

WHAT FACTORS WOULD LEAD A THIRD-PARTY LOGISTICS (3PL) CUSTOMER TO
CONSIDER USING A FOURTH-PARTY LOGISTICS (4PL) PROVIDER?

By

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ABSTRACT

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WHAT FACTORS WOULD LEAD A THIRD-PARTY LOGISTICS (3PL) CUSTOMER TO CONSIDER USING A FOURTH-PARTY LOGISTICS (4PL) PROVIDER?			
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The need for supply chain integration, the use of multiple 3PL providers by individual companies, and the growing complexity of 3PL's contracts, has led to interest in a new concept called fourth-party logistics (4PL), where companies outsource the whole supply chain to a fourth party that assembles, coordinates and integrates the capabilities of all the 3PL providers, with the power to design, build and run comprehensive optimized supply chain solutions.

Unfortunately there aren't many studies about this business model, so the researcher surveyed 174 logistics consultants and high level logistics management professionals, to explore the 4PL model, and identify the most important factors that would lead a 3PL customer to consider using a 4PL provider, the major benefits that a customer might expect from a 4PL provider, the obstacles that companies could face when they use a 4PL provider, 4PL users satisfaction with the 4PL providers performance, 3PL providers satisfaction with the relationship with the 4PL providers, and predict the future of the 4PL model.

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CHAPTER I

INTRODUCTION

As product life cycles shrank and global competition intensified, companies started to explore many solutions to reduce cycle times, cut cost, reduce inventories and improve customer services. One solution was outsourcing non-strategic activities to focus on core competencies, an example for these non-strategic activities is logistics functions.

The outsourcing of logistics functions to external parties, known as third-party logistics (3PL) providers, has increasingly become a powerful substitute to the conventional, vertically integrated firm (Rabinovich, Windle, Dresner, & Corsi, 1999). The scope of outsourcing relationships between companies and 3PL providers encompass a variety of options ranging from narrow and limited to specific activities like transportation to broad substantive activities in the entire supply chain like warehousing, inventory management, order processing, information systems and packaging. (Bhatnagar, Sohal & Millen. 1999)

However, 3PL providers lack the strategic expertise and information technology (IT) resources required to operate across the entire supply chain and to truly integrate supply chain processes. Some industry observers think that 3PL providers have almost reached their limit of what they can do to improve the supply chain performance, while their outsourcing operations provided one-time reductions, they cannot deliver continuous, ongoing savings (Foster, 1999). In addition to that, the use of multiple 3PL providers by individual companies, the growing complexity of 3PL's contracts, the need for supply chain integration, and the desire on the part of the companies to focus on their core competency, has led to interest in a new concept called fourth-party logistics (4PL)

or lead logistics provider (LLP) (Lieb and Hickey, 2002a), where companies outsource the whole supply chain to a fourth party that assembles, coordinates and integrates the capabilities of all the 3PL providers, with the power to design, build and run comprehensive optimized supply chain solutions. (Bumstead and Cannons, 2002)

Problem statement

The term 4PL was introduced to the logistics world by the consulting firm Accenture Ltd. in 1996 and refers to an outside party that takes over the whole supply chain; it manages the day-to-day activities of its client's 3PL providers, designs the client's supply chain network, negotiates contracts with 3PL providers, manages inter-company relationships, manages operations, evaluates 3PL providers performance, and manages IT systems connectivity (Lieb and Hickey, 2002b).

Unfortunately there aren't many studies about this business model, so in this study, the researcher is trying to further explore the 4PL model, identify the most important factors that would lead a 3PL customer to consider using a 4PL provider, the major benefits that a customer might expect from a 4PL provider, the obstacles that companies could face when they use a 4PL provider, 4PL users satisfaction with the 4PL providers performance, 3PL providers satisfaction with the relationship with the 4PL providers, and how widespread the use of 4PL model will be in the future.

Research questions

1. What are the most important factors that would lead a 3PL customer to consider using a 4PL provider?
2. What are the major benefits that a customer might expect from a 4PL provider?
3. What are the obstacles that companies could face when they use the 4PL model?

4. How satisfied are the 3PL providers with the relationship with the 4PL providers they work with?
5. Why don't the users of multiple 3PL providers use a 4PL provider?
6. How satisfied are the users of 4PL model with the performance of its 4PL provider?
7. How widespread the use of the 4PL model will be in the future?

Delimitations

1. The study will only focus on the customer side of the 4PL model, and will not focus on the provider's side.
2. The study will not discuss how a company determine the feasibility of implementing a 4PL
3. The study will not discuss what steps needed to be done by a company to implement a 4PL model.

Objectives

1. Provide a deeper understanding of the 4PL model and how this model if implemented correctly affects the supply chain
2. Provide guidelines for companies on when it's appropriate to consider implementing a 4PL model
3. Provide guidelines for 4PL providers to select their potential clients
4. Identify the obstacles that usually face companies when they consider using the services of 4PL providers
5. Identify the major benefits that a customer might expect from using a 4PL provider

6. Predict how widespread the use of 4PL model will be in the future
7. Measure the satisfaction of the users of 4PL model with the performance of there 4PL providers
8. Measure the satisfaction of the 3PL providers with the relationship with the 4PL provider they work with

Assumptions

The researcher will assume that the terms 4PL and LLP refer to the same meaning, because the only difference between the two terms is that a 4PL provider does not necessarily have to be a third party logistics company (it could be a consulting firm), but on the other hand, an LLP is originally a 3PL provider that manage the other 3PL providers in the supply chain. And by looking at the companies that consider themselves as 4PL providers, it was clear that most of them provide 3PL services in addition to their 4PL services.

Importance of study

Because the 4PL model is a new model to supply chain management, there aren't many studies on this subject, and this study will be one of the first academic studies about it. This study will spread more light on this model, and hopefully encourage other researchers to continue studying this model from where this study ended.

Definitions of terms

CF: Consulting firms

Fourth-Party Logistics Provider (4PL): A supply chain integrator that assembles the resources, capabilities and technology of its own organization and other

organizations to design, build and run comprehensive supply-chain solutions (Bumstead and Cannons, 2002).

IT: Information technology.

Lead Logistics Providers (LLP): are organizations that are originally 3PL providers, who also manage an array of logistics and information service providers executing the clients supply chain, and serve as a single point of contact between its client and the other parties in the supply chain.

Logistics: Logistics is that part of the supply chain process that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements (Vitasek, 2002).

LSP: Logistics Services Providers

LSU: Logistics Services Users

OO: Other Organizations

Supply Chain: starting with unprocessed raw materials and ending with the final customer using the finished goods, the supply chain links many companies together. (Vitasek, 2002)

Third Party Logistics Provider (3PL): A firm that provides multiple logistics services for use by customers. Preferably, these services are integrated, or "bundled" together by the provider. These firms facilitate the movement of parts and materials from suppliers to companies, and finished products from companies to distributors and retailers. Among the services that they provide are

transportation, warehousing, cross-docking, inventory management, packaging, and freight forwarding. (Vitasek, 2002)

CHAPTER II

LITERATURE REVIEW

Introduction to logistics outsourcing and 3PL

Logistics outsourcing is not a new concept by any means, this practice can be traced back almost as far as one would care to study it. Some could trace the practice to ancient Egypt 5000 years ago. In Europe, a number of logistics service providers can trace their origins back to the Middle Ages (Lynch, 2000).

Outsourcing logistics functions to an external party (known as third-party logistics provider or 3PL providers) has increasingly become a powerful substitute to the conventional, vertically integrated firm. The development of more flexible organizations is due in part to the growth in the number of outsourcing partnerships that are based on core competencies and mutually beneficial longer-term relationships. (Rabinovich *et al.*, 1999)

The scope of 3PL services covers a variety of options ranging from narrow (limited to specific activities like transportation) to broad (covering substantive activities in the entire supply chain like warehousing, inventory management, order processing, information systems and packaging) (Bhatnagar *et al.*, 1999).

Today, 3PL annual market is estimated to exceed \$50 billion in revenue, and based on a recent survey, 65% of the 500 largest American manufacturing companies reported the use of 3PL services; this is the sixth consecutive year that about two-thirds or more of the survey respondents were 3PL users (Lieb and Hickey, 2002b).

However, 3PL providers' lack of control over the entire supply chain due to their lack of strategic expertise and technology required to operate across the entire supply

chain and to truly integrate supply chain processes has led some industry observers to think that 3PL providers have almost reached their limit of what they can do to improve the efficiency of supply chain, and their outsourcing operations cannot deliver continuous, ongoing savings (Foster, 1999). All this have led to an interest in a new concept called forth-party logistics (4PL) or total supply chain management providers.

Introduction to 4PL and LLP

The term fourth-party logistics (4PL) was introduced to the logistics world by the consulting firm Accenture Ltd. in 1996, which refers to a supply chain “integrator that assembles the resources, capabilities and technology of its own organisation and other organisations to design, build and run comprehensive supply-chain solutions”(Bumstead and Cannons, 2002).

In the 4PL model, companies outsource the whole supply chain to a fourth party that assembles, coordinates and integrates the capabilities of all the 3PL providers, with the power to design, build and run comprehensive optimized supply chain solutions (Bumstead and Cannons, 2002). 4PL providers take over the whole supply chain from their clients; they manage the day-to-day activities of its client’s 3PL providers, they design the client’s supply chain network, negotiate contracts with 3PL providers, manage inter-company relationships, manage operations, evaluate 3PL providers performance, and manage IT systems connectivity (Lieb and Hickey, 2002b).

4PL providers originally have been high-level consulting firms; however 3PL providers and many large transportation providers, as they improve their information technology systems, service offerings, and geographic scope, they have started to offer similar services of a 4PL provider (Marino, 2002). From there, the term lead logistics

provider (LLP) was coined to describe a “3PL service provider that manages all 3PL relationships for the company, including those with other 3PL providers”(Lieb and Hickey, 2002a). But Foster (1999) has a slightly different explanation for why the term LLP was coined, which is that Accenture Ltd. own the term 4PL as a trademark, so other consultants who started providing similar services under different names like LLP or general contractor.

