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INVESTMENT IN TRANSPORT INFRASTRUCTURE AS A CRUCIAL FACTOR OF ENTREPRENEURSHIP DEVELOPMENT IN THE NEW EU MEMBER STATES – THE POLISH CASE

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Transport infrastructure, if well-developed and regularly updated, is one of the most important factors of economic growth of the country and regions. Article shows relations between investment in surface transport infrastructure and stimulation of entrepreneurship, it also demonstrates the crucial role played by European Structural Funds in the improvement of infrastructure. During the systemic transformation, Poland and other countries of the former communist block received an opportunity to refurbish their economic and social landscape. Thanks to European structural funds in 2004 – 2006 and 2007 – 2013 periods, preceded by pre-accession funds, Poland achieved a notable economic success, surpassing many expectations. Investment in the infrastructure allowed for improvement in all walks of life.

The progress in socio-economic indicators seen during the systemic transformation in Poland and other New Member States was overwhelmingly due to assistance in the form of EU funding, which flooded into those countries on unprecedented scale.

Article looks at conditions for development of the transport infrastructure in Poland and attempts to provide answers to questions on the nature of relationship between the transport infrastructure and its crucial end users: entrepreneurs.

This paper aims to:

- *demonstrate that investment in transport infrastructure is the key to improve the role of entrepreneurship in the development of a country and a region, and relations between the number of businesses and the quality and spatial prominence of the transport infrastructure;*
- *answer the questions: which instruments on the national and European level support the process of improvements to infrastructure and consequent better access of businesses to markets.*

Method adopted in the research involved questionnaires. Entrepreneurs responded to questions concerning their activity and its dependence on proximity of the motorway and neighboring local transportation networks. The second method of research was statistical data received from the Polish Statistical Office about the number of enterprises and proximity of available infrastructure.

The main finding of the research is that the development of small and medium enterprises is not overwhelmingly dependent on the proximity of a highway. The larger the investment in regional transport infrastructure, less so motorways (often toll roads) and more national, regional and local roads, the more visible are financial and economic outcomes achieved by SMEs.

Regional and national level planning documents acknowledge that the present day quality of transport infrastructure leaves a lot of room for improvement and actions should be taken to address this issue in short time horizon, if Poland is to have a cohesive transport infrastructure on par with the rest of EU. Creating good infrastructural conditions is the most important factor to create a favorable environment for entrepreneurship.

Keywords: *entrepreneurship, SMEs, localization decisions, motorways, local transportation networks, infrastructure impact, cooperation networks, EU New Member States, European Structural Funds.*

Introduction

Regional development is a consequence of compound economic factors: national and regional policy, governmental engagement, investment in social and technical infrastructure founded from external and internal resources. In the case of EU New Member States, fundamental impact on the socio-economic development is brought upon by European Structural Funds. *The competitiveness of enterprises and territorial systems depends on the creation of new knowledge, access to information and information processing – in other*

words – on innovation in the broad sense (Smętkowski at al., 2011).

The need for increased efficiency to economic processes of countries which entered into the chase of systemic transformation in early 90s, was primarily served by the investment in the technical infrastructure and creation of conditions for the development of the knowledge based economy. The transport infrastructure is instrumental to the development of regions in a new economic reality. *Transport*

infrastructure is a vital social and economic asset: it structures space and determines mobility (Short, Kopp 2005).

Struggle with a transport infrastructure deficit present in Central European Countries results with a raised importance of research which decodes mechanisms of interaction between the infrastructure and a range of diverse spatial components. One of the fundamental functions of the transport infrastructure is a broadly defined integration of spatial systems (Makiela 2005) as well as organization of economic space (Rietveld 1994). The issue of transport infrastructure in a post-socialist block as a whole, including Poland, is perceived as a fundamental barrier of growth (Hall 1993) overcoming of which is perceived as a strategic tool at practically all levels of spatial aggregation (Fig. 1).

Spatial aspects of the impact of transport infrastructure relate to a range of phenomena and socio-economic processes. There are indications of the need for conducting research aimed at deeper identification of relationships between demand for transport, investment in transport sector and Gross Domestic Product (Preston 2001). The most tangible effect of spatial impact the transport infrastructure has are the changes in land use. This is how certain trends become visible, in – for example – location of economic activities related to transport sector and its infrastructure.

