



DIRECTIONS OF DEVELOPMENT OF NEW FORMS OF PERFORMANCE OF LOGISTICS FUNCTIONS BY FORWARDING (FREIGHT FORWARDERS) IN MODERN SUPPLY CHAINS

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ABSTRACT

Globalisation of national economies and increasing competition as well as permanent changes in the modern economic environment and political determinants are affecting the search for solutions that will improve the implementation of logistics processes in today's global supply chains. Providers of logistics services strengthen their competences, broaden the range of their services and adapt to the requirements of stakeholders, by offering among others: adaptation and development of their logistics infrastructure, modern IT systems that improve the implementation and monitoring of logistic processes. Contemporary trends and developments on the market of logistic and forwarding services are still defining new quality. Traditional forwarding service models are replaced by a wide spectrum of logistic services for contemporary supply chains. It is assumed that the market of logistic services is the next stage of development of the transport and forwarding market. Logistic services are a more advanced version of forwarding services and the activity of a logistics company is a modern form of forwarding.

INTRODUCTION

Globalisation of national economies, dynamic changes in the political and economic environment of companies, technological progress, and growing expectations of clients concerning higher quality of service become the determinants affecting the search for

ARTICLE INFO

Available online 1 January 2016

Keywords:
logistics,
forwarding company,
3PL (*Third Party Logistics*),
4PL (*Fourth Party Logistics*),
supply chain.

JEL Classification: A10, L91, R4.

DOI: 10.19197/tbr.v14i1.19

logistic solutions of today's supply chains. The new landscape of economies undergoing globalisation stimulates demand for efficient, economically effective, competitive, and reliable logistics service. Going beyond the traditional scope of logistic services, building partner relations and supply chain outsourcing are the basic ways of building competitive advantage.

Development of modern supply chains is possible thanks to the so-called logistics chains, i.e. logistics processes that perform crucial functions for the economy with regard to services and integration (Chaberek, Trzuskawska-Grzezińska 2011). The main input assumptions are that logistics supports mainly the general service and performs an integrative function. Logistics always supports another process, which is primary and primal in relation to the logistic process (Chaberek 2002).

The integrational and auxiliary function of logistics, which was noticed and used initially only in reference to particular areas of functioning of companies, such as: supply, warehouse management, or distribution, has become a permanent element of economic systems of many companies (Chaberek, Trzuskawska-Grzezińska 2011).

Efficient organisation of transport of the carried loads is certainly one of the important elements of implementation of logistic processes in modern supply chains. It requires the performance of many actions so that *the right goods, at the right time and the right place, in the right quantity, of the right quality and at the right cost (price) (6R)* are delivered to the client (forwarder's employer)¹. The dynamics of changes occurring on local and global markets connected with the more and more complex processes accompanying international trade transactions has stimulated the growth of forwarding companies. A strong need of adjustment of the offered forwarding needs, adaptation to the requirements and growing demands of companies (clients) and the need to adapt to the changing conditions were the causes of further evolution of forwarding companies (Wasielewska-Marszałkowska 2014).

This paper discusses the directions of development of freight forwarders as organisers and performers of service and logistics functions in supply chains and their share in creating added value with regard to logistic services for modern supply chains.

FORWARDER AS THE ORGANISER AND PERFORMER OF SERVICE AND LOGISTICS FUNCTIONS IN SUPPLY CHAINS

In the past, a forwarder was responsible for this part of the process of logistic support that concerned forwarding only, i.e. all activities necessary to manage the transport of materials and ready goods from the supplier to the customer. The forwarder's task was to take care of the security and timeliness of the implemented forwarding process, to negotiate the rates and enter into cooperation with carriers, who have proper means of transport to implement transport processes for particular loads.

¹ *The 6R requirement* – according to Prof. dr hab. Mirosław Chaberek *the right resource are needed at the right time, the right place, in the right quantity, of the right quality, at the right price (cost)* in: I. Wasielewska-Marszałkowska, *Spedycja we współczesnych łańcuchach dostaw*, CeDeWu, Warsaw 2014, p. 5 and p. 9.

