Preface

INTRODUCTION

Logistics and Supply Chain Management has been a vital part of every economy and every business entity. Supply Chain Management encompasses the management (including the planning, design, implementation, and control) of all of the logistics processes (including procurement, warehousing, inventory control, manufacturing, distribution, and sales order fulfillment functions) of a business. Both sciences have become prestigious research fields in the past few years. More than 75 journals include these terms in their titles.

Furthermore, according to the CSCMP’s Supply Chain Quarterly, “Logistics outsourcing is the most cited topic in academic journals” based on the research done by R. Van Hoek and M. Johnson of the Cranfield School of Management in the UK.

In essence, the concept of logistics outsourcing can be defined as the outsourcing of logistics activities to outside (third) companies (the Third Party Logistics Providers or just 3PL’s). The main benefits of this approach are: 1) Lower cost: with outsourcing logistics services a company achieves a reduction of capital expenditures (equipment, storage and transportation facilities, warehouse and distribution centers). Its standard costs are converted to variable costs, and 2) Higher quality: 3PL’s provide enhanced customer service capabilities, reduction in average order- cycle length improved operational efficiency, combined with high experience.

The successful growth of outsourcing has prompted a number of researchers to pen their thoughts on this industry and has resulted in several books and numerous papers on the subject. However, the majority of the above research initiatives has concentrated either on the planning of outsourcing or the management of outsourcing partnerships. This book concentrates on the key players of the outsourcing paradigm, the organizations that provide logistics services, the Third Party Logistics (3PL’s), as well as their clients, presenting and promoting the lessons learned by their cooperation.

Specifically, it is the objective of the book to present studies which are relevant to practitioners, researchers, students, and clients of the application of the Outsourcing practice on the Logistics and Supply Chain Management services giving emphasis to 3PL’s. To achieve its objective, the book aims to:

• Define the practice of Outsourcing and its main parameters.
• Present and analyze case studies of the outsourcing of logistics services both on the side of the logistics services providers as well as that of the clients.
• Present the experiences independent of the logistics services industry.
• Promote best practices in the applications of outsourcing in the logistics services.
• Present the final results of the research projects which focus on the deployment of the outsourcing practice on the logistics and supply chain management services.
• Present the logistics and supply chain services industry trends.

The book contains 28 excellent chapters (organized at 6 sections) that examine most of the key aspects of logistics outsourcing:

• Third-party / Fourth party (contract or outsourced) logistics.
• Outsourcing of logistics functions.
• Logistics outsourcing case studies and best practices.
• Logistics outsourcing life cycle management.
• Selection of the Third / Fourth Party Logistics Provider.
• Performance measurement and evaluation of the Third / Fourth Party Logistics Providers.
• Management of contracts and negotiations with Third / Fourth Party Logistics Providers.
• Costing / pricing of logistics outsourcing.
• Legal issues in logistics outsourcing.
• Trends in logistics outsourcing.

This book is considered to be of aid to the following prospective audiences:

• First of all, students (both at Undergraduate and Postgraduate level) who study Operations Management, Logistics and Supply Chain Management, and Business Administration.
• Moreover, researchers in the above fields.
• Practitioners that either hold a position in the Logistics system of companies / organisations or work in Third-Party Logistics services providers.

The editor’s intention was to help the above groups by giving them an easy to read and understand book with the right depth and the right volume.

ORGANIZATION OF THE BOOK

The book is organized in six sections. Each section refers to a specific area regarding the Logistics Outsourcing.

Section 1: The Concept of Logistics Outsourcing

The first section serves as an introduction to the logistics outsourcing practice. Its five chapters synthesize the literature and provide definitions of outsourcing, as well as analysis of its main concepts and parameters. Moreover, they are concentrating to the main actors of outsourcing: the logistics service providers.

• Chapter 1: “General Views of Logistics, Outsourcing, and Logistics Outsourcing.” This chapter is an excellent introduction to the logistics outsourcing paradigm. It presents an extensive literature review of definitions on logistics, outsourcing, and logistics outsourcing, as well as empirical
evidence on outsourcing decisions. It concludes by presenting a number of steps to outsourcing decision-making and implementation. The main outsourcing theories, as well as the factors influencing outsourcing decisions are discussed.

- **Chapter 2:** “A Framework for the Management of Logistics Outsourcing Life Cycle.” Following the previous, this chapter proposes a framework consisting the steps and sub-steps of the logistics outsourcing life cycle. For every step the activities, aims, and deliverables are defined, presented, and analyzed. The proposed framework can act as a generic framework, as a roadmap, in order to have a high level of the requirements and the available tools and practices. It aims to help managers to understand both the requirements and challenges so as to effectively plan and manage the partnership with the logistics service provider. But it takes two to tango! Thus, the next chapter is concentrated on the role of logistics providers.

