CONFIGURATION OF FLEXIBILITY OF LOGISTIC SERVICES

[a] DAGMARA BUBEL

Main Library of Częstochowa University of Technology
e-mail: [a]dbubel@bg.pcz.pl

Abstract: The phenomenon of modern logistics is caused among other things by the fact that it is treated as the epicentre of business transformation. In the difficult conditions of the 21st century, referred to as the century of uncertainty and hypercompetition, globalising economic systems have never been more in need of modern logistics. It is even said that the world economy sees logistics as the last chance to decrease production and marketing costs. In this situation, building key logistic competences is a necessary condition for enterprises to achieve competitive advantage, which largely determines their functioning and development. An important role in this process is played by a generally desired and accepted characteristic, i.e. flexibility. The aim of the paper is to identify and assess the functioning and development of an enterprise's logistics in the empirical aspect in the context of making it flexible.

Keywords: Logistics, logistic system, enterprise, flexibility.

1 Introduction

The pace of changes taking place in their environment forces enterprises to constantly adapt themselves to the conditions, otherwise they will lose on the increasingly competitive market. However, the increasingly changeable and dynamic market on which today's enterprises operate makes the existing adaptation methodology less and less effective. It becomes necessary to implement solutions that ensure more flexibility. Strong market competition in the global economy forces modern enterprises to search for new solutions, e.g. reducing business costs, increasing effectiveness and reaching a new target group. One of proactive mechanisms guaranteeing achievement of the objectives above is to optimise logistic processes and adjust them to the conditions of the economy.

A lot of changes should be also made in the supply area of logistic services, where development of new business solutions is one of innovative activities (more in: Lichtarski, J., 2003: 10-12). New requirements faced by enterprises providing logistic services force them to use new organisational solutions and implement modern technologies. Such enterprises have to invest in advanced IT systems and logistic infrastructure so that their efficiency and effectiveness at every stage of a supply chain could constantly increase. It is equally important to decrease the risk level in supply chains (Machowiak, W., 2012: 277-285) and develop good relations with customers, which are based on complete and efficient information exchange.

Given that flexibility is a generally desired and accepted feature, the paper is an attempt to answer the question of how this feature can be implemented. For that purpose, results of empirical studies on the scope and flexibility of logistic services were presented.

2 Flexibility of logistic services and increasing customer needs

The pace of changes taking place in their environment forces enterprises to constantly adapt themselves to the conditions, otherwise they will lose on the increasingly competitive market. However, the increasingly changeable and dynamic market on which today's enterprises operate makes the existing adaptation methodology less and less effective. It becomes necessary to implement solutions that ensure more flexibility. Strong market competition in the global economy forces modern enterprises to search for new solutions, e.g. reducing business costs, increasing effectiveness and reaching a new target group. One of proactive mechanisms guaranteeing achievement of the objectives above is to optimise logistic processes and adjust them to the conditions of the economy.

Enterprises operating on current markets are required to have an integrating approach to supply chain management, consisting in obtaining value for end customers and participants of the management process (Romanowska, M., 2011: 16-20). In this sense, supply chain management starts earlier than distribution, because it is connected with purchasing appropriate production factors, efficiently changing them into finished products and shipping to destination points, i.e. ensuring transport. An even broader view of how supply chain is managed is to find out how the suppliers of a manufacturer obtain their factors of production. Formulation of a supply chain strategy helps to identify the best suppliers and distributors, and to support them in increasing efficiency, which reduces costs of an enterprise as the final result (Franc-Dąbrowska, J. 2014: 3507-3516).

It is worth noting that enterprises start to notice the necessity of responsible management of a supply chain, which is determined by a range of social and economic factors. As the latest research shows (Hofmann, E., 2014: 125-144), risk connected with supply chain management is the biggest global challenge for business, because in the face of a crisis enterprises cannot afford to fail to monitor and check work standards of their suppliers (Nogalski, B., Niewiadomski, P., 2013: 277-292).

