

4PL LOGISTICS OPERATOR IN THE SUPPLY CHAIN

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Abstract

These days, an increase is being observed in the number of 4PL operators on the market of logistics service providers. The purpose of the article is to present the role of the logistics operator in the management of the supply chain of companies on the territory of Poland as well as the kinds of services provided by these companies. The methods used herein include an analysis of literature, a method of selected case studies and indirect measurements. The analysis was based on four logistics operators with the largest incomes on the Polish market: Raben Group, Schenker Sp. z o.o., FM logistics and DPD Polska Sp. z o.o.

Key words: logistics operator, supply chain, management, 4PL.

Introduction

The creation of partner relations in supply chains has become an elementary way to build competitive advantage among manufacturing and trading companies. The logistics operator contributes to an increase in the company's value, a reduction of costs and reserves, an improvement of financial liquidity and changes in the operation of the company. The logistics company becomes an integrator in the whole supply chain. In the area of logistics services, outsourcing has led to the occurrence of companies defined as 4PL (Fourth Party Logistics Service Providers) on the market. 4PL as a specialist logistics operator provides comprehensive services that may include basic services such as forwarding, transport and storage and a wide range of services that increase the value of products, and the function of an integrator of supply chains that involves planning, coordination and control of the network of supplies. In the present-day economy, the role of 4PL logistics operators is systematically increasing as integrators of logistics services that possess appropriate abilities, material resources, labour force and technical equipment: IT systems in particular. The purpose of the article is to demonstrate the role of the logistics operator in the management of the supply chain of companies on the territory of Poland. The methods used herein include an analysis of literature and a comparative analysis as well as a method of selected case studies. The analysis covers four logistics operators with the largest incomes on the Polish market. It should be emphasised that the carrying out of tasks attributed to

logistics in relation to supply chains, which takes into consideration objectives for ideal chains, would not be possible without the existence of an appropriate logistics infrastructure that ensures the flow of logistics streams.

Logistics operators as an integrator

The logistics operator is a specialist supplier of external services that, within the framework of its basic operations, accepts all or part of the logistics functions for the company. They constitute secondary market activity¹. Logistics operators offer a comprehensive logistics service, thus integrating the whole supply chain, whereas the comprehensive logistics service is an integrated set of services which is offered by the service provider. It involves not only services connected with the physical movement but above all IT services, financial services and services in the area of logistics functions management that satisfy the demand of the customer, i.e. a manufacturing or trading company. Companies take decisions on handing over all the logistics functions to a specialist entity as part of outsourcing. The decision related to the outsourcing of logistics activities is usually connected with carrying out the elementary operations of the company without involving any resources in logistics management. The role of the entity that accepts these tasks is adding value in the process of supplies and distribution through the achievement of a high level of specialisation and constantly maintaining it on the global market. Those companies that provide logistics outsourcing services are defined as 3PL companies (Third Party Logistics Companies). The following types of companies can be distinguished²:

- a standard 3PL supplier: the basic form of outsourcing of logistics services that ensures the services of the collection of goods, packaging, customising, storage and distribution;
- a developed 3PL supplier: that provides additional value to its customers in the provision process of the elementary logistics service through the shipment tracking service, cross-docking, specific packaging, ensuring a consignment protection system and services connected with customs procedures;
- a 3PL supplier that adapts to the customer: upon the customer's request, the company takes over total control and management of the customer's logistics, and there is integration of the logistics company with the customer's information system;
- customer evolving 3PL supplier: this is the highest level of the development of 3PL type companies, the supplier of logistics services is integrated with the customer, takes over logistics functions, develops new types and forms of services

¹ St. Krawczyk, *Logistyka. Teoria i praktyka*, vol. 1, Difin, Warszawa 2011, p. 214.

² S. Hertz, M. Alfredsson, *Strategic Development of Third Party Logistics Providers*. "Industrial Marketing Management" 2003, no. 32, pp. 139–148.

in cooperation with the customer; this takes place on the basis of consulting services and an implementation of new projects.

