



COMPETITIVE BEHAVIOUR IN SUPPLY CHAINS

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ABSTRACT. Background: The article deals with the results of literature and empirical research into competitiveness and behaviour of entities in supply chains.

Methods: A research hypothesis has been formulated that both partnership as well as dominance relations occur between enterprises functioning as suppliers-consignees. In order to verify the hypothesis a survey was completed in 2012. It encompassed 116 enterprises (manufacturers - 33, service providers - 32 and sellers - 24 as well as enterprises selling goods and providing services - 27) of which 54 were large, 26 medium and 36 were small enterprises. Competitive behaviour in supply chains has been identified and analysed. Furthermore, the authors intended to identify, reveal and examine possible interdependences between competitive behaviour and behaviour typical of supply chain strategies.

Results and conclusions: The analysis of survey results revealed a tendency to preserve equilibrium between a chain leader and dependent enterprises. It may be easily justified in practice as on the one hand there is a need to keep the supply chain competitive and on the other hand to avoid the interruptions, which could occur as a result of elimination of dependent enterprises.

Key words: competitive behaviour, competitiveness, supply chains, supply chain strategy, bargaining power, bargaining position, leader.

INTRODUCTION

In accordance with the emergent approach [Cyrson 2011] it is assumed that supply chain strategies are a result of the behaviour of individual entity components of such chains. Obviously, the supply chain strategy is shaped under the influence of supply and demand as well as competition present in a given sector. However, the relationships between suppliers and consumers are also of some significance. In particular one must account for the usage of control measures and power by the supply chain leader. Reflections on participants' behaviour are a part of the analysis of supply chain strategies described in pertinent literature and are treated as one of the determinants of their formation. As such behaviour is collectively called competitive, the issue in question is discussed from the perspective of

the concepts of competitiveness and competitive position, so the article deals with the results of literature and empirical research into competitiveness and behaviour of entities in supply chains. A research hypothesis has been formulated that both partnership as well as dominance relations occur between enterprises functioning as suppliers-consignees and even negative behaviour could be positive but in the widest perspective - perspective of supply chains.

COMPETITIVENESS AND COMPETITIVE POSITION

Definitions of competitiveness, which are to be found in pertinent literature, may be divided into two groups. One group contains definitions in accordance with which competitiveness is perceived as a feature of

enterprises expressed in terms of their capacity to achieve aims to a greater extent than rivals or as a result obtained in the wake of the achievement of those aims [Porter 2008]. The second group is composed of definitions focusing on the result of market behaviour of enterprises, which make them more attractive. The latter approach has been adopted in the research project intended to describe supply chain strategies by identifying and analysing enterprise behaviour.

The terms 'competitive position' and 'strategic position' are commonly used [Urbanowska-Sojkin, Banaszyk 2007]. The term competitive position refers to the role of the enterprise and its development opportunities in relation to its competitors. The position of the enterprise may be perceived from two perspectives - as a better or worse position in comparison with its competitors, which is assessed for instance through the share that a given enterprise has in a specific market or as a competitive position held in a given supply chain. The position of an enterprise in a complex supply chain (supply network) may be determined on the basis of the analysis of individual supply chains of which it is composed in reference to the so-called 'profit zone' - a large share in the market (...) a burden rather than an advantage and in fact it is of no significance. What is significant is where one can gain profit in one's own industry [Slywotzky, Morrison, Andelman 2002]. Enterprises may take a more or less advantageous location in a supply chain and due to that obtain better or worse financial results. Cox [2004] argues similarly that an organisation will dominate the supply chain in order to acquire value from such dominance and hold such a position, which shall not be exploited by other supply chain participants. Empirical analysis reveals that many enterprises take advantage of their size and power in supply chains to force other participants into co-operative behaviour [Webster, Breen, Chatziaslan 2005].

COMPETITIVE BEHAVIOUR IN SUPPLY CHAINS

Behaviour, which one may observe in supply chains, is a mixture of competitiveness

(competitive contest, negotiation contest and bargaining contest), co-operation and control. What differentiates such behaviour from traditional competitive behaviour is the taking advantage of relationships between enterprises operating in a supply chain as suppliers-consumers, where both partnership and dominance are present. Therefore, the authors find it necessary to review the nomenclature used with reference to supply chains as it would be more accurate to talk about bargaining behaviour or negotiation behaviour than competitive behaviour in supply chains. Competitive behaviour would then refer to horizontal relations and negotiation behaviour to vertical ones.