In view of the above, it is important to note that a customer has a dominating role in a supply chain management. It is the customer that constitutes the most important link in a supply chain, and ensuring that customer service meets certain standards is the main goal of management, whereas the main objective of a supply chain that an enterprise should strive to achieve is to fully meet the customer's expectations. It is also important to pay attention to other, equally important areas connected with (Brzeziński, S., Brzozowska, A., Korombel, A., 2014: 28-30):

- time of the cycle of replenishing stocks (orders),
- availability of goods (stocks),
- limiting the size of an order,
- convenience of placing orders,
- delivery frequency,
- delivery reliability,
- documentation quality,
- complaint procedures,
- order completeness,
- technical support,
- information about the status of an order delivery.

The discussion above shows that transport plays a significant part in a supply chain. That's why we can see a constant development of transport services, which is connected with social development and the need for mobility and a change of the principles of a direct transaction between a seller and buyer, based on a model of a logistic service system, which comprises carriers, forwarders, companies providing warehousing services and other companies participating in the delivery process (Bräkling, E., Lux, J., Oidtmann, K., 2014: 25-122). Far reaching specialisation, and consequently market division in the area of production, contributes to the increase in the flow of loads. Demand for transport services is largely a consequence of development and integration in the area of international trade in technology and commodity. An important thing in the sphere of changes in the mentality of entrepreneurs is focus on the customer's needs, which involves elimination of transport-related nuisance and transfer of responsibility for these activities to a forwarder or logistic operator (Tarasewicz, R., 2013: 20-25).

A very important element in the market economy is also flexibility of a carrier's adaptation to the demand for transport services. Demand flexibility is intensity of reactions between a customer and consumer of a transport service to change of the price of this service, as well as reactions of a carrier to change of cash of this customer (Długosz, J., 2014: 49-60). Therefore, to fully maintain these relations, it is important to:

- provide a customer with higher quality services (products) on better sales terms,

- concentrate on the strengths of activity, avoiding at the same time dispersal across little known areas,
- develop well-known areas of activity to better use opportunities, and offer new solutions on an already captured market,
- systematically look for innovations and constantly improve the process of providing services,
- care about high quality to improve relations with customers, and at the same time increase the competitiveness level on the market.

Another issue is technical and organisational flexibility with respect to a customer's requirements (Jelonek, D., 2012: 175-184). One can say that demand for transport services depends on the one hand on the social and economic needs of a specific region, while on the other hand on a service availability to a customer, price, as well as quality, technological and organisational standards. Below are factors occurring within the enterprise of a service provider that facilitate or hinder the practice of provided services. The factors presented also show the potential of enterprises providing transport services (Skowron-Grabowska, B., 2014): 35-39):

- activity of an enterprise with respect to customers,
- a well-thought-out scope of the range of services,
- capability of allocating resources,
- use of the latest IT technologies,
- ability to learn from the best in the transport, forwarding and logistics industry.

The positive thing is the fact that all these factors facilitate the provision of transport services and have a strong influence on enterprises providing such services. These factors contribute to increasing awareness of organisational activities that lead to full satisfaction of the customer with the quality of services provided.

3 Configuration of the flexibility of logistic services - survey results

The questionnaire survey was carried out in enterprises located in Silesian Voivodeship in 2014. The subject of the survey was analysis of the current state of logistics and assessment of logistics in enterprises and directions of its development. The aim of the survey was to identify and assess the current state and directions of the development of an enterprise's logistics in the aspect of making it more flexible. 150 enterprises were examined to obtain study material. The enterprises were classified according to the criterion of size.

The distribution of participants of the survey by size is as follows: 37% of large enterprises, 42% of medium-sized enterprises, and 21% of small enterprises. The description of enterprises classified according to size is presented in figure 1.

