

EASTERN SLOVAKIA AS A HUB OF LOGISTICS AND TRANSPORTATION

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The thesis is focused on the analysis of logistic centers and hubs in eastern Slovakia, where a crucial role is the right choice of the location of logistics center which is proceeded by an analysis of the planned area and the appropriate transport infrastructure, engineering facilities, the provision of subsidies, labor, competitiveness and environmental protection. The work is characterized by different modes of transport in the Slovak Republic and the road, rail, sea, air and pipeline. Specification of logistics and logistics centers is focused on the location, design, construction, condition, classification and categorization of logistic centers. Important role in the East Slovakian Region is played by the Košice international airports, as the easternmost point of European Union and the Schengen area and by the Poprad airport, offering destinations for Russian and Ukrainian tourists, visiting the High Tatra Mountains region in the form of, regular and charter flights.

K e y w o r d s: Logistics, Logistics Centers, Transportation, Environment.

Logistics is one of the main activities of any company. It is focused on two parts: the first part focused on cargo - goods. This is the clear goal of the shortest delivery time, availability of capacity, lowest transport costs or certainly also delivery on time.

Another aspect refers to the logistics with respect to the direction of flow of goods, which also consists of two parts, namely the outgoing and incoming flows. Incoming is characterized by the order and ensuring the supply of goods, semi-finished or finished products for manufacturing companies, warehouses and shops. The second part includes the processes associated with the storage and movement of finished goods and related information from the terminal or the manufacturers to customers.

1 CHARACTERISTIC OF LOGISTICS AND LOGISTICS CENTERS

Logistics is an interdisciplinary science which deals with the coordination, harmonization, linking and optimizing the flow of raw materials, semi-finished products and services, but also the flow of information and finances in terms of customer satisfaction and a cost, for the optimal costs enlarged with socio-economic aspects in order to retain not only satisfied but also loyal customer.[1]

Logistics center (LC), according to National Council Act nr.193/2001 is defined as "a regional supplier-customer point, which provides customers with transportation and handling services associated with providing general production services, sales and distribution of products." Defining characteristics for the logistics centers, industrial parks, logistics parks, Agroparks, technology parks and science and technology parks.[2]

The logistics center is a territory group of independent organizations and authorities involved in transport (e.g. freight forwarders, transport operators, customs offices) with related services (such as packaging, storage, maintenance and

repair). Logistics centers provide high volume flow of goods especially among suppliers and manufacturers and between manufacturers and end users.[2]

Logistic centers and logistics parks are among the fastest growing segments of the real estate market in Slovakia. [3]

Slovakia has seen in recent years a significant increase in the construction of logistic centers and parks. Strategic position in the center of Europe, neighborhood to large markets of Ukraine and Russia, high industrial growth based mainly on the automotive industry, qualified and cheap labor force are the main advantages that ensure further expansion of the logistics segment in Slovakia. The construction of logistic parks should be followed by construction of transport infrastructure in the Slovak Republic. In the area of logistics parks operates various companies which are providing services to their customers. The basic services provided in the logistics parks are warehousing services, logistic services, freight forwarding, distribution services, value-added services, services of the government bureaus (e.g. customs), financial and insurance services, consultancy, and so on. The other, so-called support services in logistics parks, includes services for vehicles, container repair, links to public transport, waste management, maintenance, security, additional commercial services (shops, restaurants).[3]

At present, the most important customers of logistics parks are car manufacturers, supermarket and hypermarket chains, as well as electrical engineering industry along with the IT industry.[3]

1.1 Classification of logistic centers

Logistic centers can be divided according to the following criteria:

- Business logistic centers
- Logistic centers of the logistic companies
- Logistic areas,
- Logistic centers of the courier, express and parcel service providers,
- Logistic centers of the online stores.[4]

1.2 Categorization LC

According to the structure of the transport connection:

- mono-modal - one mode of transport most road
- multi-modal - at least two types of transport infrastructure
- inter-modal - linked to at least two modes of transport and to allow handling of intermodal loading units.

According to the size of storage space for:

- small with an area up to 10 000 m²
- medium with an area from 10,000 to 35,000 square meters
- large, with area more than 35 000 m². [5]

2 ANALYSES OF LOGISTICS CENTERS AND HUBS IN EASTERN SLOVAKIA

Lack of qualified people, increasing construction costs and land prices in Bratislava, expanding infrastructure in Slovakia are the factors that affect the movement of investors and developers of industrial-logistic sites in Slovakia to further distant regions.

Construction of industrial parks is also an opportunity to take advantage of the growth potential of fixed capital. It is the ability to turn opportunity into a successful business, attract the interest of foreign investors for foreign investments in the region and develop production, business, trade and employment in the region. The flow of foreign investments into the region Prešov demonstrates the potential of using the fixed capital growth potential.

