The impact of network relationships on the competitive advantage in the changing logistics service industry

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ABSTRACT

Logistics service providers are a very important entity of modern business networks, in particular supply chains. The structure of these companies is multi-layered. It is based on coordination of the work of individual logistics companies in order to provide comprehensive logistics services to the customer. On the first level there are leading logistics companies that integrate activities of the logistics companies from the second level specializing in a particular area of activity (e.g. forwarding services, transport of selected goods, services delivered in some regions). The latter, in turn, interact with suppliers from the third level - smaller companies which carry out specific logistics tasks using their own resources. These are e.g. local carriers, customs agencies, owners of warehouses. These multi-level structures consist of direct and indirect relationships between the entities. They co-operate with suppliers, customers and competitors in the long-term. Apart from contracts and agreements (formal relations), their relationships are informal. They form a kind of a business network where the focal company is the logistics service provider.

In the literature, there are few studies on the analysis of the business networks from the perspective of the logistics companies. In particular, there is a lack of empirical research on the impact of the cooperation between logistics enterprises in the business network and the network effects on the resource-based advantage of the companies and their results. The proposed article will attempt to fill this gap.

In this article, apart from the overall results of the analysis of the literature on networks in logistics, results of empirical research will be presented whose primary purpose was to explain the mechanism of competitive advantage formation in enterprises using networking relationships in the logistics services industry. For the needs of the study a measurement instrument (survey questionnaire) was developed on which studies using quantitative methods were based.

The results were used to develop regression models which allowed to verify the research hypotheses. The analysis took into consideration, among others, intensity of the flows in the networks, relational norms and perceived positive and negative network effects. On this basis it was stated which network factors affect the competitive advantage of enterprises and to what extent. The studies have shown a positive impact of the network strategy on the resource-based advantage of logistics enterprises, which, however, is significantly weakened by the lack of balanced interdependence in the network.

Keywords: logistics industry, network relationships, resource advantage

Type of article: competitive paper

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INTRODUCTION

According to the resource dependency theory, key variables motivating companies to establish reciprocal relationships are dependence and uncertainty (Pfeffer, Salancik, 1978; Heide, 1994). Taking to account the fact that few companies are self-sufficient due to limited resources, there are, therefore, two significant problems. First, the lack of self-sufficiency creates a dependency on other participants in the market, from which the necessary resources are obtained. Secondly, this situation introduces uncertainty in decision-making by the company, concerning the range in which the flowing resources cease to be the subject of the company's control and cannot be accurately predicted. Therefore, the companies will try to minimize the uncertainty and manage the relationship through creation of formal and semiformal links with others. According to the resource dependency theory, these links can take various forms - from contracts through joint ventures to mergers (Pfeffer, Salancik, 1978). The contemporary nature of the links can be considered in terms of business networks.

One example of companies that provide, but also benefit from access to resources of other entities, are logistics enterprises. They provide logistics services which include paid tasks in the fields of forwarding, transport, storage and related services supporting the process of the flow of goods. The entities of the market (e.g. logistics service providers, courier companies) are involved in the exchange of materials and information between the various players in the market. They contribute to creation of value of processes and products, as well as to development of companies and their supply chains by providing effective indirect links (Gadde et al., 2003). Logistics service providers are, therefore, part of business networks in which they usually play a supporting role for the other entities (Skjoett-Larsen, 2000). For this reason they are referred to as third party logistics.

In recent times, the role of logistics companies in business networks has been changing (Gadde & Hulthé, 2008). Their activity has been increasing, and, more and more often, they manage the logistics system of another company, or even become a leader in the supply chain. Such companies are referred to as 4PL (fourth party logistics). They represent their clients around the world, advise them to develop logistics solutions and offer comprehensive services in accordance with the idea of one stop shopping. In order to perform new tasks they work with many other logistics players (often direct competitors) as well as with representatives of other sectors. The enterprises establish long-term cooperation based not only on contracts, but also on social relations (personal contacts), and create business networks. These networks consist of direct and indirect relationships and they are vertical and horizontal.

The research conducted to date suggests that the networks enable to obtain a competitive advantage in many industries and markets (Word 2009; Ritter et. al. 2004; Dyer, Singh 1998). Therefore, the research question arises whether companies in the logistics sector are more competitive thanks to the creation of the network relationships? And if so, what factors affect it? The aim of the article is to attempt to answer these questions.

For the purposes of the paper regression models had been developed which allowed to verify the research hypotheses. The analysis took into consideration, among others, intensity of the flows in the networks, relational norms and perceived barriers to networking. On this basis it was stated which network factors affect the competitive advantage of enterprises and to what extent.

RESEARCH HYPOTHESES AND THE CONCEPTUAL MODEL

Dependence on the network and the resource advantage

An undoubted factor affecting the willingness of logistics service providers to develop long-term relationships is the degree of perceived dependence on other companies. The dependence can be defined as the range in which one company provides another company with important and critical resources for which there are few alternative supplies (Buchanan 1992, p. 65). At the same time, the dependence of company A on company B is directly proportional to the investment of company A in the achievement of objectives with the help of company B, and inversely proportional to the possibility of achieving these aims by company A without the relationship with company B (Anderson, Naruse, 1984, p. 65). This definition can be extended to include the issue of the given company's dependence on the network. The dependence is thus connected with the company's need to maintain a network relationship in order to achieve the desired goals, impossible to be accomplished in a different, alternative way.

When considering the interdependencies in the network, it is more precise to use the term "relative dependence" with respect to the network. The relative dependence can be defined as the difference perceived by the company in its own network and the depending networks of relationships created together. It is the relative dependence that points directly to the range in which one company can affect others or, vice versa, may be influenced by others. So, the consequence of the relative dependence is strength or weakness. The strength of the relationship means an ability to control the decision variables in the strategy of other partners. In other words, the power possessed by one company can influence the actions of the others, such actions that they themselves would not take.

J.A. Naruse and J.C. Anderson suggest that one of the conditions of effective partnership on the B2B market is balanced interdependence among partners (1999). This phenomenon is also highlighted by the model developed by the American authors - G. L. Frazier and K.D. Antia, who point to the possible kinds of relationships in relation to the type of interdependence among contractors and, in addition, according to the degree of environment uncertainty (Keep et al., 1998). The authors explain that companies need to gain and maintain sources of the resources needed to survive. These resources are located in the environment, usually with the help of other companies that provide them access to the necessary resources. In turn, the companies are correlated if each has the resources needed by the other one and when co-operation provides them with a relative increase in confidence of obtaining resources (or reduction of the risk of losing them) in contrast to collaboration with a different organization in the environment. In the case of low uncertainty of the environment - depending on the degree and nature of the achieved interdependence, firms engage in purely transactional exchange or in a relationship characterized by involvement of only one of the partners, or in long-term relationships with a high degree of mutual engagement. In conditions of high environment uncertainty companies establish relations based on repeated transactions - relationships in which the dominant role is played by the party providing easier access to scarce resources and bilateral relations in which there is a balance of the mutual, very strong relationship between the parties. Relationships characterized by a severe and very high degree of commitment are achieved by companies when they are able to balance the dependence on one another. It shall be remembered, too, that the stronger the relationship is, the greater the uncertainty of the environment.

Obtaining satisfactory results from its activity by a logistics service provider in a network is determined by the dependence on the network, but the accompanying feeling of weakness in relation to the network and, thus, the asymmetrical dependence of the company leads to a lack

of the balance in the cooperation. As a result of the strength of the other companies in the network, the company is under their influence and takes action not necessarily beneficial for itself. The asymmetrical relationship gives some companies in the network the strength and ability to influence the more dependent ones. The stronger party may create conditions of exchange more favorable for itself and affect the fundamental direction of resources and profits from the cooperation, disadvantageous for the weaker party. Asymmetric dependence in the relationships contributes to the fact that they are less stable and easier to break (Anderson, Weitz, 1992). This situation contributes to emergence of uncertainty for the weaker party. Maintaining such a status is not a profitable activity for the weaker company in the long term, so it will try to look for other opportunities outside the network. In the case of one-sided dependence, relational norms will not be shared by the parties, either. Asymmetry in the relationship, as many studies have shown, usually results in a lack of satisfaction, emergence of conflicts and opportunism, leading to erosion of the ethical standards of the participants' conduct. This is due to the fact that the more dependent and involved side is vulnerable to opportunism of the other, less involved one. The less dependent company shows less readiness to reciprocate the sacrifice made by its partner, and it will be more willing to leave the relationship (Anderson, Weitz, 1992).

