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The Future of the European Logistics Centres as Nodal Objects of Intermodal Transport Infrastructure

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The article describes the general characteristics of logistics centres. In particular, functions, types and characteristics of the model logistics centre were presented. The logistics centres associated in Europlatforms have been described, focusing on those countries where the number of centres is the largest, i.e. Germany, Spain, France and Italy. The factors determining the decision making regarding the selection of the optimal location of a logistics centre in Europe have been discussed, and also the places currently enjoying the greatest interest in the logistics industry have been shown. The development perspectives of Polish logistic facilities are presented and factors influencing the investment attractiveness of Poland are described.

Key words: Europlatforms, European logistics centres, storage areas, supply chains, optimal logistic location

1. INTRODUCTION

The dynamic development of global economic centres, production activities and trade, including e-commerce, as well as the constantly increasing number of consumers have contributed to the rapid development of logistics, and forced changes in the functioning of supply chains to increase their efficiency. It has become a necessity to develop in an optimal, more thought-out way, especially in the area of the network and logistics facilities allowing for the most efficient access to the client while using modern technical and technological solutions.

The aim of the article is to make a general description of logistics centres associated in Europlatforms, and to present trends of changes on the European logistics real estate market based on research carried out by PROLOGIS. The analysis of research reports enabled the presentation of a list of the best European locations for logistic facilities, and showing the importance of Poland in this ranking.

2. LOGISTICS CENTRES AS NODES OF THE INTERMODAL TRANSPORT NETWORK

In recent years, in the European Union countries there has been a significant increase in trade exchange and, consequently, an increase in the weight of transported loads and transport performance. A significant share in the transport work carried out in transport of goods was transported by road vehicles (Fig. 1) - the mode of transport which has been perceived for years as negatively affecting the natural environment, generating the largest external costs of transport. In this situation, one of the priorities in the European Union's transport policy has been the development of intermodal transport and the transfer of as much freight as possible to more ecological modes of transport - rail and inland waterways. The development of intermodal transport, as well as the steady increase in domestic and international freight transport, in which freight in load units, which are carried out in domestic-

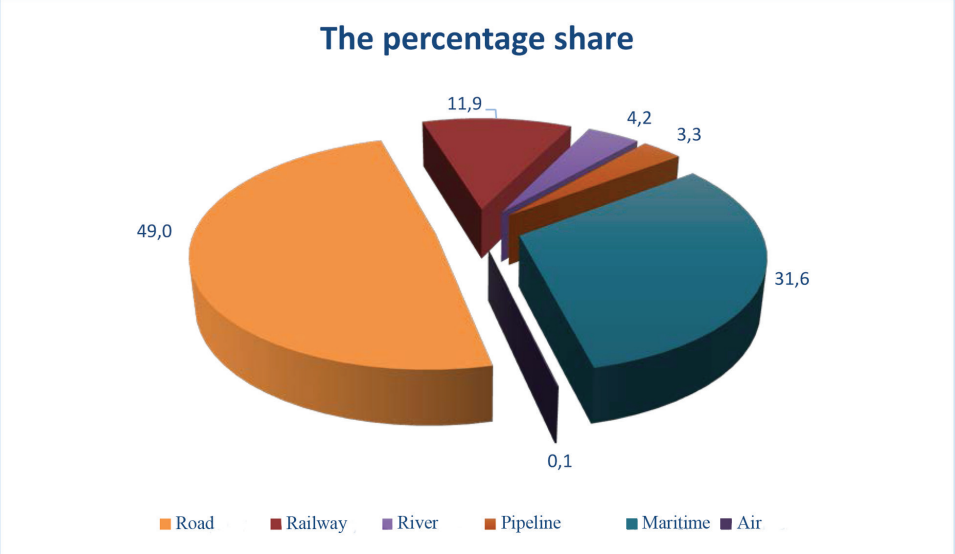

Fig. 1. The share of particular modes of transport in transport work carried out in the carriage of goods in the European Union in 2015. Source: Own study based on: EU Transport in Figures. Statistical Pocketbook 2017. European Commission, p. 36.

domestic relations, are increasingly involved, require the existence of an appropriate logistic infrastructure. It should enable timely, quick and safe delivery of cargo to its destination, regardless of which cargo unit is transported and which branch of transport. One of the point facilities of this infrastructure are logistics centres.

