

# Logistics impact on business management and firm competitiveness – 15 years of experience

Rafal Matwiejczuk

University of Opole, Institute of Economics and Finance, Chair of Logistics and Strategic Management, 46a Ozimska St., 45-058 Opole, Poland, EU, rafal.matwiejczuk@uni.opole.pl

**Keywords:** logistics, logistics concept, business management, competitive advantage, firm competitiveness.

**Abstract:** Logistics plays a very significant role in contemporary management. The aim of the article is to present the results of the research regarding the impact of logistics on business management and the overall firm competitiveness. The research started in 2009 and was conducted in the Chair of Logistics and Strategic Management at University of Opole, Poland, EU. The most important research findings show that logistics concept, logistics capacities (i.e. logistics resources, logistics capabilities, logistics competences) and logistics strategies have significant impact on business management and the overall firm competitiveness. The most distinctive characteristic of firm competitiveness is its competitive advantage. The pillars of the firm competitive advantage creation as well as the overall firm competitiveness building and strengthening are the market outcomes as well as economic outcomes achieved by the firm. Thanks to these outcomes firms are able to reach the desired financial performance and market position compared to the competitors. The research results were presented based on two projects named: (1) Logistics Determinants of Business Management, carried out in the Chair of Logistics and Strategic Management in years 2009-2011, and (2) Logistics Competences Affecting Business Competitive Advantage Creation, carried out in this chair in years 2012-2014. Several detailed issues, in particular the impact of logistics resources as well as logistics capabilities on business management as well as the overall firm competitiveness, have been the topic of the further, in-depth research carried out in the abovementioned chair in the next years.

## 1 Introduction

The development of logistics can be observed within the worldwide literature as well as business practice since the mid-20th century. The most important outcome of the logistics development is growing significance of logistics especially in the practice of business management [1-7]. It concerns both the changes in the internal conditions of business management as well as the changes in the external conditions of firm activities. A very special place and role is assigned to the logistics concept.

Logistics, whose inherent feature is the integration of flows and processes, plays a very important role in contemporary business management. Logistics as the materials, goods and information flow management concept affects the efficiency, effectiveness, success and the overall performance of a firm, as well as the building and strengthening the competitive advantage and the overall competitiveness of a firm.

The most significant symptoms of firm success are both market as well as economic outcomes reached by the firm. These outcomes are also the basis for creating sustainable, long-term firm competitive advantage and, as a final result, the overall firm competitiveness.

The basic condition to achieve market outcomes (e.g. customer satisfaction, customer loyalty, market share) as well as economic outcomes (e.g. profit, profitability, return on invested capital) by a firm is the proper identification and use of the firm's most important strategic capacities comprising: (1) resources, (2) capabilities, and (3) competences. In striving to achieve the abovementioned

outcomes a very important role is also played by the firm strategy.

The aim of the article is to present the results of the research concerning logistics impact on business management and firm competitiveness conducted in Chair of Logistics and Strategic Management at University of Opole, Poland, EU. The research started fifteen years ago, in 2009 within the project named *Logistics Determinants of Business Management*, carried out in years 2009-2011. The research results concerned primarily the impact of the logistics (in particular logistics concept) and its instruments, especially logistics strategies, on the overall business management. The next stage of the research was the second project named *Logistics Competences Affecting Business Competitive Advantage Creation* carried out in years 2012-2014, concerning the impact of logistics competences on the firm competitive advantage creation. In the next years the above issues were expanded, including the influence of logistics resources as well as logistics capabilities on business management as well as the overall firm competitiveness.

## 2 Literature review

### 2.1 Logistics concept and its impact on business management and firm competitiveness

In the development of logistics, especially in the recent years, there is a very significant shift from logistics understood as the transformation of tasks and activities in the field of the flow of goods, towards logistics seen as a holistic, integrated concept concerning the materials,

goods and information flow management within the firm and the entire supply chain (supply network).

In general, the concept of logistics means a decision-making model comprising four basic parts: (1) strategic analysis, (2) logistics goals, (3) logistics strategies, and (4) logistics tools [8].