- **Chapter 3:** “Contracting for Logistics Services: A Critical Appraisal of the Outsourcing Process.” Specifically, this chapter critically revisits existing third party logistics literature with the aim of bridging the gap between academic research and industry practice regarding logistics outsourcing. This is achieved by focusing on hitherto under-emphasized issues (in the academic literature) relating to the role of the service provider, as opposed to that of the buyer, in 3PL exchange design and management, and the dynamics of the outsourcing process. The chapter presents a number of cases studies in order to demonstrate that the outsourcing process is much more dynamic and interactive in nature. In light of such findings, it is suggested that a more holistic understanding of the logistics outsourcing process could be gained by longitudinally studying the process in its entirety.

- **Chapter 4:** “Logistics Service Providers: Collaboration with IFFs, 3PL, or 4PL Providers?” The fourth chapter also focuses on the role of the logistics service providers, namely the International Freight Forwarders (IFFs), Third Party Logistics Service Providers (3PLs), and Fourth Party Logistics Service Providers (4PLs), and compares their individual characteristics. Literature review results in a collaborative and integrative scheme among the different entities, aiming to clarify each provider’s position in the market. Moreover, the fundamental managerial problem of partner selection among the multiple logistics entities is identified, and a framework that can be exploited by the interested chain members, as a guideline for the appropriate selection is presented. This critical issue is the aim of the Section D (Selection and evaluation of the logistics service providers). But before that, since the logistics providers cover a great range of services and sectors, a classification of providers is a necessity.

- **Chapter 5:** “Taking Logistics Service Providers into Account in Industrial Classifications.” A researcher can find many articles tend to present logistics service providers (LSP) in the form of taxonomies, and to highlight their evolution with the help of representative figures. However, there are doubts about the origin and credibility of these figures, because LSP are not clearly identified in the international industry classifications on which they are based. The aim of this chapter is to identify the community of LSP, and 4PL in particular, as it is most immaterial. It briefly reviews the literature on LSP classifications and their limitations when it comes to taking 4PL into account. Finally, a methodology is proposed to address this problem, which it tested through an empirical study, leading the authors to formulate a new definition of 4PL based on their taxonomy.
Section 2: The Management of Logistics Outsourcing Services

The logistics functions that are outsourced are the main topic of this section. Functions such as transportation, distribution, warehousing, production support, and orders execution are discussed in this section based on real life examples.

- **Chapter 6: “Outsourcing Execution in Transportation and Distribution.”** Transportation and distribution are key logistics functions. They are also the main logistics services that 3PL’s provide to the market. This chapter provides a broad and updated introduction of transportation and distribution functions in the outsourcing paradigm. Moreover, based on the literature and their working experiences, authors present and analyze several best practices to support outsourcing execution in transportation and distribution functions. These practices refer to a number of critical issues, such as the deployment of the outsourcing in transportation and distribution, the identification of the provider that best fit a company’s outsourcing objectives, and the management of 3PL performance.

- **Chapter 7: “Outsourcing the Warehousing Function: A Survey of Greek Practices.”** Warehousing, which is also a key logistics function and a main outsourcing service, is the main topic of this chapter. Specifically, this study focuses on the three constructs (extent of use, decision making process, impact on user firms) which are the primary determinants of the future usage on 3PL services in the warehousing function by industrial firms operating in Greece. The results, based on the analysis of data relating to 53 industrial firms operating in Greece, indicate that most users are satisfied with the service providers and believe that this has led to positive developments within the organization. With a high current level of satisfaction, a large number of these firms are likely to increase their usage of 3PL services.

- **Chapter 8: “Sequencing Orders from Multiple Industrial Customers on an External Manufacturing Facility.”** The main task of 3PLs is the execution of orders. In this chapter, the system defined by a subcontractor which processes orders generated from multiple customers is cast into the dynamic single-machine sequencing framework. The behaviour of the system, when operating under various rescheduling policies and job dispatching schemes, is investigated using discrete-event simulation in a series of experiments. The investigation of the subcontractor’s policies and methods for determining the sequencing of incoming orders is a non-trivial research topic, even if studied in isolation, as it constitutes a building block in the development of a comprehensive understanding of the mechanics of the supply chain with outsourcing options.