There are many definitions of logistic centres in the subject literature. It should be noted that over the years, they have been refined, just as the concept of the logistics centre has evolved. One of the definitions defines a logistics centre as a spatially functional object with infrastructure and organization in which logistic services related to the receipt, storage, distribution and issuing of goods as well as accompanying services provided by economic entities independent of the sender or recipient are implemented[1].

According to the European Association of Logistics Centres (Europlatforms), a logistics centre is a designated area within which all activities related to transport, logistics and distribution of goods, as part of transport in both domestic and international relations are carried out by various operators on a commercial basis[2].

As logistic network nodes, logistics centres perform three basic functions:

- logistics - transport, storage, inventory management, order management, reloading at the terminal, packing, picking;

[1] I. Fechner: *Centra logistyczne. Cel – realizacja – przyszłość.* ILiM, Poznań 2004, p. 14.

[2] These operators can be the owners of buildings built and located in the centre: buildings, offices, warehouses, storage yards, parking lots, equipment, etc., or use them on the basis of a lease or a lease. In order to preserve the principles of free competition, access to all enterprises involved in these activities must be available in the centre. The logistics centre must be equipped with devices and facilities enabling the implementation of the said operations. Where possible, it should also provide public services for staff and equipment for users. In order to support the use of intermodal transport in cargo handling, the logistics centre should be served by various branches of transport (road, rail, sea, inland waterway, air transport). EUROPLATFORMS European Association of Transport & Logistics Centres. Corporate Presentation Final - October 2015, p. 4;Logistics. Science - Research - Development. Work edited by M. Mindur. Institute for Sustainable Technologies - National Research Institute, Warsaw - Radom 2017, p. 79, System development in selected areas of transport and logistics. Collective work edited by M. Jacyna. Publishing House of the Warsaw University of Technology, Warsaw 2014, p. 23. A logistic centre is also defined as an independent economic entity that provides logistic services (transport, reloading, storage, distribution, picking), thus performing supply and distribution functions in a specific area. J. Fijałkowski: Internal transport in logistic systems. Publishing House of the Warsaw University of Technology, Warsaw 2000, p. 54.

- auxiliary - forwarding, customs services, insurance, marketing of collective transport packaging, container rental, pallets, IT and information services, promotion, marketing;
- additional - technical service of vehicles, sales of fuels, oils, etc., container repair, hotel, catering, banking and other services[3].

Depending on the scale of local economic activity, configuration of the transport system, the demand for logistics services, equipment in logistics infrastructure, the size, type and scope of functions offered by specific centres can be very different. The European Union mentions, among others:

- sea and air ports, which are a specific form of international logistics centres[4].

Most often, however, logistics centres are classified according to parameters such as property criteria, type of goods served and spatial integrity (Figure 2).

Logistics centres should be located in places with easy access to various arteries; road and rail, waterways and air, with high capacity. Preferred are therefore well-communicated areas and undeveloped areas, easy to invest, with the access to utilities and other necessary infrastructure[5]. Characteristics of a model logistic centre are presented in table 1.