It can be assumed that a major problem in the foundation of industrial parks and their operation depends on three main factors:

- localization (green field, brown field, others)
- ownership of the land, their property rights and technical settlement,
- sources of funding.

These key factors will define a significant impact on economic development in the region. On the base of the study: Environmental assessment of selected areas of the site and the suitability of selected sites for the establishment of industrial parks in eastern Slovakia several localities were selected. [6]

2.1 Factors affecting the suitability of the location of logistic centers.

Factors influencing the suitability of the location of storage sheds in Slovakia include:

- transport infrastructure development,
- other infrastructure development,
- labor force,
- involved parties,

- demand for storage services in the area,
- spatial planning,
- market environment
- demographic development of the population,
- legislation
- contact to the economic center,
- unemployment in the area,
- density of the residential settlement,
- wage level in the population of the area,
- environmental scene of the area,
- the suitability of the site according to the future warehouse facility,
- access to international transport network,
- availability of existing multi-modal connections,
- opportunity to use renewable energy sources,
- site strategic location,
- information on possible environmental pollution
- possibility to focus on eco-friendly technologies
- current legislation dealing with environmental topic in the country. [7]

Development of the transport infrastructure:

The density and quality of transport infrastructure is a key factor that influences the localization of new warehouses construction. That can not be thought apart from the possibility of connection to various modes of transport, namely the possibility of using intermodal transport in the region.

Development of other infrastructure:

The term "other infrastructure" generally means:

- telecommunications and information infrastructure,
- energy infrastructure:
 - electrical wiring,
 - natural gas distribution,
 - water supply,
- social infrastructure. [7]

The market environment

The market environment in relation to the localization of the new warehouses depends on the planned scope of services. If within the storage space implemented services at international level are potentially required respectively, existing markets.

Such warehouses are characterized by their location away from existing production and economic centers, but it must be placed in the near of dense and high-quality transport infrastructure. As for storage, operating on a regional or. local level, it is necessary that the proposed location has to be relatively close to existing markets. That means to be placed close to their future customers. [7]

Manpower

When considering the design of suitable sites for the location of warehouses in the context of workforce is essential to concentrate primarily on the following factors:

- quantity of the existing workforce,
- qualification of the existing workforce,
- value of the average wage in the area,
- travel distance of the workforce to place of work (warehouse).[7]

2.2 SWOT analysis in relation to the localization of LC

When deciding on the choice of location of warehouses, in relation to the above factors, it is appropriate to base it on the results of previously realized SWOT analysis.

The term SWOT analysis is generally used for a comprehensive analysis of strengths, weaknesses, opportunities and threats related to a particular area. In our case, the assessment of the attributes in relation to the location of the new

warehouses in a particular region territory of Slovakia.

SWOT analysis is essentially a combination of two determinations:

- Analysis of opportunities (O-opportunities) and threats (T-threats) - **OT analysis**
- Analysis of strengths (S-strengths) and weaknesses (W-weaknesses) Site - **SW analysis**.

In our case, the purpose of the SWOT analysis is to assess the conditions of the area in terms of suitability for locating warehouses and also analyze the opportunities and threats arising from outside the proposed warehouse building.

If there are several options for locating warehouses, SWOT analysis can help you decide the most suitable location. The procedure may be as follows. Carry out a SWOT analysis of each alternative location, the results of which are then compared and on this basis, developers can more easily decide which option is most favorable to them.[7]

Tab. 1 SWOT analysis - Strengths and Weaknesses

Strengths (S)	Weaknesses (W)
<ul style="list-style-type: none"> - Competitiveness - EDI order processing - HACCP compliance - Customer focus - Modern storage system - Knowledge of the market - Regular customers 	<ul style="list-style-type: none"> - Possession of company trucks - Lack of feedback between customers and the company - Conflict between the company and customers - Connection to the aviation and maritime transport

Tab. 2 SWOT analysis - Opportunities and Threats

Opportunities (O)	Threats (T)
<ul style="list-style-type: none"> - Diversifying - Improving the quality of services - Access to new markets - Training of staff - Improving relationships with customers - Fleet expansion - Better communication between company and customer 	<ul style="list-style-type: none"> - Purchase of trucks - Competition - Smaller quantity orders - Failure to meet targets - The financial crisis - The degree of state support for the modernization of the transport and logistics area due to the economic policy of the state

3 PROPOSAL FOR IMPROVEMENT OF LOGISTICS SERVICES

These proposals have been developed on the basis of a SWOT analysis as well as an analysis of competing companies dealing with logistics.

