

How to use functional analysis in developing cross-border regions¹

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Abstract

The aim of the functional analysis is to identify economically-socially interlinked regions, so called functional regions that extend across administrative borders. Within these regions the economic and social aspects, development plans, strategies are analysed from the point of view of their impact on the transport system. Based on the assessment transport development objectives and specific measures can be identified related to the improvement of the accessibility within and beyond the functional region. The coordination of the preparation, as well as the financing and the implementation of the outputs of the functional analysis are to be supported by a jointly mandated entity. Such analysis was conducted on the Austrian-Hungarian and Croatian-Hungarian border region with the support of the organization called the Budapest Danube Contact Point. This methodology could be applied in the eastern part of the Slovak-Hungarian border region also extended to other adjacent, functionally connected regions.

Key words: functional region, cross-border cooperation, Ministry of Foreign Affairs and Trade of Hungary, international transport

Introduction

The European Union grants and funds guarantee a wide variety of opportunities in cross-border development, particularly emphasizing the economic viability of the cross-border area. Cross-border cooperation between 2014 and 2020 aims to tackle common challenges identified jointly in the border regions and to exploit the untapped growth potential in border areas, while enhancing the cooperation process for the purpose of the overall harmonious development of the EU. In this context a border region forms a single territorial unit, which approach needs common methodology in the participating countries when it comes to data gathering of economy-related investigations. Taking international transport system as an example, the primary target is to figure out how the existing road (and possibly railway) network could most efficiently be developed in the whole region and not separately within each state's territory. The functions of settlements in both countries have to be summarized in order to obtain a mutual database from which the spatial hubs will be derived and assigned as regional centres. As a result of this process – called functional analysis – we receive a pattern of functional centres along the cross-border region which can depict us the worse connected areas and therefore justify the need of future transport developments.

The structure of a functional analysis

The so-called functional analysis uses the output data of the traffic model and cost-benefit analyses in certain cases in order to determine the functional region and its characteristics. When investigating social efficiency in the Croatian-Hungarian cross-border region, functional analysis becomes a proper method to determine the impacts of individual

¹ The functional region methodology was developed based on the joint efforts of JASPERS, the Hungarian Transport Operational Programme Managing Authority and the Budapest Danube Contact Point

projects. These are expressed in impact points, which we shall compare to the annual investment costs in order to obtain an indicator of efficiency. A functional analysis requires the following steps:

1. Functional mapping of the region; assessing the availability of functions in the wider area.
2. Describing the system of functional hierarchy; identifying settlements with central functions at the level of large, medium, small and micro subregions.
3. Modelling the system of functional connections; determining the accessibility of centres of different levels from the settlements of the examined region.

The aim of the functional analysis is to define the needs for development, evaluate the possibilities of any socio-economic (e.g. education, industry or institutional cooperation related) projects and to select the project alternatives that support the systems of functional connections in the most efficient manner. This method is flawlessly applicable for estimating the functional settlement hierarchy of cross-border regions. The analysis used uniform methodology and involved the entire length of the border section as well as all the possibilities of development identified in the area.

Croatian-Hungarian border region

There are 99 road border crossings on the seven border sections of Hungary. The length of the border is 2246 km, thus the average distance between the border crossings (density) is ca. 23 km. As regards Western European countries, e.g. on the German-French border this distance is ca. 4 km; while on the Belgian-French border it is even lower, with a 1.5 km between possible crossings. On the contrary, the 355 km long Croatian-Hungarian border has only 7 road border crossing points.



Figure 2 Transportation characteristics of the region

Apart from the social and economic analysis and comparison – which worth an independent investigation –, studying the spatial structure in the Croatian-Hungarian border

region needs statistical methods, cluster analysis and accessibility analyses relying on traffic model data. Based on these, we can identify the functional centres and functionally cooperating regions in the border area.

According to the analyses, the most important functional urban regions in the border area are settlement agglomerations with good accessibility (e.g. Osijek and Pécs), while the middle section of the Croatian-Hungarian border region is an area with poor accessibility with lack of functions. The availability of transportation connections in the border area is worse than the national averages.

