance individually and collectively explained 52.8% of the Economic Incentives Construct, 53.4% of the Managerial Incentives Construct and 54.4% of Outsourcing Disincentives Construct variances. Table IV.3, Table IV.4, Table IV.5 illustrate the results of the EFA after purification processes based on iterations. The probability associated with BTS is <0.001 for three data sets and. KMOMSA is greater than 0.50 for each set of variables which satisfies these requirements

SPSS program facilitates the suppressing of factor loadings, which were less than a specified level. In this study, 0.45 was selected as a level below which factor loadings were to be suppressed. Apart from blocking factor loadings, which were less than 0.45, SPSS program also sorted or grouped, and than ranked the variables which loaded heavily on a given factor.

EFA and Cronbach's Alpha is employed to investigate construct validity of the measures. For reaching this aim, three groups of variables are analyzed by the method of PCA with varimax rotation, which is an orthogonal rotation method in the data axes to visualize the factor groups (dimensions) in the data space and the reliability of each construct is searched using Cronbach's Alpha test.

The results of the tests of reliability have been summarized with the constructs of the models (Table IV.3, Table IV.4 and Table IV.5).

IV.1.1. Economic Incentives

The results of the factor analysis on Economic Incentives data provides two components and 12 variables that contributed to the observed results of the questions regarding economic benefits of Outsourcing Logistics in the Army. Two components developed by PCA were examined in internal consistency reliability analysis. Cronbach's Alpha test results were found to be highly satisfactory (Table IV.3). Those two components are named as "Cost Reduction Prospect" (CRP) and "Macro-Economic Prospects" (MEP) respectively.

Table IV.3 Reliability and Validity Results for Economic Incentives

Scale	Var.	Alpha	Alpha if Item deleted	BTS	KMO MSA	TVE	Factor Loadings
Cost	F16	0.861	0.8537	0.000	0.888	0.528	0.770
Reduction	F24		0.8396				0.753
Prospect	F17		0.8411				0.676
	F22		0.8323				0.661
	F15		0.8502				0.648
	F23		0.8445				0.644
	F14		0.8535				0.641
	F08		0.8377				0.543
Macro-	F05	0.722	0.6508				0.800
Economic	F06		0.6196				0.793
Prospect	F04		0.6285				0.713
	F27		0.7395				0.477

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

IV.1.2. Managerial Incentives

The results of the factor analysis on Managerial Incentives data provides two components and 13 variables that contributed to the observed results of the questions regarding managerial benefits of Outsourcing Logistics in the Army. Two components developed by PCA were examined in internal consistency reliability analysis. Cronbach's Alpha test results were found to be highly satisfactory (Table IV.4).

Table IV.4 Reliability and Validity Results for Managerial Incentives

Scale	Var.	Alpha	Alpha if Item deleted	BTS	KMO MSA	TVE	Factor Loadings
Quality	F26	0.8554	0.8336	0.000	0.868	0.503	0.800
Improvement	F25		0.8391				0.734
and Innovation	F20		0.8341				0.665
Prospect	F11		0.8386				0.628
	F09		0.8368				0.613
	F10		0.8334				0.600
	F18		0.8451				0.545
	F02		0.8532				0.544
	F21		0.8464				0.504
Turning to Core	F13	0.7343	0.6557				0.792
Competences	F12		0.6622				0.757
Prospect	F03		0.6745				0.634
	F19		0.7047				0.604

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Those two components were named as "Quality Improvement and Innovation Prospect" (QIIP) and "Turning to Core Competences Prospects" (TCCP) respectively.

IV.1.3. Logistics Outsourcing Disincentives

The results of the factor analysis on Managerial Incentives data provides two components and nine variables that contributed to the observed results of the questions regarding disincentives of Outsourcing Logistics in the Army. Two components developed by PCA were examined in internal consistency reliability analysis. Cronbach's Alpha test results were found to be highly satisfactory (Table IV.5). Those two components were named as "Administrative Costs Prospect" (ACP) and "Hollowing out Prospect" (HOP) respectively.

Table IV.5 Reliability and Validity Results for Outsourcing Disincentives

Scale	Variables	Alpha	Alpha if Item deleted	BTS	KMO MSA	TVE	Factor Loadings
Administrative	Z06	0.8079	0.7769	0.000	0.859	.544	.736
Costs	Z07		0.7642				.711
Prospect	Z08		0.7831				.636
	Z10		0.7648				.616
	Z03		0.7971				.610
	Z04		0.7821				.593
Hollowing out	Z02	0.7022	.5673				.868
Prospect	Z01		.5468				.754
	Z09		.7057				.629

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Convergent and discriminant validity for the scales used to measure the six constructs used in the study are assessed by means of EFA. Some items violate the convergent and the discriminant validity of the scales. Those are neglected and factor analysis is performed again. By means of this item extraction, both convergent and discriminant validity are converged. Thus, exploratory structure of the model is built. After this point modified structure of the model for outsourcing logistics in the Army is used in beyond causality analyses.

IV.2. HYPOTHESES TESTING ASPECTS

Causality occupies a central position in human common sense reasoning. In particular, it plays an essential role in human decision making by providing basis for choosing that action that is likely to lead to a desired result. Recognizing when causality occurs implies recognizing a causal relationship. Whether this can be done at all has been a speculation for thousands of years. At the same time, in our daily lives, we make common sense observations that causality exists (Mazlack and Coppock, 2002). In this research the proposed causal relationships between dependent and independent variables were tested through experimentation in the frame of data set gathered by the field survey using different testing methods.

The effects of outsourcing knowledge variables and demographic variables on latent variables produced by operationalization procedures, and the defense situations effects on LOIS are tested using Analysis of Variance (ANOVA). Besides, the effects of variables derived from EFA (latent variables / factors) on LOIS are tested using Multiple Linear Regression Analysis.

IV.2.1. Hypotheses Tested by ANOVA

The hypotheses suitable for the assumptions of ANOVA are tested using one-way ANOVA procedure. In this section the effects of item based variables measuring knowledge and categorizing subjects are investigated. Their impact is scrutinized for the factors revealed after EFA. Those variables are inserted to analysis with their regressional factor scores produced by SPSS™.

In the "Conceptual Model and Hypotheses" section of the previous part, 27 hypotheses are theorized referring to latent factor. As a result of operationalization process of variables, each of the hypotheses is divided into two hypotheses according to number of revealed factors. Thus, 54 hypotheses are tested using ANOVA in this section. For keeping the manuscript manageable, the hypotheses concerning the effects of subjects' experience and know-how in MLO and demographic variables are initially tested by ANOVA. "Personal experience in MLO", "knowledge of outsourcing definition", "awareness of foreign MLO applications" and "the level LSPs' participation in the units of subjects" are thought to be very important professional attributes for the army members to give sound response to the questions about the concept. As it can be seen in ANOVA results (Table IV.6), experience in MLO has a significant impact only on MEP and QIIP. On the other hand, there is

only a significant effect of knowledge of outsourcing definition on TCCP. Also results show that there are positive effects of awareness of the foreign MLO applications on all variables except HOP. The effects of the level of LSPs' participation in logistics in the subjects' units on QIIP, TCCP and ACP are significant. The effects of demographic variables on CRP, MEP, QIIP, TCCP, ACP and HOP can be seen briefly in Table IV.7 , no significant relationship between variables is found and the effects of demographic variables are not mentioned in further analyses.

Table IV.6 Initial ANOVA Results for the Effects of Variables Measuring Knowledge

Hypothesis	Independent Variable	Dependent Variable	F Statistic	Sig.
H_{1a}	Experience (v1)	CRP	0.461	0.631
H_{1b}		**MEP**	**3.586**	**0.029**
H_{1c}		**QIIP**	**3.033**	**0.050**
H_{1d}		TCCP	0.789	0.455
H_{1e}		ACP	0.066	0.936
H_{1f}		HOP	0.727	0.484
H_{2a}	Knowledge of	CRP	0.644	0.423
H_{2b}	Outsourcing	MEP	1.791	0.182
H_{2c}	Definition (v2)	QIIP	2.187	0.140
H_{2d}		**TCCP**	**4.899**	**0.028**
H_{2e}		ACP	0.993	0.320
H_{2f}		HOP	0.024	0.878
H_{3a}	Awareness of	**CRP**	**8.599**	**0.004**
H_{3b}	Foreign Military	**MEP**	**7.710**	**0.006**
H_{3c}	Outsourcing	**QIIP**	**2.969**	**0.086**
H_{3d}	Applications (v3)	**TCCP**	**23.439**	**0.000**
H_{3e}		**ACP**	**8.573**	**0.004**
H_{3f}		HOP	1.382	0.241
H_{4a}	Level of LSPs'	CRP	2.280	0.132
H_{4b}	Participation in	MEP	0.574	0.450
H_{4c}	The Units of	**QIIP**	**4.516**	**0.034**
H_{4d}	Subjects	**TCCP**	**3.685**	**0.056**
H_{4e}		**ACP**	**10.589**	**0.001**
H_{4f}		HOP	0.495	0.495

In the beyond analyses, just the hypotheses supported at the significance level of 0.1 are investigated in detail but the hypotheses not supporting the theory are excluded. For following hypotheses, the two of the three assumptions of ANOVA are conformed: the sample is assumed to be random since the high personnel circulation of TLF, normality is not considered as a problem for the large sample space. Homogeneity of variances assumption is tested and data is plotted for each hypothesis to reveal outliers in each hypothesis section. Furthermore, the index of hypotheses proposed in the previous section is presented here to make beyond analyses user-friendly for readers.

Table IV.7 Initial ANOVA Results for the Effects of Demographic Variables

Hypothesis	Independent Variable	Dependent Variable	F Statistic	Sig.
H_{5a}	Service type (d12)	CRP	0.491	0.613
H_{5b}		MEP	2.695	0.069
H_{5c}		QIIP	1.493	0.095
H_{5d}		TCCP	2.198	0.113
H_{5e}		ACP	0.731	0.482
H_{5f}		HOP	1.052	0.351
H_{2a}	Commission type (d13)	CRP	1.493	0.110
H_{2b}		MEP	1.809	0.180
H_{2c}		QIIP	0.632	0.199
H_{2d}		TCCP	2.779	0.097
H_{2e}		ACP	0.383	0.537
H_{2f}		HOP	2.690	0.102
H_{3a}	Work place (d14)	CRP	2.357	0.092
H_{3b}		MEP	0.112	0.739
H_{3c}		QIIP	1.669	0.299
H_{3d}		TCCP	0.140	0.709
H_{3e}		ACP	0.412	0.522
H_{3f}		HOP	1.393	0.239
H_{4a}	Service time (d15)	CRP	1.102	0.356
H_{4b}		MEP	0.435	0.783
H_{4c}		QIIP	0.952	0.434
H_{4d}		TCCP	2.416	0.085
H_{4e}		ACP	1.116	0.349
H_{4f}		HOP	0.836	0.503
H_{4a}	Age (d16)	CRP	0.869	0.483
H_{4b}		MEP	1.277	0.279
H_{4c}		QIIP	1.466	0.213
H_{4d}		TCCP	1.844	0.125
H_{4e}		ACP	0.751	0.558
H_{4f}		HOP	0.367	0.832

IV.2.1.1. The Effect of MLO Experience in MEP

It is theorized that the experienced army professionals in MLO have higher level of MEP. To test this hypothesis ANOVA procedure is employed.

H_0: Experience in logistics outsourcing process significantly does not explain the variance in the subjects' level of MEP.

H_{1b}: Experience in logistics outsourcing process significantly explains the variance in the subjects' level of MEP.

The plot of dependent variable versus independent variable is checked before the analysis. One outlier has been noticed and removed from the data set. Levene Statistic found to be insignificant with the p value of 0.069 indicates that the three

groups, “no experience”, “have seen applications”, and “have experience”, have equal variance. Therefore, homogeneity of variances assumption is not violated.

As it is presented in Table IV.8, after removing one outlier point the F test results have progressed to level of F statistic of 4.397 with the corresponding p value is 0.013, which is less than 0.05. Thus, we can confidently reject the null hypothesis, which means that the average outputs of the three levels of experience are significantly different from each other. LSD test is employed to see where exactly the mean difference lie. The significant difference is found between the mean of the MEP scores of subjects have no experienced and that of subjects have seen applications and have experience. This means that the MEP scores of subjects having experience and acquainted with applications of logistics outsourcing are significantly higher than that of subjects having no experience. But there is no significant difference between the first two groups.

Macro-economic benefits of MLO is perceived by the army professionals having experience in the issue or having seen applications before is higher than the other group do not have any acquaintance about the issue. This situation also supports that the idea of macro-economic benefits of MLO is not fictive because the prospects of experienced group is higher than that of inexperienced group. The experienced and acquainted army professionals having high prospect of macro-economic benefits are considered reflecting their experience and know-how.

Table IV.8 ANOVA Results for the Effect of MLO Experience on MEP

Descriptives

MEP	N	Mean	Std. Deviation
no experience	138	-0.134	1.007
have seen application	72	0.203	0.820
have experience	61	0.190	0.822
Total	271	0.028	0.933

Homogeneity of Variances

MEP	
Levene Statistic	2.705
df1	2
df2	268
Sig.	0.068

ANOVA

MEP	Sum of Squares	df	Mean Square	F	Sig
Between Groups	7.464	2	3.734	4.397	0.013
Within Groups	227.589	268	0.849		
Total	235.057	270			

Multiple Comparisons (LSD)

(I) v1- experience	(J) v1-experience	Mean Difference (I-J)	Std. Error	Sig.
no experience	have seen applications	-0.338 *	0.134	0.012
	have experience	-0.324 *	0.141	0.023
have seen applications	no experience	0.338 *	0.133	0.012
	have experience	0.013	0.160	0.932
have experience	no experience	0.324 *	0.141	0.023
	have seen applications	-0.013	0.160	0.932

*The mean difference is significant at the 0.05 level

IV.2.1.2. The Effect of Logistics Outsourcing Experience in QIIP

It is theorized that the experienced army professionals in MLO have higher level of QIIP. To test this hypothesis ANOVA procedure is employed.

H_0: Experience in MLO process significantly does not explain the variance in the subjects' level of QIIP.

H_{1c}: Experience in MLO process significantly explains the variance in the subjects' level of QIIP.

The plot of dependent variable versus independent variable is checked before the analysis. One outlier point has been noticed and removed from the data set. Levene Statistic found to be insignificant with the p value of 0.876 indicates that the three groups, "no experience", "have seen applications", and "have experience", have equal variance. Therefore, homogeneity of variances assumption is not violated.

As it is presented in Table IV.9, the F test results show that removing one outlier from data elevates the F statistics to the value of 4.289 with the corresponding p value of 0.015, which is less than 0.05. Thus, alternative hypothesis is supported, which means that the average outputs of the three levels of experience are significantly different from each other. LSD test is employed to see where exactly the mean difference lie. The significant difference is found between the mean of the QIIP scores of subjects have no experienced and that of subjects have seen applications and have experience. This means that the QIIP scores of subjects having experience and acquainted with applications of logistics outsourcing are significantly higher than that of subjects having no experience. But there is no significant difference between the first two groups of subjects. Quality improvement and innovation expectation is found to be relational with MLO experience of the professionals of the army meaning that the experienced or acquainted subjects believe the quality increasing and innovative effects of MLO. On the other hand, the subjects having no experience about MLO do not believe this type of benefits as much as the first two groups.

Table IV.9 ANOVA Results for the Effect of MLO Experience on QIIP

Descriptives

QIIP	N	Mean	Std. Deviation
no experience	138	-0.149	0.997
have seen application	72	0.130	0.916
have experience	61	0.241	0.895
Total	271	0.012	0.965

Homogeneity of Variances

QIIP	
Levene Statistic	0.132
df1	2
df2	268
Sig.	0.876

ANOVA

QIIP	Sum of Squares	df	Mean Square	F	Sig
Between Groups	7.815	2	3.907	4.289	0.015
Within Groups	244.136	268	0.911		
Total	251.951	270			

Multiple Comparisons (LSD) QIIP

(I) v1- experience	(J) v1-experience	Mean Difference (I-J)	Std. Error	Sig.
no experience	have seen applications	-0.279 *	0.138	0.045
	have experience	-0.390 *	0.146	0.008
have seen applications	no experience	0.279 *	0.138	0.045
	have experience	-0.110	0.166	0.505
have experience	no experience	0.390 *	0.146	0.008
	have seen applications	0.110	0.166	0.505

The mean difference is significant at the 0.05 level

IV.2.1.3. The Effect of Knowledge of Outsourcing Definition on TCCP

It is theorized that the army professionals who know the definition of outsourcing have higher level of TCCP. To test this hypothesis ANOVA procedure is employed.

H_0: Knowledge of outsourcing definition does not significantly explain the variance in the subjects' level of TCCP.

H_{2d}: Knowledge of outsourcing definition significantly explains the variance in the subjects' level of TCCP.

The plot of dependent variable versus independent variable is checked before the analysis. No outlier has been noticed. Levene Statistic found to be insignificant with the p value of 0.600 indicates that the two groups, "knowing the definition" and "not knowing the definition", have equal variance. Therefore, homogeneity of variances assumption is conformed.

As it is presented in Table IV.10, the F test results show that the F statistics is 4.289 with the corresponding p value of 0.028, which is less than 0.05. Thus, we can reject the null hypothesis, which means that the average outputs of the group giving right answer and the group giving wrong answer are significantly different from each other. This means that the TCCP scores of subjects giving right answer to question of

definition is significantly higher than that of subjects giving wrong answer with mean scores of 0.142 and -0.105 respectively. Turning to core competence issue is very important benefit for army for reaching its goal in any mission. This incentive as a consequence of MLO is thought to be important benefit by army professionals who give the right answer, but not by the wrong answer givers as much.

Table IV.10 ANOVA Results for the Effect of Outsourcing Definition Knowledge on TCCP

Descriptives

TCCP	N	Mean	Std. Deviation
giving right answer	112	-0.105	0.943
giving wrong answer	164	0.142	0.893
Total	276	0.041	0.920

Homogeneity of Variances

TCCP	
Levene Statistic	0.276
df1	1
df2	274
Sig.	0.600

ANOVA

TCCP	Sum of Squares	df	Mean Square	F	Sig
Between Groups	7.815	1	4.092	4.899	0.028
Within Groups	228.136	274	0.835		
Total	232.951	275			

IV.2.1.4. The Effect of Awareness of Foreign MLO Practices on CRP

It is theorized that the awareness of foreign logistics outsourcing applications causes higher level of CRP. To test this hypothesis ANOVA procedure is employed.

H_0: Awareness of foreign MLO applications does not significantly explain the variance in the subjects' level of CRP.

H_{3a}: Awareness of foreign MLO applications significantly explains the variance in the subjects' level of CRP.

The plot of dependent variable versus independent variable is checked before the analysis. No outliers have been noticed in the plot. Levene Statistic found to be insignificant with the p value of 0.868 indicates that the two groups, "aware of foreign MLO applications" and "no idea" have equal variances. Therefore, homogeneity of variances assumption is not violated.

As it is presented in Table IV.11, the ANOVA results show F statistic of 8.599 with the corresponding p value is 0.023, which is less than 0.05. Thus, the null hypothesis is rejected and alternative hypothesis is supported, which means that the average outputs of the two levels of awareness are significantly different from each other. In other words, the claim that the effects of two levels of awareness on CRP are not same is right. The mean CRP of subjects who respond that "yes; MLO is

common in western armies" is significantly higher than that of subjects responding "I have no idea" with the mean values of 0.135 and -0.254 respectively.

Table IV.11 ANOVA Results for the effect of awareness of foreign MLO practices on CRP

Descriptives

CRP	N	Mean	Std. Deviation
no idea	80	-0.254	1.148
Yes	182	0.135	0.914
Total	262	0.016	1.006

Homogeneity of Variances

CRP	
Levene Statistic	1.570
df1	1
df2	260
Sig.	0.211

ANOVA

CRP	Sum of Squares	df	Mean Square	F	Sig
Between Groups	8.459	1	8.459	8.599	0.004
Within Groups	255.768	260	0.984		
Total	264.226	261			

IV.2.1.5. The Effect of Awareness of Foreign MLO Practices on MEP

It is theorized that the awareness of foreign logistics outsourcing applications causes higher level of MEP. To test this hypothesis ANOVA procedure is employed.

H_0: Awareness of foreign MLO applications does not significantly explain the variance in the subjects' level of MEP.

H_{3b}: Awareness of foreign MLO applications significantly explains the variance in the subjects' level of MEP.

The plot of dependent variable versus independent variable is checked before the analysis. Two outliers are detected in plot analysis and removed. Levene Statistic found to be insignificant with the p value of 0.197 indicates that the two groups, "aware of foreign MLO applications" and "no idea" have equal variances. Therefore, homogeneity of variances assumption is not violated.

As it is presented in Table IV.15, the ANOVA results show F statistic of 4.871 with the corresponding p value is 0.028, which is less than 0.05. Thus, the null hypothesis is rejected and alternative hypothesis is supported, which means that the average outputs of the two levels of awareness are significantly different from each other. In other words, the claim that the effects of two levels of awareness on MEP are not same is right. The mean MEP of subjects who respond that "MLO is common in western armies" is significantly higher than that of subjects responding "I have no idea" with the mean values of 0.126 and -0.144 respectively.

Table IV.12 ANOVA Results for the effect of awareness of foreign MLO applications on MEP

Descriptives

MEP	N	Mean	Std. Deviation
no idea	78	-0.144	0.989
yes	182	0.126	0.873
Total	260	0.045	0.916

Homogeneity of Variances

MEP	
Levene Statistic	1.676
df1	1
df2	258
Sig.	0.197

ANOVA

MEP	Sum of Squares	df	Mean Square	F	Sig
Between Groups	4.030	1	4.030	4.871	0.028
Within Groups	213.430	258	0.827		
Total	217.460	259			

IV.2.1.6. The Effect of Awareness of Foreign MLO Practices on QIIP

It is theorized that the awareness of foreign MLO applications causes higher level of QIIP. To test this hypothesis ANOVA procedure is employed.

H_0: Awareness of foreign MLO applications does not significantly explain the variance in the subjects' level of MEP.

H_{3b}: Awareness of foreign MLO applications significantly explains the variance in the subjects' level of MEP.

Though this hypothesis is found to be not supported at significance level of 0.05 in the initial test, data plot analysis is conducted to see the distribution of data space and to apply healing methods to data to make them fit for ANOVA. The plot of dependent variable versus independent variable is checked and three outliers are detected in plot analysis and removed. Levene Statistic found to be insignificant with the p value of 0.627 indicates that the two groups, "aware of foreign MLO applications" and "no idea" have equal variances. Therefore, homogeneity of variances assumption is not violated.

As it is presented in Table IV.16, the ANOVA results show F statistic reduces from 2.969 with p value of 0.086 to 2.105 with p value of 0.148, which is bigger than 0.05. Consequently, the data plotting and removing outlier points is seen ineffective to heal data for ANOVA. Consequently, the null hypothesis cannot be rejected, which means that the average outputs of the two levels of awareness are not different from each other.

Table IV.13 ANOVA Results for the effect of awareness of foreign MLO applications on QIIP

Descriptives				**Homogeneity of Variances**	
QIIP	**N**	**Mean**	**Std. Deviation**	QIIP	
no idea	79	-0.123	0.934	Levene Statistic	0.237
Yes	180	0.061	0.945	df1	1
				df2	257
Total	259	0.004	0.944	Sig.	0.627

ANOVA

QIIP	Sum of Squares	df	Mean Square	F	Sig
Between Groups	1.870	1	1.870	2.105	0.148
Within Groups	228.242	257	0.888		
Total	230.112	258			

IV.2.1.7. The Effect of Awareness of Foreign MLO Practices on TCCP

It is theorized that the awareness of foreign MLO applications causes higher level of TCCP. To test this hypothesis ANOVA procedure is employed.

H_0: Awareness of foreign military outsourcing applications does not significantly explain the variance in the subjects' level of TCCP.

H_{3d}: Awareness of foreign military outsourcing applications significantly explains the variance in the subjects' level of TCCP.

The plot of dependent variable versus independent variable is checked before the analysis. Three outliers have been noticed and removed from the data set. Although the F statistic of ANOVA is seen to be significant in Table IV.14, Levene Statistic found to be significant with the p value of 0.009 indicates that the two groups, that the two groups, "aware of foreign MLO applications" and "no idea" have not equal variance. Therefore, homogeneity of variances assumption is violated.

Table IV.14 ANOVA Results for the effect of awareness of foreign MLO practices on TCCP

Descriptives				**Homogeneity of Variances**	
TCCP	**N**	**Mean**	**Std. Deviation**	TCCP	
no idea	75	-0.219	0.896	Levene Statistic	10.875
yes	177	0.304	0.703	df1	1
				df2	250
Total	259	0.148	0.801	Sig.	0.001

ANOVA

TCCP	Sum of Squares	df	Mean Square	F	Sig
Between Groups	14.479	1	14.479	24.681	0.000
Within Groups	146.664	250	0.587		
Total	161.143	251			

Data transformation methods of "logarithm" or "square root" cannot be used to normalize the data and reduce the differences in variances since the dependent variable data have minus values. Consequently, the Kruskal-Wallis nonparametric test is conducted to test the hypothesis. The results shown in Table IV.17 dictate us to reject null hypothesis and the alternative hypothesis is supported, which means that the average outputs of the two levels of awareness are significantly different from each other with chi-square value of 20.511 and asymptotic significance value of 0.000. TCCP of army professionals aware of MLO applications is significantly higher than the group having no idea.