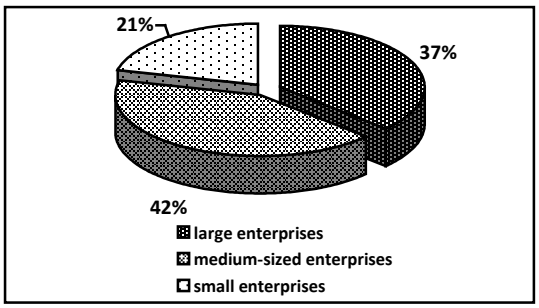
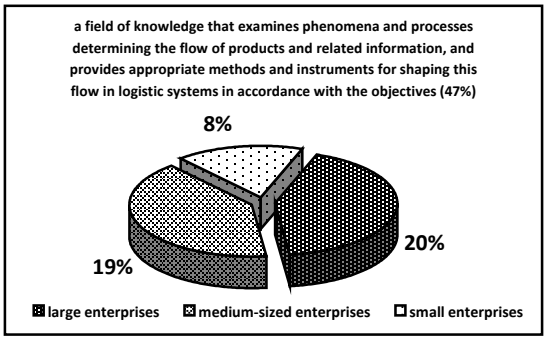


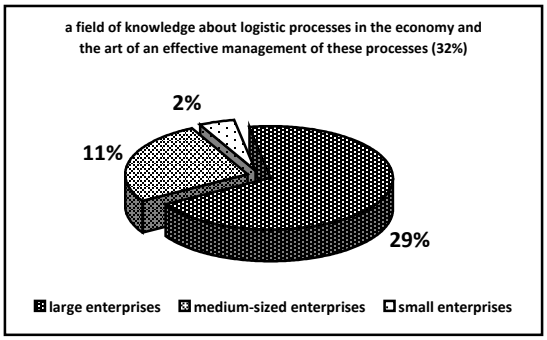
Fig. 1. Structure of surveyed enterprises by size
Source: Own work based on survey results.

First, the survey checked how the term "logistics" is understood in selected enterprises. The following definitions were proposed:

1) a field of knowledge that examines phenomena and processes determining the flow of products and related information, and provides appropriate methods and instruments for shaping this flow in logistic systems in accordance with the objectives (47% of enterprises, with 19% of medium-sized enterprises, 20% of large enterprises and 8% of small enterprises);
2) a field of knowledge about logistic processes in the economy and the art of an effective management of these processes (32% of enterprises, with 11% of medium-sized enterprises, 29% of large enterprises and 2% of small enterprises);
3) a term signifying management of transfer and storage operations designed to facilitate the flow of products from the places of origin to the places of final consumption, as well as related information, in order to offer the customer an appropriate level of service at reasonable costs (69% of enterprises, with 13% of small enterprises, 20% of medium-sized enterprises and 36% of large enterprises);
4) a process of planning, implementing and controlling an effective and efficient flow and storage of goods, services and appropriate information from the place of manufacture to the place of consumption in order to meet customers' requirements (49% of enterprises, with 11% of small enterprises, 17% of medium-sized enterprises and 21% of large enterprises);
5) a process of strategic management of procurement, storage and transport of materials, parts and finished products (along with appropriate documentation) within an enterprise and through its marketing channels, to ensure maximisation of current and future profits and most effective delivery of orders (37% of enterprises, with 14% of medium-sized ones, 19% of large ones and 4% of small ones).