The concept of logistics has a multidimensional and often very significant impact on the business management system as well as its parts (subsystems). During the last several years logistics is more and more often understood and conducted as one of the most significant, efficient and effective business management tools that allow firms to reach success and create their long-term competitive advantage. Both, such a success as well as competitive advantage are the pillars of widely understood firm competitiveness.

Logistics understood as the materials, goods and information flow management concept, and consequently logistics management, can be considered in two basic dimensions: strategic and operational [9].

Within the strategic dimension logistics is perceived first of all as a business management concept. As a result, from that point of view logistics management plays an equally important role at the highest levels of business management comparing to other functional areas like marketing or finance. Within the strategic dimension logistics is also implemented as a cross-sectional function of the firm in relation to the basic areas of flows, i.e. supply/purchases, production and distribution/sales. Moreover, together with research and development (R&D), supply/purchases, production and distribution/sales, logistics as a cross-sectional function determines the framework conditions for shaping and forming logistics systems and processes.

In turn, within the operational dimension logistics often plays a subordinate role for the highest levels of business management and is not implemented as a cross-sectional function comparing to marketing or finance. Individual logistics systems and processes are then formed and shaped separately in the case of R&D, supply/purchases, production and distribution/sales [9].

The most significant requirement for the concept of logistics understood as the materials, goods and information flow management is the proper and systemic integration of logistics and logistics management with the overall and holistic logic as well as the entire business management system. This is already manifested in the definition of the firm (corporate) mission, which concerns all stages of the logistics management process, in particular the stage of strategic analysis of logistics and the stage of strategic logistics planning.

The first stage of the logistics management process, i.e. strategic analysis of logistics, serves primarily analytical, diagnostic and forecasting functions. The most significant role is assigned to the analysis of the logistics system of a firm and its parts (subsystems), taking into considerations trends and circumstances concerning the environment of a

firm, as well as the strategic firm capacities comprising resources, capabilities, and competences.

The most significant outcome of the logistics strategic analysis is a comprehensive, systemic and strategic concept of logistics. Based on the assumed logistics goals, it leads to the development of logistics strategies. Simultaneously, both, logistics goals and logistics strategies should be consistent and integrated with the overall firm goals and the overall firm strategy, as well as with the long-term directions of the firm (corporate) development.

The strategic logistics concept is the pillar for specifying further management decisions as well as processes and activities. This is primarily related to the formulation of the operational logistics goals, as well as the selection and use of logistics tools referred to as logistics-mix.

The last stage of the logistics management, related to the implementation of logistics operational plans and programs, includes organizational and implementation solutions, as well as control processes and activities. The most important role is assigned to logistics controlling. Logistics controlling has both diagnostic and prognostic functions. It is closely related to the arrangements adopted at the planning stage and allows for the assessment of the implementation of the assumed goals.

## ***2.2 Logistics resources affecting firm competitiveness***

Logistics resources are the first group of the firm strategic capacities affecting business management and the broadly understood competitiveness of the firm.

Within the resource-based theory (RBT) of the firm it is assumed that gaining a long-term, sustainable competitive advantage by a firm depends, among others, on the ability for using resources to achieve the assumed goals. According to the assumptions of this theory, resources are understood as tangible and intangible assets used to carry out tasks that result in achieving the assumed goals. However, not all resources are of an equal importance in firms' efforts to gain a long-term, sustainable competitive advantage. Resources of a particular importance in building and strengthening of the firm competitive advantage are referred to as key resources. According to J. Barney, key resources can be considered when they meet the following criteria (the so-called VRIN criteria): (1) they are valuable, (2) they are rare, (3) they are difficult to copy by competitors, and (4) they have no substitutes [10].

Appropriate involvement of the firm resources in achieving the firm goals is a basis for achieving the firm long-term competitive advantage. Among the resources that can significantly contribute to building such an advantage as well as widely understood firm competitiveness an important role is assigned to logistics resources.

