EUROPEAN UNION

Committee of the Regions

# The potential of closing the missing links of small scale infrastructure in Europe's border regions for growth and employment

## Recommendations for the way ahead

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**It does not represent the official views of the Committee of the Regions.**

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# Abbreviations

| | |
|---|---|
| a | Year (*annus*) |
| Art. | Article |
| BeNeLux | Belgium, Netherlands, Luxembourg |
| BEUR | Billion Euro ($10^9$) |
| CBC | Cross-border cooperation |
| CEF | Connecting Europe Facility |
| Cf. | Compare (*confer*) |
| CF | Cohesion Fund |
| CPR | Common Provisions Regulation (Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013 laying down common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund and repealing Council Regulation (EC) No 1083/2006) |
| d | Day (*dies*) |
| DARS | Družba za avtoceste v Republiki Sloveniji (Motorway Company in the Republic of Slovenia) |
| DB | Deutsche Bahn (German Rail) |
| DG Connect | European Commission Directorate-General for Communications Networks, Content & Technology |
| DG Energy | European Commission Directorate-General for Energy |
| DG Move | European Commission Directorate-General for Mobility and Transport |
| DG Regio | European Commission Directorate-General for Regional and Urban Policy |
| DG RTD | European Commission Directorate-General for Research and Innovation |
| EAFRD | European Agricultural Fund for Rural Development |
| EC | European Commission |
| EFSI | European Fund for Strategic Investments |
| e.g. | For example (*exempli gratia*) |
| EGP | European Green Party |
| EGTC | European Grouping of Territorial Cooperation |
| EIB | European Investment Bank |
| EMFF | European Maritime and Fisheries Fund |
| ERDF | European Regional Development Fund |

| | |
|---|---|
| ERTMS | European Rail Traffic Management System |
| ESF | European Social Fund |
| ESIF | European structural and investment funds |
| ESPON | European Observation Network for Territorial Development and Cohesion |
| ETC | European Territorial Cooperation |
| EU | European Union |
| EUR | Euro |
| EUROACE | Euroregion Alentejo Centro Extremadura |
| GDP | Gross domestic product |
| GDP-PPS | Gross Domestic Product per capita in Purchasing Power Standards |
| GNI | Gross national income |
| INEA | Innovation and Networks Executive Agency |
| LGTT | Loan Guarantee Instrument for Trans-European Transport |
| LRA | Local and regional authorities |
| Marguerite Fund | 2020 European Fund for Energy, Climate Change and Infrastructure |
| MEUR | Million Euro ($10^6$) |
| MOT | Mission Opérationnelle Transfrontalière |
| MS | Member State |
| NGO | Non-governmental organisation |
| NSPA | Northern Sparsely Populated Areas |
| ÖBB | Österreichische Bundesbahnen (Austrian Federal Railways) |
| pax | Passenger(s) |
| PKP | Polskie Koleje Państwowe (Polish State Railways) |
| POCTEFA | Programme de coopération territoriale Interreg VA Espagne-France-Andorre |
| PPP | Public-private partnership |
| PSC | Public service contract |
| PSO | Public service obligation |
| PTA | Public Transport Authority |
| SME | Small and medium-sized enterprises |
| SNCB | Société Nationale des Chemins de fer Belges (National Railway Company of Belgium) |
| SNCF | Société nationale des chemins de fer français (French National Railway Company) |
| SPV | Special purpose vehicle |
| TEN-T | Trans-European Transport Networks |
| TFEU | Treaty on the Functioning of the European Union |
| TO | Thematic objective |
| UNIFE | Union of the European Railway Industries |
| UIC | Union internationale des chemins de fer (International |

| | |
|---|---|
| | Union of Railways) |
| WW II | Second World War |

Country abbreviations follow the Interinstitutional style guide — 'EU-28 and candidate countries'.

Figures are given according to the English system:

- "Billion" = $10^9$ (i.e. German/French "Milliard(e)")
- Decimal point „." ; thousands separator is the comma ","

# Executive Summary

The overall objective of the study is a systematic analysis of problems faced by European border regions (and eventually other European regions) due to missing links in small scale infrastructures. This means that the study is limited to the physical transport infrastructure such as roads and rails that qualifies as being of almost exclusively local or regional importance. Usually these are secondary or tertiary roads, secondary railway lines, and eventually other infrastructure like e.g. cycling lanes, narrow-gauge railways or ports of local importance[1]. Ten case studies were carried out with the objective of combining the required geographical scope and a comprehensive coverage of the related challenges and solutions. Desk research and interviews were the main sources of this study.

Part 1 of the study analytically deals with commuters as the most important group of small-scale border crossing infrastructure users. Five areas have been identified in Europe as being major commuting flows:

- France/Germany/BeNeLux (estimated at 300,000 persons).
- Switzerland (300,000 persons).
- Austria/Germany/Czech Republic/Slovakia/Hungary/Slovenia (estimated at 130,000 persons).
- Denmark/Sweden/Finland/Estonia (estimated at 50,000 persons).
- United Kingdom/Ireland (estimated at 30,000 persons).

Following a top-down approach for road border crossings, the study shows a basic correlation between population density and the average distance between road border crossings. Additionally, there are two main factors influencing the density of existing border crossings:

- The EU 13 countries have significantly less border crossings among themselves and also, although to a lesser extent, with EU 15 countries, than the EU 15 within itself.

- Geographical obstacles have a significant influence; however, regions with geographical obstacles are often populated less densely, too.

This leads to three main types of challenged border zones that are to be considered for the study:

[1] For a detailed definition of infrastructure, reference is made to Art. 11-29 of Regulation (EU) No 1315/2013 of the European Parliament and of the Council of 11 December 2013 on Union guidelines for the development of the trans-European transport network and repealing Decision No 661/2010/EU.

- Densely populated areas with high commuter flows that may need additional border crossings due to their high demand, even when existing infrastructure is highly developed (usually EU15/EU15 borders). These are most interesting for public transport infrastructure investment, too;

- EU 13/EU 15 and EU 13/EU 13 borders, mainly because of investment backlogs, scarcity of investment funds and low demand for many years;

- Borders with geographical obstacles like rivers or mountains with often low population density, where investment requirements for new border infrastructure are very high.

The results of the cost-benefit analysis are summarized in the table below.

***Table 1. Summary of costs and benefits of small-scale border crossings***

| | Factors | Drivers |
|---|---|---|
| Benefits | ▪ Financiers, Public Transport Authority[2], operators: eventually infrastructure fees for railways and ports.<br>▪ Users: reduction of travelling time and cost, increased convenience, reachability of centres, eventually network effects or adaptability to increased demand.<br>▪ Local public: cross-border/regional development, eventually reduction in emissions, reduction in energy consumption, increased safety. | ▪ Population density.<br>▪ Proximity to larger agglomerations.<br>▪ High commuter flows.<br>▪ Scarcity of existing border crossings.<br>▪ Removal of known bottlenecks. |
| Internal costs | ▪ Investment<br>▪ Maintenance | ▪ Geographical barriers with bridges and tunnels as the significant cost factors. |
| External costs | ▪ Attraction of new road traffic.<br>▪ Modal shift from rail, cycling, walking to road or from bus to private car. | ▪ Additional road traffic.<br>▪ Private cars replacing public transport.<br>▪ Road transport replacing electrified rail transport, cycling, walking. |

The main differences between road and rail border crossings are:

- Rail needs higher traffic volumes than road.
- Investment focus tends strongly towards the main lines.
- In many cases, the question is not about constructing a new line but revitalizing an existing rail link or avoiding its closure.

[2] In the sense of purchasers of public transport services.

- In many cases, operational measures can bring significant benefits without or with just minimal infrastructure investment.

TEN-T being the EU's main transport policy instrument differentiates between core and comprehensive networks. More essentially, it focuses on expanding high-grade infrastructure which results in a relatively loosely woven network, especially for the most important transport system, being road transport. TEN-T concentrates on the challenge of connecting the large centres of the EU rather than on the challenges related to everyday short-to-medium distance transport within the regions. This transport policy focus has repercussions also on cohesion policy.

Part 2 assesses the following main funding possibilities offered by the EU according to their suitability for financing small-scale cross-border infrastructure:

- Connecting Europe Facility.
- European Structural and Investment Funds (ESIF).
- European Fund for Strategic Investment (EFSI).
- Loans from the European Investment Bank (EIB).

ESIF is the most obvious instrument of choice for EU funding of small-scale border infrastructure in terms of project volumes and with its focus on road projects. With this instrument, revenue generation plays a role with respect to rail and port infrastructure. A major challenge is the TEN-T connection required in the ex-ante assessment.

EIB, CEF, EFSI seem less likely as funding instruments since the study is primarily dealing with secondary and tertiary infrastructure. EIB-supported funds financing smaller projects could equally be an option.

The attraction of private funds has to deal with the problem of lacking or non-existent revenues for most of the projects under study. Innovative concession or PPP models could be set up with alternative sources of revenue (e.g. public purse paying for the use of privately built infrastructure, ear-marked taxes).

In Part 3, ten case studies are then analysed. The lessons learned comprise the following points:

- Historical and geographical barriers: The level of mobility is highest among the sample in the highly integrated EU15/EU15 borders, even when they are geographically challenged like ES/FR or FI/SE; there is also high cross-border mobility in historically closely integrated EU13

borders (AT/SK, DE/PL, HR/SI). Very low levels show BG/EL and BG/RO.

- Lack of harmonization and cooperation: Differing administrative structures, procedures and regulations as well as technical standards between neighbouring MS delay and hamper border crossing projects.

- Political backing: The development and planning of border crossing transport infrastructure requires dedication of all actors; otherwise the efforts are at risk to fail.

- Local acceptance: The acceptance of cross-border infrastructure has become increasingly vulnerable over the recent years; the refugee flows of 2015, high unemployment rates, fears of criminality and a general trend of rising nationalism endanger the acceptance for additional border crossings at local and national levels.

- Responsibility without resources: Decentralisation approaches without adequate financial endowments have de facto more an effect of shuffling off responsibility to the weakest link in the chain; scarce local budgets will be used to cover the most immediate repair needs but will not allow to venture into cross-border project.

- Importance of EU funding: In economically challenged regions, the projects are mainly financed by EU funding; ETC is used to finance investment preparation and investment and is the key financial lever for EGTCs which often play a decisive role.

- Procurement: errors in procurement procedures or at least retroactive cancellation of procurement processes seem to be an issue.

- Power of the incumbent state railways: In some countries, models for the regionalization of railway lines that are scheduled for closure exist (e.g. Germany, Italy, Austria). However, LRA often have no real influence on decisions concerning missing railway links.

- Rail infrastructure: In the case of rail infrastructure, missing links do not necessarily concern the construction of infrastructure; often the missing links are rooted in operational problems or in the lacking technical harmonization.

Based on the analysis above, Part 4 draws the following recommendations:

## Identification of projects

CoR should initiate a policy network by systematically contacting national and regional transport authorities, regional stakeholders and support structures in ETC-programmes, EGTCs, JASPERS in view of identifying missing links. A working group consisting of representatives of CoR, Association of European Border Regions, DG REGIO, DG MOVE, TRAN, INEA, EIB, JASPERS, road and railway associations should be set up in order to develop and communicate recommendations on the issue of missing links in small-scale border-crossing infrastructure. The working group can develop a joint assessment method for projects concerning the closing of missing links (cost-benefit analysis). Road projects shall be prioritised according to:

- High population density, existence of cross-border functional areas;
- Low density of existing border crossing points, long distance to the adjacent border crossing points, especially in the case of:
    - Borders along the former Iron Curtain and EU13 borders.
    - Geographical obstacles.

Since network length and coverage of European railways is much easier to oversee than road infrastructure, the objective should be a comprehensive list of missing cross-border links. The point of departure is the list collected by MEP Michael Cramer and the recent DG MOVE study.

## LRA policy

**Local acceptance:** It is recommended that one of the actors in the Working Group initiates the collection of a number of best practice examples of small-scale border crossing projects as a by-product of the above-mentioned list of projects. In order to improve local and regional acceptance of additional border-crossing infrastructure, models of civic involvement based on best practice should be set up and disseminated. At a later stage, such models could become part of ESIF-funded projects.

**Regional rail connections**: Contacts with the European state railways should be sought in order to constructively discuss issues of border-crossing regional railways and drafting up joint solutions (regionalization like in Germany, Italy or Austria, dedicated subsidizing schemes).

**EGTCs:** It is highly recommended that CoR keeps up its continuous efforts to promote the instrument of EGTCs in Europe.

## Funding

In the upcoming Mid-Term Review of the Multi-Annual Financing Framework (MFF) the CoR should support an amendment to the ESIF-Regulations (i.e. the CPR and the ERDF Regulation) in order to enable the use of ESIF funds (mostly ERDF) for non-TEN-T road projects whenever they prove significant European added value along the criteria set out above. It might be considered to reformulate the underlying policy objective for transport: the aspect of secondary connectivity should be decoupled from the concentration on TEN-T and its feeders. Border-crossing transport infrastructure should be considered as a substantial part of the European agenda same as the TEN-T.

Provided that a larger policy package of missing links in EU-15 regions can be identified, a 'CEF' for small-scale infrastructure is advisable: Upon initiative of the EC and several MS the EIB could set up a dedicated fund supporting small-scale border-crossing infrastructure projects. The major criteria in project appraisal should be connectivity, potential for an integrated development of the cross-border functional region and improved access to labour markets. Higher EU co-funding rates could compensate for low interest in border section from a national MS point of view.

The development of PPP models should be closely followed and best practice should be propagated. Specific technical assistance in order to improve transfer know-how on PPP should be provided. For PPP projects that do not generate sufficient revenues to cover the whole investment, a blending of financial instruments, credit funding or private equity funding with EU grants should be made possible in order to attract private investment.