Figure 2 shows how logistics is understood in the enterprises surveyed





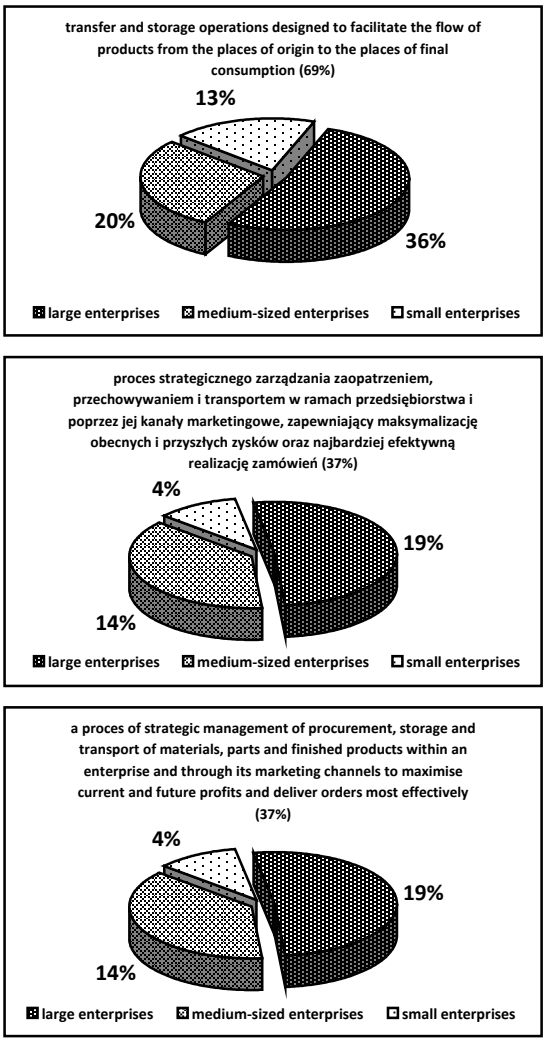


Fig. 2. Understanding of logistics in the enterprises analysed
Source: Own work based on survey results.

The information included in figure 2 shows that the understanding of logistics in the economic practice correlates with definitions of this term presented in academic literature (Pisz, I., Sęk, T., Zielecki, W., 2013).

Most medium-sized and large enterprises show very advanced understanding of this term, i.e. as a field of scientific knowledge, practical discipline, in the strategic and operational aspects. On the other hand, small enterprises understand logistics as a practical discipline in the operational dimension.

As the understanding of logistics is reflected in its orientation, an attempt was made to find out on what problems the logistics of the enterprises surveyed focuses. The answer to this question is - it focuses on:

- strategic and operational problems (56% of enterprises, with 2% of small ones, 23% of medium-sized ones and 31% of large ones),
- operational problems (21% of enterprises, with 13% of small ones, 7% of medium-sized ones and 1% of large ones). Orientation of logistics towards strategic and operational problems is presented in figure 3.

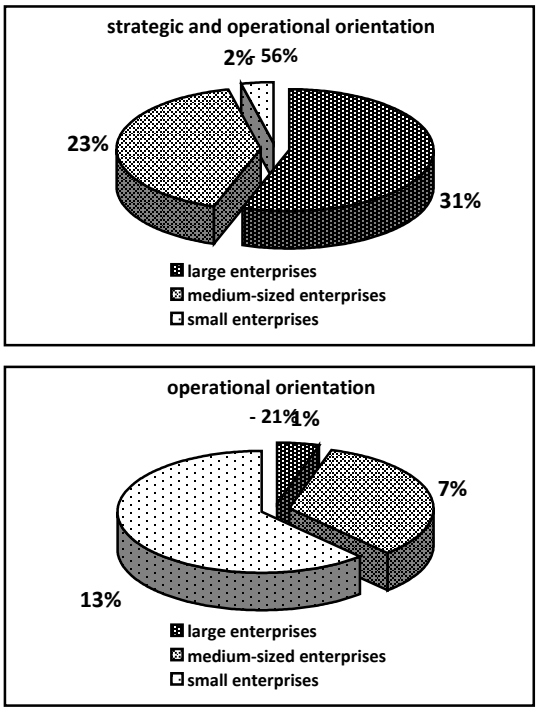


Fig. 3. Orientation of logistics in the enterprises surveyed
Source: Own work based on survey results.

Information in figure 3 shows that orientation of logistics is connected with the size of an enterprise, i.e. logistics of most medium-sized and large enterprises is oriented towards strategic and operational problems, whereas logistics of small enterprises is oriented towards operational problems.

Orientation of logistics towards only operational problems complies with the understanding of the term logistics, as enterprises do not define logistics in the strategical dimension. Orientation of logistics towards exclusively strategic problems was not declared by any of the enterprises surveyed.

Another aspect of the survey focused on subsystems in which logistics functions, namely:

- procurement (72% of enterprises, with 17% of small ones, 21% of medium-sized ones and 34% of large ones),
- production (59% of enterprises, with 12% of small ones, 21% of medium-sized ones and 26% of large ones),
- distribution (69% of enterprises, with 17% of small ones, 21% of medium-sized ones and 31% of large ones),
- reprocessing (31% of enterprises, with 7% of small ones, 11% of medium-sized ones and 13% of large ones).

