

## FORMULATING A UNIFORM DEFINITION OF A LOGISTICS CENTRE

Waldemar Izdebski\*, Cezary Szwed\*\*, Jacek Skudlarski\*\*\* and  
Piotr Kryś\*\*\*\*

Faculty of Management, Warsaw University of Technology, Warsaw, 00-661, Poland,

\* Email: Waldemar.Izdebski@pw.edu.pl

\*\* Email: Cezary.Szwed@pw.edu.pl

\*\*\* Email: j.skudlarski@oikos.net.pl

\*\*\*\* Email: Piotr.Kryś@pw.edu.pl

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**Abstract:** The existing definitions of the logistic centre have been analysed for the purpose of creating a uniform definition. The work uses the main Polish definitions as well as foreign ones. The uniform, suitable to be the basis of further research definition has been created as a result of analysing the main factors of a logistic centre.

**Paper type:** Literature review

**Published online:** 30 August 2017

Vol. 7, No. 4, pp. 367–376

DOI: 10.21008/j.2083-4950.2017.7.4.8

ISSN 2083-4942 (Print)

ISSN 2083-4950 (Online)

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**Keywords:** *logistic centre, definition, logistic services*

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## 1. INTRODUCTION

Logistics is a rapidly growing discipline of science. As a relatively new discipline of science, however, it encounters the problem of a lack of specific, defined terminology and learning methodology. The formal study of logistics definitions has not yet been done. In many cases we lack fully determined, unambiguous and widely accepted definitions of basic logistics issues. One of those are logistics centres, which, despite of being crucial for the functioning of the logistic network and one of the most recognizable elements of logistics, have not been subjected to close scrutiny yet. The research on this matter is scattered in many areas, and the degree of its accuracy varies greatly between individual areas of research. For instance, carefully-wrought algorithms for placing of logistics centres and the area they cover have been created, but a fixed definition of the logistics centre itself has not. As most of the existing definitions concentrate on the different aspects of the logistic centre's existence and its role in the supply chain, condensing the most important parts of each definition into a uniformed definition would be helpful in the scientific study. In this article, an attempt to create an unambiguous definition of a logistics centre is made, basing on the works and definitions of the most acknowledged and accredited researchers of the matter.

## 2. ANALYSIS OF THE EXISTING DEFINITIONS OF A LOGISTICS CENTRE

Currently, the phrase *logistics centre* has been permanently accepted into the scientific language of the field and, as such, is used by both scientists and researchers and people working in the practical, business logistics. As a result, there is no need to debate whether the phrase itself should be acknowledged as the proper one. We should, however, remember that *logistics centre* is not really universal in all Europe, since by analysing the closest equivalents of the *logistics centre*, which are, among others: in Great Britain, *Freight Villages*; in France, *Plate Forme Logistique* or *Plat Forme Multimodales*; in Germany, *Güterverkehrszentrum*; in Italy, *Interporto*; in Denmark, *Promet Center*; in the U.S., Japan, China and Singapore, they are often referred to as *Logistic Center*, although, even in these locations, it is impossible to speak about the coordinated use (Gajšek & Grzybowska, 2013, p. 90).

We can see they show differences in their scope of commercial activity, among others in the range of the service offer, the role, duties and rights of the administering entities, the structure of the centres' shareholders and the proportion of properties (Mindur, 2012, p. 71). The general conformity of the basic, recurring in every one of those conceptions of a logistics centre elements is, however, never affected.

Currently, there exist many definitions of the logistics centre, both in Polish and foreign literature. In this work, the most common ones have been collated and analysed in order to develop a new, suitable for further research definition of a logistics centre.

In the Polish literature, the basis for the research on the definition of a logistics centre consists of the definitions of Fechner, Fijałkowski, Gołemska, Krzyżanowski, Miklińska and Christowa. Aside from those, I have also included the definitions of Thies and of the European Association of Freight Villages and Logistics Centres Europlatforms.

According to Fechner's definition, a logistics centre is a utilitarian, spatially defined premise with an infrastructure and organisation, in which logistic services connected to retrieval, storing, dividing and shipping of goods are conducted, along with accompanying services rendered by autonomous to the sender or receiver economic entities (Fechner, 2004, p. 14).

Fijałkowski defines the logistics centre as follows: a logistics centre (LC) is an autonomous economic entity offering logistic services (transport, transloading, storing, dividing and completion of goods) and by that fulfilling the supply and distribution in a defined area. LC includes:

- a defined premise and infrastructure (roads, open space, parking lots, workshops, warehouses and edifices),
- technological equipment for moving and storing the goods, also administering devices,
- a qualified personnel and
- organisation (Fijałkowski, 2003, pp. 249–251).

