A study on 4PL and 3PL collaboration within the largest fast-food supply chain operating in Brazil

Mauro Vivaldini
Methodist University of Piracicaba (UNIMEP)
Rodovia Santa Bárbara-Iracemápolis, Km 1
Santa Bárbara d’Oeste, SP, 13450-000 - Brazil
mvivaldini@martin-brower.com.br
Tel.: 55 (14) 3455-2311

Sivio R. I. Pires
Methodist University of Piracicaba (UNIMEP)
Rodovia do Açúcar, Km 156
Piracicaba, SP, 13400-911 - Brazil
sripires@unimep.br
Tel.: 55 (14) 3124-1515

Fernando Bernardi de Souza
São Paulo State University (UNESP)
Av. Eng. Luiz Edmundo C. Coube 14-01
Bauru, SP, 17033-360 - Brazil
fbernardi@feb.unesp.br
Tel: 55 (14) 3103-6122
Abstract

The logistics management by a 3PL (Third-Party Logistics) has become more common as an alternative to be used by companies. On this sense, there have been studies about management of several 3PL through a leader manager, the so called 4PL (Fourth-Party Logistics). The present study analyses the management of ten 3PL by one 4PL, having as its main objective the contribution for the understanding of the cooperation process used by them in the service provided to the biggest fast food chain in Brazil. For such task, every company was studied individually and in loco by the authors, showing that, although providing different services, they also compete with each other, revealing an adequate environment for the analysis of the 4PL operation. The study concludes that the differences and issues brought about by competition within the agents can be managed without any damage to the operation itself.

Key-words: Supply Chain Management; Collaboration; Third-Party Logistics; Fourth-Party Logistics

1. Introduction

Lately, the consolidation and practice of the concepts related to supply chain management (SCM) has taken the logistics service provider business (3PL - Third-Party Logistics) to perform a more comprehensive and integrated role with their clients. New configurations of this role have appeared in this trend, such as the Logistics Integrators (4
PL -Fourth-Party Logistics), combining management and operation of the logistics need of the supply chain (SAHAY, 2003).

Through a case study, this article works on the theme, exploring a 4PL management on ten other logistics service providers (3PL), for a large fast-food network in Brazil. Although the study deals with a specific case, with 11 companies, it is possible to notice several characteristics of this new kind of logistics service operation.

Therefore, with the case analysis and the theory on the 4PL, the authors aim to set a comparative parallel of a practical case with what is described in the logistics literature, listing, as an original contribution, the factors which differentiate the 4PL from the 3PL as competitors or co-operators.

The study does not intend to define a position on the 4PL, but to contribute to a better understanding of the matter. As it is a relatively new theme in the literature, this is an opportune timing to explore it further. It is still possible to find different definitions of the concepts and ideas, or even of the propositions on what exactly a 4PL does.

Considering a survey by Langley and Allen (2005) about Logistics Providers, in the next 3 to 5 years there is going to be a clear trend of solutions of 4PL (or logistic integrators). The reason for this is in the adoption by the companies of the concepts of larger integration in the supply chain processes, requiring 4PL service providers. Therefore, those providers should offer multiple services of logistics information, operational knowledge and relationship, besides a direct participation in the integration of the supply chain processes.

2. Methodology

During a study on logistics integration in a large fast-food network operating in Brazil the authors had the opportunity to explore the SCM process of that network
executed by their logistics service provider. This operation used the 4PL pattern of management.

The logistics service provider of the fast-food network (4PL) and ten other companies (3PL) were analyzed (ingles dos EUA) by the authors for about two years. This period allowed the authors to understand not only each company’s business, but also their behaviour. During the survey, the interaction with several employees solved doubts and aligned the theoretical research with what the practical observations. This interplay, besides helping the authors understand the companies, facilitated the comparison between the factors obtained from the theory with the ones observed in practice.

The experience of keeping in close contact for a long period with the companies allowed the authors to gather a great deal of information and considerations about the process. It is worth mentioning that the 4PL issue, especially its combination with the integrated management of supply chain, and the occurrence of practical cases is quite rare.

3. Bibliographic review on the theme

Herein the study explores the existent literature on the two main agents involved in this case, the 3PL and the 4PL, on the cooperative management and on the logistics provider’s role.

3.1. On 3PL

Characterized by the different organizational transformations, outsourcing is consolidated in several sectors, and it was not different in the logistics service. At first, the management focused on storage and transport, without a strong relation with the more strategic processes of SCM.

According to Lonsdale and Cox (2000), outsourcing has occurred more frequently in support activities than in the primary chain activities. In the case of the LSP (logistics
providers), they can take over primary activities or not, but are directly involved in the client’s business.

