VALUE ADDED IN A LOGISTICS CENTER

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Abstract: In the paper, the author has shown possibilities of creating added value in logistics centre from the theoretical point of view. Value creation in the supply literature commonly builds on the added value models One of such possibilities is preparing hierarchical model of creating added value through prediction of customers' and enterprises' in supply chain expectations. Another possibility pointed in the paper is creation of added value due to building special department of transportation and storage control in the logistics centre. Managing supply relationships is a strategic task that can contribute to the competitiveness and profitability of both logistics centre and entire chains.

Keywords: logistics centre, value added, technology.

Introduction

Present –day business seeks new solutions or ways of developing business organizations that help obtain competing advantage. One such an organization is a logistics centre functioning in collaboration with various enterprises. The way a logistics centre develops competing advantage is creation of a new added value.

Conception of a logistics centre

In literature logistics centers are defined in various ways. The definition offered by I. Fechner emphasizes that "a logistics centre is a spatial object functioning with some infrastructure and a form of organization, where logistic services are performed related to receiving, storing, distributing and delivery of goods, together with accompanying services performed for the consignor and consignee as business subjects [7.]. E. Frazelle, on the other hand, considers reloading and storing as the basic mission of a logistic centre [8.]. Performing the mission is possible only thanks to exploitation of adequate reloading and storing systems, supported by engaging appropriate personnel and financial resources.
Following I. Fechner it is possible to distinguish the following areas in the logistics system [6.]:

- railway container terminal,
- storing areas,
- warehouses,
- office areas.

An adequate layout of the areas adds to an optimal functioning of a logistics centre. The complementary services are those that are not directly related to goods transportation and contain [1.]:

1. Service services such as renting office floor, warranting services, custom-housing services, goods identification and marking, counseling or route planning;
2. Information services, among which there usually are data transmission services and other IT offers or counseling in the field;
3. Financial services, among which there are possibilities of crediting, insuring, book-keeping, logistic controlling and payment controlling services.

Complementary services add to the attraction of a logistics centre also due to the fact that most complex offers are being gathered on a relatively small area; hence the business subjects making use of the possibilities are being offered a new attractive value.
A logistics centre should offer as many of the complementary services as possible.

Creating value added

In literature value and value added are defined as follows [16.]:

2. Value is a quality of a thing, which to some extent is either desired or useful or important;
3. Value is a just and adequate equivalent in money or some other equivalents for something sold or exchanged.

Creating value added in a logistics centre is possible through offering a client additional logistics services or through foreseeing needs of collaborating clients or enterprises and satisfying their most verified expectancies. The consequence of gaining additional value is obtaining higher profits in the logistics centre and higher competing position on the market.
Logistics centers generally have become business organization that due to the complexity of offered services create added economic value. The value is … "the difference between the price the receiver is ready to pay for an extended product and the manufacturing costs plus cost of delivering for use" [12.]. The value can be influenced by operations leading to an increase of the products' functional parameters. Services are generally extended (enriched) products in the logistics centers. When an enriched service is performed an additional new value is created on the basis of consignor-consignee relationship in the centre. The complexity of the services plays an important role together with the integration of their management in the centre. The complexity is basically determined by the nature of the basic processes; additionally the services may engage information flows, knowledge management and coordination between the logistics central office and the collaborating partners. Talking about management integration in the centre we mean integration of key processes related to given business strategy and competing environment. Figure 1. gives a presentation of the process of obtaining additional value in a logistics center.
Looking at how added value is created in a logistics center we can observe that the object is an element of a large system that of the supply chain. That system allows for placing the problem the new added value in a logistics center in the perspective of obtaining a competing advantage on the market. The center is part of a system that allows to service not only its own clients but also the clients collaborating in the supply chain. To design a logistics center we need to take decisions relative to many problems, especially - localization of the center, ownership and functional possibilities it may perform [3.]. One should consider, when thinking of new added logistics value, also of qualified personnel, storing space that needs well laying out, adequate equipment both for transporting and storing material or products and finally a right choice of information systems.
Logistics centers are usually designed to fulfill best all element of the supply system. In the design, as shown in Figure 2. various models are contemplated.