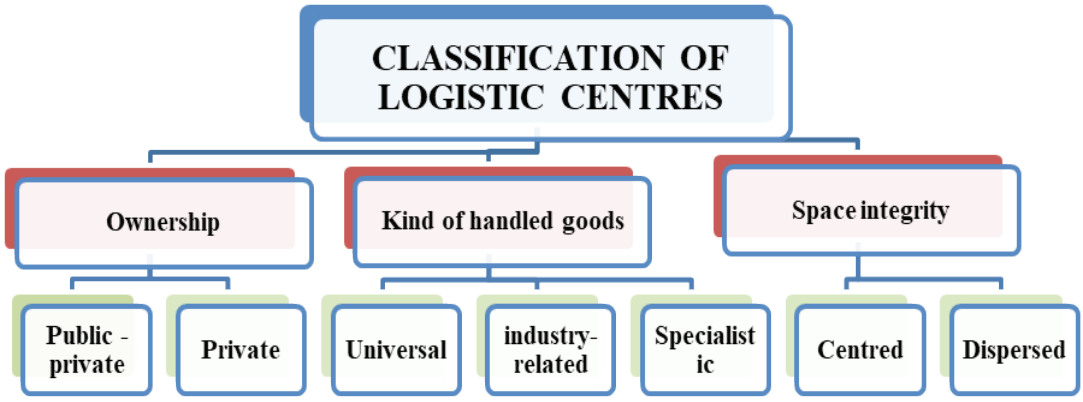

Fig. 2. Division of logistic centres according to various criteria

Source: Own study based on: Logistics. Work edited by D. Kisperska - Moron and S. Krzyżaniak. ILiM, Poznań 2009, p. 293.

- integrated centres with infrastructure for intermodal reloading and centres servicing only road transport, basically acting as distribution centres;
- centres of international, regional and local importance;
- universal centres serving various types of goods and industry centres limited to a specialized assortment group;
- concentrated centres, occupying a defined territory, with a specific logistic infrastructure, and virtual, distributed centres, functioning in the form of an online electronic platform, grouping logistic operators and companies offering complementary services in a given region;

[3] I. Fechner: *Centra logistyczne. Cel – realizacja – przyszłość.* ILiM, Poznań 2004, p. 22.

[4] L. Mindur, G. Szyszka: *Metodyka oceny i wyboru uwarunkowań ekonomicznych budowy i eksploatacji Zintegrowanych Centrów Logistycznych.* (W): Technologie transportowe. Work edited by L. Mindur. Instytut Technologii Eksploatacji – Państwowy Instytut Badawczy, Warszawa-Radom 2014, p. 434.

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Table 1. Features of the model logistics centre

Descriptive Criterion	Description
Aimed use	A point element of the logistics infrastructure. A transport node that integrates the cooperation of transport branches within intermodal transport and enables effective use of the features of individual transport modes from the point of view of commodality. Logistic node, where loads are merged and separated, stored and processed as part of logistics operations.
Organizational structure	An economic entity performing a management function, providing services to independent enterprises (logistic service providers, manufacturing, commercial and service enterprises) consisting in providing these entities with a place to operate, providing logistic infrastructure and providing ancillary services (media supply, waste disposal, object protection e.t.c.). An independent company providing logistic services and realizing these services for its own needs, using the access to logistic infrastructure and cooperation opportunities.
Functional structure	The area of warehouse services in the form of closed and open storage facilities and storage yards. Intermodal transport service zone in the form of a terminal or a set of reloading terminals enabling reloading of intermodal loading units: containers, swap bodies and semitrailers between means of transport belonging to different modes of transport. Area of auxiliary services: customs, financial, postal, etc. The zone of additional services: service, social-living, municipal, etc.
Size	Total surface area: 120 - 250 ha, min. approx. 50 ha, max. Over 1000 ha. Warehouse zone area: approx. 50% of the total area, including warehouses, internal access roads and railway sidings, manoeuvring areas and parking spaces. Area of the intermodal transport service zone: approx. 10% of the total area, including the trans-shipment terminal, storage yards for intermodal transport units, internal access roads and roads for road transport. Area of additional services: approx. 20% depending on needs. Economic area (other infrastructure and real estate subject directly to the manager of the logistics centre): approx. 20%.
Basic features of warehouse infrastructure	Class A closed warehouses: • surface on one level, min. 5,000 m2; • storage height min. 9 m; • 1 gate per 1000 sq m of warehouse space; • manoeuvring space in front of the warehouse, min. 35 m deep; • free-floating floor with a strength of min. 5 t / m2; • fire protection system in the form of sprinklers and smoke dampers; • 5-8% of office space. Open warehouses and fenced storage yards. Hard surface with pressure of min. 115 kN / m2.
Basic features of a container terminal	Total area: 12-15 ha. Number of tracks for trans-shipment of intermodal loading units: min. 2 tracks with a length of 650-750 m each. Reloading (square directly next to the railway tracks, which is used for reloading operations): width min. 12 m along the entire length of the tracks for reloading. Handling devices: gantry cranes and / or mobile cranes with a lifting capacity of min. 45 t. Component area of intermodal loading units: approx. 20% of the total terminal area. Surface of parking lots for road transport: 1.5-2.5% of the total terminal area. Administrative and office space: approx. 1% of the total terminal area.
Transport accessibility	At least two modes of transport. The possibility of handling intermodal transport performed as part of combining transport solutions in the field of sea, water, rail and car transport.