Surveys show that the companies feel more comfortable outsourcing less important activities than more vital ones. Despite the logic of those studies, it can be said that outsourcing with a LSP is then an exception, considering many of the logistic activities are very important for the companies’ businesses. About 75% of the outsourced activities are support services, because managers believe it to be more comfortable to risk in activities that are not fundamental for the company’s business (LONSDALE e COX, 2000).

In a complementary vision, Svensson (2003) believes that companies have been cutting down the number of sub-contractors and concentrating more and more activities in one sub-contractor. This increases their dependence on the chain and the chances that the LSP will have a larger number of activities provided for one company or supply chain. The same is the opinion of McIvor (2003), for whom outsourcing should take into consideration the competence of the contractor in integrating the activities and sub-activities contracted.

According to Berglund et al. (1999), there are two factors that lead companies to outsourcing: the size of the demand and the size of the supply chain. In an adaptation of the topics suggested by Bolumole (2001) and Jaafar e Rafiq (2005), here is a summary of the motivations and reasons for a company to outsource logistics services and the possible reasons why they decide for a partner:

- Concentrating efforts in their own business and gain new markets;
- Reducing logistics costs and avoid investing in assets that are not related to the company’s business;
- Having a complex supply chain due to a fragmented suppliers base;
• Increasing product restitution (reverse logistics);
• Coordinating logistics activities in a wider context;
• Improving and controlling the quality of logistics services and activities;
• Having more flexibility and efficiency in logistics operations;
• Having access to new Information and Communication Technology - ICT and logistics knowledge.

Authors such as CHRISTOPHER and TOWILL (2001), JAAFAR and RAFIG (2005), KNEMEYER and MURPHY (2005) point out that price is one of the most important criteria in the selection of LSP, next to its experience, the activity to be outsourced and the professionals’ qualification. This position contradicts the reasons presented and discussed that this provider, through their activities, is essential for the development of the supply chain. If price of the service or activity is determinant, then there may be limitations and deficiencies in the chain, once the importance of services and activities’ integration to the final results of selling the product to the consumer is ignored. It is clear that this position cannot disregard the fact that, from the hiring company's standpoint, not investing in logistics attributes is a way of reducing cost.

For Ayers (2001), the LSP is a partnership instrument in the supply chain due to their know how and infrastructure. Langley and Allen (2005) consider the LSP an external organization that executes all or part of the logistics activities and functions for a company, but Stefansson (2005) suggests the name "logistics services intermediary", assigning it other complementary services.

The initial tendency of outsourcing logistics processes, contributing for the appearance of the LSP, came from the lack of specialization in the distribution processes,
centered especially in storage and transportation activities, the basic functions of logistics. Later, companies that outsourced aiming to obtain advantages and facilitate supply chain integration, realized that they could be seen as part of the chain. The organizations that outsourced for operational and costs reasons restricted the involvement of the LSP only to the basic functions of logistics (BOLUMOLE, 2001; CHRISTOPHER e TOWILL, 2001).

Stefansson (2005) identified in the literature an apparent mixture of terminology in the different services executed by the LSP. Nevertheless, most include the same activities or present small adjustments in the portfolio offered.

In a study that discusses and defines the theoretical structure of the LSP through a commercial relationship between users and LSP, Knemeyer and Murphy (2005) point out the lack of more comprehensive definitions for the LSP services, and the fact that studies tend to adopt a particular view of them. As Ashenbaum et al. (2005) pointed out, the terms used are different, but the function or activity is the same, it is a matter of nomenclature.

The degrees of outsourcing vary, and the outsourced activities are very complex. The LSP reaches from the simplest activity to the most sophisticated logistics solutions (STEFANSSON, 2005).

3.1.1. The logistics service market and its importance

Logistics is a key element used by companies for the development of systems in their supply chains. Companies that use LSP starting regarding it as a key element in the development of their supply chains (RAFELE, 2004).

Svenson (2003) points out that the companies tend to sub-contract a larger number of activities in the outbound flow and smaller in the inbound flow, keeping more dependence in the outbound processes than in the inbound ones. Data from the survey by Jaafar and Rafiq (2005) show about 4% of contracts are inbound and 52% outbound.
Independently from the relation in the logistics flow, the LSP gains space and makes the client more dependent, as the researches show the reduction in the logistics assets as one of the main causes of outsourcing these services. Hence, naturally, it will be more difficult for the company that refrains from investing in those assets to assume the operations instead of outsourcing them.

Vaidyanathan (2005) points out that an LSP that is knowledgeable in supply chain and global relations is a strategic option to offer innovating solutions in logistics, in stock control, demand management, finding better levels of allocation, multi-modal transport, storage, Information and Communication Technology, global coverage, and also, the ability to act in the manufacture and services of the industry. Companies tend to gain in competitiveness with customized logistics services.

