

Cherneva, Denitsa; Voigt, Kai-Ingo

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Outsourcing to 4PLs – Opportunities, Challenges, Future Outlook

Denitsa Cherneva and Kai-Ingo Voigt

The need for a successful management of logistics services is becoming very acute, as nowadays it defines competitiveness on the global marketplace. Without doubt, the success of LSPs and their clients depends on the ability to vastly adapt to changing customer needs, innovate, develop and supply worldwide complex, high-quality and greener products and services at a competitive rate. In theory, the 4PL business model has emerged as a very promising breakthrough solution for these newly emerging supply chain (SC) challenges. By comprehensively integrating the competencies of multiple LSPs, best-of-breed suppliers and latest technology providers, 4PLs aim to leverage the skill and resource sets along the SC. In business practice, however, this asset-free approach still struggles to take hold. By means of a qualitative research this article provides a clear understanding of the current status and variations of the 4PL phenomenon, its opportunities and challenges for businesses as well as its future outlook in Germany. The results improve the customer perception and remove ambiguities. Therefore, they are relevant for both academicians and practitioners.

Keywords: Logistics outsourcing, 4PL, Opportunities, Challenges

1 Introduction

The increasing global competition, the rapid development of information technology (IT) as well as the fast changing customer requirements and business environment force businesses to pursue the simultaneous development of both lean and agile SCs (Saglietto, 2013; Saglietto and Pigni, 2009). As a result, over the recent years, the outsourcing of logistics functions to different types of LSPs has played an important role to the organization of end-to-end SCs and global markets as well (Saglietto, 2013). As a matter of fact, it represents an opportunity businesses cannot afford to miss out on (Bajec and Beškovnik, 2013; Saglietto, 2013).

In this sense, the various types of LSPs and the services they provide have been gaining in importance for both academia and practice over the last decade. Nowadays, the increase of direct sales is no longer a question of just price and cost reduction, but rather a result of a higher added value and quality for customers, greater agility and flexibility in responding to changing circumstances and effective performance. Thereby, the success of a new business approach depends on mutual risk sharing and investment, proactive and trusting cooperation between all partners as well as effective information flow and transparency throughout the entire SC. In this sense, more innovative outsourcing models such as a Fourth-Party Logistics Service Provider (4PL) differ from traditional outsourcing, whose main aims are the focus on core business, cost reduction and profit increase, while ignoring improvement of service performance and innovation (Bajec and Beškovnik, 2013).

Existing academic research focuses only on particular aspects of 4PLs in specific business relationships, based on descriptive or small-scale empirical survey analysis in a particular country. Thereby, it assumes that 4PL companies are a largely homogeneous amount of firms, whose activities can be clearly distinguished from other LSPs such as Third-Party Logistics Service Providers (3PLs) and Lead Logistics Service Providers (LLPs) (Saglietto, 2013). Although these academic works certainly contribute to the theoretical background on the 4PL business model, they still do not provide a universal identification pattern, which would help practitioners clearly understand the 4PL business concept, its advantages, drawbacks and future outlook. Furthermore, there exist inconsistencies and a general confusion with the 4PL terminology and main characteristics, which hinders the further expansion of the phenomenon (Jurásková and Macurova, 2014; Saglietto, 2013; Win, 2008).

Therefore, by conducting a literature review as well as an empirical survey, this article will tackle the following four basic questions:

1. How can the 4PL business model in logistics outsourcing be generally defined in the contemporary German market and what are its main characteristics?
2. What are the opportunities that a cooperation with a 4PL partner in terms of logistics outsourcing provides to businesses in the German market nowadays?
3. What challenges and risks do German companies currently associate with a 4PL venture and how do they deal with it?
4. What is the future outlook and potential of the 4PL business model in Germany?

The 4PL business concept represents the next generation tendency in terms of SC outsourcing (Saglietto, 2013). Although this phenomenon has been discussed in academic circles for a relatively long time, it still largely remains only a concept. However, most recent studies confirm its substantial implementation potential, which can evolve to a major competitive advantage in tomorrow's economy (Wagner, Ries and Pfohl, 2014; Saglietto, 2013). This is a good reason for companies to rethink their logistics outsourcing strategies and reshape their SCs. Since the evolution of LSPs largely impacts the commercial world, it is essential for entrepreneurs, consultants, logistics experts, managers and academics to understand the 4PL dynamics, opportunities and challenges.