The life-cycle cost principle should be introduced as a guiding principle into project assessment methods applied and recommended by European institutions in order to avoid disproportionate maintenance cost at later stages of the project life cycle.

## Business models

**Rail:** Established cross-border cooperation mechanisms such as standing conferences and committees or EGTCs can be a valuable support in raising awareness, lobbying and elaboration of viable solutions and should be used as policy instruments. Options to reduce operating costs via regional vehicle pools, regional markets via tendering of concessions and so forth should be initiated, promoted and financially supported by EU institutions.

**Road:** See the above recommendations concerning PPP.

**Harmonisation and interoperability**

Based on best practice, specific set-up and governance structures for the implementation of cross-border projects shall be developed and made known. A specific cross-border legal framework at EU level as well as harmonised permit procedures are interesting options that should be investigated in more detail.

The on-going activities at EU level concerning rail interoperability should be closely monitored and their impact on LRAs constantly assessed.

# Introduction

The overall objective of the study is a systematic analysis of problems faced by European border regions (and eventually other European regions) due to missing links in small scale infrastructures.

For the purpose of the study, "small-scale infrastructure" will be interpreted as physical transport infrastructure (mainly roads and railway lines with their respective bridges and tunnels) that qualifies as being of almost exclusively local or regional importance. Usually these are secondary or tertiary roads, secondary railway lines, and eventually other infrastructure like e.g. cycling lanes, narrow-gauge railways or ports of local importance[3].

The borders dealt with in the study comprise land and river borders between two (or more) EU Member States (MS). Borders with accession countries and other European countries are not part of the study. Sea borders like the Channel or the Sound will be taken into consideration but they do not form a focal point of the study.

The focus of the study lies on passenger mobility; however, it is assumed that at least road infrastructure will also play a role for regional freight transport.

In the past months, border mobility has become a politically highly sensitive topic in the context of the refugee crisis. Border management has conquered the newsrooms and there seems to be a tendency towards political decisions that are not solely oriented towards purely economic considerations.

## Overview of the Study

Part 1 is the analytical part of the study and seeks to present several overarching aspects, in particular:

- the policy options, the main target regions to be considered, the main players and
- the geographical and factual framework in order to develop the policy options.

[3] For a detailed definition of infrastructure, reference is made to Art. 11-29 of Regulation (EU) No 1315/2013 of the European Parliament and of the Council of 11 December 2013 on Union guidelines for the development of the trans-European transport network and repealing Decision No 661/2010/EU.

Part 1 consists of four sections:

- Overview on the transport modes covered in the Study;
- Overview on facts and figures related to cross-border commuting and the other main user groups;
- An overview on the borders, border regions and their characteristics with a separate section on railways;
- An introduction to the Trans European Transport Network TEN-T as major European transport policy element and its implications for secondary transportation networks as capillaries.

In Part 2, the main funding possibilities provided by the EU will be assessed according to their suitability for financing small-scale cross-border infrastructure:

- Connecting Europe Facility
- European Structural and Investment Funds (ESIF)
- European Fund for Strategic Investment (EFSI)
- Loans from the European Investment Bank (EIB)

Additionally, existing options for mobilising private funding are discussed in this part.

For Part 3, ten case studies are presented including:

- existing secondary and tertiary links in order to point out the function of such links as well as
- planned/missing links in order to give an understanding of the underlying challenges, investment needs, eventual gaps in planning etc.

Part 4 provides recommendations focusing on the role of LRA and of the CoR concerning:

- Prioritisation
- Governance and funding sources (EU/private)
- Arguments in view of the MFF review
- Cooperation with other stakeholders

# Part 1: Overview and analysis of the issue of missing cross-border transport links at local and regional level in the EU

# 1 Modes of transportation

Road transport is by far the most important mode of transport in EU-28 land transport[4]. Therefore, and because of the focus on small-scale transport infrastructure, road transport (thereafter "road") plays the main role in the study.

Rail transport (thereafter "rail") as the second most important land transport mode for local and regional transportation is extensively covered, too.

Other transport modes that are dealt with are cycling and water transport. Cycle routes are not a focus on this study since planning and financing can be easily funded from ETC programmes. Examples have been considered when they coincided with secondary/tertiary road connections. The point of departure in this context is the EuroVelo network. Concerning water transport, the key examples are ferries to cross border rivers.

There are significant differences between the different modes of transport, especially road and rail with regards to the legal background, financing, ownership and management of infrastructure as well as the operators using the infrastructure that have to be taken into consideration for many of the research questions guiding the study.

The table below points at some of the underlying key considerations when discussing smaller scale cross-border infrastructure.

***Table 2. Modes of transport, secondary networks and their characteristics***

| Transport mode | Comment |
|---|---|
| Road | The study focus is on border-crossings of local and regional roads.<br><br>General characteristics:<br>Generally speaking, road infrastructure is by far the most flexible type of transport infrastructure – this refers to mode and settings of transport flows (such as individual and public transport), vehicles and purposes of travel (all).<br><br>Institutional setting:<br>Local and regional road connections are mostly publicly owned and when it comes to maintenance in most MS such roads are in hands of Local and Regional Authorities (LRAs); construction is often co-financed by several |

[4] EU-28 modal split 2013 in passenger transport: 82.3 %, thereof 72.3 % private car and 8.1 % bus, as opposed to rail-bound modes with 8.1 %, thereof 6.6 % rail and 1.5 % tram/metro; freight transport road 71.9 % as opposed to rail 17 % and inland waterways 6.4 % (European Commission, EU Transport in Figures – Statistical Pocketbook 2015, Luxembourg 2015, p. 37 and 46).

| Transport mode | Comment |
|---|---|
| | tiers of government; EU Cohesion Policy has had an important function as funding source.<br><br>Drivers in development:<br>The major impetus for development of such roads in border areas are:<br><br>▪ commuting to work,<br>▪ tourism development,<br>▪ accessibility of peripheral areas.<br><br>Probability of investment:<br>When comparing the investments in infrastructure in the past decade (since the major enlargement of EU in 2004) the clear focus of investment in EU12 has been on rehabilitation and expansion of road infrastructure.<br><br>A specific case is the situation along the former Iron Curtain, the former dividing line between EU15 and EU13. |
| Rail | The study focus is on border-crossing secondary links.<br><br>General characteristics:<br>The development of secondary networks is mostly historical and closely linked to industrialisation. Nationalist and militarist objectives led to a lack of border links and interoperability in order to protect the domestic rail industry and prevent military invasion. The economically viable operation of such lines depends on significant commuter flows with marked peaks such as commuting to work, for educational purpose or light rail/tramway connections in cross-border conurbations.<br><br>Institutional setting:<br>With the exception of urban rail (metro and tram) separation of infrastructure and operation with open access for licensed railway undertakings against payment of infrastructure fee – meaning that rail infrastructure generates revenues. Main line infrastructure is usually state-owned and managed by state-owned incumbent infrastructure manager; secondary lines in some countries are partly taken over by LRAs (e.g. Germany, Austria, Italy) with train operations co-financed by public service contracts and often run by LRA-owned smaller railway undertakings; Metro/tram is usually owned and run by LRA.<br><br>Drivers in development:<br>Examples for the re-opening and rehabilitation of such cross-border lines are based on:<br><br>▪ examples along the former Iron Curtain in the past two decades - lines which provide links to the capital or secondary/ tertiary cities in proximity of the border (e.g. Vienna-Bratislava, Retz-Znojmo …), |

| Transport mode | Comment |
|---|---|
| | ▪ often the support by LRA and local citizens' groups,<br>▪ in case of electric traction, environmentally most friendly mode of transportation with the lowest external costs.<br><br><u>Probability of investment:</u><br>Across Europe there is mostly state-owned railway infrastructure; incumbent state infrastructure managers tend to focus heavy investment on main connections and high-speed networks; – There is a general trend to abandon secondary networks or set such lines out of use. |
| Cyclists / pedestrians | In general, infrastructure developed solely for use by cyclists or pedestrians is not a focus of the study. But still there are examples where development of such infrastructure serves as starting point to expand cross-border connections.<br><br>Most characteristics of cyclist and pedestrian infrastructure are quite similar to the ones of road connections. In many cases cyclist or pedestrian infrastructure co-uses road infrastructure. Construction is often co-funded from regional and local sources; maintenance is mostly in hands of LRAs.<br><br>The comparatively small funding volumes of such projects are usually not an impediment for realisation – in particular since such projects have a long tradition in Strand A of Interreg, i.e. the cross-border strand (with finding rates up to 85% from ERDF). |
| Water transport | Small ports are usually owned by LRA.<br><br>Similar to rail infrastructure, ports generate revenues via port fees. |

# 2 Cross-border passenger flows

## 2.1 Cross-border commuting

Most probably the major raison d'être for secondary cross-border links is the improved access for cross-border commuters mainly for work or educational purposes.

From the perspective of transportation networks such cross-border links comprise in particular:

- Secondary links from more remote regions to centres (capital, secondary or tertiary cities.

- Secondary links in cross-border conurbations or cross-border functional areas which might be an alternative to congested main arteries or might be a consequence of suburbanisation in case of major agglomerations.

Labour market is a sensitive issue as witnessed not least throughout the long periods of opening the labour markets to workers from the EU-8 (Poland, Lithuania, Latvia, Estonia, the Czech Republic, Slovakia, Hungary and Slovenia) after the second major accession wave in 2004[5]. The economic crisis has not mitigated the debate. As Eurofound points out: "*The often-aired fears on immigration that used to be directed mainly towards non-EU immigrants – that they are abusing the welfare system, taking scarce jobs from native workers, and enabling employers to undercut local pay rates – are increasingly focused on intra-EU mobility in the public debate*."[6]

Key drivers for cross-border commuting are:

- Labour market and job offers.
- Wage differentials.

A 2009 MKW study considers the "pull" factors of attractive destinations as prevalent to the "push" factors of unfavourable conditions at home. Additional factors favouring cross-border commuting identified in the study are[7]:

[5] Pytlikova, Mariola, The effect of EU enlargements and labour market openings on migration, January 2014 (http://www.ferdi.fr/sites/www.ferdi.fr/files/evenements/presentations/pytlikova.pdf), p. 2-3.
[6] Eurofound (2015), Eurofound yearbook 2014: Living and working in Europe, Publications Office of the European Union, Luxembourg, p. 18.
[7] MKW Wirtschaftsforschung GmbH et al., Scientific Report on the Mobility of Cross-Border Workers within the EU-27/EEA/EFTA Countries – Final Report (commissioned by European Commission DG Employment and Social Affairs), Munich, January 2009, p. VIII-IX.

- Infrastructural accessibility.
- Housing prices.
- Enlargement of the area applying the Schengen Agreement in 2007.

It is difficult to get statistical data on cross-border commuting. The figures for 2006 are taken from the MKW study. The 2014 data on the origin of the flows do not only comprise daily, weekly or monthly commuters but also migrants in general, which is why the data are not directly comparable.

***Table 3. Number of commuters – comparison 2006 – 2014***

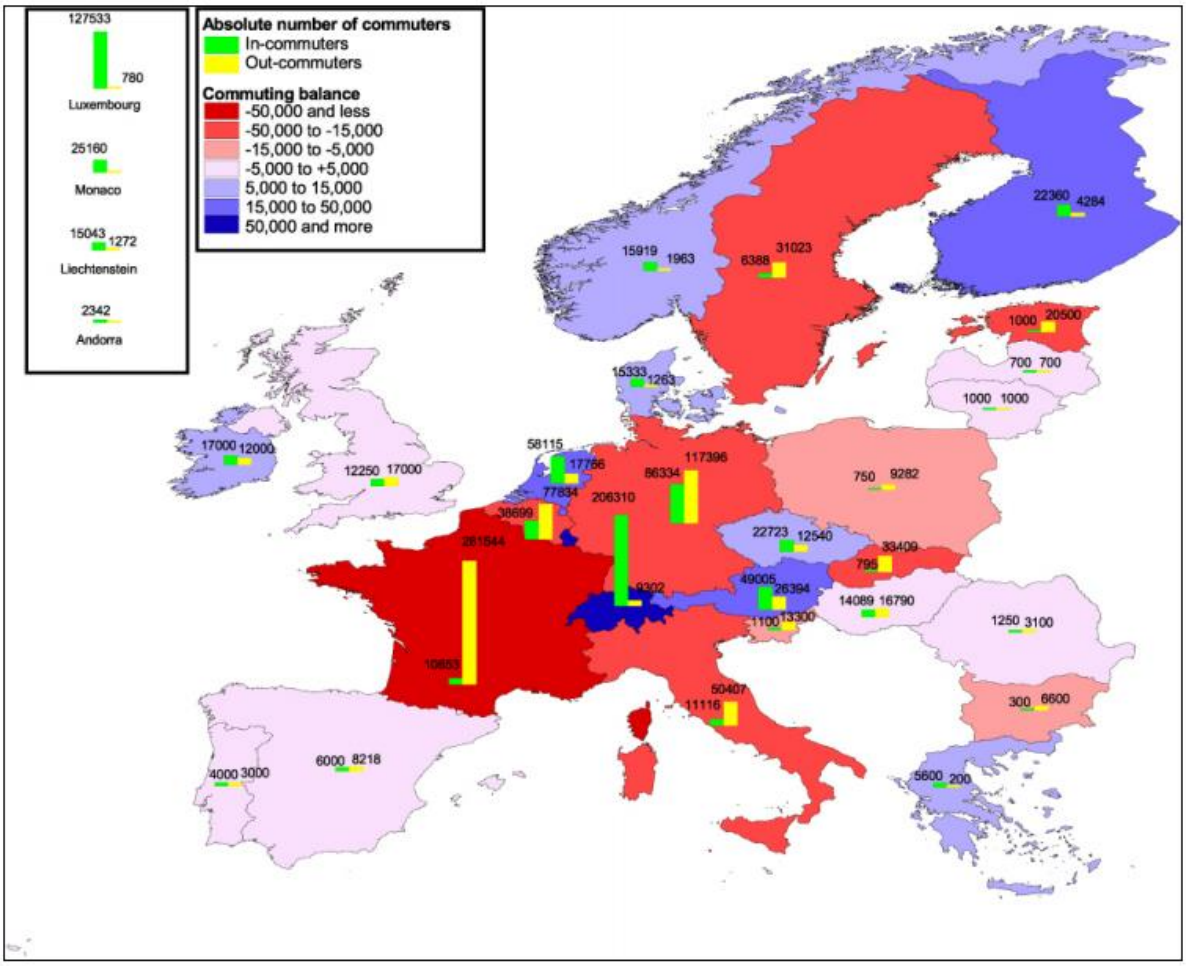
| Country | 2006 | | 2014 | |
|---|---|---|---|---|
| | Destination[8] | Origin[9] | Destination[10] | Origin[11] |
| EU/EFTA | 778,478 | 778,478 | n/a | 1,867,100 (EU) |
| Switzerland | 206,310 | 9,302 | 297,458 (2015) | 18,300 |
| Luxembourg | 127,533 | 780 | n/a | 4,300 |
| Germany | 86,334 | 117,396 | n/a | 266,400 |
| Netherlands | 58,115 | 17,766 | n/a | 40,800 |
| Austria | 48,142 | 26,394 | n/a | 55,300 |
| Belgium | 38,699 | 77,834 | n/a | 105,800 |
| Monaco | 25,160 | | n/a | n/a |
| Finland | 22,360 | 4,284 | n/a | 4,300 |
| Czech Republic | 20,747 | 11,677 | n/a | 39,800 |
| Ireland | 17,000 | 12,000 | n/a | 13,200 (2013) |
| Norway | 15,919 | 1,963 | n/a | n/a |
| Denmark | 15,333 | 1,263 | n/a | 9,500 |
| Liechtenstein | 15,043 | 1,272 | n/a | n/a |
| UK | 14,700 | 17,000 | n/a | 66,700 |
| Hungary | 14,089 | 16,790 | n/a | 99,700 |
| Italy | 11,116 | 50,407 | n/a | 104,600 |
| France | 10,653 | 283,994 | n/a | 431,500 |
| Sweden | 6,388 | 31,023 | n/a | 53,200 |

