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Importance of TEN-T Corridors in the Development of Infrastructure Example of Visegrad Group Countries[1]

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Abstract

Transport is one of key factors of the development of each modern society. It is one of the most important areas that governments all around the world should address when developing national policy. The objective of the article is to define the importance of Trans-European Network – Transport (TEN-T) corridors in the development of infrastructure connections between groups of countries known as Visegrad group. TEN-T core network represents a trans-European transport system and includes the priority area of transport infrastructure. Individual Member States are obliged to complete the TEN-T core on its territory not later than 31.12.2030. The Visegrad group countries as neighbourhood countries presents perspective platform for cooperation in infrastructure development.

Key words

TEN-T, transportation, infrastructure, cooperation

JEL Classification: L91, R12, R49

Introduction

The Trans-European Network of Transport (TEN-T) represents an important step in the process of European development, conc. European economic policy that dates back to the Rome Treaty from year 1957. TEN-T is a part of the Trans-European Networks (TEN), which includes not only infrastructure but also communications and energy. Another important document was the Treaty of Maastricht from the year 1992 included rules for the TEN development. (European Commission, 2016). Under the Terms of Articles 154, 155 and 156 of the Maastricht Treaty, the EU aims at promoting the development of a TEN-T as a very important factor for the Internal Market functioning and for the Economic and Social Cohesion reinforcement. Cross country cooperation is the presumption of the interconnection and interoperability of networks as well as its accessibility. TEN development create space also for Free Movement of Persons, who can easily cross the borders of the EU countries. Since the first projects developed in road and railway transport in 1996, the TEN-T includes also seaports, inland ports and intermodal terminals nowadays. These type of transport was included in May 2001.

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TEN-T represent the opportunity for strengthening the European integration and it is important to analyse the benefits of transport infrastructure in a ration benefit costs how we can see on the following figure.

The objective of the article is to define the importance of TEN-T corridors in the development of infrastructure connections among countries known as Visegrad group.

On the basis of analysis of current stage of development of the TEN-T corridors passing through these 4 countries can be assessed the role of these countries in the overall TEN-T strategy.

1 Methodology

A theoretical overview of research problem was obtained by the literature research method to define the basic terms such as Pan-European and Trans-European networks. Afterwards the authors are using the comparative method and method of synthesis, on which the method of historical analysis is applied with the focus on "zoom-in" and "zoom-out" point of view.

For the purposes of research work 4 countries were chosen: Slovakia (SK), Hungary (HU), Czech Republic (CZ) and Poland (PL), because of more important facts and reasons of cooperation.

- All four countries lay in strategic position of central Europe what represents potential for further and deep cooperation.
- The cooperation between these countries is based on road, waterway and railway connection. The priority connections among the EU policy.
- All countries build this cooperation on well-working cooperation as sub-regional cooperation in the EU that celebrates 25th anniversary in 2016.
- Through these four countries pass 5 common of 9 TEN-T corridors as strategic network through EU. SK, HU, CZ lays in 3 TEN-T corridors and PL lays in 2 TEN-T corridors.

Table 1 Comparison of basic data

Basic data of selected countries				
	Slovakia	**Hungary**	**Czech Republic**	**Poland**
total area (km2)	49 035	93 028	78 867	312 685
of this land	48 105	89 608	77 247	304 255
of this water	930	3 420	1 620	8 430
land boundaries (km)	1 611	2 106	2 143	3 071
border countries number	5	7	4	7
Population	5 445 027	9 897 541	10 644 842	38 562 189
GDP (bln. $) in PPP	153	257	331,4	1 003
GDP per capita ($) in PPP	28 300	26 000	31 500	26 400

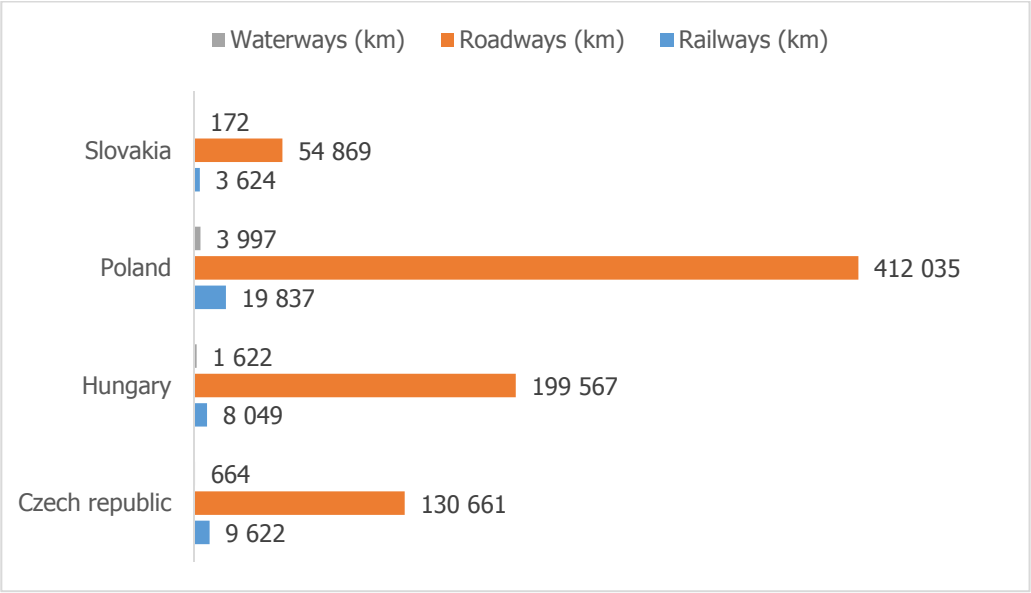
Source: own proceedings according to: The World Factbook, CIA, 2015