Table IV.15 Kruskal-Wallis Test Results for the effect of awareness of foreign MLO practices on TCCP

Ranks				Test Statistics	
	v3-awareness	N	Mean Rank		TCCP
TCCP	no idea	80	99.53	Chi-Square	20.511
	yes	182	145.55	df	1
	Total	262		Asymptotic Significance.	0.000

IV.2.1.8. The Effect of Awareness of Foreign MLO Practices on ACP

It is theorized that the awareness of foreign logistics outsourcing applications causes higher level of ACP. To test this hypothesis ANOVA procedure is employed.

H_0: Awareness of foreign military outsourcing applications does not significantly explain the variance in the subjects' level of ACP.

H_{3e}: Awareness of foreign military outsourcing applications significantly explains the variance in the subjects' level of ACP.

The plot of dependent variable versus independent variable is checked before the analysis. Two outliers have been noticed and removed from the data set. Levene Statistic found to be insignificant with the p value of 0.425 indicates that the three groups, "no experience", "have seen applications", and "have experience", have equal variances. Therefore, homogeneity of variances assumption is not violated.

As it is presented in Table IV.16, the F test results show F statistic of 8.573 with 266 degrees of freedom. The corresponding p value is 0.004, which is less than 0.05. Thus, the null hypothesis is rejected and the alternative hypothesis is supported, which means that the average outputs of the three levels of awareness are significantly different from each other. In other words, the awareness of foreign logistics outsourcing applications has a negative effect on ACP (Administrative

Costs Prospect) level of the subjects. The group, having knowledge about foreign MLO applications, gives less importance to ACP than the other group having no idea about it. This relationship can be the result of professional having no idea can be afraid of MLO because of the lack of knowledge.

Table IV.16 ANOVA Results for the effect of awareness of foreign MLO practices on ACP

Descriptives

ACP	N	Mean	Std. Deviation
no idea	80	0.238	0.991
yes	182	-0.149	0.986
Total	262	-0.030	1.002

Homogeneity of Variances

ACP	
Levene Statistic	0.638
df1	1
df2	260
Sig.	0.425

ANOVA

ACP	Sum of Squares	df	Mean Square	F	Sig
Between Groups	8.366	1	8.366	8.573	0.004
Within Groups	253.732	260	0.976		
Total	262.098	261			

IV.2.1.9. The Effect of the Logistics Performed by LSPs on CRP

It is theorized that the level of LSP participation in logistics functions performed in subjects' units causes higher level of CRP. To test this hypothesis ANOVA procedure is employed

H_0: The more logistics functions are performed by LSPs in subjects' units do not create the higher level of CRP of subjects

H_{4a}: The more logistics functions are performed by LSPs in subjects' units creates the higher level of CRP of subjects.

Though it is found insignificant in the initial test with p value of 0.132, the plot of data is seen very suitable to heal by removing two distant outlier points. Levene Statistic found to be insignificant with the p value of 0.968 indicates that the two groups, "logistics functions are performed by soldiers" and "logistics functions are performed by both soldiers and LSPs". Therefore, homogeneity of variances assumption is not violated.

As it is presented in Table IV.17 the F test results show F statistic of 4.429 with 269 degrees of freedom. The corresponding p value is 0.036, which is less than 0.05. Thus, we can reject the null hypothesis so the alternative hypothesis is supported, which means that the average outputs of the two levels of LSP participations are significantly different from each other. Likewise the previous hypothesis, the level of CRP corresponding to subjects responding that logistics functions are performed by

soldiers is significantly higher than the other group responding that logistics functions are performed by both with mean value of 0.165 and -0.066 respectively.

Table IV.17 ANOVA Results for the effect of logistics functions performed by LSPs on CRP

Descriptives

CRP	N	Mean	Std. Deviation
military personnel	149	0.165	0.893
private & military mix	121	-0.066	0.909
Total	270	0.062	0.906

Homogeneity of Variances

CRP	
Levene Statistic	0.002
df1	1
df2	268
Sig.	0.968

ANOVA

ACP	Sum of Squares	df	Mean Square	F	Sig
Between Groups	3.593	1	3.593	4.429	0.036
Within Groups	217.376	268	0.811		
Total	220.968	269			

IV.2.1.10.The Effect of the Logistics Performed by LSPs on QIIP

It is theorized that the level of LSP participation in logistics functions performed in subjects' units causes higher level of QIIP. To test this hypothesis ANOVA procedure is employed

H_0: The more logistics functions are performed by LSPs in subjects' units do not create the higher level of QIIP of subjects.

H_{4c}: The more logistics functions are performed by LSPs in subjects' units creates the higher level of QIIP of subjects.

The plot of dependent variable versus independent variable is checked before the analysis. No outliers have been noticed. Levene Statistic found to be insignificant with the p value of 0.909 indicates that the two groups, "logistics functions are performed by soldiers" and "logistics functions are performed by both soldiers and LSPs". Therefore, homogeneity of variances assumption is not violated.

As it is presented in Table IV.18, the F test results show F statistic of 4.516 with 271 degrees of freedom. The corresponding p value is 0.034, which is less than 0.05. Thus, we can reject the null hypothesis, which means that the average outputs of the two levels of LSP participations are significantly different from each other. Surprisingly, the level of QIIP corresponding to subjects responding that logistics functions are performed by soldiers is significantly higher than the other group responding that logistics functions are performed by both with mean value of 0.117 and -0.131 respectively. The group having experience of LSPs' performance in their own units does not expect so much quality improvement and innovation from MLO.

This situation can be the result of poor performance of current providers and unsatisfied customers of the services.

Table IV.18 ANOVA Results for the effect of logistics functions performed by LSPs on QIIP

Descriptives

QIIP	N	Mean	Std. Deviation
military personnel	151	0.118	0.956
private & military mix	121	-0.131	0.963
Total	272	0.007	0.965

Homogeneity of Variances

QIIP	
Levene Statistic	0.013
df1	1
df2	270
Sig.	0.909

ANOVA

QIIP	Sum of Squares	df	Mean Square	F	Sig
Between Groups	4.158	1	4.158	4.516	0.034
Within Groups	248.603	270	0.921		
Total	252.761	271			

IV.2.1.11.The Effect of the Logistics Performed by LSPs on TCCP

It is theorized that the level of LSP participation in logistics functions performed in subjects' units causes higher level of TCCP.

H_0: The more logistics functions are performed by LSPs in subjects' units do not create the higher level of TCCP of subjects.

H_{4d}: The more logistics functions are performed by LSPs in subjects' units creates the higher level of TCCP of subjects.

Despite the fact that the relationship between the level of logistics performed by LSP in the units of subject and their TCCP score is found to be insignificant with p value of 0.056 in the initial ANOVA, data plotting analysis is conducted to see the outliers. Seven outlier points have been discovered as problematic and removed to purify the data to check whether the significance level reach below the significance level of 0.05. Then, ANOVA is reapplied.

Levene Statistic found to be insignificant with the p value of 0.909 indicates that the two groups, "logistics functions are performed by soldiers" and "logistics functions are performed by both soldiers and LSPs". Therefore, homogeneity of variances assumption is not violated.

As it is presented in Table IV.19, the F test results show F statistic of 0.393 with 264 degrees of freedom. The corresponding p value is 0.531, which is higher than 0.05. Thus, we cannot reject the null hypothesis, which means that the average outputs of the two levels of LSP participations are not significantly different from each other. This result means that the level of logistics functions performed does not

affect the level of TCCP score of the subjects. The group with the experience of LSPs' performance does not anticipate significantly higher turning to core competences of soldiers. The current applications in some units of the army cannot provide this important benefit of outsourcing. But after institutionalization of MLO, the prospect of TCC can be established.

Table IV.19 ANOVA Results for the effect of logistics functions performed by LSPs on TCCP

Descriptives

TCCP	N	Mean	Std. Deviation
military personnel	151	0.142	0.838
private & military mix	114	0.077	0.806
Total	265	0.114	0.823

Homogeneity of Variances

TCCP	
Levene Statistic	0.065
df1	1
df2	263
Sig.	0.799

ANOVA

TCCP	Sum of Squares	df	Mean Square	F	Sig
Between Groups	0.267	1	0.267	0.393	0.531
Within Groups	178.831	263	0.680		
Total	179.098	264			

IV.2.1.12.The Effect of the Logistics Performed by LSPs on ACP

It is theorized that the level of LSP participation in logistics functions performed in subjects' units causes lower level of ACP. To test this hypothesis ANOVA procedure is employed.

H_0: The more logistics functions are performed by LSPs in subjects' units do not create the lower level of ACP of subjects

H_{4e}: The more logistics functions are performed by LSPs in subjects' units creates the lower level of ACP of subjects.

There has been no outlier in the data plot. Levene Statistic found to be insignificant with the p value of 0.968 indicates that homogeneity of variances assumption is conformed.

As it is presented in Table IV.20, the F statistic is 10.589 with 269 degrees of freedom. The corresponding p value is 0.001, which is less than 0.05. Thus, we can reject the null hypothesis. Parallel to theory, the level of ACP corresponding to subjects responding that "logistics functions are performed by soldiers" is significantly lower than the other group responding that "logistics functions are performed by both" with mean value of -0.158 and 0.228 respectively. The group of subjects getting logistics service from LSPs, even if it is partial, giving less

importance to administrative cost of outsourcing than the other group getting service only from soldiers.

Table IV.20 ANOVA Results for the effect of logistics functions performed by LSPs on ACP

Descriptives

TCCP	N	Mean	Std. Deviation
military personnel	151	-0.158	1.009
private & military mix	121	0.228	0.927
Total	272	0.014	0.991

Homogeneity of Variances

TCCP	
Levene Statistic	0.674
df1	1
df2	270
Sig.	0.412

ANOVA

TCCP	Sum of Squares	df	Mean Square	F	Sig
Between Groups	10.050	1	10.050	10.589	0.001
Within Groups	256.241	270	0.949		
Total	266.291	271			

IV.2.2. The Effect of the Defense Situations on LOIS

H_0: Defense situations do not significantly explain the variance in LOIS.

H_{10}: Defense situations do not significantly explain the variance in LOIS.

The plot of dependent variable versus independent variable is checked before the analysis. Two outliers have been noticed and removed from the data set. Levene Statistic found to be significant with the p value of 0.000 indicates that the three groups, "peace time", "war time", and "int.sec.ops" do not have equal variances. Therefore, homogeneity of variances assumption is violated. Tamhane's T2 test, provided by SPSS™ for the cases of equal variances is not assumed, employed to find where the significant difference lie among the groups. And also Kruskal Wallis nonparametric test is used to check the differences between three groups to support F test.

This hypothesis is found to be significant at level of 0.000 with F value of 41.723 as it is presented in Table IV.21 and Kruskal-Wallis nonparametric test with chi-square value of 20.511 and asymptotic significance value of 0.000 as it is presented in Table IV.22. Consequently, the null hypothesis is rejected and alternative hypothesis is supported, which means that the average outputs of the three defense situations are significantly different from each other. Additionally, post-hoc test Tamhane's T2 shows that the significant difference is found between peace time and war time and peace time and Int.Sec.Ops. There is no significant difference between war time and Int.Sec.Ops.

Table IV.21 ANOVA Results for perception difference regarding to situations (peace, war, and internal security ops)

Descriptives

MEP	N	Mean	Std. Deviation
peace	279	4.239	0.628
war	279	3.583	0.813
Int.Sec.Ops.	279	3.557	0.880
Total	837	3.793	0.842

Homogeneity of Variances

MEP	
Levene Statistic	11.138
df1	2
df2	834
Sig.	0.000

ANOVA

MEP	Sum of Squares	df	Mean Square	F	Sig
Between Groups	83.445	2	41.723	68.318	0.000
Within Groups	509.338	834	0.611		
Total	592.784	836			

Multiple Comparisons (Tamhane's T2) MEP

(I) defense situation	(J) defense situation	Mean Difference (I-J)	Std. Error	Sig.
peace	war	0.656 *	0.061	0.000
	Int.Sec.Ops.	0.682 *	0.065	0.000
war	peace	-0.656 *	0.061	0.000
	Int.Sec.Ops.	0.026	0.072	0.976
Int.Sec.Ops.	peace	-0.682 *	0.065	0.000
	war	-0.026	0.072	0.976

*The mean difference is significant at the 0.05 level

Table IV.22 Kruskal-Wallis Test Results for the effect of awareness of foreign MLO practices on TCCP

Ranks

	v3-awareness	N	Mean Rank
TCCP	peace	279	555.53
	war	279	351.81
	Int.sec.ops	279	349.66
	Total	837	

Test Statistics

	TCCP
Chi-Square	133.491
df	2
Asymptotic Significance.	0.000

IV.2.3. The Effects of Factor Score Based Variables on LOIS

In this section the operationalized latent constructs of three concepts are investigated due to their effects on LOIS. To test the following hypotheses, multiple regression analysis was done. First, for identifying problems, plots of dependent variable versus independent variables are checked. Two outliers are observed in either plots of CRP versus LOIS and HOP versus LOIS. Two points from the former and two points from latter data set have been removed. Any problem which can be a cause to violate any assumption of regression is not founded in the other plots.

The correlations between independent variables in each model are very small because of EFA process applied before. Thus, **tolerance** values of each independent variable are 1 or a value very close to 1 meaning collinearity problem is not detected for three hypotheses.

Additionally, the three assumptions of regression are evaluated for each hypothesis. Figure IV.1, Figure IV.3 an Figure IV.5 show that the residuals are distributed randomly when plotted against the predicted value of Y ($\hat{Y}$) indicating no major violation of **the assumption of constant variance** (homoscedasticity). **The assumption of normality** in the errors around the line of regression can be evaluated from the histograms of the residuals in Figure IV.2, Figure IV.4 and Figure IV.6 indicating a normal probability plot of the residuals. **The assumption of independence** is measured by the Durbin-Watson statistic. The Durbin-Watson statistic 1.856, 1.834 and 1.871 for H_{11}, H_{12} and H_{13} respectively, which falls within the acceptable range, satisfies **the assumption of independence**.

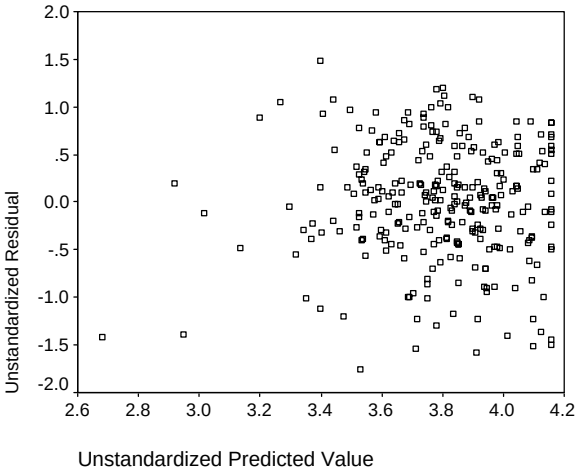

Figure IV.1 Residual Plot for H_{11}

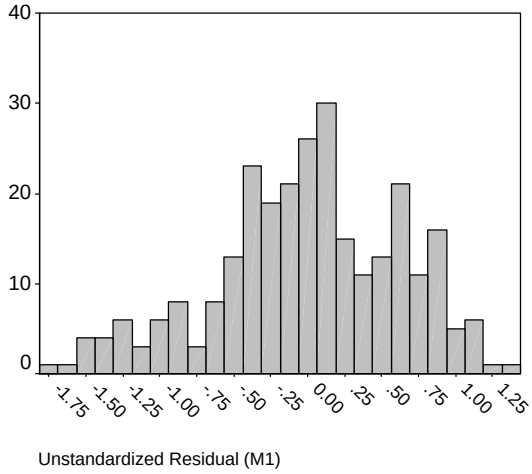

Figure IV.2 Residuals Histogram for H_{11}

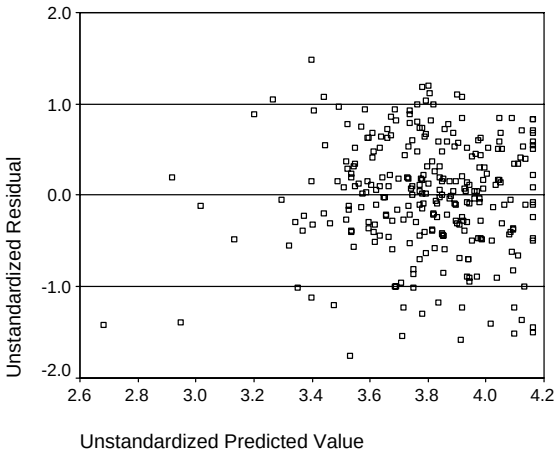

Figure IV.3 Residual plot for the H_{12}

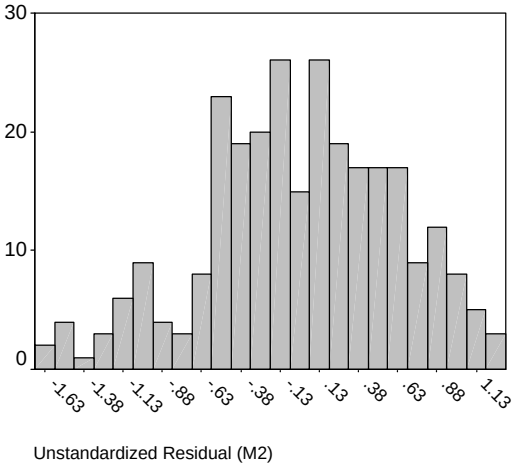

Figure IV.4 Residuals Histogram for H_{12}

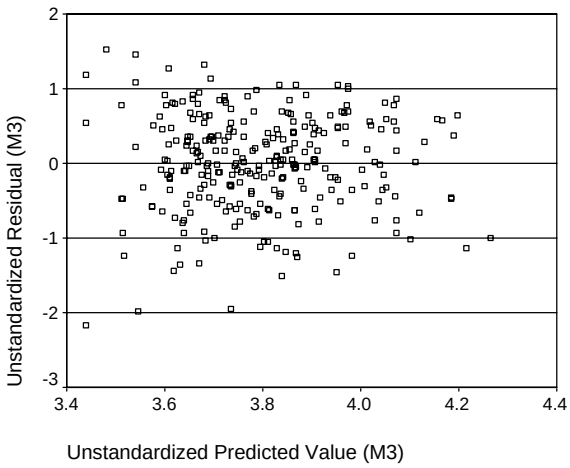

Figure IV.5 Residual plot for H_{13}

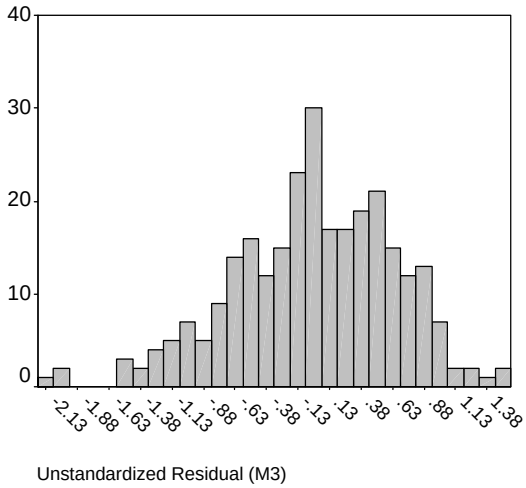

Figure IV.6 Residuals Histogram for H_{13}

IV.2.3.1. The Effects of Economic Incentives on LOIS

H_0: Operationalized two independent variables of economic incentives will not significantly explain the variance in the subjects' level of intention of logistics outsourcing ($R^2_{eco} = 0$).

H_{11}: Operationalized two independent variables of economic incentives will significantly explain the variance in the subjects' level of intention of logistics outsourcing ($R^2_{eco} \neq 0$).

The results of regressing two independent variables against LOIS presented in Table IV.23 clearly indicate that the null hypothesis is rejected, meaning the independent variables do have a systematic association with dependent variable in the model. Thus, the alternative hypothesis is supported. The regression coefficients for CRP and MEP are 0.170 and 0.152 respectively and significant at 0.001 level. We can claim that the LOIS is positively related to CRP and MEP. The F statistic produced (F=20.815) is significant at the 0.0001 level. The multiple R (0.343) is the correlation of the two independent variables with the dependent variable after all the intercorrelations among the two independent are taken into account. The R Square is 0.132. What this means is that 13.2 percent of the variance (R Square) in LOIS has been significantly explained by the two independent variables. The path and regression model is presented in Figure IV.7 and Equation IV.1.

Table IV.23 Multiple Regression Results (Effects of Economic Incentives on LOIS)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.363[a]	.132	.126	.61971	1.856

a. Predictors: (Constant), MEP, CRP

b. Dependent Variable: LOIS

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.988	2	7.994	20.815	.000[a]
	Residual	105.228	274	.384		
	Total	121.216	276			

a. Predictors: (Constant), MEP, CRP

b. Dependent Variable: LOIS

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.792	.037		101.847	.000		
	CRP	.202	.039	.293	5.195	.000	.998	1.002
	MEP	.135	.038	.202	3.583	.000	.998	1.002

a. Dependent Variable: LOIS

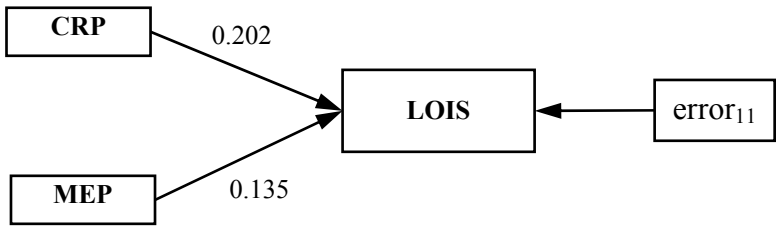

Figure IV.7 Path and Multiple Regression Model of H_{11} with Estimated Coefficients

$$\hat{\mathbf{LOIS}} = 3.792 + 0.202\mathrm{CRP} + 0.135\mathrm{MEP} \qquad \textbf{(IV.1)}$$

IV.2.3.2. The Effects of Managerial Incentives on LOIS

H_0: Operationalized two independent variables of managerial incentives do not significantly explain the variance in the subjects' level of LOIS ($R^2_{Mngr} = 0$).

H_{12}: Operationalized two independent variables of managerial incentives significantly explain the variance in the subjects' level of LOIS ($R^2_{Mngr} \neq 0$).

The results of multiple regression presented in Table IV.24 clearly show that the null hypothesis is rejected, meaning the independent variables do have a

systematic association with dependent variable in the model. Thus, alternative hypothesis is supported. The p-value for beta coefficients of QIIP and TCCP are 0.000. and significant at significance level of 0.0001 supporting the hypothesis. The F statistic produced (F = 26.741) is significant at the 0.0001 level. The multiple R (0.403) is the correlation of the two independent variables with the dependent meaning that 16.2 percent of the variance (R Square) in LOIS has been significantly explained by the two independent variables. The path and regression model is presented in Figure IV.8 and Equation IV2.

Table IV.24 Multiple Regression Results (Effects of Managerial Incentives on LOIS)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,403[a]	,162	,156	,61055	1,834

a. Predictors: (Constant), TCCP, QIIP

b. Dependent Variable: Logistics Outsourcing Intention Score (Mean)

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19,937	2	9,968	26,741	,000[a]
	Residual	102,885	276	,373		
	Total	122,821	278			

a. Predictors: (Constant), TCCP, QIIP

b. Dependent Variable: Logistics Outsourcing Intention Score (Mean)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,794	,037		103,782	,000		
	QIIP	,228	,037	,343	6,224	,000	1,000	1,000
	TCCP	,141	,037	,212	3,840	,000	1,000	1,000

a. Dependent Variable: Logistics Outsourcing Intention Score (Mean)

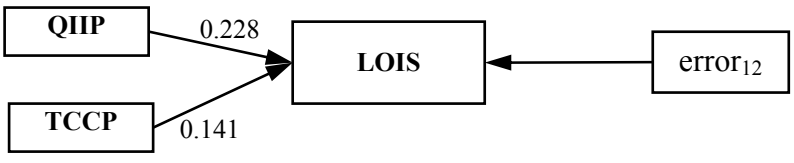

Figure IV.8 Path and Multiple Regression Model of H_{12} with Estimated Coefficients

$$\hat{\mathbf{LOIS}} = 3.794 + 0.228\text{QIIP} + 0.141\text{TCCP} \qquad \textbf{(IV.2)}$$

IV.2.3.3. The Effects of Outsourcing Disincentives on LOIS

H_0: Operationalized two independent variables of logistics outsourcing disincentives do not significantly explain the variance in the subjects' level of intention of logistics outsourcing ($R^2_{\text{Disincentives}} = 0$).

H_{13}: Operationalized two independent variables of logistics outsourcing disincentives significantly explain the variance in the subjects' level of intention of logistics outsourcing ($R^2_{\text{Disincentives}} \neq 0$).

The results of regressing two independent variables against LOIS presented in Table IV.25 clearly indicate that H_0 is rejected, meaning the independent variables do have a systematic association with dependent variable in the model. Thus, alternative hypothesis is supported.

The regression coefficients for ACP and HOP are 0.133 and 0.083 respectively. The p-values for coefficient of ACP and HOP are significant at the level of 0.001 and 0.038 respectively, so we can claim that LOIS is negatively related to ACP and HOP. The multiple R (0.236) is the correlation of the two independent variables with the dependent variable after all the intercorrelations among the two independent are taken into account. The F statistic produced (F=8.085) is significant at the 0.0001 level. So, 5.6 percent of the variance (R Square) in LOIS has been significantly explained by the two independent variables. The path and regression model is presented in Figure IV.9 and Equation IV.3.