It is commonly accepted that the behaviour of entities operating in the market is connected with the choice of form of operation implemented to attain intended goals, which affect the behaviour of other market entities. Competitive behaviour of enterprises is based on their strategies as they are focused on competing by making strategic choices, which are called competitive strategies. Numerous typologies of competitive strategic behaviour of enterprises have been described in pertinent literature so far based on various criteria. The most common criteria adopted are the mode of operation and the aim intended to be attained by the enterprise due to such operations.

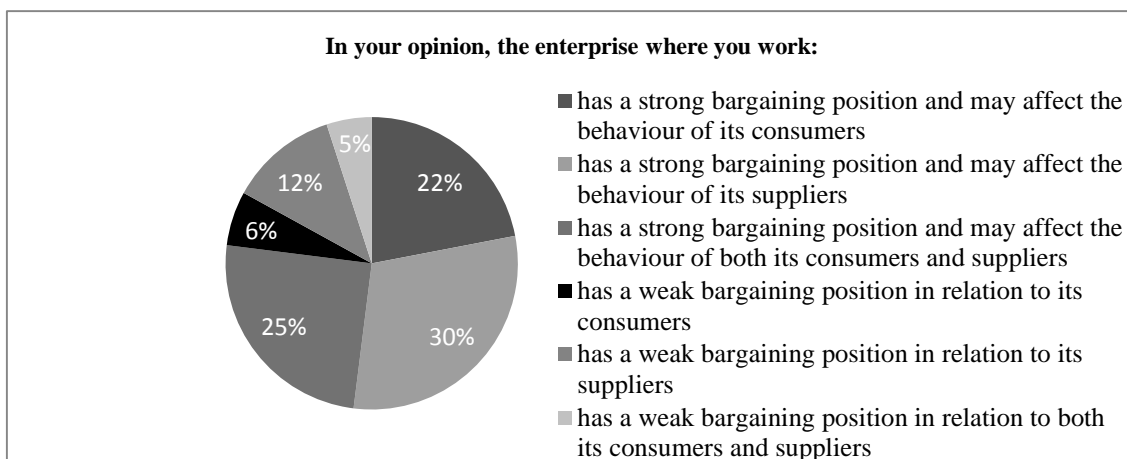
This paper mainly presents the results of the surveys carried out among 116 enterprises active in the region of the western Poland, in 2012. The majority of enterprises are manufacturers - 33, followed by service providers - 32 and 24 traders (including distributors - 12 and wholesalers, retailers, intermediaries - 4 of each group respectively) as well as enterprises trading and providing services - 27. Among the surveyed enterprises, there were 54 large, 26 medium and 36 small ones, according to Annex I to Commission Regulation (EC) No 800/2008 of 6 August 2008.

It has been initially assumed in the research that bargaining behaviour results from the power of the position held by an enterprise and hence the first question directly connected with the topic of the research referred to the perceived position of a given enterprise in

a supply chain. The answers provided are presented in chart 1.

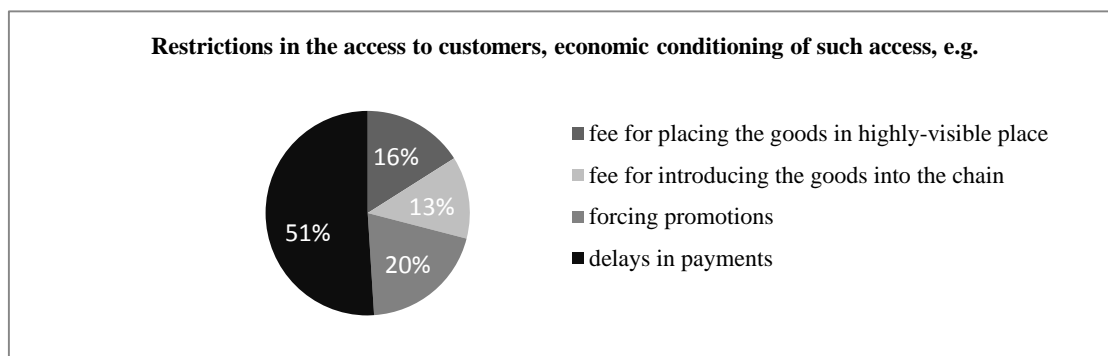
The majority of surveyed persons (77%) represented enterprises having a strong bargaining position. The researchers tried to establish on the basis of the next part of the survey whether it resulted from the size of the enterprise, but the answers were inconclusive and it proved to be impossible to draw unambiguous conclusions.