The only difference between the terms 4PL and LLP is that a 4PL provider does not necessarily have to be a 3PL provider. It could be a consulting firm that provides the logistics management services (Lieb and Hickey, 2002a), but by looking at all the companies that consider themselves as 4PL providers, it was clear that the majority of them provide 3PL services in addition to their 4PL services, so it's safe to assume that the terms 4PL and LLP refer to the same concept.

4PL business model

In order for a 4PL provider to fulfill its duties as a total supply chain management provider, it must assemble four key components:

1. Architect/integrator,
2. control room,
3. supply chain information nervous system, and
4. resources provider (Bumstead and Cannons, 2002).

The key role of a 4PL provider is to be the architect or integrator of the whole supply chain system (Bumstead and Cannons, 2002; Marino, 2002), a 4PL provider is a dynamic enterprise and must continue to change and improve in order to reach the next level of supply chain performance.

The second role that a 4PL provider should play is the control room where decisions are made. In this role the 4PL provider in order to make the right decisions it “requires the capabilities and resources of experienced logisticians to optimise operations” (Bumstead and Cannons, 2002). But in order to do that, a 4PL provider must implement and develop a nervous system to link all the elements of supply chain, and provide real-time information in order to make the right decisions.

The final role is to provide physical resources needed to deliver the transformational efficiencies to the supply chain (for example, transportation, warehousing, manufacturing, co-packing services, etc.). Although a real 4PL provider will include all these components, sometimes it is not cost-effective to do that just to serve one customer. (Bumstead and Cannons, 2002).

4PL providers vs. 3PL providers

There are some doubters in the logistics industry who think that 4PL is just a new marketing tool for an old service that is used by consulting firms to sell their services, and they support their argument by pointing to that as 3PL providers grew in sophistication and complexity, they started to offer some value added service that 4PL providers usually offer (Stone, 1999), which blur the line between 4PL providers and 3PL providers.

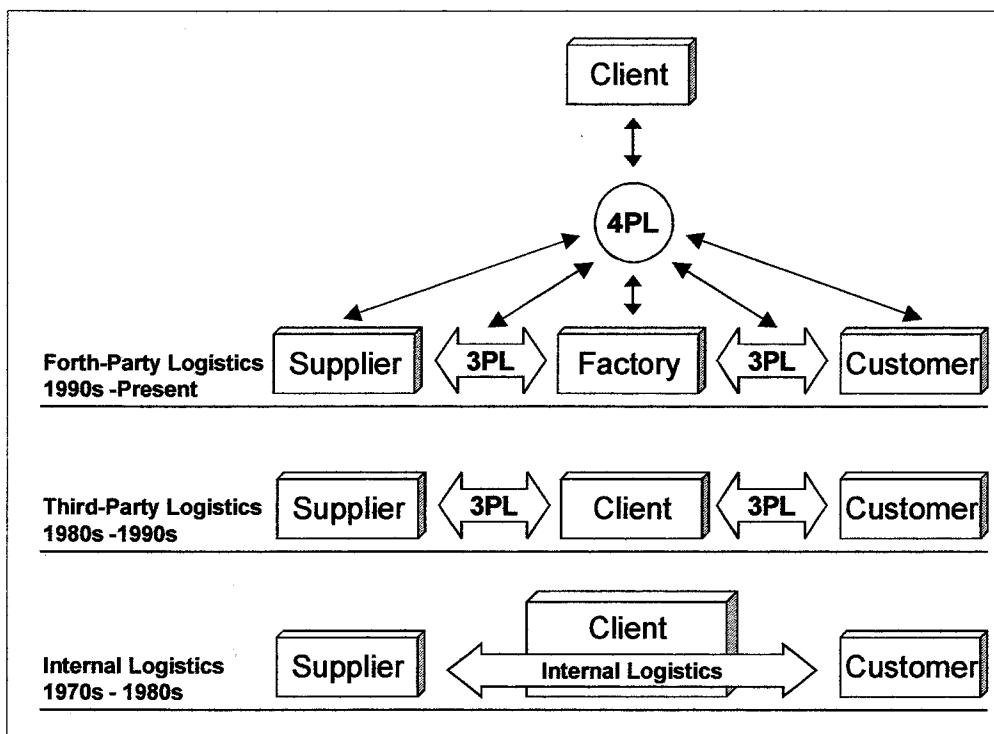
But there are many major differences between 4PL providers and 3PL providers, which are listed in Table 1, and illustrated in Figure 1.

Table 1: Major differences between 4PL providers and 3PL providers

4PL Providers	3PL Providers
1. Big picture focus	Narrow operational focus

2. Architect and integrator	Implementation and execution Focus
3. Dynamic enterprise	Usually static and have one focus (i.e. warehousing)
4. Takeover the entire supply chain	Takeover one or more functions of the supply chain
5. Control and coordinate the operations of all 3PL providers in the supply chain	Has no control on other 3PL providers (if present)
6. Information nervous system backbone	Only one node in the system
7. Control information flow in the entire supply chain	Control information flow between the two areas that it connects only (i.e. supplier and manufacturer)

Figure 1: Evolution of logistics outsourcing (Adopted from Gattorna, 1998)



Why the 4PL model?

The economic downturn pressures are pushing for the implementation of transformational efficiencies such as 4PL providers. Also the availability of specialized

companies in supply chain competencies (transportation, warehousing, technology, etc.) in most international markets is making it a very suitable time to use the services of a 4PL provider (Bumstead and Cannons, 2002).

Companies should further investigate a 4PL arrangement when they consider the supply chain critical to their organization's success but not every supply chain process a core competency, when they struggle to manage increasing levels of supply chain complexity, when their customers' supply chain demands exceed their capability to deliver, when they don't have the technology capabilities to integrate across their supply chain processes and their logistics service providers, and finally, when they can make better use of the capital that is now dedicated to supply chain assets (Bauknight and Miller, 1999).

On a survey conducted by Lieb and Hickey (2002a), the CEOs of the major 3PL providers indicated that a 3PL customer would consider using a 4PL model because of:

1. the increasing complexity of 3PL contracts,
2. supply chain systems integration,
3. focusing on their own core competency,
4. single point of contact,
5. ease of administration,
6. cost efficiencies, and
7. consistency of processes and operations across 3PL providers.

In the same survey, the CEOs also mentioned other benefits for considering the use of a 4PL provider, these benefits were "better coordination of the participants, consistency of operations, information, and processes, better accountability, lower costs,

reduced administrative costs, a central point of contact, greater customer focus on the strategic side of the business, and improved supply chain visibility.” (Lieb and Hickey, 2002a)

Obstacles and problems in logistics outsourcing and 4PL model

The 4PL model calls for an organization to give up the entire supply chain to an outside entity, and not everyone subscribes to this point of view. An example for implementing this model is General Motors Corp. (GM) who formed a joint venture partnership with CNF Inc. to create Vector SCM. GM has a minority stake in the \$6 billion company, which will ultimately manage both inbound and outbound deliveries globally by the end of 2003 (Shea, 2001). In this relationship, Vector SCM manages six different 3PL providers in GM’s supply chain that support GM’s five major plants around the world.

However some industries (like the retail industry) are more conservative than others in giving control of their supply chain, especially when these industries consider their effective management of their supply chain is essential to their existence, and consider it as a competitive advantage (Bumstead and Cannons, 2002).

There are many reasons that support logistics outsourcing; but on the other hand, there are many others that discourage it (Razzaque & Sheng, 1998). Because the 4PL model is a complex form of logistics outsourcing, it faces almost the same problems that face logistics outsourcing in general. Loss of control to an outside party was the most cited reservation on outsourcing logistics (Bardi and Tracey, 1991; Bowman, 1995; Byrne, 1993; Cooke, 1994; Lynch, Imada, & Bookbinder, 1994; Richardson, 1993)

In addition to losing control of the supply chain, there are other obstacles that discourage organizations from outsourcing logistics like losing touch with important information, getting unreliable promises from providers, failing in selecting and managing logistics providers effectively, failing of providers to respond to changing requirements (Bradley, 1995), having difficulty in obtain organizational support (Bowman, 1995), lacking of management confidence in an outside provider to deliver the same high level services that company employees provide (Cooke, 1994; Maltz, 1995), and having difficulty of assessing the financial savings to be gained through outsourcing (Razzaque & Sheng, 1998). A representative list of these reasons is presented in Table 2.

Table 2: Obstacles and problems in logistics outsourcing and 4PL model

Obstacles and Problems	Identified by
1. Loss of control to an outside party	Bardi and Tracey (1991) Bowman (1995) Byrne (1993) Cooke (1994) Lynch <i>et al.</i> (1994) Richardson (1993)
2. Losing touch with important information	
3. Providers could give unreliable promises to customers	
4. Organizations could fail in selecting and managing logistics providers probably	
5. Provider could be unable to respond to changing requirements	Bradley (1995)
6. The difficulty of obtaining organizational support	Bowman, (1995)
7. The lack of management confidence in an outside provider to deliver the same high level services that company employees provide	Cooke (1994) Maltz, (1995)
8. Difficulty of assessing the financial savings to be gained through outsourcing	Razzaque & Sheng (1998)

Future of the 4PL model

According to Bumstead and Cannons (2002), due to the current economic slump, maintaining profitability is more difficult and requires that organizations must achieve substantial cost savings, with the traditional cost cutting opportunities being exhausted, and the maturity of the Internet technologies; organizations are more willing to recognize the value and benefits of aggregating and outsourcing areas of their business like the entire supply chain.

However, a survey of the CEOs of the major 3PL providers in the United States, conducted by Lieb and Hickey (2002a) shows that more than half of them believe that the spread of 4PL providers and LLP providers will be on a limited basis, and more than 25% of them believe that such arrangements will be used on a very limited basis.

CHAPTER III

METHODOLOGY

The purpose of this study was to determine what are the most important factors that would lead a 3PL customer to consider using a 4PL provider. This chapter will give a detailed account of the participants involved in the study, the instrument that was used, the data collection techniques and a description of how the data was analyzed.

Population

Since the 4PL model is a top-level strategic approach for dealing with supply chain management, the population will be consisted primarily of top and mid level management professionals in logistics related positions in addition to logistics consultants. The study will focus on the United States market, and covers a wide range of industries, like Manufacturing, Retailing, Warehousing, Distribution, Health Care, and Telecommunications.