Table IV.25 Multiple Regression Results (Effects of Outsourcing Disincentives on LOIS)

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.236[a]	.056	.049	.64705	1.871

a. Predictors: (Constant), HOP, ACP

b. Dependent Variable: LOIS

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.770	2	3.385	8.085	.000[a]
	Residual	114.715	274	.419		
	Total	121.485	276			

a. Predictors: (Constant), HOP, ACP

b. Dependent Variable: LOIS

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.789	.039		97.423	.000		
	ACP	-.133	.040	-.197	-3.347	.001	.998	1.002
	HOP	-.083	.040	-.123	-2.089	.038	.998	1.002

a. Dependent Variable: LOIS

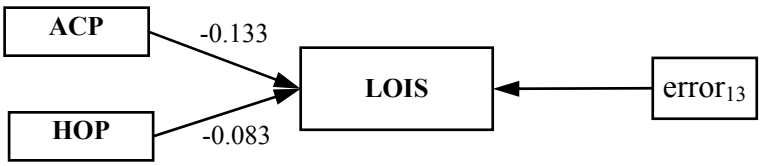

Figure IV.9 Path and Multiple Regression Model of H13 with Estimated Coefficients

$$\hat{\mathbf{LOIS}} = 3.789 - 0.133\text{ACP} - 0.083\text{TCCP} \qquad \textbf{(IV.3)}$$

IV.2.4. Integrated Causal Relationships Model of LOIS including statistically supported hypotheses

The findings of statistical analyses conducted in this study are mapped in a schema (Figure IV.10) to demonstrate all causal and categorical relationships supported through hypothesis tests.

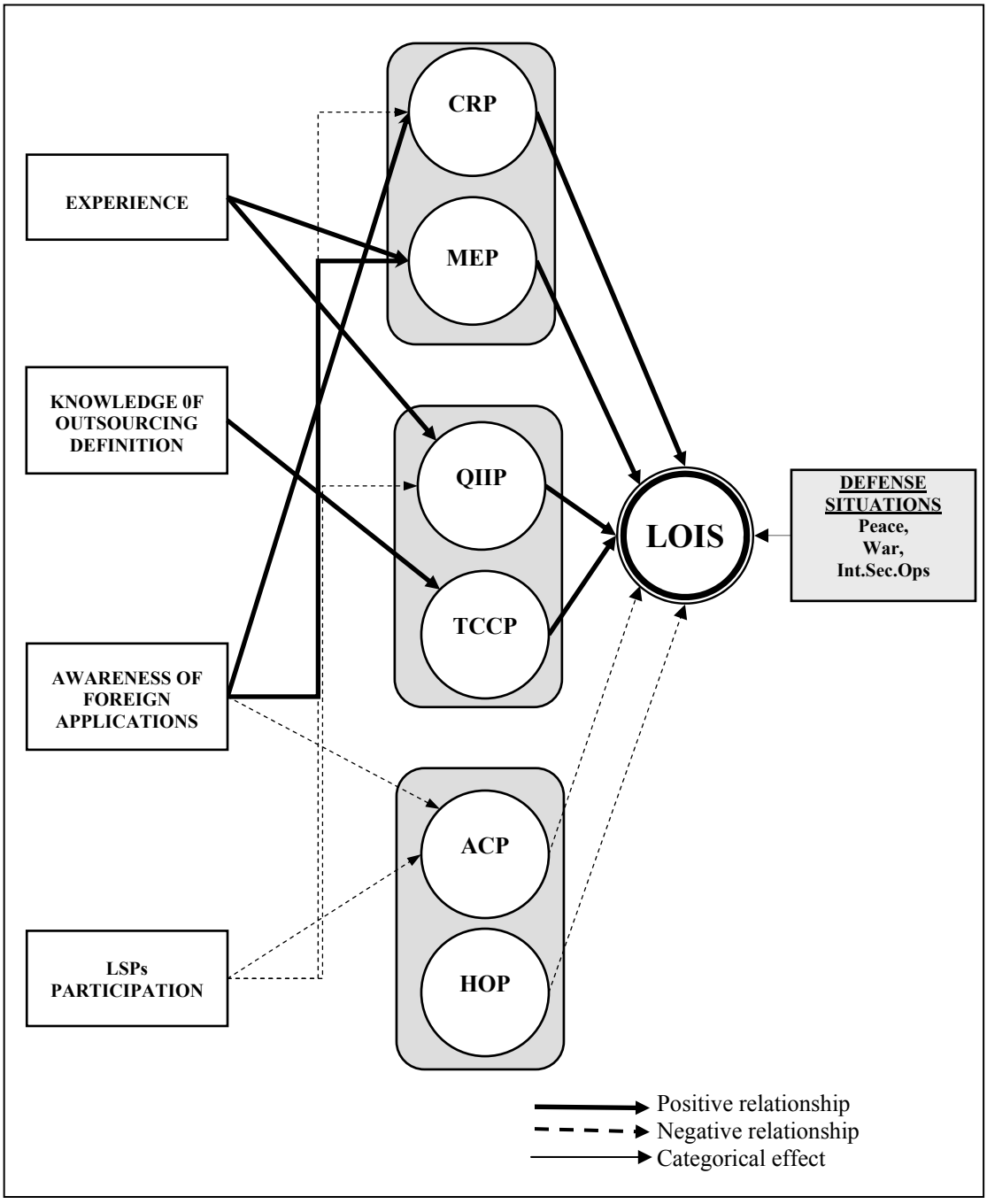

Figure IV.10 Integrated Causal Relationships Model of LOIS Based on Statistically Supported Hypotheses

PART VI: DISCUSSION AND EVALUATIONS

The final chapter of this study begins with a summary of basic conclusions and then discusses the theoretical and practical implications of these conclusions. The chapter also addresses the limitations of this research in terms of theory and methodology. Finally, the chapter suggests several future research directions.

V.1. DISCUSSION OF FINDINGS

As long as war exists, so will be a demand for military expertise. Private military firms will resultantly benefit from any slack given by traditional sources of security. The overall history of public versus private military actors indicates that the privatized military industry will continue to play a significant and increasing role in international security in the next decades (Singer, 2003). Private contractors now make up the second largest contingent of forces in Iraq after the US military itself –larger even than Britain's troop deployment. Most analysts say there are about 20,000 private military contractors in Iraq, including 6,000 who provide non-combat security, serving alonside138,000 soldiers (Cooper, 2004).

Since the scope of this study is limited to outsourcing logistics in military, the other types of private military firms as Singer (2003) mentions in his book like "Military Provider Firms", "Military Consultant Firms" are out of the coverage. Those outsider types of firms are mostly used in third world countries that do not have institutional and well established regular armed forces. For TLF these functions are strictly belong to TLF itself as its very core competencies. Besides, the policy of TLF command on outsourcing must not be covering this kind of functions. The growing effects of technology in military affairs only reinforce private firms' critical importance to high level military functions expose states' inability to supply such activities on their own. Likewise, continued reductions and restrictions in force structures make using logistics support contractors mandatory in the battlefield (Singer, 2003).

This research makes its most important contribution to an application of theory in logistics outsourcing in military through empirical testing the relationships. A conceptual model providing a military logistics outsourcing intention is developed through a field survey. An empirical study of relationships between economic and managerial incentives and outsourcing disincentives, and logistics outsourcing intention

of military professionals has never been conducted before. Most previous researches have focused on civilian logistics outsourcing performance and its underlying factors, and the effects of outsourcing applications in military. Besides, most of these studies are theoretical.

In this study, the defense situations for Turkey are defined as peace, war and internal security operation. The situation "peace" means that troops are training and preparing for operations in their barracks and there is no short term predicted threat of military conflict. The situation "war" means that there is a national mobilization against a predicted or current threat or the battles were started in many spots against one or more enemy forces. The situation "internal security operations" means that anti-terrorist operations in some parts of the country.

The model of LOIS is analyzed considering the mean score of three different defense situations. LOIS score of army professionals shows difference due to different situations. "LOIS" in peace time is greater than the others significantly. This supports the idea of peace time is more suitable for logistics outsourcing applications than war time and internal security operations are. And there was not found any significant difference between war time and internal security operations meaning that army professionals are putting both in the same level. On the other hand the mean of all three scores are significantly bigger than the midpoint of the scale. This finding shows that the intention of logistics outsourcing of army professionals is supported by statistics.

There are many studies covering the reasons or benefits of outsourcing. In this study the term incentives is used for positive effects of outsourcing. And disincentives are used to refer negative effects. Those items are rendered from the relevant literature, observations and experiences of the author. The incentives contains two parts; economic and managerial. After further analysis, economic incentives divided into two constructs named as CRP (cost reduction prospect) and MEP (macro-economic prospect). The managerial incentives reduced into two constructs named as QIIP (Quality Improvement & Innovation Prospect) and TCCP (Turning to Core Competences Prospect). Outsourcing Disincentives also produced two constructs named as ACP (Administrative Costs Prospect) and HOP (Hollowing out Prospect).

When we look at the mean score model (LOIS), the positive effects of CRP and MEP are supported by the statistical interpretations. The predicting effect of CRP is found to be bigger than MEP in mean score. This finding shows that the army professionals give more importance to organizational cost reduction prospect than

macro economic advantages of the logistics outsourcing in TLF. Naturally, the priority given to CRP is probably caused by the reasons that the benefits in this variable are closer to army professionals and the units under brigade level than macro economic benefits. Also benefits under the variable MEP are nationwide and long term.

The effects of managerial incentives QIIP and TCCP on LOIS are positive and supporting the theory. The effect of quality improvement and innovation prospect of the subjects has bigger than turning to core competencies prospect as a motive for logistics outsourcing decision. This relationship confirms that the effect of QIIP as a driver for logistics outsourcing decision is more important than TCCP. For a majestic army like TLF having conscripts employed in combatant and CSS jobs, TCCP is given less importance than QIIP. Very fast conscript circulation in the units can be another reason for their giving less importance to TCCP. If TLF were a full professional army, the opinions of professional could be different.

The effects of disincentives, ACP and HOP, are negative and supporting the theory. This finding supports that the logistics outsourcing decision of the army professional are influenced negatively by administrative costs of outsourcing and hollowing out prospect significantly. When the regression coefficients of ACP and HOP are compared to each other, it is seen that the negative effect of ACP is quite bigger than HOP. According to professionals in TLF perceptional administrative costs of logistics outsourcing is considered more important than hollowing out threat which may be caused by logistics outsourcing. This finding can be interpreted as administrative costs are closer in time than the threat of hollowing out. Hollowing out threat is a result of giving all main CSS functions to private sector and losing those capabilities in time. If it is decided to turn back to former system in which CSS or logistics are performed by uniformed men, it can be very difficult to reestablish. But if LSPs deployed in CSS perform well in benign and malign terrain, the threat of hollowing out can be considered as a minor disincentive.

The effects of knowledge based variables on CRP, MEP, QIIP, TCCP, ACP and HOP are also tested through hypotheses. The MLO experience has a positive and significant effect on MEP. The army professionals having experience of MLO in their unit are expecting more macro economic benefits than having no experience. This finding shows that MEP is a fact supported by experienced army members. MLO can create a new and robust sector in the country which can compete internationally. The experienced group is more likely to see it as a consequence of the concept. Experience

also has a positive and significant effect on QIIP. Since the group having experience probably have seen quality improving and innovative activities of LSPs, they have more QIIP than the inexperienced group.

The knowledge of outsourcing definition has a positive and significant effect on TCCP. The definition of outsourcing stresses on non-core activities of organization to be outsourced to an expert firm. Naturally, outsourcing provides organization with the capability of focusing on its core activities. For TLF the core competencies are combat and combat support related functions. Through MLO TLF can turn to its core activities. Though positive relationships between "knowledge of outsourcing definition" and incentives of MLO are expected to be supported by statistics, results of the analyses do not show any significant causality among variables except TCCP.

The awareness of foreign applications of MLO influences CRP and MEP positively and significantly. The army professionals who know about the foreign army applications of MLO have more TCCP than the other group having no idea about foreign applications. This variable also has a negative impact on ACP. Awareness of applications in foreign armies diminishes the prospect of managerial (command and control) problems which may be caused by MLO.

On the contrary, the effect of the state of logistics functions performed by LSP in the unit of subjects is surprisingly negative and significant on CRP and QIIP opposing to the theory proposed. The applications of MLO are probably not satisfactory for the army professionals at the moment. This situation could be the result of the very novice age of MLO sector in Turkey. Those problematic experiences of subjects about the services of LSPs are influencing the intention of outsourcing negatively. It is thought that the posterior applications of expected mature sector will have less problematic areas than the current ones. On the other hand, this variable has a negative effect on ACP meaning that the professionals, who consume the services provided by LSP in their unit, expecting less command and control problems.

On the other hand the effects demographic variables such as, age, service years, commission type, branch and working place are also analyzed, but no significant mean differences are found.

Finally the causal model of logistics outsourcing intention of army professionals integrated and presented as results of quantitative analyses and interpretations.

This thesis provides decision support for the commanders who are in charge of directing the future logistics support structure of the armed forces by emphasizing the

importance and ranks of benefits which can be gained by outsourcing and the threats which can be caused by outsourcing and the degrees of importance. The economic incentives of MLO are cost reduction prospect and macro-economic prospect and managerial incentives are quality improvement and innovation prospect and turning to core competencies prospect, the decision makers preparing and managing contracts should aware of those benefits of MLO. The disincentives of MLO are administrative costs prospect and hollowing out prospect. In the process of decision making of outsourcing any logistics function, those benefits and threats should be taken into consideration. For example, ammunition supply function should be analyzed under those benefits and threats and outsourcing decision should be made. Logistics outsourcing is not a black or white type process. Although some functions can be outsourced as whole body from benign to malign areas of war, some function necessitates being divided into parts and outsourced especially in benign area tasks. This research also provides commanders what to expect from MLO by giving them collective thinking of army professionals about incentives and disincentives of MLO and their quantitative effects on logistics outsourcing intention.

V.2. LIMITATIONS OF THE STUDY

This study provides strong evidence to support the conclusion that Economic Incentives (Cost Reduction Prospects and Macro–Economic Prospect) and Managerial Incentives (Quality Improvement & Innovation. Prospect and Turning to Core Competences Prospect) has positive and Outsourcing Disincentives (Administrative Costs and Hollowing out) has negative effects on the LOIS of army professionals. Yet, as with any study, there are limitations in the data and research method that constrain the generalizability of these findings and preclude the strongest declaration of certainty in these results.

First, the data presented were obtained from only one garrison (Sarıkamış) since the research permission is limited to this unit. This, in itself limits the generalizability of the findings, but, the fast personnel circulation of TLF provides a random population representing the whole personnel of the land forces. On the other hand, all the subjects of this study are not specialist in logistics, the combatants and combat supporters are the customers of the logistics services produced by combat service supporters.

Second, the field survey was conducted in the context of the Motorized Infantry Brigade in the mountainous northeastern part of Turkey which is far from industrialized

centers of the country. Thus, all the measurement constructs including Economic and Managerial Incentives and Outsourcing Disincentives and also Logistics Outsourcing Intentions are related to only this unit. Any generalization to other units like, Mechanized, Armored or Commandos, or to higher level units or institutions or to the other forces like Air Force or Navy must be made with caution.

Third, the logistics outsourcing intention of COs and NCOs may be affected not only by incentives and disincentives but also by various other extraneous variables not counted in this study.

Fourth, the MLO concept is very new concept for TLF and not widespread, the subjects of this study are not very accustomed to this new concept. Their knowledge is limited to their readings, abroad missions, and reasoning.

A final limitation of this study is that the conceptual models used to examine the impact of incentives and disincentives on logistics outsourcing intentions are based on cross sectional data. Therefore, the results are probabilistic, and though highly suggestive, they might fall short of establishing strong causality.

V.3. RECOMMENDATIONS FOR FUTURE RESEARCH

Given the results presented in this paper and the limitations of the current study, several areas of future research would expand upon the foundation built by this study. First, additional military units should be analyzed to test whether the relationships identified in this study generalize beyond the units examined in Sarıkamış Garrison. A wider range of military unit types would provide greater confidence in the validity of the findings beyond the sample in this analysis. In particular, units that should be examined include: support and logistics units, maintenance depots, marines, and other Army units.

A second, but related issue is the need to examine the opinions of logistics specialists in higher head quarters of TLF Command, TLF Logistics Command and Command of General Staff who give the directions of logistics future of the Army.

Third, after the concept MLO become widespread in TLF, the experience of the subjects and the lessons taken from the applications should be examined by the future researchers.

Fourth, the explained variances by factors derived by EFA and multiple regression analyses are not that high in percentage in the current research. Adding some other

variables into the current model can be useful for future researches to represent higher percentage of variance in the dependent variable.

Fifth, the mean of three defense situation of LOIS is taken into the causality analyses in this study, repeated measures design and analysis can be applied to see the mean differences between defense situations such as, peace, war and internal security operations. And also the interacting effects of independent variables are not checked in this study, the interactions and their effects on LOIS can be analyzed in a further research.

Sixth, in this study, three multiple regression models are constructed separately using pair of latent constructs produced by operationalization process. It is also possible that all independent variables and their interactions can be analyzed simultaneously using multiple regression analysis.

Finally, the model used in this research is probabilistic. Longitudinal data are needed to demonstrate more rigorous support for the causal relationships hypothesized in this study.

REFERENCES

[1] Aaker, D.A.; Kumar, V.; Day, G.S.: "Marketing Research", John Wiley & Sons, Inc., USA **(2004)**.

[2] Abdel-Malek, L.; Kullpattaranirun, T.; Nanthavanij, S.: "A framework for comparing outsourcing strategies in multi-layered supply chains", *International Journal of Production Economics*, Vol. 97 **(2005)** 318–328.

[3] Abdi, H.: "Factor Rotations in Factor Analyses", Available in web site: www.utdallas.edu/~herve /Abdi-rotations-pretty.pdf (Access date: June 2007).

[4] Aghazadeh, S.M.: "Improving logistics operations across the food industry supply chain", *International Journal of Contemporary Hospitality Management,* Vol. 16, No. 4, **(2004)**, 263-268.

[5] Aktaş, E.; Ülengin, F.: "Outsourcing logistics activities in Turkey", *The Journal of Enterprise Information Management*, Vol. 18, No. 3, **(2005)** 316-329.

[6] Al-kaabi, H.; Potter, A.; Naim, M.: "An outsourcing decision model for airlines' MRO activities" *Journal of Quality in Maintenance Engineering*, Vol. 13, No. 3, **(2007)**, 217-227.

[7] Arnold, U.: "New dimensions of outsourcing: a combination of transaction cost economics and the core competencies concept", *European Journal of Purchasing and Supply Management*, No. 6, **(2000)**, 23-29.

[8] Arroyo, P.; Gaytan, J.; de Boer, L.: "A survey of third party logistics in Mexico and a comparison with reports on Europe and USA", *International Journal of Operations and Production Management*, Vol. 26, No. 6, **(2006)** 639-667.

[9] Ashenbaum, B.; Maltz, A.; Rabinovich, E.: "Studies of trends in third-party logistics usage: what can we conclude?", *Transportation Journal*™, Summer, **(2005)**, 39-50.

[10] Bade, D.; Mueller, J.; Youd, B.: "Technology in the Next Generation of Supply Chain Outsourcing - Leveraging Capabilities of Fourth Party Logistics", *Ascet*, Vol.1, April 15, **(1999)**, http://www.ascet.com/documents.asp?d_ID=229, (Access date: Sept. **2006**).

[11] Baffer, B.D.: "The professional military services industry have we created a new military-industrial complex", *Marine Corps War College*, Marine Corps University, Marine Corps Combat Development Command, Quantico. **(2005)**.

[12] Ballou, R.H.: "Business Logistics/Supply Chain Management", Pearson Prenctice Hall, USA, **(2004)**.

[13] Barber, J.; Honeyman, J.; Lantz, B.: "Logistical capabilities of trucking firms", *Technical Report*, The Upper Great Plains Transportation Institute, North Dakota State University, Fargo, North Dakota, **(1997)**.

[14] Beaumont, N.; Sohal, A.: "Outsourcing in Australia", *International Journal of Operations and Product Management*, Vol. 54 No. 7, **(2004)** 688-700.

[15] Torsten, B.: "Swedish Armed Forces: Outsourcing Logistics", *Rusi Defence Systems, Logistics*, Autumn, **(2005)** 55-58.

[16] Bhatnagar, R.; Sohal, A.S.; Millen, R.: "Third party logistics services: a Singapore perspective", *International Journal of Physical Distribution and Logistics Management*, Vol. 29, No. 9, **(1999)** 569-587.

[17] Bowerman, L.B.; O'Connel, R.T.; Hand, M.L.: "Business Statististics in Practice", McGraw-Hill / Irwin, New York, **(2001)**.

[18] Boyson, S.; Corsi, T.; Dresner, M.; Rabinovich, E.: "Managing effective third party logistics relationships: What does it take?", *Journal of Business Logistics;* Vol. 20 No: 1, **(1999)** 73-100.

[19] Brown, T.; Potoski, M.: "Contracting for management: Assessing management capacity under alternative service delivery arrangements*", Journal of Policy Analysis and Management*, Vol. 25, No. 2, **(2006)** 323-346.

[20] Bures, O.: "Private military companies: a second best peacekeeping option", *International Peacekeeping*, Vol. 12, No. 4, **(2005)** 533-546.

[21] Cagliano, R.; Spina, G.: "A comparison of practice-performance models between small manufacturers and subcontractors", *International Journal of Operations and Production Management*, Vol. 22, No. 12, **(2002)** 1367-1388.

[22] Campbell, D.T.; Fiske, D.W.: "Convergent and Discriminant Validation by the Multitrait-Multimethod Matrix", *Psychological Bulletin*, Vol. 2, (**1959),** 81-105.

[23] Cardinali, R.: "Does the future of military logistics lie in outsourcing and privatization? Accountants- the new gatekeepers of war-time operations", *Work Study*, MBC University Press, Vol. 50, No. 3, **(2001)** 105-110.

[24] Carmines, E.G.; Zeller, R.A.: "Reliability and Validity", Sage Publication, USA, **(1979)**.

[25] Cavinato, J.L.: "A general methodology for determining a fit between supply chain logistics and five stages of strategic management", *Int. Journal of Physical Distribution and Logistics Management*, Vol. 2, No. 3, **(1999)** 162 - 180.

[26] Christopher, M.; Gattorna, J.: "Supply chain cost management and value-based pricing", *Industrial Marketing Management*, No. 34, **(2005)** 115 – 121.

[27] Chung, A.C.W.: "Aspects of the systems of military logistics during the Song dynasty (960-1278 A.D.): the procurement of horses, military agricultural colonies, and the imperial ordnance industry", *Ph.D. Thesis*, Department of East Asian Studies, McGill University, Montreal, Canada **(1999)**.

[28] Churchill, Jr.; Gilbert, A., "A Paradigm for Developing Better Measures of Marketing Constructs", *Journal of Marketing Research*, No.16, **(1979)** 64-73.

[29] Churchill, Jr.; Gilbert, A., "Basic Marketing Research" Int. Ed, The Dryden Press, USA, **(1988)**.

[30] CIA Factbook: https://www.cia.gov/library/publications/the-world-factbook/ (2003 datum) (Access date: Sept. **2006**)

[31] Cilliers, J.: "A role for private military companies in peacekeeping", *Conflict, Security, and Development*, Vol. 2, No. 3, **(2002)** 145-151.

[32] Claver, E.; Gonzáles, R.; Gascó, J.; Llopis, J., "A study of information systems outsourcing influential factors", *The International Journal of Educational Management*, Vol. 16, No. 2, **(2002a)** 75-81.

[33] Claver, E.; Gonzáles, R.; Gascó, J.; Llopis, J.: "Information systems outsourcing: reasons, reservations, and success factors", *Logistics Information Management*, Vol. 15, No. 4, **(2002b)** 294-308.

[34] Cooper, M. H.: "Privatizing the Military" *The CQ Researcher*, Vol. 14, No. 24, June 25, **(2004)** 565-588.

[35] Cruijssen, F.; Cools, M.; Dullaert, W.: "Horizontal cooperation in logistics: opportunities and impediments", *Transportation Research*, Part E, Vol. 43, No. 2, **(2005)** 129-142.

[36] Dapiran, P.; Lieb, R.; Millen, R.; Sohal, A., "Third party logistics services usage by large Australian firms", *International Journal of Physical Distribution and Logistics Management*, Vol. 26, No. 10, **(1996)** 36-45.

[37] Daugherty, P.J.; Dröge, C.: "Organizational structure in divisionalized manufacturers: the potential for outsourcing logistical services", *International Journal of Physical Distribution and Logistics Management*, Vol. 27, No: 5/6, **(1997)** 337-349.

[38] Daugherty, P.J.; Myers, M.B.; Richey, R.G.: "Information support for reverse logistics: the influence of relationship commitment", *Journal of Business Logistics*, Vol. 23, No. 1, **(2002)** 85-106.

[39] De Boer, L.; Gaytan, J.; Arroyo, P.: "A satisficing model of outsourcing", *Supply chain Management: An International Journal*, Vol. 11, No. 5, **(2006)** 444-455.

[40] Dean, A.M., Kiu, C.: "Performance monitoring and quality outcomes in contracted services", *Int. Journal of Quality and Reliability Management*, Vol. 19, No: 4, **(2002)** 396-413.

[41] Delfmann, W.; Albers, S.: "Supply Chain Management in the Global Context", Arbeitsberichte des Seminars für Allgemeine Betriebswirtschaftslehre, Betriebswirtschaftslehre Planung und Logistik der Universtat zu Köln, *Working Paper*, No: 102, **(2000)**.

[42] Deshpande, V.: "Supply Chain Coordination with Service Differentiated Customer Classes", *PhD thesis*, University of Pennsilyvania, **(2000)**.

[43] Dillon, W.R. and Goldstein M., "Multivariate Analysis: Methods and Applications", John Willey and Sons Inc., USA, **(1984)**.

[44] Doane, D.P.; Seward, L.E.: "Applied Statistics in Business and Economics", McGraw-Hill, USA, **(2007)**.