At the same time one needs to pay attention to a certain notable discourse in the perception of transport infrastructure as an asset which defines communicational access. Ambiguity in judgment of the infrastructure’s role depends on the type of infrastructure and the spatial scale under consideration. In case of highways and airports on regional, national, and most particularly, global scale, it is hard not to view those objects in a category other than warrants of accessibility. At the same time, being a large volume objects, they impose a physical barrier, which may mean that on the local scale they can serve as limiters of access (for example – cordoning inhabitants off of their farming estates - Górká,

adoption by Poland of a polar-diffusion development model, communications linkage of peripheral areas with centers of growth should serve as a catalyst for transferring drivers of development.

On the scale of generally witnessed transformation, the biggest achievement reached with the help of the infrastructure in question is not the reduction in distance, however. In a somehow paradox development, although expansion of the transport infrastructure encompassed areas previously either inaccessible or underserved, as well as resulted in the development of distribution structures, at the same time still the average distance of transporting people and goods grew (Rodrigue at al. 2007).

Transport infrastructure in the context of this article is defined as road, railway, air port, sea and river objects. The road infrastructure – from the point of view determined by the stage of Polish economic development – is the most important, due to its omnipresence, is also most frequently used and forms the most dense network of connections between individual administrative units. It also lies at foundations of the exchange of goods, services and people. The quality of transport infrastructure has a particular meaning in economic contacts on local level. As the scale of business operations grows and markets expand, the infrastructure with greater spatial reach is utilized: from local roads to expressways and highways, which serve as transit routes and corridor leading either to destinations of goods or reloading sites from which the shipment continues further.

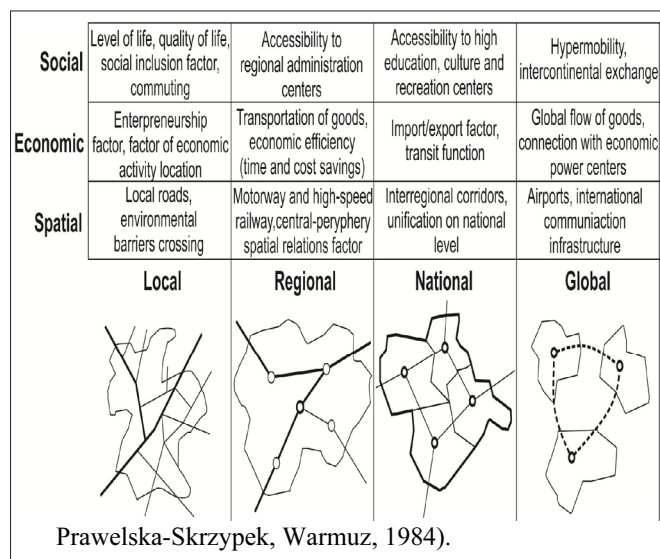
The aim of this paper is a demonstration that investment in the transport infrastructure is the key in raising the role of entrepreneurship in the development of a country and a region, and its impact manifests itself within activity of small and medium enterprises. The second aim is to answer the questions: which instruments support investment in transport infrastructure and lead to cohesion with developed European countries? How the transport infrastructure should be standardized – in theory and in practice?

Financial initiatives undertaken by local governments aimed at improvement of the transport infrastructure are the main driver stimulating development of regions, in particular those along Poland’s eastern border, which by coincidence is also a section of the European Union’s eastern border.

Literature review

The research on the impact of transport infrastructure on the shape of entrepreneurship on local and regional levels had its origins back in the age of first great economic minds, at the time when company localization theories were being developed. Already at the turn of the 20th century, the optimum location of a business was defined as a one which minimizes the cost of transport per unit produced (Launhardt (1882), Weber (1909), Lösch (1940). Those general production sector location theories were continuously modified to fit them into changing times and conditions. According to research conducted by Pugh and Fairburn (2007) in their studies on the influence and advantages from investment in the transport infrastructure, the most significant input was generated by scientists based in the USA, with UK a close second.

In the 90s a set of detailed research reports on the transport network and its impact on the economic activity were published. They demonstrated that [...] *many decision*



Source: authors own elaboration

Figure. 1. Functions of transport infrastructure viewed from different levels of spatial aggregation

Permeability of regional systems is a goal consistent with objectives set forth by individual regions. Upon

makers interested in the role of transportation infrastructure take it for granted that is always better than less because it would lead to less congestion and/or to a higher accessibility to existing facilities (Peeters et al. 1998).