In order to reach this population, the researcher used the Council of Logistics Management's mailing list. There are about 8000 subscribers in the mailing list, but not all of them fall in the population of this study. The recipients of the survey were chosen based on their positions in their organization, and the positions that been chosen for the survey were CEOs, corporate officers, directors and managers. These four categories represent about 3000 people out of the 8000 in the mailing list.

Instrumentation

To gather data from the desired population the researcher constructed an online survey. The survey was divided into four sections, each section was directed to different categories of organizations, and they are:

1. LSP or Logistics Services Provider (3PL or 4PL) (Appendix A)
2. LSU or Logistics Services User (Appendix B)
3. CF or Logistics Consulting Firm (Appendix C)
4. OO or Other Organization (Appendix D)

The four sections have six common questions about job description, company size, leading factors for using a 4PL provider, benefits of using a 4PL provider, obstacles of using a 4PL model, and future of using the 4PL model. But they differ in other questions, especially between the logistics service providers' sections and the service users' section, because they represent two side of an equation.

In addition to the six common questions, in the logistics service providers' section, the participants were asked about what services their companies provide, whether their companies act as a 4PL provider, if yes, what services the companies provide as a 4PL provider. They were also asked whether there companies work with a 4PL provider, if yes, how satisfied they are with the relationship between their companies and the 4PL provider.

Participants from logistics services user companies were asked about what 3PL services their companies use, how many 3PL providers the companies use in the same time, whether they have designated a 4PL provider to manage the relationships with all the 3PL providers, if yes, what are the responsibilities of the 4PL provider in their supply chain and how satisfied are they with the performance of the 4PL provider. But if they didn't designate a 4PL provider, they were asked why didn't they designate a 4PL provider.

In the consulting firms' section the participants were asked whether their firms act as a 4PL provider, and if yes, what services the firms provide as a 4PL provider. And finally participants from companies that don't fall in any of the three above categories were only asked the six common questions.

Validation

The survey was piloted to four consultant and two professors. The six individuals were asked to review the survey as subject matter experts, to determine if the survey questions were complete and accurately stated, they were also asked to provide feedback on any question they did not understand, as well as any additional suggestions they wanted to offer to improve the survey. The recommended changes were made.

Then the survey was sent to two colleagues of the researcher, and were asked to take all the sections of the survey to ensure that the online survey was working properly, and that when participants submitted their completed responses, the data was accurately collected.

Data collection

An email (Appendix E) was sent early morning on June 18, 2003 to 2,940 logistics professionals who fall in the study population in the United States, 486 emails were returned as undeliverable (due to either technical problems, or wrong email addresses) and 97 emails replied with an out of office message, so the total number of sent emails is 2357. In the first day the researcher received 106 responses but in the second day the number sharply dropped to 15 responses, so a reminder email (Appendix F) was sent on June 23, 2003.

A total of 179 responses were received, 5 of the 179 responses were unusable because they either lack answers to most of the survey questions or they were duplicated. The effective response rate was 7.4%.

Research design

The survey was designed to give the participants a chance to express their personal opinions with open-ended questions in addition to many options to choose from. The main objective of the survey was to gather as much data as possible from the participants. The reason for this approach is because the 4PL model is relatively a new concept, and there aren't many studies about this subject, this approach allowed the researcher to collect what the logistics industry professionals think about this business model, its benefits, problems and future.

The research questions require little statistical analysis. Answers were ranked based on how many times they were chosen by the participants (where some questions allow participants to choose multiple answers per questions) to see if participants felt the choices were important.

CHAPTER IV

RESULTS

The purpose of this study was to determine what are the most important factors that would lead a 3PL customer to consider using a 4PL provider. Logistics professionals were surveyed to determine the most important factors that would lead a 3PL customer to consider using a 4PL provider, the major benefits that a customer might expect from a 4PL provider, the obstacles that companies could face when they use a 4PL model, the level of satisfaction of the 3PL providers with the 4PL provider they work with, the reasons of the users of multiple 3PL providers for not using a 4PL provider, the level of satisfaction of the users of 4PL model with the performance of their 4PL providers, and extent of the use of the 4PL model will be in the future.

Demographic information gathered

Data was gathered to find the following demographics:

1. Organization classification:
 - a. Consulting firm (CF)
 - b. Logistics services provider (LSP)
 - c. Logistics services user (LSU)
 - d. Other kind of organization (OO)
2. Job description of the person completing the survey
3. Organization size

The results for each of these demographics are reported below.

Respondents were asked to indicate which best describes their organization (CF, LSP, LSU or OO). Table 3 shows the breakdown for the number and percentages of

survey respondents based on their organization type. Percentages in Table 3 are based on the total number of responses to the survey.

Table 3: Organization types of survey respondents

	CF	LSP	LSU	OO	Total
Number of Participants	43	61	27	43	174
Percentage	25%	35%	16%	25%	100%

Respondents were asked to indicate which best describes their job function (consultant, CEO, corporate officer, manager, director, or other). Table 4 shows the breakdown for the number and percentages of survey respondents based on their job function and type of organization. Percentages in Table 4 are based on the total number of responses to the survey.

Table 4: Job function and type of organization of survey respondents

Job Description	CF	LSP	LSU	OO	Total	%
Consultant	14	0	0	1	15	9%
CEO	14	9	0	1	24	14%
Corporate Officer	6	20	2	9	37	21%
Manager	1	16	14	23	54	31%
Director	7	11	8	2	28	16%
Other	1	5	3	7	16	9%

Respondents were asked to indicate what is the approximate number of employees in their organization (1-99, 100-499, 500-2499, or 2500+). Table 5 shows the breakdown for the number and percentages of survey respondents based on their number of employees and type of organization. Percentages in Table 5 are based on the total number of responses to the survey.

Table 5: Organization sizes and types of survey respondents

Organization size	CF	LSP	LSU	OO	Total	%
1 – 99	31	15	0	6	52	30%
100 – 499	5	12	3	8	28	16%
500 – 2499	2	12	5	8	27	16%
2500+	5	21	18	20	64	37%

Research question number 6

Respondents from LSU organizations were asked to indicate what 3PL services their organization use. Table 6 shows the breakdown for the number and percentages of survey respondents from LSU organizations based on 3PL services their organization use. Percentages in Table 6 are based on the total number of LSU organizations responses to the survey.

Table 6: 3PL services LSU organizations use

3PL Services	LSU	%
Direct transportation service	19	70%
Warehouse management	19	70%
Shipment consolidation	18	67%
Customs brokerage	17	63%
Freight payment	16	59%
Freight forwarding	15	56%
Carrier selection	12	44%
Rate negotiation	11	41%
Tracking/tracing	10	37%
Order fulfillment	10	37%
Product returns	7	26%
Design of IT systems	6	22%
Fleet management/operations	6	22%
Selection of software	5	19%
Order processing	4	15%
Purchase of materials	4	15%
Operation of IT systems	3	11%

Relabelling/repackaging	3	11%
Assembly/installation	3	11%
Contract manufacturing	2	7%
Consulting services	2	7%
Customer spare parts	1	4%

Respondents from LSU organizations were asked to indicate how many 3PL providers their organizations use now. Table 7 shows the breakdown for the number and percentages of survey respondents from LSU organizations based on the number of 3PL providers used. Percentages in Table 7 are based on the total number of LSU organizations responses to the survey.

Table 7: Number of 3PL providers used

Number of 3PL providers used	#	%
One	3	11%
Two	2	7%
Three	5	19%
Four	3	11%
Five	1	4%
More than five	13	48%

Respondents from LSU organizations were asked to indicate if their organizations designated a 4PL to manage the relationships with all the 3PL providers. Table 8 shows the breakdown for the number of survey respondents from LSU organizations based on the number of 4PL users.

Table 8: Number of 4PL users

4PL users	LSU
Yes	1
No	26

Respondents from LSU organizations that indicated that their organizations designated a 4PL to manage the relationships with all the 3PL providers were asked to indicate what are the responsibilities of the 4PL provider in their supply chain. Table 9 shows the breakdown for the number of survey respondents from LSU organizations based on the responsibilities of the 4PL providers.

Table 9: 4PL services LSU organizations use

4PL Services	LSU
Supply chain design, engineering and optimization	0
Supply chain integration and aggregation	0
3PL selection and management	0
Manage the day-to-day activities of its client's 3PL providers	1
Negotiate contracts with 3PL	0
Evaluate 3PL performance	0
Facilities management	0
Demand planning analysis	0
Operational planning	0
Transportation management	0
Change management	0
Implementation and management of technology and tools	0
Staff training	0
Supplier management	0

Respondents from LSU organizations that use a 4PL provider were asked to indicate how satisfied are they with the performance of their 4PL providers. Table 10 shows the breakdown for the number of survey respondents from LSU organizations based on the satisfaction with the performance of the 4PL providers.

Table 10: LSU organizations satisfaction with 4PL providers' performance

Performance of 4PL	LSU
Very disappointed	0
Disappointed	0
Somewhat satisfied	0
Satisfied	1
Very satisfied	0

Research question number 5

Respondents from LSU organizations that don't use a 4PL provider were asked to indicate why didn't their organizations designate a 4PL provider. Table 11 shows the answers of that question.

Table 11: Why not 4PL?

Why not 4PL?

1. The business case has not been reviewed. 4PL service as you define them are provided across many departments. We are using 3PL mainly in transportation, warehousing and customs.
 2. Control
 3. Our 3PL providers are contracted with each local/regional operation and managed by their business unit.
 4. We have management to perform these functions.
 5. No need or cost justification, we want to maintain control.
 6. We felt we could manage and drive the desired result
 7. Non-value added middleman generally. 3PL usage is diverse and global, managed by regional logistics offices as appropriate
 8. We have chosen to manage these 3PL's ourselves
 9. We want to manage our business and Logistics is a core competency. We are our own 4PL
 10. Not my decision and not privy to reasoning.
 11. Although we use several 3PL providers, in total they represent a relatively small part of our overall logistics operation. We are also a very large company with an established supply chain organization and IT capabilities. As such, we see no need for or advantage to the services of a 4PL. I do see how companies without core logistics competencies and IT resources could benefit from a 4PL.
 12. Multiple divisions contracting marketing services with 4PL's.
 13. Still developing 3PL relationships.
 14. Not ready to turn over additional responsibility.
 15. It is a consideration but not appropriate for providers in this industry
 16. Company doesn't exist that has the competencies to address the various complexities of our movements on a global basis; and integrate them all.
 17. Somewhat of a closed system with little complexity
 18. Organizational Strategy
 19. Prefer to manage ourselves
 20. Very limited operation of 3PL's. Not enough to warrant outside help.
-

Respondents from LSP organizations were asked to indicate what 3PL services do their organization provide. Table 12 shows the breakdown for the number and

percentages of survey respondents from LSP organizations based on 3PL services their organizations provide. Percentages in Table 12 are based on the total number of LSP organizations responses to the survey.