A forwarder was a kind of middleman between the load administrators and transport companies that provided the transport services. Its role began at the stage of forwarding advice and consultancy. The party that ordered a forwarding service had to perform all other actions, including distribution, co-packing, packaging, storing, planning the time of dispatch and receipt, and monitoring every single transport process. The ordering party was fully responsible for all the necessary elements of the logistics system such as: the warehouse, IT system, or the dispatch schedule (Marciniak-Neider, Neider 2011).

Usually the role of a forwarder in an economic system is to offer transport consultancy, prepare shipping documents, organise and perform transport services and banking transactions connected with the performed transport tasks to the company that makes a transport order (Wasielewska-Marszałkowska 2014). Due to dynamic development of market relations, and mainly as a result of huge variety of services, which can be observed in the broadly conceived product lifecycle spacetime, forwarders offer also a range of coordination services apart from purely organisational work (Fig. 1). They perform the role of persons who arrange and organise the work of other business entities, which is always done upon a clear demand of their business partner.

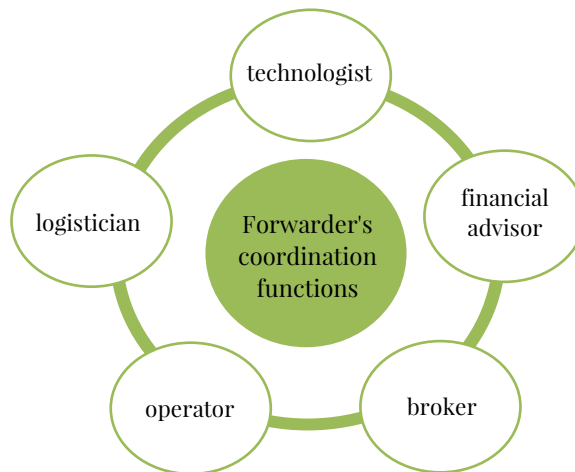
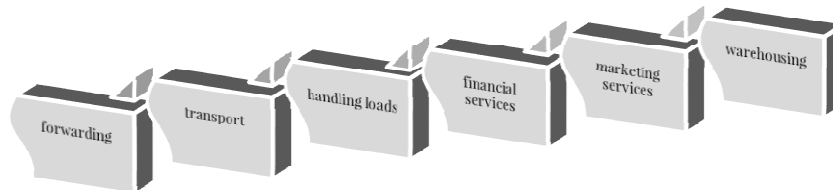


Fig. 1. Forwarder's coordination functions

Source: Own work on the basis of W. Rydzkowski, K. Wojewódzka-Król (ed.), *Transport*, PWN, Warsaw 2008, pp. 253-256.

A forwarder that operates on the market as the organiser of transport for specific loads more and more often performs all the actions connected with logistic services for their clients, which go beyond its traditional tasks (Rzęśny-Cieplińska 2013). Therefore, as competition increases, which makes companies search for areas of cost reduction, and the companies start operating more and more globally, forwarders play an increasingly important role in the process of logistics support and offer comprehensive solutions and services in the global supply chains (Marciniak-Neider, Neider 2011).

In response to these changes, highly specialised companies started to appear on the market that offer comprehensive logistics services – logistics providers. Apart from forwarding services, logistics providers offer also other services to their clients, for example: transport and handling of loads, financial and marketing services, or warehousing (Fig. 2.).



3PL logistics provider – the scope of logistics services

Fig. 2. The scope of logistic services added by 3PL logistics providers

Source: Own work on the basis of: M. Ciesielski, (ed.), *Rynek usług logistycznych*, Difin, Warsaw 2005, pp. 35–36 and D. Marciniak–Neider, J. Neider (ed.), *Podręcznik spedytora*, Vol. 2, PISIL, Gdynia 2011, p. 621.

Offering forwarding, transport and warehousing services as well as additional logistics services provided by various entities on a large scale can be described as the phenomenon of ‘industrialisation of logistic services’ (Ciesielski 2005). In the present market conditions logistics providers offer a broad range of services. These may include for example:

- consolidation,
- deconsolidation,
- co-packing,
- loading,
- reloading,
- enclosing additional documents, e.g. guarantee certificates,
- enclosing promotional packages,
- assembling pallets,
- preparing shipping documents,
- labelling,
- numbering product batches,
- film application,
- unpacking part of the goods,
- stock taking,
- controlling goods,
- marking,
- assembling goods for particular orders;
- after sales service,
- implementation of processes connected e.g. with customs services.