Permanently growing importance of logistics resources results from – among others – the fact that in recent years logistics itself as a concept of materials, goods and information flow management is increasingly perceived as a systemic and holistic factor affecting the overall firm competitiveness. Logistics understood in such a way is also perceived as the basis for achieving firm success and building a sustainable, long-term competitive advantage by a firm. At the same time, logistics strategy and logistics-mix are used as effective and efficient tools for the firm competitive advantage creation.

Logistics as the capacity of the firm competitiveness concerns the creation of the value systems more effectively and efficiently than competitors. It can be said that strategic management of logistics resources involves their use in such a way that the firm gains a competitive advantage by offering a unique value for the customer, which is significantly different from the values delivered and served by the market rivals.

There are three basic strategic options in logistics resources management: (1) development of the own firm logistics resources through investments in logistics systems, (2) acquiring logistics resources by taking them over from the competitors, (3) development of logistics resources in cooperation with business partners within the supply chain or even supply network.

The first of the above-mentioned solutions often involves the need to incur quite significant expenditures to expand the firm logistics resources base. It is important to select the types of resources that are most desirable to carry out the designated tasks. The basic selection criterion is the assessment regarding the efficiency and effectiveness of the use of logistics resources within the implementation of tasks.

The second solution also requires incurring the necessary expenditures, i.e. taking over resources from the competitors. The main issue, apart from the difficulties of acquiring resources, may be the adequacy assessment of these resources in relation to the tasks that the firm should perform. Logistics resources successfully used to carry out the designated tasks by one firm do not have to meet this criterion in the case of another firm.

The third solution to expand the logistics resources base is to develop it jointly with the market partners. It is then possible to determine not only the ways in which resources are involved in the implementation of tasks by the firm, but also the ways in which they can be used, taking into account the capabilities of suppliers, intermediaries, and other partners in the supply chain (network).

### ***2.3 Logistics capabilities affecting firm competitiveness***

Logistics capabilities are the second group of the firm strategic capacities affecting business management and firm competitiveness.

The firm logistics resources are supposed to be involved in several goals concerning – among others –

offering logistics services accordingly to the customers' expectations, or ensuring the level of logistical service demanded by the customers. On the road to achieve such goals firm have to develop the effective and efficient logistics capabilities, enabling customers to be offered the right goods, at the right place and time, in the right quantity and quality, at the right costs and with the right information.

Logistics capabilities are the “tools” for the identification of customer preferences and the presentation of the market offer solving the customers' problems and adapting logistics services to customers' preferences and expectations, as well as ensuring the level of service required by customers, delivering products on terms that are adequate from the customers' point of view, etc.

The firm capabilities are a “set” of its individual abilities used to perform activities and/or tasks. The basic feature (determinant) of the firm capabilities is the orientation leading to achieving expected (i.e. planned, not e.g. accidental) outcomes, obtained in purposeful as well as coordinated ways of actively engaged resources [11].

The firm capabilities are oriented towards the effective and efficient use of the resources in achieving the planned goals [12,13]. The active nature of resource involvement means that they are assigned to specific tasks in the implementation of which they may be useful. The effectiveness and efficiency of the use of the resources concern the creation of the products and services offer for customers (customer value creation) and reaching the planned market and economic outcomes by the firm. This, in turn, may constitute a premise for achieving success as well as competitive advantage by the firm, and – as a result – the creation and strengthening the firm competitiveness.

Logistics capabilities can be defined and developed in two major areas: (1) the real area, and (2) the regulatory area. Capabilities related to the real area are related to processes such as transport, warehousing, storage, transshipment, manipulation, packaging, commissioning, packaging and labeling. In turn, capabilities related to the regulatory area concern processes related to the flow management of goods and information within the firm as well as the entire supply chain.

Logistics capabilities comprise two major types: (1) operational capabilities and (2) dynamic capabilities. Operational capabilities concerning logistics area include several routine activities related to the day-to-day implementation of logistics tasks, usually related to short-term guidelines for the firm activities such as “registration” of the amount and structure of revenues from the provided logistics services, assessment of the size and structure of inventories held, or assessment of the effectiveness and efficiency of current warehouses use. So it may be said, that logistics operational capabilities allow the firm to use current success capacities, especially the firm resources.

