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INTANGIBLE ASSETS AS A SOURCE OF COMPETITIVE ADVANTAGE FOR LOGISTICS SERVICE PROVIDERS

Abstract

The ever-shorter product life cycle, mass customization of production and constant pressure to reduce costs have a significant impact on the operating activity of modern companies, including logistics service providers. In order to achieve market success, they have to look for new sources of gaining or maintaining the competitive advantage. One of such sources are resources that relate to both the material and immaterial realms. The article assumes that intangible assets are the main source of competitive advantage. The aim of the paper is to identify the intangible assets and determine their impact on the competitive advantage of logistics service providers.

Keywords: logistics service providers, intangible assets, competitive advantage

Introduction

Logistics service industry enterprises have a rich history. For example, German Schenker was founded in 1872, and American-based UPS was established in 1907. For a long time services provided by these companies were mainly limited to transportation of shipments from the sender to the recipient. Faster development occurred in the 1980s, together with the emergence of the supply chain concept. Then, companies started more and more frequently to outsource not only transport processes, but also storage, picking and packing to external entities. At the turn of the twenty-first century, a rapidly growing trend of outsourcing (Marasco 2008; Soinio, Tanskanen, Finne 2012), but also a wave of consolidation in the form of mergers and acquisitions, contributed to the growth of interest in the logistics services industry. In the former case, logistics service providers have become co-creators of logistics strategies of many companies. Over the last several years, the range of the services offered by logistics companies has significantly expanded and evolved towards advanced solutions for supply chain management (Czakon, Kawa, 2018). Recent research results (Soinio, Tanskanen, Finne, 2012) confirm this trend and indicate that customers today demand more value-added logistics services (Wagner, Franklin, 2008). In turn, the trend towards mergers and acquisitions has been the reason for the emergence of large global companies offering comprehensive services in the areas of transport, shipping, storage, and related services as well as those supporting logistics processes.

Today, the logistics service industry is known as the 'bloodstream' of economy, which points to a strong correlation between the condition of the economy and the demand for logistics services. The demand for logistics services is, in fact, secondary in relation to the demand for products transported and stored. The logistics services industry is also referred to as a 'Stimulator' of economic development. Logistics companies are important partners of contemporary organizational entities. Without their services, many companies would find it difficult to expand into other markets, or even deliver products to customers located in different regions of a single country. This is particularly noticeable in e-commerce, whose dynamic development is one of the most important trends in the modern economy. Without express delivery services, parcel lockers, and pick up & drop off points, Internet sales would be almost impossible. The largest enterprises of this industry are present in even more than 200 countries and territories. At present, the development of the largest logistics enterprises proceeds in accordance with the one stop shopping concept, connected with offering comprehensive services by one organization (Kawa, 2017).

Logistics enterprises, however, do not always have the right resources that would enable them to carry out all the services offered. This resource scarcity is particularly conspicuous in the case of the means of transport, but also, increasingly, warehouses or transshipping facilities. The reasons are twofold. Firstly, providing comprehensive logistic services requires a well-developed logistic infrastructure, it is time-consuming and capital-intensive. Secondly, possessing excessive material resources is connected with a risk of uneven use thereof, especially in the case of strong fluctuations of demand. In connection with the realization of more and more extensive logistic tasks, providers often take advantage of the help of other enterprises, which co-operate with other, usually smaller, logistic entities (Kawa, 2017).

Access to resources is therefore a prerequisite for the provision of comprehensive logistics services. The aforementioned resources are mainly material in nature. Intangible resources, which not only facilitate better functioning, but also influence the competitive advantage of logistics service providers, are also increasingly often required.

The aim of the paper is to identify the intangible assets and determine their impact on the competitive advantage of logistics service providers.