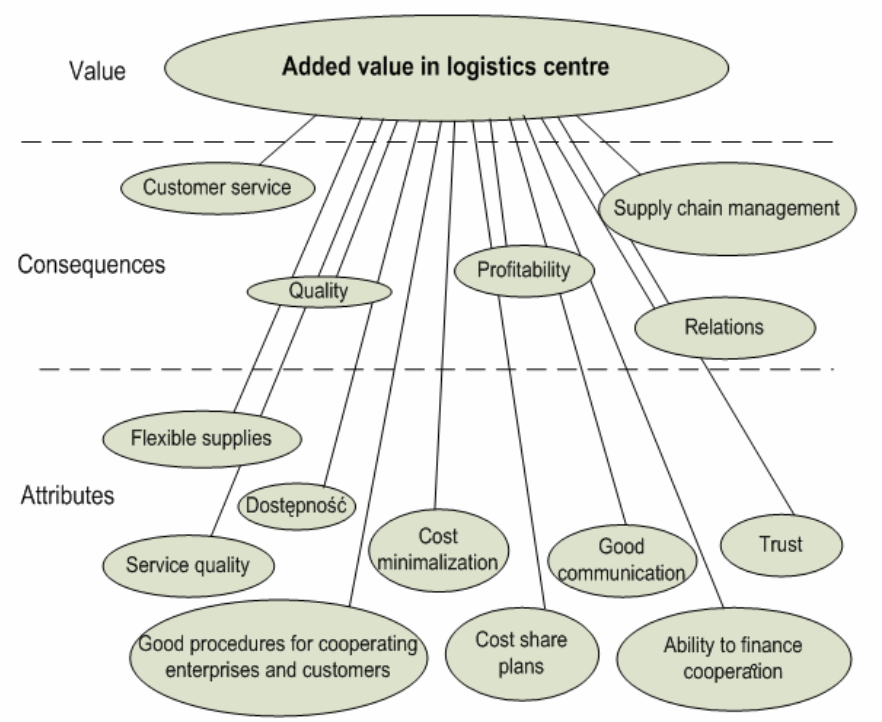

Figure 1. Consequences and attributes of creating added value in logistics centre
Source: [16.]

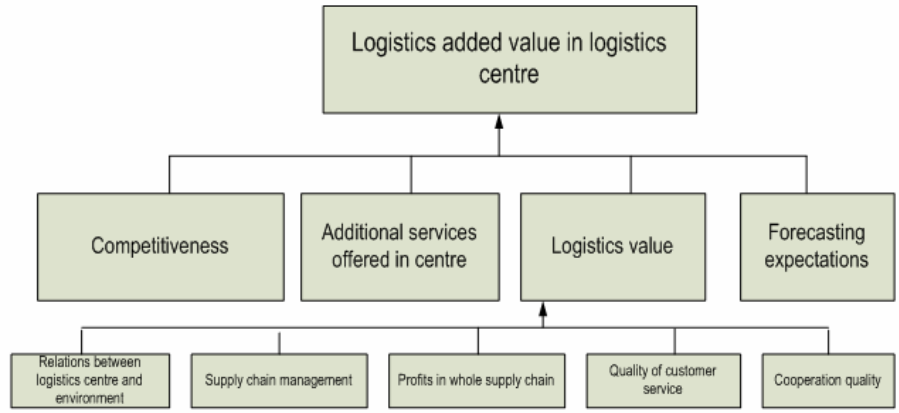

Figure 2. Added value created in logistics centre
Source: based on [16.]