These services may be available on the market in different forms:

- as a separate offer;
- as a selection of optional services;
- as an additional service offered in connection with another service provided, e.g. transport or warehousing.

In all cases, however, they can be classified as VAS (*value added services*) (Ciesielski 2005).

The trends observed on the contemporary transport market, which show that there is a demand for partner relations in creating services for the clients, based on close cooperation between freight forwarders, carriers, logistics companies and other service providers, have contributed to a change of the roles of the companies operating on these markets (Rzęśny-Cieplińska 2012).

In modern supply chains, entering into partner relations and outsourcing have become the basic ways of building competitive advantage. Outsourcing², which consists in handing over the main logistic services to another business entity, allows the company to focus on its priorities, both strategic and tactical. Outsourcing lowers the level of capital investments (e.g. in warehousing or transport infrastructure, etc.), opens up new commercial perspectives, makes a change of supplier and reduction of operating costs possible (Chaberek 2002).

OUTSOURCING OF LOGISTICS SERVICES - FROM 1PL TO 3PL PROVIDERS

Historically the concept of provision of logistics services first 'appeared' in the 1PL (*First Party Logistics*) model. 1PL means that logistics services are provided by the producer or distributor on their own. The next model, described as 2PL (*Second Party Logistics*), means that the producer or distributor commission only transport or its part to another company and manages all logistics processes with its staff, who also manage the company's warehouses; a 2PL provider can still be the owner of the means of transport (Sikorski 2008).

Outsourcing of logistics processes has become the determinant of development of logistics providers described as 3PL (*Third Party Logistics*). A 3PL company is a highly specialised provider of comprehensive services, which may include forwarding, transport, warehousing, and a broad range of the so-called *value-added-services*, (that increase the value of products) (Sikorski 2008).

In literature, logistics providers are defined in various ways. One of the definitions used frequently says that a 3PL provider is used by a company to provide various ser-

² The term 'logistics outsourcing' is replaced with the term 'contract logistics'. Contract logistics is understood as long term cooperation in which a company hands over logistics functions to an external contractor, usually a logistics provider which performs the tasks specified in the agreement concluded. M. Trocki defines outsourcing as the 'undertaking that consists in selecting specific functions from the organisational structure of a company that are performed by it and commissioning them to another business entity' in M. Trocki: Outsourcing. Metoda restrukturyzacji działalności gospodarczej. PWE, Warsaw 2001, in: A. Jonkisz, J. Jaroszyński (ed.): Outsourcing logistyczny. „Logistyka”, no. 6, 2008, Instytut Logistyki i Magazynowania.

vices connected with logistics to it. These services are usually stipulated in warehousing, transport management, transport consolidation, and distribution management agreements (Liston et al. 2005). In other words, it can be said that a 3PL provider manages not only transport and offer warehousing. A 3PL provider offers also value added services and signs contracts with subcontractors (Gunasekaran 2011).

In practice the name 3PL reflects the fact that there's a third party in the partner relationship between the client (first partner) and the supplier (second partner), which does not participate directly in the commercial transaction, but is responsible for handling the transfer of goods necessary to perform this transaction (Marciniak-Neider, Neider 2011).

There are three categories of companies labelled as *third party logistics* (Schary, Skjøtt-Larsen 2002):

1. Companies based on fixed assets, whose activity consists in the provision of logistics services with the use of their own or leased vehicles, equipment, or facilities, e.g. such as: cars, planes, containers, warehouses, handling devices.
2. Companies operating in networks, which started as courier companies and now provide logistics services through extensive transport and handling and communication networks.
3. Companies based on skills, which usually do not have the technical resources necessary to provide logistics services and offer consulting, IT, and financial services, as well as managerial support.

A survey conducted by Accenture and Northeastern University among 66 biggest American producers has shown that 'the biggest cost reduction was obtained thanks to hiring a 3PL provider for' (Ziemek 2008):

- warehouse management – 30%,
- negotiating rates – 16%,
- dispatch consolidation – 14%,
- commissioning freight – 10%,
- direct transport services – 10%,
- transport management – 8%,
- carrier selection – 6%.

The quality of customer service improved the most thanks to outsourcing:

- warehouse management – 22%,
- order fulfilment – 11%,
- commissioning freight – 9%,
- direct transport services – 9%,
- transport management – 9%,
- monitoring supplies – 7%.