Communication accessibility of the region and the process of de-location of companies were indicated by Leitham, McQuaid, Nelson (2000) who observed that [...] *different levels of road accessibility were seen to be determining factors for firms making local relocations decisions, despite the developed nature of the road network in the survey area. However, based on additional survey questions, there was no evidence of locations being rejected because of poor accessibility. Perhaps local knowledge precluded consideration of locations with poor road accessibility*" (Leitham et al., 2000). The most thorough description of the transport system and its relations with adjacent areas was described by Rodrigue et al. (2009): *All locations are relative to one another. However, locations are not constant as transportation developments change levels of accessibility, and thus the relations between locations. The development of a location reflects the cumulative relationships between transport infrastructure, economic activities and the built-environment.*

Polish literature is rich in works on production location factors, there is however a lack of in depth research on the dependency between the existing transport infrastructure and increased entrepreneurial activity, as well as needs in this domain. One of the attempts were made by Tomaszewski (2006), who presented an impact of the infrastructure on the entrepreneurship growth in West Pomeranian rural regions. Due to the fact that only one decade has passed since the start of serious investment in Polish highways and expressways, the research on their impact is in initial phase. Functional and spatial changes of areas adjacent to the A4 highway (highway which connects Polish south western border with Germany with – in 1-2 years perspective – Ukraine) were described by Słodczyk & Szafranek (2008) as well as by Górka & Praweńska-Skrzypek (1984). An in depth report edited by Rekowski (2008) on the impact of A2 highway on the entrepreneurial tissue in Wielkopolska region is currently the most comprehensive publication on the issue in Poland.

Literature review provided evidence for impact the quality and density of surface infrastructure plays in Poland in integration and globalization processes. Since 2004, when Poland became a member of the EU a clear need for creation of coherent transport system became evident - in order to improve economic conditions for entrepreneurial initiatives within the Polish and European socio-economic environment.

Methodology and methods

Authors prepared an anonymous questionnaire form, labeled *Investment in transport infrastructure as a growth factor of the entrepreneurship in Poland*, and asked representatives of 50 companies to complete it, of which 18 were returned and were selected for the analysis. The questionnaire composed of 10 questions formulated in a way in which given responses unequivocally indicated specific transport preferences of individual companies.

The research encompassed all types of enterprises: micro (employing up to 9 people), small (up to 50 employees), medium (up to 250 employees) and large (above 250

employees). From among companies investigated, basic profiles of activities were singled out; majority of companies under investigation represented service sector and as a consequence, the questionnaire was filled by 14 companies providing various services. In their case, the transport infrastructure gains a particular importance, as contact with clients called for in service industries hangs on efficient shuttling across the geographic space, dynamics of change in road connection networks and availability of modes of transport. Results submitted contrast findings of previous research, suggesting that the quality of transport infrastructure has a particular meaning only to companies providing transport services, wholesale trade and production sector (Słodczyk, Szafranek, p. 198-199 (2008). This may be explained by general inadequacy of the transport infrastructure, although small trial sample does not preclude distortion of results.

Among 18 responses, an overwhelming 10 companies fall into the micro category, 4 are small companies, 1 medium and 3 are large companies employing 250 employees.

Policy pursued by large companies with an international reach leads to realization of localization decisions taken by top management: either in proximity to highway exits, in a close distance to large cities or – ultimately – in large cities themselves, as their transport infrastructure is complementary, i.e. offers diverse alternative channels of transport. Large cities in general serve as academic centers, which in combination with good communication access and possibility of utilizing various kinds of transport infrastructure places them on a highest level of competitive advantage in localizing new investment, as such location offers access to highly skilled specialists.

The reach of impact it has, the choice of means of transporting people, goods and services are dependent on the location of the company. The European and international reach remains in general a domain of large companies employing in excess of 250 employees. Micro, small and medium enterprises utilize mainly the locally available road infrastructure. With this in mind, large companies utilize all kinds of transport infrastructure and means of transport.

Among the companies responding through the questionnaire, the most frequently utilized means of locomotion is a motor vehicle – used in service companies as individual modes of transport, or to transport small volume goods, and a small delivery vans. Secondary means of transport is air travel. Utilization of air travel offers quick movement, establishment of new trade contacts and maintaining of old ones. Air travel is mainly the choice of companies located in cities or in their immediate proximity – greater distance extends time needed to reach the airport.