This article is organized in five main sections. In the following section two, a review of recent relevant academic literature regarding the continuous evolution of LSPs from First-Party Logistics Service Provider (1PL) to Fifth-Party Logistics Service Provider (5PL) is provided. Thereafter, in section three, the qualitative research methodical approach and the data collection process are introduced and explicitly discussed. The findings of the empirical data collected are then summarized and analyzed in section four. In the final section five the article concludes with a summary of the results, limitations and paths for further research.

2 Literature Review on the Evolution of LSPs

In the context of Supply Chain Management (SCM), the classification of the various LSPs according to different criteria has attracted a great deal of at-

tion (Saglietto, 2013). Therefore, the generally approved hierarchical division of LSPs into 2PLs, 3PLs, 4PLs and 5PLs shall be used as a starting point to provide an overview of the current situation on the global market for logistics outsourcing.

Until 1980s it is usually the manufacturing company, which executes its logistics activities (Büyüközkan, et al., 2009). Essential for the 1PLs is that they perform all logistics functions (transportation, storage and handling) within the company and using its own resources (Gattorna, 2000).

The 2PL business concept emerged in the early 1980s as a result of the internationalization of trade, the stronger competitive environment and the rising pressure to lower cost (Bajec and Bešković, 2013; Hanus, 2013). It consists in performing basic logistics functions as external LSPs using own capacities. In particular, for the first time companies start outsourcing logistics functions to traditional contractors, in order to concentrate on their core competencies (Büyüközkan, et al., 2009).

Beyond 2PL, the logistics activities are performed by external LSPs, broadening their service range and enhancing their complexity. With time the logistics functions provided by LSPs have evolved and adjusted to the changing customer demand pattern and business environment (Saglietto and Pigni, 2009). However, this consequent evolution has made the boundaries between some of the currently existing LSP business models hard to distinguish (Saglietto, 2013).

Many authors define the most important shift from services of 2PL operators to services of 3PLs in the fact that they evolve from individual transactions to system-oriented services within the scope of a long-term partnership, based on a predefined contract and mutual benefits (Jurásková and

Macurova, 2014). In fact, 3PLs provide integrated logistics services. This business concept consists in using external strategic partners to perform a broader range of service packages using their own capacities. The outsourced logistics functions include the organization and management of both flow of goods and information as well as financial services. Moreover, the service offerings can be customized, integrated and bundled together by the operator. Therefore, the cooperation with 3PLs is attractive for businesses – the increased service level combined with lower financial risks enables companies to concentrate on their core competencies and other value-added steps (Hanus, 2013; Rajesh, et al., 2012; Marasco, 2008).

It is fair to evaluate that the 3PL business concept is quite similar to its successor, the 4PL. What is more, there also exists a very successful, somehow of a hybrid business concept in-between 3PL and 4PL, which should also be considered (Rushton and Walker, 2007). LLPs are defined as 3PLs that can also carry out assignments of the 4PL type. In other words, LLPs seek to combine the best of the existing 3PL companies with some characteristics of 4PLs as a revolutionary response to the changing customer requirements. In fact, these LSPs might also be responsible for their clients' logistics performance, which gives them a clear incentive to provide high-quality services at low cost and to act as a single point of contact. Due to the vague boundaries between the 3PL, LLP and 4PL business concepts, many authors do not consider LLPs as an independent evolutionary stage of LSPs (Saglietto, 2013; Rushton and Walker, 2007). However, for the purposes of this article it is essential to compare and contrast these three forms of LSP (see table 1).

Table 1 Differences between the 3PL, LLP and 4PL business models
 (Source: Based on Saglietto, 2013; Huang, et al., 2010; Win, 2008;
 Rushton and Walker, 2007.)