Figure 2. also shows that creation of value added also possible either via offering the clients some complementary services or via foreseeing and meeting anticipated parameters of the clients' expectations. All those endeavors are ways of creating logistics values. The most important component of the logistics added value is the cooperation between the center and the collaborating enterprises; it may be influenced by various factors, among which the important one is coordination of undertaken activities. Signing elastic contracts shows the

highest quality of the cooperation [2.]. Indirect influence on the logistic value added may come from joint information sharing and joint decision-taking. It happens most often that the better the cooperation between the logistics center and the collaborating enterprises the higher the logistics added value. Disturbances in the cooperation, however, also become a different source of a logistics value because they develop new forms of cooperation. All of the components may become a basis of a logistics added value chain. The chain explains why values are created in logistics center and in business subjects collaborating with them. The chain explains how mutual dependencies, coordination and positioning in the chain influence value thanks to a harmony of their activities [10.]. Mutual dependencies influence the quality of the network of links between the center and the subject linked in the same supply value chain. Additionally standardization of service performance in the logistics center increases the effectiveness and collaboration in the chain gives the center a better understanding and offers it better possibilities of coping with the changing environment at a less cost [9.].
It should also be mentioned that creation of a new added logistic value in the logistics center may for instance increase if a special control of incoming material and incoming transport and storage services is initiated. It may look as in the diagram in Figure 3., where new value is achieved via transport to points of quality control zones catching up with materials and products storage control.

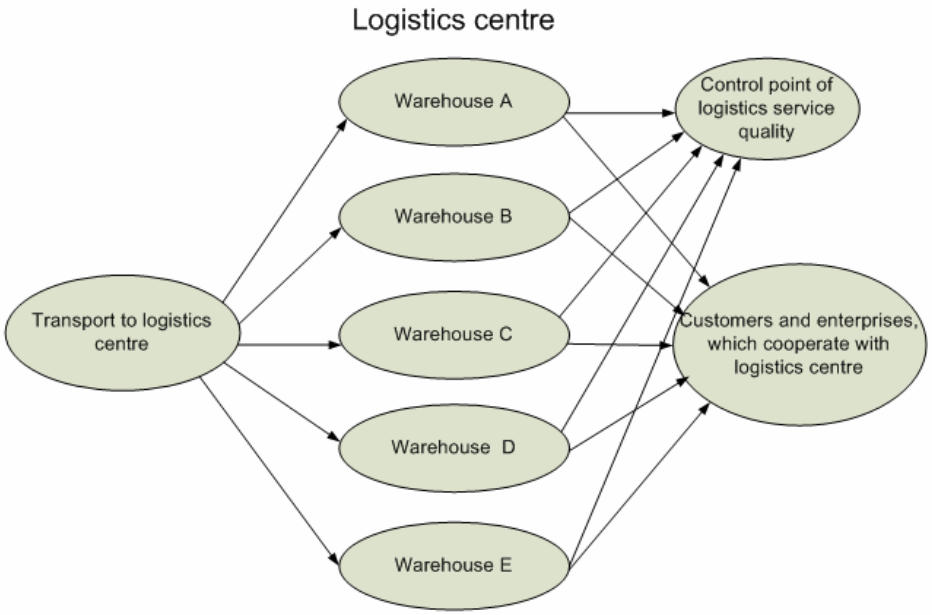

Figure 3. Achieving value through establishing point of control in logistics centre
Source: based on [4.]

Quality control points of logistics services in the center allow also to implement and monitor norms and standards. The procedure may prolong the time of service completion, which is not beneficial from the point of view of the competition, which tends to minimize the time, but it guarantees constant in time service quality. So finally the balance speaks in favor of institutionalizing quality control points in the center to promote new logistics added value.
A logistics center gains competing advantage when through operational effectiveness it performs the same service better than competition and in a way when it gains a new value for the clients [5.].

So finally a new logistics value created in the logistics center and in the whole supply chain is gained due to joint effort in collaboration and integration higher than anywhere so far.