The cross-organizational dependence structure of logistics service providers results from many factors. Apart from the basic issue, namely the result level achieved by the company in a given relationship, compared to the best available alternative, the dependence will also be the effect of the formation of such variables as: the uncertainty of the environment, the size of the company's specific investments in the network relationship, and the range of the partners' investment in the network. On the basis of the above considerations, it may be expected that, from the point of view of the logistics service company, the resource advantage is achieved in conditions of high symmetrical interdependence of the company and the network. In the case of one-sided dependence, the advantage of other companies in the network can significantly reduce the possibility of obtaining rare and valuable resources. This approach has been taken into account in the following hypotheses:

H1: The interdependence of the logistics service provider on the network has a positive impact on the resource advantage.

H5: The sense of one-sided dependence on partners affects the resource advantage negatively.

Exchange in the network

According to M. Holmlund and J-Å. Törnroos (1997, p. 305), a relationship is an interdependent process of continuous interaction and exchange between two or more entities within a business network. The exchange is thus a basic condition for the existence of network relationships. Without it, companies would have to be self-sufficient. The exchange theory argues that participants in a relationship desire reciprocity, by which one is morally obliged to give something in return for something received (Ring, Van de Ven, 1992 p. 489).

The main type of the exchange are market transactions and allocation of resources. They are distinguished by repetition, which is characteristic for the hierarchy, and organizational and legal distinction - characteristic for the market.

According to H. Hakansson and I. Snehota (1995, p. 111), the exchange is extremely important to both the customer and the supplier. The basic elements of the exchange processes include (Axelsson, Wynstra 2000, p.7):

- product exchange,

- information exchange,
- financial exchange.

The flow of products and information about them is the backbone of any vertical network (supply chain). From the perspective of a logistics enterprise, resources in the form of information are necessary for its proper functioning. They concern not only its individual parts, but also the company's connection with its partners. In logistics, great importance is attached to the exchange of information between the sender and the recipient, apart from acquisition and accumulation thereof. It should be noted that the flow of information occurs before the flow of things starts. This applies, for instance, to submitting an inquiry about specific goods or services to a potential supplier and, then, their answer in the form of an offer.

In order to support the exchange processes, companies have to adapt to one another, to a greater or lesser extent. The adaptation can include both technical and organizational aspects, as well as the economic system of the companies involved. Such adaptations may sometimes entail changes in power and the relationship between the parties involved (Axelsson, Wynstra 2000, p.17). Vargo and Lusch noticed that all exchange is based on application of specialized skills and knowledge, and customers seek benefits of specialized competences (Vargo, Lusch 2004).

According to W. Czakon (2005), the exchange objects between parties in inter-organizational networks are three things: information, material things and energy. The exchange of information may relate to customer structure, sales volume, inventory quantities, order size, etc. Companies have different access to information depending on their social network. The material exchange is an exchange of raw materials, products, machinery, staff, etc., while the energy exchange is related to e.g. stimulating action, supporting development. Companies that cooperate in the network carry out the exchange processes with other entities more frequently and intensively.

The above conclusions on the exchange in the network became the basis for the formulation of the next research hypothesis:

H2: The intensity of the exchange (flow range) in the network has a positive impact on the resource advantage.

Relational norms in the network

Relational norms have been the subject of research in such fields of science as social psychology, political science and law for years. The norms are connected with expectations regarding behavior that is at least partly accepted by the decision-making group. Apart from this general term, one can specify some additional attributes of norms (Światowiec 2006). Firstly, they can be used at different levels: at the level of the whole society, sectors, networks, individual companies or groups of individuals. In the context of this study, it is important that the specialized normative structures are found in the network relationships of the companies. Secondly, norms differ in content or general orientation. They may be substantially different depending on the extent related to behavior aimed at achieving collective or individual objectives. This distinction corresponds closely with I.R. Macneil's typology, describing the principles of discrete (market) transactions in opposition to the relational exchange. The last general property of norms is their multidimensionality. This feature stems from the fact that norms are usually associated with more than one behavior category. Relational norms constitute a series of partially overlapping and coherent rules of

partner behavior. Such categories of behavior fall within the range of the concept as: flexibility, information exchange and solidarity (Heide, John, 1992).

Flexibility is defined as a mutual expectation of readiness for adaptation actions dictated by changing conditions and circumstances. Partners recognizing this principle create an assurance that the operating conditions in the relationship will be subjected to modifications made in good faith, if such a need arises, resulting from changes in the environment. Flexibility therefore facilitates adaptation to unforeseen future events. The principle of "information exchange" can, in turn, be defined as a bilateral expectation to proactively provide useful information to the other side of the relationship, including short- and long-term goals and plans. Solidarity, in this context, is a two-sided expectation of a high value of the relationship. It means a common approach to problem solving and motivating partners to act by mutual adaptation. This principle corresponds closely with a desire to maintain ties. The three dimensions refer to specific different behavior, but, as a whole, represent a coherent set that can be placed up in the hierarchy, as relational standards. They ultimately contribute to the existence of such behavior traits of the partners as reciprocity and willingness to cooperate.

As follows from the general definition of norms, they determine certain acceptable limits of behavior, constituting specific protection against activities harmful to the stability of the relations. A special property of relational norms is a requirement of behavior aimed at maintaining the system - or in other words, the partnership as a whole - and preventing from forcing individual goals. Relational norms therefore prohibit the use of one's own decision-making power, which could affect the interests of the relationship. The adopted rules can therefore be considered as an important mechanism regulating long-term exchange and reducing opportunism. The parties which want stable long-term relational exchange must develop an approach that will deal with uncertainty, conflicts, bureaucracy and opportunism. Such a mechanism is self-regulating, and its presence makes the relationship resemble "a mini-community with a wide list of rules that go beyond the exchange itself and the current period" (Gundlach, Achrol, Mentzer, 1995, p. 78).

Relational norms function as social control referring to the control of the clan described in W.G. Ouchi's theory of organization (1979, pp. 836-837). In contrast to the bureaucratic control, its nature is not formal and external. It involves establishing internal organizational norms, values, culture and internalizing objectives supporting the desired behaviors and results. Unlike formal control, clearly expressed in the form of policies, procedures and measurements, social control is based on a social implicit agreement. It is particularly desirable in a situation of low-level programmability of tasks (knowledge about the process of transformation) and low measurability of results (Ouchi 1979, p. 843).

Thanks to common norms and values partners perceive the current relationship as mutually beneficial, which makes them refrain from any behavior that could endanger the future of the relationship. The shared rules of conduct mean that the partners clearly understand the mutual expectations that go beyond the mere exchange. These expectations are associated with proactive information sharing, multi-level interaction between companies, mutual coordination and honesty in relation to one another. Relational norms allow to constructively solve possible conflicts and misunderstandings in a manner satisfactory for all parties.

These observations are a basis for a further research hypothesis adopted in the model:

H3: Relational norms in the network positively affect the resource advantage.

Strengthening the relationship

The relations between companies in business networks should not only be developed, but also strengthened. It may concern co-operation of both individuals and groups (Geyskens and Steenkamp, 1995). J. Geersbro and M. Vedel emphasize that an interorganizational relationship can hinder, weaken, strengthen or enforce another relationship (2008, p. 4). Supportive behaviour can aid business relationships and strengthen them while coercive behavior on the contrary can weaken them (Hadjikhani, Pourmand, Thilenius, 2009, p. 5) Moreover some actions are some trials to initiate new relationships (Mitręga, Ramos, Forkmann, Henneberg, 2011, p. 12).

There are many ways to strengthen the relationships. Due to the social setting of business networks, personal contacts (informal relations) of employees play a very important role (Granovetter 1985; Ring, Van de Ven 1994). They often make the market activity a success or failure, beneath the surface of official contracts and agreements. The contacts can include both simple relationships between the representatives of companies and cooperation of specialists or experts, or even exchange thereof (Fonfara, 2004, p. 53). Personal contacts may result in broadening the scope of business activities (Halinen, Salmi, 2001).