Table 12: 3PL services LSP organizations provide

3PL Services	LSP	%
Warehouse management	52	85%
Direct transportation service	51	84%
Shipment consolidation	47	77%
Tracking/tracing	47	77%
Carrier selection	40	66%
Order fulfillment	39	64%
Rate negotiation	37	61%
Operation of IT systems	34	56%
Relabelling/repackaging	34	56%
Order processing	34	56%
Product returns	33	54%
Freight forwarding	31	51%
Consulting services	31	51%
Freight payment	27	44%
Assembly/installation	27	44%
Fleet management/operations	25	41%
Customer spare parts	25	41%
Customs brokerage	21	34%
Selection of software	20	33%
Design of IT systems	19	31%
Contract manufacturing	17	28%
Purchase of materials	17	28%

Respondents from CF and LSP organizations were asked to indicate if their organizations also act as a 4PL for a client. Table 13 shows the breakdown for the number and percentages of survey respondents from CF organizations and LSP organizations based on the number of 4PL providers. Percentages in Table 13 are based on the total number of CF organizations and LSP organizations responses to the survey.

Table 13: Number of 4PL providers

4PL Providers	CF	%	LSP	%
Yes	9	21%	29	48%
No	34	79%	32	52%

Respondents from CF and LSP organizations who also act as 4PL providers were asked to indicate what 4PL services their organizations provide. Table 14 shows the breakdown for the number and percentages of survey respondents from CF organizations and LSP organizations based on the 4PL services their organizations provide. Percentages in Table 14 are based on the total number of CF organizations and LSP organizations responses to the survey.

Table 14: 4PL services LSP and CF organizations provide

4PL Services	CF	%	LSP	%
Transportation management	6	14%	25	41%
Evaluate 3PL performance	7	16%	23	38%
Supply chain design, engineering and optimization	6	14%	23	38%
3PL selection and management	5	12%	22	36%
Manage the day-to-day activities of its client's 3PLs	3	7%	22	36%
Negotiate contracts with 3PL	6	14%	20	33%
Facilities management	4	9%	20	33%
Supply chain integration and aggregation	6	14%	19	31%
Operational planning	6	14%	18	30%
Staff training	3	7%	17	28%
Implementation and management of technology and tools	7	16%	16	26%
Supplier management	6	14%	16	26%
Demand planning analysis	6	14%	14	23%
Change management	5	12%	14	23%

Research question number 4

Respondents from LSP organizations were asked to indicate whether their organizations are involved in 3PL contracts in which another party has been designated as a 4PL provider. Table 15 shows the breakdown for the number and percentages of survey respondents from LSP organizations based on the involvement with a 4PL provider. Percentages in Table 15 are based on the total number of LSP organizations responses to the survey.

Table 15: Number of LSP organizations work under another 4PL provider

Work under another 4PL	LSP	%
Yes	34	56%
No	27	44%

Respondents from LSP organizations that work under a 4PL provider were asked to indicate how satisfied are they with the relationship with the 4PL providers. Table 16 shows the breakdown for the number and percentages of survey respondents from LSP organizations based on the satisfaction with the relationship with the 4PL providers. Percentages in Table 15 are based on the total number of LSP organizations responses to the survey who work under a 4PL provider.

Table 16: Satisfaction of LSP organizations with their 4PL providers

Experience with 4PL	#	%
Very disappointed	0	0%
Disappointed	8	24%
Somewhat satisfied	14	41%
Satisfied	11	32%
Very satisfied	1	3%

Research question number 1

Respondents were asked to identify what are the most important factors that would lead a 3PL customer to consider using a 4PL provider. The survey provided a list of factors to choose from, and a space for the respondents to add more factors that they think are important but were not in the list. Table 17 shows the breakdown for the number and percentages of survey respondents based on important factors and their organizations type. Table 18 shows the breakdown for what the respondents thought are important factors but were not in the list based on their organization type. Percentages in Table 17 are based on the total number of responses to the survey.

Table 17: The most important factors that would lead a 3PL customer to consider using a 4PL provider

Why 4PL	CF	LSP	LSU	OO	Total	%
1. Lacking the technology capabilities to integrate across its supply chain processes	27	35	11	26	99	57%
2. The need for supply chain integration	17	41	16	22	96	55%
3. Focusing on core competency	22	36	15	22	95	55%
4. Lacking the technology capabilities to integrate across your logistics service providers	24	31	14	20	89	51%
5. 3PL's lacking of the strategic expertise and IT resources required to operate across the entire supply chain and to truly integrate supply chain processes	24	29	7	18	78	45%
6. Using multiple 3PL's in the same time	17	32	12	14	75	43%
7. Struggling to manage increasing levels of supply chain complexity	22	30	9	14	75	43%
8. The availability of specialized companies in supply chain competencies	13	30	13	18	74	43%
9. Customers' supply chain demands exceeding its capability to deliver	15	26	6	20	67	39%
10. Growing complexity of 3PL contracts	13	23	11	7	54	31%

11. 3PL's reaching their limit of what they can do to improve the supply chain performance and they cannot deliver continuous and ongoing savings	15	22	6	9	52	30%
12. Considering the supply chain critical to its success but not every supply chain process a core competency	9	19	9	14	51	29%
13. Making better use of the capital dedicated to supply chain assets	12	18	7	11	48	28%
14. The economic downturn pressures	7	12	3	6	28	16%

Table 18: Other important factors that would lead a 3PL customer to consider using a 4PL provider

Organizations	Other Why 4PL
CF	<ol style="list-style-type: none"> 1. Increased potential customer base 2. 4PLs can offer a more open minded perspective when juggling priorities. 3. Relieving liability from the balance sheet
LSP	<ol style="list-style-type: none"> 1. Immediate impact - cost reduction - on P&L and positive impact on Financial statements for short term gain 2. Globalization
LSU	<ol style="list-style-type: none"> 1. We are going to more insourcing because of 3PL failure (warehousing side) we still and will use contract carriers. 2. Rail and intermodal is through a 3PL or 4PL depending on definition but role is restricted to transportation. 3. Leveraging volumes in contract negotiations 4. Standardization around best practices.
OO	<ol style="list-style-type: none"> 1. If you're going to outsource the control of your materials, then you need to have one party controlling and accountable for all of it to eliminate the finger pointing when the desired results are not achieved. 2. None You only have so much margin to deal with. If you need 4P/L's you obviously have made a mistake in choosing your 3 P/L'

Research question number 2

Respondents were asked to identify the major benefits that a customer might expect from a 4PL provider. The survey provided a list of benefits to choose from, and a space for the respondents to add more benefits that they think are important but were not in the list. Table 19 shows the breakdown for the number and percentages of survey respondents based on benefits and their organizations type. Table 20 shows the

breakdown for what the respondents thought are benefits but were not in the list based on their organization type. Percentages in Table 19 are based on the total number of responses to the survey.

Table 19: Major benefits that a customer might expect from a 4PL provider

Benefits of 4PL	CF	LSP	LSU	OO	Total	%
1. Single point of contact	29	48	14	31	122	70%
2. Supply chain systems integration	25	41	19	29	114	66%
3. A central point of contact	23	40	17	17	97	56%
4. Consistency of operations, information, and processes	24	29	17	23	93	53%
5. Ease of administration	24	31	14	19	88	51%
6. Consistency of processes and operations across 3PL providers	20	33	13	22	88	51%
7. Improved supply chain visibility	20	30	16	21	87	50%
8. Cost efficiencies	22	23	14	27	86	49%
9. Better accountability	20	27	19	19	85	49%
10. Better coordination of the participants	25	34	9	16	84	48%
11. Greater customer focus on the strategic side of the business	18	27	11	10	66	38%
12. Lower costs	15	18	11	18	62	36%
13. Reduced administrative costs	12	19	10	13	54	31%

Table 20: Other major benefits that a customer might expect from a 4PL provider

Organization	Other Benefits
LSP	1. In the short term only
LSU	1. No interest 2. I do not believe that a 4PL can provide any of those elements above better than we can 3. The potential benefits assume certain vulnerabilities and inefficiencies in the existing operation. 4. The big consideration is the number and skills of current staff to do those functions. 5. This really a major outsourcing decision.
OO	1. These benefits would be required for a company to consider a 4pl.

Research question number 3

Respondents were asked to identify the obstacles that companies could face when they use the 4PL model. The survey provided a list of obstacles to choose from, and a space for the respondents to add more obstacles that they think are important but were not in the list. Table 21 shows the breakdown for the number of survey respondents based on obstacles and their organizations type. Table 22 shows the breakdown for what the respondents thought are obstacles but were not in the list based on their organization type.