For Sinkovics and Roath (2004), the relationship between the LSP and a producer generates operational flexibility that increases the competitive orientation by the logistics impact in the market performance. Thus, the operational flexibility is the most highlighted ability. If the company satisfies the clients’ needs and expectations better than their competitors do, a better relationship is built, increasing the possibility of retaining the client. This way the producers can leverage and improve their capacities by working with the LSP. For those authors, the fact that the producer does not need to develop logistics capabilities helps them internally, besides improving their relationship with the market.

Chapman et al. (2003) see the logistics industry as a classical example of birth and development of a new vital service, transformed from a transport service concept aiming to serve all the logistics need of a client. This view shows the flexibility the LSP has in the market regarding the potential services offered. Usually, the LSP accumulates roles as it extends the relationship with their clients, reaching a better understanding and trust in the
operational process and in the services provided. Thus, they gain confidence and enlarge their area of action, building a wider portfolio of activities.

In a more updated view, the LSP may be entering a fourth wave, whose evolution of cooperative concepts in supply chain, as well as the view of SCM as a differential tool and competitive advantage, incorporates in the LSP new functions. That combined with the use of technological tools differentiates the LSP from a mere executor to an integrator chain agent (LANGLEY and ALLEN, 2005; LIEB, 2005)

Halldórsson and Skjott-Larsen (2004), point out that the LSP should be able to generate competencies to their clients, creating a partnership of logistics solutions, as well as be able to learn from their clients. Therefore, with each new client or change of clients, there will be a learning curve, creating new abilities and competencies to the LSP.

Hoek (2001) pointed out years ago that the LSP would have relevant opportunities to expand their services, for it was then one of the main companies with actions turned to the supply chain, moving to functional areas, by means of traditional services, such as production and marketing activities. The author also highlighted that with the expansion of integration processes in supply chain the market would be even more dependent of LSP.

Langley and Allen (2005) mark the importance of LSP’s relationship with the client as a way of expanding services. They point out as clients’ expectations the need for the LSP be more dynamic in technology offer and operational solutions, such as order reception and product tracking.

Since 1994, LSP has widened services trying to fulfill the client’s wishes of dedicated services. More recently, businesses have highlighted services in the end of the supply chain, such as equipment installation, repair services, kit assembling, etc. This
market trend has focused the LSP on a specific segment of companies or business. This has been seen as a differential factor for the competitiveness of the LSP (LIEB, 2005).

3.2. On 4PL

The LSP intention is to maintain their services and keep on working as a logistics solutions provider. However, the tendency in the contracts between LSP and their clients has been to require a larger geographic coverage and more activities. This is a challenging scenario for them. In the long run, the market tends to provide more opportunities for logistics companies, dedicated to wider projects, aiming at the coordination and integration of activities, like the 4PL (Lieb, 2005).

Langley and Allen (2005) affirmed that the LSP, by incorporating new activities required by the market, has changed in the last years, in a move that demonstrate progress and maturity of the operators. However, clients expect to obtain more ability in service development, relationship improvement, relevance in information and involvement in the rules and concepts of integration in the supply chain from the LSP, as well as building expertise and dedicated operations. Likewise, for those authors, the market tends to solutions coming from companies turned to logistics coordination. This brings the following expectations for the LSP:

• Evolve into a solution provider for the supply chain;
• Increase the portfolio of outsourced services through a larger number of activities (widen services for the clients)
• Continuous improvement in technology and ability to provide the necessary services;
• Focus in the client’s need (provide the right solutions, get involved in the client’s integration plans and understand the industry-client)
• Extend the relationship with the client;
• Keep acquiring companies and expanding businesses;
• Act in global markets;
• Move to logistics coordination solutions as a 4LP;
• Search for long term relationships, based on contracts longer than two years.

Chapman et al. (2003) say that logistic organizations are redesigning their structures and relationship, creating a knowledge chain that facilitates and improves the data, information and knowledge communication, as well as coordination, decision making and planning. They should mainly synchronize activities between the agents of the supply chain (aiming to gain and integrate knowledge) and operate with information and communication technology, thus providing more efficiency and productivity for the chain.

The presence of LSP using information and communication technology may cut costs of logistics operations and favor the integration of the supply chain. This combination will lift the LSP to higher levels of responsibility in the chain, as logistics leading or 4LP, coordinating other LSPs and working in solutions for the supply chain (VAIDYANATHAN, 2005).

For Langley and Allen (2005), the LSP developed their business model to serve the clients’ expectations and gain more participation in the market. The business patterns vary according to the scope of offered services, the regional coverage and the degree of coordination in the supply chain. In a survey on LSPs, the authors point out a certain confusion of the interviewees in understanding the changes in the segment.