The next issue to determine was the demonstration whether some behaviour described in pertinent literature in fact occurs in real life. Among other objectives the authors wanted to determine whether access to consumers was limited, and if so by what type of behaviour. The distribution of listed behaviour types is presented in chart 2.



Source: research carried out by the authors of the paper

Fig. 1. Bargaining position of an enterprise in supply chains
 Rys. 1. Pozycja przetargowa przedsiębiorstwa w łańcuchu dostaw



Source: research carried out by the authors of the paper

Fig. 2. Behaviour limiting access to consumers
 Rys. 2. Ograniczenia dostępu do klientów

The behaviour connected with imposing contractual terms and conditions or not observing them was also identified. Usually it is typical of enterprises with greater bargaining power. Although such behaviour is not in compliance with legal provisions it is still indicated by the survey respondents as applied by their enterprises and it may be implied that

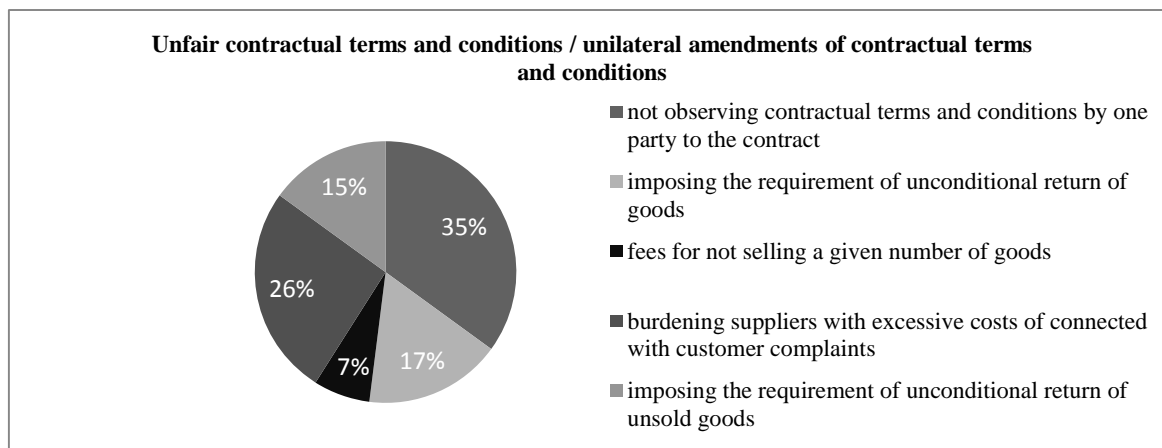
it constitutes a strategy of enterprise operation in supply chains. Chart 3 presents the distribution of behaviour in this category.

Apart from the behaviour forms identified on the basis of literature analysis and those listed in the survey, the respondents had a chance to provide information on behaviour

experienced or observed by them in their work. The following unfair contractual terms and conditions have been enumerated: forcing to bear the costs of damage occurring in intermediary warehouse leased by the consumer, minimum supplies to central warehouses, failure to process an order when its size is not compliant with logistic minimum, failure to observe the terms of payment, terminating the contract despite the

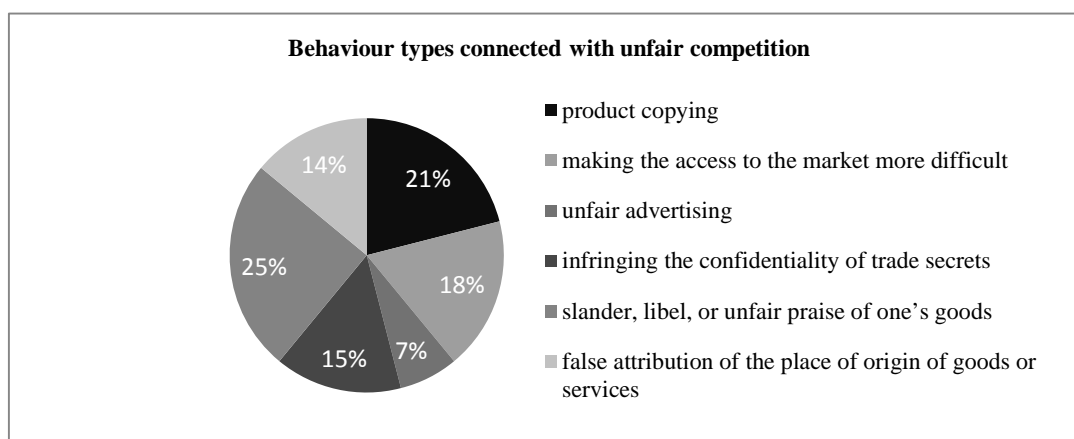
fact that the enterprise observes its terms and conditions and performs its obligations.