Table 21: Obstacles that companies could face when they use the 4PL model

Obstacles	CF	LSP	LSU	OO	Total	%
1. Loss of control to an outside party	26	31	19	30	106	61%
2. Difficulty of assessing the financial savings to be gained through outsourcing	23	32	19	23	97	56%
3. The lack of management confidence in an outside party to deliver the same high level services that company employees provide	23	31	17	22	93	53%
4. Providers could give unreliable promises to customers	18	24	14	23	79	45%
5. Organizations could fail in selecting and managing logistics providers probably	24	15	14	19	72	41%
6. Provider could be unable to respond to changing requirements	15	20	13	24	72	41%
7. The difficulty of obtaining organizational support	16	29	9	13	67	39%
8. Losing touch with important information	10	20	14	22	66	38%

Table 22: Other obstacles that companies could face when they use the 4PL model

Organizations	Other Obstacles
CF	<ol style="list-style-type: none"> 1. Losing a core competency, switching if a mistake is made 2. 4PL moves to fast for the client's culture 3. Justification for using an additional outsourced non-asset provider to manage other outsourced non-asset providers 4. The use of 4PLs will increase as providers prove their capabilities, that

	services and possibly total cost is reduced.
LSP	<ol style="list-style-type: none"> 1. Maintaining an effective and productive working relationship between the company and the 4pl so that collaborative gain sharing is facilitated. 2. Difficulty in reducing cost by adding an additional layer of cost and profit requirements of the 4PL 3. Lose touch with vital information. 4. Lose a "handle" on the issues affecting their business and their customers. 5. Another layer of cost added to the supply chain process
LSU	<ol style="list-style-type: none"> 1. How to handle present work force 2. Developing the skill set to manage third party or fourth party services 3. Dismantling the present structure so the new structure is not redundant. 4. All of these could be potential obstacles depending on the circumstances. 5. It is not a decision that you can turn around after making. One you let most of your personnel and expertise go as part of the business model savings you are committed unless it is an abysmal failure. 6. Similar to last point, financial benefit questionable - especially when calculating system integration across network.
OO	<ol style="list-style-type: none"> 1. There has to be a clear business model showing a definite win. 2. Also consider disposition of existing assets. 3. Very rarely do companies get the financial savings they expected, with the fault belonging to both sides. 4. This is a change in mind-set for many people who have been in the industry a long time. 5. We have seen inventory accuracy decrease in both 3pl and 4pl environments 6. The 4PL may not deliver on promised benefits, and could hurt the company's supply chain efficiencies

Research question number 7

Respondents were asked to predict how widespread the use of 4PL providers would be in the future. Table 23 shows the breakdown for respondents answers based on their organization type.

Table 23: Future of 4PL model

CF

1. Internal or external
2. Same as today - moderate growth at best.

3. 4PL's may play a role for some companies in that deadheading may be reduced, but the disparity between suppliers and customers may keep 4PLs from coming into widespread use since the transportation networks may be very different. Common administration of transportation billing would be the only benefit there.
4. Very limited, I think this is another flash in the pan by large consulting houses trying to generate revenue. They are not competent to perform this function
5. Stable, no significant increase.
6. Moderate at best as companies improve their internal supply chain systems with APS and SCEM
7. by 2007 / 75% usage
8. Not very widespread. One of the items that you left out for a reason to not use 4PLs is that supply chain management provides a great opportunity for competitive advantage, it is a major strategy of any successful company - why outsource such a great component?
9. Extremely widespread, due primarily to system integration capabilities
10. Somewhat narrow
11. Not widespread at all
12. I believe less. I believe existing 3PL's will be larger and smarter and more business integrated with their customers.
13. The use of 4PL's will approximate the development of 3PL's in the eighties and nineties.
14. Vast
15. The need will grow but not include all businesses
16. Depending on the industry and size of the enterprise, 4PL's will vary in market penetration from minimal to nearly 100% of the industry's companies. Technology and system integration tools may obviate against using 4PL's as the enterprise may be empowered to manage their 3PL's with resources not available today.
17. Very widespread because most 3PLs will evolve into the 4PL space, blurring the lines between the two.
18. Limited to marginal
19. Limited
20. Unsure - 4PLs may provide smaller 3PLs to interact with companies it otherwise would not have due to limited capabilities. These smaller 3PLs will have lower overhead and be able to provide higher levels of service at a lower cost due to specialization. In the end it will depend on the ability of 4PLs to execute and add value.
21. If a user needs assistance, they should contract with a lead provider. 4th parties are an unnecessary complication in the supply chain.
22. 5% to possibly 8% of companies, with sales greater than \$100 million. 15% to 20% of companies, with sales between \$1 million to \$100 million.
23. It's a service that most 3 PL organizations are offering now. However, I don't think it will grow significantly.
24. Minor
25. Slow growth until market has more competition
26. Limited use of 4PLs in the future. It will be useful in certain industries where the supply chain is complex and the opportunities for productivity improvement are significant.
27. I think that 4PL is growing and poised to become a better-defined business model. However, I think that only a few situations lend themselves to 4PL...not every situation.
28. Moderate, <10% in next 5 years
29. Substantial
30. I do not see a significant increase in the use of 4PL over current levels
31. Maybe 25%-30% of the market
32. Very. Increased need for 4PL services
33. Moderate gains over the next 5 years

34. More use of 4PL's will be a factor in the future.
35. Similar to 3PLs today
36. Rare
37. The use of 4PLs will increase as providers prove their capabilities, that services and possibly total cost is reduced.
38. Very limited
39. Limited, at best. 4PL's have generally only added costs while improving overall 3PL performance. The trade-off just isn't worth it in today's economy, I am finding
40. 3PLs have become commoditized because the only way they can make money is to offer a standardized solution to many companies. This creates leverage but limits the breadth of services they can offer. 4PLs offer a layer of management and integration, but likewise, they must operate at the lowest common denominator of bundled services. The alternative is to offer the very customized solutions of large consulting firms. Once integrated, companies will no longer value the additional management layer and tend to move 4PL functions back in-house, reducing the long-term opportunities for 4PLs.

LSP

1. Very limited - it will be very difficult to implement and make it successful and is not something that can be easily duplicated for other companies.
2. The timing is uncertain, but in my opinion the 4pl model will dominate because the efficiency and leverage cannot be matched by a single shipper.
3. I believe that it is a fad.
4. Limited
5. The 4PL concept will slowly become more accepted.
6. As companies gain confidence that a 3pl or 4pl can provide the range and flexibility of services to meet their own customer demands, then these companies will realize the value and competitive advantage a 3pl or 4pl relationship can provide. I believe 4pl growth will mirror the growth of logistics outsourcing.
7. Limited
8. Larger firms only - so many smaller to midsize firms do not understand 3PL's yet, so I believe that the 4PL concept could be slow to get started.
9. the market does not yet see the benefit due to the hands on needs of most customers and the importance of relationships
10. Increasing day by day. See more 4PLs in future versus 3PLs
11. They will continue to expand.
12. Very
13. It will be hard to measure based on the multitude of arrangements. There likely have been 4PL's in place for years, depending on how broad or specific the definition is.
14. I think they will come up more and more, but for the time being 3PL are more important, my opinion, due to shorter communication lines
15. Very limited until 4PL's quit taking the 3PL rates and just adding additional cost.
16. It is my opinion that 4PLs will experience modest to moderate growth for at least the next three years.
17. Increasing as corporations learn to globalize and share information / strategies with other companies in their vertical. The increasing challenge to centralize control across a broad range of supply chain processes and the information that accompanies it could be the focus of the supply chain executives of these firms.
18. Limited

19. Will increase along the same curve as growth of 3pl industry. Look for Global 1000 clients as target list
20. Not sure - too many factors.
21. Very limited - it will be very difficult to implement and make it successful and is not something that can be easily duplicated for other companies.
22. Unsure as to long-term viability of the concept.
23. Extensive
24. Very limited. Will require large volumes for the 4PL to be interested and dissatisfaction with first attempts may sour the customer on future opportunities.
25. They will continue to increase, with large leaders such as Menlo, UPS and Exel continuing to gain more and more of this type of business
26. I think the concept is solid for companies that would use multiple 3PLs and national / global shipping. The 4PL has the opportunity to be the expert or the specialist to allow a company to focus on providing a quality product or service.
27. Fairly common at the Fortune 100 level, but not common at all with mid-market customers
28. Very widespread
29. Very
30. In the near future, I believe that 4PLs will be used more often by smaller companies due to the complexity of managing the supply chain.
31. Low growth.
32. Limited - because while the concept is talked about, the reality is that very few are implementing such a practice because most customers do not want all their eggs in one basket. And the bigger the Logistics undertaking, the more millions of dollars are at stake that depends on outside parties for service fulfillment.
33. Hard to tell at this point in time
34. Very Limited
35. TBD. I have not seen proof of concept case studies in trade journals. This will give companies the confidence to move into 4PL relationships.
36. It will vary by industry, in some, such as automotive, it is common practice, in others, not even considered
37. Substantial
38. the use of 4PL's will increase significantly.
39. Limited to the very large complex SC's and possibly in growth will be seen in the SC's of new companies that lack the infrastructure necessary to pull the logistics end of the equation off.
40. Very widespread throughout the Fortune 500.
41. I think it has tremendous potential. The biggest hurdle was mentioned above, organizational support.
42. Limited. Most companies have a core competence in their own product design, marketing, sales, service design and customer service policy. These areas have a much larger influence on the cost and effectiveness of logistics than a 4PL can bring to bear. This leaves 4PL's coordinating transportation, warehouse management and reporting, which is a limited value add.
43. We believe the 4pl model will have limited application. It will apply to larger organizations that have a great deal of supply chain complexity. These larger organizations will face the decision of making supply chain management a core strategy of their competitive advantage. If so, then they have the size and capital to hire, and career path the best logistics talent on their own.
44. Limited = 3 PL's are becoming much larger; integrated & global
45. Very!!!

46. Limited
47. First of all, a 4PL, as defined by Andersen (now Accenture) has never, and in my opinion will never, exist. The original intent was for a consulting firm to manage virtually all outsourced logistics activities in order to bring efficiencies to the entire supply chain. Andersen saw a weakness in this area in the mid 1990s and made an attempt to fill the gap. With 3PLs adding more functionality, broadening their service offerings, enhancing their IT, that void quickly disappeared. Today, there are 3PLs acting a lead logistics providers, or logistics service integrators, and the notion of a "true" 4PL no longer applies.
48. Very limited.
49. Have no opinion
50. Greater as the complexity of supply chains grow.
51. They will continue to grow as companies outsource the overall management of the supply chain - combined with a reluctance of 3PL's to make commitments to markets where 3PL's already exist.