2 from among companies which responded offer transport services. They maintain international business activity and provide services on the European market. For those companies highways are the most important infrastructure. The spatial reach of company's activity is consistent with its market for goods and services it offers. Companies in question operate mainly on the national and European market (The European Union). For this reason they are highly dependent on the condition of the infrastructure. Companies which declared a broad, European or global reach of their activities utilize highways, rail and air connections.

For 9 out of 18 companies the factor of access to adequate transport infrastructure was not the key deciding factor for location. Taking into account the profile of companies located in the proximity of highway exits and along main communication tracts one can conclude that the importance of this infrastructure is paramount only in case of companies which belong to transport and production sectors.

Companies appreciate efforts by local governments to utilize community funding to improve the transport infrastructure. From among options available in the questionnaire (very good, good, bad, very bad, no opinion), none of the companies described those efforts as either very good or very bad. In 16 municipalities, EU funding is used to improve existing and construct new roads and railway infrastructure. Only 1 respondent declared that his municipality does not conduct investment in the transport infrastructure and one responded conceded that although the municipality uses EU funding to improve the infrastructure, it is not the kind of investment which would benefit companies located there.

Analysis of filled in questionnaire was supplemented by a desktop research, based on query of Teleadreson database (www.teleadreson.pl), which returned NACE data of companies based in selected locations.

Conditions for the development of the transport infrastructure in Poland

Together with the socio-economic transformation the role of transport infrastructure gained in importance. The paramount factor behind this phenomenon was the liberation of market mechanisms in the valuation of the real estate. An adequate level of communication accessibility (in its basic form – in relation to centers of settlement) counts among factors able to determine not only the value of a specific real estate, but also the manner of its use. In conditions of a centrally planned economy, decisions related to the development of infrastructure were taken at the top, i.e. in disconnect to demand stemming from rational premises. Currently, complementation of pre-existing deficit in the infrastructure, as well as improvement in the quality of the existing infrastructure is based on planned actions included in planning and strategic documents, which are frequently rooted in the practice brought about by the use of EU funds.

The need for the development of the Polish transport infrastructure stems equally from the lagging behind caused by underinvestment in previous decades, as well as unceasing need for work on cohesion of the country partitioned between three neighboring powers for over a century – ripple effects of which are still very visible. At the same time, realization of large scale infrastructure projects (such as construction of a national highway and expressway network, or the airport network) is being determined by functional and geopolitical preconditions which are characteristic for a transit country at a European dimension. Inclusion of Poland into the network of Pan-European Transport Corridors means equally access to external sources of funding (the European Union), but also the necessity to take on the responsibility for actions of this scale.

Specific event which for Poland – but also for the neighboring Ukraine – translated into acceleration of efforts to develop the transport infrastructure was organization of the

European Football Championship (Euro 2012). Poland saw construction of 4 world class football stadium and – more relevant – modernization or construction of roads leading to those objects. Besides sport and road infrastructure, investment encompassed overhaul of a range of buildings which belong to railway companies and train stations in cities hosting the Euro 2012 and cities placed along the path of fans traveling to matches taking place in Poland and Ukraine.

The wide spectrum of preconditions for the development of transport infrastructure in Poland presented above has an overarching goal of leading to an improvement in socio-economic development. One of the basic goals in this regard is the stimulation of entrepreneurship particularly in problem areas concentrated in the central and eastern part of the country. In the process of discussion on challenges facing realization of set infrastructural objectives, questions emerge on how does the transport infrastructure shape the economic fabric and to what extent high expectations related to the road network being developed in Poland have a real justification.

Expectations towards transport infrastructure as a content of planning documents

Analysis of planning and strategic documents in force in Poland shows how the extent of diversity of expectations towards the desired transport infrastructure. Expressed at the foreground is the clear dependency between the size and the importance of a given spatial unit against the perception by the (usually local) authorities of goals related to the broadly understood infrastructure, including transport. The example of the Małopolskie region (Kołoś, Trzepacz 2009) has shown that for typically rural municipalities, especially placed in remote areas, the development of infrastructure is directed at fulfilling more basic needs resulting from the attempts to respond to current needs of inhabitants and entrepreneurs. Construction of a stretch of a local road, a bridge across the stream, or improved road surface – in the scale of individual rural municipalities are a recurring collection of tasks.