In turn, dynamic logistics capabilities are oriented not so much towards the use of the firm existing success capacities, but rather towards their long-term forming,

shaping and development. These capabilities are therefore a certain “carrier” of changes taking place both in business management systems and on the market. Dynamic logistics capabilities make possible more effective and efficient – compared to operational capabilities – use of the firm logistics resources by creating their new, innovative configurations, allowing for better adaptation to changes taking place on the market, and leading to building and strengthening the overall firm competitiveness.

#### **2.4 Logistics competences affecting firm competitiveness**

Logistics competences are the third group of the firm strategic capacities affecting business management and the competitiveness of the firm.

Basically, the issue of competences can be considered in two main approaches: (1) in the managerial approach, and (2) in the personal approach.

Within the managerial approach competences include bundles (compositions) of capabilities enabling the use of resources owned by the firm. The condition for using the opportunities inherent in resources is the development of appropriate capabilities of the firm. We can then talk about the resources and capabilities integration and coordination in the development of the firm competences.

In turn, within the personal approach competences are related to the human characteristics thanks to which people can effectively and efficiently perform the tasks entrusted to them. The topic of personal competences has been considered within the area of human resources management for many years, where it has a number of modern and advanced concepts and extensive models [14,15].

Competences, especially the distinctive competences introduced by P. Selznick, I. H. Ansoff and K. R. Andrews, have evolved towards significant strategic capacities of the firm, playing the key role in the value chain and influencing the forming and shaping the firm competitiveness, as well as building its competitive advantage [16].

It can be said that competences are the compositions of the long-term capabilities to use resources engaged in the firm goals and tasks implementation, leading to the expected market and economic outcomes achievement by the firm, and – as a result – to the forming and strengthening the overall firm competitiveness. The basis for the competences development is the integration and coordination of the firm resources and capabilities, taking also into account the significant type of the firm resources that is knowledge.

Within the firm competences the very significant role is assigned to the logistics competences. In addition to logistics resources and logistics capabilities, logistics competences are the third type of strategic firm capacities related to the logistics area that affect the firm competitive advantage as well as the overall firm competitiveness [17].

According to D. Bowersox and P. Daugherty, firms highlighting the strategic aspects of logistics, implementing the strategic logistics management concept within both forming and shaping their business models as well as formulating and developing business strategies, are mainly looking for the opportunities conditioning the effective and efficient use of the unique (distinctive) competences related to the area of logistics [18].

The most significant condition for the effective and efficient development of logistics competences is the prior identification of the appropriate logistics capabilities, based on logistics resources [19]. Thus, logistics competences are embedded and underpinned on the logistics resources owned by the firm and the logistics capabilities to use such the resources effectively and efficiently.

Logistics competences are the compositions of the long-term logistics capabilities conditioning the use of the logistics resources, actively involved in the implementation of the set goals and tasks, leading to the expected market and economic outcomes achievement by the firm, which are the basis for reaching business success and firm competitive advantage. The logistics competences are developed as a result of the integration and coordination of logistics resources and logistics capabilities. Moreover, knowledge, perceived as a special type of resources, related to logistics processes and activities carried out by the firm, plays a crucial role in the formation and development of logistics competences.

A significant complement to the logistics capacities influencing business management and the overall competitiveness of a firm is logistics strategy.

#### **2.5 Logistics strategies and their impact on business management and firm competitiveness**

The comprehensive involvement of logistics resources, capabilities and competences in firms’ efforts to build a competitive advantage and strengthen the overall firm competitiveness requires the development of the proper strategies that could take into account the logistics systems capabilities in meeting the needs and wants of customers as well as ensuring the effective and efficient level and structure of costs. Trying to achieve the most efficient relations between the results obtained from the use of resources and the costs incurred, it is necessary to effectively integrate the logistics strategy within the overall corporate strategy. In a situation where logistics, especially logistics capacities play a key role in building a firm competitive advantage and its overall competitiveness, logistics may constitute the core of the strategy influencing achieving and sustaining this advantage, as well as strengthening the overall firm competitiveness. It can be said that then a specific transformation takes place, consisting in a transition from perceiving logistics as a functional strategy to treating logistics as a key component of the overall strategy of a firm.