Source: I. Fechner: Logistics centres and their role in the logistic system of Poland. (W): Poland's logistics system. Technical and technological conditions of transport co-modality. Work edited by M. Jacyna. Publishing House of the Warsaw University of Technology, Warsaw 2012, p. 87.

3. EUROPEAN LOGISTIC CENTRES

According to Europlatforms data, there are currently 240 logistic centres in the European Union (28 countries). They occupy a total of about 25,891 hectares of properly prepared and equipped area. Individual EU countries differ in the number of logistic centres owned, their equipment, access to various modes of transport, as well as the terminology used to define them. The largest number of logistic centres is located in four countries, namely Germany, Spain, France and Italy. Centres in these countries constitute almost 48% of the total number of logistic centres in the European Union and occupy over 62% of their total area[6].

There are 35 logistic centres in Germany (GVZ-GesellschaftmbH). Together, they occupy an area of 6,132 ha. The largest is GVZ Leipzig with an area of 600 ha. The second place is occupied by GVZ Bremen, and the third by GVZ Berlin Süd, with an area of 475 ha and 440 ha, respectively. All German logistics centres have convenient direct connections to the rail and road transport network, 5 of them additionally with sea transport, 12 of them additionally with inland transport, and 4 of them in addition to air transport. Most were created using public-private partnerships.

There are 33 logistics centres in Spain (CT - Centros de Transporte, ZAL - Zona de ActividadesLogísticas) with a total area of 3,726 ha. The largest one - Plaza - occupies as much as 1,285 ha, while the smallest one - CT Oviedo - only 7 ha. All logistics centres have connections to road transport, while 20 of them also have a railway network. The requirement of intermodality, due to direct connections also with air transport is met by 8 of these centres, with sea transport - 6 centres, and with inland waterway transport, has been met by only one centre - ZAL Sevilla.

There are 26 logistics centres located in France. They cover the area of 2,756 ha, of which the largest of them P.M. Pyrenées Méditerranée- 500 ha. All logistics centres have connections to the road network, and most of them also to rail transport. In contrast to other EU countries, more than half of the French logistics centres have direct connections with maritime transport, which results from their location in large ports. Nine centres also have connections with air transport, and only 3 with inland waterway transport.

Italy has 21 logistic centres with a total area of 3,460 ha. The largest of them – Interporto Sud Europa - covers an area of 520 hectares, slightly smaller are Interporto di Bologna - 420 hectares, and the Central and Torino Airport - 300 hectares. All logistics centres have connections to both the road and rail network. The situation in other modes of transport is worse. Only 4 centres have connections to sea transport and 2 to air transport. None of the Italian centres has connections with inland waterway transport[7].

In the remaining countries of the European Union, there are far fewer logistic centres. Their number ranges from 15 in the Netherlands to just 1 in Bulgaria and Romania. Poland, with 6 logistic centres, ranks 13th. Polish logistics centres associated in Europlatforms are shown in Figure 3.

All European logistics centres perfectly fit into the concept of the TEN-T network, part of which is also to be the infrastructure for intermodal transport. In the EU documents regarding the revision of the guidelines of the transEuropean transport network, they were defined as the so-called logistics platforms, i.e. areas directly connected with the transport infrastructure of the TEN-T network, including at least one freight terminal, which enables logistics operations[8].

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[6] *EUROPLATFORMS European Association of Transport & Logistics Centres.* Corporate Presentation Final – October 2015, s. 15.http://www.europlatforms.eu/wp-content/uploads/2016/01/Corporate-Presentation-2015-Europlatforms-Final_20151229.pdf (15.02.2018).