Factor	3PL	LLP	4PL
Asset basis	Yes	Yes	No
Accountability	Part	Part/ Total	Total, singular
Role	Logistics	Typic. logistics	SCM
Log. expertise	Operative	Operative	No operative
IT expertise	Medium	High	Very high
Focus	Fundamentals	Fundamentals	SCM
Additional	Integration	Steering	None
Performance	Cost	Typic. cost	Value creation
Contact	Direct	Typic. direct	Single point

In the recent past, the 4PL business concept has received considerable attention from logistics scholars, resulting in a growing body of research as well as writing in this field. It emerged in the late 1990s as a breakthrough solution to newly emerging SC challenges (Büyükoçkan, et al., 2009; Gattorna, 2000). The idea and first definition of this business model is proposed and registered as a trademark in 1996 by Arthur Andersen (now Accenture Consulting). He defines a 4PL company as "an integrator that assembles its own resources, capabilities and technology and those of other service providers to design and manage complex supply chains" (Bade and Mueller, 1999). In other words, 4PLs can exist as an independent entity, which takes the role of an intermediary between the primary client and multiple SC partners (e.g. LSPs, suppliers), aiming to not only contribute to cost reduction but mainly to the value creation process within the client organization. Moreover, a 4PL company assembles a coalition of the best available LSPs and, thus, using its own IT competence, ensures a cost-effective and sustainable SC solution, which goes beyond the knowledge and capabilities of any single organization. Furthermore, pure 4PLs do not own assets themselves, but instead function as an integrator, using design and planning expertise in combination with advanced IT solutions. A 4PL operator is also expected to take over the management of the client's entire SC. Therefore, the possibility for a large 3PL company to form a 4PL organization within its existing structure should also be considered (Saglietto, 2013; Büyükoçkan, et al., 2009; Screeton, 2009; Win, 2008; Gattorna, 2000). However, academicians as well as practitioners predominantly share Saglietto's (2013) opinion that in practice there are very few "pure perfect" 4PL players, which meet all the necessary criteria, derived from the relevant

academic literature on the topic. Nevertheless, there exist several “imperfect” 4PLs that only partially fulfill the defined theoretical requirements. Furthermore, when looking at the services offered by the diverse 4PL operators in business practice, it is fair to evaluate that they seek to distinguish themselves from their competitors by emphasizing certain criteria, in order to obtain a competitive advantage, which is perceivable for their customers. This is due to the fact that it is difficult for a company to simultaneously sustain global competition across multiple industries, while also providing all the services (Saglietto, 2013).

Therefore, Saglietto (2013) suggests an updated, more precise definition of the 4PL business concept. According to it, 4PLs can be described as independent consulting firms, whose role is to design, organize and coordinate the client's entire logistics, documentary and regulatory chains. For this reason, they are legally liable for the actions they manage in their own as well as their clients' name over long time periods. Furthermore, 4PLs are companies with few or no physical assets of their own, who play a very important role as SC integrators. Thereby, they combine their own resources, IT expertise, capacities and technologies with these of other LSPs, in order to design and manage complex value chains. Moreover, they offer specific, turnkey global solutions either directly or through computer modeling and facilities management. In addition, as veritable network architects, 4PLs possess, either on their own or through partners, an international network to provide their clients with good coordination of flows abroad. Lastly, they respect the principles of sustainable development and charters of social responsibility (Saglietto, 2013). As this definition is the most up-to-date, precise as well as practically relevant understanding of this phenomenon, it is

chosen as a theoretical basis, when executing the qualitative empirical research to this article. In particular, it is taken as a starting point, when developing the research questions, as a rather deficient and quite case-specific understanding of the 4PL business concept is expected from practitioners.

Last but not least, in the recent past, a new stage in the evolution of LSPs – the 5PL business concept, has been gaining in acceptance in the academic world. As a matter of fact, competitive pressures are leading to speculations about the future of LSPs in the form of potential 5PL services. Interestingly, the idea behind this business model is to provide high-quality 4PL services, while also turning the customers' SCs into functions that are completely driven by IT. Thereby, 5PL operators offer quite specific, system-oriented logistics services as well as SCM, which are able to link suppliers, buyers as well as all other partners along the SC network. In this sense, 5PL operators act as highly professional consultants, who base their operations on latest IT. However, the immense investment and continuous improvement needed, the increasing number of decision makers, the high uncertainty and change dynamics make 5PL quite challenging and hard to implement in business practice (Ivaschenko, 2014; Screeton, 2009).