[8] MKW Wirtschaftsforschung GmbH et al., Scientific Report on the Mobility of Cross-Border Workers within the EU-27/EEA/EFTA Countries – Final Report (commissioned by European Commission DG Employment and Social Affairs), Munich, January 2009, p. 20.
[9] MKW Wirtschaftsforschung GmbH et al., Scientific Report on the Mobility of Cross-Border Workers within the EU-27/EEA/EFTA Countries – Final Report (commissioned by European Commission DG Employment and Social Affairs), Munich, January 2009, p. 18.
[10] http://www.bfs.admin.ch/bfs/portal/en/index/themen/03/02/blank/key/erwerbstaetige0/grenzgaenger.html
[11] http://appsso.eurostat.ec.europa.eu/nui/show.do, "Employment and commuting by NUTS 2 regions (1 000)" with "Country/region of work" set to "Foreign country".

| Country | 2006 | | 2014 | |
|---|---|---|---|---|
| Spain | 6,000 | 8,218 | n/a | 64,900 |
| Greece | 5,600 | 200 | n/a | n/a |
| Portugal | 4,000 | 3,000 | n/a | 39,700 |
| Andorra | 2,342 | 0 | n/a | n/a |
| Slovakia | 0 | 31,433 | n/a | 133,600 |
| Estonia | 0 | 20,500 | n/a | 21,700 |
| Slovenia | 0 | 13,300 | n/a | 15,900 |
| Poland | 0 | 9,282 | n/a | 141,300 |
| Bulgaria | 0 | 6,600 | n/a | 29,200 |
| Romania | 0 | 3,100 | n/a | 94,500 |
| Latvia | 0 | 1,000 | n/a | 13,500 |
| Lithuania | 0 | 700 | n/a | n/a |
| Croatia | n/a | n/a | n/a | 25,200 |

*Sources: MOT, MKW, Eurostat, Swiss Federal Statistical Office.*

***Map 1. Commuting balance by country (2006/2007)***




*Source: MKW.*

The MKW study comes to the conclusion that "*although most commuting streams are still centred in the "heart" of Europe, additional lines are developing, like in the Scandinavian countries or in the Austrian border area. Commuting potentials that should be fostered in the following years mainly lie in Eastern and Southern Europe (Baltic states, the Balkans)* [12]".

The figures published in the 2009 study and confirmed also by a more recent data[13] hint at several areas of cross-border commuting in the EU that are likely to represent the major part of current flows, too. It should not be forgotten that for determining cross-border infrastructure requirements, daily commuting is the most important factor so that migration flows are not dealt with here.

- North-western and Western Europe: France, Germany, Belgium, Netherlands, Luxembourg representing about 40 % of all European commuters. Here the share of daily commuters is high, probably because of well-developed transport connections[14].

- Switzerland and Liechtenstein (as non-MS not part of the study). For 2015, Swiss Federal Statistics Office published a figure of 297,458 cross-border commuters[15], thereof 159,429 from France, 69,222 from Italy, 58,988 from Germany and 7,792 from Austria[16].

- Central Europe between Germany, Austria, Slovakia, Hungary, Czech Republic, Slovenia. Here the share of daily commuters is also relatively high, especially between Austria and Germany as well as between Hungary and Austria (about 45,000 in 2012[17])[18].

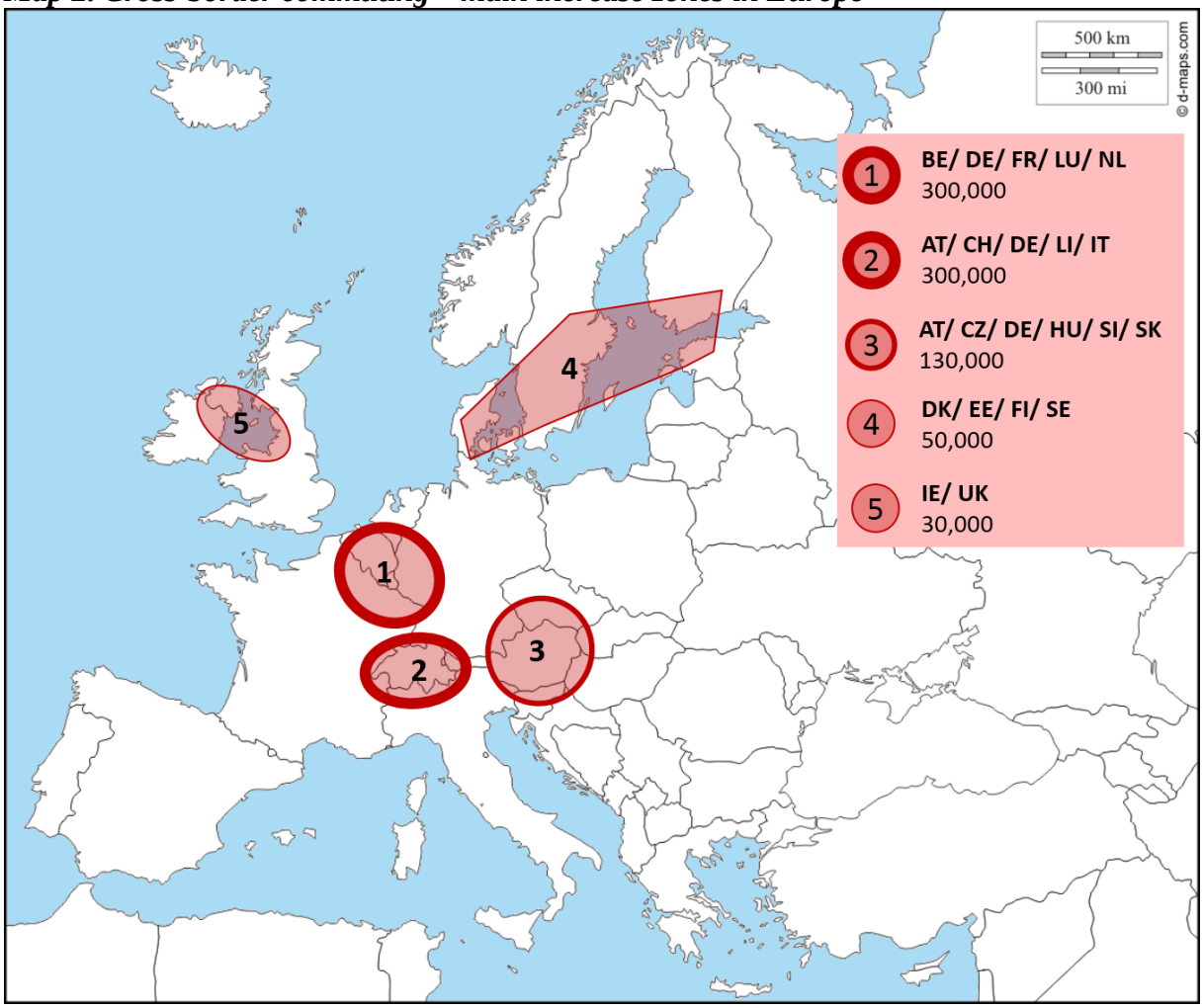
[12] MKW Wirtschaftsforschung GmbH et al., Scientific Report on the Mobility of Cross-Border Workers within the EU-27/EEA/EFTA Countries – Final Report (commissioned by European Commission DG Employment and Social Affairs), Munich, January 2009, p. VII.
[13] https://isaforum2016.wordpress.com/2015/02/03/separating-work-from-life-cross-border-commuters-in-central-europe/
[14] MKW Wirtschaftsforschung GmbH et al., Scientific Report on the Mobility of Cross-Border Workers within the EU-27/EEA/EFTA Countries – Final Report (commissioned by European Commission DG Employment and Social Affairs), Munich, January 2009, p. 40.
[15] http://www.bfs.admin.ch/bfs/portal/en/index/themen/03/02/blank/key/erwerbstaetige0/grenzgaenger.html
[16] http://de.statista.com/statistik/daten/studie/474066/umfrage/grenzgaenger-in-der-schweiz-nach-herkunftslaendern/
[17] Research project TRANSLAB – Cross-Border Labour Mobility, Transnational Labour Markets and Social Differentiation in the Central European Region: https://isaforum2016.wordpress.com/2015/02/03/separating-work-from-life-cross-border-commuters-in-central-europe/
[18] MKW Wirtschaftsforschung GmbH et al., Scientific Report on the Mobility of Cross-Border Workers within the EU-27/EEA/EFTA Countries – Final Report (commissioned by European Commission DG Employment and Social Affairs), Munich, January 2009, p. 40.

- Northern Europe between Denmark, Sweden, Finland, Estonia with daily commuting especially between Sweden and Denmark where the construction of the Sound Bridge had opened new possibilities in 2000[19].

- British Isles between UK and Ireland and a high share of daily commuters[20].

The below map provides an overview.

***Map 2. Cross-border commuting – main increase zones in Europe***




*Source: own extrapolation from various sources (see text).*

The three main areas identified above are also the European areas that show the most marked cross-border functional areas, obvious in DE/FR/BENELUX, but also e.g. in the Lake Constance area (DE/CH/AT) or Vienna-Bratislava.

[19] MKW Wirtschaftsforschung GmbH et al., Scientific Report on the Mobility of Cross-Border Workers within the EU-27/EEA/EFTA Countries – Final Report (commissioned by European Commission DG Employment and Social Affairs), Munich, January 2009, p. 40 and 79.

[20] MKW Wirtschaftsforschung GmbH et al., Scientific Report on the Mobility of Cross-Border Workers within the EU-27/EEA/EFTA Countries – Final Report (commissioned by European Commission DG Employment and Social Affairs), Munich, January 2009, p. 40.

In general, the direction of the commuter flows can easily be explained by differences in unemployment rates as "push" factor (e.g. France and its neighbours), differences in wages as "pull" factor (Switzerland, EU15/EU13 borders in Central Europe and the Baltic area) or a combination of both.

Besides the areas with high cross-border commuting activity, there are "shadow" zones. E.g. between France and Spain commuter flows are very low (France to Spain 3,000; in the other direction from Spain to France 700 and 1,600 to Andorra)[21] Also the commuter flows among EU 13 countries seem to be smaller than with EU 15.

## 2.2 Other purposes for secondary border crossings

Cross-border shopping plays a role when differences in taxation, wages (for services), logistics costs or market structures (monopoly and oligopoly rents vs. strong competition; economies of scale in larger markets) result in significant consumer price differences[22].

The zones of high cross-border activity are:

- Along the EU15/EU13 borders, mainly DE/PL, DE/CZ, AT/CZ, AT/SK, AT/HU, AT/SI; e.g. the designer outlet Parndorf in Eastern Austria had 800,000 visitors from neighbouring Slovakia in 2014 (17 % of its customers, almost as many as from nearby Vienna).[23]

- Switzerland records high outflow of purchasing power, especially with the strength of the Swiss Franc[24].

- The highly integrated SaarLorLux area between France, Germany and Luxembourg.

Another purpose could be tourism where significant seasonal peaks might fuel plans for the improvement or rehabilitation of border crossings.