The next behaviour group included unfair competition. It has been presented in chart 4. The answers provided created almost an exhaustive list as only in one case an additional possibility was indicated being an attempt to bribe someone.



Source: research carried out by the authors of the paper

Fig. 3. Behaviour in supplier-consumer relations of an enterprise - contract terms and conditions
 Rys. 3. Zachowania w relacjach dostawca-klient - warunki umów



Source: research carried out by the authors of the paper

Fig. 4. Behaviour types in supplier-consumer relations of an enterprise - unfair competition
 Rys. 4. Zachowania w relacjach dostawca-klient - zachowania nie-fair

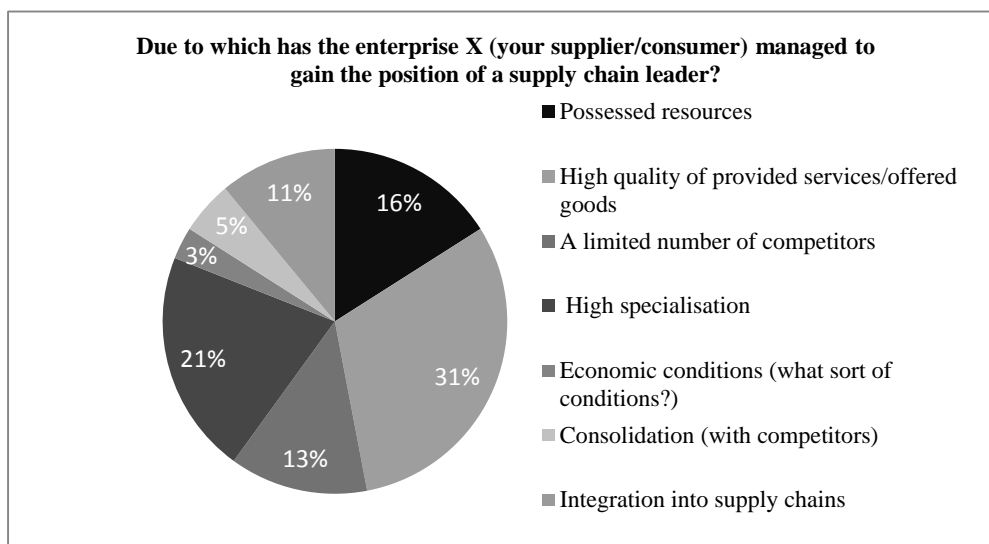
Analysing the existing legal limitations, which may affect the behaviour of enterprises in supplier-consumer relations, one should account for such action or inaction as: not adjusting the infrastructure for supplies to shops and markets, manufacturing identical products as the original ones with the change

of one letter or number in the product name, "placing" specific products in the project (here: construction project) and impossibility of substituting a cheaper counterpart, determining the terms and conditions for orders, system limitations such as TS 16949, the necessity to observe a specification for bids for tenders,

excise taxes and exchange rates. It should be stated here that legal limitations usually result from the nature of the conducted business activity and restrictions applicable to a specific sector.

Apart from the already described negative forms of behaviour, the survey also included questions on additional advantages emerging due to co-operation in supply chains. The respondents enumerated the following examples: lower prices in the case of scheduling in a longer span of time, permanent orders, loyalty programmes, possibility of increasing prices depending on the demand, decreasing transportation costs, taking advantage of the effect of scale in order to decrease the costs of purchases of materials, possibility of negotiating prices particularly in the periods of achieving the so-called "targets", better opportunities of manufacturing on order.

The next part of the research was to enable identification of actions integrating suppliers with consumers. The distribution of answers was almost balanced - 48% of respondents indicated the advantages resulting from implementing new technologies and 52% of respondents indicated the common creation of new products and working together on their promotion. The respondents also provided some other ideas. Among behaviour integrating entities in supply chains the surveyed respondents listed: preparing common quality standards, strengthening collective packaging, decreasing the number of items in a collective package, common work conditions, timely transfer of information, timely deliveries, manufacturing under one's own brand name, offering a wider product mix, introducing new makes. So the scope of such integrating action refers to both operational actions and strategic co-operation.