The relationships with partners are also strengthened via loyalty (Costabile, 2000). One of the tools to build and maintain positive relationships with selected customers, most attractive for the business is loyalty programs. A properly prepared loyalty program can increase sales of products at lower promotion costs.

Enterprises can also strengthen their relationships with other entities of the network through implementation of common processes and projects. Work on improving the business processes and introducing new projects allows better mutual understanding by the companies and development of effective solutions for customers. This can lead to joint value creating processes in the business relationships (Hirvonen, Sallinen,, Seppänen, Alajoutsijärvi 2000, p. 1). In the case of logistics, it usually manifests by the use of one of the strategies, for example CPFR (collaborative planning, forecasting and replenishment), SCM (supply chain management), ECR (Efficient Consumer Response).

In the case of projects implemented by several contractors we can even talk about project networks. According to Hellgren and Stjernberg (1995, p. 379), "a project network is defined as a set of relations, where no single actor may act as a legitimate authority for the network as a whole, where the network is open in the sense that there are no definite criteria by which the boundary of the network may be identified and controlled, where the network is temporally limited, dynamically changing and (partially) reconstructed from one project to the next." Such networks exist only for the duration of the project.

Despite this, project networks tend to be partially reconstructed from one project to the next, implying that there is a need for a long term view, as generally applied to other types of business networks (Ahola, 2005, p. 1). Examples of such other types of business networks are strategic alliances and joint ventures.

Strategic alliances are inter-company formal and cooperative long-term agreements (Inkpen, 2001; Gulati et al., 2000). They are defined "broadly as collaborative efforts between two or more firms that pool their resources in an effort to achieve mutually compatible goals that they could not achieve easily alone" (Hunt et al, 2002, p.18). The strategic alliance helps to introduce a new product to the market, exchange experience and knowledge between the cooperating companies that may be competitors. According to D. M. Gray (2004, p.1), "... the results show that many kinds of competencies are linked to alliance competency and directly or indirectly impact on business partnership performance."

In the case of logistics, the strategic alliance between the logistics service provider and the customer is often necessary to guarantee quality of the performance. It is a question of managing, controlling and performing logistics activities for the client (Alfredsson, Hertz, 2005, p. 3).

Value creation in the network can be accomplished by joint ventures (Möller, Törrönen, 2003) Generally speaking, a joint venture consists of two or more parent companies that should work together towards the same common goal. It is very often used in the international expansion (Hellman, Hovi, Nieminen, 1993, pp. 14–15). It enables companies to access the complementary resources and capabilities of each other (Beamish & Lupton, 2009, s. 75), which they need to achieve economies of scope and/or scale and to bring new products, services or technologies into market faster, more efficiently, more reliably and more cheaply than what they could do alone or using other methods (Elo, 2009, p. 2).

The presented conclusions on relation strengthening are an essential basis for another research hypothesis:

H4: Strengthening relations with partners in the network has a positive impact on the resource advantage.

Trust and commitment

R.M. Morgan and Sh.D. Hunt (1994) attributed the central role in the development of partnerships to trust and commitment. Van de Ven (1976), Wilson and Mummalaneni (1986) indicated trust and commitment were most frequently mentioned factors that influenced the course of change. Both of them develop over time and can be considered outcomes of the interaction between two parties (Snellman, 2001, p. 2).

Trust may be defined as an expectation that the exchange partner will not engage in opportunistic behaviour, even in the face of countervailing short-time incentives and uncertainty about long-term benefits. Trust can be conceptualised at person, group or company levels (Currall, Inkpen, 2002). In general, the greater the trust, the lower the perceived partnership risk. This relationship results from the fact that trust performs a key role in stopping opportunistic behaviours. Thanks to the trust one party puts in the other, it is possible to accept the partner's actions aimed at establishing a partnership and to believe that the actions ensure a fair division of resources in future as well (Światowiec, 2001). Trust, as mentioned above, is a multi-dimensional construct. The components of trust are as follows (Ganesan, 1994, p.3):

- credibility, which is based on the extent to which the company believes that its partner has the required expertise to perform the job effectively and reliably;
- benevolence, which is based on the extent to which the company believes that its partner has intentions and motives beneficial to the company when new conditions arise, conditions for which a commitment was not made.

A partner's credibility will be expressed by fulfilling contracts (both verbal and written). It will be dependent, first of all, on the partner's stability and possibility to predict their behaviour. As for benevolence, this will result from the partner's unique attributes rather than from their particular behaviour.

Commitment in the relationship is usually defined as a desire to develop a stable relationship, and as willingness to make sacrifices in the short term to maintain relations in the long term. It is connected with the belief in stability of the existing relationship. In other words,

commitment is the partner's strong belief that the relationship is important enough to justify making the maximum effort to maintain it. Trust helps or even determines the partners' conviction of the rightness of maintaining relationships and increasing their own involvement. A lack of trust from one party leads to mistrust in the other, reduces their mutual obligations and, consequently, reduces exchange to transactions calculated for a short period.

The key importance of trust and commitment for effective cooperation leads to the formulation of the following hypotheses:

H6: A lack of commitment of partners in cooperation in the network influences the resource advantage negatively

H7: A lack of trust affects the resource advantage negatively

Resource advantage and performance

Pfeffer and Salancik (1978) noticed that in order to acquire the required resources a firm has to interact with its environment. In the case of business network creation the company looks for the right combination of resources which will be most effective and beneficial. It is significant to use the resources skillfully, not just possess them. Having joined the network, the company has not only its own resources (controlled by it) at its disposal, but also the market resources (only partially controlled). In networks we also deal with network resources, i.e. resources that are embedded in a network embracing all partners of the company. These are resources generated "at the edge" of companies, so they are not possessed by any specific entity, but belong to the inter-organizational relationships and networks.

The business network enables an entity to acquire resources, including organizational knowledge and flexible responses to changing circumstances. The enterprise's resources distinguish it from the competitors from outside the network, which is a source of competitive advantage (Penrose, 1959; Wernerfelt, 1984; Barney, 1991). The resource theory of the enterprise describes how companies achieve the competitive advantage and, consequently, achieve results better than the competition through the use of resources.

The approach to resources in business networks is very well presented by researchers from the IMP Group (Håkansson and Johansson 1992; Håkansson and Snehota 1995) in the ARA model. It identifies three variables related to the actors, activities, and the resources. "Actors control the activities and resources of the network. They determine, alone or jointly, which activities to perform and how various resources of the network are used. Actors may control resources directly (ownership) or indirectly (through relationships with other actors). Performing transformation activities requires transformation resources and performing transfer activities requires transfer resources" (Ahola, 2005 p. 3) The creation of resources and access to those resources and competencies in business networks provide benefits to the firms (Håkansson & Snehota, 1995).

The concept of network resources 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). In this case "resources are defined as stocks of available factors such as knowledge, physical assets, human capital, and other tangible and intangible items that are owned or controlled by a firm, which can be converted into final products or services " (Okpara, 2015).

According to the RBV, some kind of resources lead to a sustainable competitive advantage (Barney 1991, p. 112). 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 (Coff, 1999). In turn, a company's relationships are important resources in themselves (Gadde, Huemer and Hakansson, 2003). Other resources of this kind are: capabilities, organizational processes, the firm's attributes, information, technology, experience, etc. (Rose, Abdullah, Ismad, 2010).

Creators and followers of the RBV assume that there is a strong link between having strategic resources and the firm's performance (Coff, 1999; Amit, Schoemaker, 1993). The ways to increase efficiency focus firmly on the acquisition and management of strategic resources and capabilities (Coff, 1999). It is even said that it can be sensed if 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)

It is worth to emphasize that the competitive advantage does not always lead to superior performance. It all depends on how much of the rents created by the competitive advantage are appropriated by stakeholders (Coff, 1999). There is a possibility to achieve superior performance without attaining and/or sustaining the competitive advantage position (Rose, Abdullah, Ismad, 2010).

We therefore construct our last hypothesis as follows:

H8: The resource advantage has a positive effect on the performance of the logistics company.