While comparing the above two definitions with that by Gołemska, stating that (Gołemska, 2009, p. 128) logistics centres are economic entities, companies, the aim of which is coordinating the logistic service (including storing and shipment) with the creation of an information technology-backed logistics information system and that on the premises of a logistics centre low- and high-bay warehouses, a side railway track, an open storage area, maintenance stations, gas stations, hotels, post, banks, customs, insurance companies are located, we arrive at the first basis for analysing the elements needed for creating one's own definition of a logistics centre.

The first issue we can identify is that a logistics centre constitutes a separated, autonomous economic entity; in other words, is an entity running a commercial activity. We can also define the kind of its activity – those are logistic services or their coordination, above all in the storing and shipping departments and the services connected. Gołemska highlights the importance of the logistic system of information and its administering, which is definitely worthy of notice, even though the general definitions of the other two authors do not take it into consideration. Finally, one can clearly see the emphasis put on the necessity for a logistics centre, as an organisational unit, to possess proper premises and infrastructure essential for running a commercial activity.

After working out the initial issues essential while developing the definition of a logistics centre, an analysis of the rest of the definitions on the subject should be done. According to the study of Krzyżanowski, who refers to W. Eckstein and other German authors' works, a logistics centre (Mindur et. al., 2000, p. 37) is a place, in which at least two carriers following common in the aspect of optimum economic criteria rules for building and using of transport and transloading machines and warehouses operate. Said carriers work together or separately, complying with the pre-set rules and in the aspect of linking the short- and long-distance transport, offering complex logistic services. By following this definition, we acquire another element worth taking into consideration – the information, that on the premises of a logistics centre there should operate at least two logistic carriers (operators), by which, in this context, we will also deduce to mean an open for many external entities service of a logistics centre – it will not be limited to only serve a particular client.

This context is confirmed by Christowa's definition, (Mindur, 2012, p. 72) logistics centre is an autonomous organisation with a defined space connected to the communications environment (mainly road communications), having its own infrastructure (roads, open spaces, parking lots, workshops, warehouses and buildings), equipment, personnel and an organisation providing logistic services (shipping, transloading, storing, dividing and completion, procurement, distribution) as short-term commission or a long-term contract with external companies. A logistics centre is a point in which the flow of both goods and information intersects. In the aspect of transport a logistics centre can be perceived as a terminal for servicing integrated transport entities, complemented with additional parts adjusted for the executing of developed distributing functions, which, as we can see, also mentions plural external companies to be the clients of a logistics centre. Also, the importance of the infrastructure for the functioning of a logistics centre is clearly highlighted, as well as the importance of the flow of information, mentioned before by Gołemska.

The definition by Thies, a logistics centre is a transport commercial area, in which autonomous transport, logistic, service companies are located. It is equipped with transloading devices used for changing the means of transport between at least two branches of transport (road, rail transport) and warehouses of various kinds. It is also the place in which long- and short-distance transport intersect, as well as it functions as a logistic node. Systematic collective planning and cooperation of the centre's entities should lead to synergy effect (for instance by using means of transport). A crucial element of a logistics centre is possessing a combined transport terminal (Thies, 1998, pp. 34–35) confirms the previous elements established in this analysis, but it also adds further elements that should be taken into consideration – it mentions the often used rule, according to which a logistics centre should always have a terminal of combined transport; as a consequence, have an access to at least two means of transport and the possibility of transloading between them. The phrase *logistic node* is also worthy of notice, for it being connected with the

theory of logistic networks, in which logistics centres are one of the most important points (nodes).

The above requirement for the necessity of having an access to at least two branches of transport is confirmed by the definition used by VDV Verband Deutscher Verkehrsunternehmen, the Association of German Transport Companies – a logistics centre is a transport industrial area, in which, as autonomous entities, transport companies and complementary for the transport branch enterprises of various specialty (freight forwarding, storing, service, logistic services and tele-communications) locate, having an access to at least two branches of transport. Railroad and postal centres can also be included in a logistics centre. LC usually have a transloading terminal for the combined transport rail-road or rail-road-inland water transport (or sea transport – author's note), which is widely accessible (centralised LC). It is enough, however, if such terminal is in the immediate vicinity of the centre and is connected to it organisationally (Mindur, 2012, p. 73).

An LC is also a bigger amount of separated, smaller areas connected organisationally, above all with a common system of exchanging information (decentralised LC). According to this definition, however, it is not vital for a logistics centre to have a transloading terminal on its premises.