[7] *EUROPLATFORMS European Association of Transport & Logistics Centres.*Corporate Presentation Final – October 2015, s. 19-26.http://www.europlatforms.eu/wp-content/uploads/2016/01/Corporate-Presentation-2015-Europlatforms-Final_20151229.pdf (15.02.2018).

[8] Lipińska-Słota A.*: Korytarze transportowe w nowej polityce transportowej Unii Europejskiej*. ILiM Poznań, Logistyka 2014, nr 4, część Logistyka – nauka pp. 2107-2113.

Fig. 3. Polish logistics centres associated in Europlatforms

Source: EUROPLATFORMS European Association of Transport & Logistics Centres. Corporate Presentation Final - October 2015, p. 35.http: //www.europlatforms.eu/wp-content/uploads/2016/01/Corporate-Presentation-2015-Europlatforms- Final_20151229.pdf (15/02/2018).

4. THE FUTURE OF EUROPEAN LOGISTIC CENTRES

The ongoing processes of globalization, the emergence of new economic powers, EU enlargement, as well as the relocation of economic activities, in particular production activities are more important factors favouring the development of trade, including online trading, which is becoming faster and responding better to the needs of retail customers. This puts new tasks ahead of the logistics. World-wide logistic chains require that connections between different modes of transport, both physical and electronic, be fully integrated in time to allow the most effective means or combination of transport modes to be used, and that the improved logistics thus provides a threefold efficiency: economic, social and ecological (including reduction of energy costs) [9]. The rising complexity of supply chains and logistics services requires precise data and efficient management of information and data accessability in the world. [10]

In the opinion of the European Union authorities, first of all, the existing infrastructure should be optimally used, while new investments in transport infrastructure and logistics centres should take place only if the calculations performed taking into account the long-term perspective show such a need, and when there is no alternative solution. All actors in the logistics chain should be involved in the planning of activities related to the creation of new infrastructure elements: Community bodies, national and regional authorities, industry, distributors and shippers, logistics, carriers and social partners. Joint actions should contribute to better systematization of investments in transport as well as their coordination and permanent connection with industrial and commercial activities, as well as spatial planning and urban development programs. All that is to avoid the multiplication of logistics centres and hasty and expensive relocations, overloading of one communication routes and areas with simultaneous collapse and isolation of other areas resulting from the lack of connections or their poor quality[11].

[9] Opinion of the European Economic and Social Committee on the Communication from the Commission - An Action Plan for Freight Transport Logistics. COM (2007) 607 final. OJ.UE C of 30 August 2008.

[10] Korczak J., Pawęska M., Logistics and new information technologies - LOGICAL project, Biuletyn NTIE, nr 2 (43), 2011, pp. 12-14.

[11] Ibidem.

In deciding on the choice of the optimal location of a logistics centre in Europe, it may be helpful to indicate the place currently enjoying the greatest interest in the logistics industry. The research was carried out in 2017 by Prologis Research - a global logistics real estate leader in cooperation with Eye For Transport (eft)[12], and its respondents were logistics operators from all over Europe. They allowed distinguishing five main factors currently determining the choice of European locations. These are: proximity to consumption centres, regulatory environment, employee availability, transport infrastructure and total costs.

The most important factor determining the choice of the location of logistics facilities in Europe has been direct access to the main centres of consumption. For logistics operators the most important criteria for choosing a location were access to international trade, economic centres, logistics corridors and metropolitan areas. Direct access to them allows you to increase the efficiency of the entire supply chain and deliver the goods to customers as quickly as possible. That is why Northern Europe, the Benelux countries and Germany, as well as metropolitan areas such as London, Amsterdam, Paris or Berlin characterized by high consumer density and developed transport networks, ranked high.

The overall logistic costs had relatively little significance in the research. Countries such as the Netherlands, Germany or Belgium, hitherto seen as expensive, ranked in the top five of the ranking.

In the category of formal and legal regulations, the Dutch market was appreciated, in particular the legal regulations favourable for the development of entrepreneurship and the support that local authorities offer in the logistics industry in this country.

The availability of a qualified workforce proved to be the key factor determining the choice of the location of logistic facilities. In Western European countries (e.g. in the Netherlands) attention was paid in particular to the availability of employees with appropriate qualifications, while in Central and Eastern Europe also to labour costs. South part of the Netherlands and the Ruhr area are those that are particularly large bases of qualified and flexible workforce.