Subsystems in which logistics operates are presented in figure 4.

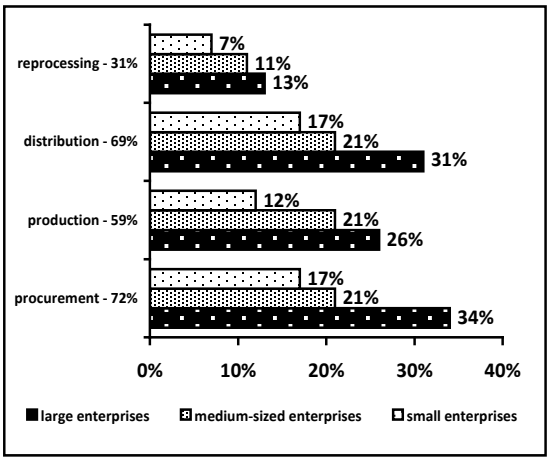


Fig. 4. Phase division of a logistic system in the enterprises surveyed
Source: Own work based on survey results.

Information presented in figure 4 shows that logistics is present mainly in the subsystems of procurement, production, distribution, and less in the reprocessing subsystem.

The functioning of logistics presented here constitutes basis for its assessment. The subject of the assessment of logistics in the enterprises surveyed were competences of logistics employees and existing solutions in the area of logistics.

Competences of logistics employees were assessed as:

- good (48% of enterprises, with 15% of small ones, 6% of medium-sized ones and 27% of large ones)
- very good (14% of enterprises, with 2% of medium-sized ones, 8% of large ones and 4% of small ones)
- sufficient (17% of enterprises, with 3% of small ones, 12% of medium-sized ones and 2% of large ones)
- insufficient (5% of enterprises, with 2% of medium-sized ones, 1% of small ones and 2% of large ones)

The assessment of the competences of logistics employees is presented in figure 5.

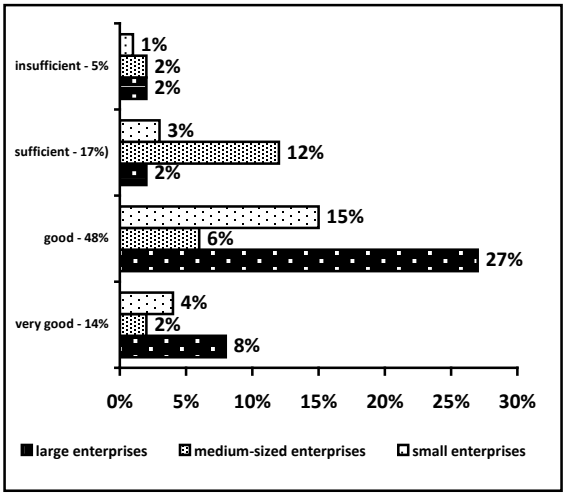


Fig. 5. Assessment of the competences of employees of a logistic system in the enterprises surveyed
Source: Own work based on survey results.

Another assessment shows that the existing solutions in the area of logistics are perceived as:

- good (62% of enterprises, with 17% of small ones, 19% of medium-sized ones and 26% of large ones),
- sufficient (7% of enterprises, with 2% of medium-sized ones, 4% of large ones and 1% of small ones),
- very good (8% of enterprises, with 5% of large ones, 2% of medium-sized ones and 1% of small ones),
- insufficient (1% of enterprises, with 1% of small ones).

The assessment of the existing solutions in the area of logistics is presented in figure 6.

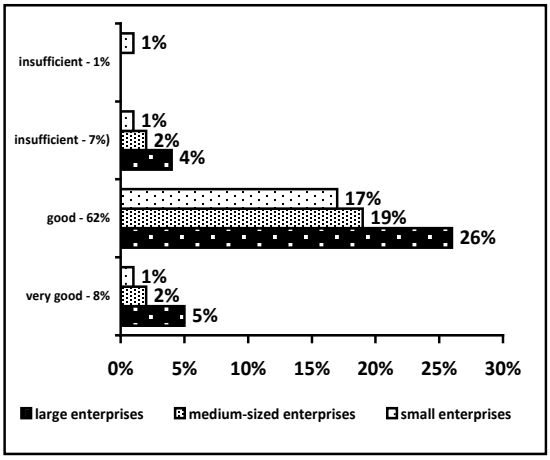


Fig. 6. Assessment of the existing solutions in the area of logistics in the enterprises surveyed
Source: Own work based on survey results.