LSU

1. Will grow, but slowly
2. Very little per your comprehensive definition.
3. Not very. Control
4. I believe that the bigger 3PL players will increase their services and improve their flexibility. When more 3PL providers become one stop shopping for logistics, they will develop partnerships with their customers and 4PL providers will feed on niche markets. I hope I won't be working in one of those niche market companies.
5. Very limited, If you are running an e-commerce business from your kitchen it could be desirable.
6. This seems to be a growing trend but I feel the situation must be right to proceed companies most likely to use would be those with more than 2 3pls
7. 4PL use will be limited to specialized, niche opportunities.
8. Increasing as an industry for those who do not have as a core competency but they will have to perform better.
9. Very widespread
10. No clear vision at this time.
11. Not very.
12. I do not know enough about them to provide a reasoned opinion.
13. in a growth mode
14. Ever growing
15. Slow but steady growth but not exceeding 50% of industry.
16. It will be a growing trend especially for manufacturers. It supports the downsizing trend. It requires less investment and upkeep of supply chain software and skills. It provides flexibility for the supply and business to change directions.
17. Limited
18. Very
19. 4pl's will take over the 3PL's and operationally manage the functions themselves. Thereby reverting back to the traditional 3pl model only in a more consolidated environment
20. Limited to extremely complex situations

21. I maybe wrong, but I beleive a 4PL will revert back to the true 3PL, consolidating all logistics under one company..... The obstacle of importance is "acceptance of change" within the organization.
22. Limited
23. Highly widespread by those companies that require supply chain integration across regions and the globe (basically a consolidation of the currently used 3PL's throughout the globe).

OO

1. Not certain.
2. Limited
3. Continue to grow at a moderate pace.
4. Marginally used. I do not expect, nor have I seen indications in the marketplace that 4PL use will be a widespread phenomenon.
5. Steadily growing trend
6. Not sure
7. I believe the trend will accelerate in consolidating industries.
8. Could become a larger force in the supply chain network in the next few years, depending on their IT/MIS capabilities.
9. True 4PL's are not wide spread at all.
10. Minimal
11. If setup correctly I feel that a 4PL concept will end up being more costly than managing a supply chain in-house. This will bring organizations back to the managing their own supply chain.
12. I think it will be a long time before accepted. With the major factor being will we receive the same high level of service that is provided by our employees.
13. 30%
14. Not very as the ease of doing business with the carrier and 3PL's develop.
15. 30% of companies will be actually utilizing a 4pl as it is defined above
16. very little
17. More widespread as advent of RFID increases real-time information and companies like WalMart make use of it. Other companies will have to respond but won't have the expertise, thus 4PL's will step in.
18. Virtually Nil.
19. I would image no more then 15% of our business.
20. Haven't heard of 4PL until now.
21. Limited
22. Limited
23. Not very much
24. I do not believe that in ubiquitous but will be prevalent and focused.
25. Depends on the visibility, optimization and service level they can provide which relies heavily on the effective deployment of supply chain management software and closely synchronizing the 4PL processes with the customer's needs.
26. I believe they will remain a small portion of the market (as they are at a premium cost). Similar to the decision to use a public warehouse (premium) over a private warehouse (cost). Are 4PLs really on top of what's going on around them?
27. I believe that high value, low weight/volume product manufacturers with significant international sourcing will migrate more towards the 4PL model.

28. As organizations further focus on their core competencies and assets/resources required to manage supply chains, 4PLs will grow significantly.
 29. I believe that the growth of 4PL firm usage could slow down if the clients lose touch with their clients. If they miss changes in the market place by not being closer to the logistics of delivering their goods and services.
 30. They will continue to expand as small/midsize 3PL's try to find ways to match large 3PL's ability to provide service nationally.
 31. I think growth will be relatively modest until 4PLs consistently achieve financial gains claimed at outset.
 32. Depends if the 3PL's and carriers step up and start offering a more complete service. I think the overall use will be status quo with the percent using 3PL's
 33. Probably limited. The extra layer of costs, layered on top of 3PLs, will prove to be prohibitive.
 34. Integrated 3PL/4PL providers will prevail over just 3PL or just 4PL providers.
-

CHAPTER V

DISCUSSION

This chapter is divided into two distinct sections. It begins with a summary section, which reviews the entire study. The second section reports the conclusions and recommendations that can be drawn from the analysis of the survey data for each research question.

Summary

The purpose of this study was to study and explore the 4PL business model, provide a deeper understanding of the 4PL model and how this model if implemented correctly affects the supply chain. Also this study provide guidelines for companies on when it's appropriate to consider implementing a 4PL model and provide guidelines for 4PL providers to select their potential clients.

Research questions

1. What are the most important factors that would lead a three-party logistics (3PL) customer to consider using a fourth-party logistics (4PL) provider?
2. What are the major benefits that a customer might expect from a 4PL provider?
3. What are the obstacles that companies could face when they use the 4PL model?
4. How satisfied are the 3PL providers with the relationship with the 4PL providers they work with?
5. Why don't the users of multiple 3PL providers use a 4PL provider?

6. How satisfied are the users of 4PL model with the performance of its 4PL provider?
7. How widespread the use of the 4PL model will be in the future?

Following a review of literature, an online survey was designed to gather data about the 4PL model. The main objective of the survey was to gather as much data as possible from the participants. The reason for this approach was that the 4PL model is relatively a new concept, and there aren't many studies about this subject, this approach allowed the researcher to collect what the logistics industry professionals think about this business model, its benefits, problems and future. The online survey was sent to 2357 logistics professionals, 174 responded with an effective response rate of 7.4%.

Conclusion

Research question number 1

About 57% of the survey participants agree that the lack of technologic capabilities to integrate across the supply chain processes is a factor that would lead a 3PL customer to consider using a 4PL provider, making it the most important factor even though only 41% of Logistics Services Users (LSU) organizations agree on this factor.

The need for supply chain integration, and focusing on core competency came in the second place with 55% of the survey participants agree on both factors. The fourth factor was lacking the technology capabilities to integrate across the logistics service providers with 51%.

3PL providers lacking of the strategic expertise and IT resources required to operate across the entire supply chain and to truly integrate supply chain processes came in fifth with 45%, followed by three factors in the sixth place with 43%, which are using

multiple 3PL providers in the same time, increasing levels of supply chain complexity, and the availability of specialized companies in supply chain competencies.

The economic downturn pressures came last with only 16% of the survey participants choosing it, which could lead one to think that the survey participants don't see using the 4PL model will reduce the cost of managing the supply chain. On the contrary participants see adding a fourth party will add to the cost and complexity of the supply chain, and as one participant put it "Difficulty in reducing cost by adding an additional layer of cost and profit requirements of the 4PL", and another participant "You only have so much margin to deal with".

Making better use of the capital dedicated to supply chain assets came second to last in the important factors list with only 28% of survey participants choosing it. This may reflect that 4PL providers are usually non-asset based, and therefore there are no major capital savings with using a 4PL provider, which was clear in this participant comment "justification for using an additional outsourced non-asset provider to manage other outsourced non-asset providers".

Research question number 2

Single point of contact was the most important benefit that a 4PL customer may expect from the relationship with 70% of the participants choosing it, especially between LSP participants (about 79%), but it wasn't as popular between LSU organizations participants (only 52%).

The second benefit was supply chain systems integration, with 66% of the participants agreeing on it. The third benefit was having a central point of contact (56%). Consistency of operations, information, and processes came in fourth place with 53%.

Ease of administration, consistency of processes and operations across 3PL providers, improved supply chain visibility, cost efficiencies, better accountability, and better coordination came after the forth benefit with 51%, 51%, 50%, 49%, 49%, and 48% respectively.

Benefits as reduced administrative costs, and lower costs, came at the bottom of the list with 31% and 36% respectively. And that again show that the participants don't believe that the 4PL providers offer many cost incentives to persuade organizations to use the 4PL model.

Research question number 3

Control was one of the most important words in the participants' comments in the survey, and no wonder the most important obstacle that companies could face when they use a 4PL model was loss of control to an outside party, with 61% of the survey participants choosing it.

Difficulty of assessing the financial savings to be gained through outsourcing came in second, with 56%. And it was clear in the comment of some participants, where one participant wrote "financial benefit questionable - especially when calculating system integration across network". The third obstacle was the lack of management confidence in an outside party to deliver the same high-level services that company employees provide, with 53%.

Losing touch with important information was in the bottom of the list with 38%. And interestingly enough, the difficulty of obtaining organizational support came before the last important obstacle with 39%. Especially that some participants commented on

that, for example one participant wrote “The biggest hurdle was mentioned above, organizational support”.

Research question number 4

About 56% of the logistics services provider (LSP) organizations survey participants indicated that their companies were involved in 3PL contracts where another party has been designated as a 4PL provider. 41% of them were somewhat satisfied with their experience with the relationship between them and the 4PL provider, 32% were satisfied, 3% were very satisfied. Only 24% were disappointed with the relationship, which means that about 76% are at least somewhat satisfied with the relationship.

Research question number 5

The participants, who used multiple 3PL providers in the same time without designating a 4PL provider to manage their 3PL providers, expressed many different reasons for not doing so. One participant wrote, “3PL providers are contracted with each local/regional operation and managed by their business unit”. Other comments were “Very limited operation of 3PL providers. Not enough to warrant outside help”, “Logistics is a core competency”, “The business case has not been reviewed”, and “It is a consideration but not appropriate for providers in this industry”.

From the participants’ comments, the researcher concluded that there are many reasons for not using a 4PL provider, but the main ones are decentralization of 3PL providers activities where it is easier to manage them separately by the different business units they work with, limited and simple operations of 3PL providers, organizational strategy, maintaining control, uncertainty of the effectiveness of the 4PL model, not enough review and research of the 4PL model, and doubts among 3PL users that there is

an external party who has the competencies to address the various complexities of movements on a global basis; and integrate them all.

Research question number 6

The researcher tried to know how satisfied are the 4PL users with the performance of their 4PL providers, but unfortunately the number of 4PL users who responded to the survey were very small, and didn't provide sufficient data to lead to a conclusion.

Research question number 7

About 32% of survey participants believe that the 4PL model will have a limited growth in the future due to many reasons. One reason was that 3PL providers are getting larger and larger which reduce the need for a 4PL provider; another reason was 4PL providers have generally only added costs while improving overall 3PL providers' performance, and the trade-off just isn't worth it in today's economy. Other reasons were that the model is difficult to implement, it will add an extra layer of costs and management that is prohibitive, and it is very hard to hand the responsibility of hundreds of millions of dollars to an outside party for service fulfillment.