The TSL (transport-shipping-logistics) companies frequently do not possess their own means of transport, and they manage these, and they are not the owners of warehouses. However, appropriate support is necessary on the part of IT systems and human resources that possess knowledge and experience in the area of processes carried out in the supply chain³. Logistics operators, as the integrators of suppliers, make attempts to develop and adapt their network to the needs of their customers. They become coordinators assuming the dominating role in the flow of products and information. As a result, apart from 3PL logistics companies, a type of a logistics operator known as 4PL (fourth party logistics) was formed. Service providers of this type operate on a global scale based on the resources of other companies and, supported with electronic logistics platforms, offer to their customers' personalised services by providing comprehensive solutions to their logistics problems⁴.

In the integrated network, the logistics company considerably increases the scope of cooperation; it is not limited to acting between the supplier and the consignee but it maintains contacts with agents. The logistics operator becomes the basic element that creates the network and an integrator of the supply chain. It organises partners and has an influence on the material scope of the tasks performed and it also implements innovative IT technologies. The efficient functioning of the logistics operator reduces the operation costs and raises the effectiveness of processes in the whole chain. As a consequence, this leads to an increase in the quality of services and obtaining a competitive advantage. The logistics operator takes over those tasks that are distinguished in the areas of those processes that support the basic operations of the company. Benefits obtained on the level of basic services are additionally supplemented with benefits from successive levels. This approach reflects the development of the logistics operator's scope of activities both as regards objectives towards an extension of the range of services provided and as regards spatial aspects that indicate the growing area of operations⁵.

In the structure of a comprehensive logistics service, the following functions are included in its scope⁶:

- disposition functions: consulting, analyses and planning, selection of the means of transport, concluding shipment contracts and their inspection;
- transport functions: primary (distant) and secondary (near) transport;

3 K. Dziekoński, A. Jurczuk, *Koncepcja organizacji multiprojektowej w branży TSL* [in:] J. Witkowski, A. Skowrońska (ed.), *Zarządzanie projektami logistycznymi*, "Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu" 2008, no. 11, Uniwersytet Ekonomiczny, pp. 257–258.

4 G. Szyszka, *Sieci logistyczne – nowy wymiar logistyki* [in:] *Sieci logistyczne na zintegrowanym rynku europejskim*, Polski Kongres Logistyczny LOGISTICS 2004, ILiM, Poznań 2004, pp. 15–16.

5 S. Abt, *Zarządzanie logistyczne w przedsiębiorstwie*, PWE, Warszawa 1998, p. 18.

6 W. Rydzkowski, *Usługi logistyczne*, ILiM, Poznań 2004, pp. 14–15.

- handling functions: organisation and performance of handling, management of terminals and sorting departments;
- storage functions: acceptance and handing over of goods, storage and picking of freight, carrying out handling functions, management of stocks;
- functions connected with packaging: consultancy and selection of transport packaging, packing and unpacking, labeling including bar codes;
- information functions: handling of orders, creation and handling of information chains.

As a result of a constant development of new service areas, the offer of logistics services is dynamically broadening to enable more comprehensive and efficient services for logistics systems offered by logistics operators, whose objective is to stimulate integration and consolidation processes in supply chains.

Supply chain

The supply chain is a sequence of activities performed one after another by various organisations; all the events from the beginning of the value creation process up to the final user. In the management of the supply chain, attention may be focused on flows or on all operations⁷. One company may have one or many supply chains, which may result in cooperation in the area of logistics, marketing and research + development⁸.

Logistics is a part of the supply chain process, which involves the following:

- planning;
- capacity control;
- effectiveness of the flow and storage of goods and information corresponding to them;
- from the source (place where the good is created);
- to the outlet (the place of consumption or use) with the intention of satisfying the expectations of customers.

In the formation of the supply chain in the form of logistics systems that permeate the company and go beyond its legal limits, the orientations area clearly revealed the characteristics for a developed conception, i.e. system orientation, flow orientation as well as functional and cross-sectional orientation.