One of the first studies on logistics strategies and their impact on business management as well as the firm competitiveness showed that logistics strategy is a functional strategy, being the composition of the long-term, internally and externally coordinated decisions as well as activities within the areas of location, transport, storage, inventory control and customer service, leading to achieve the competitive advantage by a firm [20]. Despite the logistics strategy often being assigned to the group of functional strategies, it was already perceived as an important factor affecting the firm competitive advantage creation, as well as building and strengthening the overall firm competitiveness.

The significance of logistics strategies in building and strengthening firm competitive advantage, as well as broadly understood firm competitiveness has been confirmed by the results of many world-wide studies. One of the most important and innovative research was the studies conducted by D. Bowersox and P. Daugherty, who defined three basic orientations which are the pillars for the logistics strategy development, based on the resources and capabilities of a firm. These orientations are [21]: (1) process orientation, (2) market orientation and (3) information orientation.

Process orientation assumes that all logistics processes and activities are the parts of the value added creation system. The logistics strategy plays a crucial role in firm competitiveness building and strengthening, mostly by the concentration on the effectiveness and efficiency of logistics processes concerning purchasing, manufacturing, delivery scheduling and physical distribution.

In turn, in market orientation the coordinated implementation of all logistics processes as well as logistics activities in the area of physical distribution is of a key importance. It enables achieving the synergic effects by a firm. The most effective logistics strategy conditioning the overall firm competitiveness building and strengthening is the strategy embedded on the customer service.

Finally, the information orientation is based on the integration and coordination of the logistics processes as well as logistics activities within the entire supply chain. Such an orientation requires the wide and deep cooperation between supply chain partners, which is based on the integrated goods and information flow management, conditioning building and strengthening the overall firm competitiveness.

The growing significance of logistics strategies in building and strengthening widely understood competitiveness of a firm emphasizes G. Persson [22]. In his opinion, logistics plays the crucial role in the process of the business strategies formation and development, taking into account first of all the strategic aspects of logistics concept concerning logistics systems as well as logistics processes and activities.

M. Christopher also draws attention to the constantly growing importance of logistics, according to logistics

strategies as well as logistics tools playing the crucial role in achieving business competitive advantage by a firm [23]. The most significant outcomes performed by the firms and supply chains, conditioning the creation of the competitive advantage should be related both to costs as well as customer service.

Logistics strategies which are the pillars of the firm competitive advantage building and strengthening are often classified taking into account the criterion of competition and competitiveness. Based on this criterion, K. Rao, J. Steenger and R. Young distinguish three basic logistics strategies: (1) strategy for cost minimization, (2) strategy for additional value maximization, and (3) strategy for achieving flexibility and control of the logistics system [18]. The abovementioned logistics strategies primarily concern the most significant development directions within the strategic management of business logistics. In particular, it relates to the identification of the main sources of the firm competitive advantage achieved thanks to logistics.

Logistics strategies are also classified taking into consideration the type of logistics concept implemented in a firm. Taking into account the challenges regarding the market environment, as well as the long-term firms' goals regarding the performed market and economic outcomes, two main logistics strategies can be defined: (1) logistics strategies concerning the entire supply chain management, and (2) logistics strategies concerning time compression [24]. The abovementioned logistics strategies should widely and deeply consider the set firm goals, as well as the firm strategic capacities comprising resources, capabilities and competences. Such logistics strategies go beyond the classical functional framework, playing the significant role in strategic management decisions related to the building and strengthening of the firm competitive advantage as well as the overall competitiveness of the firm.