Austrian-Hungarian border region

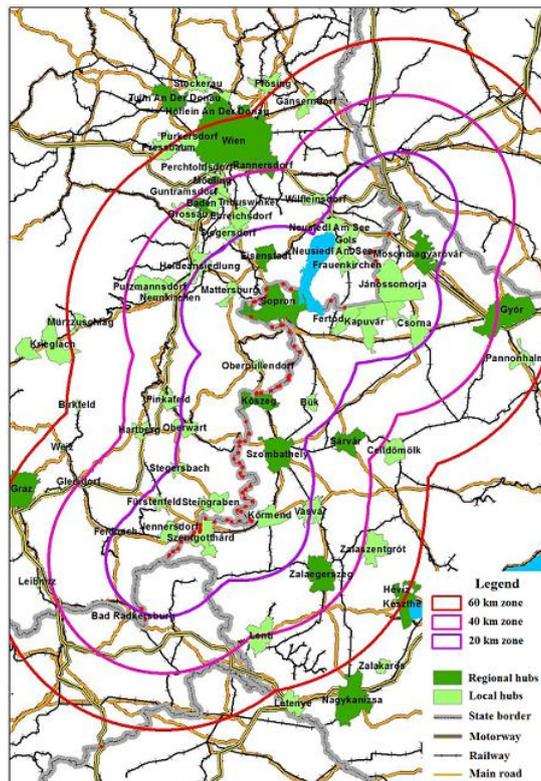


Figure 3 Regional and local hubs in the Austrian-Hungarian border region

The 356 km long Austrian-Hungarian border has 29 road border crossing points, which forms a counter example for road crossing point density (one in every 12 km vis-à-vis one in every 51 km in the case of the Croatian-Hungarian border).

We do not make a distinction between the statistical methods in the case of Croatia and Austria, nor do we differentiate any step of the functional analysis. Based on these, the functional centres and functionally cooperating regions in this border area can be identified again.

The spatial structure in the Austrian-Hungarian border region shows a thriving social, economic and transport linkage due to eminently the prosperous commuter traffic. Both the Hungarian and the Austrian side provide eligible functional services, especially in the wider border zone in Vienna, Graz and Győr. The intensity of daily interactions might increase in the long run which can boost the 20 km border zone as much as the whole region of Western Hungary and Burgenland in Austria.

What can be utilized in the Hungarian-Slovak border region?

The two regional examples above clearly describe what the focus of functional analysis is. Although the exact borders of a cross border region are blurred in the context of economic or transport activities, the administrative division creates a tangible frame for the impoundment of action area.

The case of Croatian-Hungarian border demonstrates that the natural conditions, especially the river Drava and Mura can influence the density of road links, thus decrease the economic and social interaction between the two sides. As opposed to that, the Austrian-Hungarian border region stands as an example of prosperous economic interaction after the change of regime in 1989. The Hungarian-Slovak border is the longest in both countries (679 km) with a total 2.16 million inhabitants in the 15-15 km wide border zone. The average distance between two border crossing points along the Hungarian-Slovak border is 21.9 km. The border which runs through landscapes of diverse characteristics does not constitute a sharp division everywhere.

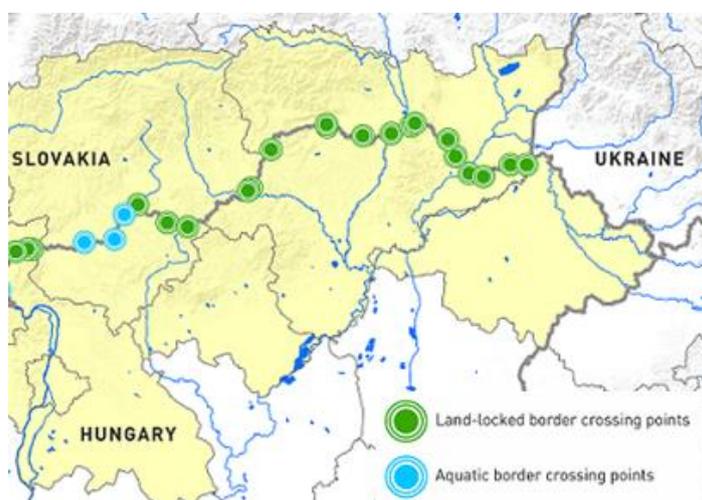


Figure 4 Border crossing points of the action area

While on the Western section of the borderland the Danube and Ipoly/Ipeľ are considered as definite barriers hindering rather than facilitating border crossing, east from Ipolytarnóc the border is not as clearly attached to natural growths, the most part of Banská Bystrica, Košice regions and Nógrád, Borsod-Abaúj-Zemplén counties creates land-locked border. This territory, at least in this aspect, is similar to the exemplary Austrian-Hungarian border region; in consequence the development of transport accessibility is feasible with lower expenditure. The same functional analysis, which was completed for the Austrian and Croatian border, is under way for the Hungarian-Slovak border region which will lighten the functionally linked micro regions in the named Slovak and Hungarian regions and counties.