The German Logistics Association, which publishes reports on logistics companies, lists the following 3PL providers among European leaders: Deutsche Post, Maersk, TNT, Kuehne&Nagel, SNCF, CMA, CGM. As a result of merger and acquisition processes on the logistics market, giant companies with global reach have been created (Marciniak-Neider, Neider 2011).

In Poland logistics providers labelled as 3PL tend to broaden the scope of services they offer and add value added services. This group includes some companies that belong also to other strategic groups (e.g. Trade Trans – rail forwarding), which add terminal services to their offer. The prominent companies in this group include: Schenker, Grupa Raben, Kuehne&Nagel Sp. z o. o., FM Logistic, Wincanton. Some of these firms are ranked among the global Top 100 market leaders³.

Most 3PL providers aim to change their customer relationships from the conventional relationship between a client and their service provider to closer partnership, characterised by trust, flexibility and fast reactions to their mutual needs. It is expected that the growing complexity of logistics activity will require further change processes of these relations and even closer cooperation (Rydzkowski, Trzuskawska-Grzezińska 2008). Americans describe this special role of 3PL as the orchestrator of contemporary economic processes with four interactions (Chaberek, Trzuskawska-Grzezińska 2011): standardisation, information transparency, neutral arbitration and cooperation.

A recent report '*2015 Third-Party Logistics Study, Annual Study on the State of Logistics Outsourcing*'⁴ prepared by Capgemini Consulting concerning the global market of logistics services outsourcing and 3PL providers presents conclusions drawn from the conducted study. One of the aspects analysed in the report is the development of multi-channel sales, which emphasises the importance of relations between companies that order transport services and 3PL providers. The study also shows that supporting customer relationship management with modern IT technologies is also important. Using *Customer Relationship Management* (CRM) systems and mobile technologies may considerably improve and streamline customer relationship management both for service recipients (75%) and 3PL providers (77%). The report includes also data on real-time monitoring of processes and operations, where both 3PL providers and their clients and the companies from this sector invest in warehouse management systems (WMS). The following data was presented in the report:

- investments in warehouse management systems 58%,
- software for planning the company's resources 54%,
- transport management systems 54%,
- supply chain monitoring 43%,
- warehouse management systems add-ons 33%,
- RFID – radio-frequency identification devices 21%.

³ In the ranking of the Inbound Logistics magazine the top 100 of the world's leading logistics companies included among others: Kuehne & Nagel and Schenker/ BAX Global, <http://www.inboundlogistics.com/3pl/top100.shtml>, in: W. Rydzkowski, A. Trzuskawska-Grzezińska: *Rozwój logistyki kontraktowej 3PL i 4PL na świecie i w Polsce*. [in:] *Nowe wyzwania-nowe rozwiązania* Materiały konferencyjne Polskiego kongresu Logistycznego Logistics 2008, ILiM, Poznań 2008, p. 101.

⁴ Study coordinator dr C. John Langley, professor of Pennsylvania State University, the study was conducted in mid-2014, Own translation; source: <http://www.3plstudy.com/downloads/download-3rd-party-logistics-study/> [access 18 April 2015].

Respondents declared also that they invested in technologies that helped them personalise and customise their purchases, such as mobile applications (33%)⁵.

Other conclusions from the conducted study concerned the data on transferring production to Mexico – a trend has been observed since 2014 of increasing interest in Mexico as a location for production facilities that is close to the ready market. Nearly half of the surveyed respondents (40%) said they already transferred part of their processes to Mexico (mentioning as the reason the nearness of the ready markets and shorter transport time: from the US – 55%, China – 36% and Canada – 9%). Respondents emphasised both the advantages of location of Mexico and its drawbacks – obstacles. The advantages included among others: shorter transport time, nearness of supply sources, attractive tax conditions. The obstacles mentioned were: vague legal regulations, high crime rate and poor infrastructure.

The report discussed also the current trends concerning corporate social responsibility (CSR), which includes all aspects, e.g. how companies should run business in a sustainable way, where CSR is more and more important in the global economy. More and more companies are anxious not only about the potential damage of their activity to the natural resources, but also to human rights, work practices, environmental impact, business ethics, and corporate governance. The new CSR plays a major role in the supply chain, including logistics and distribution operations. The demand for higher control and balance of supply, production, and distribution is growing.