Conceptual model

As a result of the analysis and theoretical considerations, it was assumed that the enterprise resource advantage is affected by two composite constructs: the strategy of the network and the barriers to cooperation in the network. The former is positive in its nature and is expressed by interdependence of the network, exchange in the network, relational norms and strengthening the relationships. The latter have a negative impact and are represented by one-sided dependence on partners, a lack of confidence and a lack of commitment of the partners. In turn, the enterprise's resource advantage has a positive effect on its performance. The adoption of the specific connections expressed in the form of the hypotheses is the basis for the conceptual model of this paper. A graphical form of the model has been depicted in Fig. 1.

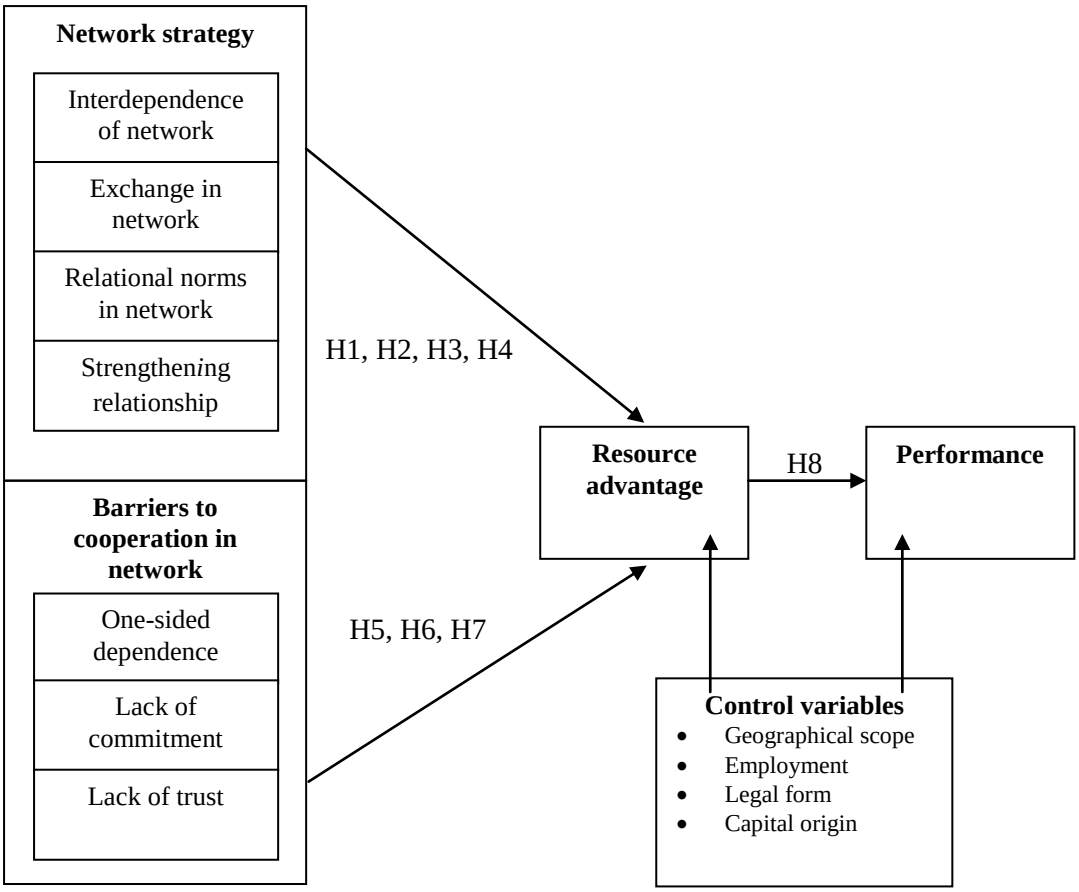

Figure 1. Conceptual model and research hypotheses

METHODOLOGY

Research settings and data collection

The hypotheses proposed in the conceptual model were verified using empirical studies which were based on the quantitative method. The research process was realized between May and July 2015. The literature research conducted earlier allowed to construct a measuring instrument (a questionnaire). This tool was verified in the course of the pilot experiment which involved 14 respondents - representatives of the logistics industry, experts and researchers in business networks. Their comments and suggestions were discussed and some of them were included in the questionnaire.

The CAWI (computer-assisted web interview) method was chosen as the method of data collection. In the study, random sampling was applied. The database of companies operating in the field of logistics services in Poland was used as the sample. The investigated community consisted of approx. 92k entities[1]. With the assumed measurement error of 5% and the confidence level of 0.95%, the sample size was set at N = 383 subjects (Raosoft 2016). In the design of the sample size the lack of membership of the drawn entities of the network, and in particular the lack of awareness of the network relationships of the company, were taken into account. In order to compensate for this eventuality the survey was sent to

[1] According to the Eurostat data, in 2015 there were approx. 92k enterprises in Poland dealing with "transportation and storage" (without pipelines and passengers transport) in the classification of economic activities.

approx. 9k persons - executives with as much knowledge of the enterprise's relationships with other market players as possible. A total of 316 questionnaires were received, giving a yield of approx. 3%. Such a low percentage could have been affected by, except for the above-mentioned lack of awareness of the network, quite a large size of the questionnaire and its complexity. Due to errors and incomplete information some surveys were rejected. In the end, 305 correctly completed questionnaires were qualified for further analysis, which, assuming the same level of confidence, gives an acceptable measurement error of 5.6% (Raosoft 2016). It should be emphasized that according to the literature (Bazarnik et al., 1992), 305 observations are sufficient to be able to come to conclusions about a population consisting of about 92k entities.

The sample characteristics are presented in table 1.

Table 1. Sample characteristics

Geopraphical scope	
Local	n = 59 (19.3%)
Regional	n = 54 (17.7%)
International	n = 153 (50.2%)
Continental	n = 16 (5.2%)
Global	n = 23 (7.5%)
Employment	
0-9 employees	n = 182 (59.7%)
10-49 employees	n = 66 (21.6%)
50-249 employees	n = 52 (17.0%)
250-999 employees	n = 7 (0.7%)
1000-4999 employees	n = 7 (0.7%)
More than 5000 employees	n = 1 (0.3%)
Legal form	
Sole-trader	n = 187 (61.3%)
Civil law partnership	n = 12 (3.9%)
Registered partnership	n = 9 (3.0%)
Professional partnership	n = 2 (0.7%)
Limited partnership	n = 5 (1.6%)
Limited liability company	n = 73 (23.9%)
Joint stock company	n = 4 (1.3%)
Cooperative	n = 2 (0.7%)
Others	n = 11 (3.6%)
Capital origin	
Only Polish	n = 277 (90.8%)
Only foreign	n = 9 (3.0%)
Mixed (Polish and foreign)	n=19 (6.2%)

Measures

The measures used in the present study were developed on the basis of previous studies. In the study 9 measures, which correspond to the previously presented theoretical considerations, were distinguished. These are respectively (see Appendix):

1. Interdependence on network.
2. Exchange in network.

3. Relational norms in network.
4. Strengthening relationships.
5. One-sided dependence .
6. Lack of commitment.
7. Lack of trust.
8. Resource advantage.
9. Performance.

Since relationship related variables were latent, we adopted multi-item scale approach in this research to increase item reliability (DeVellis, 2011). We adopted all items for measuring variables of interest from existing literature. The respondents were asked to indicate the extent to which they agreed with a given description using a five-point Likert-type scale. In constructs 1-3 the scale was as follows: 1 = strongly disagree to 5 = strongly agree, in constructs 4-7: 1 = completely unimportant to 5 = very important. In constructs 8-9, in turn, the respondents had to compare their resources and performance with those of their direct competitors, using a scale of 1-5, where 1 was "much worse" and 5 was "much better".
The appendix shows detailed Cronbach's αs, factor loadings, and related prior studies we used when developing questions items for the major variables used in the study. We conducted both exploratory and confirmatory factor analyses. Loading patterns in both analyses clearly differentiate across variables and factor solution consistent with our hypotheses.