- **Chapter 9: “Short-Term Time Series Prediction for a Logistics Outsourcing Company.”** Logistics service providers need to know how the operational and management costs can be cut down in order to ensure an appropriate service level. Short term forecasts are useful in all the units of activation of 3PL companies, i.e. supplies, production, distribution, storage, transportation, and service of customers. Therefore, in this chapter, tools from univariate time series analysis and forecasting are presented and applied. Time series components, such as, trend and seasonality are introduced and discussed, while time series methods are analyzed based on the type of the time series components.
Section 3: Case Studies and Empirical Studies of Logistics Outsourcing

For anyone who needs to understand the true value and challenges of logistics outsourcing, the examination of case studies seem to be a very useful tool. In this chapter, case studies from Greece, India, Singapore, and USA are presented and analysed. These cases refer to best practices of logistics outsourcing to various business sectors.

- **Chapter 10:** “Does the Outsourcing of Logistics Services Keep its Promise of Increased Efficiency? The Case of Colgate-Palmolive, Greece.” The first case study focuses on current practices related to the extent of use, predictive value outsourcing and performance measures system of Colgate-Palmolive Company in Greece. The study examines the efficiency of the logistics service providers and its impact on the overall client performance. The Colgate-Palmolive case study shows that users of 3PL services are satisfied with their providers and are likely to increase their usage of contact logistics in the future. This study reaffirms a consistent consensus that the major positive impact of using 3PL services relates to the internal logistics system performance and logistics costs.

- **Chapter 11:** “Service Innovation along the Chain of Service Process in Airline Business.” The second case study explores the airline service processes and the issue surrounding outsourcing for service innovation. Specifically, this chapter looks at the service encounter approach to analyze the possibility of the innovation during service processes. The results indicate that there are four major groups who have experienced service encounters in which innovations originate and evolve. These four groups interact in the service process which identifies the fact that the service process can be outsourced and innovated.

- **Chapter 12:** “Distribution and Logistics Outsourcing in the Pharmaceutical Sector.” The scope of the third case study focused on a specific business sector, the pharmaceutical industry. It aims to provide useful insights of the pharmaceutical supply chain and identify the prospects of outsourcing, with special reference to the Greek pharmaceutical sector. This goal is facilitated by a threefold analysis in combination: first, by the development of an integrated interdisciplinary research methodology framework, second, by the identification of the special characteristics of the pharmaceutical supply chain with special attention to the role of outsourcing, and third, by the description of the current pharmaceutical distribution channels in Greece and the identification of the potential opportunities for outsourcing. The results of the above analysis prove that outsourcing of pharmaceutical logistics processes can play a critical role since they can improve performance vs. short-term efficiency improvements, with mobilization of all available resources.

- **Chapter 13:** “Logistics Modeling and Forecasting with Regression.” Modeling outsourcing and demand forecasting are only some of the common goals for various types of companies that provide useful information for logistics activities such as purchasing, inventory management, and transportation. The fourth chapter aims to provide insight of the applicability of regression in the area of supply chain management and logistics outsourcing problems by examining a specific logistics company based in United States. The findings are specific to the domestic trucking portion of the logistics industry and are limited to include only East Coast destination points. The results of the regression analysis of the hauling freight data could help 3PL companies and transportation companies to study the relationship between price of fuel, cost of freight, distance, and gross profit so as to control more effective their operating costs.
Chapter 14: “Outsourcing Supply Chain Support and its Effectiveness and Implication in R&D Environment in Singapore.” The last chapter of this section presents the outsourcing challenges and issues, related to information sharing between supply chain partners that are faced by precision tool R&D organizations in Singapore. The research uses i3lab (a Singapore home grown R&D firm) as the case for study and employs interviews of employees at i3lab. The interviews of the employees of i3lab revealed that there were concerns about security and integrity of the information that is being shared with the outsourcing partners, and this leads to an inherent reluctance in sharing sensitive information. The research also included includes interviews of employees from outsourcing partners of i3lab and it was found that lack of communications, lack of protocols for facilitating the information sharing between the partners was a cause of low standardization, loss of quality, and increased costs due to delays and re-works.

Section 4: Selection and Evaluation of the Logistics Service Providers

The selection of the right logistics provider is both a challenging and key part of the outsourcing life cycle management. In this section, five chapters are provided, aiming to present methods and tools for the selection of the best 3PL and its continuous evaluation.

Chapter 15: “Overview on 3PL Selection Problem.” This chapter focuses on 3PL selection problem and presents a literature analysis of 47 articles published within 2001-2011 period. It succeeds to identify comprehensively both the main approaches applied and their evaluating criteria in measuring the performance of 3PL. Based on the findings, transportation and warehousing activities remain the most outsourced. 3PL selection decision is complex and requires the use of several often conflicting criteria and the methods of 3PL selection. Evaluation can be classified in 5 categories, namely: linear weighting models, statistical approaches, artificial intelligence, mathematical programming models, and hybrid methods.