An important issue are directions of the development of logistics of enterprises. An overwhelming majority of enterprises (67% of enterprises, with 7% of small ones, 28% of medium-sized ones and 32% of large ones) intend to make changes in the area of logistics. Only 15% of enterprises, with 5% of small ones and 10% of medium-sized ones, declare no willingness to make changes in the area of logistics.

The directions of the development of logistics are presented in figure 7.

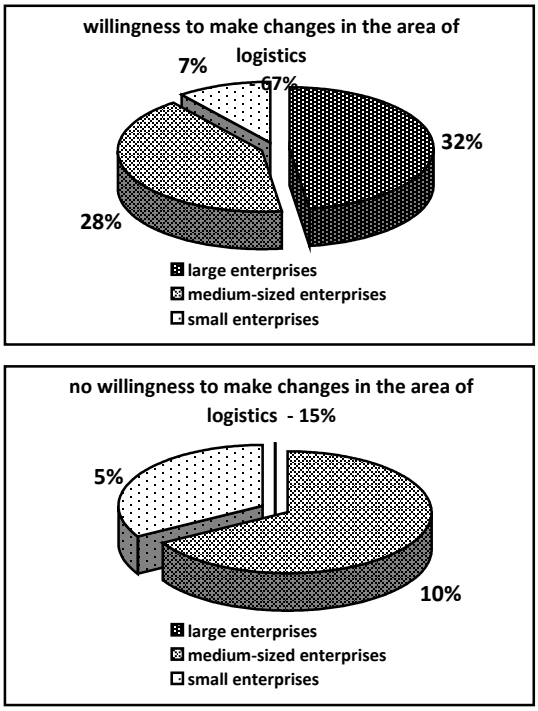


Fig. 7. Directions of the development of logistics in the enterprises surveyed
Source: Own work based on survey results.

Companies with very good and good solutions in the area of logistics are thus more willing to make changes in this area. On the other hand, enterprises whose logistics is assessed as sufficient or insufficient are less prone to implement changes which are necessary for their development.

Changes will be made in the following subsystems of logistic systems of enterprises:

- distribution: 45% of enterprises, with 4% of small ones, 18% of medium-sized ones and 23% of large ones,
- procurement: 31% of enterprises, with 4% of small ones, 11% of medium-sized ones and 16% of large ones,
- production: 24% of enterprises, with 8% of medium-sized ones and 16% of large ones,
- reprocessing: 6% of enterprises, with 2% of medium-sized ones and 4% of large ones.

The subsystems in which changes will be implemented are presented in figure 8.

Despite a positive assessment of logistics, the directions of the development of enterprises assume introduction of changes in this area. Changes will be implemented mainly in the area of the distribution subsystem. In some enterprises, the subsystems of procurement and production will be the areas subject to implementation of changes. Changes in the reprocessing subsystem are part of development directions of relatively few enterprises.

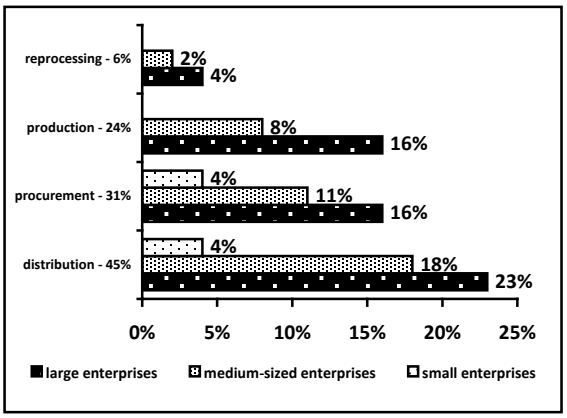


Fig. 8. Subsystems of changes in the enterprises surveyed
Source: Own work based on survey results.