Source: research carried out by the authors of the paper

Fig. 5. Determinants serving the purpose of attaining the position of a leader in a supply chain
Rys. 5. Czynniki określające uzyskanie pozycji lidera w łańcuchu dostaw

The survey also contained a question concerning potential determinants helping attain the position of a supply chain leader. It has been assumed that the answers should be provided by respondents representing enterprises, which are supply chain leaders. The number of answers was as great as the percentage of enterprises, which had a strong bargaining power in relations with their suppliers or consumers. The distribution of given answers is presented in chart 5. The

analysis of answers gives justification for the claim that the position of an enterprise in a supply chain first and foremost results from the level of specialisation and high quality of services or goods.

Gaining the position of a leader is also possible due to: good infrastructure and geographical location of an enterprise, foreign capital, regionalisation, merging a few departments and providing comprehensive

service (through consolidation) as well as using state-of-the-art machinery.

In the opinion of 46% of respondents there is a possibility of changing the position in a supply chain but 54% consider it to be impossible. As the opinions for and against were almost balanced it is worth analysing the grounds given by the surveyed group. The juxtaposition of arguments for and against the possibilities of changing the position of an enterprise in a supply chain has been provided in Table 1. The majority of actions enabling a change of the role of an enterprise in a supply

chain refer to quality, qualifications, introducing new products, innovation, that is to say actions which make an enterprise more competitive as well as horizontal integration intended to increase one's own impact on suppliers or consumers. Only one answer referred to external factors - market surroundings. Consequently, enterprises consider it possible to change their role in supply chains by increasing their competitive potential. The listed forms of behaviour are almost the same as the already mentioned determinants of attaining the position of a supply chain leader.

Table 1. Behaviours enabling and disabling change the distribution of forces in supply chains
 Tabela 1. Zachowania umożliwiające i uniemożliwiające zmiany dystrybucji sił w łańcuchach dostaw

FOR	AGAINST
Co-operation, Improving the quality of deliveries, timely deliveries, lower prices, better transportation fleet, Improving employee qualifications or employing specialists, Decreasing the number of competitors that is to say inviting them to co-operate, Investing in innovative technologies, which increase the quality of provided services, Implementing new products, which are not offered by competitors, Market conditions must change, Time, information transfer, keeping to the deadlines, Signing contracts with exclusivity clause, Reducing the quality of manufactured goods, Increasing prices of manufactured goods, Supply chain price and quality competition, Honest, reliable approach to business, employing specialists	The impact of competition, Consumers are magnates of the automotive sector on the market (VW, Porsche, BMW) and they set the rules of the game, Keeping one's position, maintaining quality, Enterprise has its own fleet of vehicles and suppliers, there is no point in improving anything, Everything operates correctly, everyone co-operates properly, speedily and reliably, There are not many opportunities in forwarding, Being dependent on the supplier, Excessive share of large enterprises on the market

Source: research carried out by the authors of the paper

The failure to change the position in a supply chain, in turn, resulted from two main types of behaviour:

- an enterprise had a well-established position and it aimed to maintain the status quo,
- consumers or suppliers were the leaders.

In the latter case it has been stressed that the movement of power is impossible due to the strong position of a leader - both in competition and in bargaining and the fact that the enterprise is dependent on the leader.

CONCLUDING REMARKS

Having analysed pertinent literature and the results of the survey, the authors identified the following types of behaviour:

- positive ones including loyalty programmes, decreasing costs of logistic operations,
- negative ones including limiting access to consumers, imposing or not observing contract terms and conditions, unfair competition, taking advantage of loopholes,

- determining possibility of attaining the position of a supply chain leader and
- making it possible to change the position in a supply chain.

On the basis of more extensive analysis (carried out in the framework of the research project) which in this article were presented selectively, the following conclusions have been drawn. Supply chain strategies are intended to make them flexible, agile, lean, reactive and are developed due to the integration of suppliers and consumers. If that is the case, then the overriding aim of co-operating entities is to gain competitive advantage for the whole supply chain. Such advantage may be achieved by implementing all identified positive behaviour forms.

Negative behaviour, however, is controversial. It is due to the fact that it may be analysed from three perspectives: (i) the supply chain perspective, (ii) dominant entity perspective, and (iii) economic network perspective.