Ratten (2004) marks that many logistics alliances have been made based on technological changes, to improve the data transmission and transactions. In this case,
alliances with companies of the technology sector may be necessary for the LSP. For Bienstock (2002), the LSP should think strategically in terms of rules and external information resources, to maintain position and support the relationship with their clients.

Considering that the LSP is a natural candidate to evolve their services into a 4LP, Visser et al. (2004) and Hoek (2006) defend that they must have well defined strategies to start the transition process. Furthermore, they must understand the importance of investments in information and communication technology, to reach this objective. For them, the lack of these qualities may explain the slow development of the 4LP.

Visser et al. (2004), Hoek (2006) and the Supply-Chain Executive Board (2005) make the following considerations on 4LP role in this pattern of management.

Visser et al. (2004):

- The LSP leads the operation, but their client controls the strategy on the basic concepts used in the supply chain. The LSP improves the effective operation in the chain, but does not get involved in the discussion of strategy and logistics concepts.
- The 4LP suggests how to reconfigure in terms of space and functionality the supply chain, to cut costs and improve services. The 4LP develops intense knowledge and logistics competence, besides providing researches/studies for their client to improve the chain. Thus, the 4LP suggests, designs and implements new solutions in the supply chain.
- The innovation is in the fact that the 4LP presents other priorities in relation to the traditional logistics company.
- A candidate to 4LP has to invest in their image and reputation, specialize in certain activities and sectors and find new ways to demonstrate their reliability.
Hoek (2006):

- The 4LP takes part in the coordination of the chain, while the traditional LSP simply provides operational services.
- Becoming a 4LP lifts the traditional LSP to a position of coordinator of the product flow, instead of simply operating the physical transportation of the product.
- The LSP model requires more assets than the 4LP, since the latter is more dedicated to the coordination process.

Charts 1 and 2 show a summary of the considerations of Hoek (2006) comparing the development of services provided by LSP and 4LP.

<table>
<thead>
<tr>
<th>Factors</th>
<th>LSP</th>
<th>4 PL</th>
</tr>
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<tbody>
<tr>
<td>Involvement in services provided in the supply chain</td>
<td>Physical movement and execution</td>
<td>Operation coordination and administration</td>
</tr>
<tr>
<td>Intensity of assets to provide services</td>
<td>High; vehicles, storage equipment</td>
<td>Low; information and communication systems</td>
</tr>
<tr>
<td>Intensity of knowledge</td>
<td>Low; standard tasks</td>
<td>High; organization of product flow</td>
</tr>
<tr>
<td>Dependency on the producer to supply the demand</td>
<td>Medium; low cost change ans several service providers</td>
<td>High; the producer has orders to serve and depends on the supplier</td>
</tr>
<tr>
<td>Contact point at the producer's</td>
<td>negotiated contract</td>
<td>Dedicated contract and strategic coordination of the chain</td>
</tr>
<tr>
<td>Performance</td>
<td>Possibly limited in gains and results</td>
<td>More wide-ranging measures, involving client service and results in the chain</td>
</tr>
<tr>
<td>Shared information</td>
<td>Limited because it impacts only the execution</td>
<td>More wide ranging, including clients and suppliers, policies and priorities</td>
</tr>
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Chart 1: Factors on LSP and 4PL (HOEK, 2006)
<table>
<thead>
<tr>
<th>Pros</th>
<th>Risks</th>
</tr>
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<tbody>
<tr>
<td>Migrating to added value service, getting away from low-profitability jobs</td>
<td>Failure to serve the client by focusing on strategies that concern the LSP and not necessarily agree with the client's needs</td>
</tr>
<tr>
<td>Expand the relationship with the client, increase revenue and act directly in the client’s supply chain</td>
<td>Wearing and compromising the relationship while implementing the competencies</td>
</tr>
<tr>
<td>Keeping the client through high dependency on the information system and low reliance on own assets</td>
<td>Few barriers to enter the market, with the possibility of overflowing the market and transforming the services into commodities</td>
</tr>
<tr>
<td></td>
<td>Mixing different market and business models in a single organization</td>
</tr>
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Chart 2: Advantages and risks in the transition from LSP to 4LP (HOEK, 2006)

Supply Chain Executive Board (2005):

- The 4LP offers logistics services for the supply chain, such as managing the LSP, allowing a great opportunity of reducing costs. The 4LP consolidates the logistics needs of many companies, gaining with this scale and obtaining advantages in negotiations with the LSP. In short, the 4LP acts as a total provider in the supply chain.

- With the LSP, the 4LP coordinates storage, shipment and transportation. For such, they must have on-line location tools and customer services able to make the expedition operations visible. They must manages claims and payment of contractors as well.

- With distribution services, the 4LP can use the LSP’s assets or their own for delivering products to the client. There is also the possibility of including several other services such as packaging, assembling, etc.