A very important factor was also the presence of modern and well-functioning infrastructure and the position providing access to global transit routes.

The list of the best locations of logistic facilities in Europe in 2017 is presented in Table 2.

The Netherlands and Germany have obtained high places in all five categories of factors shaping the choice of new locations of logistic facilities. At the same time, they confirmed their leading position in the rankings in previous years. They can therefore be considered as the most desirable location in Europe.

Despite the fact that the top five of the best locations did not include countries such as Italy, France or Spain, yet due to the well-developed economy, transport networks and consumer concentration, they remain attractive to investors.

In Italy, Milan has gained recognition due to its economic importance and infrastructure, and Bologna - due to its central location and multimodality.

In France, Paris was rated the best. It was determined by its size, size of the logistics market and the base of qualified workforce.

In Spain, the preferred location was Madrid, as the main consumer cluster, with a favourable market environment and good infrastructure[13].

The most desirable locations for the location of logistic centres in Europe are shown in Figure 4.

[12] Customer Growth Strategies: Europe's Most Desirable Logistics Locations. PROLOGIS, october 2017.https://www.prologis.com/logistics-industry-research/customer-growth-strategies-europes-most-desirable-logistics-locations, (15.02.2018). Similar research was conducted by PROLOGIS in 2013 and 2016. Their comparison allows us to state that the situation on the logistics market is dynamic, the consequence of which are significant changes in preferences reported by logistics operators regarding the factors determining the location of logistic facilities.

[13] Prologis provided the list of the most desirable logistic locations in Europe. http://www.pracujwlogistyce.pl/19-najczesciej-czytane/5974-prologis-podal-liste-najbardziej-pozadanych-lokalizacji-logistycznych-w-europie (17.02.2018).

Table 2. The list of the best logistics locations in Europe

The proximity of the main consumption centres	Regulatory environment	Availability of workers	Transport infrastructure	Costs
1. Germany 2. The Netherlands 3. Belgium 4. Great Britain 5. France	1. The Netherlands 2. The other countries of Central and East Europe 3. Poland 4. Germany 5. Great Britain	1. Poland 2. The Netherlands 3. The other countries of Central and East Europe* 4. Germany 5. Belgium	1. The Netherlands 2. Germany 3. Belgium 4. France 5. Poland	1. The Netherlands 2. Poland 3. The other countries of Central and east Europe 4. Germany 5. Belgium

Source: Customer Growth Strategies: Europe's Most Desirable Logistics Locations. PROLOGIS, October 2017, p. 1. https: //www.prologis.com/logistics-industry-research/customer-growth-strategies-europes-most-desirable-logistics-locations (15/02/2018).

