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Analysis of trends in development of freight transport logistics using the example of Silesian Province (Poland) - a case study

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Abstract

Forecasts pertaining to urban freight transport and international freight transport in the European Union unanimously imply that, within at least the next thirty years, the main indicator of functionality and growth will be dynamic supply chains, as they are commonly referred to, where logistics centres supported by almost infinite possibilities of new e-technologies will play the most crucial part. Owing to industrial tradition and well-developed transport infrastructure, including primarily the most densely built network of high-class roads in the country and fast road connections with central Poland as well as neighboring countries, the territory of Silesian Province has become an important warehousing market of all-Polish and Central-Eastern European relevance. Identifying the trends observed in the development of freight transport logistics within the territory in question is the first step towards improvement of the current state of matters. It also provided grounds to perform one of tasks defined under the international S-mile project implemented within the framework of the ERANET Transport III “Sustainable Logistics and Supply Chain” programme. This article is mainly an attempt to review results of the analyses undertaken in this scope, including those pertaining to the specificity of the existing infrastructure and the projected development of the logistic infrastructure in Silesian Province along with orientations of its development proposed in strategic documents of both national and regional level, such as the Silesian Province development strategy, development plans, concepts, forecasts as well as projects concerning transport and freight transport logistics. Some results of accessibility analysis of the logistics centres currently operating in Silesian Province have also been presented.

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1. Introduction

Silesian Province has been by far the most important industrial area in the south of Poland for many years. It borders on Łódzkie Province to the north, on the Czech Republic and Slovakia to the south, on Opolskie Province to the west and on Małopolskie Province and Świętokrzyskie Province to the east. The geographic location of the province is considered particularly advantageous, since one will find six European capital cities within the range of 600 kilometres from Katowice, namely Warsaw, Berlin, Bratislava, Prague, Budapest and Vienna. Silesian Province is the fourteenth largest and the second most populated province in the country. According to the official statistics published in 2017 by the Polish Central Statistical Office (GUS), its territory (which accounts for ca. 3.9% of the area of Poland) is inhabited by 4,635,900 persons (i.e. ca. 12.1% of Poland's total population), which translates into the highest population density ratio in Poland equalling 376 persons per km² (the Polish average being 122 persons/km², and the European Union average – 114 persons/km²). Such high concentration of people on a relatively small area represents an enormous potential outlet market for consumer goods, which contributes to the continuous growth of urban freight transport logistics. What also proves decisive of the development of urban freight transport logistics is the fact that one can find workforce of the highest quality in this region, which is also characterised by very good transport accessibility, well-developed economic infrastructure or generally a high level of economic development. According to reports by the Gdańsk Institute for Market Economics of 2015 (Tarkowski et al. (2015)) and of 2016 (Szultka et al. (2016)) as well as other research papers, e.g. Burdzik et al. (2013), Burdzik and Macioszek (2010), Macioszek and Sierpiński (2017), Staniek et al. (2016), Macioszek (2016), Sierpiński and Macioszek (2009), Silesian Province is among the very few areas in Poland whose investment attractiveness factor is at the highest in terms of industrial activity. Such a trend has been observed for more than ten years now.

Identification of potential orientations for the development of urban freight transport logistics in the area in question is the first step towards growth support and improvement of the current state of matters. It also provided grounds to perform one of tasks defined under the international S-mile project implemented within the framework of the ERANET Transport III “Sustainable Logistics and Supply Chain” programme. This article is mainly an attempt to review results of the analyses undertaken in this scope, including those pertaining to the specificity of the existing logistic infrastructure as well as its development plans in Silesian Province along with the targets proposed in strategic documents of both national and regional level, such as the Silesian Province development strategy, development plans, concepts, forecasts as well as projects concerning transport and freight transport logistics. The article also presents results of accessibility analysis of the logistics centres currently operating in Silesian Province.

2. Transport systems in Silesian Province

Highly developed and efficient transport system, perceived as combined transport potential comprising all spheres of transport, is considered as an important advantage when logistics hubs are created. Attractiveness of any area from the perspective of economic investments and development of urban freight transport logistics mainly depends on accessibility and condition of transport systems as well as quality of individual solutions deployed. It has been for the continuously upgraded and newly constructed network of high-speed roads that Silesian Province clearly stands out in terms of transport potential among Polish regions. It is commonly regarded as an area of very good transport accessibility, and not only because of the main trunk roads, but owing to a very dense road infrastructure as well. On account of the foregoing, logistics companies can make the most of the perfect conditions to allocate their investments in this region. While analysing the accessibility of road transport, one should keep in mind that road infrastructure is considerably affected by the transit nature of Poland's geographical location. In this respect, there are privileged regions in the country, cut through by pan-European transport corridors which guarantee the development of the high-speed road network. Silesian Province is one of these areas, where two out of ten trans-European corridors intersect. They are Corridor III (Berlin – Wrocław – Katowice – Krakow – Lviv) and Corridor VI (Gdańsk – Katowice – Žilina). Furthermore, there is also a dense network of collective public transport (buses and trams) as well as a junction of the A1 and A4 motorways within the area of Silesian Province. What certainly also contributes to the increasingly efficient operation of urban freight transport logistics in the analysed territory is the implementation of ITS (among others Ramos et al. (2012), Macioszek (2014a), Macioszek (2014b)).

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