[21] Spulber, Adela, Boudry, Jonathan, Da Silva Barra, Lucie, Cross-Border Economic Development – Introduction – Project Factsheets (Mission Opérationnelle Transfrontalière), Paris, September 2015, p. 37.
[22] Cf. Mathä, Thomas Y., Porpiglia, Alessandro, Ziegelmeyer, Michael, Cross-border commuting and consuming - an empirical investigation (European Central Bank Working Paper Series No 1661 / March 2014).
[23] http://kurier.at/wirtschaft/marktplatz/asiaten-stuermen-designer-outlet-parndorf/146.997.875
[24] E.g. http://www.baizer.ch/aktuell/index.cfm?rID=5464; http://www.badische-zeitung.de/basel/grenzgaenger-und-einkaufstouristen-was-sagen-schweizer-experten--99382119.html

# 3 Cross-border road infrastructure

## 3.1 Typology of borders

Methodologically, a top-down approach has been chosen since the sheer density of the European secondary and tertiary road network makes it impossible to enumerate and assess all relevant border crossings in detail within the scope of the present study, especially when it comes to road transport. This approach will be complemented by specific examples in order not to miss any important aspects when applying a purely statistical and theoretical approach.

The basis is a typology of intra-EU borders based on a multi-criteria approach:

- *Geographical criteria*: Natural barriers like mountains, rivers, climatic extremes (e.g. arctic conditions) have an impact on the cost and feasibility of small CB transport links; bridges and tunnels require significantly higher investment in construction and maintenance.

- *Demographical criteria*: Additional border crossings in densely populated areas or large agglomerations are likely to wield higher benefit than in sparsely populated areas.

- *Cross-border functional areas*: Like demography, they hint at higher requirements of border crossings. These areas are also the most interesting ones with regards to investments in public transport infrastructure.

- *Commuter flows*: Based on the analysis of the previous chapter, a qualitative assessment will be given hinting at increased demand for border crossings.

- *Historical/political ("type of MS")*: The basis is the differentiation between EU15/EU15 borders with their long history of integration, EU15/EU13 borders looking back at the disruption after the Second World War and a yet unfinished process of rebuilding and EU13/EU13 borders often facing consequences of decade-long underinvestment. It has been noted that, with the exception of important agglomerations near the border, the two latter types of borders show underdevelopment in infrastructure[25]. EU15/EU15 borders are usually only problematic in case of natural obstacles (mountains) or very low population density.

[25] MKW Wirtschaftsforschung GmbH – Empirica, Kft., Scientific Report on the Mobility of Cross-Border Workers within the EU-27/EEA/EFTA Countries – Final Report (study commissioned by European Commission - DG Employment and Social Affairs), Munich, January 2009, p. 79.

- *TEN-T*: The relative location with respect to TEN-T corridors and nodes provides a basis for the assessment of EU policy options in the other parts of the study. It also hints at the potential for strengthening of multimodal transport.

- *Density of available border crossings in the area*: The authors expect diminishing marginal utility of additional border-crossing facilities in already well-supplied regions as opposed to new facilities in undersupplied areas.

- *Infrastructure quality:* Analysis based on a 2009 MKW study assessing the border-crossing transport infrastructure as an obstacle to cross-border commuting with the aid of a group of experts[26]. However, merely the remarks dealing with transport infrastructure sensu stricto are adopted.

For a quick visual orientation, the potentially problematic data fields are marked in grey in the following table. The idea is that this multi-criteria analysis reveals patterns that allow for an identification of potential problem areas.

[26] MKW Wirtschaftsforschung GmbH – Empirica, Kft., Scientific Report on the Mobility of Cross-Border Workers within the EU-27/EEA/EFTA Countries – Final Report (study commissioned by European Commission - DG Employment and Social Affairs), Munich, January 2009, p. 48-49.

***Table 4. Overview on the typology of borders***

| Border | Length (km)[27] | Geographical obstacles | Demography (population density)[28] | Cross-border functional areas | Commuter flows | Type MS | TEN-T Core Corridors | BC road (average distance)[29] | Infrastructure quality (MKW 2009)[30] |
|---|---|---|---|---|---|---|---|---|---|
| AT-CZ | 466 | | Dense, significantly rural (CZ), sparse, predominantly rural (AT) | | High | EU15/ 13 | Baltic-Adriatic Corridor (1) Orient / East Med Corridor (4) | 24,5 | |
| AT-DE | 784 | Mountainous (Alps) | Dense, significantly rural (East), sparse, predominantly rural (Western AT) | Austrian Rhine Valley; Salzburg | High | EU15/ 15 | Scandinavian – Mediterranean Corridor (5) Rhine – Danube Corridor (9) | 12,6 | Few border crossings because of rivers and mountains. No connection of the motorway A 94 to Austria. |
| AT-HU | 366 | | Medium, significantly rural / predominantly rural | | High | EU15/ 13 | Orient / East Med Corridor (4) Rhine – Danube Corridor (9) | 28,2 | In the southern part few public transport and fast roads. |
| AT-IT | 430 | Mountainous (Alps) | Medium, significantly rural | | | EU15/ 15 | Baltic-Adriatic Corridor (1) | 43 | Only three main traffic routes |

[27] http://www.espaces-transfrontaliers.org/en/bdd-borders/
[28] http://www.nordregio.se/en/Metameny/About-Nordregio/Journal-of-Nordregio/Journal-of-Nordregio-2010/Journal-of-Nordregio-no-2-2010/EU-and-Nordregio-rural-definitions/
[29] Main source http://ec.europa.eu/dgs/home-affairs/e-library/documents/policies/borders-and-visas/schengen/docs/lists_of_ms_notifactions_article_34_en.pdf, other sources
[30] MKW Wirtschaftsforschung GmbH – Empirica, Kft., Scientific Report on the Mobility of Cross-Border Workers within the EU-27/EEA/EFTA Countries – Final Report (study commissioned by European Commission - DG Employment and Social Affairs), Munich, January 2009, p. 48-49.

| Border | Length (km)[27] | Geographical obstacles | Demography (population density)[28] | Cross-border functional areas | Commuter flows | Type MS | TEN-T Core Corridors | BC road (average distance)[29] | Infrastructure quality (MKW 2009)[30] |
|---|---|---|---|---|---|---|---|---|---|
| | | | (IT), sparse, predominantly rural (AT) | | | | Scandinavian – Mediterranean Corridor (5) | | because of the mountains. Train connection between Bozen and Innsbruck too long. Driving long mountain roads takes much time and is dangerous. |
| AT-SK | 91 | River (Morava), Urban | Dense, predominantly urban | Vienna/ Bratislava | High | EU15/ 13 | Baltic-Adriatic Corridor (1)<br>Rhine – Danube Corridor (9) | 22,8 | |
| AT-SI | 330 | Mountainous (Alps) | Predominantly rural Dense (East), sparse (West) | | High | EU15/ 13 | Baltic-Adriatic Corridor (1) | 19,4 | |
| BE-DE | 167 | | Dense, predominantly urban | Euregio Maas/Rhine | High | EU15/ 15 | North Sea – Baltic Corridor (2)<br>Rhine – Alpine Corridor (6) | about 8 | |
| BE-FR | 620 | | Dense, predominantly urban | Eurometropolis Lille/Kortrijk/ Tournai | High | EU15/ 15 | North Sea – Mediterranean Corridor (8) | <10 | |

| Border | Length (km)[27] | Geographical obstacles | Demography (population density)[28] | Cross-border functional areas | Commuter flows | Type MS | TEN-T Core Corridors | BC road (average distance)[29] | Infrastructure quality (MKW 2009)[30] |
|---|---|---|---|---|---|---|---|---|---|
| BE-LU | 148 | | Dense, predominantly urban | | High | EU15/ 15 | North Sea – Mediterranean Corridor (8) | about 7 | |
| BE-NL | 451 | | Dense, predominantly urban | Euregio Maas/Rhine | High | EU15/ 15 | North Sea – Baltic Corridor (2)<br>North Sea – Mediterranean Corridor (8) | <10 | |
| BG-EL | 475 | Mountainous (Rhodopes) | Sparse, predominantly rural | | | EU15/ 13 | Orient / East Med Corridor (4) | 79,2 | |
| BG-RO | 631 | River (Danube) | Sparse, predominantly rural | Giurgiu/Ruse | | EU13/ 13 | Orient / East Med Corridor (4)<br>Rhine – Danube Corridor (9) | 126,2 | |
| CZ-DE | 646 | Mountainous (Bavarian/ Bohemian Forest) | Dense, significantly rural (North). Medium, predominantly rural (south) | | High | EU15/ 13 | Orient / East Med Corridor (4)<br>Rhine – Danube Corridor (9) | 20,2 | Few border crossings because of mountains. Roads inadequate. |

| Border | Length (km)[27] | Geographical obstacles | Demography (population density)[28] | Cross-border functional areas | Commuter flows | Type MS | TEN-T Core Corridors | BC road (average distance)[29] | Infrastructure quality (MKW 2009)[30] |
|---|---|---|---|---|---|---|---|---|---|
| CZ-PL | 796 | Mountainous (Sudetes) | Dense, significantly rural | Katowice/ Ostrava | | EU13/ 13 | Baltic-Adriatic Corridor (1) | 37,9 | Not enough communication connections. |
| CZ-SK | 252 | Mountainous / Continental | Dense, significantly rural | | | EU13/ 13 | Orient / East Med Corridor (4)<br><br>Rhine – Danube Corridor (9) | 15,8 | |
| DE-DK | 68 | | Dense, predominantly rural | | High | EU15/ 15 | Scandinavian – Mediterranean Corridor (5) | 11 | |
| DE-FR | 451 | River (Rhine) | Dense, significantly rural | Upper Rhine, Greater Region | High | EU15/ 15 | Atlantic Corridor (7)<br><br>Rhine – Danube Corridor (9) | n/a (very high density) | Too few bridges across the river Rhine. Train connections inadequate. |
| DE-LU | 138 | | Dense, predominantly urban | | High | EU15/ 15 | | <10 | Long travel times by car |

| Border | Length (km)[27] | Geographical obstacles | Demography (population density)[28] | Cross-border functional areas | Commuter flows | Type MS | TEN-T Core Corridors | BC road (average distance)[29] | Infrastructure quality (MKW 2009)[30] |
|---|---|---|---|---|---|---|---|---|---|
| DE-NL | 577 | | Dense, predominantly urban | Euregio Maas/Rhine | High | EU15/ 15 | North Sea – Baltic Corridor (2)<br>Rhine – Alpine Corridor (6) | <10 | |
| DE-PL | 472 | River (Oder, Neisse) | Sparse, significantly rural (North), dense, predominantly rural (South) | Frankfurt an der Oder/Slubice | | EU15/ 13 | North Sea – Baltic Corridor (2) | 29,5 | Too few bridges across the river Neisse (before WW II there were 50, now there are only 5). |
| DK-SE | 1523 | Sea (The Sound) | Dense, predominantly urban | Kobenhavn/ Malmö | High | EU15/ 15 | Scandinavian – Mediterranean Corridor (5) | n/a (Sound Bridge) | |
| EE-LV | 339 | | Sparse Significantly rural / predominantly rural | | | EU13/ 13 | North Sea – Baltic Corridor (2) | 22,6 | |
| ES-FR | 656 | Mountainous (Pyrenees) | Mixed | | | EU15/ 15 | Mediterranean Corridor (3)<br>Atlantic Corridor (7) | 31,2 | |
| ES-PT | 1214 | | Sparse, predominantly rural | | | EU15/ 15 | Atlantic Corridor (7) | 19,0 | |
| FI-SE | 614 | Boreal / Sea / Remote Area | Sparse, predominantly rural | | | EU15/ 15 | | 102,3 | |

| Border | Length (km)[27] | Geographical obstacles | Demography (population density)[28] | Cross-border functional areas | Commuter flows | Type MS | TEN-T Core Corridors | BC road (average distance)[29] | Infrastructure quality (MKW 2009)[30] |
|---|---|---|---|---|---|---|---|---|---|
| FR-IT | 515 | Mountainous (Alps) | Sparse | Menton/Nice/ San Remo/ Ventimiglia | High | EU15/ 15 | Mediterranean Corridor (3) | 39,6 | |
| FR-LU | 73 | | Dense Significantly rural / predominantly rural | | High | EU15/ 15 | North Sea – Mediterranean Corridor (8) | 7 | |
| HR-SI | 668 | | Dense, predominantly rural | | | EU13/ 13 | Mediterranean Corridor (3) | 13,9 | |
| HR-HU | 348 | | Sparse Significantly rural / predominantly rural | | | EU13/ 13 | Mediterranean Corridor (3) Rhine – Danube Corridor (9) | 49,7 | |
| HU-RO | 448 | | Medium Significantly rural / predominantly rural | | | EU13/ 13 | Orient / East Med Corridor (4) Rhine – Danube Corridor (9) | 40,7 | |
| HU-SI | 102 | | Medium, predominantly rural | | | EU13/ 13 | Mediterranean Corridor (3) | 34 | |
| HU-SK | 677 | | Dense, significantly rural (West), sparse, predominantly rural (East) | | | EU13/ 13 | Orient / East Med Corridor (4) Rhine – Danube Corridor (9) | 39,8 | |

| Border | Length (km)[27] | Geographical obstacles | Demography (population density)[28] | Cross-border functional areas | Commuter flows | Type MS | TEN-T Core Corridors | BC road (average distance)[29] | Infrastructure quality (MKW 2009)[30] |
|---|---|---|---|---|---|---|---|---|---|
| IE-UK | 360 | | Predominantly rural Dense (UK), sparse (IE) | | High | EU15/ 15 | North Sea – Mediterranean Corridor (8) | <10 | No rail link. |
| IT-SI | 232 | Continental/ Mountainous | Sparse, significantly rural (North), dense, predominantly rural (South) | Goricia/ Trieste/ Koper | | EU15/ 13 | Baltic-Adriatic Corridor (1) Mediterranean Corridor (3) | <10 | |
| LT-LV | 453 | | Sparse, predominantly rural | | | EU13/ 13 | North Sea – Baltic Corridor (2) | about 20 | |
| LT-PL | 104 | | Sparse Significantly rural / predominantly rural | | | EU13/ 13 | North Sea – Baltic Corridor (2) | 34,5 | |
| PL-SK | 541 | Mountainous (Carpathians) | Significantly rural Dense (West), medium (East) | | | EU13/ 13 | Baltic-Adriatic Corridor (1) | 60 | |

## 3.2 Analysis

Overall, there are 37 (at least partial) land borders across the EU28, including the Danish-Swedish border. The border regions in the EU28 are very diverse with regards to geography, demography, history and infrastructure. 37.5 % of the EU population live in border regions[31].