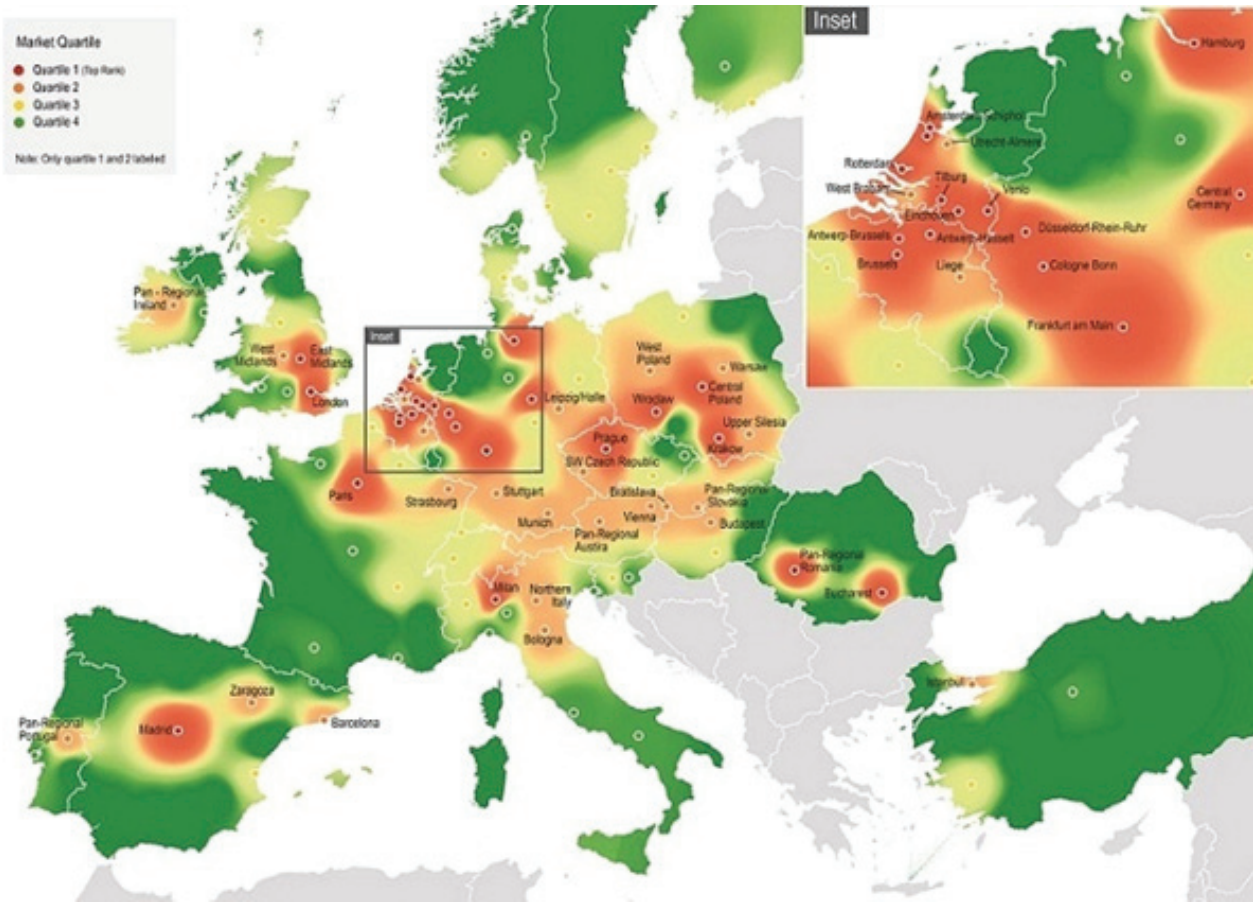

Fig. 4. The most desirable logistic locations in Europe, in 2017.
Source: Prologis gave a list of the most desirable logistics locations in Europe. http://www.pracujwlogistyce.pl/19-najczesciej-czytane/5974-prologis-podal-liste-najbardziej-pozadanych-lokalizacja-logistycznych-w-europie (17/02/2018).

5. THE DEVELOPMENT PERSPECTIVES FOR POLISH LOGISTIC CENTRES

The results of research and analyzes carried out by Prologis clearly indicate that Poland is also among the most attractive logistic locations. The popularity of our country and several other Central and Eastern European countries was determined by the availability of labour and investment land. The main factor, however, which respondents indicated was low costs in terms of labour costs and real estate costs. The region of Central Poland (Piotrków, Łódź, Stryków) is the only location that was in the top ten ranking in terms of both criteria[14].

The development of logistics investments in Central and Eastern Europe will take place at the expense of Western European countries. Many facilities located in France, Germany and Spain have lost their importance due to increasing barriers to employee availability and rising labour costs. In addition, the possibilities of developing new logistics projects in already saturated Western Europe are increasingly limited due to difficulties in the availability of suitable land. There is a shift in the „logistic centre" of Europe from countries such as Germany and France to Poland, which offers, among others, extensive transport infrastructure with access to main transit routes, a base of qualified employees, relatively low labour costs, well-developed economic centres, a dynamically developing logistics real estate market and an increasing number of consumers. The warehouse real estate sector is developing dynamically. In the first half of 2017, more than 1.82 million sq m of modern warehouse space was leased in Poland. Contracts for space were 32% higher than in the same period of the previous year. 70% of the transaction volume was new lease agreements and expansions. The best result was recorded in the Central Poland region, as well as in the Upper Silesia, where the demand for warehouse space increased by 158% and 89% respectively in comparison with the first half of 2016[15]. The growing demand for logistic objects is also accompanied by increasing supply. In the first half of 2017 10% more logistic areas were put into use than in the same period of the previous year. Most of the facilities were built in the vicinity of Warsaw, Poznań and Bydgoszcz. Many investments are under construction - the largest in the Warsaw area (360,000 m2), Upper Silesia (330,000 m2) and near Szczecin (293,000 m2) [16]. Poland has become a leader in Central and Eastern Europe in the field of warehouse and industrial investments and development of the logistics market.