Approach to resources

The resources concept used in this paper is derived from the resource-based view (RBV) which has been a foundation for a lot of research in the strategic management literature (Human, Naudé, 2009). Resources are treated very differently. Apart from the division into tangible and intangible resources (Barney, 1991), there is a distinction between broadly understood resources (assets) and skills (capacities) (Amit, Schoemaker, 1993). The material resources consist of material, human and financial resources. Additionally, Barney (1991) also includes organizational and information resources. Intangible assets are the remaining resources, such as knowledge, skills, abilities, experience, reputation. In terms of assets, in turn, resources are stocks of available factors which are possessed or controlled by the enterprise. These resources are processed or they co-create products (services) (Amit, Schoemaker, 1993). Skills (capacities) relate to the collection, use and exchange of information between members of the company. This makes it possible to distribute and pool resources accordingly. Kay (1996) also indicates the distinguishing abilities of the company. These are: innovation, reputation, strategic resources and the so-called architecture, i.e. relationships between people and relations of the company with customers, suppliers and other companies from the industry.

The key assumption of the firm resource-based theory is that thanks to its resources and skills, the company can gain a relatively sustainable competitive advantage (Kunasz 2006). However, not all resources have the same impact, which is why it is important to focus attention on those resources that are useful for creating instruments for effective competition on the market.

According to the RBV, some kind of resources lead to a sustainable competitive advantage. Such resources should meet the following conditions (Barney, 1991):

– they are strategically valuable due to their ability to add financial value to the companies;
– they are characterized by rareness because only some enterprises have them;
– they are inimitable by other firms;
– there is no possibility to substitute them with other resources.

Examples of these resources are knowledge and relationships. Knowledge-based assets are hard to imitate and substitute. At the same time, people with critical knowledge may also have enormous bargaining power. In turn, a company's relationships are important resources in themselves (Gadde, Huemer, Hakansson, 2003). Other resources of this kind are: capabilities, organizational processes, the firm's attributes, information, technology, experience, etc. (Rose, Abdullah, Ismad, 2010).

These assets are intangible. Some researchers have been pointing out for some time that tangible resources cease to be regarded as a source of competitive advantage (Kawa, 2017), and managers should focus their attention on intangible assets. However, this requires major changes in companies, particularly in those where material resources are still important. Nevertheless, we should not completely abandon the idea that material resources can be a source of competitive advantage. Sometimes material resources are a carrier of intangible assets. Niemczyk (2013) even points out that by acquiring human resources, for example, a company can acquire relational resources together with them in the form of contacts with customers and suppliers.

Moreover, Hammel and Prahalad (1994) suggest that in order to achieve competitive advantage it is necessary to be able to use resources, i.e. be competent. This is considered to be the capacity to ensure coordinated use of resources in order to achieve the company's objectives. In turn, Krupski (2009) believes that a company does not have to possess resources and skills; it is enough for managers to know how to acquire them if needed.

As previously noted, consolidation, mergers and acquisitions have been a trend in the logistics services industry for several years. With these activities, LSPs (logistics service providers) are given access to new resources such as hubs, warehouses, terminals, IT systems, as well as to customers, expertise, experience and qualifications of employees (Wong and Karia, 2010). It is not always that all these resources are needed. It is not clear whether these resources are used efficiently and which of them are the most important ones. The reason for this lack of knowledge is limited research in this area. Most of the research into resources in logistics concerns manufacturing, commercial and distribution companies. The resources of logistics service providers are investigated relatively rarely. There is a need for studies based on the perspective of provider resources in order to enhance the understanding of LSP resource and competitive advantage (Gunasekaran, Ngai, 2003; Wong, Karia, 2010).

Resources of LSPs and their impact on performance

The resources of a logistics company are classified in different ways. Karia and Wong (2013) used the RBV theory to develop the resource-based logistics (RBL) theory, which argues that logistics resources and capabilities are the determinants of LSP performance. RBL classifies intangible logistics resources into three categories (management expertise, relational and organisational) (Alkhatib et al., 2015). A similar division is proposed by Aziz et al. (2015), i.e. physical, management expertise, technology, relational and organizational resources.