Looking at the border regions by population density at NUTS 3 level[32], there are large differences which can be categorised into dense (such as BE-NL, BE-DE, AT-SK), medium (such as DK-DE), mixed (such as FR-IT, ES-FR) and sparse (such as SE-FI) regions. Dense regions are likely to be urban or metropolitan areas such as Vienna/Bratislava or the Eurometropolis Lille/Kortrijk/Tournai, while sparse regions exist in remote (such as FI-SE) or predominantly rural[33] areas (such as ES-PT).

Geographical obstacles are mainly mountains (Alps, Pyrenees, Rhodopes, Sudetes, Carpathians etc.) and rivers (Rhine, Danube, Oder/Neisse, Morava). Special cases are straits (the Sound between DK and SE) or polar regions (FI/SE).

The average distance of road border crossings has been calculated by dividing the length of the border by the number of road border crossings. There are marked correlations with the population density and with the geographical or topographical character such as the Pyrenees at the French-Spanish border or the boreal land coverage of the Baltic borders[34].

For a first analysis, five categories of border regions were defined, from 1 (less than 10 km average distance between border crossings), such as the border regions of the Benelux countries and the IE-UK border region, to 5 (more than 50 km distance between border crossings), such as the Bulgarian-Greek and the Polish-Slovak border region.

As illustrated in the table below, these two classifications can be cross-tabulated to get a first typology of the EU28 border regions[35]. According to this categorisation, about 50% of the border regions have an average distance of less than 22 km. These are not only allocated in densely populated areas, but also in

[31] http://ec.europa.eu/regional_policy/en/information/publications/reports/2015/cross-border-cooperation-in-the-eu as cited by European Commission, State of play of cross-border railway sections in Europe, February 2016.
[32] http://www.nordregio.se/en/Maps--Graphs/01-Population-and-demography/Population-density-in-2010/
[33] http://www.nordregio.se/en/Metameny/About-Nordregio/Journal-of-Nordregio/Journal-of-Nordregio-2010/Journal-of-Nordregio-no-2-2010/EU-and-Nordregio-rural-definitions/
[34] http://www.eea.europa.eu/data-and-maps/figures/biogeographical-regions-in-europe-1
[35] The Danish-Swedish border was not included in this analysis, as it is not possible to calculate the average distance between border crossings.

sparsely populated areas such as LV-LT, EE-LV and ES-PT, indicating the strong economic and historical bonds between these countries. Border regions with a large distance between border crossings are mostly found in sparsely populated areas such as BG-EL, BG-RO; however, also in areas of mixed population density at each side of the border in a mountainous region like PL-SK.

***Table 5. Population density – distance between border crossings***

| Population density / Average distance between border crossings | Dense | Medium | Sparse | Mixed | SUM |
|---|---|---|---|---|---|
| 1 (<11km) | 8 | 0 | 0 | 2 | **10** |
| 2 (<22km) | 3 | 0 | 3 | 3 | **9** |
| 3 (<40km) | 2 | 3 | 1 | 4 | **10** |
| 4 (<50km) | 0 | 1 | 1 | 1 | **3** |
| 5 (>50km) | 0 | 0 | 3 | 1 | **4** |
| SUM | **13** | **4** | **8** | **11** | **36** |

An analysis of the borders according to the criteria of EU15/EU13 is shown in the following table. The gap between the integration of EU 15 and EU 13 is clearly visible.

***Table 6. Type of Member State – distance between border crossings***

| Type of MS | Number of borders | Average distance between border crossings | Number of borders with distances of more than 50 km between border crossings |
|---|---|---|---|
| EU15/EU15 | 17 | 22 km | 1 (FI-SE) i.e. 6 % |
| EU15/EU13 | 8 | 28 km | 1 (BG-EL) i.e. 13 % |
| EU13/EU13 | 12 | 41 km | 3 (BG-RO, HR-HU, PL-SK), i.e. 25 % |

Average distances of borders with and without any marked geographical obstacles show a clear tendency, too.

***Table 7. Geographical obstacles – distance between border crossings***

| Geographical obstacles | Number of borders | Average distance between border crossings |
|---|---|---|
| Y | 17 | 43 km |
| N | 20 | 20 km |

Even given a certain error margin with the counting of border crossings, the results are highly significant. Coming from a basic correlation between population density and average distance between road border crossings, there are two main factors influencing the density of existing border crossings:

- EU 13 MS have significantly less border crossings among themselves and also, although to a lesser extent, with EU 15 MS than within the EU 15 itself.

- Geographical obstacles have a significant influence; however, regions with geographical obstacles often show a lower population density, too.

In this context, it is interesting that an analysis undertaken in the context of the Central Europe Programme does not see a necessary connection between multimodal accessibility and high GDP in the case of EU 15, as the mountainous Alpine areas of Austria and Italy show above average GDP. This is most probably due to their strong position in ICT, research, education and similar factors. In the case of the EU 13, three types of regions can be identified: capital regions with above average GDP and accessibility, the regions surrounding the capitals with good accessibility and below average GDP and peripheral regions with "double challenge" of low GDP and low accessibility[36].

The analysis allows for distinguishing three types of challenged border zones to be considered for the study:

- Densely populated areas with high commuter flows that may need additional border crossings due to their high demand, even when existing infrastructure is highly developed (usually EU15/EU15 borders).

- EU 13/EU 15 and EU 13/EU 13 borders, mainly because of investment backlog, scarcity of investment funds and low demand for many years.

- Borders with geographical obstacles like rivers or mountains with often low population density, where investment requirements for new border infrastructure are very high.

## 3.3 Examples

The **Austro-Slovakian border along the River Morava** (March), a border section of 69 km, had been part of the Iron Curtain until 1989. One interesting effect was that the natural habitat of the riparian zone has been left widely intact. However, until today, river crossings are sparse. An old railway bridge connects Marchegg and Devinska Nova Ves. A road bridge at Marchegg had been demolished in 1945 and never been rebuilt. Angern an der March and

[36] Schuh, Bernd et al., Central Europe Programme – Results of the regional analysis – Document analysis, online survey, interviews, SWOT (commissioned by the Central Europe Managing Authority, City of Vienna, Municipal Department for EU-Strategy and Economic Development), Vienna 04.09.2012, p. 57-58.

Zahorska Ves have been connected via a flying bridge since 2001, operated by the Municipality of Zahorska Ves; however, the connection has limited opening hours and is highly vulnerable to floods. The same applies to the road bridge linking Hohenau and Moravsky Svaty Jan, opened in 2005 on the basis of a former railway bridge and replacing the pontoon bridge of 1995 that had been the first and for a long time only Morava road crossing after 1989. After a favourable plebiscite in 1994, the Municipality of Hohenau had bought the pontoon bridge from Slovakia and put it into place. A new road bridge at Angern (estimated cost 14 MEUR; planned financing 75 % Federal State of Lower Austria, 25 % Slovakia with 85 % EU co-funding) has been under discussion. However, after a favourable plebiscite in Angern in 2007, a second plebiscite in 2014 had a negative result because of fears of additional traffic and criminality. A cycling and pedestrian bridge was opened in 2012 between Schlosshof and Devinska Nova Ves based on the remains of a wooden bridge destroyed in the 19th Century (1 km; 4.6 MEUR; 80 % EU co-funding, 20 % funded by Lower Austria and Slovakia).[37]

The EGTC "**Espacio Portalet**" **at the French-Spanish border** was created in 2011 to jointly manage and maintain the mountain passage of Portalet (road A136 in Spain and road D934 in France) by the Comunidad Autónoma de Aragón (ES) and the Département des Pyrénées-Atlantiques (FR) with a budget of 738.6 MEUR. Its task is the improvement of roads and infrastructure between two regions with a population of two million people[38].

The **Cerdanya plateau** is a French-Spanish cross-border conurbation of 30,000 inhabitants located at an altitude of 1,200 m. It is isolated from the respective hinterlands and can only be reached via bridges and tunnels. In 2011, the Pyrenees-Cerdanya EGTC was established. An important project was then opening of the Cerdanya Hospital serving the whole cross-border area. At the moment, 150 m of direct cross-border road access from France is yet to be established; however the implementation is delayed by administrative procedures.[39]

[37] http://www.buschbacher.at/march.html; http://www.noen.at/nachrichten/lokales/aktuell/gaenserndorf/Bruecke-Angern-kommt-fruehestens-im-Jahr-2014;art2633,1626,B; http://geschichte.landesmuseum.net/index.asp?contenturl=http://geschichte.landesmuseum.net/chronik/chronik_results.asp detail=init cid=2092195237 lex=; http://www.hohenau.at/system/web/gelbeseite.aspx?menuonr=223790402&detailonr=223694354; http://kurier.at/chronik/niederoesterreich/weinviertel/grosse-mehrheit-will-keine-bruecke-ueber-march/87.131.302; http://noe.orf.at/news/stories/2551179/; http://kurier.at/chronik/niederoesterreich/weinviertel/erfolgreicher-brueckenschlag-ueber-die-march-in-die-slowakei/771.081; http://www.argus.or.at/aktuell/journal/brueckeneroeffnung-slowakei-nieder-oesterreich-bei-schlosshof

[38] http://cor.europa.eu/en/documentation/studies/Documents/EGTC_MonitoringReport_2014.pdf

[39] http://www.espaces-transfrontaliers.org/en/resources/territories/borders/borders-in-europe/border-france-spain-andorra/border-france-spain-andorra-1/; http://cor.europa.eu/en/documentation/studies/Documents/EGTC_MonitoringReport_2014.pdf

## 3.4 Cost-benefit analysis

Since the focus of the study lies on secondary and tertiary road connections, the projects will usually not generate revenues for the infrastructure managers in the form of road tolls as it would be the case with motorways, but also with rail links and ports[40]. A possible exception may be tunnels or mountain passes. Therefore, from a point of view of the Public Transport Authority[41]/manager, the benefits are concentrated on the macroeconomic factors. The main benefits will probably be found:

- from the point of view of the users: reduction of travelling time and cost, increased convenience, reachability of centres, network effects in case of public transport or adaptability to increased demand;

- from the point of view of the local public: regional development, perhaps reduction in emissions (when congestions are avoided), reduction in energy consumption (when detours are avoided), increased safety.

These benefits will probably be highest in the cases of:

- high population density or high commuter flows when a high number of persons has reduced travel times and cost,

- poorly connected regions when marginal utility of an additional cross-border connection is highest in terms of regional development.

As for the cost side, on the one hand side the microeconomic side of investment cost has to be taken into consideration. As a rough indication, the cost for 1 km local road in Austria is estimated at 500,000 – 700,000 EUR with annual maintenance and operations cost ca. 10,000 – 15,000 EUR[42]. One kilometre of cycle lane costs about 100,000 EUR[43]. The costs can considerably increase in case of bridges and tunnels. As a rule of thumb, the construction of a basic road costs at least 100 EUR/m²; with reinforced construction 300 EUR/m²; however, a simple bridge is calculated with 1,000 EUR/m², a more complex construction e.g. with long span width up to 5,000 EUR/m²[44], 50 times more expensive than the simplest type of road.

[40] Concerning rail investment, a dedicated section of the next chapter will go into more detail.
[41] In the sense of purchasers of public transport services.
[42] Dallhammer, Erich, Zukunft Widmungspolitik – Infrastrukturfolgekosten der Widmungspolitik, Presentation Klagenfurt 19.02.2014, Slides 4, 7. www.architektur-kaernten.at/download.php?item=6005
[43] https://de.wikipedia.org/wiki/Thayatalbahn
[44] D. Schmid, Civil Engineer, Neuchatel/Switzerland.

The second factor is the so-called external costs of transport which have to be taken into consideration for new transport links. The table below shows that external costs for electrified rail transport is about five times lower than for private cars and three times lower than for bus transport. This does not, however, apply to diesel trains that are comparable to busses.

***Table 8. Average external cost per 1,000 passenger-kilometres in EUR (2008)[45]***

| Transport Mode | Cost | Predominant cost categories |
|---|---|---|
| Private car | 64.7 | Accidents, emissions (air pollution, climate change, upstream). |
| Bus/coach | 33.8 | Accidents, emissions (air pollution, climate change, upstream). |
| Diesel train | 34.1 | Higher climate change and air pollution costs than electric trains. |
| Electric train | 12.0 | |
| Air | 57.1 | Climate change costs. |

*Source: CE Delft, INFRAS, Fraunhofer ISIs.*

The impact of additional border-crossing infrastructure in terms of external costs:

- lower external costs overall when congestions are avoided or shorter routes enabled;
- however, at least locally, higher external costs when new traffic is attracted or when road transport replaces rail, ferry or cycling traffic.