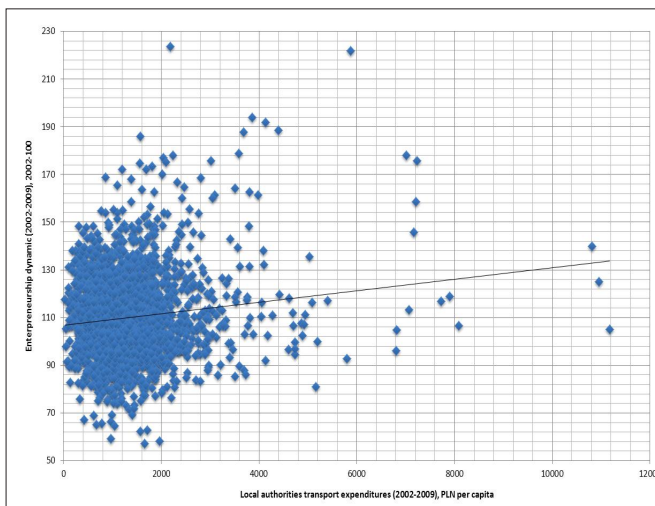
Rural and urban areas alike face the challenge of moving the transient traffic away from the center of the settlement system. Thus, construction of ring roads became one of the main priorities of many Polish local governments. In this instance, the economic potential of such solution was acknowledged, and areas surrounding ring roads are often set up to be oriented towards the needs of special economic zones, or more generally – large surface objects such as warehouses or production halls.

The challenge of inadequate infrastructure is viewed at differently in large cities. Firstly, the infrastructure, for the large part, serves purposes projecting beyond satisfying elementary needs for a medium of transport. In this case, the need of connecting the Central European cities with the system of global cities marks out the hierarchy of infrastructural needs, or more to the point – it projects on the rhetoric in favor of justifying those needs. On this level of settlement network, cities see the proper organization of transport as a deciding factor for transformation of a settlement into metropolitan entity (Kołoś, Trzepacz 2010). Domański (2007) counts the problem of accessibility as one of preconditions for attracting foreign direct investment by metropolitan areas.

At this moment it is worth noting that a metropolis will function properly only if at least two requirements from a

standpoint of transport perspective are fulfilled. The first relates to the setting up of a international communication node, through investment in an airport which would service the city or even an urban network which would not necessarily be contained in one administrative unit. The example of airports also shows that on a certain level of spatial organization, the transport infrastructure constituting indispensable support to the functioning of a given settlement unit does not necessarily have to be an element of its own settlement fabric in a pure sense. The second requirement for the organization of a transport in a metropolis is a balanced combination of its role as a node of international communication with the metropolitan substance, through public transport. It should be noted at this point however, that on the metropolitan level a proper organization of the transport function is not limited to infrastructural aspects, but also included its management, involving crossing beyond borders of individual administrative units.

The impact of transport investment on businesses or more generally, entrepreneurship, should be considered in the categories of codependence. On one side, access to the transport infrastructure constitutes a factor in location of commercial activities, on the other side, commercial activity generates demand for specific infrastructural solutions (Fig. 2) – including those aimed at improvement of transport infrastructure (its size and quality). These relationships should therefore provide a feedback, they however generate a substantial problem in the form of the potential space necessary to conduct investment in the infrastructure. Effectiveness of the development of infrastructure as a catalyst of traditionally strong entrepreneurial spirit was identified in the case of so called *Sachsen Dreieck* i.e. one of German metropolitan areas in East Germany (Trzepacz, Więclaw-Michniewska 2006).



Source: own, based on data published by Polish Statistics Office
Explanation: Entrepreneurship dynamic – dynamic was calculated for the number of businesses per 1000 inhabitants

Fig. 2. Relationship between entrepreneurship dynamic and municipal expenditure on transport and communication in Poland

Mechanisms supporting investment in infrastructure

The dynamic growth of the transport infrastructure and its upgrade was first made possible by pre-accession funds. Since the first half of 90s, the transformation processes in Poland were supported by EU assistance funds (mainly Phare Programme, followed by ISPA and SAPARD) and through European financial institutions – European Investment Bank, European Bank for Reconstruction and Development (Czyżewski, Grzelak 2005). The Phare fund was non-refundable aid and became the first pre-accession programme, launched in 1997. It was aimed at supporting economic and political change. In the initial phase it operated as a Polish-Hungarian fund, with time reshaped into a pre accession instrument aiding 10 EU candidate countries. Specific goals of Phare included: *helping the administrations of the candidate countries to acquire the capacity to implement the Community acquis. Phare also helps the national and regional administrations, as well as regulatory and supervisory bodies, in the candidate countries to familiarize themselves with Community objectives and procedures,* and – what is of paramount importance in the context of this article: *helping the candidate countries to bring their industries and basic infrastructure up to Community standards by mobilizing the investment required, particularly in areas where Community rules are increasingly demanding: environment, transport, industry, product quality, working conditions etc* (Phare Programme, 2007). Phare, in some aspects supported businesses, for which the end of centrally planned economy was only the initial phase of entering the market economy reality and free competition.