- In consultancy services for the supply chain the 4LP can analyze the information flow process to redesign a more efficient network. This includes identification of the best alternatives of transport, operation site, delivery frequency, etc. The technology capacity is also essential for the implementation and integration of services.
The types of activities of the 4LP depend specifically of each company’s needs, the most common being managing the LSP. Like the LSP, the 4LP is responsible for ensuring storage, shipments and expedition, in the most efficient way and at the lowest cost. Some companies use the 4LP as a logistics leader managing the LSP, transportation and storage site.

Many companies resist to outsource activities to the 4LP because they believe they will lose control on the LSP performance and jeopardize the service to the client.

Control tools can help the relationship and improve the services contracted with the 4LP, such as:

- Agree on performance measures to evaluate operations, such as operational performance, customer service, management quality, competencies of cost and control systems;
- Implement objectives according to the level of contracted services;
- Sharing of profit, according to agreed objectives;

The different considerations on the evolution of LSP have in common the coordination of the SC activities with their clients. The innovations of the patterns presented is in the coordination of other outsourced companies and the more strategic involvement with the SCM. In short, the proposals give new responsibilities to the LSP, besides a new denomination.

3.3. On Cooperative Management and the LSP Role

The LSP should not be seen only as a simple outsourcing of logistics services, but as a business relationship committed to the client’s business (SAHAY, 2003).
The LSP stops acting only in support to make part in the client’s strategy, for the tendency of outsourcing by companies has been to reduce the number of sub-contractors, having a larger number of activities operated by the same company (SVENSSON, 2003).

The diversity of activities executed by the LSP, as well as their ability to act in the chain assuming new responsibilities from the client is acknowledged by several actors. The larger the number of services incorporated by the LSP in their portfolio, the more specialized they become, thus gaining more clients and businesses (LIEB, 2005; LANGLEY e ALLEN, 2005; CHAPMAN et al., 2003; HALLDÓRSSON e SKJOTT-LARSEN, 2004).

Because of the complexity integrated services in the chain, the companies (LSP and client) must have a sharp focus on the wished operations, as well as management values and fundaments relatively correlated. Even then, the risk inherent to the sharing of business is present.

The LSP specialization in performing the activities, even the basic ones like storage and transport, tends to contribute to the businesses of companies that do not have that knowledge. This idea is defended by Sinkovics and Roath (2004) and Vaidyanathan (2005), and is complemented by the possibility of reaching new markets through the use of the LSP that already act in differentiated markets.

The synchronism of several activities coordinated by one agent, like the LSP, helps in the performance of the chain. Chapman et al. (2003) report that clients wish to have a LSP with more ability to develop logistics services as a way for the LSP carries on coordination and innovation actions.

Pagell (2004) suggests some important points to be observed in integration processes of operational services in supply chain by the LSP:
• Structure - Sufficient to serve the client’s flow;
• Culture – Knowledge of how to deal with internal culture and different culture of their clients;
• Communication – Prepare for real time communication;
• Measures and rewards – Ability to work evaluating their operations, both internal and external, adding to results rewards and penalties;
• Consensus/Integration – Keep consensus and integration between the agents during operational practices;
• Operation size – Establish with client if there is operational capability to perform the contracted services.

In this path, technological support for transference and transaction of data has become an ally of the LSP. With updated information and communication technology, new configurations are presented to logistics management by the LSP, as several authors suggest (HOEK, 2006; LANGLEY e ALLEN, 2005; VISSER et al., 2004), when defining the 4LP as integrators or logistics leaders in a wider coordination function than the simple operation.

Barratt (2004a) relates this new technology to the many solutions that came up in supply chains. They indeed contribute a lot to SCM, as important tools for the relationship and operation. However, these solutions are not consistent without coordination and knowledge. This role can be handed to the LSP, considering their capability to incorporate services and responsibilities.

Hoek (2006), Langley and Allen (2005) and Visser et al. (2004) highlight the scope and responsibility of this provider in the supply chain, with the evolving trend of acting in
coordination processes and indirect management of third parties. The issue of this new role for the LSP is in the fact that a fourth party process (4LP) may supposedly generate a tendency to aggregate unnecessary costs, creating an extra fare over services or structure that a LSP or a third party already has.

Stefansson (2005) presents the idea of a logistics intermediary as a way of improving costs and widen services, performing the role of coordinator and activities manager through their own structure and, when needed, using third parties’ structures. A mixed system of owned and third-party resources for operations in the supply chain can help improving costs, because having all the necessary structure for a chain, besides being expensive, can be operationally complex and even unfeasible. This can also give the LSP a better view of the level of service provided to the client.