4% of the survey participants believe that the growth of the 4PL model will depend on the kind of industry, as one participant put it "Depending on the industry and size of the enterprise, 4PL's will vary in market penetration from minimal to nearly 100% of the industry's companies". Another participant also wrote "I believe that high value, low weight/volume product manufacturers with significant international sourcing will migrate more towards the 4PL model".

20% of survey participants believe that the 4PL model will have a high growth rate in future due to many reasons. One reason was that organizations would focus more on their core competencies. It will also grow due to the growing complexity of supply chain, and the need for more system integration capabilities.

About 14% of the survey participants think that the 4PL business model will have a moderate growth, 3% believe it will have no growth at all, and 2% believe it will decline.

Recommendations

Recommendations related to this study

Companies with multiple 3PL providers should consider using a 4PL provider when they face the following conditions:

1. Lacking the technologic capabilities to integrate across the supply chain processes and integrate across their logistics service providers.
2. The need for supply chain integration, and focusing on core competency.
3. Increasing levels of supply chain complexity.
4. Fast expanding in global markets.
5. Improving the overall 3PL providers' performance and efficiency is more important than the cost of managing the supply chain.

Companies that implement the 4PL model could potentially benefit many things from the 4PL model, some of these benefits are:

1. Single point of contact.
2. Supply chain systems integration.
3. Ease of administration.

4. Consistency of operations, information, and processes.
5. Consistency of processes and operations across 3PL providers.
6. Improved supply chain visibility.
7. Cost efficiencies.
8. Better accountability.
9. Better coordination of the supply chain participants.

Before any company implement the 4PL model, it should be aware that there are several potential obstacles that could face it before and after implementing the 4PL model. These obstacles include:

1. Loss of control to an outside party.
2. Difficulty of assessing the financial savings to be gained through outsourcing.
3. The lack of management confidence in an outside provider to deliver the same high level services that company employees provide.
4. The difficulty of obtaining organizational support.

Using a non-asset 4PL provider will be very limited in the future, and will feed on niche markets, due to the fact that adding an external party into a complex supply chain with many 3PL providers will be very hard to justify, either financially or organizationally, but on the other hand, contracting with one of the 3PL providers in the supply chain to be a lead logistics provider is more acceptable, because this party is from within the supply chain, and have the background and knowledge required to manage all the aspects of this certain supply chain, and doing so, is just reorganizing the supply chain rather than adding another layer of management.

In order for the 4PL model to survive and grow, 4PL providers should make it easier for their clients to implement the model, they should be able to assess the financial savings to be gained through outsourcing for their customers, prove that they can add value and cost savings that offset their cost. The reason for all that, is because it's very hard to give up the responsibility of hundreds of millions of dollars to an outside party for service fulfillment.

Recommendations for further research

1. This study should be replicated every 3-5 years, and include more people in order to study the effects of time on the 4PL model.
2. Study the existing 4PL relationships and develop case studies about them.
3. Investigate the provider side of the 4PL model.
4. Identify how a company determine the feasibility of implementing a 4PL model, and develop a 4PL model outsourcing decision process.
5. Identify what steps needed to be done by a company to implement a 4PL model.
6. Identify how satisfied are the 4PL users with the performance of its 4PL provider.

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APPENDIX A

LOGISTICS SERVICES PROVIDER (LSP) ORGANIZATIONS' SURVEY

1. Which best describes your job function? (Choose one)
 - Consultant
 - Senior Management
 - Middle Management
 - Other Management
 - Technical/Research
 - Clerical
 - Other: _____

2. What is the approximate number of employees in your company? (Choose one)
 - 1 - 49
 - 50 - 99
 - 100 - 249
 - 250 - 999
 - 1000 +

3. What services does your company provide? (Check all that apply)

<input type="checkbox"/> Direct transportation service	<input type="checkbox"/> Rate negotiation
<input type="checkbox"/> Warehouse management	<input type="checkbox"/> Product returns
<input type="checkbox"/> Shipment consolidation	<input type="checkbox"/> Fleet management/operations
<input type="checkbox"/> Freight forwarding	<input type="checkbox"/> Relabelling/repackaging
<input type="checkbox"/> Freight payment	<input type="checkbox"/> Contract manufacturing
<input type="checkbox"/> Tracking/tracing	<input type="checkbox"/> Order fulfillment
<input type="checkbox"/> Customs brokerage	<input type="checkbox"/> Assembly/installation
<input type="checkbox"/> Design of IT systems	<input type="checkbox"/> Order processing
<input type="checkbox"/> Selection of software	<input type="checkbox"/> Customer spare parts
<input type="checkbox"/> Operation of IT systems	<input type="checkbox"/> Consulting services
<input type="checkbox"/> Carrier selection	<input type="checkbox"/> Purchase of materials
<input type="checkbox"/> Other	

4. Does your company also act as a 4PL provider for a client? (Choose one)
 - Yes.
 - No. (*Go to question # 6*)

5. If yes, what services does your company provide? (Check all that apply)

<input type="checkbox"/> Supply chain design, engineering and optimization	<input type="checkbox"/> Demand planning analysis
<input type="checkbox"/> Supply chain integration and aggregation 3PL selection and management	<input type="checkbox"/> Operational planning
<input type="checkbox"/> Manage the day-to-day activities	<input type="checkbox"/> Transportation management
	<input type="checkbox"/> Change management
	<input type="checkbox"/> Implementation and management of technology and

- of its client's 3PLs
- Negotiate contracts with 3PL
 - Evaluate 3PL performance
 - Facilities management
 - Other:
- tools
- Staff training
 - Supplier management
6. Is your company involved in 3PL contracts where another party has been designated as a 4PL provider? (Choose one)
- Yes
 - No. (*Go to question # 8*)
7. If yes, rate your experience with these relationships. (Choose one)
- Very disappointed
 - Disappointed
 - Somewhat satisfied
 - Satisfied
 - Very satisfied
8. In your opinion, what are the most important factors that would lead a 3PL customer to consider using a 4PL provider? (Check all that apply)
- The economic downturn pressures
 - The availability of specialized companies in supply chain competencies
 - Using multiple 3PL's in the same time
 - The need for supply chain integration
 - Focusing on core competency
 - Considering the supply chain critical to its success but not every supply chain process a core competency
 - Growing complexity of 3PL contracts
 - Struggling to manage increasing levels of supply chain complexity
 - Customers' supply chain demands exceeding its capability to deliver
 - Lacking the technology capabilities to integrate across its supply chain processes
 - Lacking the technology capabilities to integrate across your logistics service providers
 - Making better use of the capital dedicated to supply chain assets
 - 3PL's lacking of the strategic expertise and IT resources required to operate across the entire supply chain and to truly integrate supply chain processes
 - 3PL's reaching their limit of what they can do to improve the supply chain performance and they cannot deliver continuous and ongoing savings
 - Other:
9. In your opinion, what are the major benefits that a customer might expect from a 4PL provider? (Check all that apply)

- Supply chain systems integration
- Single point of contact
- Ease of administration
- Cost efficiencies
- Consistency of processes and operations across 3PL providers
- Better coordination of the participants
- Consistency of operations, information, and processes
- Better accountability
- Lower costs
- Reduced administrative costs
- A central point of contact
- Greater customer focus on the strategic side of the business
- Improved supply chain visibility
- Other:

10. In your opinion, what are the obstacles that companies could face when they use a 4PL provider? (Check all that apply)

- Loss of control to an outside party
- Losing touch with important information
- Providers could give unreliable promises to customers
- Organizations could fail in selecting and managing logistics providers probably
- Provider could be unable to respond to changing requirements
- The difficulty of obtaining organizational support
- The lack of management confidence in an outside provider to deliver the same high level services that company employees provide
- Difficulty of assessing the financial savings to be gained through outsourcing could be an obstacle
- Other:

11. In your opinion, how widespread the use of 4PL providers will be in the future?

APPENDIX B

LOGISTICS SERVICES USERS (LSU) ORGANIZATIONS' SURVEY

1. Which best describes your job function? (Choose one)
 - Consultant
 - Senior Management
 - Middle Management
 - Other Management
 - Technical/Research
 - Clerical
 - Other: _____

2. What is the approximate number of employees in your company? (Choose one)
 - 1 - 49
 - 50 - 99
 - 100 - 249
 - 250 - 999
 - 1000 +

3. What services does your company use? (Check all that apply)

<input type="checkbox"/> Direct transportation service	<input type="checkbox"/> Rate negotiation
<input type="checkbox"/> Warehouse management	<input type="checkbox"/> Product returns
<input type="checkbox"/> Shipment consolidation	<input type="checkbox"/> Fleet management/operations
<input type="checkbox"/> Freight forwarding	<input type="checkbox"/> Relabelling/repackaging
<input type="checkbox"/> Freight payment	<input type="checkbox"/> Contract manufacturing
<input type="checkbox"/> Tracking/tracing	<input type="checkbox"/> Order fulfillment
<input type="checkbox"/> Customs brokerage	<input type="checkbox"/> Assembly/installation
<input type="checkbox"/> Design of IT systems	<input type="checkbox"/> Order processing
<input type="checkbox"/> Selection of software	<input type="checkbox"/> Customer spare parts
<input type="checkbox"/> Operation of IT systems	<input type="checkbox"/> Consulting services
<input type="checkbox"/> Carrier selection	<input type="checkbox"/> Purchase of materials
<input type="checkbox"/> Other	

4. How many 3PL providers does your company use now at the same time? (Choose one)
 - One
 - Two
 - Three
 - Four Five
 - More than five

5. If more than one 3PL provider, has your company designated a 4PL provider to manage these relationships with all the 3PL providers? (Choose one)
 - Yes
 - No (*Go to question # 8*)

6. If yes, what services does your company provide? (Check all that apply)

- | | |
|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| <input type="checkbox"/> Supply chain design, engineering and optimization | <input type="checkbox"/> Demand planning analysis |
| <input type="checkbox"/> Supply chain integration and aggregation 3PL selection and management | <input type="checkbox"/> Operational planning |
| <input type="checkbox"/> Manage the day-to-day activities of its client's 3PLs | <input type="checkbox"/> Transportation management |
| <input type="checkbox"/> Negotiate contracts with 3PL | <input type="checkbox"/> Change management |
| <input type="checkbox"/> Evaluate 3PL performance | <input type="checkbox"/> Implementation and management of technology and tools |
| <input type="checkbox"/> Facilities management | <input type="checkbox"/> Staff training |
| <input type="checkbox"/> Other: | <input type="checkbox"/> Supplier management |