We assume that there is a strong link in the logistics service industry between having strategic resources and the firm's performance. The ways to increase efficiency focus firmly on the acquisition and management of strategic resources and capabilities. The development, maintenance and growth of the firm's resources contribute to the competitive advantage and, ultimately, to the firm's performance (Human, Naudé, 2009).

For the purposes of this article, we have developed a simple model to test the relationship described above. It consists of two constructs: exogenous and endogenous. The former is the resource advantage, the latter is performance related to the competitive advantage of the enterprise.

In the case of 'the resource advantage', several indicators that correspond best with the construct were selected. For their construction an in-depth literature study was carried out. Intangible resources were taken into account, which can be a source of competitive advantage due to their strategic importance, rarity, difficulty in imitation and substitutability (Barney 1991).

One of the most important intangible resources of the contemporary enterprises is knowledge of employees. It is a crucial part of the management expertise resource which determines the performance of LSP (Ellinger et al., 2008). The amount of research shows that the quality of the human resource is significant to the new solution, especially adoption of technology. According to Mentzer et al. (2004) management skills, knowledge, and logistics expertise are intangible resources which lead to capabilities.

Logistics service providers are very often "asset-free logistics intermediaries offering expertise for the establishment and control of complex logistics systems, including logistics consulting and the organization of the information infrastructure, transport, logistics as well as financial services that are needed" (Schramm, 2012, p. 154). For this reason, organizational skills are required. The management methods used are also associated with cooperation with other entities. LSPs, in particular 4PL (fourth party logistics), are compared to supply chain integrators that select and manage the resources, capabilities and technologies of their own organization and complementary service providers in order to provide comprehensive supply chain solutions. They are also referred to as hybrid organizations, formed from a wide range of entities and usually constituted in the form of a long-term contract. They are also called supply chain architects because they are responsible not only for planning logistics operations, process restructuring, but also for developing the supply chain vision (Cezanne, Saglietto, 2015).

4PL operation is based on outsourced outsourcing. It has access to up-to-date information about the resources and logistic processes implemented by its partners. This is possible thanks to IT systems and their integration with the 4PL operator. It can thus manage the supply chains of different products not only regionally but also globally. Customers additionally get some added value in the form of shorter delivery times and a better offer of logistics services. For this reason, technology is as another group of strategic resources for LSPs (Beinstock et al., 2008). In the logistics literature, the technology resource refers to "advanced technology, advanced equipment, information equipment, resources and information systems and improvement in information technology" (Chapman et al., 2003).

Apart from the aforementioned knowledge, qualified and experienced employees, who cooperate with smaller logistics service providers and other contractors, are needed in logistics companies. Bagchi and Virum (1996) suggest that 3PL is characterized by long-term formal or informal relationships between a particular enterprise and a service provider for all or a significant part of logistics activities. Special emphasis is put here on the long-term relationships between the recipient and the logistics provider. Murphy and Poist (1998) have similar opinions. According to them, cooperation of experienced partners results in a more tailored offer, a wider portfolio of services offered and a longer period of time which is more beneficial for both parties to the relationship.

Another issue is the brand of the company (Davis et al., 2008). The largest logistic companies are well-known and valued brands around the world. The firm's image is associated with marketing and business identity. It reflects how the organization is perceived by customers, suppliers and competitors. Positive associations with the firm inspire trust among employees, increase the sense of security and reduce the risk of cooperation failure. The image is used in the partner selection in the logistics services industry (Skjoett-Larsen, 2000). In addition, some scholars consider the reputation and corporate image resource as organizational resources which may have a positive impact on the strategy and objectives of an LSP (Brah, Lim, 2006).

In the case of cooperation with various entities, relations with them are very important (Chapman et al., 2003; Aziz et. al., 2015). Currently, companies offering comprehensive logistic services operate in multi-level structures, in accordance with the one stop shopping concept. They coordinate the work of many direct as well as indirect entities. These entities are both suppliers and customers, but also, more and more frequently, competitors, as well as customers' suppliers, suppliers' suppliers, customers' customers, competitors' suppliers, etc. These entities form a bundle of links with a direct or indirect impact on the enterprise that participates in the network. Relationships are a key factor that unites the actors, resources and networking activities. They are the key to achieve resources complementarily among business partners (Amit, Schoemaker, 1993). Langley and Capgemini (2007) claim that relationship is the next strategic weapon for LSPs to achieve and maintain competitive advantages.