Logistics activities are the main product of the LSP, and because they are many, they become business opportunities and a door open to new relationships with potential clients. The LSP should be aware of their role in the client’s chain flow, aiming to incorporate more and more activities.

Considering the different factors associated to the supply chain, such as their complexity, need of agility, acting with several agents and activities, it can be said that the business opportunities for the LSP are innumerable.

Authors such as Cox (2005b), Harrisson and Hoek (2003) and Fawcett and Magman (2002) mention the possibility of the LSP gain more space in the supply chain as the companies integrate the processes with their agents, like in the demand management, which requires technology and coordination.

The adoption of the LSP with multiple activities can reduce the number of suppliers, leading to what was observed by Cristopher (2006) in respect to the right choice of partners.
in the supply chain. This author thinks that for the SCM it is better to have a reduced number of committed suppliers than a large number of scattered uncommitted ones.

For the LSP, it is important to understand the importance of the assets, not only of the physical operational structure such as installation and equipment, but also the technological components that facilitate the relationship with the client. In this aspect, technological tools allied to new management methods such as CPFR are instruments that should be part of the structure and knowledge of the LSP. These tools, according to Fliedner (2003) and Jhaukharia and Shankar (2004), favor the integration process and can be used by the LSP to improve the operational processes of the supply chain involving several agents, as well as gaining new activities and clients.

4. Case Study

The case study was conducted using three approaches and/or considerations: (1) considering the 4LP and the Fast-Food network: (2) considering the 3LP studied and (3) considering case analysis of the factors that surround the relationships in those companies.

4.1. The 4PL and the fast-food network

During their trajectory, the fast-food network developed a relationship of commitment with the suppliers, sharing missions, objectives, beliefs and values. This position clearly strengthened the collaborative behavior. On the other hand, it gave to the majority of their suppliers exclusivity with the restaurants, and their logistics services provider (LSP) the responsibility to act in the SCM, coordinating not only the delivery and distribution but also the replenishment with their suppliers.

In this relationship, each agent’s role in the supply chain can be summarized as follows:
- Fast-Food Network: responsible for operating the restaurants, defining promotions and advertising, selecting suppliers, prices and products, developing new products, creating strategic business plans, assessing and standardizing processes, and solving conflicts in the chain;
- LSP: responsible for stock and purchase management, distribution and transport, supplying restaurants storage, transference to other distribution centers in the country, financial management in the chain, logistics planning, fiscal planning, field service and coordination of the supply operations in the chain.
- Suppliers: responsible for the quality of manufacture, development of new products and the inbound SCM.

Figure 1 shows the relationships between the parties in the supply chain above mentioned.

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**Picture 1: Supply Chain of the Fast-food Network**

It is important to mark that this structure of the fast-food network, delegating to the logistics provider the responsibility of supplying the restaurants, favors the use of a management of the 4LP pattern.

**4.2. The 3LPs**

The studied companies are logistics providers that have been in the market for more than ten years, and have worked with the 4LP for over five years. All of them have been
through the process of increasing activities in time, proving what the theory pointed out as an evolution in the segment.

The 10 companies were chosen for the importance of their services to the 4LP, besides their daily activities in the routine of the fast-food network. The companies, which have their names omitted, can be characterized according to the following description:

1 – It is a national company located in the state of São Paulo, with about 35 employees, for 11 years in the logistics market. Despite having their business turned to air shipment, in the last four years has widened their services and operations, taking advantage of their structure and the relationship with their clients. To support their operations, they now have their own vehicles dedicated to transport of cold and dry products, a storage warehouse in the city of São Paulo and contracted operators in every state capital in Brazil.

2 – It is a national company with several branches specialized in frozen and chilled products storage retail distribution and kits assembling. They have operated for 25 years, with about 300 employees, their own vehicles for frozen products transport and operation turned to the fast-food segment.

3 – It is a national company with family management, 34 years in the market, 450 employees and 12 branches in the country, acting with clients from different segments, such as Kraft-Foods, Sara-Lee, BSG-Continental, Parmalat and others. It operates with transport, storage, assembling and packing services, maintenance, and outsourced services.

4 – It is a large national cooperative in the transport segment which in 17 year of operation has been specializing and incorporating operations and large clients. They have 40 permanent employees and storage branches in the states of São Paulo, Rio de
Janeiro and Paraná, and a container terminal in Santa Catarina. Their main business is transportation, but they also have dedicated operations and storage with clients such as Sadia, Perdigão, Danone, Brasken, Nestlé, Suzano Petroquímica, Firestone etc.

5 – It is a company turned to customs operations supporting any large clients such as Arcor, Cabot and Flint-ink. It work not only managing import and export processes, but also in storage and transport solutions for their clients’ products. It is 16 years old, with administrative headquarters in the city of São Paulo and 90 employees working with their clients. It operates in 4LP style, focusing on imports and exports, without a physical structure, managing third parties directly involved in these types of operation.