Interdependence of networks

This construct was measured using four items adapted by J.A. Narus, J.C. Anderson (1999) and G.L. Frazier, K.D. Antia (1995). The interdependence of networks included achieving above-average revenues through mutual exchange, using the potential of the network fully, the network impact on the business and the influence of the company on the network. The final measure of interdependence of networks is the average of response to all items with high validity and reliability (Cronbach alpha of this construct was 0.93, convergent factor loadings from 0.85 to 0.95).

Exchange in the network

A three-item scale was adapted from W. Czakon (2005). It included: information exchange, material exchange and energetic exchange. The variable indicates satisfactory reliability and validity with Cronbach alpha 0.86 and convergent factor loadings from 0.87 to 0.90.

Relational norms

As other dependent variable, we measured relational norms by three-item adopted from instruments developed by J. Heide and G. John (1992). The variable in this study highlights the extent to which the company shares the following common values in the relationships: commitment to cooperation, lack of actions of other parties aimed at achieving only their own benefit, and reciprocation of relationships by other entities. The variable shows acceptable reliability and validity (Cronbach alpha = 0.94, convergent factor loadings above 0.93).

Strengthening relationships

We measured *strengthening relationships* by a six-item scale developed on the basis of the work (Granovetter 1985; Costabile 2000; Möller, Törrönen 2003, Mitrega and Pfajfar 2015). It consisted of: common processes, common projects, capital ties, personal ties, common loyalty programs, participation in other business networks with the same actors. The final measure indicates reasonable reliability and validity with Cronbach alpha 0.91 and convergent factor loadings from 0.80 to 0.88.

One-sided dependence

This construct consisted of: cooperation conditions imposed by other parties, blurred responsibility, dependence on contractors and feeling less flexibility (Narus, Anderson, 1999; Frazier, Antia 1995). The Cronbach alpha was 0.80 and convergent loadings from 0.72 to 0.83.

Lack of commitment

This factor was composed of four items: a feeling of a lack of willingness to cooperate by the customer, by the supplier, by the competitor, and a fear of opportunism of other entities (Van de Ven 1976, Wilson and Mummalaneni 1986). The variable indicates satisfactory reliability and validity with Cronbach alpha 0.82 and convergent factor loadings from 0.80 to 0.83.

Lack of trust

A five-item scale modified from (Chiles, McMackin, 1996) was used to assess the lack of trust. The sample items included: "afraid of excessive control and addiction", "afraid of our know-how being taken over by other parties", "we do not trust other entities". The variable shows acceptable reliability and validity (Cronbach alpha = 0.88, convergent factor loadings from 0.76 to 0.86).

Resource advantage

The treatment of the resource advantage was developed from the RBV theory and literature (Penrose, 1959; Wernerfelt, 1984; Barney, 1991). This construct included: knowledge, organization of the business, management methods, technology, experience and brand (its recognition, market power). The final measure indicates reasonable reliability and validity with Cronbach alpha 0.81 and convergent factor loadings from 0.66 to 0.82.

Performance

A four-item scale of performance was adopted 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 consisted of: market share, sales income, profit and ROI (return on investment). They were the "top-of-mind" measures that managers considered when evaluating a firm's performance. The perceptual performance measures showed a high correlation with objective financial performance measures literature (Human, Naudé, 2009). It is known as the sales-based performance, too (Wang, Lo, 2003; Falshaw et al., 2006). The Cronbach alpha of this construct was 0.82 with convergent factor loadings from 0.74 to 0.85.

Control variables and data analysis

Consistently with previous studies (Claro, Hagelaar, Omita 2003), we included the geographical scope, firm size, legal form and origin of capital as controls. We measured the geographical scope of the surveyed firms by one of the five options: local, regional, international, continental and global. We also controlled the effect of the logistic firm's size measured by the number of its employees. It was included in the analysis into potential

differences in the competitive advantage and performance of small and large firms. The firm's size may affect its ability to control resources and, in turn, influence the resource competitive advantage as well as the firm's performance. In addition, the respondents specified their firms' legal forms as one of the following: a sole-trader, a civil law partnership, a registered partnership, a professional partnership, a limited partnership, a limited liability company, a joint stock company, a cooperative, or other. The respondents in the logistics firms also classified their firms' capital origins. Three dummy variables (only Polish, only foreign, mixed) were included in the regression models. No hypotheses were developed for these incorporated control variables.

We test the construct validity of the indicators of latent variables using confirmatory factor analysis [CFA] (see Appendix). All items load significantly on their expected constructs ($p<0.01$). The fit indexes show that the overall model provides satisfactory fit to the data (χ^2/df= 1.39, root-mean-square error of approximation [RMSA]= 0.06, comparative fit index [CFI]=0.96). From an examination of the results, shown in the Appendix we can state that all of the constructs are reliable. Their values for both the Cronbach α coefficient are greater than the value of 0.7 and the factor loadings exceed the commonly accepted threshold of 0.6 for each variable (Bagozzi & Yi, 1988). Furthermore, the construct reliability [CR] of all construct exceeds the 0.70 benchmark (Nunnally & Bernstein, 1994), and all average variance extracted [AVE] are greater than 0.50 (Chin, 2003) These measures demonstrate adequate convergent validity and reliability (Fornell & Larcker, 1981).

To assess discriminant validity, we run a series of chi-square tests for all constructs in pairs (with correlation >0.4; see table 2) to determine whether the unconstrained model is significantly better than the constrained model (Hair et al., 2010). All the chi-square differences are highly significant, indicating discriminant validity.

RESEARCH FINDINGS

The results from the surveys carried out were used to develop regression models which allowed to verify the research hypotheses. The hypotheses were tested simultaneously using SPSS software. In Table 2 a correlations matrix and descriptive statistics for our variables have been presented. As can be seen, some high correlations exist among certain variables. For example, the correlation between relations norms (RN) and exchange (E) (r=0.87) is high. To examine the issue of multicollinearity in our models, we calculated variance inflation factors [VIFs] in each of the regression equations. The maximum VIF within the models was 4.66, which was well below the rule-of-thumb cut-off of 10 (Neter, Wasserman, & Kutner, 1990). This suggests that multicollinearity is not an important concern in the tested models.

Tables 3 and 4 show the results of the regression analyses testing the hypothesized relationships between the network variables and the competitive resource advantage and the firm performance.

In the proposed conceptual model five of the eight hypotheses were fully adopted: H1, H3, H4, H6 and H8. Most of the remaining hypotheses, despite a correlation with the intended direction, did not reach statistical significance, which does not allow further conclusions. The results of the conceptual model and the evaluation of the hypotheses are described below.

Table 2. Descriptive statistics

Variables	Mean	S.D.	IN	E	RN	RA	P	SP	LC	SR	LT	GS	E	LF	CO
Interdependence of network (IN)	2.40	1.11	1												
Exchange (E)	2.70	1.18	.757**	1											
Relational norms (RN)	2.77	1.14	.711**	.873**	1										
Resource advantage (RA)	3.44	0.64	.385**	.333**	.337**	1									
Performance (P)	3.04	0.73	.367**	.303**	.303**	.225**	1								
One-sided dependence (SP)	3.33	1.04	.275**	.381**	.393**	.117*	.154**	1							
Lack of commitment (LC)	2.98	1.20	.217*	.246*	.239*	.167**	.039	.445**	1						
Strengthening relationships (SR)	2.94	1.03	.518**	.646**	.671**	.243*	.411**	.530**	.393**	1					
Lack of trust (LT)	3.38	1.11	.167	.260*	.281**	.143*	.043	.463**	.578**	.418**	1				
Geographical scope (GS)	2.64	1.09	-.026	.078	.109	-.045	-.070	-.134*	-.169**	.013	-.139*	1			
Employment (E)	1.62	0.87	.165	.154	.096	.083	.167**	-.101	-.037	.026	-.101	.257**	1		
Legal form (LF)	3.12	3.05	.048	.121	.036	-.047	.113*	-.083	-.097	-.081	-.190**	.244**	.435**	1	
Capital origin (CO)	1.15	0.50	-.174	-.072	-.193	-.074	.024	-.233**	-.092	-.151	-.013	.197**	.133*	.210**	1

**. Correlation is significant at the level of 0.01 (two-tailed).

*. Correlation is significant at the level of 0.05 (two-tailed).