In the analysis presented above, seven key indicators have been identified which will determine the intangible resources of logistics service providers. They include the following: knowledge, business organization, management methods, technology, experience, brand, relationships.

The second construct included in the model is the 'performance' of the enterprise. It is also treated very differently by researchers. Some of them relate performance to financial results and others to non-financial performance. We have adopted a mixed approach for the purposes of this article; namely, a four-item scale of performance from Fynes and Voss (2002), Homburg et al. (2004) and Hooley et al. (2005), who supported the use of perceptual measures of firm performance. It consists of: market share, sales income, profit and ROI (return on investment).

Empirical research design

For the needs of this paper we carried out the quantitative research with the use of the Computer-Assisted Web Interview (CAWI) and Computer-Assisted Telephone Interview (CATI). The database of companies operating in the field of logistics services in Poland was used as the sample. It included data from the Regon database kept by the Central Statistical Office in Poland.

In the design of the sample size the lack of awareness of the resource advantage and performance was taken into account. Next, the intensity of research projects is currently high and managers do not have time or simply do not want to participate in studies. Finally, an e-mail or call with a request to take part in a study may be unnoticed among the numerous messages employees receive every day. In order to compensate for this possibility the survey was sent to approx. 23 000 people – managers with knowledge of storage. A total of 58 questionnaires were received, giving only a yield of approx. 0.25%. In addition to the above-mentioned lack of awareness of the exclusionary constraints in storage, such a low percentage could have been affected by quite an extensive size of the questionnaire and its complexity.

In the next step the CATI was used to collect more data. Approx. 30 000 people were interviewed by telephone. In this case a total of 248 questionnaires were received, giving a yield of approx. 0.82% only. Due to errors and incomplete information, some surveys were rejected. Finally, 300 correctly completed questionnaires were qualified for further analysis, which, assuming the same level of confidence, gives an acceptable measurement error of 5.6%. It should be emphasized that according to the literature (Bazarnik et al., 1992), 300 observations are sufficient to be able to come to conclusions about a population consisting of about 94 000 entities (Eurostat, 2016).

The managers who participated in the study and completed questionnaires represented (taking into account the size of employment) mostly micro (49.7%) and small (36.7%) enterprises (see Table 1). In terms of the legal form the largest group consisted of sole-traders (54.3%) and limited liability companies (25.3%). The majority of the surveyed companies provided services for customers from the construction (41,7%) and food (29%) industries.

Table 1. Sample characteristics

Characteristics	Share in the sample (%)
Employment	
0–9 employees	49.7
10–49 employees	36.7
50–249 employees	9.0
250–999 employees	2.0
1000–4999 employees	0.7
More than 5000 employees	0.0
No data available	2.0
Legal form	
Sole-trader	54.3
Civil law partnership	7.7
Registered partnership	3.7
Professional partnership	0.7
Limited partnership	2.6
Limited liability company	25.3
Joint stock company	1.7
Cooperative	0.0
Others	2.0
No data available	2.0
Serviced industry	
Food	29.0
Electric	13.0
Construction	41.7
Textile	8.0
Paper	13.3
Chemical	15.3
Agricultural	13.7
Telecommunications	4.0
Medical	6.3
Furniture	15.3
Financial	1.3
Logistic	14.0

Source: (own elaboration)

In our research we adopted a five-point Likert-type scale to assess the resource and performance and capture the evaluation of our respondents. In the measurement tool, the respondents were asked to compare their resources with those of their direct competitors, using a scale of 1–5, where 1 meant 'much worse' and 5 meant 'much better'. Although such a comparative approach to the evaluation of the indicators may raise questions about the validity of use, it is increasingly often applied in research. We assumed that if an LSP had a competitive advantage, it meant that it had something that others did not have, it did something better than others or did, something that others could not do (Aziz et al., 2015) (see Table 2).