The latest *20th Edition of Ranking of TSL Companies* published by Gazeta Prawna (Brdulak 2015) should also be mentioned, which presents the data on the revenues of companies from the Polish TSL (transport, forwarding, logistics) sector in 2014. This ranking features the total revenues and sales revenues of the biggest TSL companies in Poland, which therefore aspire to be among the biggest companies that are in the lead of the Top Ten 2014 ranking of the biggest logistics providers (Fig. 3). (more details in Gazeta Prawna, footnote 30).

In conclusion of the above, it may be said that the role of 3PL providers is increasing systematically in contemporary economy. They provide professional logistics services and thanks to having adjusted their offer to present market requirements they were accepted by the recipients and have become an integral part of their supply chains (Wasielewska-Marszałkowska 2014).

⁵ *Respondents are investing in warehouse management systems (58%), enterprise resource planning software (54%), transportation management systems (54%), supply chain visibility (43%), warehouse management system add-ons (33%) and RFID (21%). Respondents also said they are investing in technologies that allow them to personalize and customize the shopping experience, such as mobile apps (33%)*. source: <http://www.3plstudy.com/downloads/download-3rd-party-logistics-study/> p. 5, 43, 55 and following pages. .. [access 18 April 2015].

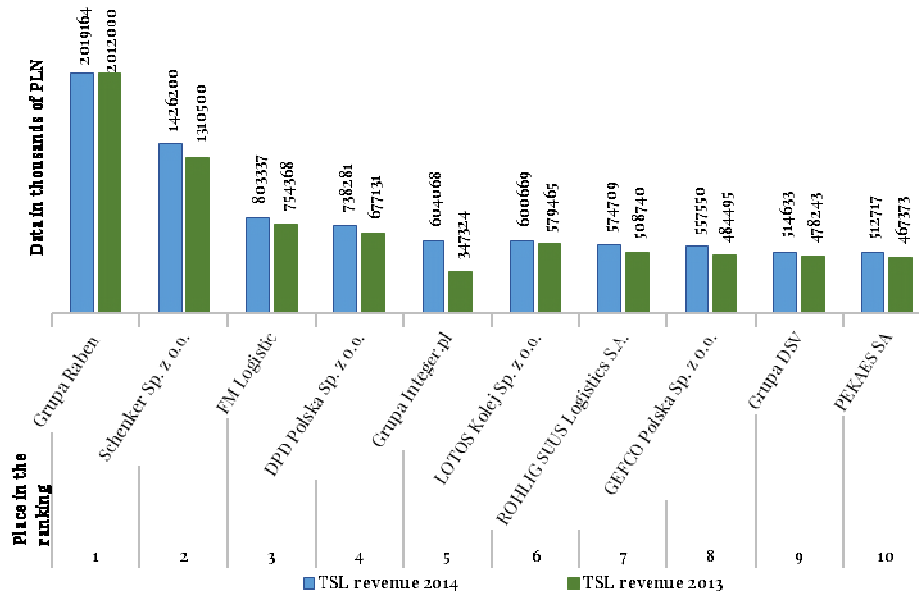


Fig. 3. Top Ten 2014 – Ranking of 10 biggest logistics providers in terms of sales revenues in 2014

Source: Own work on the basis of: H. Brdulak, *Dobry rok w branży transportu i logistyki*, 20. Edycja Rankingu firm TSL. [in:] *Dziennik Gazeta Prawna*, 24 June 2015 no. 120 (4013) (DGP) pp. D6-D7.

4PL – LEAD LOGISTICS PROVIDER – THE NEXT STAGE OF EVOLUTION OF SUPPLY CHAIN OUTSOURCING

Another stage of the evolution of logistics services outsourcing was transition from 3PL to 4PL (*Fourth Party Logistics*), i.e. to supply chain integrators, whose responsibilities include planning, coordination, and control of supply chains (Rydzkowski, Trzuskawska-Grześnińska 2008). Fourth Party Logistics™ providers are a new type of entities involved in supply chain outsourcing, which bring more advantages than just operating cost reduction and transfer of assets within a traditional outsourcing system (Martensowska 2002).