The subject of the survey were also factors constituting the basic source of competitive advantage of an enterprise and its product, as presented in figure 9.

- Fast and flexible acting: 97% of enterprises, with 20% of small ones, 28% of medium-sized ones and 49% of large ones,
- product availability: 69% of enterprises, with 14% of small ones, 10% of medium-sized ones and 45% of large ones,
- High quality of products: 72% of enterprises, with 15% of small ones, 29% of medium-sized ones and 28% of large ones,
- Low price of a product: 95% of enterprises, with 17% of small ones, 31% of medium-sized ones and 47% of large ones,
- Goodwill and product brand: 79% of enterprises, with 12% of small ones, 41% of medium-sized ones and 26% of large ones,
- Adjustment of sales network and system: 83% of enterprises, with 14% of small ones, 28% of medium-sized ones and 41% of large ones,
- Modern and attractive product: 87% of enterprises, with 19% of small ones, 31% of medium-sized ones and 37% of large ones.

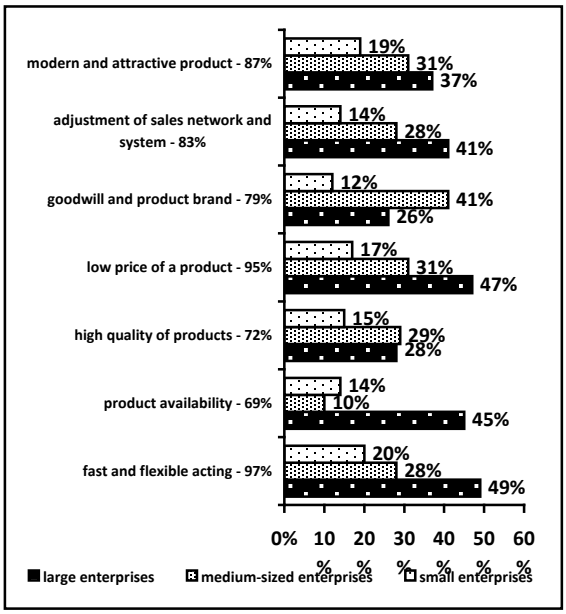


Fig. 9. Factors of competitiveness in the enterprises surveyed
Source: Own work based on survey results.

The above-mentioned factors of product competitiveness indicate an important role of supply chain management, determining appropriate speed and flexibility of activity, product availability, quality of used materials, adjustment of sales network, and cost management in a complete supply chain, which allows an enterprise to dictate low prices of a product on the target market. Analysis of the above presented factors of competitive advantage confirms invariability of two fundamental directions in achieving a competitive position of a product on the market, i.e. achieving cost leadership or product differentiation with respect to other players on the market. Achieving the effect of competitive advantage through cost leadership, enterprises use low prices thanks to cost minimisation in a supply chain and an acceptable level of customer service. This is usually an effect of selling large quantities of products, for which logistic systems and supply chains are designed taking into account capacity of large quantities of goods, using economies of scale with possible low costs (Nowakowska-Grunt, J., 2011: 291-300).

4 Summary

Modern logistics is becoming an increasingly effective instrument for business management. It enables cost reduction, accelerates trade in goods and financial flows, allows new jobs to be created, and makes it possible to save on spendings connected with traditional production and distribution of goods.

The results of empirical studies on the functioning and development of logistics of enterprises in terms of making it more flexible, as presented in this paper, show that logistics functions both at the strategical and operational levels. Strategic and operational dimensions of logistics are characteristic of medium-sized and large enterprises. Logistics in the operational dimension is characteristic of small enterprises and correlates with the understanding of this term.

A phase division of logistic systems of enterprises mainly includes the subsystems of procurement, production and distribution. Logistic systems of the selected enterprises also take into account the subsystem of reprocessing.

Assessment of the functioning of logistics viewed through employees' competences shows that small, medium-sized and large enterprises evaluate such competences as good. Few enterprises evaluate employees' competences as very good. Similar tendencies are seen in the case of sufficient competences

and refer to few enterprises. Insufficient competences occur in a very small number of medium-sized enterprises.