In Poland, Phare funding proved to be the first substantial mechanism to fund construction of highways linking EU with Eastern Europe. In the transport sector, Phare made a major contribution in 1998 with the launch of construction of the Katowice bypass (EUR 35 million) and the Poznan bypass (EUR 45 million). These are located on the A4 motorway (Trans-European Corridor III) and the A2 motorway (Corridor II) respectively, and aim to link Berlin with Kiev and Moscow (The Phare Programme - Annual Report 1998).

ISPA was designed to be a programme aimed at facilitating pre-accession efforts by EU candidate countries to improve and harmonize their transport and environmental infrastructure. Poland became a beneficiary of the ISPA fund in 2000, and following EU accession (May 1st, 2004), ISPA was transformed into the Cohesion Fund. Projects co-financed by ISPA were realized until the end of 2006. 38 transport related projects were completed in Poland (Rogowska, 2008), there is however a lack of precise numerical data which would give a picture of the scale of resources engaged in transport investment, including: support for endeavors facilitating harmonization of Partnership for Membership goals by beneficiary countries, through creation of linkages between national and trans-European road networks and standardizing of their use (ISPA, 2005).

With the start of efforts to join the European Union, Poland entered the phase of conscious investment planning. The rank of such investment is universally known: [...] *the role of transportation infrastructure in an integrated economy has been a very much neglected topic. [...] network configurations have long-run implications for the spatial organization on human activities* (Peeters et al., 1998).

But it was the key tool of implementing cohesion policy – the structural funds – that brought new quality to improvement of economic and social conditions in New Member States. The strategic cohesion goal of EU institutions and governments is being expressed by the scale of investment in New Member States' infrastructure, financed primarily from the European Regional Development Fund (ERDF). Initial funding from this source in the 2004–2006 period saw contribution of EUR 1 654.2 million, but a significant change in magnitude of EU assistance came with the launch of the 2007–2013 financing period. As the most recent statistics (March 31st, 2012) by the Polish Ministry of Regional Development show, the value of ERDF contracting in the transport theme (codes of intervention 16 – 32) in the current financing period amounts to PLN 115.1 billion, which is an average exchange rate equivalent of approximately EUR 28.8 billion, including national contribution (calculated for the purposes of this article as a intensity of ERDF reimbursement weighed average EUR/PLN exchange rate for the 01.01.2007 - 31.03.2012 period, based on monthly average exchange rates published by the Polish National Bank).

The total allocation for 16–32 ERDF codes of intervention, in all Operational Programmes in the 2007–2013 period amounted to EUR 22.67 billion. In addition, the National Cohesion Policy Framework which forms a basis for distribution and allocation of financial resources between individual thematic priorities, foresaw earmarking of approx. EUR 16.04 billion, constituting 24,1% of all ERDF earmarked funds. In general, while transport is one of the 9 thematic priorities, it takes up a lion share of all structural investment. To put things into perspective, the most current data shows that all submitted ERDF payment claims in all priorities of the 2007–2013 period are valued at 32.05 billion (PLN 132.7 billion) and the value of signed contracts amounted to EUR 7.7 billion (PLN 294.3 billion).

Projects encompassed by the „Transport” activity concentrate mainly on construction and modernization of roads: local, regional, national and highways. The Agency responsible for investment on the national and European scale is the General Directorate for National Roads and Motorways (GDDKiA), which coordinates the government policy on issues related to transport and accompanying infrastructure. GDDKiA realizes road network projects included in Operational Programme Infrastructure and Environment - OPI&E. Since 2007 GDDKiA realized within the OPI&E projects valued at EUR 4.6 billion (PLN 18.4 billion), which substantially added to the Polish road network and contributed to setting up of a infrastructural bridge between the European Union and Eastern Europe.