The term 4PL was used for the first time in 1996 by Accenture. In fact, Accenture reserved this name, so other terms are also used for similar entities, such as: Logistics Integrator or Lead Logistics Provider (LLP). According to the definition of Accenture, 4PL is an integrator that combines its own resources, potential, and technologies with those of other organisations to design, construct, and implement comprehensive solutions for the entire supply chain.

With such definition of 4PL activity, two important issues should be emphasised:

- the task of a 4PL provider is proper selection and integration of its own resources, technologies, knowledge and experience with those of other organisations to create added value for the client thanks to the synergy effect;

- 4PL provider is to coordinate the implementation of logistics processes at all stages of their clients' supply chains, starting from the suppliers of raw materials and finishing on end buyers, and not only at their selected stages (Dembińska-Cyran 2004).

4PL providers may create unparalleled and comprehensive solutions within the entire supply chain and bring tangible economic benefits to all its participants, which would be impossible to achieve by a single provider. Therefore, 4PL providers are an example of the most advanced form of outsourcing (Martenowska 2002). (Fig. 4.)

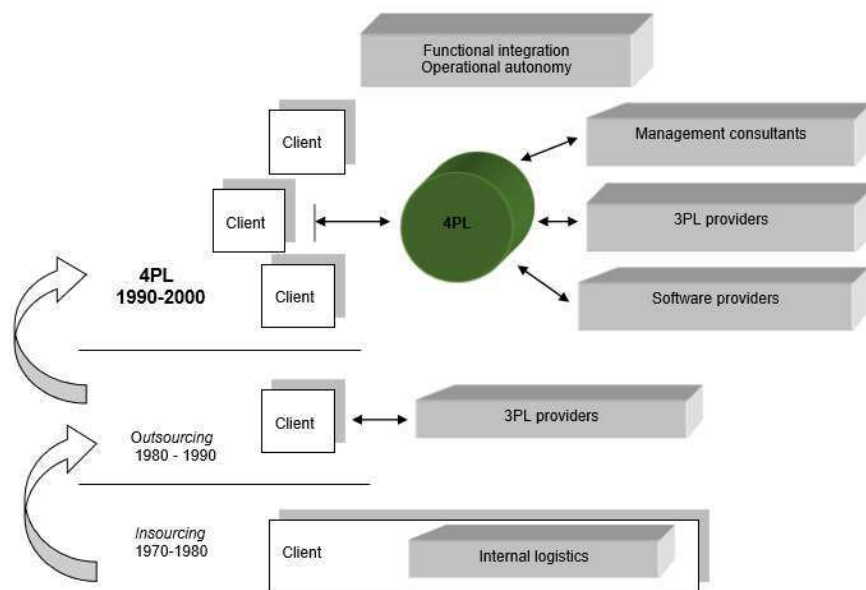


Fig.4 Evolution of supply chain outsourcing

Source: Own work on the basis of: D. Bade, J. Mueller, B. Youd: *Technology in the next generation of Supply Chain Outsourcing – Leveraging Capabilities of Fourth Party Logistics*, 4/1/99 Ascet Volume 1. (<http://www.google.pl/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CCQQFjAAahUKEwjUr7qQ9ILHAhUECSwKHUuVDvU&url=http%3A%2F%2Fcitepeerx.ist.psu.edu%2Fviewdoc%2Fdownload%3Fdoi%3D10.1.1.198.1072%26rep%3Drep1%26type%3Dpdf&ei=bR-6VZTFJoSSsAHLqrqoDw&usq=AFQjCNFr4yugE5ViTKXCWZ1DHFtXO78KLg>) [access 27-06-2015]

The solutions offered by 4PL providers are a combination of the possibilities based on four key components (Rydzkowski, Trzuskawska-Grzesińska 2008): (Fig. 5)

- architecture and integration,
- control,
- information and communication,
- resource sharing.