### 3 Methodology

The growing significance of logistics concerns mainly its crucial influence on changes in the entire firm management system as well as on the overall firm competitiveness. These changes contribute first of all to the more effective and efficient market outcomes as well as economic outcomes achieved by the firms. As it was mentioned above, logistics is perceived as a comprehensive factor affecting the entire business management system and its subsystems, conditioning and stimulating several significant changes within the specific business management subsystems, including planning, organizing, motivating and controlling. Such changes also significantly affect the key parts of business management concept, including strategic analysis, goals, strategies and tools, as well as business management levels, i.e. normative level, strategic level, tactical level and operational level.

The key importance within the research concerning logistics impact on business management and firm competitiveness is assigned to the logistics determinants of business management.

Logistics determinants of business management affect not only the expected changes concerning the entire business management system and its subsystems, but influence on the overall firm competitiveness as well. These determinants fulfill the following criteria [8]:

- 1) They influence the changes of forms, parameters, features and/or structure of “object” on which they have an impact,
- 2) They form and determine the expected change directions of the “object” and its parameters, features and structure,
- 3) They generate the expected effects of changes, i.e. market and economic outcomes.

The scope and symptoms of logistics determinants impact on business management system were the subject of the research project named *Logistics Determinants of Business Management*, conducted in years 2009-2011 by the Chair of Logistics and Strategic Management at University of Opole, Poland, EU. The aim of the abovementioned research project was to identify the most important multidimensional relationships between logistics and business management system, as well as the possibilities of expected market and economic outcomes achievement by a firm, concerning the overall firm competitiveness. As a result the following logistics determinants of business management have been identified [8]:

- 1) Flow orientation,
- 2) Logistics and supply chain competences,
- 3) Logistics strategies,
- 4) Logistics management tools,
- 5) Logistics planning,
- 6) Organizational solutions related to logistics and supply chain management,
- 7) Logistics controlling.

Within this research project it was assumed that logistics determinants of business management are the specific factors related to logistics and supply chain management areas, affecting business management system and its subsystems, as well as providing the opportunities for the expected market and economic outcomes achievement by the firm.

Logistics determinants of business management are specific factors affecting the planned changes occurring in business management system as well as in the overall firm competitiveness. Such changes concern first of all the transformation within the specific business management subsystems including planning, organizing, etc. The transformation is related to the shift from up-to-now solutions to solutions conditioning the achievement of the expected market and economic outcomes. Apart from this, such a transformation also concerns the overall firm

competitiveness, including firm competitive advantage as well as firm competitive position on the market.

#### **4 Results and discussion**

Logistics determinants of business management are of a key importance within the research carried out by the Chair of Logistics and Strategic Management at University of Opole, Poland, EU, related to the impact of logistics on business management and the competitiveness of the firm. The basis of the research was the concept of logistics and the identification of its most important characteristics. The concept of logistics is primarily related to the flow orientation in business management and the degree of its implementation.

Based on the logistics determinants of business management, the most important logistics capacities influencing business management and the competitiveness of the firm were defined. Among these capacities the most important role is assigned to logistics resources, logistics capabilities and logistics competences. At the same time, the condition for the proper use of logistics capacities is the identification and development of appropriate logistics strategies, allowing the achievement of planned goals and obtaining the expected market and economic outcomes, which are the basis for the firm success and its competitive advantage, as well as for building and strengthening the overall competitiveness of a firm.

P. Daugherty, H. Chen, D. Mattioda and S. Grawe point that logistics resources can be treated as the firm strengths, used in the development of competitive strategies that determine the achievement of a long-term, sustainable competitive advantage of a firm [25]. Key logistics resources are the significant parts of the logistics systems that are of the greater value compared to other resources. This value is manifested not only in the level of expenditures that must be incurred on their acquisition and/or development, but also in the level of logistics services that can be offered. As a result, the key logistics resources may constitute the core of the firm strategy related to forming, shaping and developing a sustainable, long-term competitive advantage on the market, and – as a final result – the overall firm competitiveness.