The investment attractiveness of our country has also been confirmed in research carried out by CBRE and Panattoni Europe, in which 64% of respondents (providers of logistic services and manufacturing and trade enterprises) stated that Poland has a competitive advantage as a direction of investment in comparison with other EU countries[17]. The research indicator on the level of optimism in logistics and supply chain in Poland in 2017 was defined as 60.7. In the case of logistics companies it reached 62.1, while in the group of production and trade enterprises it amounted to 59.1. Compared with other countries of the European Union, Poland performed very well ahead of e.g. Ireland (60.4) and Great Britain (56.7).

In 2017, 76% of respondents planned to invest more in logistics and supply chains, and 62% assumed employment growth. Logistics companies were also very optimistic about the logistics real estate market. They estimated that by the end of 2017 there will be 84% increase in demand for logistics space. Among industrial and commercial enterprises, only 45% predicted that they would need to rent new premises[18]. Only 8% of respondents indicated uncertainty regarding the standard of logistics

[14] The most attractive logistic locations in Central and Eastern Europe. .http://www.terenyinwestycyjne.info/index.php/raporty/item/10296-najbardziej-pozadane-lokalizacje-logistyczne-w-europie-srodkowo-wschodniej (17.02.2018).

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[17] The indicator of the optimism level in the area of logistics and supply chain in Poland in 2017. CBRE and Panattoni Europe, Warszawa 2018, Sektor logistyczny optymistycznie patrzy w przyszłość – results of the report by CBRE and Panattoni Europe. Reports and analyses, November 2017. https://www.logistyka.net.pl/aktualnosci/raporty-i-analizy/item/88533-sektor-logistyczny-optymistycznie-patrzy-w-przyszlosc-wyniki-raportu-cbre-i-panattoni-europe (17.02.2018).

[18] Ibidem.

space. This result unambiguously confirms that the Polish logistics market offers high-quality properties tailored to very diverse customer requirements.

Taking into account logistics locations in Poland, respondents indicated three regions in which the highest demand for services within the supply chain will take place in 2017-2018. These were Central Poland, the Upper Silesia and the Warsaw region, gaining respectively 22%, 16% and 13% of the respondents' votes. The following regions are Wrocław (11%) and Poznań (9%). Such high demand for logistic facilities is accompanied by the high supply offered by these locations. The share of these five regions in the logistics space market amounts to as much as 80%, which creates some limitations in the availability of a qualified workforce. The consequence of this situation has been the shift in the interest of tenants of logistic real estate in the areas of Szczecin, Bydgoszcz, Toruń, Kielce, Lublin and Rzeszów[19].

6. CONCLUSIONS

The international studies carried out indicate that the Benelux countries, Germany, France and the United Kingdom remain the most attractive in terms of logistics. Logistics facilities located there guarantee direct access to major consumption centres, well-developed infrastructure of various transport branches, qualified workforce, and local authorities offer support to logistics industry entrepreneurs. In recent years, there has been a visible increase in interest in the Central European countries. Due to the dynamic economic development, better transport infrastructure, availability of qualified workforce and relatively not very high labour costs, as well as the extensive real estate market, these countries are playing an increasingly important role in the European logistics network. One of the leaders on the logistics market has become Poland. The areas of Central Poland, the Upper Silesia and regions located in the western part of the country are particularly attractive for the location of logistic centres. It is expected that along with the development of the logistics market there will be an increase in interest in Poland and our country will become the „logistics hub of Europe**".**

[19] Ibidem.

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