[45] Eger III, R.J.; Knudson, D.A.; Marlowe, J.; Ogard, L.: "Evaluation of transportation organization outsourcing: decision making criteria for outsourcing opportunities", *Project 01-03 Report*, Midwest Regional University Transportation Center, College of Engineering, Department of Civil and Environmental Engineering, University of Wisconsin, Madison **(2002)**.

[46] Elmuti, D.; Kathawala, Y.: "The effects of global outsourcing strategies on participants' attitudes and organizational effectiveness", *International Journal of Manpower*, Vol. 21, No: 2, **(2000)** 112-128.

[47] Embleton, P.R.; Wright, P.C.: "A practical guide to successful outsourcing", *Empowerment in Organizations*, Vol. 6, No: 3, **(1998)** 94-106.

[48] Falk S.L.: "Introduction to Pure Logistics written by Thorpe in 1917" National Defense University Press Publication, Washington DC., **(1986)**

[49] Fan, Y.: "Strategic outsourcing: evidence from British companies", *Marketing Intelligence and Planning*, Vol. 18, No: 4, **(2000)** 213-219.

[50] Fernie, J.: "Outsourcing distribution in U.K. retailing", *Journal of Business Logistics*, Vol. 20 No:2, **(1999)** 83-95.

[51] Ferris, S.P.; Keithly, D.M. "21st Century Logistics: Joint Ties That Bind", *Parameters*, Autumn, **(1997)** 47-48.

[52] Field Manual 100-10 "Combat Service Support", Headquarters, Department of the Army, Washington, DC, **(1995)**.

[53] Field Manual-01: Army, "Army Core Competencies" Ch.3, Headquarters Department of the Army Washington, DC., **(2001)**.

[54] Fink, A.; Fielder, E.P.; Frey, J. H.: "The Survey Handbook", Vol. 1, Sage Publications, USA, **(1995)**.

[55] Fink, D.; Shoeib, A.: "Action: the most critical phase in outsourcing information technology", *Logistics Information Management*, Vol. 16, No: 5, **(2003)** 302-311.

[56] Fredland, J.E.: "Oursourcing, military force: a transactions cost perspective on the role of military companies", *Defence and Peace Economics*, Vol. 15, No. 3, **(2004)** 205-219.

[57] Freytag, P.V.; Kirk, L.: "Continuous strategic sourcing", *Journal of Purchasing and Supply Management*, Vol. 9, **(2003)** 135-150.

[58] Gainey, T.W.: Klaas, B.S.: "Outsourcing relationships between firms and their training providers: the role of trust", *Human Resource Development Quarterly*, Vol. 16, No: 1, **(2005)** 7-25.

[59] Gaur A.S.; Gaur S.S.: "Statistical Methods for Practice and Research: A guide to data analysis using SPSS", Response Books, A division of SAGE Publications, New Delhi **(2006)**.

[60] Gibson, B.J.; Cook, R.L.: "Hiring practices in U.S. third-party logistics firms", *International Journal of Physical Distribution and Logistics Management*", Vol. 31, No: 9/10, **(2001)** 714-731.

[61] Gilmour, P.; Driva, H.; Hunt, R.A.: "Future directions for logistics in Australia", *Int. Journal of Physical Distribution and Logistics Management*, Vol. 25 No: 3, **(1995)** 24-32.

[62] Goh, M.; Pinaikul, P.: "Logistics management practices and development in Thailand", *Logistics Information Management*, Vol. 11, No: 6, **(1998)** 359-369.

[63] Goldsby, T.J.; Stank, T.P.: "World class logistics performance and environmentally responsible logistics practices", *Journal of Business Logistics*, Vol. 21, No: 2, **(2000)** 187-208.

[64] Gonzales, R.; Gasco, J.; Llopis, J.: "Information systems outsourcing success factors: a review and some results", *Information Management and Computer Security*, Vol. 13, No: 5, **(2005)** 399-418.

[65] Gutiérrez, G.; Durán, A.: "Information technology in logistics: a Spanish perspective", *Logistics Information Management*, Vol. 10, No: 2, **(1997)** 73-79.

[66] Hafeez, K.; Malak, N.; Zhang, Y.B.: "Outsourcing non-core assets and competences of a firm using analytic hierarchy process", *Computers and Operations Research*, Article in Press, **(2006)**.

[67] Hair Jr. J.F.; Andersen, R.E.; Tatham, R.L.; Brablowsky, B.J.: "Multivariate Data Analysis with Readings", Macmillian Publishing Co., New York, **(1984)**.

[68] Hair Jr. J.F.; Andersen, R.E.; Tatham, R.L.; Black, W.C.: "Multivariate Data Analysis", Pretice-Hall Inc., USA, **(1998)**.

[69] Hair Jr., J.F.; Bush, R.P.; Ortinau, D.J.:, "Marketing Research: within a changing environment" 3rd Ed., McGraw-Hill/Irwin, New York, **(2006)**.

[70] Handfield, R.B.; Nichols, Jr.,E.L.: "Supply Chain Redesign: Transforming Supply Chains into Integrated Value Systems", Financial Times Prentice Hall, USA, **(2002)**.

[71] Harland, C.; Knight, L.; Lamming, R.; Walker, H.: "Outsourcing: assessing the risks and benefits for organizations, sectors and nations", *Int. Journal of Operations and Product Management*, Vol. 25, No: 9, **(2005)** 831-850.

[72] Hassanain, M.A.; Al-Saadi, S.: "A framework model for outsourcing asset management services", *Facilities*, Vol. 23, No. 1/2, **(2005)** 73-81.

[73] Hines, P.; Rich, N.: "Outsourcing competitive advantage: the use of supplier associations", *Int. Journal of Physical Distribution and Logistics Management*, Vol. 28 No. 7, **(1998)** 524-546.

[74] Ho, L.; Atkins, A.; Eardley, A.: "The growth of outsourcing and application of strategic framework techniques", *European and Mediterranean Conference on Information Systems*, 25-27 July, Tunis, Tunisia, **(2004)**.

[75] Hong, J.; Chin, A.T.H.; Liu, B.: "Firm-specific characteristics and logistics outsourcing by Chinese manufacturers", *Asia Pacific Journal of Marketing and Logistics*, Vol. 16 No: 3, **(2004)** 23-36.

[76] Hui, E.Y.Y.; Tsang, A.H.C.: "The inter-organizational relationship in a multi-contractor business network", *Journal of Quality in Maintenance Engineering*, Vol. 12, No: 3, **(2006)** 252-266.

[77] Huiskonen, J.; Pirttilä, T.: "Lateral coordination in a logistics outsourcing relationship" *Int. J. Production Economics*, No: 78, **(2002)** 177-185.

[78] Humphries, A.S.; Wilding, R.: "UK defence supply chain relationships: a study of sustained monopoly", *Management Decision*, Vol. 42, No. 2, **(2004)** 259-276.

[79] Jennings, D.: "Strategic guidelines for outsourcing decisions" *Strategic Change*, April **(1997)**

[80] Jeong, J.G. "A framework for supply chain modeling and optimization for the manufactured housing industry" *PhD. Thesis*, Purdue University, USA, **(2006)**

[81] Johnson R.A.; Wichern, D.W.: "Applied Multivariate Statistical Analysis",5th Ed. Pearson Education International, USA, **(2002)**.

[82] Juma'h, A.H.; Wood, D.: "Outsourcing implications on companies' profitability and liquidity: a sample of UK companies", *Work Study*, Vol. 49, No. 7, **(2000)** 265-274.

[83] Jüttner, U.: "Supply chain risk management: understanding the business requirements from a practitioner perspective", *The Int. Journal of Logistics Management*, Vol. 16, No. 1, **(2005)** 120-141.

[84] Kaeli, J.K.: "A company-wide perspective to identify, evaluate, and rank the potential for CIM", *Industrial Engineering*, Vol. 22, No. 7, **(1990)** 23–26.

[85] Kakabadse, A.; Kakabadse, N.: "Sourcing: New Face to Economies of Scale and the Emergence of New Organizational Forms", *Knowledge and Process Management* (John Wiley and Sons, Ltd.)Vol. 7, No. 2, **(2000)** 107-118.

[86] Kakabadse, A.; Kakabadse, N.: "Outsourcing in the public services: a comparative analysis of practice, capability and impact", *Public Admin. Dev*., Vol. 21, **(2001)** 401-413.

[87] Kakabadse, A.; Kakabadse, N.: "Outsourcing: current and future trends", *Thunderbird International Business Review*, Vol. 47, No.2, **(2005)** 183-204.

[88] Khong, K.W.: "The perceived impact of successful outsourcing on customer service management", *Supply Chain Management: An International Journal*, Vol. 10, No: 5, **(2005)** 402-411.

[89] Kim, J.I.: "Logistics in Korea: current state and future directions", *Int. Journal of Physical Distribution and Logistics Management*, Vol. 26 No: 10, **(1996)** 6-21.

[90] Kim, S.W.: "Organizational structures and the performance of supply chain management", *Int.Journal of Production Economics*, Vol. 106, **(2007)**, 323-345.

[91] Klaas, B.S.; McClendon, J.A.; Gainey, T.W.: "Outsourcing HR: the impact of organizational characteristics", *Human Resources Management*, Vol. 40, No:2, **(2001)** 125-138.

[92] Knemeyer, A.M.; Corsi, T.M.; Murphy, P.R.: "Logistics outsourcing relationships: customer perspectives", Journal of Business Logistics, Vol. 24, No. 1, **(2003)** 77-109.

[93] Knemeyer, A.M.; Murphy, P.R.: "Is the glass half full or half empty? An examination of user and provider perspectives towards third-party logistics relationships", *Int. Journal Physical Distribution and Logistics Management*, Vol. 35, No. 10, **(2005)** 708-727.

[94] Krahmann, E.: "Controlling private military companies: The United Kingdom and Germany", International Studies Association, Annual Convention, Portland, Oregon. **(2003)**.

[95] Kujawa, B.J.: "An investigation into logistics outsourcing practices, trends, and issues within the manufacturing sector in South Africa", *Ph.D. Thesis*, Rand Afrikaans University, Faculty of Economic and Management Sciences, Logistics Management Department, Johannesburg, **(2003)**.

[96] Kwon, O.; Im, G.P.; Lee, K.C.: "MACE-SCM: A multi-agent and case-based reasoning collaboration mechanism for supply chain management under supply and demand uncertainties", *Expert Systems with Applications*, Vol. 33, **(2007)** 690-705.

[97] Lai, K.H.; Cheng T.E.; Yeung, A.C.: "An Empirical Taxonomy for Logistics Service Providers", *Maritime Economics and Logistics*, No.6, **(2004)** 199-219.

[98] Lambert, D.M.; Cooper, M.C.: "Issues in supply chain management", *Industrial Marketing Management*, Vol. 29, No. 1, **(2000)** 65-83.

[99] Landau, S.; Everitt, B.S.: "A Handbook of Statistical Analyses using SPSS" CRC Press, Florida, **(2004)**.

[100] Larson, P.D.; Kulchitsky, J.D.: "Logistics improvement programs: the dynamics between people and performance", *Int .Journal of Physical Distribution and Logistics Management*, Vol. 29, No. 2, **(1998)** 88-102.

[101] Levine, D.M.; Ramsey, P.P.; Smidt, R.K., "Applied Statistics for Engineers and scientists using Microsoft Excel and Minitab" Prentice Hall, New Jersey, **(2001)**.

[102] Leahy, S.E.; Murphy, P.R.; Poist, R.F.: "Determinants of successful logistical relationships: A third-party provider perspective", *Transportation Journal*, Vol. 35, No. 2, **(1995)** 5-13.

[103] Lieb, R.C., Randall, H.L.: "A comparison of the use of third-party logistics services by large American manufacturers, 1991, 1994, and 1995", *Journal of Business Logistics*, Vol. 17, No.1, **(1996)** 305-320.

[104] Lieb, R.C.: "The use of third-party logistics services by large American manufacturers", *Journal of Business Logistics*, Vol. 13, No. 2, **(1992)** 29-42.

[105] Lind, D.; Marchal, W.G.; Wathen, S.A.: "Statistical Techniques in Business and Economics" 13th Ed., McGraw-Hill, USA, **(2008)**.

[106] Lummus, R.R.; Krumwiede, D.W.; Vokurka, R.J.: "The relationship of logistics to supply chain management: developing a common industry definition", *Industrial Management and Data Systems*, Vol. 101, No. 8, **(2001)** 426-431.

[107] Lynch, C. F.: "Leadership in Logistics". *Journal of Business Logistics*, Vol. 19, No 2: **(1998)** 3-7, http://www.findarticles.com/p/articles /mi_qa3705/is_ 199801/ai_n8782900 (Access date: Sept. **2006**)

[108] Lynch, C.F.: "Name Your Terms" *DC Velocity*, July **(2005)**, http://www.dcvelocity.com/articles/20050701/fastlane.cfm, (Access date: Sept. **2006**)

[109] Maltz A.B.; Ellram, L.M.: "Selling inbound logistics services: Understanding the buyer's perspective" *Journal of Business Logistics,* Vol. 21, No. 2; ABI/INFORM Global, **(2000)** 69-88.

[110] Marino, G.: "The ABCs of 4PLs", *IIE Solutions*; October Vol. 34, No. 10; Academic Research Library, **(2002)** 23.

[111] Mazlack, L.; Coppock, S.: "Some Issues in Recognizing Causal Relationships", *CSCC 2002 Proceedings*, July, **(2002)**.

[112] McDaniel Jr., C. and Gates, R., *"Contemporary Marketing Research"* 3rd Ed. West Publishing Co. USA, **(1996)**.

[113] McIvor, R., "A practical framework for understanding the outsourcing process", *Supply Chain Management: An International Journal*, Vol. 5, No. 1, **(2000)** 22-36.

[114] McIvor, R.T.; Mulvenna, M.D.; Humphreys, P.K., "A hybrid knowledge-based system for strategic purchasing", *Expert Systems with Applications*, Vol. 12, No. 4, **(1997)** 497-512.

[115] Menon, M.K.; McGinnis, M.A.; Ackerman, K.B.: "Selection criteria for providers of third-party logistics services: An exploratory Study", *Journal of Business Logistics;* 19, 1; ABI/INFORM Global, **(1998)** 121-137.

[116] Millen, R.; Sohal, A.; Dapiran, P.; Lieb, R.; Wassenhove, L.N.: "Benchmarking Australian firms' usage of contract logistics services: a comparison with American and Western Europe practice", *Benchmarking for Quality Management & Technology*, Vol. 4, No.1, **(1997)** 34-46.

[117] Minenko, M.: "Private military companies: their role in the continuum of conflict", *M.Sc. Thesis*, Faculty of Law, University of Alberta. **(2003)**.

[118] Mitra, S.: "A Survey of the Third-Party Logistics (3PL) Service Providers in India" *Working Paper Series*, WPS No. 562, Indian Institute of Management Calcutta, **(2005)**.

[119] Mol, M.J.; Tulder, R.J.M.; Beije, P.R.: "Antecedents and performance consequences of international outsourcing", *Int. Business Review*, Vol. 14, **(2005)** 599-617.

[120] Moore, K.R.; Cunningham, W.A.: "Social exchange behavior in logistics relationships: a shipper perspective", *Int. Journal of Physical Distribution and Logistics Management*, Vol. 29, No: 2, **(1999)** 103-121.

[121] Moschuris, S.J.; Kondylis, M.N.: "Outsourcing in public hospitals: a Greek perspective", *Journal of Health Organization and Management*, Vol. 20, No: 1, **(2006)** 4-14.

[122] Möller, S.: "Private Military Contractors in Iraq -Legal Status and State Responsibility" *Master Thesis*, International Humanitarian Law and Public International Law, Faculty of Law, University of Lund, Spring **(2006)**.

[123] Murphy Jr., P.R.; Wood, D.F.: "*Contemporary Logistics*", 8th Ed., Pearson Prentice Hall, New Jersey, **(2003)**.

[124] Myers, R.H., "*Classical and Modern Regression with Applications*", 2nd Ed., The Duxbury Advanced Series in Statistics and Decision Sciences, PWS Kent Publishing Co., Boston, **(1990)**.

[125] Neter, J.; Wasserman, W.; Whitmore, G.A.: "*Applied Statistics*" Prentice Hall, USA, **(1993)**.

[126] Nunnally, J.C., "*Psychometric Theory*", 2nd Edition, McGraw-Hill, New York, **(1978)**.

[127] Osborne, J.; Waters, E.: "Four assumptions of multiple regression that researchers should always test", *Practical Assessment, Research & Evaluation*, Vol. 8, No.2, **(2002)**, http://PAREonline.net/getvn.asp?v=8&n=2, (Access date: July, **2007**).

[128] Paché, G.: "Logistics outsourcing in grocery distribution: a European perspective", *Logistics Information Management*, Vol. 11, No. 5, **(1998)** 301-308.

[129] Pena, A.: "Contracting a third party to cut costs", *Hispanic*; December; 14, 12; Academic Research Library, **(2001),** 46.

[130] Peters, N.: http://www.npeters.com/studium/4pl_present.pdf, (Access date: September, **2006**).

[131] Peter, J.P.: "Construct Validity: A Review of Basic Issues and Marketing Practices", *Journal of Marketing Research*, May, **(1981)** 133-135.

[132] Plato: The Republic, **(360BC),** http://classics.mit.edu/Plato/republic.3.ii.htm (Access date: September **2006**)

[133] Pokharel, S.: "Perception on information and communication technology perspectives in logistics: A study of transportation and warehouses sectors in Singapore", *The Journal of Enterprise Information Management*, Vol. 18, No. 2, **(2005)** 136.149.

[134] Potvin, J.G.M.A.: "The integration of the Canadian Forces logistics system and its effect on the operational capabilities of the Canadian Military", *Master of Arts Thesis*, Faculty of Graduate Studies, The University of Manitoba, **(1996)**.

[135] Prahalad, C.K.; Hamel G.: "The Core Competencies of the Corporation". *Harvard Business Review*, May-June, **(1990)** 79-91.

[136] Prater, E.: "Essays on the globalization of supply chains and the financial drivers of logistics outsourcing", *Ph.D. Thesis*, Georgia Institute of Technology, **(1999)**.

[137] Probert, D.R.: "The practical development of a make or buy strategy: the issue of process positioning"', *Integrated Manufacturing Systems*, Vol. 7, No. 2, **(1996)** 44-51.

[138] Prochaska, J.: "Outsourcing implementation in the armed forces" *Army Academy*, Brno, Czech Republic, **(2003)**.

[139] Rabinovich, E.; Windle, R.; Dresner, M.; Corsi, T.: "Outsourcing of integrated logistics functions: an examination of industry practices", *International Journal of Physical Distribution and Logistics Management*, Vol. 29, No. 6, **(1999)** 353-373.

[140] Rampy, M.R.: "Paradox or paradigm? Operational Contractor Support", *Military Review*, May – June, **(2005)**.

[141] Rainey, J.C.; Scott, B.F.: "Introduction", *2004 Logistics Dimensions*, Air Force Logistics Management Agency, Vol.1-3, August, **(2004)** 6-16.

[142] Rao, K.; Young, R.R.: "Global supply chains: factors influencing outsourcing of logistics functions", *International Journal of Physical Distribution and Logistics Management*, Vol. 24, No. 6, **(1994)** 11-19.

[143] Razzaque, M.A.: "Challenges to logistics development: the case of a Third World country – Bangladesh", *International Journal Physical Distribution and Logistics Management*, Vol. 27, No. 1, **(1996)** 18-38.

[144] Reference Encyclopedia, http://referenceencyclopedia.com/?title=Supply_chain_event_management#_ note-0, (Access date: September **2006**).

[145] Research Methods Knowledge Base, "Types of Reliability", Available in web site: http://www.socialresearchmethods.net/kb/reltypes.php, (Access date: 25.06.2007).

[146] Roodhooft, F.; Warlop, L.: "On the role of sunk costs and asset specificity in outsourcing decision: a research note", *Accounting, Organizations and Society*, Vol. 24, **(1999)** 363-369.

[147] Rudesheim, F.S.: "Discovering the Army's Core Competencies" ,Army Transformation: A View from the U.S. Army War College, Ed. W. Murray, Ch Carlisle Barracks, PA., No. 3, **(2001)** 73-74.

[148] Runyon, R.P.; Haber, A.: "Fundamentals of Behavioral Statistics", 7th Ed., McGraw-Hill Int. Editions, Singapore, **(1991)**.

[149] Sauvage, T.: "The relationship between technology and logistics third-party providers", *International Journal of Physical Distribution and Logistics Management*, Vol. 33, No. 3, **(2003)** 236-253.

[150] Schwab, A. J.: "Solving homework problems in data analysis II", Available in web site: http://www.utexas.edu/courses/schwab/sw388r7/SolvingProblems/SolvingHome workProblems.htm, (Access date: June **2007**).

[151] Sekaran, U.: "Research Methods for Business: A Skill-Building Approach", 2nd Ed., John Willey&Sons, Inc., USA, **(1992)**.

[152] Selltiz, C.; Wrightsman, L.S.; Cook, S.W.: "Research Methods in Social Relations", 3rd Edition, Holt, Rinehart and Winston, New York, **(1976)**.

[153] Seth, N.; Deshmukh, S.G.; Vrat, P.: "A conceptual model for quality of service in the supply chain", *International Journal of Physical Distribution and Logistics Management*, Vol. 36, No. 7, **(2006)** 547-575.

[154] Seuring, S.A.: "Outsourcing into service factories: An exploratory analysis of facility operators in the German chemical industry", *International Journal of Operations and Product Management*, Vol. 23, No. 10, **(2003)** 1207-1223.

[155] Shay, P.N.: "A Psychometric Analysis of an Employee Satisfaction Index" *PhD. Thesis*, University of Oklahoma, UMI, **(2005)**.

[156] Singer, P.W.: "Corporate Warriors: The Rise of the Privatized Military Industry, Studies in Security Affairs", Cornell University Press, New York, **(2003)**.

[157] Singer, P.W.: "Corporate warriors: the privatized military industry", *Ph.D. Thesis*, Department of Government, Harvard University, Cambridge, Massachusetts, **(2001)**.

[158] Sink, H.L.; Langley C.J.: "A managerial framework for the acquisition of third-party logistics services" *Journal of Business Logistics*, Vol. 18, No. 2, ABI/INFORM Global, **(1997)** 163.

[159] Sink, H.L.; Langley, C.J.; Gibson, B.J.: "Buyer observations of the US third-party logistics market", *International Journal of Physical Distribution and Logistics Management*, Vol. 26, No: 3, **(1996)** 38-46.

[160] Sinkovics, R.R.; Roath, A.S., "Strategic orientation, capabilities, and performance in manufacturer – 3PL relationships", *Journal of Business Logistics*, Vol. 25, No. 2, **(2004)** 43-64.

[161] Skjoett-Larsen, T.: "Third party logistics - from an inter-organizational point of view", *International Journal of Physical Distribution and Logistics Management*, Bradford, Vol.30, No. 2, **(2000)** 112.

[162] Smith, J.A.; Morris, J.; Ezzamel, M.: "Organizational change, outsourcing and the impact on management accounting", *The British Accounting Review*, Vol. 37, **(2005)** 415-441.

[163] Sohail, M.S.; Al-Abdali, O.S.: "The usage of third party logistics in Saudi Arabia: current position and future prospects", *International Journal of Physical Distribution and Logistics Management*, Vol. 35, No.9, **(2005)** 637-653.

[164] Sohail, M.S.; Sohal, A.S.: "The use of third party logistics services: a Malaysian perspective", *Technovation*, 23, **(2003)** 401-408.

[165] Sohal, A.S.; Millen, R.; Moss, S.: "A comparison of the use of third-party logistics services by Australian firms between 1995 and 1999", *International Journal of Physical Distribution and Logistics Management*", Vol. 32, No: 1/2, **(2002)** 59-68.

[166] Spencer, M.S.; Rogers, D.S.; Daugherty, P.J.: "JIT systems and external logistics suppliers", *International Journal of Operations and Production Management*, Vol. 14, No:6, **(1994)** 60-74.

[167] SPSS: "SPSS® 15.0 Base User's Guide", SPSS Inc., USA, **(2006)**.

[168] Stank, T.P.; Daugherty, P.J.: "The impact of operating environment on the formation of cooperative logistics relationships", *Transpn Res.-E (Logistics and Transpn Rev.)*, Vol. 33, No. 1, **(1997)** 53-65.

[169] Stone, M.A.; "Has Europe fulfilled its promise to UK third-party logistics provision?", *European Business Review*, Vol. 14, No. 2, **(2002)** 81-91.

[170] Storey, J.; Emberson, C.; Godsell, J.; Harrison, A.: "Supply chain management: theory, practice and future challenges", *International Journal of Operations and Production Management*, Vol. 26, No. 7, **(2006)** 754-774.

[171] Sum, C.C.; Teo, C.B.: "Strategic posture of logistics service providers in Singapore", *International Journal of Physical Distribution and Logistics Management*, Vol. 29, No. 9, **(1999)** 588-605.

[172] Svensson, G.: "A conceptual framework of vulnerability in firms' inbound and outbond logistics flows", *International Journal of Physical Distribution and Logistics Management*, Vol. 32, No. 1/2, **(2002)** 110-134.

[173] Svensson, G.: "Perceived trust towards suppliers and customers in supply chains of the Swedish automotive industry", *International Journal of Physical Distribution and Logistics Management*, Vol. 31, No. 9, **(2001)** 647-662.

[174] Svensson, G.: "Sub-contractor and customer sourcing and the occurrence of disturbances in firms' inbound and outbound logistics flows", *Supply Chain Management: An International Journal*, Vol. 8, No.1, **(2003a)** 41-56.