***Table 9. Summary of costs and benefits of small-scale border crossings***

| | Factors | Drivers |
|---|---|---|
| Benefits | ▪ Financiers, Public Transport Authority[46], operators: eventually infrastructure fees for railways and ports.<br>▪ Users: reduction of travelling time and cost, increased convenience, reachability of centres, eventually network effects or adaptability to increased demand.<br>▪ Local public: regional development, eventually reduction in emissions, reduction in energy consumption, increased safety. | ▪ Population density.<br>▪ Proximity to larger agglomerations.<br>▪ High commuter flows.<br>▪ Scarcity of existing border crossings.<br>▪ Removal of known bottlenecks. |

[45] Esse, Huib van et al., External Costs of Transport in Europe – Update Study for 2008, Delft, September 2011, p. 71.
[46] In the sense of purchasers of public transport services.

| | Factors | Drivers |
|---|---|---|
| Internal costs | ▪ Investment<br>▪ Maintenance | ▪ Geographical barriers with bridges and tunnels as the significant cost factors. |
| External costs | ▪ Attraction of new road traffic.<br>▪ Modal shift from rail, cycling, walking to road or from bus to private car. | ▪ Additional road traffic.<br>▪ Private cars replacing public transport.<br>▪ Road transport replacing electrified rail transport, cycling, walking. |

# 4 Cross-border rail infrastructure

## 4.1 Rail mode of transport

Since network length and coverage of European railways is much easier to oversee than road infrastructure, a different approach has been chosen. After a short introduction into some characteristics of the European rail market, a list published on cross-border missing links in the network will be used as point of departure.

In view of the diminishing relevance of the transport mode and the problematic financial situation of European railways, beginning with Council Directive 91/440/EEC of 29 July 1991 on the development of the Community's railways[47], the EU railway sector has thoroughly been reformed in the past 25 years. In freight and long-distance passenger transport, railway infrastructure is now open to all licensed railway undertakings applying for train paths and paying infrastructure fees in a non-discriminatory way. Financial flows have to be transparent, cross-subsidisation between railway operations and infrastructure is not allowed anymore.

Art. 8.4 of Directive 2012/34/EU establishing a single European railway area forces MS to balance the profit and loss accounts of their rail infrastructure managers. However, it is prohibited for an infrastructure manager (or the MS behind it) to allow infrastructure access for free since infrastructure fees, although differing widely across the EU, have to be calculated on the basis of the costs "*directly incurred as a result of operating the train service*" (Art. 31.3).
The local and regional passenger transport operation that is mainly responsible for loss-making is usually carried out under public service obligations (PSO), and ordered and paid according to the provisions of Regulation (EC) No 1370/2007 of the European Parliament and of the Council of 23 October 2007 on public passenger transport services by rail and by road. The competent authority is obliged to conclude a public service contract (PSC) with the operator to which it grants an exclusive right and/or compensation in exchange for discharging PSO. LRA may decide to provide public passenger transport services itself or to award PSC directly to a legally distinct entity over which the LRA exercises control similar to that exercised over its own departments (Art. 5.2). According to Art. 5.6, LRA may make direct awards of PSC for rail

[47] Now repealed by Directive 2012/34/EU of the European Parliament and of the Council of 21 November 2012 establishing a single European railway area.

transport with the exception of those tram or metro services[48] that are governed by Directive 2014/25/EU of the European Parliament and of the Council of 26 February 2014 on procurement by entities operating in the water, energy, transport and postal services sectors.

Thus in the case of local and regional passenger railways, loss coverage often amounts to shifting of state subsidies between infrastructure funding and PSO for operations (a significant part of which will be used for paying infrastructure fees).

A relevant challenge for rail in the mode competition with road is the problem of interoperability: national borders are also interfaces between national infrastructure managers with different standards; in addition train path allocation has to be coordinated between them.

Rail shows widely differing historic national standards, most notably:

- Gauge.
- Traction current.
- Train protection systems.

## 4.2 Gaps in rail infrastructure

Michael Cramer, MEP, has published a list of 15 small-scale rail border missing links based on an analysis of more than 250 cross-border connections in the framework of a project which aimed to identify the missing and problematic links in regional cross border rail connections outside of TEN-T[49]. The idea behind the list was to show that besides expensive investment in the large corridors, it is possible to produce considerable effects (including network effects by proving last mile transport) with small projects of less than 1 MEUR or, in some cases, just timetable changes[50]. Meanwhile, the connection between As (CZ) and Selb-Ploessberg has been reopened on December 2, 2015 (see below), leaving 14 projects listed in the table below. Based on the work of the EP, in February 2016 DG MOVE published a study with an in-depth analysis of the railway cross-border links collected by the EP[51].

[48] Regulation (EC) No 1370/2007 of the European Parliament and of the Council of 23 October 2007 on public passenger transport services by rail and by road and repealing Council Regulations (EEC) Nos 1191/69 and 1107/70.
[49] Information provided by Petr Votoupal, CoR.
[50] Interview with Jens Müller, EP, on 18.05.2016.
[51] Interview with Gudrun Schulze, DG MOVE, on 27.04.2016.
European Commission, State of play of cross-border railway sections in Europe, February 2016.

***Table 10. Gaps in European cross-border rail infrastructure according to the EP***

| MS | Railway line | Border section | Reasoning and comment | Length (km) | TEN-T Core Network Corridors nearby |
|---|---|---|---|---|---|
| EE-LT | Tallinn-Riga | Moisakula-Ipiki | Track infrastructure was demolished. Connection of Estonian and Latvian networks as an alternative to the planned Rail Baltica main line. However, the number of population of the two cities is low. | 10 | Y<br>North Sea – Baltic Corridor |
| FR-BE | Paris-Brussels | Givet-Dinant | No cross-border rail operations; however, cross-border infrastructure exists.<br><br>Would be the only rail connection between Belgium and France on a section of 200 km; supported by population and the Région Champagne-Ardenne but not by Hastière - unaligned political priorities: FR prefers freight solution.<br><br>An EU-funded feasibility study was carried out in 2004. | 20 | N<br>(North Sea – Mediterranean Corridor passing by) |
| FR-BE | Calais-Brussels | Dunkerque-de Panne | Track infrastructure exists; however, only bus transports since 1992. Diverging traction systems.<br><br>High potential for passenger and freight transport since densely populated on both sides of the border. Discussion about light or heavy rail solution. | 18 | N<br>(North Sea – Mediterranean Corridor farther South) |
| DE-NL | Krefeld-Arnhem | Kleve-Nijmegen | Rail connection shut down, demolished and replaced by a bus line. Diverging traction systems.<br><br>Citizen's groups support reopening.<br><br>An EU-funded feasibility study exists. A cost-benefit analysis was carried out; result unpublished. | 23 | Y<br>Rhine –Alpine Corridor |
| AT-HU | Oberwart-Györ | Rechnitz-Szombathely | Track infrastructure demolished on a 6 km section.<br><br>Existing train offers on both sides of the former Iron Curtain would be connected; project under discussion, but postponed for cost concerns; at the moment bus transport.<br><br>A cost-benefit analysis provided a result of 1.65. | 6 | Y<br>Rhine – Danube Corridor |

| MS | Railway line | Border section | Reasoning and comment | Length (km) | TEN-T Core Network Corridors nearby |
|---|---|---|---|---|---|
| DE-CZ | Munich-Prague | Freyung-Nove Udoli | Tracks removed on the German side.<br><br>A highly active association established touristic operations on the German section (100% private capital); however, 20 km of tracks are missing on the German side; on the Czech side, where the station has been rebuilt with EU funds, operations are stopping directly at the border. At the moment, the gap is bridged with bus transports. | 20 | N (Rhine – Danube Corridor farther North) |
| FR-DE | Colmar-Freiburg (Breisgau) | Vogelsheim-Breisach | Rhine bridge was destroyed during WW II by German troops and never rebuilt.<br><br>Congestions in private car traffic between the two cities.<br><br>A cost-benefit analysis provided a result below 1. | 1 | N (North Sea - Mediterranean Corridor and Rhine – Alpine Corridor passing by without connection) |
| FR-ES | Toulouse - Zaragoza | Oloron/S$^{te}$ Marie-Canfranc | Existing infrastructure needs repair. Interoperability challenge: different gauges, traction current.<br><br>After an accident in 1970 the damaged bridge was not repaired; restoration at the Col du Somport would create an alternative to the congested coastal lines and reduce lorry traffic on the dangerous mountain routes; Region Aquitaine has started restoration. Implementation depends on completion of section Bedous-Canfranc which is pendant.<br><br>A cost-benefit analysis was carried out; result unpublished. Applications for CEF funding were unsuccessful in 2014. | 61 | N (located right between Atlantic Corridor and Mediterranean Corridor) |
| AT-SK | Vienna Airport-Bratislava | Wolfsthal-Petrzalka | Demolition of 4 km track infrastructure.<br><br>Better connection between the two capitals Vienna and Bratislava; improvement of suburban transport in Bratislava.<br><br>**Remark**: Only light railway | 4 | Y Orient / East Med Corridor Rhine – Danube Corridor |

| MS | Railway line | Border section | Reasoning and comment | Length (km) | TEN-T Core Network Corridors nearby |
|---|---|---|---|---|---|
| | | | infrastructure with speed limits of 50-60 km/h in the curves; ÖBB Infrastruktur AG favours upgrading of Marchegg branch in the North; from a commercial point of view, for ÖBB Personenverkehr, Vienna and Bratislava and their respective airports are the main origins/destinations. | | |
| CZ-AT | Jihlava-Schwarzenau | Slavonice-Waldkirchen a.d. Thaya | Removal of track infrastructure between Waldkirchen, Fratres and Slavonice. Diverging traction systems.<br><br>Connection was disrupted by the Iron Curtain after 1945; political discussions since 1989 about restoration of the Thaya Valley Railway in a touristic region; active citizen's groups on both sides of the border campaigning for the project.<br><br>**Remark**: According to ÖBB, only very little demand for a rail connection. See below. | 9 | N |
| HU-RO | Szeghalom-Cluj | Körösnagy-Harsany-Oradea | No border-crossing traffic since 1918.<br><br>At the moment, travelling time for 60 km is four hours; reactivation could reduce it to one hour and reconnect the second largest town in Western Romania with neighbouring regions in Hungary and with Budapest.<br><br>An EU-funded feasibility study exists. | 60 | N (Orient / East Med Corridor and Rhine – Danube Corridor farther South) |
| SI-HU | Varazdin - Zalaegerszeg | Lendava-Redics | Infrastructure has been partly demolished.<br><br>Connection could be restored with comparatively low cost and would foster cohesion in the border triangle Croatia-Slovenia-Hungary.<br><br>According to an audit report, not reopened because of higher cost. | 7 | N (Mediterranean Corridor passing by) |
| IT-SI | Udine-Ljubljana | Gorizia Centrale-Nova Gorica | Train connections on both sides of the border are not interconnected; cross-border infrastructure exists. | 3 | N (Baltic - Adriatic Corridor and |

| MS | Railway line | Border section | Reasoning and comment | Length (km) | TEN-T Core Network Corridors nearby |
|---|---|---|---|---|---|
| | | | There is only freight traffic, passenger transports stop at the respective sides of the border; connection would create a second cross-border rail connection between Italy and Slovenia | | Mediterranean Corridor passing by) |
| DE-PL | Berlin-Wolin Pomorski | Ducherow-Swinojoujscie | Lifting bridge over the Szczecin Lagoon was heavily damaged and the infrastructure partly demolished.<br><br>The restoration of the link between Ducherow and Swinoujscie would create a cross-border connection for an important touristic region and reduce travelling time from Berlin by half to two hours; local citizen's group is campaigning for the project. | 43 | N (North Sea – Baltic Corridor much farther South) |

*Source: European Green Party[52]; complemented by results of the DG MOVE study and remarks from the expert pool of the Consultant.*

## 4.3 Rail examples

The missing rail link **Slavonice-Fratres-Waldkirchen a.d. Thaya on the Czech-Austrian border** has been a political "hot topic" between the region of Lower Austria and the Czech Republic. Located on the historical line of Jihlava-Schwarzenau which was opened between 1891 and 1903, cross-border traffic was stopped in 1945 and traffic between Waidhofen/Thaya and Fratres were stopped successively in 1977 and 1986. There were plans in 1989 to reopen the cross-border link but the incumbent ÖBB was not interested in the project due to the estimated investment of 3.85 MEUR. The Austrian part of the line was to be taken over by the Federal State of Lower Austria that had given a revitalization high priority in its master plans. However, when Lower Austria actually took over the section from Schwarzenau to Fratres at the beginning of 2011, rail operations were immediately shut down and replaced by bus transport between Schwarzenau and Waidhofen/Thaya. The embankment has been converted into a cycle path since 2014 (estimated investment between 4.5 and 6 MEUR, maybe up to 9 MEUR). On the Czech side, rail had been restored to the border expecting the Lower Austrian side to do the same, leading to irritations in the official relationship of the two entities and citizen's groups on both sides of the border campaigning for a reopening

[52] Die Grünen – Europäische Freie Allianz, Die Lücke muss weg – 15 Projekte für das Zusammenwachsen Europas auf der Schiene (commissioned by Michael Cramer), Brussels.

of the rail link (estimated investment 15-28 MEUR for ca. 35 km)[53].