Conclusions

In the supreme Polish spatial planning document: The Concept of National Spatial Planning 2030 („*Koncepcja przestrzennego zagospodarowania kraju 2030*”, 2011) the transport network ranks as third, and the exact goal of the spatial planning policy related to it has been expressed as follows: *Improvement in territorial accessibility of the country in different spatial scales, achieved through development of transport and telecommunications infrastructure. According to this document, the national policy will drive towards improvement of access to Polish cities and regions as well*

as reduction of the cost of transport (Concept of National Spatial Planning 2030, 2011).

National and regional development strategies contain sections on planned investment in the transport infrastructure. In light of those documents the most important conditions to be fulfilled by the infrastructure are: increased accessibility, adequate quality of road surfaces, well developed accompanying infrastructure. The added value in case of community funding enabled growth of transport infrastructure is creation of new connections between businesses and consumers. As research by Peeters at al. (1998) show, the road network on local level has a key importance for the economic development on both local and regional levels. Accessibility is the first deciding factor in location of new businesses.

Another issue is the investment in regional transport infrastructure and verification if regional authorities ensure appropriate growth conditions for transport of goods and SMEs' spatial accessibility.

Structural funds provided substantial impetus for local governments, mobilizing them to action and competition for external funding. This in turn created conditions for a more flexible approach to needs of local businesses: SMEs were included in public consultations and could suggest optimal infrastructural improvements, such as access roads to areas with high concentration of businesses.

References

- Czyżewski, Andrzej; Grzelak, Aleksander (2005) Makroekonomiczne tło procesu transformacji polskiej gospodarki // Funkcjonowanie gospodarki polskiej w warunkach interakcji i globalizacji, red. D. Kopycińska, Katedra Mikroekonomii US. - ISBN 83-917487-6-6 - Szczecin, p. 11-20
- Domański, Bolesław (2007) Metropolitan areas as „switching points” in the networks of relationships // T. Marszał, W. Zmitrowicz (red.), Metropolises and metropolitan areas - structures, functions and role, Comitee for Spatial Economy and Regional Planning, Polish Academy of Science, Warsaw, p. 232-244
- Górka, Zygmunt; Praweńska-Skrzypek, Grażyna; Warmuz, Marta (1984) Desintegration of rural socio-economic system caused by highway (the village of Morawica ex ample) // Zeszyty Naukowe Uniwersytetu Jagiellońskiego, Prace Geograficzne. - ISSN 0083-4343. - no. 60, p. 17-29
- Hall, Derek R. (1993) Impacts of economic and political transition on the transport geography of Central and Eastern Europe // Journal of Transport Geography. ISSN 0966-6923. - Vol. 1, 1, p. 20-35
- ISPA (2005), On-line: <http://www.funduszsposjnosci.gov.pl/ISPA/>
- Kołoś, Arkadiusz; Trzepacz, Piotr (2009) Planowanie strategiczne w gminach województwa małopolskiego // Górka Z., Zborowski A. (red.), Człowiek i rolnictwo, Instytut Geografii i Gospodarki Przestrzennej Uniwersytetu Jagiellońskiego. - ISBN 978-83-88424-43-4. - Kraków, p. 281-290