2 Results and Discussion

Transport infrastructure of Central and Eastern countries of the EU is lacking the adequate quality and speed. In some of these countries there is absolute absence of the high speed transport connection through the whole country. The authors specify namely four countries – CZ, HU, PL and SK that are in the centre of interest of this paper. These four countries are grouped in the integration informal agreement called Visegrad group (V4) that in the 2016 celebrated 25 years of existence. V4 is a regional structure that takes part in several macro regional strategies of the EU. This cooperation is based on common history, the countries share common values (Visegrad group, nd).

At the beginning there is a need to describe and compare the overall situation in infrastructure of all selected countries. As can be seen in the table 1 the biggest area has PL, then almost one third has HU, smaller area has CZ and the smallest has SK. This comparison is the same in terms of land area as well as water area. The biggest land boundaries are in case of PL that also borders with biggest number of countries 7 in total. CZ and HU has nearly the same number of border kilometres, but Hu borders with 7 countries and CZ borders with 4 countries. SK has the smallest amount of boundaries kilometres and borders with 5 countries. The same pattern can be applied also in the factor of population.

Graph 1 Transport statistics of V4 countries



Source: own proceedings according to: The World Factbook, CIA, 2015

As can be seen in graph 1 the densest infrastructure is in case of PL, followed by HU, CZ and the little dense infrastructure is in case of SK. The densest in number of km is in all countries transport by roads, followed by transport by rail. In the case of water transport there is big potential of development in all V4 countries. Besides these

modes of transport there is also the transport by air and in the V4 countries there are: 128 airports in case of CZ, 126 airports in case of PL, 41 airports in case of HU and 35 airports in case of SK.

2.1 Importance of TEN-T corridors in V4 countries

The key competitive factor of EU is well functioning infrastructure as the blood flow for all the Member states. Essentially in the EU there are five million km of paved roads, more than 215,000 km of rail lines and 41,000 km of navigable inland waterways (European Commission, 2015). Therefore, on basis of TEN-T policy, 30 Priority Projects have been created as projects of common interests. These projects take part of the traffic management system for freight and passengers around the EU and further with amount of 8 billion Euro for previous programming period.

The European infrastructure policy is focused on a well-functioning and strong transport network throughout all 28 Member States with connection also outside EU especially with neighbour countries and as well as with other countries to become EU the growing and competitive integration in the world. The core of TEN-T network is planned to be fully implemented by 2030 and is created by nine core network corridors (European Commission, 2014).