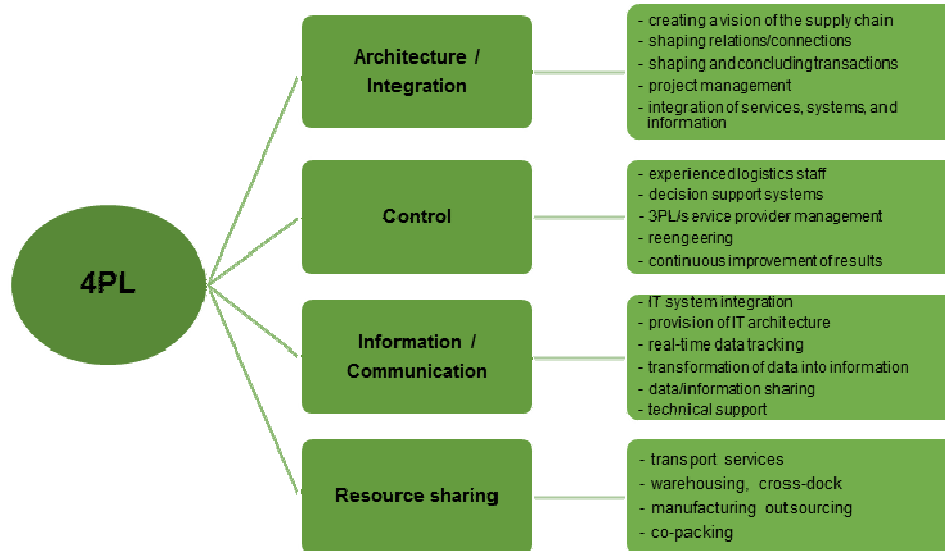


Fig. 5. Elements of the concept of functioning of 4PL

Source: Own work on the basis of: J. Baumstead, K. Cannons, From 4PL to Manager Supply-Chain Operations. „Focus” May 2002. [in:] I. Dembińska-Cyran, *4PL – nowa generacja operatora logistycznego*, Logistyka 2004, no. 4.

A Lead Logistics Provider (4PL) provider fulfils the needs of its clients on the basis of identified resources and potential of its partners through *outsourced outsourcing*. It does not perform the tasks outsourced to it (1st level of outsourcing), but becomes rather a middleman that further outsources these tasks to its partners-subcontractors (2nd level of outsourcing), and focuses on the right selection of partners and controlling the fulfilment of the tasks outsourced to it so that the client achieves maximum benefits, not only from the perspective of tactical, but also strategic functioning of the supply chain (Dembińska-Cyran 2004).

Table 4.1 presents the scope of competences of 3PL and LLP 4PL providers.

A 4PL acts therefore for the client as the general contractor and the companies it hires as subcontractors (e.g. 3PL). It does not have to invest in such assets as its own fleet or warehouses. It focuses primarily on investing in people, their knowledge and experience, and IT technologies.

Acting as a supply chain integrator a Lead Logistics Provider (4PL) becomes responsible for designing and shaping the structure of relations between particular links, so both for its complexity and quality. It is not only an integrator. Its role in the supply chain should be perceived in a broader context, as an architect that is to lead the changes occurring in the structure and functioning of the entire supply chain and keep bringing it to ever higher levels of effectiveness. To achieve that a 4PL provider answers the basic questions of its clients: How can their resources be used in a better way? How can processes be managed more effectively? What technological innovations are needed (Rydzkowski, Trzuskawska-Grzezińska 2008)?

Table 4.1. Competences and actions of 3PL and 4PL

Provider/ integrator	Competences	Examples of actions
3PL (Third Party Logistics)	Managing comprehensive logistics services	<ul style="list-style-type: none"> • 3PL actions are a combination of transport, forwarding, and warehousing services, • monitoring the route of transported goods, consolidation, deconsolidation of supplies, loading, reloading, co-packaging, securing products against shoplifting, • testing, quality control, • downloading software on electronic devices, • supply cost planning and optimisation, • customs transactions, insurance, property protection
4PL (Fourth Party Logistics)	Managing the flow of all materials and products in the supply chain or network. (planning, coordinating, controlling the supply network)	<ul style="list-style-type: none"> • designing networks (both with regard to geographical location and the profile of activity) and selection of partners at particular stages of logistics processes, • qualifying and assessing 3PL providers, • negotiating contracts with suppliers of logistics services, • monitoring operating activities, • implementing new IT solutions, • human resources management

Source: Own work on the basis of: D. Marciniak-Neider, J. Neider (ed.), *Podręcznik Spedytora*, PISIL, Gdynia 2011, pp. 621-625, [in:] I. Wasielewska-Marszałkowska, *Spedycja we współczesnych łańcuchach dostaw*, CeDeWu, Warsaw 2014, p. 90.