Supply chain management is defined as active management of activities performed within the framework of supply chains and relations between its individual links in order to maximise value for the customer and to achieve permanent competitive

⁷ P. Bolstorff, R. Rosenbaum, *Supply Chain Excellence*, American Management Association, New York 2003, p. 40.

⁸ M. Ciesielski, *Strategie sieci i łańcucha dostaw* [w:] J. Witkowski (ed.), *Strategie i logistyka organizacji sieciowych*, "Prace Naukowe Akademii Ekonomicznej we Wrocławiu" 2005, no. 1078, Akademia Ekonomiczna, p. 43.

advantage⁹. M. Christopher defines supply chain management as relations with suppliers and recipients aimed at delivering to the customer the highest value for the lowest costs in the whole supply chain as the final effect, also taking into consideration satisfaction of the final user¹⁰. The key factors of the supply chain include the flows of goods, information and funds which are decisive for its existence; the management of this chain takes place in these very areas.

The following are selected conceptions of the supply chain, taking into consideration the streams of information that constitute a confirmation of their gravity and knowledge in the future directions of the development of supply chains¹¹:

- integration with the customer (concentration on the customer's changing needs and expectations, flexibility in adapting to unexpected market circumstances);
- internal integration (identification, adaptation, implementation and constant improvement of best practices, use of the logistics network and material resources to deepen the degree of integration);
- integration with the providers of materials and services (management of relations with providers taking into consideration the hierarchic structure of providers, development of a joint vision of the value creation process and ensuring the transparency of planning and joint responsibility of partners in the supply chain);
- integration of technology and planning (management of the transfer of information in the order-delivery cycle, internal and external communication with the partners to the supply chain through an exchange of information in the appropriate time and format);
- integration of measurement (use of coherent cost accounting of ABC activities as well as budgeting and measurement methods in the whole supply chain, establishment of standards and effectiveness measures that are universal for the whole delivery chain);
- integration of relations (determination of leadership in the supply chain, the joint and individual responsibility of those companies that form the supply chain, readiness on the part of those companies that form the supply chain to share information, profits and risks).

In the supply chain, all those entities that constitute the links know each other, have coincident objectives, the same system of values and priorities, and the personnel identify themselves with the mission. Information reaches the individual links, it is interpreted in the same manner, and it brings measurable benefits that are shared by all the participants¹². Information in supply chains serves the purpose of coordinating

⁹ C. Bozarth, R.B. Handfield, *Wprowadzenie do zarządzania operacjami i łańcuchami dostaw*, Helion, Gliwice 2007, p. 35.

¹⁰ M. Christopher, *Logistics and Supply Chain Management*, Prentice Hall, New York 2005, p. 5.

¹¹ R. Matwiejczyk, *Kompetencje logistyki i łańcuch dostaw w świetle badań*, part 1, "Gospodarka Materiałowa i Logistyka" 2011, no. 3, p. 18.

¹² S. Wyrwich, *Dyfuzyja wiedzy w zarządzaniu łańcuchem dostaw* [in:] R. Grądzki, M. Sekreta (ed.), *Zarządzanie procesami logistycznymi*, Politechnika Łódzka, Łódź 2012, p. 48.

daily activities connected with the functioning of four areas of the supply chain: production, stocks, location and transport. Those entities that belong to the chain use available data related to the supply and demand during decision making. Information also enables forecasting of the demand and production planning. In this case, it serves the purpose of creating long-term sales forecasts on the basis of which logistics decisions are taken, such as the location of production plants and logistics centres, entering new markets or leaving the current area¹³. The competitive advantage of the supply chain is often achieved by means of the modernisation and optimisation of processes and internal relations, in cooperation with suppliers and recipients, thereby increasing the competitiveness of the whole chain¹⁴. Compound and multi-entity activities occur in supply chains. They are notable for the holarchical structure of those companies that cooperate with each other. The more the supply chain grows, the less coherent and more deprived of closeness the created system becomes¹⁵. Internal connections become less durable. In the case of small and medium companies, the situation is quite the opposite: large dependencies and lasting connections in the chain occur, which are not always through signing contracts.