7. How satisfied are you with the performance of your 4PL providers? (Choose one)

- Very disappointed
- Disappointed
- Somewhat satisfied
- Satisfied
- Very satisfied

(Go to question # 9)

8. If No, Why didn't your company designate a 4PL provider?

9. In your opinion, what are the most important factors that would lead a 3PL customer to consider using a 4PL provider? (Check all that apply)

- The economic downturn pressures
- The availability of specialized companies in supply chain competencies
- Using multiple 3PL's in the same time
- The need for supply chain integration
- Focusing on core competency
- Considering the supply chain critical to its success but not every supply chain process a core competency
- Growing complexity of 3PL contracts
- Struggling to manage increasing levels of supply chain complexity
- Customers' supply chain demands exceeding its capability to deliver
- Lacking the technology capabilities to integrate across its supply chain processes
- Lacking the technology capabilities to integrate across your logistics service providers
- Making better use of the capital dedicated to supply chain assets
- 3PL's lacking of the strategic expertise and IT resources required to operate across the entire supply chain and to truly integrate supply chain processes

- 3PL's reaching their limit of what they can do to improve the supply chain performance and they cannot deliver continuous and ongoing savings
- Other:

10. In your opinion, what are the major benefits that a customer might expect from a 4PL provider? (Check all that apply)

- Supply chain systems integration
- Single point of contact
- Ease of administration
- Cost efficiencies
- Consistency of processes and operations across 3PL providers
- Better coordination of the participants
- Consistency of operations, information, and processes
- Better accountability
- Lower costs
- Reduced administrative costs
- A central point of contact
- Greater customer focus on the strategic side of the business
- Improved supply chain visibility
- Other:

11. In your opinion, what are the obstacles that companies could face when they use a 4PL provider? (Check all that apply)

- Loss of control to an outside party
- Losing touch with important information
- Providers could give unreliable promises to customers
- Organizations could fail in selecting and managing logistics providers probably
- Provider could be unable to respond to changing requirements
- The difficulty of obtaining organizational support
- The lack of management confidence in an outside provider to deliver the same high level services that company employees provide
- Difficulty of assessing the financial savings to be gained through outsourcing could be an obstacle
- Other:

12. In your opinion, how widespread the use of 4PL providers will be in the future?

APPENDIX C

LOGISTICS CONSULTING FIRM (CF) ORGANIZATIONS' SURVEY

1. Which best describes your job function? (Choose one)
 - Consultant
 - Senior Management
 - Middle Management
 - Other Management
 - Technical/Research
 - Clerical
 - Other: _____

2. What is the approximate number of employees in your company? (Choose one)
 - 1 - 49
 - 50 - 99
 - 100 - 249
 - 250 - 999
 - 1000 +

3. Does your company also act as a 4PL provider for a client? (Choose one)
 - Yes.
 - No. (*Go to question # 5*)

4. If yes, what services does your company provide? (Check all that apply)

<ul style="list-style-type: none"> <input type="checkbox"/> Supply chain design, engineering and optimization <input type="checkbox"/> Supply chain integration and aggregation 3PL selection and management <input type="checkbox"/> Manage the day-to-day activities of its client's 3PLs <input type="checkbox"/> Negotiate contracts with 3PL <input type="checkbox"/> Evaluate 3PL performance <input type="checkbox"/> Facilities management <input type="checkbox"/> Other: 	<ul style="list-style-type: none"> <input type="checkbox"/> Demand planning analysis <input type="checkbox"/> Operational planning <input type="checkbox"/> Transportation management <input type="checkbox"/> Change management <input type="checkbox"/> Implementation and management of technology and tools <input type="checkbox"/> Staff training <input type="checkbox"/> Supplier management
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

5. In your opinion, what are the most important factors that would lead a 3PL customer to consider using a 4PL provider? (Check all that apply)
 - The economic downturn pressures
 - The availability of specialized companies in supply chain competencies
 - Using multiple 3PL's in the same time
 - The need for supply chain integration
 - Focusing on core competency

- Considering the supply chain critical to its success but not every supply chain process a core competency
 - Growing complexity of 3PL contracts
 - Struggling to manage increasing levels of supply chain complexity
 - Customers' supply chain demands exceeding its capability to deliver
 - Lacking the technology capabilities to integrate across its supply chain processes
 - Lacking the technology capabilities to integrate across your logistics service providers
 - Making better use of the capital dedicated to supply chain assets
 - 3PL's lacking of the strategic expertise and IT resources required to operate across the entire supply chain and to truly integrate supply chain processes
 - 3PL's reaching their limit of what they can do to improve the supply chain performance and they cannot deliver continuous and ongoing savings
 - Other:
6. In your opinion, what are the major benefits that a customer might expect from a 4PL provider? (Check all that apply)
- Supply chain systems integration
 - Single point of contact
 - Ease of administration
 - Cost efficiencies
 - Consistency of processes and operations across 3PL providers
 - Better coordination of the participants
 - Consistency of operations, information, and processes
 - Better accountability
 - Lower costs
 - Reduced administrative costs
 - A central point of contact
 - Greater customer focus on the strategic side of the business
 - Improved supply chain visibility
 - Other:
7. In your opinion, what are the obstacles that companies could face when they use a 4PL provider? (Check all that apply)
- Loss of control to an outside party
 - Losing touch with important information
 - Providers could give unreliable promises to customers
 - Organizations could fail in selecting and managing logistics providers probably
 - Provider could be unable to respond to changing requirements
 - The difficulty of obtaining organizational support
 - The lack of management confidence in an outside provider to deliver the same high level services that company employees provide
 - Difficulty of assessing the financial savings to be gained through outsourcing could be an obstacle

Other:

8. In your opinion, how widespread the use of 4PL providers will be in the future?

APPENDIX D

OTHER ORGANIZATION (OO) ORGANIZATIONS' SURVEY

1. Which best describes your job function? (Choose one)
 - Consultant
 - Senior Management
 - Middle Management
 - Other Management
 - Technical/Research
 - Clerical
 - Other: _____

2. What is the approximate number of employees in your company? (Choose one)
 - 1 - 49
 - 50 - 99
 - 100 - 249
 - 250 - 999
 - 1000 +

3. In your opinion, what are the most important factors that would lead a 3PL customer to consider using a 4PL provider? (Check all that apply)
 - The economic downturn pressures
 - The availability of specialized companies in supply chain competencies
 - Using multiple 3PL's in the same time
 - The need for supply chain integration
 - Focusing on core competency
 - Considering the supply chain critical to its success but not every supply chain process a core competency
 - Growing complexity of 3PL contracts
 - Struggling to manage increasing levels of supply chain complexity
 - Customers' supply chain demands exceeding its capability to deliver
 - Lacking the technology capabilities to integrate across its supply chain processes
 - Lacking the technology capabilities to integrate across your logistics service providers
 - Making better use of the capital dedicated to supply chain assets
 - 3PL's lacking of the strategic expertise and IT resources required to operate across the entire supply chain and to truly integrate supply chain processes
 - 3PL's reaching their limit of what they can do to improve the supply chain performance and they cannot deliver continuous and ongoing savings
 - Other:

4. In your opinion, what are the major benefits that a customer might expect from a 4PL provider? (Check all that apply)
 - Supply chain systems integration
 - Single point of contact

- Ease of administration
- Cost efficiencies
- Consistency of processes and operations across 3PL providers
- Better coordination of the participants
- Consistency of operations, information, and processes
- Better accountability
- Lower costs
- Reduced administrative costs
- A central point of contact
- Greater customer focus on the strategic side of the business
- Improved supply chain visibility
- Other:

5. In your opinion, what are the obstacles that companies could face when they use a 4PL provider? (Check all that apply)

- Loss of control to an outside party
- Losing touch with important information
- Providers could give unreliable promises to customers
- Organizations could fail in selecting and managing logistics providers probably
- Provider could be unable to respond to changing requirements
- The difficulty of obtaining organizational support
- The lack of management confidence in an outside provider to deliver the same high level services that company employees provide
- Difficulty of assessing the financial savings to be gained through outsourcing could be an obstacle
- Other:

6. In your opinion, how widespread the use of 4PL providers will be in the future?

APPENDIX E

FIRST EMAIL

Date: June 18, 2003
Subject: Fourth-Party Logistics (4PL) Survey

Dear Sir or Madam:

I am a graduate student at the University of Wisconsin-Stout, currently in the process of writing my master's thesis on the subject of Fourth-Party Logistics (4PL) business model. And I am interested in your feedback about this subject.

If you click on this link:

<http://www.nezar.biz/4pl>

it will take you to an online survey, choose what best describe your organization and answer the simple survey. I would appreciate your completing of the survey and submitting it online by June 27, 2003. It should take no more than ten minutes to complete.

A timely response from you will help me reach my goal of graduation as well as improving the quality and amount of research about the 4PL business model. If you have any questions regarding this survey, you can contact me by phone at (715) 235-1755, or by email at al-mugrenn@uwstout.edu

Thank you in advance for taking the time to complete the survey; I do appreciate your response.

Wishing you all the best!

Nezar A. Al-Mugren

University of Wisconsin-Stout
(715) 235-1755
515 21st Ave E, Apt# 101
Menomonie WI, 54751
www.nezar.biz

APPENDIX F

THANK YOU AND REMINDER EMAIL

Date: June 23, 2003

Subject: Fourth-Party Logistics (4PL) Survey, Thank You

Dear Sir/Madam,

I just want to thank everyone who took the time and filled my survey about Fourth-Party Logistics (4PL). I really appreciate your time and thoughts.

If you didn't fill the survey, please do so. It'll only take ten minutes of your time, and it will help me to reach my targeted number of responses and finish the study in time. I would really appreciate it if you do.

You can receive a softcopy of the results of the study by filling the form that you'll find after you fill the survey.

You can find the survey by clicking on this link:

<http://www.nezar.biz/4pl/>

Thank you very much.

Nezar A. Al-Mugren