The last of the quoted foreign definitions is that by Europlatforms (European Association of Freight Villages and Logistics Centres). A Logistics Centre is a centre in a defined area within which all activities relating to transport, logistics and the distribution of goods - both for national and international transit, are carried out by various operators on a commercial basis. The operators can either be owners or tenants of buildings and facilities (warehouses, distribution centres, storage areas, offices, truck services, etc.), which have been built here. In order to comply with free competition rules, a Logistics Centre must be open to allow access to all companies involved in the activities set out above. A Logistics Centre must also be equipped with all facilities to carry out the mentioned operations. If possible, it should include public services for the staff and equipment for the users. In order to encourage intermodal transport for the handling of goods, a Logistics Centre should preferably be served by a multiplicity of transport modes (road, rail, sea, inland waterway, air). To ensure synergy and commercial cooperation, it is important that a Logistics Centre is managed in a single and neutral legal body (preferably by a Public-Private-Partnership). Finally, a Logistics Centre must comply with European standards and quality performance to provide the framework for commercial and sustainable transport solutions (<http://fdt.dk/fdt-aktiviteter/euro-platforms.aspx>).

This definition directs our attention to the fact that possessing the possibility of using a few kinds of transport is preferred, but not vital for the object to be called a logistics centre. This definition also highlights the importance of providing the free competition between the entities of which the logistics centre consists as well as points out the great meaning of the existence of a specialized entity administering the logistics centre.

The last definitions I wanted to consider in this study are three by Miklińska, based on the above definitions and her own research. However, because of her method of defining the logistics centre (three separate definitions, each in its own aspect) the definitions are not suitable for the course of research taken in this work, that is formulating one, uniform and because of that easy to use definition of a logistics centre basing on the works and definitions of the most acknowledged and accredited researchers on this matter.

Miklińska considers the logistics centre in three aspects in her study, making a separate definition for each, and according to them:

- in the entity aspect: a logistics centre – is a group of companies of the TSL branch, other service, productive and commercial specialties, functioning separately or connected with mutual connections of various types, creating a multi-entity structure. There usually is a special organisation managing it, called the board of the LC, caring for the growth and efficient functioning as a "whole", operating separately or connected to the entities located in there, possibly having a varied range of rights to the real estates of the logistic object (Mindur, 2012, p. 87)
- in the object aspect: a logistics centre – is a separated in the formal-legal, organisational and technical sense area of concentrated placement of infra- and suprastructural objects of companies of the TSL branch and other specialties. It forms a logistic entity of big complexity, possessing a widely accessible internal and external infra- and suprastructure (as connections to the country's logistic network, providing access to at least two branches of transport's infrastructure) (Mindur M., 2012, p. 93)
- in the functional aspect: to their clients, a logistics centre – is an external logistics service, offering complex logistics service of varied combination of physical service, information, financial and administering services, rendered separately or in the united form (as a result of cooperation) by the companies located in the logistics centre (Mindur, 2012, p. 99).

For the internal receivers (companies located on its premises), a logistics centre – is an internal servicer of a kind, rendering a scope of services (among others for the property and personnel) improving the conditions in the logistics object.

Miklińska's definitions are a good summary to the conducted earlier analysis, confirming most of the established earlier points required for defining a logistics centre. They also confirm the, not always mentioned, importance of the information services for the functioning of logistics centres, as well as directs our attention again to the accompanying services such as financial service and administration. They also mention the importance of the existence of an organisation taking care of the administering of the logistics centre.

Having analysed the existing definitions of a logistics centre and highlighting the most important factors influencing the process of giving an establishment the name of a logistics centre, in the next part of the article I shall construct a definition of a logistics centre of my own, basing on the results of the conducted analysis.

### 3. CREATING THE DEFINITION OF A LOGISTICS CENTRE

On the basis of analysing the chosen definitions of a logistics centre the following features of a logistics centre have been found:

- a logistics centre is a separated, autonomous economic entity,
- there should be an organisation taking care of the centre's administration, caring for the efficient functioning and growth of the centre,
- on the premises of a logistics centre there are a few (at least two) autonomous companies offering logistic services, competing with each other on the basis of free competition,
- is an organisation offering its services to external clients as an open service, not limited to particular entities (as opposed to, for instance, distribution centres of particular companies),
- a logistics centre is a node of a logistics network and is connected with the country's logistics network,
- its basic commercial activity are complex logistic services (among others transport, storing, distribution, freight forwarding and administering of information) or a coordinating of them, and accompanying service like financial services or administering,
- possess proper premises, infrastructure and suprastructure for rendering its commercial activity,
- a logistics centre should or has to (depending on the definition) have an access to two branches of transport,
- a logistics centre should or has to (depending on the definition) have a terminal for transloading in the combined transport.