To conclude, in comparison to all its forerunner business concepts, the 4PL business model incorporates the advantages of both insourcing and outsourcing, aiming to provide maximum benefits to the primary clients. What is more, compared to its successor, the 5PL, it represents a low-cost and low-risk opportunity more applicable in the current economic environment. However, nowadays, the cooperation with 4PLs still seems to remain rather a business opportunity than business practice (Wagner, Ries and

Pfohl, 2014; Rushton and Walker, 2007). This might be due to the fact that such a collaboration can only be successful, if the company's size, overall objectives as well as SC complexity suit the 4PL business model and can profit from it. Furthermore, the challenges and risks of such a cooperation have to be managed appropriately (Gattorna, 2000).

3 Methodical Approach and Data Collection

This study is designed as a bridge between the theory on the opportunities, challenges and future outlook of outsourcing logistics activities to 4PLs and the phenomenon's current understanding and characteristics in business practice in Germany. Therefore, on the one hand, the systematic review of recent relevant academic literature plays a very important role as a theoretical foundation for the study. On the other hand, semi-structured, in-depth interviews with experienced logistics experts were conducted, in order to get insights on the practical usability of the 4PL business concept as well as its understanding, benefits, risks and future implementation potential.

The use of semi-structured, in-depth interviews as specific qualitative empirical research method was chosen for the following reasons. Not only does it require a questionnaire that consists of several key questions, but it also allows the interviewer to diverge and pursue an idea or response in more detail, depending on the specific informant. This interview format is most frequently used, when exploring a new phenomenon, as it provides participants with some guidance on the topic of interest as well as more

flexibility. Moreover, it also allows the elaboration of important information, which may not have previously been classified as pertinent by the researcher (Blumberg, et al., 2014; Saunders, et al., 2012).

In order to examine the present state of the German logistics outsourcing market, eight medium-level logistics and purchasing experts from leading organizations in Bayern, Germany, were interviewed from December 2014 to February 2015. The organizations, these experts are currently working for, reflect a variety of different industry sectors (e.g. global SCM, logistics, consulting), so that a holistic perspective on the topic is ensured (Creswell, 2013; Saunders, et al., 2012).

Additionally, for optimal results the particular predefined interview questions were adapted to the field of knowledge and expertise of each informant. In fact, most of the companies were visited in person. As expected, none of the eight logistics experts approved of recording the interview or revealing their company's name, because the research topic is confidential and commercially sensitive. Therefore, particular attention was paid to the anonymity of the interviewees and no basic company information was required (Blumberg, et al., 2014; Saunders, et al., 2012).

As soon as possible after the conduction of each interview, the scratch was reviewed and extended according to the expert's statements, as appropriately communicating with the informant and typing their entire answers simultaneously was a rather challenging task (Blumberg, et al., 2014; Saunders, et al., 2012). Data was initially analyzed using the theoretical insights gained on the topic. The analysis of each interview was partly carried out after each conduction, in order to develop a general understanding and refine the protocol and deep-dive questions for the next interviews. This

enabled the data to be systematically collected and analyzed. Furthermore, follow-up telephone interviews or informal conversations with the informants were conducted, in order to clarify any ambiguities. Lastly, the interview material was reviewed and compared with secondary sources (e.g. companies' internal webpages, presentations), in order to make sure that the interview transcripts are interpreted legitimately. This also increases the reliability, generalizability and validity of the results (Yin, 2014; Saunders, et al., 2012).

4 Findings and Discussion

In this chapter the findings of the empirical research conducted will be discussed. Thereby, the outcomes of a practical study on the comprehension, contemporary spread, potential and challenges of the 4PL business concept in the German market, conducted by Wagner, Ries and Pfohl (2014), will also be taken into consideration, because using relevant existing research is regarded as both important and valuable source of data in qualitative studies (Maxwell, 2013).

4.1 Opportunities of Outsourcing Logistics Activities to 4PIs

First of all, in contrast to the recent publications (e.g. Wagner, Ries and Pfohl, 2014; Saglietto, 2013; Christopher, 2011), the majority of informants expresses certain skepticism in terms of reduction of capital expenditures within a 4PL venture. This might be due to the fact that large corporations

achieve the needed synergy effects in terms of optimized fixed cost (economies of scale and scope, operational flexibility, etc.) on their own. Furthermore, the time spent by their senior management to coordinate and supervise the SC activities up- and downstream, is worth a substantial investment, because playing the role of the SC integrator represents their competitive advantage and main source of profit and, thus, lies “at the heart” of the company (Gattorna, 2000).