It is frequently emphasised that the rules of organisation and operation of a 4PL provider were defined in such a way as to predestine it to manage global supply chains. The complexity of logistics processes implemented on a global scale encourages companies to choose one entity that will coordinate all of them rather than many different logistics companies offering more or less comprehensive service packages needed at successive stages of the materials and goods flow. A 4PL provider must be thus a global organisation (Dembińska-Cyran 2004).

Summing up, 4PL providers are the response to the present day complex demand for comprehensive solutions for the entire supply chain (Dembińska-Cyran 2004). The task of a 4PL provider is proper selection and integration of its own resources, technologies, knowledge and experience with those of other organisations to shape added value for the client thanks to the synergy effect (Marciniak-Neider, Neider 2011). Figure 6. presents the outline of evolution of logistics services outsourcing from 1PL to 5PL.

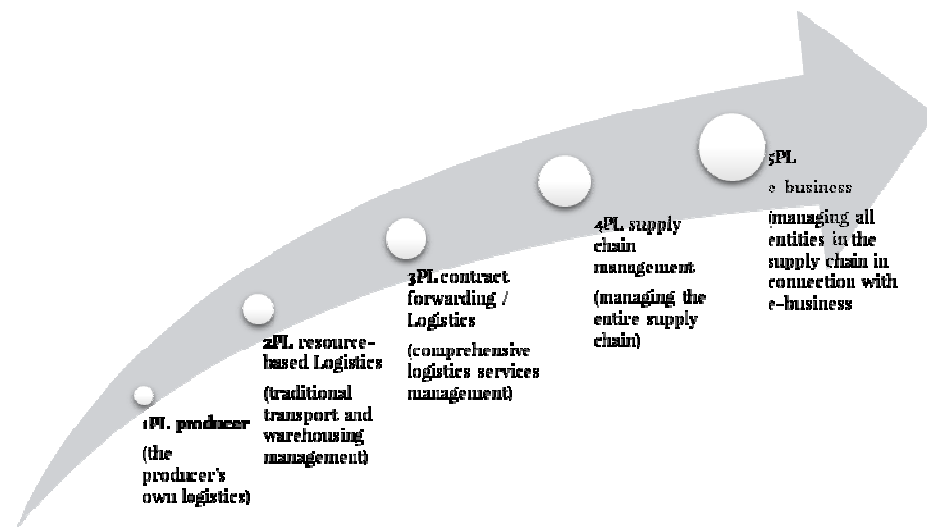


Fig. 6. Evolution and levels of advancement of logistics services outsourcing

Source: Own work on the basis of: <http://www.hoyer-group.com>, in: W. Rydzkowski, A. Trzuskawska-Grzesińska: *Rozwój logistyki kontraktowej 3PL i 4PL na świecie i w Polsce*. [in:] *Nowe wyzwania - nowe rozwiązania* Materiały konferencyjne Polskiego kongresu Logistycznego Logistics 2008, ILiM, Poznań 2008, p. 107.

Hoyer thinks that the next stage of logistics provider evolution after 4PL will be 5PL. The activity of 5PL providers on the market of logistics services is to be similar to that of a 4PL provider. The only difference is that it will be a virtual organisation (e-business) (Dembińska-Cyran 2004).

The search for new business and cooperation models in the field of logistics and supply chain management is the sign of pressure on continuous cost optimisation and focus on increasing effectiveness. Treating the logistics contractor as a strategic partner is part of the current trend of improvement and reorganisation of supply chains. If we take into account the potential of such cooperation (knowledge, experience, technical and technological infrastructure of both parties), it may be essential for the achievement and maintenance of competitive advantage (Ciesielski, Długosz 2010).

CONCLUSION

Globalisation of national economies and increasing competition as well as permanent changes in the modern economic environment and political determinants are affecting the search for solutions that will improve the implementation of logistics processes in today's global supply chains. Providers of logistics services strengthen their competences, broaden the range of their services and adapt to the requirements of stakeholders, by offering among others: adaptation and development of their logistics infrastructure, modern IT systems that improve the implementation and monitoring of logistic processes. Contemporary trends and developments on the market of logistic and forward-

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