4PL company in information management

The 4PL operator should handle the sphere of both physical and regulating flows. This assumption eliminates those companies which offer services connected with the informational integration of the logistics chain and offer services connected with on-line applications to support the functioning of such a chain¹⁶. The 4PL operator provides services to global companies, where it also often offers its services outside of their logistics chains. The customer, when issuing an instruction to deliver goods in the logistics chain, only communicates with the 4PL operator. The latter is responsible for the coordination of further activities performed by the remaining participants of the logistics chain. In practice, this coordination may even involve production planning in the case of the JIT system and arranging orders in a sequence for production considering changes resulting from deliveries and the lead time. All of these activities are performed by the 4PL operator. Handling of the regulating sphere of the logistics chain does not exhaust the scope of activities carried out by the 4PL

¹³ M. Hugos, *Zarządzanie łańcuchem dostaw. Podstawy*, Helion, Gliwice 2006, p. 26–28.

¹⁴ B. Śliwczyński, *Mapowanie strategii operacyjnej na procesy zarządzania łańcuchem dostaw*, "Logistyka" 2005, no. 3, p. 11.

¹⁵ K. Grzybowska, *Zaufanie – niezbędny czynnik łańcucha dostaw*, "Gospodarka Materialowa i Logistyka" 2010, no. 12, pp. 14–18.

¹⁶ M. Kasperek, *Model działania operatora 4PL*, http://www.ptzp.org.pl/files/konferencje/kzz/artyk_pdf_2013/p069.pdf.

operator, it acts in the area of physical flows. The integration of the logistics chain by the logistics operator requires the execution of the following basic processes¹⁷:

- selection and classification of the providers of materials and services;
- delivery, maintaining the stocks of raw materials and finished goods;
- organisation of deliveries to recipients.

Integration in the supply chain is aimed at the creation of systems in the hope of obtaining organisations that are becoming more and more efficient, effective, and economical so they are able to compete. It seems that the effects of cooperation are dependent on the size of systems¹⁸. Aiming at the creation of wide logistics systems which go considerably beyond the frameworks of a single and traditionally understood organisation, contributes to the development of logistics used in business. It also proves that companies aim at integration within the framework of the supply chain on a scale that is increasing. In the recent period, a characteristic change to the understanding of logistics has occurred: from a conception oriented onto the transformation of activities in the area of the flows of goods towards an increase of its significance and development as an integrated conception of management, whose idea is integration as well as formation and optimisation of processes and of the systems of flows in the scale of the company and of the whole supply chain¹⁹. In the case of a higher degree of information integration of the supply chain, when its individual links are able to transfer to each other not only periodic orders but current reports on stocks, the quality of forecasts is considerably better, and the elements connected with the flow of products inside the supply chain: delivery acceptance and quality control procedures, packaging, transport solutions, methods of managing stocks, the strategy of cooperation inside the supply chain and the method of communication begin to decide about the promptness of response to the changeability of the demand²⁰. Information integration does not require any changes in the method and quality of data transferred. Regardless of the orders sent, trading partners will transfer to each other reports on stocks with the required frequency. Similar solutions constitute the basis for the information systems of the Quick Response supply chain functioning conception, which by using information on the current sales in shops enables changeable demand to be swiftly met, especially in the clothing branch. This branch is distinguished by the need to reduce the cycles of execution, a high rotation of stocks and quick responses to sudden changes in the demand while maintaining

17 P.B. Shary, T. Skjott-Larsen, *Zarządzanie globalnym łańcuchem podaży*, PWE, Warszawa 2002, p. 195.

18 J. Szołtysek, *Integracyjna funkcja logistyki*, “Zeszyty Naukowe Wyższej Szkoły Bankowej w Poznaniu” 2011, no. 13, Wyższa Szkoła Bankowa, p. 11.