Table 3. Multiple Regression Results for Resource Advantage

Predictors	Coefficients[a] (t-value)	Hypothesis supported?
Network strategy		
Interdependence of network	0.38 (3.35)***	H1: Yes
Exchange in network	0.22 (1.09)	H2: No
Relational norms	0.29 (2.53)**	H3: Yes
Strenghtening relationships	0.24 (1.88)*	H4: Yes
Perceived barriers to networking		
One-sided dependence	-0.49 (-3.40)***	H5: Yes
Lack of commitment	-0.14 (-1.11)	H6: No
Lack of trust	0.07 (0.40)	H7: No
Control variables		
Geopraphical scope	-0.06 (-0.59)	
Firm size	0.16 (1.59)	
Legal form	-0.11 (-1.14)	
Capital orgin	-0.15 (-1.66)	
R^2	.464	
Adjusted R^2	.389	
F-value	5.924***	

[a] standardized coefficients (β)
*.p< 0.10
**.p < 0.05
***.p < 0.01

Table 4. Multiple Regression Results for Performance

Predictors	Coefficients[a] (t-value)	Hypothesis supported?
Resource advantage	0.214 (3.84)***	H8: Yes
Control variables		
Geographical scope	-0.12 (-2.10)**	
Firm size	0.14 (2.22)**	
Legal form	0.09 (1.39)	
Capital orgin	0.03 (0.47)	
R^2	.091	
Adjusted R^2	.075	
F-value	5.954***	

[a] standardized coefficients (β)
*.p< 0.10
**.p < 0.05
***.p < 0.01

Dependence on the network and the resource advantage

The analyses show that there is a statistically significant correlation between the dependence on the network and the resource advantage (H1, H5). Firstly, the interdependence of the logistics service provider on the network has a positive impact on the resource advantage (0.38, p <0.01). Secondly, the one-sided dependence on partners affects the resource

advantage of the logistics company (-0.49, $p < 0.01$). These two variables also have the greatest strength of the relationship - the interplay of the business and the network has the greatest impact on the network strategy, and the one-sided dependence on the network is of utmost importance for the barriers to networking.

The verified hypotheses are reflected in the literature that mentions that the correlation is related to the supply of important and critical resources (Buchanan, 1992, p. 65). At the same time, the asymmetrical relationship of the company leads to imbalance in cooperation, and thus contributes to the fact that it is less stable and easier to break. As a result of the strength of other companies in the network, enterprises are under their influence and take action not necessarily beneficial for themselves which, in turn, has a negative impact on their competitive advantage.

Exchange in the network and the resource advantage

The intensity of the exchange in the network (H2), in turn, does not affect significantly the resource advantage of the surveyed logistics companies ($p > 0.10$). The lack of this impact may stem from the fact that the exchange is only the foundation and prerequisite for the functioning of the network relationships of the logistics companies. In the opinion of the managers, material, information and energy exchange, however, is not a source of the competitive advantage.

The relationship between the relational norms and the resource advantage presented earlier shows that the surveyed companies are interested in stable and long-term relational exchange, which allows to deal with uncertainty, conflicts, bureaucracy and opportunism. Ordinary material, information and energy exchange does not provide it. This is confirmed by studies by Gundlach, Achrol and Mentzer (1995, p. 78) which show that the relationship goes beyond the exchange and the current period with a number of rules.

Relational norms and the resource advantage

The relationship between the relational norms and the resource advantage is statistically significant (0.29, $p < 0.05$). Hypothesis H3 stating that relational norms influence the resource advantage was accepted. The principle of flexibility, solidarity, exchange of information (Heide, John, 1992) facilitates the development of coherent rules of conduct of the enterprise. They contribute to reciprocity and readiness for cooperation of partners through a common approach to problem solving and motivating partners who do not only take action aimed at achieving only their own benefit, which, in turn, leads to accomplishment of the competitive advantage.

The relational norms in the presented model are one of the most important instruments (after "interdependence") of increasing the resource advantage in the network relationships of logistics companies. This observation justifies further research related to the determinants of building effective relational principles of logistics service providers.

Strengthening relationships and the resource advantage

Hypothesis H4 concerning the positive impact of strengthening relations on the resource advantage was approved of (0.24, $p < 0.10$). Currently, logistics companies are becoming increasingly important in inter-organizational networks, and in particular in supply chains. They do not only play a passive role but, more and more frequently, an active one. Due to the multi-level structure of the logistics industry, the leading logistics service providers cooperate with many enterprises (Gadde, Hulthén, 2008), so they have influence on direct and indirect relationships (Gadde et al., 2003).

Logistics companies have at their disposal quite a lot of mechanisms to strengthen relationships. They can build and develop networks of informal contacts, but also create and participate in more formal business networks such as alliances and joint ventures. Enterprises can also strengthen their relationships with other entities of the network through implementation of common processes and projects.

Lack of commitment or trust and the resource advantage

In this study we failed to defend hypothesis H6, which assumed a negative impact of the lack of commitment of partners to networking on the resource advantage (-0.14, $p > 0.1$). Admittedly, the direction of this impact was consistent with the assumptions but the appropriate parameters set were statistically insignificant.

We had to reject hypothesis H7, too, which pointed to a negative impact of the lack of trust among partners in networking on the resource advantage (0.07, $p > 0.1$). The direction of this impact is not in line with the expectations but its value is relatively low, and this relationship is not statistically significant. If the force of the impact was greater, paradoxically less trust could positively influence a company's resource advantage. This assumption, however, requires further studies.

Although commitment and trust are assigned a central role in the development of partnerships (Morgan, Hunt 1994), the study shows that a lack of commitment and trust in the network relations does not affect the resource advantage. This may mean that companies, despite the lack of willingness to cooperate in their partners from the network and their opportunism, the lack of trust and fear of excessive control, are not inferior to their competitors.

The resource advantage and performance

As we had expected, hypothesis H8, which assumed that the resource advantage had a positive effect on the performance of a logistics company, was defended (0.21, $p < 0.01$).

Possessing adequate resources by a logistics company enables it to achieve better results than its direct competitors. These companies are mainly based on intangible assets which are strategic, rare, difficult to imitate and cannot be substituted (Barney, 1991; Hunt, 2000; Peteraf, 1993). Knowledge and experience gained for years, refined and proven management methods, a well-known and recognizable brand all have a positive impact on the results of logistics companies that are participants of inter-organizational networks.

Control variables and the resource advantage and performance

None of the control variables affected the resource advantage of the investigated logistics companies. There was, however, a significant effect of the size of the company (expressed by employment) and the geographical scope on the company's performance. While the size of the logistics company supports the positive results (0.14, $p < 0.05$), the geographical scope reduces the achieved performance (-0.12, $p < 0.05$). The impact of the firm's size on the results is not clear. On the one hand, larger companies benefit from economies of scale, usually have more resources and capabilities than smaller companies. On the other hand, large companies, due to reduced operational flexibility, may experience lower efficiency. In this study, larger companies within the network showed better performance. The negative impact of the geographical scope of the company on the results achieved under the conditions of the network is much more difficult to explain and requires far more research (see Tab. 2 and 3).

CONCLUSIONS

The subject of network relations in the logistics industry discussed in the article seems to be an important area of research. However, previous studies have mainly focused on logistic outsourcing, purchasing logistic services and marketing thereof, growth strategy and diagnosing and describing direct relationships with suppliers, customers and competitors. There is a lack of research involving the network approach in the field of logistics services (Selviaridis, Spring, 2007).

The authors have attempted to analyze network relationships, and in particular their impact on the competitive advantage. The results of the regression analysis support the general theoretical concept of the model to a large extent. The studies have shown a positive impact of the network strategy on the resource-based advantage of logistics enterprises, which, however, is significantly weakened by a lack of balanced interdependence in the network. The article indicates the importance of the interdependence between enterprises and networks in the field of logistics services for the resource advantage. This result is a confirmation for the modern research direction, highlighting the importance of the enterprise being embedded in the network relations.

The model adopted in the study has some limitations - both substantive and methodical in nature, which should be the subject of further research and improvements in the future.

The model aimed at identifying universal dependences forming the mechanism of competitive advantage for the network relationships of logistics companies. Such an intention may, however, result in exclusion of other aspects of the impact on the competitive advantage. The model omitted the issue of indirect relationships, network identity, quality of relationships, antecedents, etc. Incorporation of the above may be a future area of research.