Chapter 16: “Selection and Evaluation of 3PL Providers: A Conceptual Decision-Making Framework.” This chapter aims to present a methodological approach for the optimization of this specific type of outsourcing operations in today’s globalized supply chains. After presenting the literature review of the criteria and the methods that are employed in this field of decision-making, authors propose a generic methodological framework for the 3PL partner selection and evaluation problem. This framework, as the one that presented in the first section (chapter 2), can act as a roadmap (as a systematic approach) for the effective and efficient selection and evaluation of the 3PL’s. It is constituted by a nine-phased conceptual decision-making methodology that outlines the whole life cycle of the 3PL provider selection and evaluation processes, from the initial selection and evaluation of each candidate 3PL provider, to the continuous evaluation of the selected ones and the periodic re-evaluation of all the potential 3PL providers.

Chapter 17: “Selection of the 3rd/4th Party Logistics Provider: A Multi-Criteria Approach.” The third chapter has the main aim as the previous; to help companies in their selection of optimal outsourcing strategy. The presented methodological framework provides firms with an easy-to-use tool that enables them to simultaneously assess several -often mutually conflicting- parameters that influence such strategic decisions. To that end, multi-criteria analysis can play a critical role, since the formulation potentialities are wide. The methodology is implemented for the case of a virtual company seeking to select among ten available outsourcing strategies for the transporta-
tion of its hazardous materials. It is obvious that the proposed approach can be easily adopted - with slight modifications and adjustments to the special requirements of the problem under consideration- in order to solve similar problems to other business sectors and products.

**Chapter 18:** “Multi-Criteria Decision Making for Supplier Selection in Biomass Supply Networks for Bioenergy Production.” This chapter proposes a systematic methodology for the supplier selection in biomass supply networks for bioenergy production. It first provides a comprehensive analysis of biomass supply chains, focusing on the special issues of raw material cost fluctuations, biomass seasonality, and the dynamics of biomass demand. Then it suggests (as the previous chapter) the multi-criteria decision making approach for adequately assessing imprecise and uncertain biomass supplier profiles based on Intuitionistic Fuzzy Sets (IFS) in conjunction with a multi-period optimization framework for selecting the best biomass supply mix at a maximum total purchasing value.

**Chapter 19:** “Measuring Performance of Logistics Outsourcing Services.” The last chapter of this section is focused on the evaluation of the logistics provider by measuring its performance during the partnership lifecycle management. It presents a number of studies that measures the performance of logistics services followed by presenting an empirical study (model) on measuring logistics performance as perceived by the customers. The proposed model highlights the development of a scale that measures the performance of logistics outsourcing services that takes into consideration both the service quality and relationship quality constructs. The model in this chapter can help the logistics companies to understand how their customers assess the quality of their relationship experiences in receiving the logistics services provided by the logistics companies. It also provides insights into the various components that logistics outsourcing firms should emphasized in preventing their customers’ intention to exit from the logistics outsourcing business relationships.

**Section 5: Costing and Legal Issues of Logistics Outsourcing**

This chapter deals with two areas (issues) that are usually underestimated by logisticians, but at the same time, they are critical success factors for the effective deployment of outsourcing practices, costing, and legal issues. The first two chapters refer to economical and pricing issues and the rest with legal, contractual issues, as well as negotiations.

**Chapter 20:** “Using Outsourced Logistics Services (4PL): Economical and Technical Analysis of an Operational and Business Model.” The aim of this chapter is the study of the economic and legislative aspect of logistics in Greece and the planning, organization, and economic evaluation of a supply chain services investment according to the 4PL organizational model. An economical and technical study is conducted regarding the organization and the operation of a 4PL venture and issues concerning land and building selection and cost, necessary equipment and operating cost were confronted. Moreover, an economic evaluation of the planned investment took place with use of the Net Present Value (NPV) method, while the case of a non asset based 4PL venture is also examined.

**Chapter 21:** “Pricing of 3PL Services.” The second chapter deals with a very challenging and critical issue: the pricing of the logistics outsourcing services. It is very difficult due to the absence of adequate technical knowledge in the logistics market. However, at the same time the
above market is in need of a sector responsible for recording all pricing methods as regards the provision of pricing services. Companies need to rely on an effective and efficient costing system so as to make the right decisions. The chapter identifies, classifies, and presents the advantages - disadvantages and the key criteria of 13 pricing methods for the 3PL’s services. It can surely help decision makers in future 3PL projects. For example to verify whether or not their services and/ or customers are profitable.