In addition to logistics resources, logistics capabilities play a key role in building and strengthening the firm competitiveness. The original concept of logistics capabilities embedded on the firm competitiveness capacities has been proposed by Mentzer et al. [26]. Within this concept it was assumed that the basis for the expected market and economic outcomes achievement by the firm is the active, effective and efficient involvement as well as use of the logistics resources and logistics capabilities in building and strengthening the firm competitiveness. As a result, logistics resources as well as logistics capabilities affect the changes within the entire business management system, as well as leads to the expected market outcomes and economic outcomes achievement by the firm.

Mentzer et al. defined three groups of logistics capabilities concerning the firm competitiveness building and strengthening [26]:

- 1) Capabilities concerning the firm competitiveness building and strengthening based on customer needs, wants, preferences, and expectations – these capabilities are referred to as demand-oriented capabilities,
- 2) Capabilities concerning the firm competitiveness building and strengthening based on costs, referred to as supply-oriented capabilities,
- 3) Capabilities concerning information flow management.

The demand-oriented capabilities relate to the customer orientation. These capabilities are also named and/or described as customer-centric capabilities, customer value adding capabilities, or customer integration capabilities. This group of logistics capabilities allow to acquire customers and meet or even exceed their expectations, offering them unique values compared to the competition. These capabilities are also characterized by multidimensionality concerning customer service capabilities as well as logistics quality shaping capabilities, and long-term perspective related to pre-sales, sales and after-sales service capabilities. As a result, demand-oriented capabilities significantly affect building and strengthening the firm competitiveness embeded on customers' needs and preferences.

In turn, supply-oriented capabilities relate to total cost minimization, being the key premise for the superior performance concerning logistics systems, processes and activities. This group of logistics capabilities contribute to defining methods allowing for solving specific customer problems. It requires the effective and efficient implementation of such the solutions as just-in-time deliveries, quick response to customer needs, or vendor managed inventories. Supply-oriented logistics capabilities concern the optimization of all activities that ensure that logistics processes carried out within the entire supply chains lead to the minimization of total costs, as well as to building and strengthening the firm competitiveness based on costs.

Finally, the information flow management capabilities are related to the area of information technology, including the exchange and sharing of the information. These capabilities contribute to balancing demand and supply within the supply chain nodes and, as a result, to improving the processes of goods exchange. Information technology plays a crucial role in logistics capabilities development as well as determines the information flow effectiveness and efficiency both within the firm and the entire supply chain. Logistics capabilities concerning information flow management are very often implemented together with capabilities related to materials and goods flow management.

Apart from logistics resources and logistics capabilities, also logistics competences play a very significant role in building firm competitive advantage and strengthening the overall competitiveness of the firm. Within the research carried out by the Chair of Logistics and Strategic Management at University of Opole, Poland, EU, a significant role is assigned to the original concept of logistics competences, being the result of the research project named *Logistics Competences Affecting Business Competitive Advantage Creation*, conducted in years 2012-2014, related to the impact of logistics competences on business competitive advantage creation as well as the overall firm competitiveness.

Within the above research project three main topics were examined [8]:

- 1) Competencies of logistics managers concerning human resources (people) responsible for the logistics objectives reaching, as well as for the logistics tasks implementation,
- 2) Logistics competences related to logistics goals as well as logistics strategies positioning within firm and businesses' goals and strategies,
- 3) Logistics competences concerning the cooperation and integration with all partners in supply chain, in particular with suppliers, distribution companies, wholesalers, retailers, customers, etc.

The most significant result of the abovementioned research is the original model of firm success capacities and symptoms, comprising a very important role of logistics competences affecting the firm competitive advantage creation and the overall firm competitiveness strengthening. This model comprises four groups of the key (superior) logistics competences [8]:

- 1) Competences concerning the logistics concept embedding within business management, particularly in relation to goals, strategies, tactical programs and operational tasks, as well as to planning and organizational structure development – these competences are referred to as “logistics positioning and integration within business management”,
- 2) Competences concerning the integration perceived as an inherent feature of the logistics concept, which can apply to processes carried out within the entire value chain as well as within the firm – these competences are referred to as “vertical and internal integration”,
- 3) Competences concerning: (a) the adaptability and flexibility regarding relationships with suppliers, distribution companies and customers, (b) the coordination of materials and goods flow, (c) the logistics processes and activities carried out by the firm, as well as (d) the execution of customer orders – these competences are referred to as “flow management”,

- 4) Competences concerning ERP systems, as well as EDI and RFID technologies – these competences are referred to as “information systems and technologies”.