Nevertheless, regarding the opportunity of enhanced customer satisfaction, service capabilities and operational flexibility, both academicians and practitioners agree that large enterprises and SMEs experience difficulties in finding the right subcontractors, which maintain best-practice service levels throughout the business partnership. In that case, all companies can profit from a 4PL arrangement (e.g. Wagner, Ries and Pfohl, 2014; Saglietto, 2013; Win, 2008). Furthermore, logistics experts see a potential for reputation benefits, greater service capabilities and more successful new market entries due to the broad specific knowledge of the local customer requirements and reliable suppliers within a 4PL venture. In addition to the neutral position of the 4PL companies, especially SMEs can further take advantage of the broad IT knowledge, effectively shared within the SC network, the higher operational flexibility through risk-sharing and assets-renting, and the opportunity to work with companies on leading market positions (e.g. Wagner, Ries and Pfohl, 2014; Saglietto, 2013; Jensen, 2012).

Furthermore, particularly in terms of SMEs, both academicians (e.g. Wagner, Ries and Pfohl's, 2014) and practitioners state that, by taking up a consulting role, 4PL companies provide their customers with high-quality logistics expertise and enhanced value chain integration. Moreover, they

bring in expert knowledge and broad expertise in project management and employee motivation, which plays a very important role in change and innovation implementations (Saglietto, 2013). In this sense, academicians share the informants' opinion that the 4PL business model represents a comprehensive integrated SC solution through a hybrid organizational structure, which enables it to increase revenues as well as reduce working and fixed capital throughout the entire SC. Moreover, the 4PL business concept is considered as an innovative SC solution, which combines the capabilities of management consulting, IT providers and 3PLs, by acting as a single interface between the customer and multiple LSPs (Büyükoçkan, et al., 2009; Win, 2008). Last but not least, by being the single point of contact, the 4PL company is able to simultaneously apply its logistics and optimization expertise along the entire SC, which is profitable for all partners in the long run (Papadopoulou, 2013; Jensen, 2012).

4.2 Challenges of Outsourcing Logistics Activities to 4PLs

In contrast to the results of Wagner, Ries and Pfohl's (2014) practical survey most of the interviewed logistics experts did not identify any substantial benefits from a potential 4PL venture for their corporations, industries or country. This might be due to the fact that the majority of the informants work for large German corporations. However, in alignment with the results of the academic literature review as well as the outcomes of Wagner, Ries and Pfohl's (2014) survey, the informants define relevant current inherent risks and challenges of a 4PL arrangement in business practice.

In terms of knowledge and understanding of the 4PL business concept, it is fair to evaluate that the results of the qualitative empirical survey executed are consistent with the findings of the theoretical research conducted (e.g. Saglietto, 2013) as well as with the outcomes of Wagner, Ries and Pfohl's (2014) practical survey. They state that currently the majority of logistics experts is not clearly familiar with the 4PL business model despite its substantial practical implementation potential and even though some of the companies are actively cooperating with LLPs. Logically, these experts do not consider 4PL operators as a relevant or possibly profitable business venture for their companies. This is one of the reasons why the potential of the 4PL phenomenon in the German market remains largely untapped (Wagner, Ries and Pfohl, 2014). As for the possible dependency on the 4PL operator, it is fair to say that on the German market generally exists a certain skepticism, reservation and a lot of legal requirements regarding new business concepts such as 4PL. Furthermore, the omission of logistics experts within the own company is associated with loss of know-how, market power and employee satisfaction. Moreover, academicians and practitioners agree on the existence of a "login-effect" with high exit barriers, where the client company gets vulnerable in the long run, as it becomes dependent on the 4PL's strategic decisions, performance and collaboration goals (Wagner, Ries and Pfohl, 2014).