Table 2. 'Resource advantage' indicators

Please compare the following types of resources of your company with those of direct competitors:
Knowledge Business organizations Management methods Technology Experience Brand Relationships

Scale of assessment: five points from 1 to 5, where 1 is 'much worse' and 5 is 'much better'.
Source: (own elaboration)

As in the case of the 'performance' variable, the respondents were asked to compare their performance with the performance of their direct competitors in the last financial year. The work of such researchers as: Fynes and Voss (2002); Homburg, Krohmer and Workman (2004) was used. These authors advocate the use of perceptual indicators to measure company performance (see Table 3).

The quality of the results was verified using validity and reliability measures (all convergent factor loadings and Cronbach's alpha coefficients of constructs were higher than 0.90).

Table 3. 'Performance' indicators

Please compare the following parameters of your company with those of direct competitors in the last financial year:
Market share Income Profit ROI

Scale of assessment: five points from 1 to 5, where 1 is 'much worse' and 5 is 'much better'.
Source: (own elaboration)

Results

All intangible assets were rated fairly highly by the respondents, i.e. above 3.4 (see Figure 1). The resource evaluated best is experience (4.14). This means that LSPs perceive their experience better or considerably better in relation to the experience of direct competition. Knowledge, skills and best practices gathered for years are precious strategic resources that are certainly valuable, rare, inimitable, and non-substitutable (Barney, 1991; Eisenhardt, Martin, 2000). The second type of resources rated highly were relationships (3.77). Managers of logistics companies value good relations with their partners and take care of their development. They are also linked to the experience mentioned above, as lasting relationships are built for years.

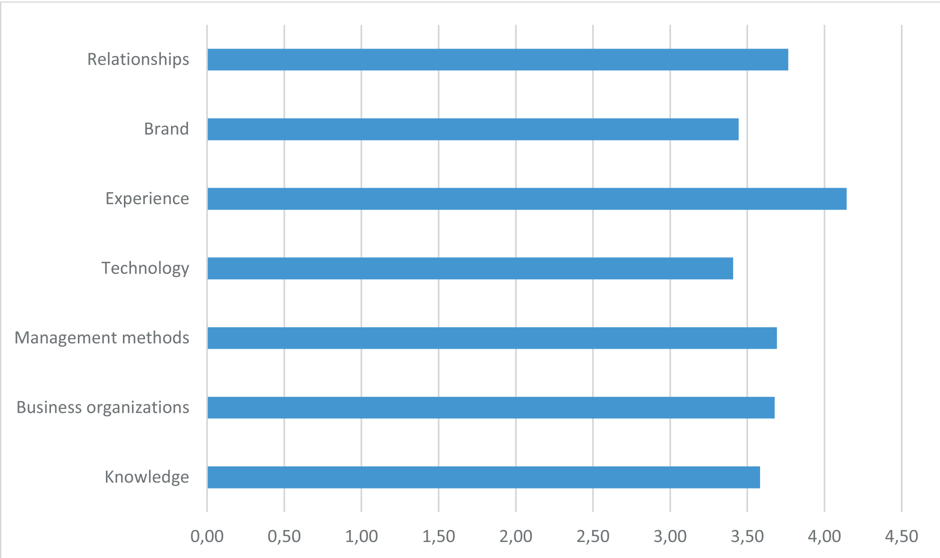

Figure 1. Assessment of 'resource advantage' indicators
Source: (own elaboration)

The lowest rating was given to technology. The assessment was above 3.41, which meant that the respondents rated the applied technologies similarly or slightly better than the competition. The level of this assessment proves that managers of logistics companies either perceive technology as the factor that distinguishes them least, or they believe that their competitors apply similar solutions.

Different results were obtained in the case of the evaluation of performance. All values were lower than 3.0, but three out of four were at least 2.92 (see Figure 2). This means that in the opinion of managers of logistics companies, the performance of their companies is at a comparable or slightly worse level. Financial results such as income and profit were rated most highly (2.94). The lowest rating was given to ROI, which meant that the respondents rated it less favourably than their direct competitors.