Additionally, in the area of logistics competences named “vertical and internal integration” the following competences may be specified [8]:

- 1) Integration with suppliers,
- 2) Integration with distribution companies,
- 3) Integration with customers,
- 4) Internal integration (integration within the firm).

In turn, in the area of logistics competences named “flow management”, the following competences may be specified [8]:

- 1) Agility, including adaptability and flexibility,
- 2) Flow leanness and transparency,
- 3) Logistics processes,
- 4) Order management.

Research concerning the concept of logistics as well as the key logistics capacities (resources, capabilities and competences), should be supplemented with the research on logistics strategies, linking all the above logistics topics related to the firm competitiveness building and strengthening.

The results of the several research carried out in world as well as in Poland point that logistics strategies are very often supposed to go beyond the functional level, having an important share in the process of business strategies formulation and implementation. Logistics strategies are also a significant part of the comprehensive, global strategies of the firm (corporate strategies), strongly affecting a sustainable, long-term competitive advantage of the firm [27,28].

Strategic aspects of logistics concerning the logistics strategy influence on the expected market and economic outcomes achievement by the firm, and – as a result – on the creation of the firm competitive advantage are also presented by A. Stainer. As he points, the logistics strategy is very strongly related to the firm environment, as well as to the measures and indicators presenting the achievement of the expected market and economic outcomes by the firm [29]. Such a comprehensive look at the logistics strategy not only goes significantly beyond the classical functional approach concerning logistics strategy, but also shows that logistics strategy can be a key part of the business strategy and even the overall, logistically oriented strategy of the firm.

## 5 Conclusions

The aim of the article was to present the research results related to logistics impact on business management and firm competitiveness carried out in Chair of Logistics and Strategic Management at University of Opole, Poland, EU. The research outcomes confirmed a very significant role as

well as the growing importance of the logistics concept, logistics capacities (resources, capabilities and competences), and logistics strategies in building and strengthening the firm competitiveness. Within two projects: (1) *Logistics Determinants of Business Management*, and (2) *Logistics Competences Affecting Business Competitive Advantage Creation* it was examined that logistics not only strongly influences business management system and its subsystems, but also significantly affects the overall firm competitiveness.

The research results also highlighted the crucial importance of the strategic aspects of logistics. D. Bowersox and P. Daugherty point that firms which particularly value the strategic aspects of logistics, implementing the concept of the strategic logistics management in forming and shaping their business models as well as formulating and developing business strategies, are primarily looking for opportunities to use unique (distinctive) competences related to the area of logistics [18]. This is why logistics competences play a crucial role in contemporary business management, and – together with logistics resources and logistics capabilities – create the “capacity base” for building and strengthening the firm competitiveness.

The possibilities for the creation of the firm competitive advantage as well as firm competitiveness embedded on widely understood logistics, including in particular logistics strategies, also points J. Heskett [30]. In his opinion, the significantly growing role of logistics, especially the concept of logistics in business management, makes the logistics strategy more and more important in the formulation and development of the overall firm (corporate) strategy. A logistics strategy perceived in such a way is more and more often defined as a “logistically oriented firm strategy”, influencing the building and sustaining of the firm competitive advantage and – as a result – strengthening the overall competitiveness of the firm, taking into account the capacities comprising logistics resources, logistics capabilities and logistics competences.

Nowadays, logistics concept, logistics capacities and logistics strategies became not only the most important pillars of widely understood firm competitiveness, but more and more significant drivers for the development of the mentioned above modern business models in logistics. Such models play a key role in contemporary logistics management, influencing the entire business management system and its subsystems, as well as leading to strengthening widely understood firm competitiveness.

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#### Review process

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