6 – It is a national company specialized in kit assembly, packing and re-packing of goods and magazine inserts. They have storage area, equipment and assembly lines for these processes. The company has great versatility and mobility of workers, performing large operations in a short term basis. They also operate with retail goods distribution, specially bookstores and newsagents.

7 – It is a company of general storage of dry goods, with 4 units in the metropolitan São Paulo area. They also coordinate the transportation of goods directed to their units.

8 – It is a large transportation company with a strong participation in supermarket chains. It has activities in vehicles rental for several segments, tailor-made and offer management services and vehicle maintenance.

9 – It is a service provider with about 30 employees for maintenance and rental of storage equipment. They serve demand peaks for several clients, providing temporary vehicles and workers. Know-how in internal management of storage and transport equipment, supporting clients with technological tools developed during years of experience.
10 – It is a large customs warehouse for chilled and frozen goods. They run selection and shipment services contracted by their clients, with some packaging lines in the premises for specific contracts. They also act as an intermediary in the transport service with partner companies.

The following Chart 1 shows a comparison of all the activities executed by the 3LP and the 4LP. Here it is possible to see the similar activities they execute, which makes them market competitors.

<table>
<thead>
<tr>
<th>Services</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>4PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freight and fleet management</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Storage</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distribution</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Mounting Kits / Packaging</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Customs Services</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fleet maintenance</td>
<td>X</td>
<td>X</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Maintenance of Storage equipment</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Vehicle and equipment rental</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Customer Service // Call-center</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Product recovery / Reverse Logistics</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Client Stock Management</td>
<td>X</td>
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<td></td>
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<tr>
<td>Fiscal support / collection and administrative services</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Logistics studies / Projects</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Air services</td>
<td>X</td>
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</tbody>
</table>

Chart 1: Comparisons between the activities of 3LP and 4LP

As many activities in the supply chain are not executed by the 4LP, for the fast-food network they are consequently carried out by other companies, the 3LP. Interesting aspects come about from this relationship, such as:

- Although they are competitors in many activities, the 3LPs do not make of this a conflict generator factor.
- The relationship between them favors the indication for services execution, either between them or for other clients they are serving. As an example, the 3LPs offer air transport, customs, packing and maintenance services due to the indication by the 4LP.
- The fast-food network knows about these providers, what they do for the 4LP and what they execute in the market. This is a risk for the 4LP.

Chart 2 below compares the literature view on the 4LP with the studied case.

The 4LP characteristics mentioned in the literature indeed correspond to the observed in the studied case. There is relative difference in the assets issue. In the case, the 4LP is strong in assets and direct execution of several activities, in opposition to the theory that suggests only management of the 3LPs, the actual executors.

<table>
<thead>
<tr>
<th>Literature</th>
<th>Comparation with the studied case</th>
</tr>
</thead>
<tbody>
<tr>
<td>The 3LP tends to become a 4LP</td>
<td>Three of the ten 3LP have clear characteristics to become a 4LP</td>
</tr>
<tr>
<td>The 4LP is not based on assets, but in technology and knowhow</td>
<td>In the study, the 4LP is a combination of assets with technology and knowhow</td>
</tr>
<tr>
<td>Having support on information technology is a characteristic of the 4LP</td>
<td>The 4LP is strong in information technology, and this is not so representative in the other 3LP</td>
</tr>
<tr>
<td>The 4LP must build a commercial reputation</td>
<td>This aspect is important in the 4LP, for its reputation is much stronger than the others'</td>
</tr>
<tr>
<td>The literature suggests to the 4LP a widened management in the supply chain</td>
<td>The 4LP acts in all the fast-food network chain, the 3LP do not act with any client in this mode.</td>
</tr>
<tr>
<td>Total integration and focus in aggregating value to the client's business</td>
<td>This aspect is important in the 4LP, in the others it is not very explored yet</td>
</tr>
<tr>
<td>The logistics strategy and the operation design are attributions of the 4LP</td>
<td>This occurs in the case, and the 3LP follow the guidance of the 4LP</td>
</tr>
<tr>
<td>Focus on the chain results, based on the client's or business results</td>
<td>the 4LP has it very clear and spreads it to the others, including payment and rewards linked to the indicators contracted by the fast-food network</td>
</tr>
<tr>
<td>Searching for logistics solutions</td>
<td>The 4LP develops many ideas and projects, which does not happen with the 3LP</td>
</tr>
</tbody>
</table>

Chart 2: Comparison between the literature and the studied case

4.3. Complementary considerations

Being the fast-food a strong name in the market, all the agents mentioned in this study use the relation with the 4LP as a differential in the conquest of new clients. This
may be one of the factors that facilitate the relationship balance between them, avoiding the competing services to become a dispute and conflict element.