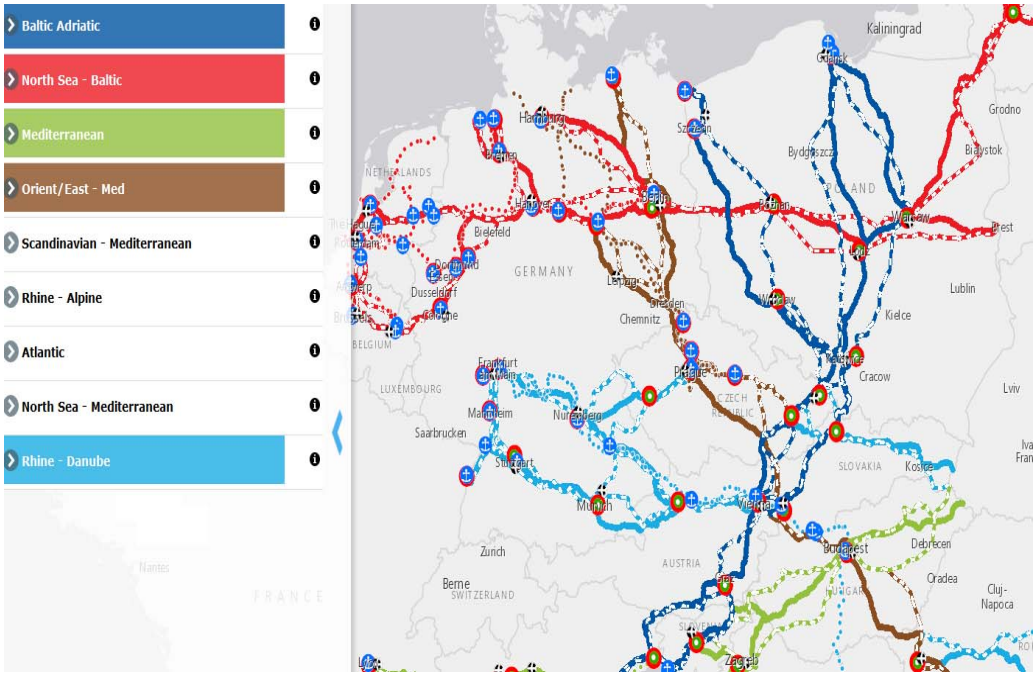
The financing policy of TEN-T in EU is planned for the period 2014 – 2020 to 26 € billion for transport through financing mechanism called as Connecting Europe Facility (CEF). CEF is created to form possibility to finance the transport projects defined in the core network. The presumption of creating competitive EU region is the functioning infrastructure that set basis for the effective Single Market. The core network deadline is set for the year 2030. The aim of the infrastructure development is to remove bottlenecks, improve infrastructure and reinforce transport operations across the borders for passengers as well as for businesses. TEN-T policy sets 9 basic core transport corridors that will connect EU from north to south and from west to east throughout whole EU that stand in the centre of financing mechanisms.

The TEN-T is formed of 9 corridors (European Commission, Corridor Maps, 2015):

- The Scandinavian-Mediterranean Corridor – connects north of EU (Finland and Sweden through Denmark, Germany, Austria, and Italy) the south of EU;
- The North Sea-Baltic Corridor – connects the east part of the EU (from Estonia, Latvia, Lithuania, Poland, Germany, Netherlands, Belgium). This corridor is relevant for the purposes of the article, because PL is part of the V4 countries;
- The North Sea-Mediterranean Corridor – connects the island part of the EU and the interland (from Ireland, Great Britain, under the Channel, France, Netherlands, Belgium);
- The Baltic-Adriatic Corridor – connects north of the EU near the Baltic Sea from Poland, Czech Republic, Slovakia, Austria, and Slovenia to Italy. This corridor is relevant for the purposes of the article regarding the presence of the V4 countries in the corridor CZ, PL, SK;
- The Orient/East-Med Corridor – connects EU north with the south regions (from Germany, Czech Republic, Slovakia, Hungary, Romania, Bulgaria, and

Greece). This corridor is also relevant for the article due to the presence of CZ, HU, and SK;
- The Rhine-Alpine Corridor – connects north and south of the EU again in another part of the EU (from Netherlands, Belgium, Germany, Switzerland, and Italy). This is the only corridor that cross also country outside EU;
- The Atlantic Corridor – connects two parts of the coasts (from Germany, France, Spain, and Portugal);
- The Rhine-Danube Corridor – connects Germany, Czech Republic, Slovakia, Austria, Hungary, Romania, and Bulgaria. This is the only corridor that does not end in the sea from one part. This corridor is in the middle of the interest due to the fact, that 3 out of 4 countries of V4 lay: CZ, HU, SK;
- The Mediterranean Corridor – connects Hungary, Slovenia, Croatia, and Italy. HU as the country of the V4 is relevant.

Figure 1 TEN-T corridors that passing through V4 countries



Source: European Commission. (2015). *TENtec Interactive Map Viewer*.

Among the 9 TEN-T corridors the V4 countries lays in 5 of them. All the corridors cover almost every one each type of transport: rail transport, road transport, inland waterway transport, seaway transport and air transport. In the text below there are characterized 5 relevant corridors where the V4 countries play important role in the development of the competitiveness of the EU.

The Baltic-Adriatic Corridor starts in the north with two points, one in Gdynia, Gdansk port and near airport in the east part of PL and city of Świnoujście port and rail – road terminal, continuing in two directions through CZ entering in Ostrava and through Slovakia entering in Žilina. It is joining in Bratislava and Vienna through Austria down to Slovenia and finally in Italy where the corridor enters in Gulf of Venice

and Adriatic Sea. The corridor covers all types of transport, rail, road, waterway and seaways transport. In this corridor lay CZ, PL and SK (European Commission, Slovakia, 2014).