The main limitation of the adopted method is the essence of the model. Models represent only a simplified reflection of the reality, used to reduce a complex situation to important basic structures.

The regression analysis carried out in this paper enables direct confrontation of theory with empirical data and testing hypotheses about the complex relationships between invisible variables. Unfortunately, regression analysis has a certain drawback. It only allows to assess the individual parts (relationships) of the model in subsequent independent analyses. In such a situation, it is difficult for the researcher to refer to the overall assessment of the tested theory. Such a simultaneous evaluation of adjusting the entire model to the data is possible due to structural modeling. The use of the structural equation modeling will be the subject of further analyses and will expand the methodological approach in the research conducted.

REFERENCES

1. Ahola, T. J. (2005), *Project networks–a short term and a long term view*, In 21 st. IMP Conference, http://www.impgroup.org/uploads/papers/4652.pdf.
2. Alfredsson, M., Hertz, S. (2005), *Strategic development of TPL providers*, In 21 st. IMP Conference, http://www.impgroup.org/uploads/papers/23.pdf.
3. Amit, R., Schoemaker P. J. H. (1993), Strategic assets and organizational rent, *Strategic Management Journal*, 14(1): 33–46.
4. Anderson J.C., Narus, J.A. (1984), A Model of the Distributor's Perspective of Distributor-Manufacturer Working Relationships, *Journal of Marketing*, Vol. 48.
5. Anderson J.C., J.A. Narus, (1999), *Business Market Management. Understanding, Creating and Delivering Value*, Prentice Hall, New Jersey.

6. Anderson, E., Weitz, B.A. (1992), The Use of Pledge to Build and Sustain Commitment in Distribution Channels, *Journal of Marketing Research*, Vol. 29: 18-34.
7. Bagozzi, R. P., Yi, Y., 1988, On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, Vol. 16: 74-94.
8. Barney, JB. (1991), Firm resources and sustained competitive advantage, *Journal of Management*, Vol. 17 (1): 99-120.
9. Bazarnik, J., Grabiński, T., Kąciak, E., Mynarski, S., Sagan A. (1992), *Badania Marketingowe. Metody i Oprogramowanie Komputerowe*, Canadian Consortium of Management Schools, Warszawa – Kraków: Akademia Ekonomiczna w Krakowie.
10. Buchanan L. (1992), Vertical Trade Relationships: The Role of Dependence and Symmetry in Attaining Organizational Goals, *Journal of Marketing Research*, Vol. XXIX.
11. Chin, W. W., (2003), Issues and opinions on structural equation modeling. *MIS Quarterly*, Vol. 22: 7-16.
12. Claro, D. P., Hagelaar, G., Omta, O. (2003), The determinants of relational governance and performance: How to manage business relationships?, *Industrial Marketing Management*, Vol. 32: 703-716.
13. Coff, R. W. (1999), When competitive advantage doesn't lead to performance: The resource-based view and stakeholder bargaining power, *Organization science*, Vol. 10(2): 119-133.
14. Costabile, M. (2000), *A dynamic model of customer loyalty*, In 16th Annual IMP Conference, Bath, England, http://www.impgroup.org/uploads/papers/43.pdf
15. Currall, S.C., Inkpen, A.C., (2002), A Multilevel Approach to trust in Joint Ventures, *Journal of International Business Studies*, Vol. 33 (3): 479-495.
16. Czakon, W. (2005), Istota relacji sieciowych przedsiębiorstwa, *Przegląd Organizacji*, Vol. 9: 10-13.
17. DeVellis, R. F. (2011), *Scale development: Theory and applications* (Vol. 26): Sage Publications, Incorporated.
18. Dyer, J. H., Singh, H. (1998), The relational view: cooperative strategy and sources of interorganizational competitive advantage, *Academy of Management Review*, Vol. 23(4): 660-679.
19. Elo, M. (2009), *International expansion through Joint venture: situations and strategies from a network perspective*. In 25th IMP Conference, http://www.impgroup.org/uploads/papers/7322.pdf.
20. Falshaw, J.R., Glaister, K.W., Ekrem, T. (2006), Evidence on Formal Strategic Planning and Company Performance, *Management Decision*, Vol. 44(1): 9-30.
21. Fonfara, K., (2004), *Marketing partnerski na rynku przedsiębiorstw*, Polskie Wydawnictwo Ekonomiczne, Warszawa.
22. Fornell, C., Larcker, D. F. (1981), Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, Vol. 18: 39-50.
23. Fynes, B., Voss, C. (2002), The moderating effect of buyer-supplier relationships on quality practices and performance, *International Journal of Operations & Production Management*, Vol. 22.
24. Gadde, L. E., Hulthén, K. (2008). *Logistics outsourcing and the role of logistics service providers from an industrial network perspective*. In 24th IMP-Conference, Uppsala university, September 4-6.
25. Gadde, LE, Huemer, L, Håkansson, H. (2003), Strategizing in industrial networks, *Industrial Marketing Management*, Vol. 32(5): 357-364.

26. Ganesan, Sh., (1994), Determinants of Long-Term Orientation in Buyer-Seller Relationships, *Journal of Marketing*, Vol. 58, s. 1–19.
27. Granovetter, M., (1985), Economic action and social structure: the problem of embeddedness, *American Journal of Sociology,* Vol. 91(3): 481–510.
28. Gray, D. (2004). *Business partnering? The role of alliance competence*, In XX IMP Conference, Copenhagen. http://www.impgroup.org/uploads/papers/4546.pdf.
29. Gulati, R., Nohria, N. Zaheer, A. (2000). Strategic Networks, *Strategic Management Journal*, Vol. 21(3): 203–215.
30. Gundlach, G.T., Achrol, R.S., Mentzer, J.T., (1995), The Structure of Commitment in Exchange, *Journal of Marketing*, Vol. 59: 78–92.
31. Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., (2010), *Multivariate data analysis - A global perspective* (7th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
32. Håkansson, H., Snehota, I. (Eds.). (1995), *Developing Relationships in Business Networks*, London: Routledge.
33. Håkansson, H., Johanson, J. (1992), *A Model of Industrial Networks*, In Axelsson B., Easton G. (Eds.), *Industrial Networks: A New View on Reality* (pp. 28-36). London: Routledge.
34. Halinen, A., Salmi, A. (2001), *Managing the informal side of business interaction: personal contacts in the critical phases of business relationships*, In 17th Annual IMP Conference, 9–11 September, Oslo, Norway, http://www.impgroup.org/uploads/papers/188.pdf
35. Heide J.B., G. John (1992), Do Norms Matter in Marketing Relationships ?, *Journal of Marketing*, Vol. 56.
36. Heide, J.B. (1994), Interorganizational Governance in Marketing Channels, *Journal of Marketing*, Vol. 58.
37. Hellgren, B., Torbjörn, S. (1995), Design and implementation in major investments – a project network approach, *Scandinavian Journal of Management*, Vol. 11(4): 377-394.
38. Hellman P., Hovi N., Nieminen, J. (1993), *Conceptualization of the terms used in interfirm cooperation research. Special emphasis on "strategic alliances" and "joint ventures*, Turku: Publications of the Turku School of Economics and Business Administration.
39. Holmlund, M., Törnroos, J-Å., (1997), What are relationships in business networks?, *Management Decision*, Vol. 35(4).
40. Homburg, C., Krohmer, H. Workman Jr., J. P. (2004), A Strategy Implementation Perspective of Market Orientation, *Journal of Business Research*, Vol. 57: 1331-1340.
41. Hooley, G. J., Greenley, G. E., Cadogan, J. W. Fahy, J. (2005), The Performance Impact of Marketing Resources, *Journal of Business Research*, Vol. 58: 18-27.
42. Human, G., Naudé, P. (2009). Exploring the relationship between network competence, network capability and firm performance: A resource-based perspective in an emerging economy, *Management Dynamics*, Vol. 18(1).
43. Hunt, D., Lambe, C.J., Wittmann, C.M. (2002), A theory and model of business alliance success, *Journal of Relationship Marketing*, Vol. 1(1): 17-35.
44. Inkpen, A. C. (2001). *Strategic Alliances*, in: Hitt, M., Freeman, E., Harrison, J. (Ed.), *The Blackwell Handbook of Strategic Management*, (pp. 409–432). Oxford, UK: Blackwell Publishing Ltd.
45. Keep W.W., S.C. Hollander. R. Dickinson, (1998), Forces Impinging on Long-Term Business-to-Business Relationships in United States: An Historical Perspective, *Journal of Marketing*, Vol. 62, April.