3.1 Draft changes to the roles of a logistics center

The new proposed logistics centers must be designed as a public logistics centers with non-discriminatory access to logistics services. This means that each customer must have a free (equal)

access to all the services offered by LC. Public logistics center ensures the connection of different types of transport, the concentration of traffic flows, road haulage removal from residential areas, with the various carriers and access to various technologies. For a well-functioning public logistics center is needed, to assure especially adequate public storage area connected to the rail and road infrastructure, and these stores should be open-layout planned, elevated platforms and should be air-conditioned. Optimal technology for cross-docking operations, location of service, availability and setting up the appropriate logistics infrastructure is also necessary. To ensure these

requirements its essential to bear in mind the fact, that the logistic center, beside the necessary storage capacity, should include also the intermodal terminal linked to the rail (or even water) and road infrastructure.[8]

Major logistics services provided in such terminals are:

- production - distribution services
- assembly and distribution of shipments to / from intermodal transport units, railcars, road trailers, pallets and so on., with purpose to create and use the transport units,
- services of the logistics information center
- international and domestic freight forwarding,
- city logistics
- both directional reloading of the shipments and their delivery and collection,
- distribution of items
- end logistics services
- JIT supply system,
- storage of the shipments
- storage and distribution of lots of different demands for care and maintenance
- storage and distribution of goods, perishable,
- storage of dangerous goods
- bonded warehouse.[8]

Other services of the logistic center, is a storage of wide range of goods according to customer's specific requirements. For this reason, its necessary to create a storage area for storage of pallet units, goods in bulk and packaged goods. The role of such a store is not creating inventories, storage of goods on a temporary basis result from the technology of completing and de-completing. Logistic centers for fast moving consumer's goods are characterized by low warehouses, with less depth shelves and vice versa, the warehouses with slow moving stocks are characterized by high racking warehouses and deep shelves. However, it can also serve as a public warehouse for the users and provide additional transport services.

This result in additional logistics center functions:

- receive consolidated shipments in size usually at least one transport unit,
- collect shipments exported from the region and generate directional transport of these sets,
- dispatch directional shipments for either customers or other logistics centers,
- deconsolidate high volume bulk shipments arranged according to the directions of the target consignees and ensuring their preparation for transport to the center of the customer, including any necessary shipping container, if there is a need for optimal distribution technology the shipment could be stored over a short period of time.[8]

3.2 The proposals of the logistic services provided by the logistic center

Nowadays LC can achieve commercial success either by increasing the efficiency of services, achieving the lowest cost of handling operations, provision of other services with high added value, or a combination of both, which is the ideal way. Increased productivity can be achieved by affectivity from volumes of the goods. Thus, to achieve high efficiency expresses means manipulate a large number of goods at lower unit costs.[8]

Provision of services with high added value opens up new possibilities for gaining competitive advantage. The higher variety of services as a part of logistic chains is nowadays requested by customers, logistic companies and haulers. LC must therefore be able to provide services tailored to the customer's needs. If the LC is not able to provide it, it's losing the opportunity to obtain or retain a customer which means the competitive disadvantage. [8]

3.3 The proposed improvements of the logistic services of the analyzed company

This proposal part of the thesis contains proposals for the rationalization of logistics services. Proposals are made on the base of SWOT analysis as well as a survey of competing companies.

Every company is trying to streamline its workflow and improve the quality of service in order to meet the needs of their customers and increase profits. Modern logistics centers should use new technology and equipment, which are on the market.[8]

These products certainly include the following systems:

- EDI (Electronic Data Interchange)
- CRM (Customer Relationship Management).[8]

EDI - Electronic Data Interchange - a modern way of communication between two independent entities, at which the standard exchange of structured business and other documents in electronic form.[10]

CRM - customer relationship management - is a set of tools supporting marketing, sales and customer service. The precondition for the proper functioning of these features is the exact knowledge of the customer.[9]

This enables the company to retain the existing customers as well as the correct marketing methods to acquire new ones. In a market economy is valid, that only those companies will survive that are able to properly adapt to the changing demands of the market (similar, as in nature, where not the greatest, but the most adaptive survives), and right CRM system enables businesses to create and keep

accurate map of the customer needs. Therefore, CRM systems are more and more applied in a very wide range of companies - literally difficult to find a company where CRM application is missing.[9]

4 CONCLUSION

Eastern Slovakia has an excellent geographical location and contributes to the development, competitiveness and improvement of the economic situation of the region. The importance is on the choice of areas to build centers with an emphasis on protecting the environment and especially the seamless connection to the transport infrastructure.

Regular communication with customers and responding to their individual needs is vital for logistics. Acquiring a new customer is much more difficult than maintaining the existing one. Introducing the latest technology based on modern trends, optimization tools and computer simulation is provided to build sustainable development of logistic centers in eastern Slovakia.

The advantage of this region is the easternmost location of the Schengen area and the European Union. In the future, it is an important junction of roads and trade in the eastern sector. Currently air transport growing thanks to expansion to tourists from Ukraine and Russia. A significant lack of logistics centers could be seen in terms of it enabling a tri-modal transport infrastructure, i.e. the connection of the road, rail and air transport. Raising the quality logistic or freight forwarder is also difficult in terms of time, which may take two or three years for the company.

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