Modern technologies in creating added value

A logistics center more and more often exploits modern technological solutions of electronic business such as e-commerce or Internet. To achieve perfection the center must build a strategy, which will allow to perform accepted assumptions. For this purpose all managers and the personnel responsible for decision-taking in the center should consider the following assumptions in their activities [11.]:

1. understanding of the environment, competition and the needs of the collaborating partners and clients;
2. good vision of a logistics center;
3. developing a business model based on value and joint culture;
4. developing a competing strategy and setting up task priorities for the center;
5. synchronization of key processes in the center and in the supply chain based on logical premises;
6. investing in modern systems and technologies;
7. convincing people about necessity of continuous process changes and supporting the changes;
8. managing the center in a most effective way.

All these components should be considered in building a business model and verified against the changing market conditions. An outstanding component that should be also mentioned is investing in the reengineering processes. All these systems and technologies are able to support the processes of creation of new logistics value. This can take place in the center itself or within the frame of the supply chain the system works. Although all these elements have an influence on new value formation two of the systems have an outstanding role; these are synchronization of the key processes in the center and investments in the information systems. Mineralization of disturbances leads to optimalization of performance in the supply chain [13.]. A detailed presentation of the influences of the infrastructure and technologies on development of added value is shown in Figure 4.

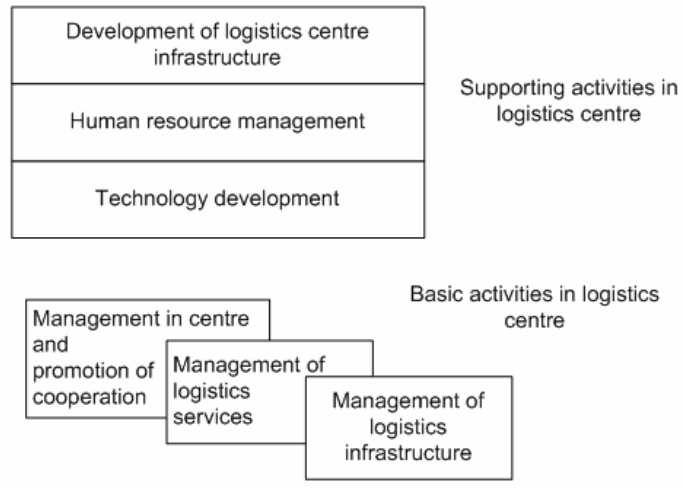

Figure 4. Creating value in the centre through management
Source: based on [10.]

Figure 4. shows how added value is formed through adequate management of logistics services and adequate technological infrastructure suitably chosen. It shows how basic processes well managed in a logistics center influence each other. The basic element - the management of logistics services has most influence on other types of managing. Additionally new added value is developed thanks to the particular processes functioning and being managed in the same supply chain. W. Paprocki and J. Piereigud add claiming that new added value in a logistics centre develops thanks to developing macroeconomic profits for the region and microeconomic profits for the individual members of the supply chain [14.].
It should be explained, however, that logistics centers gain profits from development of added value not only in the supply chain in the region but also in the closest neighborhood

Measuring value added

Evaluating added value is extremely difficult. There are not homogeneous standards. Measuring the value is a complex problem and many experts use solutions appropriate for a given project [8.].
In literature measuring added value is linked with the conception of measuring logistics quality as a percentage of perfect orders (perfect order percentage, POP) [8.]. The conception engages logistic indexes for each of logistics activities. It is accepted that logistics indexes relate mainly to customer response, transport and storing and supply management.
Another value measure indicator is the time coefficient calculated from the formula Tc = time of value adding activity /total cycle time *100% [15.]. The coefficient allows for comparing the time during which value added is developed in relation to the whole cycle of the performed service.
Another indicator helping measure value added is the economic category of value added (Economic Value Added – EVA), which allows for measuring indirectly of strategic efficiency of capital management for a given business organization [17.]. The strategy is the principal element influencing the financial outcome of the enterprise.
All those indicators belong to a group of methods frequently employed in enterprises and logistics centers. Each of them evaluates a different component of value added formation and each of them possess their own advantages and disadvantages, which determine when each is being used. Sometimes it is beneficial or mandatory to use one of them or a number of them.