Actually, regarding the potential loss of control and management of the outsourced logistics activities, the majority of informants shares the opinion that cooperating with a 4PL would mean at least partly giving up their identity, core competencies, added value and sources of profit to an external company. Moreover, as summarized in the literature review, beyond the

reported lack of trust towards the 4PL partner, there exists general anxiousness about hidden cost, non-transparency, potentially missed innovation advantages, poor quality and unexpected relationship difficulties (e.g. opportunistic behavior), which hinders the further expansion of the 4PL business model in the German market and on a global scale (Wagner, Ries and Pfohl, 2014; Rushton and Walker, 2007).

Lastly, as far as the industry applicability of the 4PL business concept is concerned, Rushton and Walker (2007) state that large companies in high-technology and fast-moving consumer goods industries with increasingly global SCs have particularly high potential. Furthermore, Wagner, Ries and Pfohl (2014) define IT platforms for large companies as a substantial 4PL market opportunity in Germany. On the contrary, the majority of logistics experts interviewed defines SMEs in general, enterprises, which are looking forward to entering new markets in developing countries, and manufacturing companies, whose core competence does not lie in logistics, as the relevant market niche for 4PL companies in Germany. However, in terms of conservatism, both academicians and practitioners confirm that the German market for logistics outsourcing is relatively bureaucratic, skeptical and reserved in terms of changes, innovations and new business concepts. This fact, among others, currently prevents the 4PL business model from spreading more broadly (Wagner, Ries and Pfohl, 2014).

4.3 Future Outlook and Potential of the 4PL Concept

Academia and business practice agree that, due to the very competitive global business environment and rapidly changing customer needs, busi-

nesses will keep on seeking reliable and trustworthy LSPs, which can provide the resources and capabilities needed cheaper, better or more efficiently (Wagner, Ries and Pfohl, 2014; Saglietto, 2013). This can be traced back to the fact that nowadays agile, innovative and flexible SC networks compete, instead of single companies, and this tendency will remain in future (Christopher, 2011). Therefore, the trend to look for partnerships that are more strategic and collaborative will continue.

However, it is fair to evaluate that not all the strategic SCM tasks can be delegated to a LSP. In particular, the long-term planning of the logistics network is closely related to strategic decisions within the client company, which have a direct impact on multiple other corporate functions. Therefore, a central logistics department should be defined as a single, company-internal interface to communicate with the 4PL operator. This would help to mitigate the identified cooperation barriers in terms of high dependence on the 4PL operator and fear of loss of logistics expertise (Wagner, Ries and Pfohl, 2014).

Nevertheless, as SC competition and, thus, logistics outsourcing are globally gaining in importance, LSPs will continue developing innovative solutions to fulfill the various customer needs (Saglietto, 2013; Rushton and Walker, 2007). In fact, the majority of academicians and practitioners agrees that the theoretical, "pure" 4PL business model will hardly spread widely in Germany in the foreseeable future. However, in the role of logistics consultants, 4PL companies will continue to successfully support German companies regarding logistics, process optimization and IT systems. Furthermore, by founding a central department or a joint venture with a LSP in the form of an "internal 4PL", the client can ensure the transparency,

quality and efficiency along its SC network (Wagner, Ries and Pfohl, 2014). Last but not least, as a relatively small, neutral representation of a well-known 3PL company with local broad logistics experience (e.g. in BRICs), a 4PL unit can help companies efficiently manage and coordinate their SC networks in a new market.

To conclude, it is fair to evaluate that the future outlook of the 4PL business model in Germany remains highly controversial. On the one hand, this theoretical concept makes sense as its advantages represent a revolutionary response to newly arising SC challenges. On the other hand, however, logistics experts evaluate it as a rather complicated and risky undertaking, which has a major potential for a particular company in a certain situation, but rather reaches its limits when it comes down to a possible implementation in their company, industry or country, even in future. Nevertheless, enterprises should not underestimate the potential of the 4PL business concept, as it might turn out to be a typical disruptive innovation and, thus, an immediate competitive advantage on the future global market.

5 Conclusion

The need for a successful management of logistics services is becoming very acute, because nowadays it defines competitiveness on the global marketplace. Businesses strive to be more effective and that has led them to increase the number of outsourced logistics activities. Without doubt, the competitiveness of LSPs and their clients depends on the ability to innovate, develop and supply complex and high-quality products and services with higher value-added operations than their competitors. It is fair to say that a new paradigm of competition is currently emerging, in which the SC network provides a source of sustainable competitive advantage through enhanced customer value and efficiency in a globalized world, increasingly based on IT innovations. In this context, the 4PL business model has emerged as a breakthrough solution, due to the following reasons.