The cross-border rail connection **Selb-Ploessberg (DE)-As (CZ)**, located on the line Hof-Cheb, had not seen any passenger operations since 1945. In 1996, the section between Selb-Ploessberg and the border were officially shut down when a newly built road bypass cut through the track infrastructure. Since 2010, local politicians on the German side favoured a reopening because of road congestion caused by lorries taking over goods from the railway at AS station and transporting them into Bavaria. Additionally, a market analysis estimated potential passenger volumes at 1,200 pax/d. In 2011, a local plebiscite voted in favour of reopening the line. The total investment required on the German side (6 km) was 9.5 MEUR, mainly financed by EU funds and the German state with regional co-financing of about 0.76 MEUR. In 2015, the line was restored on the Czech side (2 km; investment 2.75 MEUR). The cross-border line was reopened on December 2, 2015.[54]

## 4.4 Cost-benefit analysis

Usually, railway investment is evaluated by national governments and national infrastructure managers. Since border sections often have less traffic than the main national corridors, there is an inherent tendency to a lower ranking of the projects in the national investment priorities. Additionally, the investment is domestic whereas the positive effects are at least partly on the foreign side of the border[55]. An inherent disadvantage of cross-border regional rail transport as opposed to domestic regional rail transport is the fact that three important destinations of users usually are not located on the other side of the border: schools, public authorities and hospitals. Target groups that are left out are mainly commuters, shoppers, tourists and sometimes students. Therefore, incumbent infrastructure managers often have no interest in investing in peripheral areas, they focus on the main corridors. As a recent study puts it: "*As there is little interest of the national railway companies in investing in border*

[53] http://www.verkehrsforumw4.at/index.php; http://www.thayatalbahn.at/index.php; http://www.meinbezirk.at/waidhofenthaya/politik/bahn-diskussion-endet-im-streit-d61086.html; Brenner, Walter, Haben Nebenbahnen noch Zukunft? (ÖZV Österreichische Zeitschrift für Verkehrswissenschaften 1-2/2016), p. 34; information given by Mr. Herbert Seelmann, Brno University of Technology.

[54] http://www.oberfranken-ost.de/deu/m5/bahnlinie-selb-asch.html; https://web.archive.org/web/20140102194229/http://www.deutschebahn.com/de/presse/pi_regional/5443206/by20131219b.html?start=0&itemsPerPage=20; information given by Mr. Herbert Seelmann, Brno University of Technology.

[55] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 68 and 75.

*crossings the stimulus has to come from the governments in cooperation with the EU Commission*."[56]

Because of the high initial infrastructure investment required by rail, the higher cost of rail operations and the more limited potential use of rail infrastructure as compared to road infrastructure, rail is usually considered as requiring higher transport volumes than road. Usually, the minimum systemic target for rail transport is a volume of more than 2000 pax/d for hourly services (more than 1000 per direction)[57]. As an example, the average cost per train-km on the less frequented secondary lines in Austria is 6 EUR (12 EUR on the average for the whole network) as opposed to 3 EUR per bus-km. On the other hand side, the capacity of a train is 80-1,100 seats compared to that of a bus with 50-90 seats[58].

The investment required for 1 km of railway track varies widely between 0.5-1.5 MEUR for a single-track line in flat landscape in a developing country up to 200-300 MEUR for double-track underground metro lines in densely populated cities. The costs for high-speed lines in Spain, China and India amounted to around 10-20 MEUR per km, the costs for tunnels around 70-100 MEUR per km in Great Britain and Belgium[59]. The annual maintenance cost is between 0.5 and 2 % investment; for signalling equipment 4 %; for less-used tracks 10,000-15,000 EUR; for heavily used tracks up to 80,000 EUR.[60]

On the other hand side, 1 EUR investment in rail infrastructure construction or upgrade is estimated to generate 2 EUR in taxes and duties and social insurance contributions, 1 BEUR railway investment to create 17,000 jobs[61].

As for the commercial relevance of regional rail transport, trips on regional, suburban and urban railway lines represent 89% of the total number of rail passengers and 50% of total passenger kilometres in Europe[62]. In Austria, 80 %

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[56] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 71.

[57] Nebenbahnen – Kosten und verkehrspolitische Bedeutung, Bericht des Rechnungshofes Bund 2011/9, p. 289. Brenner, Walter, Haben Nebenbahnen noch Zukunft? (ÖZV Österreichische Zeitschrift für Verkehrswissenschaften 1-2/2016), p. 30.

[58] Nebenbahnen – Kosten und verkehrspolitische Bedeutung, Bericht des Rechnungshofes Bund 2011/9, p. 285.

[59] http://www.railway-technical.com/finance.shtml
http://www.business-standard.com/article/news-ians/each-km-of-high-speed-track-to-cost-rs-100-crore-115031601144_1.html

[60] Baumgartner, J.P., Prices and Costs in the Railway Sector, Lausanne 2001.
http://litep.epfl.ch/files/co0ntent/sites/litep/files/shared/Liens/Downloads/Divers/Baumgartner_Couts_chf_2001_e.pdf

[61] Frohner, Karl – Matthä, Andreas, ÖBB-Infrastruktur AG – Zukunft bauen: Netz und Kapazitäten im Herzen Europas. Österreichische Zeitschrift für Verkehrswissenschaft 4/2015, p. 41-45.

[62] Perchel, Artur – Bărcănescu, Mihai, Romania's planned railway closure – not the way forward, European Railway Review, 24 September 2015. http://www.europeanrailwayreview.com/24879/railway-extra/romanias-planned-railway-closure-not-the-way-forward/

of all rail trips are shorter than 100 km; in Germany the same figure amounts to 98.7 %. The average distance covered by a rail trip is 30-50 km in Austria with an average speed of 42 km/h. Therefore a study of the Technical University Vienna argues that investment in regional rail transport is more important than expensive high-speed network extensions[63]. Often the infrastructure of secondary rail lines still exists, but is not operative anymore. The question remains how to avoid closure or foster revitalisation of already closed infrastructure. A possible solution could be an obligatory consultation of LRA whenever there are cases of planned line closures.
In conclusion, for the purposes of this study the main differences between road and rail border crossings are as follows:

- Missing rail cross-border links can more easily be considered individually due to their considerably lower number.
- Rail needs higher traffic volumes than road.
- Investment focus tends strongly towards the main lines.
- In many cases, the question is not about constructing a new line but revitalizing an existing rail link or avoiding its closure.
- In many cases, operational measures can bring significant benefits without or with minimal infrastructure investment.

Jens Müller, Transport Advisor to the MEP Michal Cramer, pointed out the fact that whereas to provision of public road infrastructure is usually simply (and unquestioned) considered as necessary in the general interest, rail infrastructure projects tend to be assessed much more strictly in terms of passenger frequency[64].

[63] Ungerboeck, Luise, Warum in den Nahverkehr investiert werden sollte - Verkehrswissenschafter der TU Wien halten den Bahnausbau auf Hochgeschwindigkeit für den Fernverkehr für überschätzt. Der Standard, 14.09.2014.
[64] Interview with Jens Müller, EP, on 18.05.2016.

# 5 The trans-European transport networks (TEN-T)

The underlying document building the basis of the EU's transport policy is the 2011 White Paper "Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system". It clearly stresses the need to "concentrate European action on the components of the TEN-T network with the highest European added value (cross border missing links, intermodal connecting points and key bottlenecks)" [65]. Furthermore, it states that "the core network must ensure efficient multi-modal links between the EU capitals and other main cities, ports, airports and key land border crossing, as well as other main economic centres. It should focus on the completion of missing links – mainly cross-border sections and bottlenecks/bypasses […]"[66].

The main instrument of EU transport policy is the trans-European transport networks (TEN-T). There are considerable implications for the secondary transportation networks dealt with in this study. They are often acting as feeder lines to the main corridors and make multimodal public transport in this way possible. The TEN-T Regulation[67] differentiates between four layers of infrastructure (the text mentioning a "dual-layer structure" in Recital 10):

- The comprehensive network, "a Europe-wide transport network ensuring the accessibility and connectivity of all regions in the Union, including the remote, insular and outermost regions" (Recital 11).

- The core network as "backbone of the development of a sustainable multimodal transport network […] with the highest European added value, in particular cross-border sections, missing links, multimodal connecting points and major bottlenecks"[68] (Recital 13).

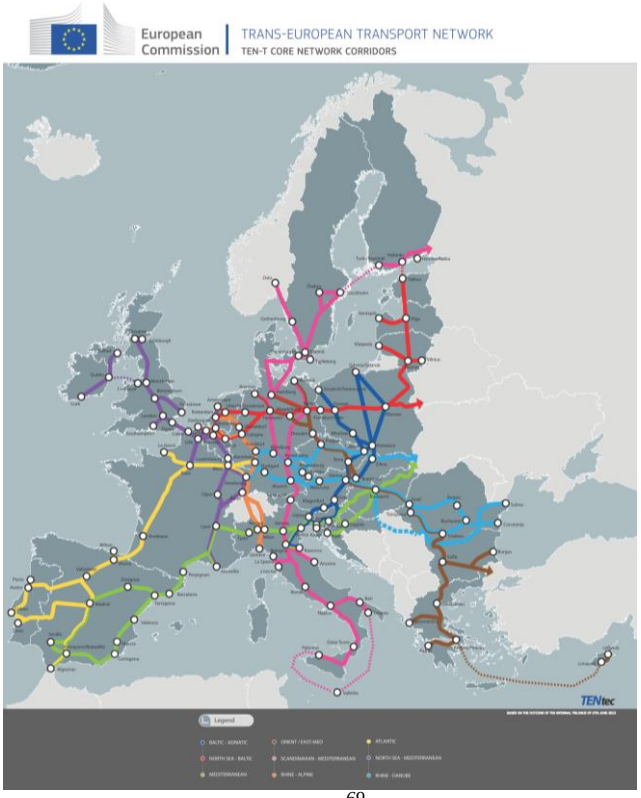
- Core network corridors as covering parts of the core network seen as "an instrument to facilitate the coordinated implementation of the core network" (Art. 42). A such corridor must cross at least two national borders and cover at least three transport modes (Art. 42); they have a

[65] White Paper - Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system, COM(2011) 144 final, Brussels, 28.3.2011, p. 27.
[66] White Paper - Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system, COM(2011) 144 final, Brussels, 28.3.2011, p. 14.
[67] Regulation (EU) No 1315/2013 of the European Parliament and of the Council of 11 December 2013 on Union guidelines for the development of the trans-European transport network and repealing Decision No 661/2010/EU.
[68] White Paper - Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system, COM(2011) 144 final, Brussels, 28.3.2011.

dedicated governance structure with an European Coordinator for each corridor aided by a secretariat and a Corridor Forum drafting up corridor-specific work plans as basis for implementing acts of the EC (Art. 45-47); however, the core network corridors "should not be understood as a basis for the prioritisation of certain projects on the core network" (Recital 42 hinting at the potential conflict between the core network and "core core" network).

- The European transport infrastructure not covered by TEN-T, comprising most of the cross-border section the Study is dealing with.

***Figure 1. TEN-T Core Network Corridors***




*Source: European Commission*[69].

A recent Fraunhofer study shows that the cost of non-completion of the core TEN-T network is estimated at a reduction of EU GDP of 2,570 BEUR until 2030, opposed to investment needs of 457 BEUR in this period; this would mean that for any Euro invested into TEN-T almost 6 Euro will be generated until 2030[70]. In case of non-completion of TEN-T core network, about 230,000

[69] http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/doc/ten-t-corridor-map-2013.pdf
[70] Fraunhofer Institut für System und Innovationsforschung, Cost of non-completion of the TEN-T – Final Report, Karlsruhe 15.06.2015, p. 15.

jobs would not be created until 2030; per any billion Euro invested about 20,000 jobs would be generated[71].

TEN-T requires the smaller infrastructures as "capillaries" that feed into the larger corridors. This distinction corresponds to a certain extent to the division of labour between DG MOVE and DG REGIO within the EC[72].

However, at least in the case of North-West Europe, according to several studies, it does not seem that the high-speed rail network has had any effect in reducing differences in regional accessibility or integration or overcoming the separating effects of borders. Such projects would have to be accompanied by regional development projects and integration into local transport networks[73]. In the short run, benefits are higher for central regions than for peripheral ones. There have even been warnings that high speed rail networks "*create islands of good accessibility*" rather increasing imbalances between regions or micro-regions. The direct regional impacts of the operational phase of a TEN-T project have been estimated at a maximum of 3 % of GDP[74].

Given the budgetary constraints in a mid- to long-term perspective in an EU that is still reeling from the aftermaths of the financial crisis, the role of Community funding for infrastructure investment is decisive in particular for Cohesion Countries. De facto, this means that it is intended to concentrate substantial investment on high-grade transport corridors which - in times of public austerity budgets – has obvious side effects. One should not forget the increasing challenge of maintaining an ever growing transport network in this regard.

TEN-T concentrate on the challenge of connection with the large centres of the EU but not the challenge of everyday short-to-medium distance transport within the regions.

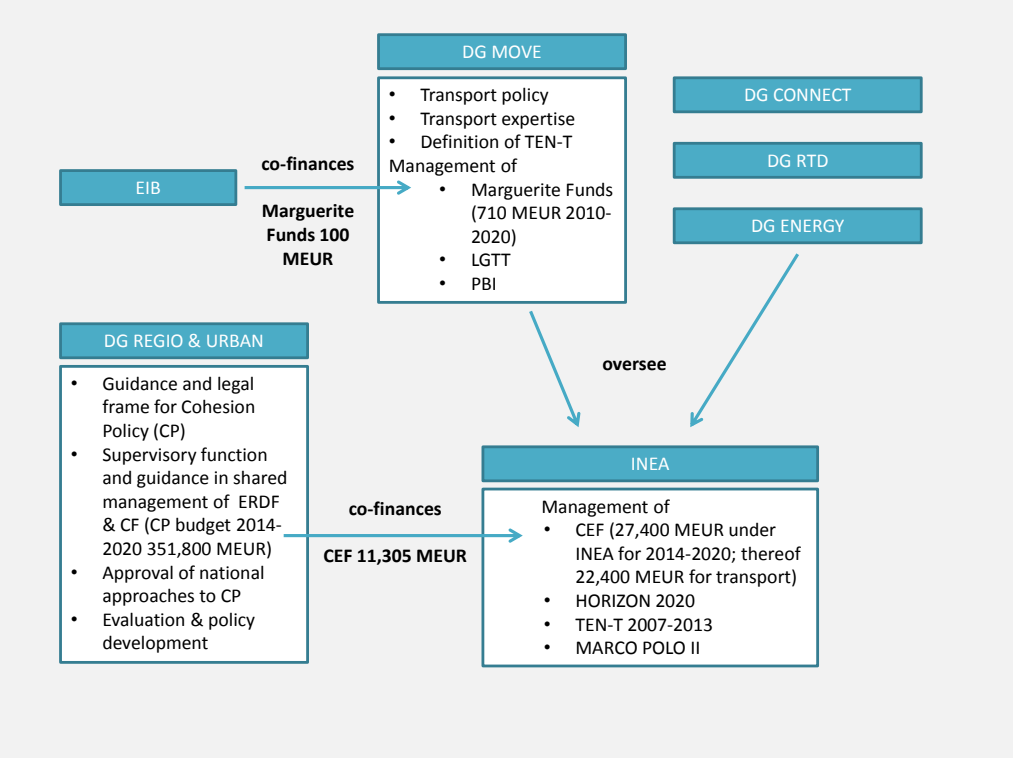
Concerning missing small-scale border crossing infrastructure, a dilemma comes up. On the one hand side, TEN-T focuses on the main economic centres of the EU and on connecting the peripheral areas with these centres. This implies leaving aside smaller border crossings of mainly local value that are rather interconnecting peripheral areas than connecting them with larger centres. On the other hand side, from a national point of view of the MS concerned, traffic

[71] Fraunhofer Institut für System und Innovationsforschung, Cost of non-completion of the TEN-T – Final Report, Karlsruhe 15.06.2015, p. 15.
[72] Interview with Gudrun Schulze, DG MOVE, on 27.04.2016.
[73] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 98.
[74] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 117.

flows and population figures affected by the obstacles are often very low as compared to the main domestic corridors. Therefore, there is not much priority given to closing the gaps from a national point of view either. The subsidiarity principle does not seem to work properly here leaving a "missing link" between high-level border-crossing TEN-T infrastructure and domestic transport priorities within the MS.