46. Mitręga, M., Ramos, C., Forkmann, S., & Henneberg, S. C. (2011). *Networking capability, networking outcomes, and company performance*, http://www.impgroup.org/uploads/papers/7658.pdf.
47. Mitrega, M., Pfajfar, G. (2015). Business relationship process management as company dynamic capability improving relationship portfolio. Industrial Marketing Management, 46 (April), 193-203.
48. Möller, K. K., Törrönen, P. (2003). Business suppliers' value creation potential: A capability-based analysis, *Industrial Marketing Management*, Vol. 32(2): 109-118.
49. Morgan, R.M., Hunt, Sh.D., 1994, The Commitment-Trust Theory of Relationship Marketing, *Journal of Marketing*, Vol. 58: 22–27.
50. Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory*. New York, NY: McGraw-Hill.
51. Neter, J., Wasserman, W., Kutner, M. H., (1990), *Applied linear statistical models.* Burr Ridge, IL: Irwin.
52. Okpara, J. O., (2015) Exploring the Effects of Intangible Resources on Competitive Advantage and Performance of Listed Firms in Nigeria. *Business and Applied Sciences Academy of North America*, Vol. 8, http://baasana.org/wp-content/uploads/2015/06/samplearticle.pdf
53. Ouchi, W.G., (1979), A Conceptual Framework for the Design of Organizational Control Mechanisms, *Management Science*, Vol. 25: 833–848.
54. Penrose, ET. (1959), *The Theory of the Growth of the Firm*, Oxford University Press: Oxford.
55. Pfeffer, J., Salancik, G.R., (1978), *The External Control of Organizations: A Resource Dependence Perspective*, Harper Row, New York.
56. Raosoft (2016), http://www.raosoft.com/samplesize.html
57. Ring, P. S., Van de Ven, A. H. (1992), Structuring cooperative relationships between organizations, *Strategic Management Journal*, Vol. 13(7): 483-498.
58. Ritter, T., Wilkinson, I. F., Johnston, W. J., (2004), Managing in complex business networks, *Industrial Marketing Management*, Vol. 33(3): 175-183.
59. Rose, R. C., Abdullah, H., Ismad, A. I. (2010), A review on the relationship between organizational resources, competitive advantage and performance, *The Journal of International Social Research*, Vol. 3(11): 487-498.
60. Selviaridis, K., Spring, M. (2007), Third party logistics: a literature review and research agenda, *The International Journal of Logistics Management*, Vol. 18(1): 128-137.
61. Skjoett-Larsen .T., (2000), Third party logistics – from an interorganizational point of view, *International Journal of Physical Distribution & Logistics Management*, Vol. 30 (2): 112 - 127.
62. Snellman, K. (2001). *Evolution of exchange relationships: past research and future directions*, In 17th Annual IMP Conference, Oslo, http://www.impgroup.org/uploads/papers/259.pdf
63. Światowiec, J., (2006), *Więzi partnerskie na rynku przedsiębiorstw*, Polskie Wydawnictwo Ekonomiczne, Warszawa.
64. Van de Ven, Andrew H. (1976), On the Nature, Formation, and Maintenance of Relations among Organizations, *Academy of Management Review*, Vol. 1(4): 24-36.
65. Wang, Y. And Lo, H. (2003), Customer-focused Performance and the Dynamic Model for Competence Building and Leveraging: A Resource-based View, *Journal of Management Development*, Vol. 22(6): 483-526.
66. Wernerfelt, B. (1984), A resource-based view of the firm, *Strategic Management Journal*, Vol. 5 (2): 171-180.

67. Wilson, D. T., Mummalaneni, V. (1986), Bonding and Commitment in Buyer-Seller Relationships: a Preliminary Conceptualisation, *Industrial Marketing and Purchasing*, Vol. 1 (3): 44-58.
68. Word, J. (2009), *Business network transformation: strategies to reconfigure your business relationships for competitive advantage*, John Wiley & Sons.

APPENDIX

Measurements items and validity assessment

CFA results: χ^2/df= 1.39 , RMSA=0.06 CFI= 0.96

Items	Loadings	Cronbach's α
Interdependence of network (5-point Likert) (Narus and Anderson, 1999; Frazier and Antia, 1995)		0.93
AVE=0.82, CR=0.95		
1. Our company has above-average income which is achieved through mutual exchange in the framework of inter-organizational networks	0.850	
2. Our company uses the full potential of inter-organizational networks	0.925	
3. The strategy of the inter-organizational networks which our company is a member of has a strong impact on our business	0.951	
4. The strategy of our company exerts a strong influence on inter-organizational networks, which we are a participant of	0.900	
Exchange in network (5-point Likert) (Czakon, 2005)		0.86
AVE=0.60, CR=0.81		
1. Information exchange takes place between the entities of the inter-organizational networks which our company is a participant of	0.904	
2. Material exchange takes place between the entities of the inter-organizational networks which our company is a participant of	0.868	
3. Energetic exchange takes place between the entities of the inter-organizational networks which our company is a participant of (e.g. stimulating action, supporting development)	0.873	
Relational norms in network (5-point Likert) (Heide and John, 1992)		0.94
AVE=0.85, CR=0.95		
1. Entities of the inter-organizational networks which our company is a participant of are involved in the cooperation very much	0.934	
2. Entities of the inter-organizational networks which our company is a participant of do not take actions to achieve only their own benefit	0.954	
3. The relationships of the entities of the inter-organizational networks which our company is a participant of are reciprocated	0.941	
Strengthening relationships (5-point Likert) (Granovetter, 1985; Costabile, 2000; Hirvonen et al., 2000; Möller and Törrönen, 2003)		0.91
AVE=0.69, CR=0.93		
1. We carry out common processes	0.848	
2. We carry out joint projects	0.877	
3. We have capital ties	0.800	
4. We have personal ties	0.843	
5. We use common loyalty programs	0.823	
6. We participate in other inter-organizational networks with the same actors	0.800	
One-sided dependence (5-point Likert) (Narus and Anderson, 1999; Frazier and Antia, 1995)		0.80
AVE=0.62, CR=0.86		
1. Cooperation conditions are imposed by other entities	0.828	
2. Responsibility is blurred	0.792	
3. We feel dependence on contractors	0.724	
4. We feel less flexibility	0.804	

Lack of commitment (5-point Likert) (Van de Ven, 1976; Wilson and Mummalaneni, 1986) AVE=0.66, CR=0.88		0.82
1. We feel a lack of willingness to cooperate with the customer	0.804	
2. We feel a lack of willingness to cooperate with the supplier	0.835	
3. We feel a lack of willingness to cooperate with the competitor	0.803	
4. We are afraid of opportunism of others	0.797	
Lack of trust (5-point Likert) (Chiles and McMackin, 1996) AVE=0.68, CR=0.91		0.88
1. We are afraid of excessive control and dependence	0.853	
2. We are afraid of takeover of our know-how by other entities	0.841	
3. We do not trust other entities	0.856	
4. Another organizational culture is an obstacle to cooperation	0.761	
5. We are afraid of takeover of our customers by other entities	0.809	
Resource advantage (5-point Likert) (Penrose, 1959; Wernerfelt, 1984; Barney, 1991AVE=0.51,CR=0.88		0.81
1. Knowledge	0.699	
2. Organisations	0.819	
3. Management methods	0.764	
4. Technology	0.659	
5. Experience	0.705	
6. Brand	0.685	
7. Relationships	0.671	
Performance (5-point Likert) (Fynes and Voss 2002; Homburg et al., 2004; Hooley et al., 2005) AVE=0.65, CR=0.88		0.82
1. Market Share	0.742	
2. Sales Income	0.855	
3. Profit	0.806	
4. ROI	0.807	