Existing solutions in the area of logistics are good. Few enterprises assess the existing solutions in the area of logistics as sufficient or very good. A very small group of small enterprises gave logistics a fail.

The empirical studies show that we can observe redefinition of certain concepts and tasks in the area of logistics, which nowadays has to face constant changes and influences of the environment. Most actions and decisions are taken in the conditions of uncertainty and hard to predict behaviour. In order to survive on the market and be competitive in the long run, modern logistics should be characterised by innovativeness, creativity as well as ability and easiness to make changes, which is associated, or even equated, with flexibility.

Literature:

1. Lichtarski, J.: O strategiach zarządzania zmianami. „Przegląd Organizacji" 2003, 9: 10-12.
2. Machowiak, W.: Risk management-unappreciated instrument of supply chain management strategy. LogForum 8.4 (2012): 277-285.
3. Romanowska, M.: Przełomy w praktyce zarządzania-przesłanki i przyczyny. „Przegląd Organizacji" 3 (2011): 16-20.
4. Franc-Dąbrowska, J.: Ocena ekonomiczno-finansowa przedsiębiorstw logistycznych w kontekście łańcuchów dostaw. „Logistyka" 4 (2014): 3507-3516.
5. Hofmann, E.: Von der Strategie bis zur finanziellen Steuerung der Performance in Supply Chains: Hintergründe und Forschungsprogramm für die Zukunft. Supply Management Research. Springer Fachmedien Wiesbaden, 2014. 125-144.
6. Nogalski, B., Niewiadomski, P.: Koncepcja oceny dostawcy w elastycznym zakładzie wytwórczym-strategiczna perspektywa sukcesu. „Zarządzanie i Finanse", 2013, 4.2: 277-292.
7. Brzeziński, S., Brzozowska, A., Korombel A.: Tools for integrating enterprises in a supply chain. Part 2. „Logistyka" 5 (2014): 28-30.
8. Bräkling, E., Lux J., Oidtmann K.: Logistik-Planning: Erfolgspotenziale eröffnen. Logistikmanagement. Springer Fachmedien Wiesbaden, 2014. 25-122.
9. Tarasewicz, R.: Rola zarządzania łańcuchem dostaw w kreowaniu wartości przedsiębiorstw dla interesariuszy. „Przegląd Organizacji" 5/2013: 20-25.
10. Długosz, J.: Zmiany w obsłudze klienta na rynku TSL. Zeszyty Naukowe Uniwersytetu Gdańskiego. Ekonomika Transportu Lądowego, 2014, 51 Modelowanie procesów i systemów logistycznych, cz. XIII: 49-60.
11. Jelonek, D.: Rola klienta w rozwoju organizacji kreatywnej. Studia Ekonomiczne/Uniwersytet Ekonomiczny w Katowicach 113 (2012): 175-184.
12. Skowron-Grabowska, B.: Business Models in Transport Services. "Przegląd Organizacji" 1/2014: 35-39.
13. Pisz, I., Sęk, T., Zielecki W.: Logistyka w przedsiębiorstwie. Polskie Wydawnictwo Ekonomiczne, 2013.
14. Dyczkowska, J.: Logistyka zaopatrzenia i produkcji – wpływ na logistykę dystrybucji. Prace Naukowe Politechniki Warszawskiej, Transport, 2012, 84: 19-28.
15. Ciesielski, M.: Definicje i zakresy pojęć logistyki oraz sieci dostaw. „Gospodarka Materiałowa i Logistyka", 2011, 5: 2-4.
16. Wannenwetsch, H.: Integrierte Materialwirtschaft, Logistik und Beschaffung. „Springer-Verlag", 2014.
17. Dehler, M.: Entwicklungsstand der Logistik: Messung – Determinanten – Erfolgswirkungen. Vol. 1. Springer-Verlag, 2013.
18. Nowakowska-Grunt, J.: Strategie przedsiębiorstw na rynku usług logistycznych w Polsce i Europie. Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu 235 (2011): 291-300.

Primary Paper Section: A

Secondary Paper Section: AE