[175] Svensson, G.: "The principle of balance between companies' inventories and disturbances in logistics flows: empirical illustration and conceptualization", *International Journal of Physical Distribution and Logistics Management*, Vol. 33, No. 9, **(2003b)** 765-784.

[176] Svensson, G.: "Vulnerability in business relationships: the gap between dependence and trust", *Journal of Business and Industrial Marketing*, Vol. 19, No. 7, **(2004)** 469-483.

[177] Tabachnick, B.G.; Fidell, L.S.: "Using Multivariate Statistics" 5th Edition, Pearson Education Inc., USA, **(2007)**.

[178] Taylor, F.W.: The Principles of Scientific Management Published in Norton Library 1967 by arrangement with Harper & Row, Publishers, Incorporated by W. W. Norton and Company, Inc., New York, **(1911)**.

[179] The American Heritage® Dictionary, Available in web site: http://education.yahoo.com/reference/dictionary/entry/outsourcing;_ylt=AoMlkJY8E0gp9yP4d8HV5xesgMMF, (Access date: September **2006**).

[180] Thorpe, G.C.: "Pure logistics – the science of war preparation", **(1917)**, Republished by National Defense University Press, Washington DC, (1986).

[181] Toulan, O. M.: "The Impact of Market Liberalization on Vertical scope: the case of Argentina", *Strategic Management Journal*, No. 23, **(2002)** 551–560.

[182] UCLA, "Annotated SPSS Output Factor Analysis", Available in web site: http://www.ats.ucla.edu/STAT/spss/output/factor1.htm, (Access date: June **2007**).

[183] Ülengin, F.; Uray, N.: "The role of technology in marketing and supply-chain management interaction", *3rd International Meeting for Research in Logistics*, Trois-Rivières, May 9-11, **(2000)**.

[184] USF, "SPSS tutorial Module IV-Nom-Parametric Tests", University of San Francisco, Available in web site: http://www.soe.usfca.edu/current_students/spss_tutorial/module4_nonparametric.html#kruskalwallis, (Access date: July **2007**).

[185] Uttley, M.: "Contractors on deployed military operations: UK policy and doctrine", Available in web site:http://www.strategicstudiesinstitute.army.mil/, (Access date: June **2006**).

[186] van Hoek, R.I.: "Role of third party logistics services in customization through postponement", *International Journal of Service Industry Management*", Vol. 11, No.4, **(2000)** 374-387.

[187] van Laarhoven, P.; Berglund, M.; Peters, M.: "Third-party logistics in Europe-five years later", *International Journal of Physical Distribution and Logistics Management*, Vol. 30, No. 5, **(2000)** 425-442.

[188] von Corswant, F.; Fredriksson, P.: "Sourcing trends in the car industry: a survey of car manufacturers' and suppliers' strategies and relations", *International Journal of Operations and Production Management*, Vol. 22, No:7, **(2002)** 741-758.

[189] Warren, H. L.; Fagan, A.L.: "Outsourcing: Implications for Homeland Security", *10th International Command and Control Research and Technology Symposium*, **(2005)**.

[190] Waström, K.: "Logistics services in the German metal processing industry", *Master's Thesis*, Lulea University of Technology, MSc Programs in Engineering, Department of Business Administration and Social Sciences Division of Industrial Organization, **(2005)**.

[191] Whitten, D.; Wakefield, R.L.: "Measuring switching costs in IT outsourcing services", *Journal of Strategic Information Systems*, Vol.15, No. 3, **(2006)** 219-248.

[192] Wilding, R.; Humphries, A.S.: "Understanding collaborative supply chain relationships through the application of the Williamson organisational failure framework", *International Journal of Physical Distribution and Logistics Management*, Vol. 36, No, 4, **(2006)** 309-329.

[193] Wilding, R.; Juriado, R.: "Customer perceptions on logistics outsourcing in the European consumer goods industry", *International Journal of Physical Distribution and Logistics Management*, Vol. 34, No. 8, **(2004)** 628-644.

[194] Wildman, M: "Contractor Logistic Support", *DCSNEWS,* No.9, September **(2005)**.

[195] Wilson, J.E.; Coburn, J.G.; Brown, D.G.: "Our Revolution in Military Logistics-Supporting the 21st Century Soldier", "*Army Logistician* (January-February **1999**), 4, Available in web site: www.wtalmanac.com, (Accessed date: December **2006**).

[196] Yemisi, A.; Bolumole, Y.A., Frankel, R. and Naslund, D., "Developing a Theoretical Framework for Logistics Outsourcing", *Transportation Journal*, Spring **(2007)**, 36-54.

[197] Yıldız, H.: "Haydi Osmanlı Sefere! Prut Seferinde Lojistik ve Organizasyon", İş Bankası Yayınları, İstanbul, **(2006)**.

[198] Zineldin, M.; Bredenlow, T.: "Strategic alliance: Synergies and challenges: A case of strategic outsourcing relationship (SOUR)", *International Journal of Physical Distribution and Logistics Management*; Vol. 33, No. 5, **(2003)** 449-464

[199] Zsidisin, G.A.; Ellram, L.M.: "Activities related to purchasing and supply management involvement in supplier alliances", *International Journal of Physical Distribution and Logistics Management*, Vol. 31, No: 9, **(2001)** 629-646.

APPENDIX A: SURVEY LETTER AND INSTRUMENT

KARA KUVVETLERİ'NDE LOJİSTİK İHTİYAÇLARIN İÇ PİYASADAKİ SİVİL FİRMALARDAN SAĞLANMASI YÖNTEMİNİN UYGULANABİLİRLİĞİ ÇALIŞMASI

Bu anket formu Marmara Üniversitesi Fen Bilimleri Enstitüsünde devam etmekte olduğum "Kara Kuvvetlerinde Lojistik İhtiyaçların İç Piyasadaki Sivil Firmalardan Sağlanması: Bir model önerisi" adlı doktora tezi ile ilgilidir. Bu çalışmanın amacı, kendi kendine yetecek şekilde tasarlanmış, barışta ve savaşta her türlü ihtiyacını kendi bünyesindeki unsurlar ile karşılayan Kara Kuvvetlerimizde lojistik fonksiyonların dış kaynaktan sağlanmasının uygulanabilirliğinin araştırılmasıdır.

Kurum dışından hizmet tedariki (outsourcing), 1970'lerden itibaren tüm dünyada sivil sektörde yoğun olarak kullanım alanı bulmuş, soğuk savaşın sona ermesinin ardından öncelikle ABD ve batı ülkelerinin ordularında çok sıklıkla kullanılan bir hizmet ve mal tedarik yöntemi olarak öne çıkmıştır. Silahlı kuvvetlerde lojistiğin sivil firmalardan sağlanmasının örnekleri 17 nci Y.Y. Osmanlı Ordusu'nun sefer organizasyonu ve lojistiği ile ilgili tarihi belgelerde de görülmektedir. Günümüzde ise, ABD ve İngiliz ordularının deniz aşırı operasyonlarına, neredeyse eleman sayısı askeri personel sayısının beşte birini bulan, lojistik mal ve hizmet sağlayıcı sivil firmalar iştirak etmektedirler. Bu sayede idari hizmetler ile muharebe hizmet desteğinin çok büyük bir bölümü anlaşmalı firmalar tarafından sağlanmakta, askeri personel enerjisini ve dikkatini daha çok muharebe sahası ana fonksiyonlarına yöneltebilmektedir. Ayrıca tüm bu lojistik destek faaliyetleri işin uzmanı firmalar tarafından icra edildiğinden önemli ölçüde para ve zaman tasarrufu sağlanmaktadır. Doğal olarak uygulanan bu yöntemin faydalı olduğu kadar mahzurlu tarafları da olabileceği göz önünde tutularak, milli bünyemize uygunluğunun araştırılmasında Kara Kuvvetlerimizin profesyonel personeli hedef kitle olarak seçilmiştir.

Formu dolduran kişilerin isimleri ve sorulara verdikleri cevaplar bilimsel ahlak kuralları çerçevesinde gizli tutulacak, sadece yapılacak istatistikî analizlerin sonuçları yansıtılacaktır. Anketteki sorulara cevap verirken mümkün olduğunca doğru ve eksiksiz cevap vermenizi rica eder, değerli vaktinizi bu çalışmaya ayırdığınız için şimdiden teşekkür ederim.

1. Daha önce "lojistik ihtiyaçların iç piyasadaki sivil firmalardan sağlanması " ile ilgili herhangi bir uygulamada bulundunuz mu?			
Bulundum ( )	Yapıldığını gördüm ( )	Bulunmadım ( )	Lütfen açıklayınız:..... .....
2. Aşağıdaki ifadelerden hangisi "kurum dışından kaynak kullanımı"nı en iyi şekilde tanımlamaktadır?			
( ) organizasyonların sadece kendi sahip oldukları yetenek ve becerileri esas alan işlerin dışındaki; öz ve temel yeteneklerin kullanılmadığı işlerin, örgüt dışından kendi alanında uzmanlaşmış başka işletmelerden almasıdır.			
( ) örgütlerin kendi içinde yapmaktan hoşnut olmadığı bir takım fonksiyonları, bu işi iyi yapacağına inanılan bazı dış örgütlerden uzun vadeli olarak yaptığı sözleşmeler yoluyla satın almasıdır.			
( ) organizasyonların kendi bünyelerinde icra etmekte zorlandığı bazı işleri danışman firmalardan destek alarak piyasada bu işleri en ucuza yapan firmalara yaptırması ve tedarikçi firmanın kalitesini yerinde denetlemesidir.			
3. Günümüzde batı ordularında lojistiğin sivil firmalardan sağlanması yaygın bir yöntemdir.		Hayır ( )	Bilmiyorum ( ) Evet ( )
4. Şu anda çalıştığınız ünitede lojistik fonksiyonlar nasıl sağlanmaktadır?			
( ) askerî personelce	( ) bir kısmı askeri birimlerce, bir kısmı sivil firmalarca	( ) tamamen sivil firmalarca	

5.	Aşağıda "lojistik ihtiyaçların iç piyasadaki sivil firmalardan sağlanması" yönteminin **olası faydaları** sıralanmıştır. Bu ifadelerin her biri "dış kaynak kullanımı" kararının verilmesinde sizce ne kadar önemlidir? Lütfen ilgili kutucuğu tablonun sağ üst köşesinde bulunan ölçeğe göre çarpı [x] koyarak işaretleyiniz.	Çok önemli	Önemli	Kararsızım	Önemli değil	Hiç önemli değil
F01.	Lojistik ihtiyaçların iç piyasadaki sivil firmalardan sağlanması savunma maliyetlerini azaltır.	5	4	3	2	1
F02.	Lojistik ihtiyaçların iç piyasadaki sivil firmalardan sağlanması birliklerin muharebedeki başarısı için önemli bir kuvvet çarpanıdır.	5	4	3	2	1
F03.	Lojistik ihtiyaçların iç piyasadaki sivil firmalardan sağlanması sayesinde askerler öz yeteneklerine dönük daha fazla düşünme ve muharip yönlerini geliştirmek için daha fazla çalışma imkânı bulabilirler.	5	4	3	2	1
F04.	Lojistik ihtiyaçların iç piyasadaki sivil firmalardan sağlanması rekabetten kaynaklanan bir kalite gelişimi yaratır.	5	4	3	2	1
F05.	Lojistik ihtiyaçların iç piyasadaki sivil firmalardan sağlanması ülkemizde askerî lojistik konusunda profesyonel sivil sektörler oluşmasını sağlar.	5	4	3	2	1
F06.	Lojistik ihtiyaçların iç piyasadaki sivil firmalardan sağlanması, konusunda uzman olan ve hiyerarşik olmayan sivil sektörün problem sahalarına yenilikçi çözümleri daha hızlı bulmasını sağlar.	5	4	3	2	1
F07.	Silahlı kuvvetlerin lojistik ile ilgili yatırım maliyetlerini azaltır. Bu sayede modernleşmeye ve muharebe sahasına yönelik yatırımların artması veya hızlanması sağlanabilir.	5	4	3	2	1
F08.	Konusunda uzman olan özel firmaların sağlayacağı lojistiğin birim maliyeti, askerlerin ürettiğinin birim maliyetinden daha düşük olur (ölçek ekonomisi).	5	4	3	2	1

*** Önceki sayfadaki tablonun devamıdır!**

F09.	Özel firma tarafından sağlanan lojistiğin kalitesi amatör askerlerin sağladığından daha güvenilir olur.	5	4	3	2	1
F10	Özel firma tarafından sağlanan lojistiğin kalitesi amatör askerlerin sağladığından daha hızlı olur.	5	4	3	2	1
F11.	Firmaların teknolojik imkânlarının kullanılması, TSK'nin en yeni teknolojiyle tanışmasını kolaylaştırır.	5	4	3	2	1
F12.	Geri hizmetlerle görevli personelin muharip veya muharebe destek görevlere yönlendirilmesini sağlar.	5	4	3	2	1
F13.	Barış zamanı kışlalarda eğitim alanına çıkan personel miktarını arttırır.	5	4	3	2	1
F14.	Silahlı kuvvetlerin modernizasyonu için kaynak kaydırılmasına imkân verir.	5	4	3	2	1
F15.	Amaç maliyetlerin düşürülmesi olduğundan, firma kendi süreçlerinde kontrolsüz maliyetlere izin vermez.	5	4	3	2	1
F16.	Lojistik sağlayıcı sivil firmaya ait kaynakların ortak kullanılması maliyetleri düşürür.	5	4	3	2	1
F17.	Karşılıklı ilişkiler ve etkileşim askerî birliklere işleri daha doğru, daha etkin ve daha ekonomik yapma konusunda bilgi ve beceri kazanma imkânı sağlayabilir.	5	4	3	2	1
F18.	Lojistik ihtiyaçların iç piyasadaki sivil firmalardan sağlanması askerî otoriteye karar esnekliği sağlar.	5	4	3	2	1
F19.	Askerler tarafından yapılması zaruri olmayan işlerin sivillere yaptırılması, askerleri motive eder.	5	4	3	2	1
F20.	Lojistik ihtiyaçların iç piyasadaki sivil firmalardan sağlanması muharebe hizmet desteğinin kalitesini arttırır.	5	4	3	2	1
F21.	Bazı hususlarda TSK bünyesinde mevcut olmayan uzmanlık ihtiyaçları bu yoldan karşılanır.	5	4	3	2	1
F22.	Çeşitli kademelerdeki stok seviyelerini minimum seviyeye indirerek, stok maliyetlerini azaltır.	5	4	3	2	1
F23.	Bürokrasiyi azaltarak işlerin daha çabuk ya da miadında görülebilmesine imkân verir.	5	4	3	2	1
F24.	Kar amacı güttüğünden sivil firmaların yürüttüğü lojistik faaliyetlerin maliyeti daha düşük olur.	5	4	3	2	1
F25.	Her türlü ikmal ve bütünleme faaliyetini hızlandırır.	5	4	3	2	1
F26	Kurumum yenilikleri öğrenme ve uygulama sürecini hızlandırır.	5	4	3	2	1
F27.	Askerî lojistik ihtiyaçları karşılamada uzmanlık kazanacak olan bu firmalar dünyanın çeşitli bölgelerinde başka ülkelerin ordularını destekleyerek ülkeye döviz girdisi sağlayarak, ekonomiye faydalı olabilirler.	5	4	3	2	1

6.	Aşağıda "lojistik ihtiyaçların iç piyasadaki sivil firmalardan sağlanması" yönteminin **olası zararları** sıralanmıştır. Bu ifadelerin her biri sizce ne kadar önemlidir? Lütfen ilgili kutucuğu tablonun sağ üst köşesinde bulunan ölçeğe göre çarpı [x] koyarak işaretleyiniz.	Çok önemli	Önemli	Kararsızım	Önemsiz	Hiç önemli değil
Z01.	Kara kuvvetlerimizde lojistik ile ilgili yetenek ve bilgi birikiminin zamanla yok olmasına sebep olur.	5	4	3	2	1
Z02.	Herhangi bir fonksiyon sivil lojistik sağlayıcıya verildiyse, bu fonksiyonun tekrar silahlı kuvvetler bünyesinde yapılması oldukça zor ve maliyetli bir geri dönüşümdür.	5	4	3	2	1
Z03.	İlk yapılan şartname rekabete dayanan fiyatları haiz olsa da, zaman içinde kaçınılmaz bazı değişiklikler maliyetlerde önemli artışlara sebep olabilir.	5	4	3	2	1
Z04.	Firmanın başka müşterileri de olabileceğinden her zaman bizim kurumumuza öncelik vermesi beklenemez.	5	4	3	2	1
Z05.	Özel firmalar için en önemli şey kardır. Karı yükseltmek için milli çıkarların aksine hareket edebilirler.	5	4	3	2	1
Z06.	Şartnameyi idare etmek için geçecek zaman dış kaynak kullanımının maliyetini arttırabilir.	5	4	3	2	1
Z07.	Firmaların kendi içindeki askerlik dışı ilişkileri aynı ortamda bulunan askerî personelin davranışlarını olumsuz yönde etkiler. Askerî personelin kendi aralarındaki astlık üstlük ilişkileri ve emir komuta sistemi zarar görebilir.	5	4	3	2	1
Z08.	En düşük fiyatı veren firmanın, mal ve hizmet üretimi süreçlerine yenilikler getirmesi beklenmemelidir.	5	4	3	2	1
Z09.	Zor şartlarda üzerine düşen vazifeyi yerine getirmede başarısız olan veya hiç yapmayan özel firma personeli askerî hedefe ulaşılmasına mani olabilir.	5	4	3	2	1
Z10.	Görevdeki askerler için bir iş kolu haline gelip, özel sektöre çok sayıda askerî personel akışı yaratabilir.	5	4	3	2	1

7.	**Lojistik hizmet sağlayıcı sivil firmaların** muharebe sahasındaki **imkân ve kabiliyeti** ile ilgili ifadeler aşağıda sıralanmıştır. Lütfen bu ifadelere katılma derecenizi değerlendirip, ilgili kutucuğu tablonun sağ üst köşesinde bulunan ölçeğe göre çarpı [x] koyarak işaretleyiniz.	Tamamen katılıyorum	Katılıyorum	Kararsızım	Katılmıyorum	Hiç katılmıyorum
N01.	Genel olarak kara kuvvetlerimizde lojistik faaliyetler dış kaynaktan sağlanabilir	5	4	3	2	1
N02.	Muharebenin her safhasında manevra birliklerini desteklemeye devam edebilirler.	5	4	3	2	1
N03.	Muharebenin her safhasında muharebe destek birliklerini desteklemeye devam edebilirler.	5	4	3	2	1
N04.	Muharebe sahasında faaliyet göstermeleri savaş hukuku açısından problem teşkil etmez.	5	4	3	2	1
N05.	Acil durumlarda, sivil olmalarına rağmen askerler kadar riske girebilecekleri görevler alabilirler.	5	4	3	2	1
N06.	Firma çalışanları gerektiğinde taarruz ve savunma dahil temel muharebe görevlerinde kullanılabilirler.	5	4	3	2	1
N07.	Bu firmalar, her şartta, gönderildikleri her yere gitmek, verilen her görevi yapmak zorunda olmalıdırlar.	5	4	3	2	1
N08.	Uluslararası harp hukukunda sivillerin cephedeki statüsü düzgün tanımlanmamıştır.	5	4	3	2	1
N09.	Sivil personelin silahlı çatışmaya dahil olmaları, sivil olma statülerine zarar verir. Bu durumda düşman eline düşen kişiler savaş esiri olarak kabul edilmeyip, yargılanabilir ve ölüm cezası dahil cezalandırılabilirler.	5	4	3	2	1

8.	Sivil lojistik sağlayıcı **firma seçiminde etkili olacağı değerlendirilen kriterler** aşağıda sıralanmıştır. Sizce bu kriterlerin ne kadar önemli olduğunu ilgili kutucuğa tablonun sağ üst köşesinde bulunan ölçeğe göre çarpı [x] koyarak işaretleyiniz.	Çok önemli	Önemli	Kararsızım	Önemsiz	Hiç önemli değil
C01.	Lojistik sağlayıcı firmanın konu ile ilgili tecrübesi	5	4	3	2	1
C02.	Lojistik sağlayıcı firmanın referansları	5	4	3	2	1
C03.	Lojistik sağlayıcı firmanın köklü ve itibarlı bir firma olması	5	4	3	2	1
C04.	Lojistik sağlayıcı firmanın finansal istikrarı	5	4	3	2	1
C05.	Lojistik sağlayıcı firmanın personel sayısı	5	4	3	2	1
C06.	Lojistik sağlayıcı firmanın personel kalitesi	5	4	3	2	1
C07	Lojistik sağlayıcı firmanın (Ar-Ge) araştırma-geliştirme kabiliyetleri	5	4	3	2	1
C08.	Lojistik sağlayıcı firmanın silahlı kuvvetlerin önem verdiği değerlere önem veriyor olması	5	4	3	2	1
C09.	Lojistik sağlayıcı firma personelinin muharebe sahasında nasıl davranacağı ve beka konularına vakıf olması	5	4	3	2	1
C010	İstihbarat ve güvenlik hususlarında güvenilir olması	5	4	3	2	1
C11.	Bir kalite güvence belgesine sahip olması	5	4	3	2	1
C12.	Askerler ile bilgi alışverişini sağlayacak lojistik yönetim bilgi sistemlerine sahip olması	5	4	3	2	1
C13.	Komutanın niyet ve maksadını anlayabilmesi ve çabuk reaksiyon gösterebilmesi	5	4	3	2	1
C14.	Her zaman beyan ettiği standartlara uygun sonuçlara ulaşabilmesi	5	4	3	2	1
C15.	Komutanın ihtiyaç duyabileceği her türlü bilgiyi ve yeniliği paylaşma eğiliminde olması	5	4	3	2	1
C16.	Milli çıkarlar söz konusu olduğunda, firmanın kendi çıkarlarından taviz verebilmesi	5	4	3	2	1
C17.	Lojistik sağlayıcı firmanın TSK'ne ve Mehmetçiğe sempati ve bağlılık duyguları beslemesi	5	4	3	2	1
C18.	Yüklenici firmanın ani çıkan sıra dışı ihtiyaçlara çabuk cevap verebilmesi	5	4	3	2	1
C19.	Yüklenici firma personelinin ve araçlarının uzaktan tanınacak biçimde üniforma giymeleri	5	4	3	2	1
C20	Yüklenici firmanın kurum kültürünün silahlı kuvvetlere benzer olması	5	4	3	2	1

9.	Hazırlanacak sözleşmelerde taraf olacak olan kara kuvvetlerimizin **yapması gereken işler** aşağıda sıralanmıştır. Bu maddelerin sizce önemini değerlendirip, ilgili kutucuğu tablonun sağ üst köşesinde bulunan ölçeğe göre çarpı [x] koyarak işaretleyiniz.	Çok önemli	Önemli	Kararsızım	Önemsiz	Hiç önemli değil
S01.	Şartname hazırlama sürecinde hukuki destek ihtiyacının sağlanması	5	4	3	2	1
S02.	Lojistikçi personel yetiştiren okulların kapasitelerinin düşürülmesi ve dış kaynak kullanımı konusunda uzman lojistikçi personel yetiştirilmesi	5	4	3	2	1
S03.	Kara kuvvetleri bünyesinde ihtiyaç olmayan personelden isteyenlerin, lojistik sağlayıcı firmalar tarafından istihdam edilmelerinin sağlanması	5	4	3	2	1
S04	Sıralı komutanların lojistik ihtiyaçların iç piyasadaki sivil firmalardan sağlanmasının faydalarına inanması	5	4	3	2	1
S05	Lojistik sağlayıcı firma muharebe sahasında üzerine düşen lojistik görevleri yerine getiremez/getirmez ise durumu kurtaracak alternatif planların hazır bulundurulması	5	4	3	2	1
S06	Lojistik sağlayıcı firma muharebe sahasında üzerine düşen lojistik görevleri yerine getiremez/getirmez ise uygulanacak kuvvetli yaptırımların şartnameye dâhil edilmesi	5	4	3	2	1
S07	Lojistik sağlayıcı firmalarla ilişkiler ve bunların barışta ve savaşta yönetilmesi için, desteklenecek sıralı komutanlara ve karargâhlara eğitim verilmesi	5	4	3	2	1
S08	Sivil lojistik firmalardan sağlanacak fonksiyonların akılcı yollarla belirlenmesi / seçilmesi	5	4	3	2	1
S09	Askerî lojistik personelin emekli olana kadar şartname hazırlama ve yönetiminde istihdam edilmeleri	5	4	3	2	1
S10	Şartnamelerin değişen durumlarda gerekli esnekliği sağlayacak şekilde tasarlanması	5	4	3	2	1
S11	Firmanın yetki ve sorumluluk alanının bittiği ve askerî birimlerinkinin başladığı çizginin anlaşır olması	5	4	3	2	1
S12	Lojistik ihtiyaçların iç piyasadaki sivil firmalardan sağlanması ilişkisinin basit bir satın alma işleminden ziyade uzun soluklu ve karşılıklı güvene dayanan bir ortaklık olduğunun kavranması	5	4	3	2	1
S13	Her türlü ihalenin mutlaka rekabet ahlakına uygun ihale yöntemleriyle yapılması.	5	4	3	2	1
S14	İşlerin nasıl yapıldığından çok sonuçlarına yönelik şartnameler yapılarak, lojistik sağlayıcı firmaya kaliteden ödün vermeden etkin çözüm bulma esnekliğinin verilmesi	5	4	3	2	1
S15	Lojistik sağlayıcı firmaları her yönüyle kontrol edecek uygun mekanizmaların kurulması	5	4	3	2	1
S16.	Lojistik sağlayıcı firmaların bilgi sistemleri ile bütünleşebilecek lojistik yönetim bilgi sistemine sahip olması	5	4	3	2	1
S17.	Lojistik sağlayıcı firma personelinin emniyeti konusunda tedbir almak	5	4	3	2	1
S18.	Firma personelini kışlada veya üs bölgesinde uyulması gereken kurallar konusunda talimatlandırmak	5	4	3	2	1
S19	Askerî personel ile firma personeli arasındaki kaynaşmayı arttırıcı faaliyetler düzenlemek.	5	4	3	2	1
S20.	Lojistik ihtiyaçların iç piyasadaki sivil firmalardan sağlanması ile ilgili açık ve ölçülebilir hedefler koymak	5	4	3	2	1
S21.	Sivil firmadan sağlansa bile, kara kuvvetlerimizin ihtiyaç halinde kullanılabilecek lojistik birimlerini muhafaza etmesi	5	4	3	2	1
S22.	Yüklenici firmadan mümkün mertebe şartname harici taleplerde bulunulmaması	5	4	3	2	1
S23.	Firma seçiminde (ihale) en önemli kriterin fiyat olması	5	4	3	2	1
S24.	Sözleşme metninin yüklenici taraftan beklenen hususlar konusunda yeterince detaylı hazırlanması, kriz durumlarında dahi açık kapı bırakmamaya dikkat edilmesi	5	4	3	2	1