It is most important for a supply chain to attain competitive advantage. This purpose may be accomplished by both positive and negative behaviour as far as either enables fulfilment of the intended strategic aim of the whole supply chain. Thus, negative behaviour may serve the purpose of increasing supply chain competitiveness. Additionally, if supply chains compete with one another, the profitability of individual enterprises is irrelevant and what really counts is the profitability of the whole supply chain and the value delivered by those operating within it.

The position held may be essential for entities, which form a supply chain. They may become leaders, which will give them the possibility to dominate other entities and impose central strategy on them by among others measures resorting to negative behaviours. However, an enterprise may become a leader if it first manages to gain advantage over its competitors, mainly due to high quality of provided services and offered goods and then it may also become responsible for a supply chain strategy. On the other hand, enterprises, which are not supply chain leaders, often have no influence on the price margins or

terms and conditions of co-operation. However, they may profit from becoming participants in a given supply chain as despite a rigorous approach of the leading enterprise, it brings financial profits and competitive advantage. Co-operation in supplier-consumer relations is usually established between selected, best enterprises or enterprises that are co-dependent, which finally affects positively the competitiveness of the whole supply chain.

As far as economic networks are concerned, one should consider negative behaviour as a factor, which may disturb the balance of power in a network and result in economic problems. For instance, the European Commission ordered conduct of research on the issue in question and in 2008 it was announced that the strategy of concentration and globalisation especially in retail led to the imbalance of bargaining power between entities in the food supply chain, which negatively affected its competitiveness due to the fact that smaller but resilient entities might be forced to carry out less profitable business.

Therefore, both positive and negative behaviour occurs in supply chains but what is most important is to maintain balance between the leader and dependent entities in order to make the supply chain competitive and at the same time do not lead to the failure of such supply chain by eliminating dependent entities.

It should be stressed that the results of the survey are of regional scope and the research should be carried out in other regions too to confirm a wider applicability of observed trends. Taking into consideration the number of entities operating in the region of Wielkopolska in Poland in 2011 (The data provided by the Main Statistics Office (GUS) in Poland concerning business entities in specific branches and places of main activities in 2011, as of 2012, December 17], the sample of 150 surveyed entities ensures confidence in findings of nearly 80%, with the maximum statistical error of 5% [naukowiec.org/dobor]. The situation will change slightly if we are to generalize the results for all entities operating in Poland, that is to say the number of 74 870 entities. In order to maintain the same criteria as far as the level of confidence and error are concerned, the surveyed sample should amount to 157 entities. However, there is no denying

that in order to be 99.9% certain of the representativeness of the results obtained, the surveyed sample should amount to over 1000 entities in Poland, which would significantly exceed the scope of the research carried out within the project.

SUMMARY

The article deals with the results of literature and empirical research into competitiveness and behaviour of entities in supply chains. A research hypothesis has been formulated that both partnership as well as dominance relations occur between enterprises functioning as suppliers-consignees. In order to verify the hypothesis a survey was completed in 2012. It encompassed 116 enterprises (manufacturers - 33, service providers - 32 and sellers - 24 as well as enterprises selling goods and providing services - 27) of which 54 were large, 26 medium and 36 were small enterprises. Competitive behaviour in supply chains has been identified and analysed. Furthermore, the authors intended to identify, reveal and examine possible interdependences between competitive behaviour and behaviour typical of supply chain strategies. The analysis of survey results revealed a tendency to preserve equilibrium between a chain leader and dependent enterprises. It may be easily justified in practice as on the one hand there is a need to keep the supply chain competitive and on the other hand to avoid the interruptions, which could occur as a result of elimination of dependent enterprises.

REFERENCES

- Cox A., The art of the possible: relationship management in power regimes and supply chains, *Supply Chain Management: An International Journal*, 9, 5/2004, 351.
- Commission Regulation (EC) No 800/2008 of 6 August 2008.
- Cyrson E., 2011, Formowanie strategii: od hierarchii trójkątnej do relacyjnej sieci wartości, [The creation of strategy: from triangle hierarchy to relationship value Network] <http://www.e-wydawnictwo.eu/Document/DocumentPreview/1715>.
- Porter M.E., 2008, *Competitive Advantage: Creating and Sustaining Superior Performance: with a new introduction*, The Free Press, New York, 1-2.
- Rezolucja Parlamentu Europejskiego w sprawie zakłóceń równowagi w łańcuchu dostaw żywności [European Parliament resolution about the imbalances in food supply chain], from 18.01.2012.
- Slywotzky A.J., Morrison D. J., Andelman B., 2002, *The Profit Zone: How Strategic Business Design Will Lead You to Tomorrow's Profit*, Tree Rivers Press, New York, 36.
- Urbanowska-Sojkin E., Banaszyk P., Witczak H., 2007, *Zarządzanie strategiczne przedsiębiorstwem* [Strategic management of company], PWE, Warszawa, 219.
- Webster M., Breen L., Chatziaslan L., 2005, *Analysis of Power In Buyer-Seller Relationships In the Pharmaceutical Supply Network in the National Health Service and its Application to International Markets*, Working Paper 05/22.