Firstly, a 4PL operator is legally and organizationally neutral of a logistics group. It is therefore free to provide independent solutions and establish external partnerships. Secondly, it provides a comprehensive multi-services, multi-techniques and multi-supports solution, which includes the best SC partners available on the market. Furthermore, as a global SC integrator, manager and unique value contributor, the 4PL operator acts as an interface and a single point of contact and accountability, which shares risks and benefits with its customers and makes sure that more agile responses are achieved. Thirdly, 4PLs offer a strong potential for human capital, which represents an inalienable and inimitable critical resource. Lastly, they are very creative, in constant search of innovative organizational concepts and techniques, in order to find new opportunities for their clients (Saglietto, 2013).

In business practice, however, this asset-free approach still struggles to take hold. In Germany in particular, the 4PL business model faces substantial implementation challenges due to companies' general distrust, apprehension of opportunistic behavior and unwillingness to share relevant information or competencies with a third party. Thereby, the loss or outsourcing of the own experts and know-how also plays an important role, because customers fear becoming vulnerable and dependent on the 4PL company. Hence, according to the informants, other business models such as LLP are more applicable and relevant.

Nevertheless, as far as the German market is concerned, locally presented well-known 4PL operators offer major opportunities for SMEs, for companies, which are looking forward to bringing new products to new markets, especially in developing countries (e.g. BRIC), and for manufacturing companies, whose core competencies are not in the logistics area. In this case, 4PL companies with a solid approach, broad logistics knowledge and experience, and up-to-date IT systems have a substantial implementation potential, when a suitable 4PL partner is chosen, a long-term trust-based partnership with mutual benefits is created and a full process transparency is ensured.

To conclude, the future outlook of the 4PL business model in the logistics outsourcing market in Germany is quite controversial. On the one hand, the trend for logistics outsourcing will continue to expand due to the globally rising competitive pressure. Thereby, besides cost and quality, efficiency, trust, value added, IT expertise and transparency of the handling processes will gain in importance for a successful logistics outsourcing collaboration.

These premises promote new breakthrough solutions such as the 4PL business model. On the other hand, however, particularly in the mature, highly competitive German market there generally exists a certain skepticism and reservation regarding innovative ideas as well as lots of legal requirements. Nevertheless, the substantial potential of the 4PL business concept should not be underestimated, as the phenomenon might turn out to be a typical disruptive innovation and, thus, a game-changing competitive advantage on the future global market.

As for the limitations of this article, it is fair to say that 4PL academic literature and surveys should distinguish between the research paths and results for large companies and SMEs, as there are substantial differences between these two groups in terms of 4PL implementation potential, advantages, drawbacks and future outlook. Furthermore, due to time and financial constraints, from the many possible companies the personal views of only eight logistics experts, who work for only four companies in three business segments in Bayern were explored. Moreover, only a fraction of the possible logistics outsourcing strategies within 4PL arrangements were discussed during the interviews. That is why, the research findings are limitedly transferable and cannot be assigned to the entire German market.

Nevertheless, the listed limitations draw attention to several future research paths. It would be worthwhile to conduct further qualitative and quantitative research on the company-, industry- and country-specific 4PL implementation potentials, as this article gives indications that there are major differences between 4PL perceptions in these three areas. Furthermore, it would also be interesting to compare and contrast 4PL logistics outsourcing practices and potentials between SMEs and large companies

as well as between developed and BRIC countries and to verify the results of the present research. Moreover, there is a major research gap, when it comes down to quantitative and qualitative criteria for measuring the performance as well as success of 4PL ventures. Another interesting research path represents the development of a strategic approach for companies to choose a suitable 4PL partner, monitor and effectively direct the logistics outsourcing progress, and overcome traditional challenges. Lastly, there is a lack of empirically based large-scale studies on a global scale, including hypothesis, factors and relationship analysis regarding the opportunities and challenges of logistics outsourcing within a 4PL arrangement.

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