- Kołoś, Arkadiusz; Trzepacz, Piotr (2010) Transport a metropolitalność - przykład Berlina // *Prace Geograficzne*. - ISSN 1644-3586. - Kraków, 124, p. 11-28
- Koncepcja przestrzennego zagospodarowania kraju 2030* (2011), Warszawa
- Launhardt W. (1882), *Die Bestimmung des Zweckmässigsten Standortes einer Gewerblichen Anlage, Zeitschrift des Vereines Deutscher Ingenieure*
- Leitham, Scott; McQuaid, Ronald. W.; Nelson, John D. (2000) The influence of transport on industrial location choice: a stated preference experiment // *Transportation Research Part A*. - ISSN 0965-8564. - no. 34, p. 515-535
- Makiela, Zbigniew (2005) Funkcje infrastruktury techniczno-ekonomicznej w strukturze obszarów metropolitalnych // Z. Makiela, T. Marszał (red.), *Infrastruktura techniczno-ekonomiczna w obszarach metropolitalnych*, Biuletyn KPZK PAN - ISSN 0079-3493. - 222, p. 20-29
- Peeters, Dominique; Thisse, Jacques-Francois; Thomas, Isabelle (1998) *Transportation Networks and the location of Human Activities // Geographical Analysis / Ohio State University Press*. - ISSN 1538-4632. - Vol.30, No. 4, p. 355-371
- Phare Programme (2007), On-line: http://europa.eu/legislation_summaries/enlargement/2004_and_2007_enlargement/e50004_en.htm
- Preston, John (2001) Integrating transport with socio-economic activity - a research agenda for the new millennium // *Journal of Transport Geography*. ISSN 0966-6923. - Vol. 9, 1, p. 13-24.
- Pugh, Geoffrey; Fairburn, Jon (2008) Evaluating the Effects of the M6 Toll Road on Industrial Land Development and Employment // *Regional Studies*. - Online ISSN 1360-0591. - Vol. 42.7, p. 977-990
- Rekowski M.,(editor) (2008), *Entrepreneurial Tissue and Regional Economy. Case Studies of Selected Polish and Spanish Regions*, Poznań
- Rietveld, Piet (1994) Spatial economic impacts of transport infrastructure supply // *Transportation Research Part A*. - ISSN 0965-8564. - no. 28, 4, p. 329-341
- Rodrigue J.-P., Comtois C., Slack B., (2007), (2009), *The geography of transport systems*, Routledge, London-New York.
- Rogowska, Milena (2008) Realizacja projektów współfinansowanych z funduszu ISPA i z Funduszu Spójności w Polsce // III Krakowska Konferencja Młodych Uczonych / Grupa Naukowa Pro Futuro. - ISBN 978-83-927762-1-5. - Kraków, p. 493-499
- Short, Jack; Kopp, Andreas (2005) *Transport infrastructure: investment and planning. Policy and research aspects // Transport Policy*. - ISSN 0967-070X. - no.12, p. 360-367
- Słodczyk, Janusz; Szafranek, Edyta (2008), *Przemiany funkcjonalno-przestrzenne na obszarach położonych w pasie autostrady A4 // Przekształcenia regionalnych struktur funkcjonalno-przestrzennych „Europa bez granic - nowa jakość przestrzeni” / Rozprawy Naukowe Instytutu Geografii i Rozwoju Regionalnego Uniwersytetu Wrocławskiego*. - ISBN 978-83-62673-02-5. - Wrocław, p. 195-200
- Smętkowski M., Gorzelak G., Kozak M., Olechnicka A., Płoszaj A., Wojnar K. (2011), *The European Metropolises and Their Regions: From Economic Landscapes to Metropolitan Networks*, Warsaw, ESPON & EUROREG
- The Phare Programme - Annual Report 1998, On-line: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52000DC0183:EN:HTML>
- The Polish Ministry of Regional Development, Wykorzystanie środków UE w ramach strategii wykorzystania Funduszu Spójności na lata 2004+2006 oraz Narodowych Strategicznych Ram Odniesienia 2007-2013. Informacja miesięczna za styczeń 2012 r., On-line: http://www.funduszeuropejskie.gov.pl/AnalizyRaportyPodsumowania/Strony/KSI_raporty.aspx
- Thomas, Isabelle (2001) *Transportation Networks And The Optimal Location Of Human Activities: A Numerical Geography Approach: Online: http://thema.univ-fcomte.fr/theoq/fr/publications.php?menus=publications&annee=2001*
- Tomaszewski, Marek (2006) *Infrastruktura techniczna jako czynnik rozwoju przedsiębiorczości na obszarach wiejskich (na przykładzie województwa zachodnio-pomorskiego) // Zeszyty Naukowe Akademii Rolniczej we Wrocławiu*. - ISSN 0137-2017. - no. 540, Wrocław, p. 543-550
- Trzepacz, Piotr (2010) *Autostrady i porty lotnicze w kształtowaniu przestrzeni miejskiej i podmiejskiej // Studia miejskie*. - ISSN 2082-4793. - no. 2, p. 139-152
- Trzepacz, Piotr; Więclaw-Michniewska, Joanna (2006) *Silicon Saxony – processes of transformation in the last fifteen years // Europa XXI*. - ISSN 1429-7132. - 15, Warszawa, p. 103-118
- Trzepacz, Piotr; Więclaw-Michniewska, Joanna (2007), *Infrastructural determinants of spatial structure in Krakow’s suburban zone – case study of Michałowice and Zabierzów communities // Europa XXI*. - ISSN 1429-7132. - 16, Warszawa, p. 63-78
- Weber A. (1909), *Über den Standort der Industrie*, Tübingen

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