	"Aşağıda sıralanmış lojistik ihtiyaçlar iç piyasadaki sivil firmalardan sağlanabilir." Bu ifadeye göre aşağıdaki lojistik fonksiyonları değerlendirip, üç ayrı duruma göre katılma derecenizi çarpı [X] koyarak işaretleyiniz.		Barışta					Savaşta					İç. Güv. Hrk. nda				
			Tamamen katılıyorum	Katılıyorum	Kararsızım	Katılmıyorum	Hiç katılmıyorum	Tamamen katılıyorum	Katılıyorum	Kararsızım	Katılmıyorum	Hiç katılmıyorum	Tamamen katılıyorum	Katılıyorum	Kararsızım	Katılmıyorum	Hiç katılmıyorum
L1	Fırın ve mutfak (yemek pişirme) ve sunulması hizmeti		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L2	Barınma (Koğuş, misafirhane, otel) hizmeti		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L3	Silahların	bakım birliği seviyesinde bakım ve onarımı	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L4		fabrika seviyesinde bakım ve onarımı	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L5	Motorlu	bakım birliği seviyesinde bakım ve onarımı	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L6	araçların	fabrika seviyesinde bakım ve onarımı	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L7	İstihkam	bakım birliği seviyesinde bakım ve onarımı	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L8.	mlz.nin	fabrika seviyesinde bakım ve onarımı	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L9.	Muhabere	bakım birliği seviyesinde bakım ve onarımı	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L10.	mlz.nin	fabrika seviyesinde bakım ve onarımı	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L11.	Levazım	bakım birliği seviyesinde bakım ve onarımı	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L12.	mlz.nin	fabrika seviyesinde bakım ve onarımı	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L13.	Sıhhiye	bakım birliği seviyesinde bakım ve onarımı	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L14.	mlz.nin	fabrika seviyesinde bakım ve onarımı	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L15.	Kurtarma ve tahliye hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L16.	Muharebe acil onarım hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L17.	Muhabere ve bilgi sistemleri hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L18.	İnşaat ve bina onarım işleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L19.	Hasta ve yaralı tahliye ve tedavisi (Tb. ve alt kademe için)		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L20.	Hasta ve yaralı tahliye ve tedavisi (Tug. ve üst kademe için)		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L21.	Gıda kontrol hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L22.	Bulaşıcı hastalıklarla mücadele ve aşılama hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L23.	Atıkların imhası		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L24.	Dezenfeksiyon ve haşere ile mücadele (Hijyen) hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L25.	Kantin ve iş ocakları hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L26.	Banyo ve çamaşır yıkama hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L27.	Giyindirme hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L28.	Veteriner hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L29.	Psikolojik destek ve danışmanlık hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L30.	Ulaştırma hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L31.	İçme ve kullanma suyu sağlama ve dağıtma hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L32.	Elektrik üretim ve dağıtım hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L33.	Acil köprü, yol, hava alanı ve liman inşası		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L34.	Askeri bando hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L35.	Üs bölgesi inşası ve idamesi hizmetleri (Sahra hizmetleri)		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L36.	İtfaiye hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L37	Yiyecek, yem ve temizlik mlz.nin ikmali (I'inci Snf.İkm.Mlz.)		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L38	Ana mlz. ve yedek parçaların ikmali (II'nci Snf.İkm.Mlz.)		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L39	Akaryakıt ve türevi maddelerin ikmali (III'üncü Snf. İkm.Mlz.)		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L40	Mühimmat ve patlayıcı mad. ikmali (V'inci Snf. İkm.Mlz.)		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L41	Harp esiri, mülteci ve sivil şahıslar ile ilgili işler		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L42	Sürveyan hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L43	Trafik düzenleme hizmetleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L44	Şehit ve cenaze işlemleri		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
L45	HEK malzeme toplama hizmetleri		5	4	2	3	2	5	4	3	2	1	5	4	3	2	1

10. Sınıfınız	**11. Statünüz**	**12. Görev yeriniz**	**13. Hizmet süreniz**	**14. Yaşınız**
Muharip ( )	Astsubay ( )	Kıt'a ( )	1-5 yıl ( )	21-25 ( )
Muharebe Destek ( )	Subay ( )	Kurum ( )	6-10 yıl ( )	26-30 ( )
Muharebe Hizmet Destek ( )	General ( )	Karargâh ( )	11-15 yıl ( )	31-35 ( )
			16-20 yıl ( )	36-40 ( )
			21 yıl ve üzeri ( )	41 ve üzeri ( )

Değerli vaktinizi ayırıp bu çalışmaya verdiğiniz destekten dolayı teşekkür eder, saygılar sunarım.

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APPENDIX B: SUMMARY OF OUTSOURCING LOGISTICS LITERATURE

	Ref.	Basic Variables	Aim	Sample Space	Findings
1.	Lieb, (1992)	**(1)** The extent to which companies rely upon the services of 3PL companies, **(2)** The specific 3P services used, **(3)** The user benefits which have emerged, **(4)** The obstacles encountered in 3P relationships, **(5)** The impact of the use of 3P services on logistics costs, customer satisfaction, and employees, **(6)** The future plans of current users of 3P services.	To provide aggregate data about the use of 3PLs in American industry.	Manufacturers in US, n:131	Corporate interest in the use of 3PL services appears to be growing as manufacturers increasingly focus on reducing logistics costs, fostering productivity increases, and improving service quality. The impetus for exploring such services originates at the corporate level. The feedback from users is positive.
2.	Rao and Young, (1994)	**(1)** Centrality of the logistics functions to core competency, **(2)** Risk liability and control, **(3)** Operating cost/service tradeoffs, **(4)** Information and communications systems, **(5)** Market relationships.	To present a conceptual model indicates the factors which influence outsourcing or single sourcing decisions.	US, Europe and North Atlantic firms, n:44	The study suggests that the functions are influenced by drivers. The key drivers are network, process, and product complexities. The research has provided some clarifications on which of these functions can be successfully performed through partnerships with logistics service providers.
3.	Spencer et al., (1994)	**(1)** Services provided, **(2)** Computer applications, **(3)** Installed technologies, **(4)** Anticipated usage of 3P services, **(5)** Selection criteria	To determine the extent to which logistics suppliers utilize and provide select services, computer applications and technologies.	US firms, n:154	Warehousing firms offer a broad range of services. Anticipated usage of a wide range of warehousing and transport services is expected to increase in the next five years. Quality and reliability are the cornerstones of successful JIT implementations. 3P service providers are typically evaluated on the ability to provide on-time performance, high service quality, good communication, reliability, and service speed.
4.	Gilmour et al., (1995)	**(1)** Environmental pressures, **(2)** Shifting power in the logistics channel, **(3)** Technology, **(4)** The global marketplace, **(5)** Outsourcing options, **(6)** Cycle time to market.	To determine the nature of the changes that affects logistics operations.	Managers of Australian firms, n:86	Technology and the environment are the key future issues for logistics management. Areas which have been of great interest to academics and other commentators on logistics management were not rated highly. The focus of Australian logistics managers is on the internal operations of logistics within the organization.
5.	Leahy et al., (1995)	**(1)** What select company and operational characteristics are associated with "modern" 3P providers? **(2)** What is the relative importance of factors considered by these 3P providers to be influential to successful relationships with their customers? **(3)** Are these results influenced by select company and operational characteristics of respondents?	To report the results from a survey of leading 3P providers this attempted to address a successful or effective relationship.	U.S. "modern" 3P providers, n:37	Customer orientation and dependability has the highest important ratings; sharing human resources and exit provisions were assigned the lowest importance ratings. Results from the determinant factors that influence successful 3P relationships may provide a starting point for 3P contractors to improve the satisfaction level of their customer relationships. An explosive growth in outsourcing is predicted and the ability to skillfully manage these 3P relationships will increasingly become a hallmark of successful logisticians in the future.

	Ref.	Basic Variables	Aim	Sample Space	Findings
6.	Lieb and Randall, (1996)	The research focused on the following areas: **(1)** The extent to which companies use the services of 3P logistics companies, **(2)** The specific 3P services that are used, **(3)** The user benefits that have emerged, **(4)** The obstacles encountered in implementing 3P relationships, **(5)** The impact of the use of 3P services on logistics costs, customer satisfaction, and employees, **(6)** The future plans of current users of 3P services.	To investigate the use of 3PL in American industry in 1995, and to provide a basis for comparison with the results of the 1991 and 1994 studies.	500 Largest American manufacturers identified by Fortune Magazine, n= 92	Analyses indicate that the number of manufacturers using 3PL services has increased significantly during the past year. Many of the companies that use such services are using them more extensively than they did in 1991 and 1994. The degree of commitment to the concept has increased. The management has become increasingly important in the decision making process. The most significant impediments to implementation of new 3P programs continue to be internal resistance to change, the need to teach 3P personnel about the company's requirements and systems, and integration of computer and information systems.
7.	Sink et al., (1996)	**(1)** The identification of provider types, **(2)** Important supplier attributes, **(3)** The 3PL buying process, **(4)** The future outlook for logistics outsourcing.	To present the results involving 3PL buyers on key issues relevant to the purchase and use of 3PL services.	US firms, n:25	The lack of importance participants placed on the need for integrated logistics services supplied by a single provider. Buyers are more likely to be seeking the solution for a singular need, or the fulfillment of a specific task, when they initially consider 3PL. Core competences, reputation and trust are critical in the selection of a 3PL provider.
8.	Razzaque, (1996)	**(1)** Infrastructure related problem, **(2)** Challenges posed by the economic system, **(3)** Management system problems, **(4)** Managerial problems, **(5)** General problems	To make an attempt to identify "country-specific" factors which affect the logistics development in Bangladesh.	Managers selected from Bangladesh Trade and Commercial Guide, n:68.	The most important challenge facing logistics development in Bangladesh appears to be infrastructure related. Challenges posed by the economic system have stemmed primarily from the frequent changes in the government and government policies, and lack of understanding of the nature of market economy and its management. tenets of modern management are alien to the vast majority of the Bangladeshi organizations. The political instability, lack of continuity of government policies, and resource limitation of the country have been classified as general problems
9.	Kim, (1996)	**(1)** Status of logistics within an organization, **(2)** Organizational characteristics, **(3)** Responsiveness, **(4)** Outsourcing and partnership, **(5)** Improvement action, **(6)** Customer service, **(7)** Technology adoption and use, **(8)** Cost effectiveness	To identify and survey the logistics practices in Korean companies and compare the findings with other countries.	Korean firms, n:207	The interest of top executives in logistics is considerable. The major problem with logistics in Korean companies is their lack of an appreciation of integrative logistics concepts. The present goal of logistics is limited only to cost reduction, disregarding the logistics' contribution to service improvement. There are additional logistics areas which offer potential benefit to Korean firms. Adopting the use of EDI or barcoding is low compared to order processing or purchase processing systems.
10.	Dapiran et al., (1996)	**(1)** The extent to which firms use the services of contract logistics companies, **(2)** The specific contract logistics services used, **(3)** The benefits which have emerged for the user firms, **(4)** The obstacles encountered in implementing contract logistics relationships, **(5)** The impact of the use of contract logistics services on logistics costs, customer satisfaction, and employees of the user firm, **(6)** The future plans of current users of contract logistics services.	To provide information about the experience of Australian firms using 3PL services.	Australian firms, n:84	The decision of contracting logistics firms is mostly performed at the corporate, divisional or local level. Senior logistics executives view the use of contract firms as having had a positive impact on logistics costs, logistics systems performance, customer satisfaction, and employee morale. Consideration of the use of contract logistics services providers will bring logistics managers in contact with colleagues in finance, marketing, manufacturing, and other areas, potentially expanding the logistics influence throughout the organization. The experience of the firms in this study also provides insights as to how to plan for implementation; for example, the need to educate the 3PL services provider about the firm's requirements.

	Ref.	Basic Variables	Aim	Sample Space	Findings
11.	Sink and Langley (1997)	**(1)** Types of logistics services being outsourced, **(2)** Conceptual model of 3PL buying process, **(a)** identify need to outsource logistic, **(b)** develop feasible alternatives, **(c)** evaluates candidates and select supplier, **(d)** implement service, **(e)** ongoing service evaluation, **(3)** Benefits and problems reported with logistics outsourcing	Providing a managerial framework for acquisition of 3PL services.	Managers in firms identified as users of 3PL services (US, UK and	(1) 87.2% of the respondents sees their 3PL relationships highly successful, (2) Conceptual (not empirical) model of 3PL buying process is defined (3) Benefits and problems reported with logistics outsourcing are empirically defined according to survey data
12.	Stank and Daugherty, (1997)	**(1)** Asset specificity, **(2)** Transaction volume, **(3)** Environmental capacity, **(4)** Environmental concentration, **(5)** Environmental diversity, **(6)** Environmental volatility.	To examine business arrangements between firms and international 3PL and factors influencing inter-firm cooperation.	U.S. manufacturers, n:154	The environmental factors examined do influence managers' decisions regarding the formation of cooperative relationships with international logistics providers. Three environmental factors (asset specificity, environmental capacity, and environmental volatility) were determined to have significant positive effects on the decision to form cooperative relationships. Two factors (transaction volume and environmental concentration) were found to influence negatively the formation of long-term cooperative relationships.
13.	Barber et al., (1997)	**(1)** Respondent characteristics, **(2)** Scope of logistical services offered, **(3)** Technology characteristics, **(4)** Opinions on current policies and trends.	To determine how trucking companies are responding to current trends and the demand for logistical services.	U.S. trucking firms, n:116	Routing and scheduling is the most popular logistical service offered by responding firms. This was the only service that was offered by more than 50% of firms. Nearly 25 percent of respondents are currently using EDI. Invoices and freight bills are the most popular EDI features being used by trucking firms and their customers. Most of the respondents (90%) believed EDI will continue to become a greater influence in the industry. Most respondents (85%) do not consider themselves to be a 3PL company.
14.	Millen et al., (1997)	**(1)** The extent to firms use the services of contract logistics companies, **(2)** The specific contract logistics services used, **(3)** The benefits which have emerged for the user firms, **(4)** The obstacles encountered in implementing contract logistics relationships, **(5)** The impact of the use of contract logistics services on logistics costs, customer satisfaction, and employees of the user firm, **(6)** The future plans of current logistics service users.	To provide an overview of 3PL usage in Australia and to compare with experiences in America and Western Europe.	Australian firms, n:84; USA firms, n:131; Western Europe firms, n:73	Australian marketing executives were involved more frequently than their American counterparts, but involved less frequently than their European counterparts. In almost all cases, Australian senior executives view the use of contract firms as having had a positive impact on logistics costs, logistics systems performance and customer satisfaction. Managers from all three regions reported high levels of satisfaction with their 3PL services providers and more Australian than European managers indicated they were very satisfied.
15.	Gutiérrez and Durán, (1997)	**(1)** Company size, **(2)** 3P relationship, **(3)** Level of satisfaction with information quality and integration.	To evaluate information technology utilization in the logistics process focusing on the issues around information integration with 3PLs	Spanish companies, n:35	Outsourcing logistics activities poses complex challenges to the effective integration of information. The companies reported a low average level of satisfaction with the current quality and integration of information with the 3PLs. This level of satisfaction is negatively correlated with the degree of utilization of IT. This could be attributed to the raised expectations levels that the most sophisticated companies had developed.

	Ref.	Basic Variables	Aim	Sample Space	Findings
16.	Daugherty and Dröge, (1997)	**(1)** Deregulation or regulatory policy, **(2)** The range of services available, **(3)** The quality of services, **(4)** Data-processing/communications services provided by the vendors, **(5)** The vendor management quality, **(6)** Customer attitudes.	To examine how the organization of line and staff activities within divisionalized manufacturers is related to the outsourcing decision.	US manufacturing firms, n:380	H1. "staff only" organizations should perform fewer overall line functions internally, (supported), H2. "staff only" organizations reported greater anticipated usage of outside service vendors, (supported).
17.	Larson and Kulchitsky, (1998)	**(1)** Impact of programs on cooperative relations, **(2)** Impact of programs on customer service and total costs, **(3)** Cumulative impact of improvement programs.	To report results of a survey on the use and impact of logistics performance improvement programs in Canada.	Members of Canadian Association of Logistics Management, n:209	P1: Technological programs improve logistics performance, but not relationships, (supported for variables 1 and 2). P2: Relational programs improve logistics performance and relationships, (supported for variable 2). P3: Analytical programs improve logistics performance, but not relationships, (supported for variables 1 and 2).
18.	Menon et al., (1998)	**(1)** Prices, **(2)** Punctuality, **(3)** Error rates, **(4)** Financial stability, **(5)** Creative management, **(6)** Availability of top management, **(7)** Responsiveness to unforeseen problems **(8)** Meet performance and quality requirements.	Providing a factor analytic model tested in terms of reliability and validity and testing hypotheses.	Logistics service users in US, n= 41	Factor 1. perceived performance, Factor 2: perceived capability Restated hypotheses; (a) Perceived performance correlates positively with environmental competitive hostility, (b)Perceived capability correlates positively with environmental competitive hostility, (c)Lowest prices do not correlate with competitive responsiveness, environmental hostility, or environmental dynamism, (d)Responsiveness to unforeseen problems and unexpected events correlates positively with environmental competitive hostility, (e)Performance and quality requirements being met before serious discussion regarding rates can occur correlates positively with environmental competitive hostility
19.	Hines and Rich, (1998)	**(1)** The structural model, **(2)** The efficiency model, **(3)** The value stream model, **(4)** The extended value stream model.	An overview of the present working mechanisms of the supplier association process.	Automotive companies supplying Toyota,	A four phased model has been presented that charts the development of the approach. Although supplier associations are yet still fairly new within the western setting they are providing significant benefits to the firms involved both as customers and suppliers. The approach will continue to develop and evolve and will help provide an effective framework for the effective development of world class SCs.
20.	Goh and Pinaikul, (1998)	**(1)** Supplier selection and relationship, **(2)** Logistics management and development, **(3)** Logistics Information Systems (LIS).	To promote a greater understanding of logistics management development in Thailand.	Industrial and commercial firms in Thailand, n:80	Firms prefer agile suppliers. Most of the logistics costs incurred are on transportation and warehousing. Firms that have instituted logistics departments are making an effort in upgrading their logistical systems and are more pervasive in using technology to manage logistics. The factors hindering logistics development include inefficient logistics information systems, acute transportation bottlenecks, and the lack of logistics management expertise.
21.	Paché, (1998)	**(1)** The influence now exerted by retailers in the management of flows from factories to store shelves, **(2)** The trend is to resort to specialized service providers with whom long-term relational contracts are sometimes signed, **(3)** There is no sole model of logistics outsourcing.	To discuss this subject by trying to make a clear distinction between myth and reality.	French food retailers, n:11	The adversarial approach to logistics relationships is the direct result of the financial structure of grocery distribution. Logistical costs are not neglected, but lose some of their importance due to the high profitability produced by the retail activity through high prices in shops. The price war between French food retailers forces them to reduce warehousing, handling and transport costs to improve their profitability. This results in tough negotiations with 3P service providers.

	Ref.	Basic Variables	Aim	Sample Space	Findings
22.	Boyson et al., (1999)	**(1)** primary reasons for outsourcing logistics functions, **(2)** the most effective means and methods for evaluating and selecting 3PL providers, **(3)** the most effective means for organizing, operating, and monitoring 3PL relationships, **(4)** the contribution of logistics outsourcing to a firm's competitive advantage, customer service levels, and overall logistics costs.	How best to manage a 3PL relationship.	Logistics managers across the U.S.,n:463	Profit growth and the evolution of stronger core competencies are the most important drivers behind the outsourcing of logistics functions. In-house research and professional networks are the most effective sources for selecting 3PL providers. 3PL advertising rated as the least effective source of information. Financial stability, customer service capability, and price of services are the most important characteristics when planning logistics outsourcing relationships.
23.	Fernie, (1999)	**(1)** Degree of centralization and contracting out, **(2)** Factors accounting for in-house or contracted distribution, **(3)** The nature of contracts and types of distribution services, **(4)** Satisfaction with logistics service providers.	To examine the role of the 3P contractor in the provision of logistical support to store.	U.K. firms, n:57	British retailers have gained control of the supply chain with 85% of all products being channeled through warehouses owned or contracted. Distribution managers perceive in-house distribution to be more important than contracting out. Contracting out transport gives the retailer more flexibility. The most common distribution services used are dedicated distribution and dedicated transport. Retailers are quite satisfied with the performance of contractors and there was no significant difference between kinds of business.
24.	Sum and Teo, (1999)	**(1)** Business performance, **(2)** Technologies and systems, **(3)** Operations objectives, **(4)** Future plans.	To examine the different strategic postures of logistics providers using Porter's competitive framework.	Logistics providers in Singapore, n:51	Companies with both cost and differentiation advantages registered generally the best performance among all strategic types. The operations objectives of all strategic types are reflective of the proactive stance of the logistics providers to become major regional and global players in the logistics service industry. All strategic types share a common view that IT can contribute significantly to their operations capabilities. Type I, II and III companies would be emphasizing on improving customer service, quality of their services, and productivity of their operations.
25.	Roodhooft and Warlop, (1999)	Dependent variables; **(1)** to produce the patient meals internally (make option), **(2)** outsource the activity to an external catering company (buy option).	To test whether ``make or buy'' decisions are biased towards internal production when the buy option is presented as a choice for outsourcing.	Belgian hospitals, n:103	**(1)** Decision makers are actually quite sensitive to the asset specificity associated with the ``buy'' option in an outsourcing decision. **(2)** They also appear inappropriately sensitive to the sunk costs inherent in most real-life outsourcing decisions**. (3)** Prior commitment to internal procurement systematically reduced the willingness to outsource, relative to a pure ``make or buy'' scenario. **(4)** In situations where the optimal decision would be to discontinue internal production in favor of outsourcing, individual managers display a striking conservatism.
26.	Rabinovich et al., (1999)	**(1)** The extent of outsourcing and the patterns of logistics activities outsourced, **(2)** Annual sales, number of employees, geographic scope of operations, and demographic information.	To offer an explanation as to why firms outsource, to measure the impact that the outsourcing of each functional area has on the likelihood of outsourcing other areas.	Transportation and Distribution Firms in the USA, n:372	**H1.** Firms will tend to outsource functions with the objective of improving their logistics performance (supported). **H2.** Firms outsource transactional functions across transportation, inventory and customer service areas (supported). **H3.** Firms partnering with 3PL providers will be interested in integrating their services across logistics areas like active flows of goods (supported). **H4.** Firms will integrate the outsourcing of logistics information systems with the information flows across transactional functions such as inventory management and shipment planning (supported). **H5.** Firms will outsource bundled transactional and physical functions within transportation, inventory, and customer-service areas (Not supported).

	Ref.	Basic Variables	Aim	Sample Space	Findings
27.	Cavinato, (1999)	**(1)** Basic financial planning, **(2)** Forecast-based planning, **(3)** Externally oriented planning, **(4)** Strategic management, **(5)** Knowledge based business.	To determine the nature of activities, processes, and/or behavior that exist throughout a range of strategic emphases utilized by firms and supply chain logistics.	World-wide companies between 1992 and 1998, n:199	No company had a logistics department whose attributes matched any one stage exactly. The biggest disparity between US and non-US firms was in strategy and the concept of the supply chain. Supply chain logistics managers tend to have a more highly defined concept of strategy. Nearly every firm is evolving to higher stages in terms of supply chain logistics evolution. Major differences in US firms and those in the rest of the world were found in the concept of the field and supply chain strategies.
28.	Bhatnagar et al., (1999)	**(1)** Extent of use of the 3PL services, **(2)** Decision making process for choosing contract logistics services provider, **(3)** Impact of the usage of contract logistics services on the organisation.	To identify the use of 3PL services by Singaporean companies.	Singapore-based firms, n:126	84% of the companies are using contract logistics services. The use of contract logistics services in Singapore primarily focused on both the domestic and international operations. 39.5% indicated that the decision originated from the ``local'' level. More of the users indicated that cost savings, customer satisfaction and flexibility were important in their decision to outsource. The impact of 3PL services on logistics costs, customer satisfaction and internal logistics system performance was seen to have a very positive or positive impact by around 90% of the respondents.
29.	Moore and Cunningham, (1999)	**(1)** Relationship type, **(2)** Relationship effectiveness, **(3)** Social exchange variables; **(a)** shipper's trust in a 3P, **(b)** 3P's equity, **(c)** shipper's commitment, **(d)** 3P's commitment, **(e)** shipper's conflict, **(f)** shipper's risk of 3P opportunism.	To examine social exchange behavior in logistics alliance and transactional relationships.	US logistics firms, n:339	**H1.** Social exchange behavior in a logistics relationship is influenced by the type and level of relationship, (supported). **H2.** Shippers in logistics alliances perceive higher levels of trust, equity, commitment, and lower levels of conflict and opportunism, (partially supported). H3. Shippers in effective logistics relationships perceive higher levels of trust, equity, commitment, and lower levels of conflict and opportunism, (supported).
30.	Maltz and Ellram (2000)	**(1)** Purchase types **(2)** Outsourcing levels of logistics activities **(3)** The role of procurement in outsourcing process	Testing four hypothesis	Chief SCM officers of major US companies,n:126	**Tested hypotheses**; **H1**. Firms are more likely to outsource inbound logistics for purchases that they regard as non-strategic (accepted), **H2.** Outsourcing of individual logistics activities will vary, independent of purchase type (not accepted), **H3.** Joint outsourcing of activities will increase, the "nearer" the activities are each other in the logistics process (not accepted), **H4.** Procurement will be more involved in outsourcing for strategic purchases than non-strategic purchases (not accepted)
31.	van Hoek, (2000)	**(1)** Supply chain mechanisms: account management **(2)** Performance measurement.	To investigate operational mechanism 3P can use to support the realization expanded services in the sphere of postponement.	3P logistics companies, n:782	Respondents who apply account management are more successful in selling supplementary and postponement services to their clients. Account management is a mechanism for external integration that contributes to the effectiveness in offering and implementing supplementary services in the context of customization and postponement. Respondents who use integrated logistics measures outscore respondents who do not in the application of supplementary services.