Table 2 Bottlenecks in the Baltic-Adriatic Corridor of V4 countries

	CZ	PL	SK	SUM
Airports	1	7	1	**9**
Rail-road terminals	2	8	2	**12**
Ports	0	4	1	**5**
SUM	**3**	**19**	**4**	**26**

Source: own proceedings according to the Interactive map

The Orient/East-Med Corridor starts in 4 points of Germany – Rostock the east port of Germany, Hamburg, middle port of Germany, and two west ports of Germany, Bremenhaven, where is also the rail-road terminal and Wilhelmshaven. This corridor joins two directions in CZ in the port of Ústi nad Labem and continues through Austria and Slovakia. It ends in two directions from one is the port of Burgas in Bulgaria and two ports in Greece – Athens and Patra. This corridor connects with Turkey and by waterway also with Cyprus. (European Commission, Hungary, 2014).

Table 3 Bottlenecks in the Orient/East-Med Corridor of V4 countries

	CZ	HU	SK	SUM
Airports	4	1	1	**6**
Rail-road terminals	4	1	1	**6**
Ports	4	2	2	**8**
SUM	**12**	**4**	**4**	**20**

Source: own proceedings according to the Interactive map

The Rhine-Danube Corridor, as the only corridor that starts in the inland of the EU starts in Germany (Ludwigshafen am Rhein, Frankfurt am Main) and France (Strasbourg) not at the coast line. It contains two line directions through CZ, SK that connects EU with the Ukrainian border and Austria again SK, HU, Romania, where it ends in the port of Constanta. As it is shown in the name of the corridor the main objective in this corridor is to create effective and well-functioning system of using the inland waterways and ports. (European Commission, Czech Republic, 2014).

Table 4 Bottlenecks in the Rhine-Danube Corridor of V4 countries

	CZ	HU	SK	SUM
Airports	1	1	1	**3**
Rail-road terminals	4	1	2	**7**
Ports	2	2	2	**6**
SUM	**7**	**4**	**5**	**16**

Source: own proceedings according to the Interactive map

The North Sea-Baltic Corridor connects Baltic sea and North Sea and it starts in the port of Tallinn, through all the Baltic countries and connects mainly ports around two mentioned seas. In PL this corridor passes through the inland where connect mainly airports and continues through Germany to Netherlands and Belgium where it ends in ports of Amsterdam, Rotterdam, Antwerp and Schaarbeek. Part of the corridor is also the port of Helsinki in Finland. This corridor creates connection also with non EU members – Belarus. (European Commission, Poland, 2014).

Table 5 Bottlenecks in the North Sea-Baltic Corridor of V4 countries

	PL	SUM
Airports	3	**3**
Rail-road terminals	3	**3**
Ports	0	**0**
SUM	**6**	**6**

Source: own proceedings according to the Interactive map

The Mediterranean Corridor starts in HU at the borders of Ukraine and passes through almost every port around the Mediterranean Sea in Croatia, Italy (around the Gulf of Venice). It goes to the inland of France (port Lyon), to Spain and it ends in the port of Gibraltar (European Commission, Hungary, 2014).

Table 6 Bottlenecks in the Mediterranean Corridor of V4 countries

	HU	SUM
Airports	1	**1**
Rail-road terminals	1	**1**
Ports	1	**1**
SUM	**3**	**3**

Source: own proceedings according to the Interactive map

As can be seen in tables 2 - 6 the TEN-T corridors in the area of V4 countries is developed in different stages. The most developed corridor in terms of V4 cooperation is the Baltic – Adriatic corridor. There are 9 airports, 12 rail - road terminals and 5 ports. In sum there are 26 bottlenecks – the pillars of the strategic infrastructure around the EU. This corridor is most developed in PL, where are 19 bottlenecks all together. The second most developed corridor is Orient/East-Med corridor with 20 bottlenecks. The biggest number is of ports (8). In CZ (12) s this corridor the most developed and also in HU (4). The Rhine-Danube corridor is most developed in SK, where 5 ports are all together. The Sea-Baltic corridor passed through only one country of V4 – PL, where are all together 6 bottlenecks. The last Mediterranean corridor passed only through HU, where are only 3 bottlenecks.

Conclusion

Transport and its development is the crucial backbone of the EU. Without good connections EU will not be able to overpass the limits and reach the goals settled in the Europe 2020 strategy. The EU transport policy sets the clear goals in development of the rail, road, inland waterways infrastructure and the Member states began to co-operate among each other using the best practices from the history. Also the V4 countries are on the way of developing the core transport network known as TEN-T network cooperating on the basis of functioning relations. All together 5 TEN-T corridors are passing through V4 countries. The most developed is Baltic-Adriatic corridor with 26 bottlenecks in terms of V4 countries area. The TEN-T corridors set priorities in infrastructure development that are promoting transport, goods exchange and supporting business across these countries.

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