- **Chapter 22: “Key Contractual Issues with Logistics Outsourcing.”** This chapter refers to another challenging and critical issue in the logistics outsourcing, the contractual issues. It is focused on some of the key contractual issues with logistics outsourcing contracts currently troubling customers, service providers and advisers, such as: scope of the services, change control, service levels and service credits, risk allocation - limitations and exclusions of liability and benchmarking. These key legal issues outlined at the beginning of this chapter highlight the main areas of contention between customers and service providers in relation to logistics outsourcing contracts. Each issue is likely to be subject to fierce negotiation, with the outcome influenced by the negotiating strength of both parties.

- **Chapter 23: “Planning Negotiations for Logistics Services Providers.”** This chapter provides a basic description of the negotiation process and its nature, and explores its advantages and disadvantages. Negotiations play a vital role in the outsourcing lifecycle management. The chapter identifies the managerial aspects in planning negotiations. It also explains the reasons for the appropriateness of this process in comparison to other means of dispute settlement, such as mediation and arbitration, and argues that it is an everyday necessary component for the logistics service providers.

- **Chapter 24: “Loyalty and Disloyalty in Logistics Outsourcing Relationships.”** The last chapter in this section is based on survey data of industrial companies in Finland aiming to identify factors that lead to continuity, as well as changes in logistics outsourcing relationships. Multivariate methods including factor analysis and regression equations are used to test the relationships between the antecedent factors and the various aspects of loyalty or disloyalty in logistics outsourcing arrangements. Findings reveal that facilitating factors such as good inter-firm relationships and brand image all seem to have a role in predicting outsourcing relationship continuity. By contrast, it is the failures in personal service performance that seems to be the most critical factor behind the buyer’s intention to switch the service provider. The antecedent factors to loyalty and disloyalty do not seem to have any significant impact on the buyer’s intention to extend the scope of outsourcing; however, there is a weak indication that cost performance could be linked with the outsourcing extension decision.

**Section 6: Trends in Outsourcing Logistics Services**

The last chapter completes the analysis of the outsourcing practice in logistics and supply chain management. First, the effects of the economic crisis in the corresponding sector are identified and discussed. Moreover, three main trends of outsourcing such as the greening and the globalization of supply chains, as well as the adoption of information technologies, are studied.

- **Chapter 25: “The Effects of the Financial Crisis on 3PL Enterprises: A Focus in the Greek Market.”** This research examines how 3PLs are being affected by the current market turmoil, also known as the financial crisis of 2008-2010, which still rages on. The main focus is in the Greek
market; however, a reader can make generic assumptions and conclusions for a global overview of the industry in order to conceptualize the entire subject in a clear and comprehensible way. A deep research on past growth of such enterprises, combined with the affects and impacts previous crises had and the extracted information utilized by the conducted research, has led to unquestionable results - in terms of affection and selected countermeasures - which are representative for the 3PL providers throughout the Greek market.

• **Chapter 26:** “Purchasing Green Transport and Logistics Services: Implications from the Environmental Sustainability Attitude of 3PLs.” The objective of this chapter is to suggest -based on an analysis of the attitude among 3PLs towards greening their services- implications for the buyer when sourcing transport and logistics services. It indicates that the role of the buyer in promoting greener logistics solutions is crucial in many ways. As drivers of green initiatives among 3PLs, the buyers can clearly take a strong role in pushing the development further. This would imply an indirect driver, which could strengthen the green efforts among the providers even further. As a result, this could strengthen both the operational and strategic concerns for green services.

• **Chapter 27:** “Moving toward a Global Supply Chain Operations and the Impact on International Competition.” Effective global supply chains are no longer an option, but a requirement. The outsourcing paradigm is a common approach for global supply chains trying to minimize the operating costs and adding value to products and services. On the other hand there are risks to going global though. High costs and lead time risks in transportation can hinder the ability to become more competitive internationally. This chapter studies how companies must position themselves abroad and providing insight into how to become more competitive. It identifies the various risks and recommends a number of actions to fix problem of competitiveness.

• **Chapter 28:** “Managing the Risks of Outsourcing IT Security in Supply Chain.” This efficiency of a supply chain network is relied on the success of the supply information network software system and IT infrastructure. The main objective of the last chapter of the book is to identify the basic process of outsourcing information security functions/processes in supply chain and moreover to adduce the practice of it. The chapter emphasizes the significance of the securing all elements of IT systems (whether it is hardware, software, or services) throughout their life cycle. Moreover, it identifies the main risks in IT/IS outsourcing of SC and its main security considerations.

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REFERENCES