	Ref.	Basic Variables	Aim	Sample Space	Findings
32.	Juma'h and Wood, (2000)	**(1)** Operating profit, **(2)** Earnings margin, **(3)** Return on shareholders' capital,**(4)** Reduction in employment cost, **(4)** Research and development expenditure.	To establish the connection between outsourcing and changes in the performance of outsourcing companies and their pattern of resource usage.	UK outsourcing companies, n:29	The decrease of the outsourcing companies' profitability implies a high cost of outsourcing caused by initial transaction costs. This may reflect a sound underlying logic for the outsource arrangement. There is very little long-term evidence on outsourcing contracts and benefits and the figures are consistent with rational opportunistic behavior by the outsource contractor who may enjoy a major negotiation advantage relative to the outsourcing company based on search costs and information asymmetry. This advantage would enable the contractor to negotiate advantageous signing on fees as a result.
33.	Ülengin and Uray, (2000)	**(1)** What is the current status of Turkish firms in terms of the technology used in general and supply chain activities? **(2)** Are there any differences between users and non-users of technology in supply chain management activities in terms of general firm characteristics? **(3)** What are the characteristics of the technology adopted by the technology user firms?	To draw a profile of the users and non-users of technology based on the firm, the market and the SCM related factors.	Firms of Istanbul Chamber of Commerce, n:73	Most of the surveyed companies face a level competition to benefit from the recent developments of use technology. The surveyed firms are aware of the importance of technology usage and the majority of them currently use technology in supply chain management activities. The firms have a lack of differentiation between cost center, profit center and strategic component for supply chain activities. The evolution of supply chain management from cost center to strategic component is not fully realized in Turkish firms.
34.	McIvor, (2000)	**Outsourcing framework:** **Stage 1:** Defining the core activities of the business, **Stage 2:** Evaluate the relevant value chain activities, **Stage 3:** Total cost analysis of core activities, **Stage 4:** Relationship analysis.	To proposing a framework for demonstrating the strategic importance of outsourcing for the organization.	Structured interviews with senior managers, n:12	The framework integrates the value chain, core competency thinking and supply base influences into the decision-making process. The empirical work has revealed a number of parts of the framework that require further detail and development in order to make it more comprehensive in its application to a range of business settings. The framework is being applied to a number of companies.
35.	Fan, (2000)	**(1)** Views on outsourcing, **(2)** Reasons for outsourcing, **(3)** Policy on outsourcing, **(4)** Emphasis on outsourcing business functions and process, **(5)** Major reasons for outsourcing, **(6)** Benefits from outsourcing,.	To explore pre-outsourcing decision process and post-outsourcing supplier management.	British companies, n:14	Cost analysis is rarely performed on an equal footing. In most cases it is the peripheral support activity being outsourced with cost reduction as the primary driver. Outsourcing decision is being made early in the process without active involvement of the in-house provider. There are problems in supplier selection and management.
36.	Elmuti and Kathawala, (2000)	**(1)** Regional differentiation and perception of the global outsourcing strategy, **(2)** Industry types and perceptions of the global outsourcing strategy, **(3)** Why are global outsourcing projects undertaken? **(4)** The degree of success or failure of outsourcing strategies, **(5)** How are global sourcing efforts organized? **(6)** What factors are associated with the success or failure of global outsourcing strategies?	To explore why and how organizations are using global outsourcing and to identify problems that effect global outsourcing success.	US, Europe, and Middle East firms, n:544	Organizations generally considered themselves successful at global outsourcing. However, while they achieved significant improvement in organizational effectiveness, they were not achieving the order of magnitude improvements ascribed to global outsourcing. One of the primary risks to firms is the effect of global outsourcing on employees' morale and performance. Organizations with different levels of success at global outsourcing identified different factors as problems in the global outsourcing projects.

	Ref.	Basic Variables	Aim	Sample Space	Findings
37.	van Laarhoven et al., (2000)	**(1)** The characteristics of logistics partnerships, **(2)** The key success factors for making partnerships work, **(3)** The concerns that shippers have about outsourcing, **(4)** The benefits they expect to receive from it.	To present the current situation of 3PL in Europe and to compare these to the results found in 1993.	European shippers, n:53	The perception of 3PL services by shippers has not changed over the last five years. The shippers' concerns about entering a 3PL relationship provide insights into where to improve operations as well as into where to carefully approach potential clients. The fact that partnerships are consistently changing in the direction of increasing scope and sophistication but at a very slow rate indicates that service providers have not been very successful in claiming a more prominent position in partnership design.
38.	Goldsby and Stank, (2000)	**(1)** Position, **(2)** Integrate, **(3)** Agile, **(4)** Measure.	To provide empirical evidence of positive relationship between overall logistical competence and the implementation of ERL.	Members of Council of Logistics Membership, n:306	**H1.** There is a significant and positive relationship between world class logistics capability and the implementation of the ERL practices (supported). **H2a**. There is a significant and positive relationship between positioning competence and the implementation of ERL practices (supported). **H2b.** There is a significant and positive relationship between integration competence and the implementation of ERL practices (not supported). **H2c.** There is a significant and positive relationship between agility competence and the implementation of ERL practices (not supported). **H2d.** There is a significant and positive relationship between measurement competence and the implementation of ERL practices (supported).
39.	Kakabadse and Kakabadse, (2001)	**(1)** Services outsourced, **(2)** Reasons for outsourcing, **(3)** Choice of suppliers, **(4)** Capability comparison, **(5)** The impact of outsourcing.	Comparing recent trends with the findings of an extensive comparative survey of outsourcing.	Top managers of enterprises in the USA, UK, and Europe, n:692	Basic services emerge as the most frequently outsourced function in public service organizations. The main reasons for outsourcing in public service organizations are to achieve best practice, to improve the cost discipline, to improve the quality of the service, and to help senior managers focus on the core competencies. The preferred service providers are those who have experience of working with public service organizations.
40.	Zsidisin and Ellram, (2001)	**(1)** Accountability, **(2)** Information technology, **(3)** Importance of purchasing and supply management, **(4)** Strategic purchasing, **(5)** Total cost of ownership, **(6)** Understanding supplier costs, **(7)** Target costing, **(8)** Market monitoring.	To provide insights into Purchasing and Supply Management (PSM) activities which are related to supplier alliance involvement.	Purchasing professionals, n:261	Significant relationships exist between support factors, cost and price activities, and supplier alliance involvement by the PSM function. Support factors must be in place and continually improved to facilitate purchasing's involvement in alliances. For purchasing firms to obtain long-term benefits from alliances with suppliers, purchasing professionals must continually provide valuable input into these relationships through their corporate influence, use of information technology, and participation in various proactive purchasing activities.
41.	Gibson and Cook, (2001)	**(1)** Recruitment practices, **(2)** Selection practices, **(3)** Compensation practices.	Reports the results of a survey of U.S. 3PL firm practices for hiring entry level managers.	U.S. 3PL firms, n:41	Media advertising and college recruiting are the most widely used external recruiting methods. Media advertising was the most successful method in filling entry entry-level manager position. Overwhelming majority of the respondents expect new hires to have a formal college education and the most commonly required degree program is logistics. 85% of the positions studied require some form of previous experience. The highest rated skills are management skills and interpersonal capabilities. Customer service was rated as important for the knowledge areas. 90% of the positions are salary based. Nearly 80% of the entry-level management positions offer one or more compensation enhancing benefits.

	Ref.	Basic Variables	Aim	Sample Space	Findings
42.	Klaas et al., (2001)	**(1)** Amount of outsourcing reliance, **(2)** Idiosyncratic HR practices, **(3)** HR strategic involvement, **(4)** Positive HR outcomes, **(5)** Promotional opportunities, **(6)** Demand uncertainty, **(7)** Pay level, **(8)** Firm size, **(9)** Outsourcing by competitors, **(10)** Industry affiliation	Investigating the relationship between a number of organizational characteristics and the decision of outsource HR.	Members of the Society of Human Resource Management, n:432	**H1.** Where decision-makers believe their firm's approach to managing HR is idiosyncratic, reliance on outsourcing of generalist, human capital, and recruiting and selection activities will be lower (not supported). **H2.** Reliance on the outsourcing of transactional, human capital and recruiting and selection activities will be higher in firms where HR is seen as being involved with strategic concerns within the business (supported).**H3.** Reliance on outsourcing of generalist, human capital and recruiting and selection activities will be lower in firms where decision-makers believe they have achieved positive HR outcomes (not supported). **H4.** Reliance on HR outsourcing will be lower where the HR staff is seen by decision-makers as having superior promotional opportunities (not supported). **H5.** Reliance on HR outsourcing will be higher where the firm is seen by decision-makers as facing substantial demand uncertainty (supported). **H6.** Increased reliance on HR outsourcing will be observed for transactional activities, human capital activities, and recruiting and selection where decision-makers believe their firm follows a pay lead strategy (supported).**H7.** There will be a negative relationship between firm size and reliance on HR outsourcing (not supported). **H8.** HR outsourcing in a firm will be positively related to the degree to which that firm's major competitors are seen as relying on HR outsourcing (not supported).
43.	Svensson, (2001)	**(1)** Are there any differences between a company's perceived trust towards the suppliers and a company's perceived trust towards the customers in a lean, responsive and agile supply chain? **(2)** Are there any associations between a company's perceived trust towards the suppliers and a company's perceived trust towards the customers in a lean, responsive and agile supply chain?	To describe and compare the companies' perceived trust towards suppliers and customers in lean, responsive and agile supply chains.	Executives of Swedish automotive companies, n:215	There is a high level of perceived trust in the supply chains in the Swedish automotive industry. The perceived trust is high in the companies' inbound and outbound supply chains. The re is a positive correlation between the companies' perceived trust towards suppliers and customers.
44.	Lummus et al., (2001)	**(1)** How do you define supply chain? **(2)** How do you define logistics? **(3)** How are the areas related?	To clarify the activities included in supply chain management and logistics and to develop a hierarchical relationship.	USA firms, n:6	The logistics profession involves planning, implementing and controlling efficient, effective flow and storage of goods and services from the beginning point of external origin to the company and from the company to the point of consumption for the purpose of conforming to customer requirements. Logistics is generally viewed as within one company, although it manages flows between the company and its suppliers and customers. Supply chain management includes the logistical flows, the customer order management and production processes and the information flows necessary to monitor all the activities at the supply chain nodes.

	Ref.	Basic Variables	Aim	Sample Space	Findings
45.	Sohal et al, (2002)	The survey instrument focused on the following six areas: **(1)** The extent to which the firms use the services of contract logistics companies, **(2)** The specific contract logistics services used, **(3)** The benefits which have emerged for the user firms, **(4)** The obstacles encountered in implementing contract logistics relationships, **(5)** The impact of the use of contract logistics services on costs, customer satisfaction, and employees of the user firm, **(6)** The future plans of current users of such services.	Examining the use of 3PL services based on a questionnaire survey over the period 1995 to 1999 by Australian firms.	Australian firms, n: 209	67% of the respondents utilize the services of one or more contract logistics companies. Almost half of the respondents claim that logistics contracts are created for domestic operations only. Measuring service level performance, maintaining an integrated information system, and the cost of outsourcing are the striking concerns. Introducing logistics contracts induced retraining of logistics personnel in only 50% of the organizations. 20% and 4% regarded their company's commitment as extensive or very extensive respectively. 75% of the organizations had signed a specific contract with the 3P providers. The chief benefits were improved customer service, increased flexibility, and reduced investment base.
46.	Svensson, (2002)	**(1)** Service level, **(2)** Deviation, **(3)** Consequence, **(4)** Trend.	To conceptualize the construct of vulnerability in firms' inbound and outbound logistics flows.	Swedish firms, Phase 1: n:17, Phase 2: Inbound logistics n= 214, Outbound logistics n=204	The four inbound and outbound vulnerability dimensions are proposed to be useful in terms of measuring and evaluating the vulnerability construct in firms' inbound and outbound logistics flows. Finally, a model of inbound and outbound vulnerability scenarios in supply chains is introduced. The double-edged conceptual framework thus developed, and the matrix model for the measurement and evaluation of inbound and outbound vulnerability scenarios in supply chains, are proposed to serve as guides when the inbound and outbound vulnerability in supply chains are at focus.
47.	Toulan, (2002)	**Dependent variable-** Outsourcing level **Independent variables- (1)** Market liberalization, **(2)** State of seeing labor policy reforms as increasing level of flexibility, **(3)** State of seeing the cost of imported inputs as decreasing, **(4)** State of viewing the reduction of inflation as critical in improving operations, **(5)** State of selling to multinational enterprises will be under increased pressure to specialize	To explore the issue of market liberalization and its impact on vertical integration using the case of Argentina.	Owner or top managers of firms in the province of Mendoza with more than 10 employees, n= 163	H1.Market liberalization causes a decrease in overall levels of vertical integration amongst firms (accepted). H2. Firms viewing labor policy reforms as increasing their level of flexibility is more likely to increase their levels of outsourcing than others (not accepted). H3. Firms seeing the cost of imported inputs as decreasing will be more likely to increase their levels of outsourcing (accepted). H4. Firms viewing the reduction of inflation as critical in improving their operations would increase their level of outsourcing more (accepted). H5.Firms selling to multinational enterprises will be under increased pressure to specialize and as such decrease their level of vertical integration (accepted).
48.	Eger III et al., (2002)	**(1)** What services are commonly outsourced, and what prevents broader public sector transportation outsourcing? **(2)** How are outsourcing options evaluated? **(3)** How are outsourcing contracts negotiated and monitored?	To provide a comprehensive overview of transportation outsourcing practices in a variety of public and private sector organizations.	Manufacturing firms, n:5; 3PLs, n:2; State departments of transportation divisions, n:66	The most commonly outsourced services are information technology, asset maintenance, material distribution, warehousing, and fleet management. the primary barriers to outsourcing are labor agreements followed by government regulations. Departments of transportation divisions generally do not use experts to assist in the outsourcing decision. Manufacturer, transportation division, and 3PL respondents are similar in many respects when instituting the outsourcing decision.
49.	Daugherty et al., (2002)	**(1)** Operating/financial performance, **(2)** Satisfaction, **(3)** IS support capability, **(4)** IS support compatibility, **(5)** IS technology, **(6)** Relationship commitment.	Examination of catalog retailers and reverse logistics service provided by their primary supplier.	U.S. electronic companies, n:71	**H1.** The higher the level of information systems support, the higher the reverse logistics program performance (not supported). **H2.** The greater the relationship commitments of the buying firm to the supplier, the stronger the positive relationship (supported).

	Ref.	Basic Variables	Aim	Sample Space	Findings
50.	Cagliano and Spina, (2002)	**(1)** General management practices, **(2)** Production management practices, **(3)** Product innovation management practices.	To explore the adoption of advanced management practices leads to superior performance within the two models of subcontractors and full manufacturers.	Italian companies; manufacturers, n:181; subcontractors, n:165	**H1.** For manufacturers, the adoption of advanced general management, production management and product innovation management practices will lead to superior production efficiency and time to market, improved costs, quality and delivery, and product novelty, (partially confirmed). **H2.** For subcontractors, the adoption of advanced general management and production management practices will lead to superior production efficiency, improved costs, quality and delivery and finally to increased competitive success, (fully supported).
51.	Claver et al., (2002a)	**(1)** Profile of universities and interviewees, **(2)** Outsourced activities, **(3)** Involvement of the university top management in IS departments, **(4)** The incidence of size on the outsourcing level, **(5)** The university top management and the level of outsourcing.	To analyze the level of information systems outsourcing at Spanish Public universities.	Spanish public universities, n:35	Universities under analysis are very complex, considering the number of workers and students these organizations count on. They use IT directly in their work. The larger the size of the university, the less outsourcing is used. The top management's involvement is also related to the outsourcing level, the greater the degree of involvement, the more IS activities are externalized.
52.	Claver et al., (2002b)	**(1)** Profile of universities and interviewees, **(2)** Outsourced activities, **(3)** Reasons for outsourcing, **(4)** Reservations about outsourcing, **(5)** The success of outsourcing, **(6)** The outsourcing provider, **(7)** A typology of universities.	To determine the main reasons of information systems outsourcing and the factors necessary for the success of outsourcing.	Spanish Public Universities, n:35	Spanish public universities especially use outsourcing for hardware and software maintenance and programming. The transaction cost theory has been helpful as a basis to check the reasons for and against IS outsourcing. The most important element for an outsourcing relationship to be successful is that the provider should understand the client's objectives and goals.
53.	Stone, (2002)	**(1)** Performance, **(2)** Organizational development structures, **(3)** Organization of finance, **(4)** Marketing, **(5)** Information technology control, **(6)** Influence of the management culture.	To investigate the European expansion of UK based LSPs.	UK based LSPs, n:25	The established LSPs have progressed through organizational structures showing stand alone moving to linkage influence, central functions and service. Established international UK based LSPs have wider geographical coverage in Europe than do the newcomers. Both established and newcomer firms have approached their European entry through a combination of acquisition, piggybacking and some joint venture. Organic growth has been encouraged once the initial entry has been achieved.
54.	Dean and Kiu, (2002)	**(1)** How do organizations monitor the performance of contractors? **(2)** What do organizations believe to be the best approach to monitoring the performance of contractors? **(3)** To what extent do organizations believe that performance monitoring affects quality outcomes?	To explore performance monitoring and its perceived links to quality in contracted services.	Australian companies, n:55	Performance monitoring does occur in regularly in 91% of cases. Respondents nominated effectiveness of the service as one of the best approaches to performance monitoring were predominantly related to business needs, specialist contractor skills, and the relationship with the contractor. The rigour and the frequency of performance monitoring are important and highlight the business imperative for value.

	Ref.	Basic Variables	Aim	Sample Space	Findings
55.	von Corswant and Fredriksson, (2002)	**(1)** Increasing importance of key performance criteria, **(2)** Product life-cycles become shorter, **(3)** Production and product development activities become more globalized, **(4)** Outsourcing is increasing, **(5)** Companies reduce their supply base, **(6)** Product development time is decreasing, **(7)** Suppliers account for an increasing share of product development resources, **(8)** Use of JIT-deliveries is increasing.	To provide quantitative data regarding the sourcing-related trends and to compare these results with existing research.	Car manufacturers and first tire suppliers, n:27	All criteria but product cost increased in importance. Both car manufacturers and suppliers expect a shorter life cycle for a product. The car manufacturers are not changing their geographical dispersion of production. The suppliers significantly increased the number of countries in which they undertake these activities. Manufacturers have not significantly increased their degree of outsourcing, and do not intend to do so. Car manufacturers reduced the number of suppliers by one quarter. Suppliers actually increased their supply bases by 18%. Both car manufacturers and suppliers have shortened their average development times.
56.	Sohail and Sohal, (2003)	**(1)** Extent of use, **(2)** Decision making process, **(3)** Contract logistics services used, **(4)** Implementation, **(5)** Training, **(6)** Organizational impact	Examining the usage of 3PL services in Malaysia	Malaysian firms, n: 124	63% indicated that their firms employ the services of more than one contract logistics firm. Less than 45% of the non-users are looking into the use of these service providers. Logistics services originated at corporate level (35%), divisional level (24%), and local level (41%). Logistics functions outsourced include freight payment, carrier selection, rate negotiation and warehouse management. One quarter of the respondents identified cost implications of outsourcing and service quality issues as their concerns. One-thirds of the respondents noted cost considerations as the most important selection factor, while 16.7% stated that service considerations were most important. Only 15% of the respondents indicated that there was a need for retraining employees. The most frequently cited benefits are time saving (16.7%), cost savings (27.8%), improved customer service (6.7%), and freight payment/ credit terms (4.4%).
57.	Knemeyer et al., (2003)	**Type I Partnership:** Organizations that recognize each other as partners. **Type II Partnership:** Organizations that have progressed beyond coordination of activities to integration of activities. **Type III Partnership:** Organizations that share a significant level of operational and strategic integration.	To confirm the existence of distinct levels of partnership development, and to investigate possible differences in key relationship marketing elements.	U.S. firms, n:388	The results do support a linkage between the level of partnership development and important relationship marketing elements and outcomes. The comparisons of relationship marketing elements and outcomes across these clusters demonstrate no significant differences between Type II and Type III partnership. A significant improvement in the relationship marketing outcomes of retention and recovery may only be realized from Type III partnership.
58.	Freytag and Kirk, (2003)	**(1)** How can in and outsourcing be defined through the company's present activities? **(2)** How can a company work with strategic sourcing in a targeted, dynamic, and holistic way? **(3)** What activities should the focal company itself be in charge of, and what activities can the company consider delegating to external actors?	To point out possible action areas for improvements and potential competence areas and to develop specific tools that can support a company's decision processes when in and/or outsourcing.	Firms of metalworking and electronics industries, n=14	It is an important managerial task to constantly consider the company's role in the network and the resulting implications for solving tasks inside the company and in interaction with other companies. Instead of trying to clarify what has happened and why in a retrospective approach, it turned out to be appropriate to participate actively in the company's considerations on in and outsourcing. The presented conceptual framework has proved to be an appropriate linking mechanism, and may be seen as a step towards using some of the ideas that have developed on a descriptive level.

	Ref.	Basic Variables	Aim	Sample Space	Findings
59.	Fink and Shoeib, (2003)	**(1)** Intelligence phase, **(2)** Analysis and planning phase **(3)** Strategy selection phase, **(4)** Action phase, **(5)** Evaluation and monitoring phase	To examine the nature of information technology outsourcing decision and to develop a theoretical framework.	Australian organizations, n:44	The action phase and evaluation and monitoring phase were found to be more significant than the other phases. For the action phase, tasks of selecting an IT-outsourcing vendor and determining a suitable IT-outsourcing contract were dominant and strongly correlated.
60.	Svensson, (2003a)	**(1)** Sourcing in firms' inbound and outbound logistics flows, **(2)** Sub-contractor sourcing in inbound logistics flows, **(3)** Customer sourcing items in outbound logistics flows, **(4)** Disturbances in firms' inbound and outbound logistics flows, **(5)** Disturbance items in inbound logistics flows, **(6)** Disturbance items in outbound logistics flows, **(7)** Differences and associations between firms' sourcing in inbound and outbound logistics flows, **(8)** Disturbances and sub-contractor/customer sourcing in firms' inbound and outbound logistics flows.	The research has its emphasis on the sub-contractor/customer sourcing and the occurrence of disturbances in firms' inbound and outbound logistics flows.	Executives in the Swedish vehicle industry, n:418	**H1.** There is no difference between the firms' sourcing in inbound and outbound logistics flows, (not supported). **H2.** There is no association between the firms' sourcing in inbound and outbound logistics flows, (not supported). **H3.** There is no association between the firms' sourcing and the occurrence of disturbances in inbound logistics flows, (partially supported). **H4.** There is no association between the firms' sourcing and the occurrence of disturbances in outbound logistics flows, (partially supported).
61.	Svensson, (2003b)	**(1)** Inventory items in the inbound logistics flows, **(2)** Inventory items in the outbound logistics flows, **(3)** Disturbance items in the inbound logistics flows, **(4)** Disturbance items in the outbound logistics flows.	To describe companies' inventories and disturbances in inbound and outbound logistics flows.	Executives in the Swedish vehicle industry, n:418	**H1.** There is no association between companies' inventories and disturbances in inbound logistics flows, (not supported). **H2.** There is no association between companies' inventories and disturbances in outbound logistics flows, (supported).
62.	Seuring, (2003)	**(1)** Comparison of services offered, **(2)** Classifying services offered, **(3)** Assessing service factory levels.	Based on five cases drawn from the German chemical industry where such facility operators have been established.	German chemical industry, n:5	The services offered cover both physical products such as water or communication and information technology hardware as well as "pure" services such as the technical design of a production unit or analytical chemical services. Facility operators work across the whole diagonal of the product-process matrix, making it extremely difficult to focus their operations. Facility operators face the challenge of operating all parts of the business that the product manufacturers want to outsource.
63.	Sauvage, (2003)	**(1)** The technological effort of the LSP, **(2)** The duration of the relationship with the customers, **(3)** the degree of involvement in a relation of joint flow management	To explore the effects of technological effort on the performance of the logistics outsourcing relationship.	French firms, n:99	**H1.** The technological effort of the LSP is correlated with the duration of the relationship with the customers (not supported), **H2.** The technological effort of the logistics service provider is correlated with the degree of involvement in a relation of joint flow management (supported).