Summary

Logistics centers are able to contribute to the development of a region essentially if suitable actions are undertaken. The role of the logistics center is to coordinate and manage the activities in terms of logistics service. Taking appropriate actions in this field contributes to development of value added. The choice of the most proper value measuring indicators helps evaluate the creating process of added value. The right emphasis put on right relations with the clients, and collaborating enterprises in the supply chain together with the use of modern technologies and infrastructure support the position of the logistics center in the region.

References

[1.] ABT S.: **Logistyka ponad granicami**, Biblioteka Logistyka, Poznań 2000
[2.] ARSHINDER, ARUN KANDA, S.G. DESHMUKH,: **Supply chain coordination: Perspectives, empirical studies and research directions**, International Journal of Production Economics 115 (2008) 316– 335

[3.] BAKER P.: **The design and operation of distribution centers within agile supply chains**, International Journal of Production Economics 111 (2008) 27–41
[4.] CARAMIA M., DELL'OLMO P.: **Multi-objective Management in Freight Logistics. Increasing Capacity, Service Level and Safety with Optimization Algorithms**, Springer-Verlag, London 2008
[5.] CHENG Y. H., TSA Y-L. : **Factors influencing shippers to use multiple country consolidation services in international distribution centers**, International Journal of Production Economics 122 (2009) 78–88
[6.] FECHNER I.: **Centa logistyczne, cel - realizacja- przyszłość**, Wyd. Biblioteka Logistyka, Poznań 2004
[7.] FECHNER I.: **Centra logistyczne w Europie**, artykuł z portalu www.logistyka.net.pl
[8.] FRAZELLE E.: **Supply Chain Strategy. The Logistics of Supply Chain Management**, McGraw-Hill, New York USA 2002
[9.] HOLWEG M., DISNEY S., HOLMSTROM J., SMAROS J.: **Supply Chain Collaboration: Making Sense of the Strategy Continuum**, European Management Journal Vol. 23, No. 2, 170–181, 2005
[10.] HUEMER L.: **Supply Management: Value Creation, Coordination and Positioning in Supply Relationships**, Long Range Planning 39 (2006), 133-153
[11.] KIM D.: **Process chain: A new paradigm of collaborative commerce and synchronized supply chain**, Business Horizons (2006) 49, 359—367
[12.] KRAWCZYK S.: **Rola logistyki w tworzeniu wartości**, [in:] Wybrane zagadnienia logistyki stosowanej, pr. zb. pod red. L. Bukowskiego, PAN, Warszawa 2007
[13.] NOWAKOWSKA-GRUNT J., WIŚNIEWSKA-SAŁEK A.: **The Concept of Clusters in Agile Supply Chains** [in] Tourism, Quality & Management. Challenges for Development and Sustainability. Ed. Larisa Dragolea, Janusz Grabara, Wyd. Wydz. Zarządzania Politechniki Częstochowskiej, Czestochowa 2010
[14.] PAPROCKI W., PIERIEGUD J.: **Rozwój centrów logistycznych w Polsce**, Eurologistics, nr 5/2003
[15.] PRZYBYLSKA E.: **Analiza czasowa działań jako element procedury oceny relacji współdziałających przedsiębiorstw**, [in:] Logistyka – nauka, nr 4/2009, artykuł nr 67
[16.] RUTNER S., LANGLEY C. J.: **Logistics Value: Definition, Process and Measurement**, International Journal of Logistics Management, Volume 11 nr 2/2000
[17.] WASILEWSKI M., ZABOLOTNY S.: **Sytuacja finansowa przedsiębiorstw o odmiennych strategiach zarządzania kapitałem obrotowym**, [in:] Ekonomika i organizacja gospodarki żywnościowej ZN SGWW nr 78/2009