19 P. Blaik, *Logistyka. Koncepcja zintegrowanego zarządzania*, PWE, Warszawa 2010, p. 35.

20 I. Fechner, S. Krzyżaniak, *Symulacja szybkiej reakcji w łańcuchu dostaw na dynamiczne zmiany popytu*, “Logistyka” 2014, no. 4, pp. 1808–1809.

an acceptable level of economic effectiveness²¹. The ECR (Efficient Consumer Response) is based on similar assumptions. Owing to this, the demand for everyday consumer products can be effectively satisfied in spite of mass shopping, strong competition and substitutes²². Information solutions, whose purpose is to ensure quick access to real information which characterises the demand, its properties, the degree of changeability, do not require any changes in the supply chain configuration. A change is required, however, in the rules of cooperation between trading partners. Relations between them must be of a permanent nature, and the security of data and the way in which it is used must be guaranteed. Such relations are not possible in supply chains, where flexibility is treated as the ability for a quick exchange of suppliers or recipients that is dictated by the use of a dominating position by one of the links of the supply chain for building an internal competitive advantage over its trading partners.

The evolution is going in the direction of implementation of modern services by logistics operators based on e-business solutions with the use of information and communication technologies, which is especially true of the Internet. This activity consists in running widely understood on-line business with the aid of available information systems with the use of internet technologies. The following constitute typical current examples of such services²³:

- e-procurement: equated with the process of procurement and supplies that uses electronic commerce platforms; it covers the whole procurement process enabling coordination of planning, budgeting and monitoring of purchases;

- e-fulfillment: process of the execution of an order placed by the customer via the Internet; it covers only services connected with the execution of the order: price calculation, arrangement of an individual deliveries schedule, reservation of specific means of transport and the place of storage, shipment tracking, preparation of documents and an electronic exchange of documents, payments and added value services, such as co-packing (individualized deliveries), sorting, installation;

- e-commerce: equated with electronic commerce; it consists in making commercial transactions via ICT networks in combination with making payments for goods and services excluding direct contact between the parties.

Due to the changes that are occurring on the market of logistics services, 4PL operators not only cooperate with global companies but offer partnership cooperation in the segment of small and medium sized enterprises, which is decisive for their competitiveness.

²¹ D. Turker, C. Altuntas, *Sustainable supply chain management in the fast fashion industry: An analysis of corporate reports*. *European Management Journal* (2014), <http://dx.doi.org/10.1016/j.emj> [accessed: 01.02.2014].

²² Ł. Hadaś, A. Stachowiak, P. Cyplik, *Production-Logistic System In The Aspect Of Strategies For Production Planning And Control And For Logistic Customer Service*, "Log Forum" 2014, no. 10(3), pp. 331–349.

²³ More on this subject in K. Rutkowski: *Logistyka on-line*, PWE, Warszawa 2002.

Analysis of 4PL operators in Poland

Those companies that provide logistics services possess appropriate financial resources, technical facilities and, in particular, information systems and personnel with the required knowledge and skills. 4PL type operators have become a part of supply chains, and they perform their tasks within the framework of contract logistics. It can be concluded based on an analysis of the data from the ranking presented in *Gazeta Prawna* that the role they play is growing in importance and it will probably increase further. The dynamics of incomes and an increase of the numbers of shipments is made evident based on an analysis of the previous periods. Use of services of this type brings benefits not only to those companies that cooperate with them but also creates added value for the whole supply chain. Table 1 shows the four logistics operators with the highest incomes in 2014 and with the largest human resources possessed, including a comparison with 2013. Four logistics operators with the largest incomes were accepted in the analysis. In spite of a lack of dynamics of incomes, Grupa Raben decided to increase employment by 6.51%.

Table 1

Analysis of 4PL logistics operators

Logistics operator	Incomes in the year 2014	Dynamics of income (2013 = 100%)	Employment in the year 2014	Dynamics of employment (2013 = 100%)
Grupa Raben	2,019,164,000	100.36	4580	106.51
Schenker Sp z o.o.	1,426,200,000	108.83	2176	103.92
FM Logistics	803,337,882	106.49	3155	108.83
DPD Polska Sp. z o.o.	738,281,335	109.03	1637	104.27

Source: Study on the grounds of Brdulak H.: Dobry rok w branży transportu i logistyki. „Dziennik Gazeta Prawna” of 24.06.2015 no. 120 (4013), p. D12.