The statistical analyses revealed a correlation between the size of the surveyed enterprise (measured by the number of employees) and its resources and performance (see Table 4 and 5). The larger the company, the greater the resource advantage and the better the results. Both correlations are moderate in strength and are statistically significant: 0.16 for resources ($p < 0.001$) and 0.34 for performance ($p < 0.001$). However, there is no such correlation with the other control variables, such as the legal form and serviced industry, which means that the form of the business and the industries served are irrelevant to the competitive advantage achieved.

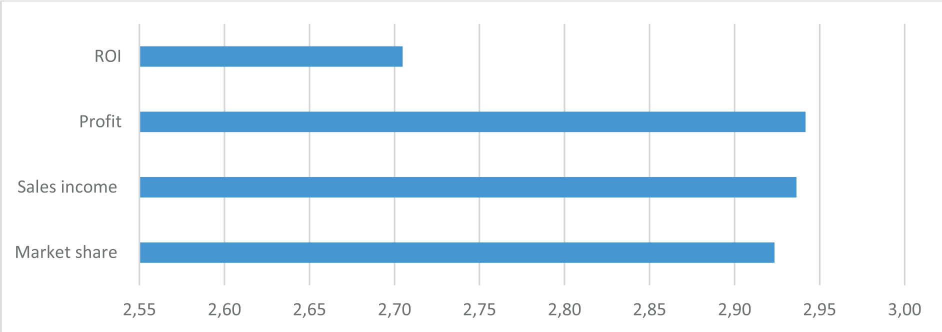

Figure 2. Assessment of 'performance' indicators
Source: (own elaboration)

Table 4. Relationship between the size of the surveyed enterprise (measured by the number of employees) and its resources

Employees/ resource	Knowledge	Business organizations	Management methods	Technology	Experience	Brand	Relationships
0–9	3.44	3.55	3.57	3.26	4.14	3.27	3.76
10–49	3.66	3.83	3.82	3.45	4.15	3.55	3.69
50–249	3.87	3.65	3.70	3.74	4.09	3.65	3.87
250+	3.80	3.80	3.80	3.80	4.50	4.00	4.20

Source: (own elaboration)

Table 5. Relationship between the size of the surveyed enterprise (measured by the number of employees) and its performance

Employees/ performance	Market share	Sales income	Profit	ROI
0–9	2.66	2.58	2.68	2.53
10–49	3.08	3.22	3.09	2.86
50–249	3.43	3.43	3.30	2.84
250+	3.80	3.25	4.20	3.33

Source: (own elaboration)

The next stage of the study was to test a hypothesis indicating a positive relationship between the resources and performance of logistics companies. Since the first construct consists of seven factors and the second one – of four, it was decided to average these factors so that each of the constructs was represented by one size. Thanks to this procedure it was easier to collate the data of both constructs.

The statistical analysis supported the hypothesis. Namely, there is a positive link between resources and performance. The strength of this correlation is moderate and statistically significant (0.38; $p < 0.001$). This means that the higher the company's resources are rated, the greater the competitive advantage it has and thus outperforms its competitors.

Conclusions

The logistics services industry continues to develop. New requirements and expectations towards logistics service providers arise. The range of services, in terms of their type and geographical coverage, is growing. Competition between companies is also increasing. It is not enough to own resources such as fleet, warehouses, and transshipment facilities to achieve market success. Nowadays, companies are increasingly competing by means of strategic resources that are valuable, rare, inimitable, and non-substitutable. The research shows that these are mainly experience and relations with other companies. The disposition of appropriate intangible assets is directly reflected in the performance achieved, and this in turn translates into the competitive advantage (Alkhatib et al., 2015). However, one should be aware that the competitive advantage is always temporary; that is why LSPs will need to continue the resource structuring, accessing and bundling activities (Wong, Karia, 2010).

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