With those, we can attend to creating a uniform definition, one that would contain all the elements mentioned. Before we start, however, we should pay attention to a contradiction that can be found in the analysed definitions. The problem concerns the logistic centre's access to at least two branches of transport (usually road transport and one or more of the remaining kinds) and, consequently, the presence of a transloading terminal of the combined transport. In practice, the access to two kinds of transport is of great importance to a logistics centre and is a very important factor for defining its attractiveness for the companies locating on its premises, but in this work it has been decided not to take it into account as a factor crucial for the object to be named a logistics centre, but providing a mention of it, as a definitely advisable. Consequently, in the same manner the presence of a transloading terminal for the combined transport was treated.

On the basis of the above study the following definition of a logistics centre has been created: a Logistics Centre is an autonomous economic entity with a separated area, in which by the rules of free competition a few (at least two) autonomous companies rendering logistic services to internal and external clients function as an open, not limited to a particular entity service, administered by an autonomous and

neutral organisation taking care of the growth and efficient functioning of the complex logistics services (including, among others, transport, storing, distribution, freight forwarding and administering the information) or coordinating them, rendering accompanying services such as financial services or administering, having proper infrastructure and suprastructure (including, among others, roads, open spaces, parking lots, warehouses, workshops and buildings), preferably having an access to two or more branches of transport and a transloading terminal for combined transport.

#### 4. CONCLUSION

In this work an analysis of the chosen definitions of a logistics centre has been made, in order to choosing the most important features of a logistics centre. The definitions in question were akin and no contradictions have been found but for the issue of the need for a logistics centre to have an access to two branches of transport, the issue explained in the further part of the article in the section of creating the author's own definition.

After analysing the definitions, a uniform definition of a logistics centre has been created, that being the main aim of the article. The new definition is complete and includes all the information being the result of the requirements given by various authors, which makes it possible to use it as a uniform definition in the further study of this subject.

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## BIOGRAPHICAL NOTES

**Waldemar Izdebski** is an Associate Professor at Chair of Innovativeness and Entrepreneurship, Faculty of Management, Warsaw University of Technology. He teaches logistics, supply chain management and logistics management. His research interests focus on production management, logistics, supply chain management and renewable energy. He is the author and co-author of a number of papers and presentations in scientific journals and business conferences on management sciences, logistics and renewable energy. His papers appear in numerous journals including *Foundations of management*, *Logistyka*, *Systemy Logistyczne Wojsk*, *Przemysł Chemiczny* and *Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie Problemy Rolnictwa Światowego*.

**Cezary Szwed** is an Assistant Professor at Chair of Innovativeness and Entrepreneurship, Faculty of Management, Warsaw University of Technology. He got his M.Sc. and Ph.D. at WUT in automatics and robotics area. He studied management sciences on postgraduate course at Warsaw School of Economics. From 2000 to 2016 he gained professional experience at Polish power system companies and organisations on different management positions. He focuses on production and logistics systems optimization as well as their modelling and simulations. His research interests also concerns management of power systems transformation and security of supply improvement. His teaching fields mainly include Management of Production Systems, Business Process Modelling and Computer Integrated Manufacturing. He is the author and co-author of a number of papers and presentations in scientific journals and business conferences on management sciences, optimization models and methods and the power system sector.

**Jacek Skudlarski** is an Assistant Professor at Department of Organization and Engineering Production, Faculty of Engineering Production, Warsaw University of Life Sciences – SGGW. His research interests are organization of production in agriculture, agriculture development in Belarus and Ukraine, the market aspects of

agricultural technology, biofuel and renewable energy production and development in Poland and abroad. In this field he cooperates with scientific research centres in Belarus and Ukraine. His papers appear in numerous scientific journals, including *Roczniki Naukowe SERIA*, *Problemy Rolnictwa Światowego*, *Problemy Inżynierii Rolniczej* and *Teka Komisji Motoryzacji i Energetyki Rolnictwa*.

**Piotr Kryś** is an Assistant at Chair of Innovativeness and Entrepreneurship, Faculty of Management, Warsaw University of Technology. He teaches organisation of production, logistics, transport and warehousing engineering. His research interests are logistics, supply chain management, transport, warehousing and storage and logistic centres. He is the author and co-author of a few articles, mostly written in cooperation with Waldemar Izdebski, who is his doctoral dissertation advisor. His papers appear in scientific journals including *Logistyka*, *Systemy Logistyczne Wojsk* and *Zeszyty Naukowe Uniwersytetu Przyrodniczo-Humanistycznego w Siedlcach Seria: Administracja i Zarządzanie*.