Schenker, with an 8.83% growth in income, slightly increased employment by 3.92%. FM Logistic, with a 6.49% increase in income, reported an increase in employment by 8.83%, while DPD Polska Sp. z o.o. has the highest growth of income: 9.03% and low employment growth: 4.27% to the income dynamics in relation to the other companies from the Table. None of the companies examined reported any decrease, and there has been a growth of employment in order to maintain high quality.

The types of services offered to production and trading companies in Poland are shown in Table 2 based on the websites of the logistics operators. As elementary activities, transport and forwarding operations and storage, as well as customs were accepted.

Table 2

Types of services offered by 4PL logistics operators

Type of service provided	Grupa Raben	Schenker Sp. z o.o.	FM Logistics	DPD Polska Sp. z o.o.
Transport and forwarding	V	V	V	V
Storing	V	V	V	V
Customs	V	V	V	V
Cross-docking	V	V	V	V
Integrator of logistics processes	V	-	-	-
Sectoral division	V	-	V	-
Information systems	V	V	V	V
Special shipments	V	V	-	-

Source: Study on the grounds of websites of logistics operators.

In its activity, Schenker Sp z o.o. does not specialise in services dedicated to specific industries, such as pharmaceutical, chemical or automotive. It possesses a special service department for FMCG. In this case, Raben is the leader, and it provides services to the following industries apart from those mentioned previously: electronic industry, e-commerce and retail trade. It also distinguishes FMCG as no ford (no foods) and ford (foods)²⁴. Schenker becomes a logistics integrator for global companies only²⁵. FM logistics offers logistics solutions for retail chains, FMCG, industry and automotive, cosmetic sector, health protection and e-commerce²⁶. In its offer, it does not present consultancy in the area of logistics, sectoral divide or special consignments²⁷. Only Grupa Raben is fully a logistics operator, and the remaining companies are presented as 4PL solely for selected key customers. All the companies have a policy of sustainable development and social responsibility.

The market of logistics services is subject to dynamic changes and it is constantly changing and expanding its offer. Many factors contribute to this; the most important ones being changes in the companies' approach to the management of procurement as well as production and distribution of goods within the framework of the supply chain. Currently, it is not only the product and price that matter, but it is frequently the determinants of the logistics of customer service such as time, date, comfort and communication that count.

²⁴ <http://polska.raben-group.com/branze> (accessed: 9.07.2016).

²⁵ http://www.dbschenker.pl/log-pl-pl/start/uslugi-logistyczne-lsp/DB_SCHENKERinfo.html (accessed: 9.07.2016).

²⁶ <http://www.fmlogistic.pl/Rozwiazania> (accessed: 9.07.2016).

²⁷ <https://www.dpd.com.pl/Produkty-i-uslugi> (accessed: 9.07.2016).

Conclusion

The market of logistics services in Poland is dynamically developing. This is dictated by the location of Poland in Europe and on the economic map as regards human resources. Logistics companies locate their potential on the territory of Poland through the expansion of logistics centres and sorting departments. Only a few companies become 4PL operators in Poland in spite of the fact that on the global market, they are fully supply chain integrators, such as Schenker. TSL branch companies do not report any losses and they increase employment in order to provide services with high quality and added value. The preference of a broad package of services allows them to satisfy customer requirements not only on the global market but also on the national market, which may be demonstrated by Grupa Raben's results. The customer desires comprehensive high quality services, hence there is an increase of supply for 4PL logistics services. The Polish market of logistics services was determined by growing demand and the entry of European logistics operators that offer standards which apply to global customers. An increased demand for logistics services is also a period of structural and qualitative changes, partnership in the supply chain and the role of the logistics operator as an integrator: among other things, through the implementation of modern information systems and basing the operation of the logistics chain on the Internet. The increased complexity of logistics processes makes production and trading companies outsource them to specialist 3PL and 4PL operators, and there are also benefits that follow from the involvement of an external provider.

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