ZACHOWANIA KONKURENCYJNE W SIECIACH DOSTAW

STRESZCZENIE. Wstęp: W artykule dokonano oceny konkurencyjności i zachowań podmiotów w sieciach dostaw na podstawie przeprowadzonych badań literaturowych i empirycznych.

Metody: Postawiono hipotezę badawczą: w relacjach pomiędzy przedsiębiorstwami w układzie dostawca-odbiorca występuje zarówno partnerstwo, jak i dominacja. W celu zweryfikowania hipotezy w 2012 roku przeprowadzono badania ankietowe, które objęły 116 przedsiębiorstw (firmy produkcyjne - 29%, usługowe - 28% oraz firmy handlowe). Badanie przeprowadzono w 54 firmach dużych, 26 średnich i 36 małych. Zidentyfikowano i przeanalizowano zachowania konkurencyjne w sieciach dostaw. Ponadto celem tych badań było wykazanie i rozpoznanie ewentualnych zależności między zachowaniami konkurencyjnymi a zachowaniami występującymi w strategiach sieci dostaw.

Wyniki i wnioski: Analiza ankiet wykazała tendencję zmierzającą do zachowywania równowagi między liderem a podmiotami zależnymi w sieci. Znajduje to uzasadnienie praktyczne, gdyż istnieje konieczność utrzymania konkurencyjności sieci dostaw przy jednoczesnym uniknięciu jej załamania, które mogłoby nastąpić w wyniku wyeliminowania podmiotów zależnych..

Słowa kluczowe: zachowania konkurencyjne, konkurencyjność, sieci dostaw, strategie sieci dostaw, siła przetargowa, lider

KONKURRENZVERHALTEN INNERHALB VON LIEFERNETZEN

ZUSAMMENFASSUNG. Einleitung: Im vorliegenden Beitrag wurde auf Grund der durchgeführten empirischen und Literaturrecherchen eine Beurteilung der Konkurrenzfähigkeit und des Verhaltens von Lieferanten in den Liefernetzen ausgeführt.

Methoden: Dabei stellte man eine Forschungshypothese auf: innerhalb der Zusammenhänge zwischen den Unternehmen im Verhältnis Lieferer-Abnehmer treten sowohl Partnerschaft als auch Domination auf. Zwecks der Verifizierung der Forschungshypothese führte man 2012 Umfragen durch, die 116 Unternehmen (Produktionsfirmen - 29%, Dienstleistungsfirmen - 28% und Handelsfirmen) umfassten. Die Untersuchungen wurden in 54 großen, 26 mittelgroßen und 36 kleinen Unternehmen durchgeführt. Es wurden dabei Konkurrenzverhalten innerhalb von Liefernetzen ermittelt und analysiert. Darüber hinaus war es das Ziel dieser Forschungen, eventuelle Zusammenhänge zwischen den Konkurrenzverhalten und den in den Strategien von Liefernetzen auftretenden Verhalten aufzuzeigen und zu identifizieren.

Ergebnisse und Fazit: Die Analyse der Fragebögen zeigte eine auf die Aufrechterhaltung des Gleichgewichtes zwischen dem Leader und den Subjekten innerhalb des Netzes hinzielende Tendenz auf. Dies findet eine praktische Begründung, denn es besteht die Notwendigkeit der Aufrechterhaltung der Konkurrenzfähigkeit des Liefernetzes bei gleichzeitiger Meidung dessen Zusammenbruches, der in Folge der Ausscheidung von abhängigen Subjekten auftreten könnte.

Codewörter: Konkurrenzverhalten, Konkurrenzfähigkeit, Lieferketten, Lieferketten-Strategie, Umfrage-Analyse, Fragebögen, Leader.

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