Functional urban areas along the border

Like the landscapes, functional influencing zones (hinterlands) do not respect state borders either. In the Hungarian-Slovak border area the most significant examples are Bratislava, Budapest, Győr and Košice. These cities display remarkable spatial organising power on both sides of the border. In the case of Bratislava and Košice the process of

suburbanisation clearly expands on the Hungarian territories as well. There are several smaller or bigger towns in the functional influencing area of which is truncated by the border. In some cases it means a complementary situation where on one side of the border there is a functionally more developed settlement such as Šahy, Balassagyarmat, Rožňava, Sátoraljaújhely completing the lack in functions of the other side. In other cases twin cities like Komárom-Komárno, Esztergom-Štúrovo, Salgótarján-Fil'akovo could more properly affect their surroundings together. Deficiencies rooted back to dividing border effects hamper healthy development of cities in question not being able to fulfil their functional role, potentially ensuing of their size.

These vocational points of view are well-founded and represent balance among many professional institutions, but politics always has the last word in a public infrastructure investment. Due to that, the harmony between the professional and the political level is always prioritised and after preparation works the political affirmation is necessary for the execution. This is the interdigitating point where the role of a coordination body, such as the Budapest Danube Contact Point in the case of the Austrian-Hungarian and the Croatian-Hungarian cooperation, can be discovered. Hungary and its neighboring countries signed several agreements on cross-border transport development. The signatory parties were either the prime ministers of the countries or the foreign ministers or other central/regional public institutions. These political agreements, coupled with the role of coordination entities such as the BDCP, connect the technical level with the political level and by this can ensure continuous progress.

The declaration of intent between the Slovak and Hungarian prime ministers signed on 27th March 2014 gives a strong impetus to the cooperation between the two countries. It sets the framework for cross-border transport projects (highways, bridges, roads, ferries, etc.) and also identifies the financing for implementation or joint preparation.

Highly relevant for the region the R4-M30 motorways will connect Košice to Miskolc (and thus Budapest) through a safe and quick linkage. A number of border crossing roads (12 potential locations) which are relevant in the action area will expand the border crossing density therefore the local economic and social activities receive a significant boost for much more regional cooperation along the border area. Public transport services are also in the focus of cross-border developments. Since the demand for multimodality or high capacity ways of transport are only emerging due to the currently weak economic interactions, the main aim of cross-border public transport activities is to foster the regular bus service in the action area which is completely missing at the moment. The two most reasonable routes in the eastern part of the Hungarian-Slovak border would be between Somoskőújfalu – Šiatorská Bukovinka, and Bánréve – Král'.

These indicative conceptions, which should all be subjected to functional analyses, should aim to enhance the cross-border economic performance in general. Within the whole border region, smaller and larger interactions are desirable both formally and informally. That could mean not just logistics, industrial or any other “hard” activities but also joint cultural/touristic events in two neighboring villages or the agricultural sector. The conditions for cooperation are beneficial in the region of Košice where small towns on the Hungarian side are not able to produce serious economic potential while on the Slovak side there is a more developed industrial area. One example for possible industrial cooperation is the Kechnec Industrial Park, which is one of the best-prepared industrial parks in Slovakia only 1 km from the border of Hungary and will be accessible from also Abaújvár due to a new road connection and bridge over the river Hernád/Hornád.

Conclusion

The functional analysis means an efficient tool in project planning that clearly emphasizes the functional differences, deficiencies and opportunities. As a functional analysis is ready, the spatial structure is unveiled and the possible transport measures can be determined. Take an airport or an industrial zone as an example in a border region; it will generate demand from the other country as well. In addition to joint planning activities and methodologies, public authorities and decision makers play an important role in formalizing cooperation processes and ensuring implementation. The responsibilities and the activities of the different entities should be coordinated by jointly agreed and mandated bodies. Their role should be to “keep the ball rolling”, meaning to ensure continuous progress in the implementation of the jointly identified measures. The Hungarian-Slovak border region has countless opportunities for developing cross-border connectivity and mobility in functional regions. Good practices can be used from other border regions and adopted to the eastern part of the Slovak-Hungarian border region and other adjacent, functionally connected regions.

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Author Bio

Peter Kiss-Parciu is a legal expert specializing in international and EU law. After graduation from the University of Nice he worked for the Brussels Representation of TÜV Nord AG and TÜV Nord Hungary. In 2010 he joined the Regional Environmental Centre where he was engaged in the coordination of international projects in Central and Eastern Europe. From 2011, in close cooperation with JASPERS, he took part in setting up the Budapest Danube Contact Point (BDCP) – an independent expert group of Hungary and the European Investment Bank. After joining the BDCP in January 2012 he coordinated the development of transboundary infrastructure projects. From 2013 he also acted as the head of the BDCP. In August 2014 he was appointed head of department of the Department for Cross-border Economic Development of the Ministry of Foreign Affairs and Trade of Hungary. As head of department Kiss-Parciu deals with cross-border and regional transport projects, trade development activities, as well as European Groupings of Territorial Cooperation.

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