Another interesting factor observed in this case, is the fact that there is not a centralized 3LP management in one only sector or department of the 4LP. Each manager is responsible for conducting the relationship they contracted with the 3LP. If a 3LP can provide services in a different area, the managers internally agree that the contracting area manages them. Although the 3LP execute several activities, the 4LP tries to contract their most specialized services only.

Among the largest 3LP, especially the ones with contracts with large companies, we saw a certain interest in keeping in contact with the fast-food network business, as if this would allow them, in an eventual competition, to dispute the account. This means that, even if the relationship between them is professional and free of conflicts, their common interests and strengths make the competitors.

On the other hand, they generate new businesses between them and with suppliers of the fast-food network. This is important for the 3LP; being in a new supply chain allows them to explore new relationships.

Next, we list the principal factor favoring the relationship between the 3LP and the 4LP, making them co-operators, and the principal conflicts making them competitors.

Co-operators:
- The 3LP cover services that the 4LP are not able to or not interested in executing.
- When contracted, the 3LP aim only at the activity object of the contract.
- The 3PL know the performance indicators that they should execute, and the strict requirements of the operations.
- The 3LP train employees in the 4LP for the execution of the activities, guiding them on the characteristics of the fast-food network business.

- The 3LP explore the chain, gaining new contracts through it.

- The 3LP personalize assets for the operations of the fast-food network, according the criteria defined by the 4LP.

- Results are shared, following indicators guided by the businesses with the fast-food company.

- Providing services linked to the fast-food network aggregates value to the 3LP businesses.

**Competition:**

- The 3LP know that the 4LP can invest in the activities that they execute, which would mean the end of the businesses with the 4LP and the fast-food network.

- The 4LP know that some of the 3LP have the potential to work directly with the fast-food network, either in regional actions or even taking over all the activities.

- The investment in technology belongs to the 4LP, making the 3LP their dependents.

- The 4LP have among the 3LP a tool to compare prices of services.

- For some 3LP the service executed is marginal, little representing in terms of input, so they may abandon the 4LP.

- They all work with short-term contracts.

- The prices of the services are based on the negotiations between the 4LP and the fast-food network, transferring to the 3LP the same adjustments.

- As the 3LP expand their business, they become a threat to the 4LP.

- There is an implicit competition among the 3LP within the 4LP, with quotations and service pricing.
- Taking part in the management pattern between the 4LP and the fast-food network helps the 3LP understand and learn this pattern.
- Most 3LP lack the structure and assets that the 4LP have, especially the information technology that surrounds the operation.
- The fast-food network does not show interest in having more than one agent working in its supply chain operations.
- The 3LPs do not execute project development, which inhibits their expanding more comprehensive businesses in the supply chain.

6. Conclusion

The study used a real case, where it was possible to observe the characteristics that help to understand the role of a 4LP in the management of several 3LP. The theory, still in a phase of building the concepts on the theme, has not yet been able to establish a standard pattern for this new type of logistics business. Consequently, through the current theory, it was possible to establish a relation with the practice studied in this case.

A consensus among the authors is that the 4LP will always be linked to the improvement of the SCM system and the service pattern should be based on integration and logistics solutions. This is clear in the pattern adopted between the fast-food network and the 4LP.

A company that works in the pattern of a 3LP would hardly be able to gather all the activities in a supply chain. If the companies start to contract logistics agents able to manage their chain, more and more 4LP will appear.

Many factors characterize positions that make the 3LP and the 4LP co-operators, one complementing the deficiency of the other, or even generating businesses between them. Other factors make them competitors, like the interest in the fast-food company
account. However, they work side by side and manage the conflicts making the relation an interesting business for all, the 3LP and the 4LP.

In the questions related to competition, an important factor is the information management through information technology, a very strong aspect for the business of the 4LP in the studied case.

The study concludes that the divergences and differences brought by the competition between 3LP and 4LP can be managed without loss for the contracted operation. This reinforces the idea of the flexibility of the logistics providers, very present in the literature, demonstrating the facility they have in adapting to different environments and operations, besides revealing something not very explored that is one’s service complementing other’s in the same operation.

Since this studied was limited to one case only, generalizations and more comprehensive considerations are to be avoided. However, it is possible to establish considerations related to new studies contributing to the literature on the 4LP, with a deeper analysis of what indeed may be activities and attributions of this industry, and how these activities may contribute with the proposal of integration in the supply chain. Another important matter to be investigated is the origin of new 4LP, that is, if they are a development of 3LP of other segments; if the initiative of this process belongs to the clients or to the 3LP themselves. Finally, there are many opportunities of research on this current model of logistics operation.

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