	Ref.	Basic Variables	Aim	Sample Space	Findings
64.	Lai et al, (2004)	Building an empirical taxonomy based on literature and multivariate statistical analysis of survey results to reach following issues; **(1)** Identifying and grouping the types of logistics services provided by LSPs. **(2)** Classifying LSPs on some characteristics based on their logistics service capabilities	Developing an empirical taxonomy for LSP and grouping them according to results of multivariate analyses.	LSPs in Hong Kong, n= 221	Proposing 24 items in the questionnaire, divided into 3 factors, using Factor Analysis, named as; **(1)** value added logistics services, **(2)** technology enabled logistics services, (3) freight forwarding service. And classifying the firms proposing 12 items and using Cluster Analysis as; **(1)** traditional freight forwarders, **(2)** transformers, **(3)** full service providers, **(4)** nichers
65.	Sinkovics and Roath, (2004)	**(1)** Strategic orientation, **(2)** Operational flexibility, **(3)** Collaboration, **(4)** Performance.	Empirically investigate proposed, theoretically based relationships between strategy and performance within an interorganizational concept.	3PL companies from England, Scotland, Wales and Northern Ireland, n:142	**H1a.** The customer orientation aspect of strategic orientation has a positive impact on logistics performance, (supported). **H1b.** The customer orientation aspect of strategic orientation has a positive impact on market performance, (not supported). **H1c.** The competitor orientation aspect of strategic orientation has a positive impact on logistics performance, (not supported). **H1d.** The competitor orientation aspect of strategic orientation has a positive impact on market performance, (not supported). **H2a.** Customer orientation is positively related to operational flexibility, (not supported). **H2b.** Competitor orientation is positively related to operational flexibility, (supported). **H3a.** Customer orientation is positively related collaboration, (not supported). **H3b.** Competitor orientation is positively related collaboration, (not supported). **H4a.** Operational flexibility has a positive effect on logistics performance, (supported). **H4b.** Operational flexibility has a positive effect on market performance, (supported). **H4c.** Collaboration contributes to better logistics performance, (not supported). **H4d.** Collaboration contributes to better logistics performance, (supported).
66.	Wilding and Juriado, (2004)	**(1)** Why outsource, **(2)** What logistics functions should be outsourced, **(3)** How to manage satisfaction within a 3PL partnership.	To identify the customer perceptions on key logistics outsourcing decisions in the consumer goods industry.	European consumer goods companies, n:50	Consumer goods companies choose four main drivers for outsourcing (3PL competencies, cost, flexibility and focus on core). Transport is the most likely logistics function to be fully outsourced. Carrier selection is least likely to be outsourced. Regular storage is usually kept in-house or is shared between in-house and 3PL. Outsourcing of logistics information systems has a low priority to most consumer goods companies. A large majority (78%) stated that they use some sort of formalized performance measurement. The most popular performance measures focus on and cost. 74% of the survey respondents have at least once declined from renewing a 3PL contract with the same service provider. The top reasons for not renewing 3PL contracts relate to service and quality and cost.
67.	Hong et al., (2004)	**(1)** Profile of the respondents, **(2)** Current and prospective logistics mode used by manufacturers, **(3)** Definitions and expected impacts of independent variables.	To investigate the logistics outsourcing determinants in a transitional economy.	Chinese firms, n:192	**H1.** Company size can influence its decision on using outside logistics services, (not supported). **H2.** Firms with JIT production mode have higher incidence to outsource logistics services, (supported). **H3.** Manufactures in different industry segments have different incidence in using external logistics services, (supported). **H4.** Firm's management level at which the logistics decision is being made can influence its logistics outsourcing decision (not supported). **H5.** Foreign owned firms are more likely to use logistics outsourcing, (not supported).

	Ref.	Basic Variables	Aim	Sample Space	Findings
68.	Beaumont and Sohal, (2004)	**(1)** Reasons for outsourcing, **(2)** Reasons for not outsourcing.	To explore the outsourcing decision, especially reasons for (not) outsourcing.	Australian organizations, n:162.	The strongest group of reasons pertained to cost savings and improving performance, but outsourcing is also used to access skills and resources not available in-house. The most important impediment to outsourcing was ascertaining relevant costs, and formulating and quantifying requirements.
69.	Humphries and Wilding, (2004)	**(1)** Relationship creativity, **(2)** Relationship stability, **(3)** Communication, **(4)** Relationship reliability, **(5)** Relationship quality.	To explore the role of SCM in the unusual domain of long-term, monopolistic business-to-business relationships.	UK defense procurement managers, n:54	Successful relationships occurred when innovative contracts existed which reduced costs and promoted customer focus. Forward looking, holistic partnering arrangements, supply chain-bolstering activities are the positive approaches for the relationship stability. The importance of supply chain communication was understood and efforts were being made to improve. Relationship quality achieved the highest mean satisfaction of 66%.
70.	Svensson, (2004)	**(1)** Univariate description of trust items, **(2)** Univariate description of dependence items, **(3)** Companies' perceived trust and perceived dependence towards suppliers and customers.	To explore the association between companies' perceived trust and perceived dependence in business relationships towards suppliers and customers.	Swedish vehicle industry, n:215	**H0.** There is no association between companies' perceived trust and perceived dependence in business relationships towards suppliers, (supported). **H1.** There is no association between companies' perceived trust and perceived dependence in business relationships towards customers, (supported).
71.	Hassanain and Al-Saadi (2005)	Generic framework model having five sequential processes for outsourcing asset management services; **(1)** Identify asset management processes; **(2)** Assess outsourcing of asset management services; **(3)** Develop outsourcing contracts; **(4)** Establish procedures for transfer of asset management functions; **(5)** Establish procedures for contract management.	Presenting a frame-work model for outsourcing asset management services in municipalities.	Staff members at senior management of municipalities in Saudi Arabia, N=NR	The survey indicated that outsourcing is being utilized in almost all functions relating to the management of municipal infrastructure, and that the criterion for selecting a specific contractor for a service is lowest price. The findings section in the paper also presents a list of the advantages of outsourcing along with the rated priority of each, the disadvantages of outsourcing along with the rated severity of each, and the strategies that could be followed to achieve a successful outcome from the outsourcing process, along with the rated importance of each.
72.	Mitra (2005)	**(1)** General information, **(2)** Financial information, **(3)** Services offered, **(4)** Industries served, **(5)** Asset base and volume of cargo movement, **(6)** Extent of coverage, **(7)** Information systems, **(8)** Threats to growth of the 3PL industry, **(9)** Opportunities for the growth of 3PL industry, **(10)** Size of the 3PL market in India and growth forecasts	Assessing the 3PLmarket in India, its growth prospects, opportunities and threats.	Indian 3PL providers, n:32	**(1)** Descriptive statistics and interpretations are presented in the basis of variables., **(2)** The biggest obstacle to the growth of 3PL in India, identified by the respondents, was poor transportation and communications infrastructure, and the most important opportunity for growth of 3PL in India was indicated as the increasing awareness of the Indian firms towards the benefits of logistic outsourcing.

	Ref.	Basic Variables	Aim	Sample Space	Findings
73.	Gainey and Klaas (2005)	**(1)** Self-Interested Trust, **(2)** Socially Oriented Trust, **(3)** Idiosyncratic Training , **(4)** Program Uncertainty, **(5)** Vendor Dependency, **(6)** Outsourcing Knowledge, Skills, and Abilities, **(7)** Contractual Specificity **(8)** Communication Accuracy, **(9)** Communication Frequency, **(10)** Firm Size	To identify factors which are necessary to building and maintaining trusting relations with training vendors.	Members of the American Society for Training and Development, n= 323	**H1.** There will be a positive relationship between the degree to which a firm is outsourcing idiosyncratic training and the level of both self-interested and socially oriented trust with that firm's training vendors (partially supported). **H2.** There will be a negative relationship between the degree to which the design and delivery of training is uncertain and the level of both self-interested and socially oriented trust with that firm's training vendors (supported). **H3.** There will be a positive relationship between the degree to which vendors are dependent on a firm's business and the level of both self-interested and socially oriented trust with that firm's training vendors (partially supported). **H4.** There will be a positive relationship between the degree to which those in a firm possess outsourcing-related Knowledge, Skills, and Abilities and the level of both self-interested and socially oriented trust with that firm's training vendors (not supported). **H5.** There will be a positive relationship between the degree to which a firm's outsourcing contracts contain detailed specifications and the level of both self-interested and socially oriented trust with that firm's training vendors (supported). **H6.** There will be a positive relationship between the accuracy with which a firm communicates with its training vendors and the level of both self-interest and socially oriented trust with that firm's training vendors (supported). **H7.** There will be a positive relationship between the frequency with which a firm communicates with its training vendors and the level of both self-interested and socially oriented trust with that firm's training vendors (supported).
74.	Knemeyer and Murphy, (2005)	**(1)** Relationship marketing elements (outcomes) and their corresponding items, **(2)** Comparing relationship marketing elements, **(3)** Comparing relationship marketing outcomes, **(4)** Comparing elements and outcomes.	To provide a comparison of users and providers of 3PL services.	US firms, n:388	Comparisons between 3PL users and providers indicate that they are in general agreement on the communication construct. While 3PL providers appear to have a more guarded or cautious approach than 3PL users towards relationship marketing elements, providers tend to have a more favorable evaluation of relationship marketing outcomes. The results indicate statistically significant differences between 3PL users and providers. There are also statistically significant differences between 3PL users and providers for each of the four relationship marketing outcomes.
75.	Aktaş and Ulengin (2005)	**(1)** Logistics functions outsourced by Turkish firms, **(2)** The extent to which logistics functions in general and transportation functions in particular are outsourced by Turkish firms, **(3)** The criteria used to select and evaluate the performance of the outsourcing firms, and **(4)** The performance of the first three outsourcing firms currently used by Turkish firms.	To determine the current situation of outsourcing logistics activities in Turkey.	Top 500 Turkish firms specified by the Istanbul Chamber of Commerce for the year 2001,.N= 48	**(1)** No significant relationship between outsourcing decision and the scale of the firm (corr. 0.021, sig. 0.905), **(2)** The outsourcing level shows a significant difference according to the existence of a logistics department (corr. 0.137,sig. 0.000). Factors affecting the satisfaction from the 3PL providers in transportation: (a)Reliability of the carrier (b) Prompt response in the delivery cycle, (c) Prestige of the carrier, (d) Financial opportunities and flexibility to customer inquiries, (e) Reliability and quality of operations management and delivery cycle (f) Easiness to collaborate, (g)Accurate order receipt and follow up

	Ref.	Basic Variables	Aim	Sample Space	Findings
76.	Mol et al., (2005)	**(1)** What are the reasons for outsourcing intermediate products internationally? **(2)** What are the performance implications of international and global outsourcing?	Addressing a number of deficiencies in the existing International Business literature by assessing the antecedents and performance consequences of international outsourcing of intermediate products.	managers of the largest manufacturing firms located in the Netherlands, n:204	**H1.** Being a foreign (host) firm is positively related to outsourcing internationally, (not supported). **H2.** Being a multinational firm is positively related to outsourcing internationally, (supported). **H3.** The frequency of international communications concerning outsourcing is positively related to outsourcing internationally, (not supported). **H4.** Firm size is positively related to outsourcing internationally, (supported). **H5a.** International outsourcing is positively related to the performance of a firm, (not supported). **H5b.** Global outsourcing is positively related to the performance of a firm, (not supported).
77.	Cruijssen et al., (2005)	**(1)** Costs and productivity, **(2)** Service, **(3)** Market position, **(4)** Partner selection, **(5)** Determining and dividing the gains, **(6)** Unequal negotiation position of partners, **(7)** Information and communication technology.	To present the results of a large-scale survey on the potential benefits of and impediments for horizontal cooperation in Flanders.	Flemish logistics service providers, n:162	**H1.** Cooperation does not influence the attitude of respondents towards opportunities, (supported). **H2.** Size does not influence the attitude of respondents towards opportunities, (supported). **H3.** Profitability does not influence the attitude of respondents towards opportunities, (rejected). **H4.** Cooperation does not influence the attitude of respondents towards partner selection impediments, (supported). **H5.** Size does not influence the attitude of respondents towards partner selection impediments, (supported). **H6.** Profitability does not influence the attitude of respondents towards partner selection impediments, (rejected). **H7.** Cooperation does not influence the attitude of respondents towards other impediments, (supported). **H8.** Size does not influence the attitude of respondents towards other impediments, (supported). **H9.** Profitability does not influence the attitude of respondents towards other impediments, (supported).
78.	Gonzales et al., (2005)	**(1)** Provider's understanding of clients' objectives, **(2)** Choosing the right provider, **(3)** A clear idea of what is sought through outsourcing, **(4)** Provider's attention to clients' specific problems, **(5)** Frequent client-provider contacts, **(6)** A good-value-for-money relationship, **(7)** Top management's support and involvement, **(8)** Proper contract structuring.	To explore the factors that determine IS outsourcing success, from the client point of view, in the context of the largest Spanish firms.	IS managers in Spanish firms, n:357	IS outsourcing is a widespread activity that has been growing on a worldwide basis in recent years. The main outsourcing success factors for large Spanish firms are, in order of priority, the provider's understanding of clients' objectives, choosing the right provider, and the client's clear idea of what is sought through outsourcing.
79.	Wåström, (2005)	**(1)** Basic tasks and features of logistics, **(2)** The nature of logistics services, outsourcing and buying behavior, **(3)** Logistics and segmentation, **(4)** The segmentation process, **(5)** Evaluation of segments, **(6)** Segmentation's link to order-winners and qualifiers, **(7)** Seeking to identify order-winners and qualifiers, **(8)** Common order-winners and qualifiers and their characteristics, **(9)** Market change and company adaptation.	To form a theoretic framework for assessing a new market for logistics services.	German firms, n:42	A nested segmentation approach first selecting sub-industries was well suited. First, it has been assessed which criteria segments must fulfill in order to be of interest for SKF Logistics Services. Secondly, segments fulfilling these criteria have been selected. Order-winners and qualifiers have then been sought so that the current and future markets could be effectively served by SKF Logistics Services' internal operations. With help from an importance-performance matrix improvement needs has then been analyzed in order to find where resources should be allocated. It is found that SKF Logistics Service should work with improvements regarding transparency of costs, contact and communication with customers as well as increasing flexibility for customers' needs.

	Ref.	Basic Variables	Aim	Sample Space	Findings
80.	Harland et al., (2005)	**(1)** Strategy for outsourcing, **(2)** Policy issues, **(3)** What to outsource?, **(4)** How much to outsource?, **(5)** Managing outsource relationships, **(6)** Outcomes of outsourcing, **(7)** A conceptual framework for outsourcing.	To assess the risks and benefits of outsourcing for organizations, sectors and nations.	Delphi study with senior strategists, n:25	Strategies for outsourcing appear to be based on the desire to focus on fewer, more manageable core activities, and on gaining benefits from outsourcing non-core to specialist providers. The decision-making process on what to outsource is clearly very sensitive and should be influenced by policy. Outsourcing a complete activity may remove all internal competence, skills and learning relating to performing that activity, thereby making subsequent in-sourcing problematic. There is a lack of skills and expertise in organizations to deal with more strategic, collaborative relationship management, rather than shorter-term, adversarial contracting. In large corporations and public sectors, guidance on how to assess outcomes of outsourcing would be beneficial, ensuring consistency and sharing of knowledge of good practice.
81.	Smith et al., (2005)	**(1)** The existence of organizational change and its relation to outsourcing; **(2)** The benefits expected and achieved through outsourcing; **(3)** The link between changing organizational form, through outsourcing, and changes in management accounting.	To establish that organizational transformation and/or new forms do exist.	NHS Trusts, Private Sector and Local Authorities, n:140	**Proposition 1.** Change in organisational form exists and may be related to an increased use of outsourcing or subcontracting, (supported). **Proposition 2.** Outsourcing is expected to improve organizational flexibility and/or the service of an activity, to lead to cost savings, or to allow the organization to focus more clearly on its core business, (supported). **Proposition 3.** Outsourcing promotes change in management accounting, (supported).
82.	Kakabadse and Kakabadse, (2005)	**(1)** Sourcing reasons, **(2)** Sourcing areas, **(3)** Sourcing arrangements, **(4)** Outsourcing impact of employees.	To examine the reasons for outsourcing, the functions and activities outsourced the nature of the sourcing arrangements, and the impact of outsourcing on	U.S., U.K., and European firm managers, face to face interviews, n:50	Aim to achieve best practice, cost discipline/control, improving service quality, and focus on core competencies are the highly rated reasons for outsourcing. Basic services (canteen facilities, office services), human resources activities, and IT-related activities and processes, in that order, are the areas currently given greatest attention in terms of outsourcing. The two current preferred sourcing arrangements are single contracts, in particular with trusted suppliers with whom there is already an established relationship. The more commonly reported outsourcing arrangements currently for employees is the transfer of staff to suppliers
83.	Pokharel, (2005)	**(1)** Logistics service and Information and Communications Technology (ICT) implementation, **(2)** Company size and ICT implementation, **(3)** Logistics service and types of industry, **(4)** Motivators and barriers to ICT implementation,	To present the results obtained from a sample survey on ICT use of logistics companies in Singapore.	Singapore logistics companies, n:45	Most of the logistics companies use ICT but their level and type depend mainly on the size of the company and the availability of technology. Logistics companies in Singapore provide services to more than one industry type and one logistics company provides multiple logistics functions. The analysis of perception indicates that the use of ICT in Singapore is perceived positively with the increase in size of a company but is indifferent regarding the type of industry covered and the type of service offered by the logistics companies.

	Ref.	Basic Variables	Aim	Sample Space	Findings
84.	Jüttner, (2005)	**(1)** Network effects, **(2)** Current state of practice in Supply Chain Risk Management (SCRM), **(3)** Critical issues for SCRM implementation, **(4)** Structuring the overarching issues for SCRM.	To understand business requirements for supply chain risk management from a practitioner perspective.	UK firms, n:137	Supply chain risk sources were classified as internal and sometimes as external. Risk sources become more important as the complexity of modern supply chains increases. Supply chains operating globally were significantly more seriously affected than supply chains operating internationally. All traditional risk assessment processes/tools are being adopted more widely than the supply chain-specific processes. A joint approach to managing risks does not seem to be widespread. Companies implement organization-specific risk management, but there is little evidence of risk management at the supply chain level. Trust and open communication was generally seen as a precondition for risk sharing. In a supply chain context, risk-related beliefs determine the risk awareness, which in turn influences how the organizations respond to the need to manage risk and plan continuity.
85.	Khong, (2005)	**(1)** Reliability analysis, **(2)** Factor analysis, **(3)** Structural equation modeling.	To examine the perceived impact of outsourcing on customer	Malaysian firms, n:124	The model was able to provide predictive implications on customer service management, given the activities of key factors manifesting successful outsourcing. In other words to improve customer service management, companies could control their outsourcing activities.
86.	Sohail and Al-Abdali, (2005)	**(1)** Factors relating to decision making, **(2)** Factors relating to determine the extent of use, **(3)** Evaluation of 3PL performance, **(4)** Impact on organization.	To examine the usage of 3PL services in Saudi Arabia.	Saudi Arabian firms, n:496	50% indicated the decision making process originated at corporate level, 33% traced it to divisional level, and 17% said it began at the local level. The use of contract logistics services focused on both domestic and international operations. 66% of the respondents indicated that they were satisfied using contract logistics services. The use of 3PL services can be seen as positive developments for firms. The use of contract logistics services has had a positive impact on customer satisfaction costs, system performance and employee morale. The use of 3PL services also led to the elimination of some full time logistics related positions.
87.	Wilding and Humphries, (2006)	**(1)** Relationship creativity, **(2)** Relationship stability, **(3)** Communication, **(4)** Relationship reliability, **(5)** Relationship quality.	To test the well-accepted Williamson's economic organizations failure framework.	UK defense procurement managers, n:54	Cooperative, coordinating and collaborative played an important part in contracting the potentially negative behavior spiral influences within long-term, close collaborations. The lessons for UK defence supply chain managers suggest a number of positive measures that can be applied to improve relationship performance in a strategically important public/private business domain.
88.	Arroyo et al., (2006)	**(1)** General level of 3PL use, **(2)** Degree of outsourcing particular logistics functions, **(3)** Benefits of 3PL, **(4)** Critical success factors in relation to 3PL, **(5)** Attributes of 3PL service providers, **(6)** Information sources and decision methods.	To investigate the status of 3PL logistics in Mexico and the feasibility of 3PL as a global, uniform strategy.	Mexican firms, n:94	3PL seems a common but "low profile" practice among large Mexican firms. More than three quarters of the firms outsource at least one function, only a one-third outsource three or more logistics functions. Compared to Mexico, 3PL use is higher in Europe and USA. Firms in Europe and USA focus more on tactical, integrated functions and cost reduction when using 3PL while Mexican firms aim for improved customer service and concentration on core activities. The lack of competitive local providers makes 3PL expensive and may favor larger, international providers.

	Ref.	Basic Variables	Aim	Sample Space	Findings
89.	Whitten and Wakefield, (2006)	**(1)** Management system upgrade cost, **(2)** Hiring and retraining costs, **(3)** Uncertainty costs, **(4)** Post-switching costs, **(5)** Lost performance costs, **(6)** Search and evaluation costs, **(7)** Sunk costs.	To identify and assess salient switching cost components, empirically test the factors in the context of application development outsourcing and provide a framework for future IT research	Directory of Top Computer Executives, n:160	Switching cost is a multi-dimensional construct. All eight factors support the multi-dimensionality of the construct. Switching cost is most strongly related to uncertainty costs in the application development outsourcing market. A change in switching cost is most strongly indicative of changes in uncertainty costs, followed by changes in pre-switching search costs. The correlations among the eight first-order factors are governed by the higher-order construct. Thus, any change in switching cost compels change in each of the first order factors.
90.	Moschuris and Kondylis, (2006)	**(1)** The extent of outsourcing, **(2)** The decision making process, **(3)** The impact of outsourcing on public healthcare organizations, **(4)** Future trend of outsourcing in public hospitals in Greece.	To investigate the outsourcing in public hospitals in Greece.	Public hospitals in Greece, n:43	Public hospitals in Greece outsource a variety of activities. Cost savings and customer satisfaction are the main factors affecting the outsourcing decision. The cooperation with a contract service provider has led to significant improvement in service quality levels. Most users are satisfied with the performance of these companies and believe that there will be an increase in the usage of these services in the future.
91.	Hui and Tsang, (2006)	**(1)** Effect of risk of malfunction, **(2)** Effect of DMU, **(3)** Trust is irrelevant for relational norm.	To present a study on the relationship between the client and the contractor in a multi-contractor business network.	Hong-Kong based organizations, n:32	**H1.** There is a positive relationship between asset specificity and relational norm, (supported). **H2.** This positive relationship will be enhanced with increasing levels of DMU, (not supported).**H3.** This positive relationship will be enhanced with increasing levels of risk of malfunction, (supported). **H4.** This positive relationship will be enhanced with increasing levels of trust in contractor, (not supported).
92.	Storey et al., (2006)	**(1)** Who is "Managing" the supply chain? **(2)** Scope of managed supply chain activities **(3)** Enablers and inhibitors **(4)** Drivers	To assess current developments in the theory and practice of SCM and through such an assessment to identify barriers, possibilities and key trends.	European companies, n:72	It was still more common to have a logistics director than a supply chain director. A number of factors such as transparency of information and knowledge; supply chain behavior; and performance measurement can either serve to enable or inhibit supply chain management. Supply chain management is becoming of increasing strategic importance, and the fieldwork concurred with the literature in identifying globalization, outsourcing and fragmentation as three major drivers.
93.	Brown and Potoski, (2006)	**(1)** Dependents variables, (a) Randomly spot check, (b) Formally track missed streets, (c) Citizen surveys, (d) Track and monitor citizen complaints **(2)** Independent variables; (a) Government characteristics, (b) Community involvement, (c) Service population size,(d) Service performance.	Investigating the effects of outsourcing some municipality services on the observed behaviors of municipalities using multiple regression analysis	Refused service monitoring activities (71 municipal governments in Ohio) Public service directors for all cities in Ohio, n=105	The variable "contract" has a negative impact on "the use of each monitoring activity", and is statistically significant in all but one instance, "monitoring and tracking citizen complaints". The only other variable to have a consistently significant effect across the monitoring techniques is "complaints per week". Higher levels of complaints per week are associated with increased use of each monitoring tool, and the variable is statistically significant for all monitoring tools except randomly spot check. Communities with low general expenditures per capita, high voter turnout, and many households conduct more random spot checks; and communities with high general expenditures per capita and high voter turnout more often actively track missed streets.

	Ref.	Basic Variables	Aim	Sample Space	Findings
94.	Seth et al., (2006)	**(1)** Logistics users; suppliers, manufacturers and distributors, **(2)** Logistics service providers; logistic companies, couriers, transporters, etc.	To propose a model for assessing the quality of service at various interfaces of supply chain using 3PL.	Open ended interviews, n:15	This model provides guidelines for the organizations to understand the factors, which influence outsourcing decisions in a supply chain. The third party logistic role in the supply chain is influenced by: **(1)** The extent to which the logistics process needs to be outsourced; **(2)** The perception of the service provider and receiver; **(3)** Relationship with the client, upstream and downstream the supply chains. The paper highlighted some of the major consequences of service quality in supply chain; they further need to be determined empirically along with their relative impact on supply chain. The bi-directional gaps at different levels will have different impact on supply chain performance. The conceptual service quality model proposed in supply chain will be useful to both the academicians as well as the practitioners for visualizing and measuring the quality of services delivered by various stakeholders in the supply chain.

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