The chart below shows the policy dimension of TEN-T that will be dealt with in more detail in Part 2 of the study.

***Figure 2. Institutional structure of TEN-T***




*Sources: European Commission, EIB*[75].

[75] 2014 Annual Activity Report - Directorate-General for Mobility and Transport, Brussels 31.03.2015, p. 4; 2014 Annual Activity Report – INEA, Brussels 2015, p. 4-5; 2014 Annual Activity Report - DG Regional and Urban Policy, Brussels 13.05.2015; http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/project-funding/index_en.htm; http://www.eib.org/products/lending/equity_funds/infrastructure_equity_funds/marguerite_fund.htm?lang=de; http://www.eib.org/infocentre/press/news/all/2020-european-fund-for-energy-climate-change-and-infrastructure-marguerite-fund.htm?lang=en; http://www.welcomeurope.com/european-funds/marguerite-fund-2020-european-fund-energy-climate-change-infrastructure-1006+906.html#tab=onglet_details; http://ec.europa.eu/regional_policy/en/funding/available-budget/; https://ec.europa.eu/inea/en/connecting-europe-facility; http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/project-funding/cef_en.htm

# Part 2: Existing funds, possible financing through ESIF, EFSI and EIB and other options for developing a small scale transport infrastructure

# 1 Infrastructure financing at national and subnational level

Before exploring the potential scope of the financial instruments available at EU-level, it is important to set out some basic considerations on national approaches with financing transport infrastructure.

The table below provides an overview on the most common patterns in the division of responsibilities for investment in small-scale transport infrastructure at MS level:

***Table 11. Transport infrastructure funding at national level***

| | |
|---|---|
| **Local and regional roads** | ▪ usually funding responsibility of LRA.<br>▪ in case of access roads to motorways (usually) or through roads (mostly) funding responsibility at national level. |
| **Secondary and tertiary railway lines** | ▪ when belonging to the incumbent state infrastructure manager: state financing.<br>▪ smaller local and regional railways, private railways: usually integrated railways, in many cases owned and financed by LRA. |
| **Tram/metro** | ▪ usually owned and financed by LRA |
| **Smaller ports** | ▪ state-owned<br>▪ owned by LRA<br>▪ privately owned |

*Source: own considerations.*

Geographical factors obviously play an essential role. MS with vast and sparsely populated areas such as Sweden will face higher costs in proportion to their population for basic transport infrastructure (rail and road) than small and densely populated MS such as Luxembourg or Malta. Topography is another important factor. In fact, construction and maintenance of transport infrastructure in mountainous areas are significantly more costly than in flat or hilly areas.[76]

A few indicators help understanding the differences between MS when it comes to transport networks. The following table presents exemplary data for selected MS.

[76] The demanding winter maintenance of transport infrastructure is aggravated by the sharp differences in temperature and the additional cost to protect infrastructure against avalanches, landslides and rock fall.

***Table 12. Overview of EU transport networks***

| MS | Inhabitants (millions 2014) | Total length road system (km 2012) | Road: thereof secondary, tertiary and other | Total length railway lines in use (km 2013) | Share of economic affairs as % of total subnational government expenditure |
|---|---|---|---|---|---|
| EU-15 | | | | | |
| AT | 8.5 | 124,115 | 112,399 | 4,894 | 13.5 |
| BE | 11,2 | 155,210 | 140,218 | 3,582 | 16.5 |
| DE (without other roads) | 80.8 | 230,517 | 178,034 | 33,446 | 12.6 |
| FR | 63.9 | 1,065,557 | 1,044,308 | 30,581 | 13.3 |
| IT | 60.8 | 253,730 | 227,143 | 17,070 | 14.0 |
| MT | 0.4 | 2,228 | 2,044 | 0 | N/A |
| EU-13 | | | | | |
| BG | 7.2 | 19,602 | 16,086 | 4,032 | N/A |
| CZ | 10.5 | 130,635 | 123,634 | 9,459 | 21.1 |
| HR | 4.2 | 26,690 | 18,855 | 2,722 | N/A |
| PL | 38.5 | 412,035 | 392,853 | 18,959 | 17.7 |
| RO | 19.9 | 84,253 | 67,013 | 10,768 | N/A |
| SK | 5.4 | 54,868 | 50,903 | 3,631 | 15.1 |
| SI | 2.1 | 38,985 | 37,396 | 1,209 | 11.6 |

*Source: Eurostat 2015*[77]*, OECD 2013*[78].

According to statistics[79] on public expenditures[80], transport accounts for about 2% of the EU's GDP – thereof the public subsidies to public or private transport companies constitute a substantial part.

The aspect of subnational government expenditure for the chapter (function) *economic affairs* is of interest since it includes investment in transport. Given the fact that at EU level the share of GDP amounts to 4.2%, it becomes apparent that in the public spending of subnational governments[81] economics and by default transport play a more significant role: the shares in the table range from

[77] European Commission, EU Transport in Figures – Statistical Pocketbook 2015, p. 13 and 77-78.
[78] http://www.oecd-ilibrary.org/sites/reg_glance-2013-en
[79] Cf Eurostat website: http://ec.europa.eu/eurostat/statistics-explained/index.php/Government_expenditure_on_economic_affairs
[80] In the COFOG classification transport is part of the function economic affairs which accounts on EU-average for about 4.2% of GDP; thus about half the expenditure in this category is dedicated to public expenditures for transport.
[81] Shares of subnational government spending in % of the GDP in the EU varies to huge extent per country: e.g. DE 20% (of GDP!); AT 17%, CZ 10%, DK 38%, FR 12%, IT 15%, PL 14%, PT 6%.

about 12% to 21%. It is important to note that at EU level on average about half of the spending for economic affairs is dedicated to transport.

Public spending for transport infrastructure in the EU has been reduced in the wake of the financial crisis. This is a major concern since especially for EU-15 economies with slow economic growth and high unemployment the investment in public infrastructure remains one of the few policy levers that could raise growth[82].

*The role of Local and Regional Authorities*

In particular for investment in small-scale road infrastructure the position of LRAs in the political-administrative system is decisive.

Several major policy issues have to be considered when discussing transport infrastructure which is of a smaller scale and thus first of all in the interest of LRAs.

***Table 13. Role and capacity of LRAs concerning transport infrastructure***

| Stages | Considerations on the role and capacity of LRAs |
|---|---|
| Planning | The capacity of LRAs to influence planning decisions will depend to a huge extent on the political-administrative system of the MS.<br><br>Road:<br>In federal states priority-setting will be a marked by negotiations between the national and regional levels thus LRAs will have a much stronger influence compared to unitary states. In federal states regions often have the capacity to develop transport master plans and corresponding budgets.<br><br>Rail:<br>The influence of LRAs on priorities-setting is much smaller since the infrastructure providers are usually large publicly owned enterprises which tend to neglect secondary lines in their plans. It has to be noted that this not only applies for investment in new lines or line upgrading, but, perhaps even more important, for decisions on line closures. |
| Financing of the investment | Road:<br>LRAs in MS with fiscal equalisation mechanisms are in a significantly stronger position compared to LRAs in MS which depend on transfers from the central level. Fiscal equalisation usually allows LRAs to develop longer-term budgets and to plan investments; still cross-border transport infrastructure is in most cases subject of multi-level governance (MLG).<br><br>In particular in EU-13 public investment depends to a significant extent on (EU) Cohesion Policy and the LRA's capacity in developing project |

[82] Christophersen, H. – Bodewig, K. – Secchi, C., Action Plan – Making the best use of new financial schemes for European transport infrastructure projects, June 2015, p. 11-12.

| Stages | Considerations on the role and capacity of LRAs |
|---|---|
| | applications is often the decisive momentum. Upgrade and rehabilitation of secondary road infrastructure is one of the obvious key priorities of LRAs in EU-13 but in the current period investment in secondary road infrastructure has been subject to certain criteria.[83]<br><br>In terms of programming infrastructure for LRAs is a major concern for EU-13: MS with stronger decentralisation such as PL have set up integrated regional operational programmes (OPs) which are governed by the regional level in other MS such as CZ and SK the regional level is strongly involved in the decision-making process.<br><br><u>Rail:</u><br>Concerning LRA-owned local and regional railways, similar patterns as with road financing apply. MS with long tradition of LRA autonomy like DE, AT, IT (Trentino) show a broad landscape of historically LRA-owned railways and were at the same time pioneers in rail regionalization.<br><br>However, most of secondary rail lines in Europe are owned by the incumbent state infrastructure managers whose investments are financed by the state, often with considerable EU support. |

*Source: own considerations.*

[83] See the following section on ESIF.

# 2 Assessment of EU funding

## 2.1 European Structural and Investment Funds (ESIF)

Out of the five European Structural and Investment Funds ('ESIF') two are potentially relevant for the investment in small-scale transport infrastructure crossing borders[84]:

- Cohesion Fund (CF).
- European Regional Development Fund (ERDF).

The overarching objective of the ESIF is support to the Europe 2020 strategy for smart, sustainable and inclusive growth[85]. Art. 9 CPR lists eleven thematic objectives (TO) that determine to a certain extent the scope of possible interventions. The TO most relevant for the study at hand is:

- TO 7: promoting sustainable transport and removing bottlenecks in key network infrastructures – as most probably the key option for projects as discussed in this study.

As overarching framework the CPR harmonises the rules of programming, management and monitoring of all ESIF[86]. One of the major strengths of ESIF is the fact that the use of funds is based on multi-annual (seven-year) operational programmes setting out the overall investment strategy for each MS, agreed with the Commission.

The operational programmes targeting transport either as the sole topic or as an integrated element are prepared by the MS according to its institutional framework. The programming and implementation processes involve LRA as well as other social, economic, environmental stakeholders.[87]

According to a recent study on the financing of railway infrastructure, in the past two funding periods (2000-2013) transport co-funding by ERDF and CF had about ten times the budget size of TEN-T funds. However, cross-border projects were not necessarily their main focus[88].

[84] http://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX:32013R1303
[85] http://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX:32013R1303
[86] http://ec.europa.eu/regional_policy/en/funding/cohesion-fund/
[87] But the actual weight of LRAs in programming and implementation differs to a huge extent across the MS depending on the government and administrative systems.
http://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX:32013R1301
[88] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 15.

The legal bases for the ESIF under consideration are:

- Common Provisions Regulation (CPR)[89].
- European Regional Development Fund (ERDF) Regulation[90].
- Cohesion Fund (CF) Regulation[91].

For those projects analysed in the present study, the ERDF is the most plausible financing source.

### *European Regional Development Fund*

The objective of the ERDF is strengthening economic and social cohesion in the EU by correcting imbalances between its regions[92].

Its investment areas are focused on key priorities ("thematic concentration")[93]:

- Innovation and research;
- The digital agenda;
- Support for small and medium-sized enterprises (SMEs);
- The low-carbon economy.

All regions in the MS are eligible[94]; however, the allocation of resources varied across the categories of regions[95]:

- More developed regions (GDP more than 90 % of EU average):
  At least 80 % of funds must focus on at least two of these priorities.

- Transition regions (GDP 75 %-90 % of EU average):
  This focus is for 60 % of the funds.

- Less developed regions (GDP less than 75 % of EU average):
  This focus is for 50 % of the funds.

A minimum of ERDF resources must be used specifically for low-carbon economy projects[96]:

[89] Regulation (EU) No 1303/2013.
[90] Regulation (EU) 1301/2013.
[91] Regulation (EU) 1300/2013.
[92] http://ec.europa.eu/regional_policy/en/funding/erdf/
[93] http://ec.europa.eu/regional_policy/en/funding/erdf/
[94] http://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX:32013R1301
[95] http://ec.europa.eu/regional_policy/en/funding/erdf/
http://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX:32013R1301
[96] http://ec.europa.eu/regional_policy/en/funding/erdf/

- More developed regions: 20%;
- Transition regions: 15%; and
- Less developed regions: 12%.

The ERDF also takes specific territorial characteristics into consideration. 5 % of ERDF funds are earmarked for actions reducing economic, environmental and social problems in urban areas and fostering sustainable urban development by 'integrated actions' managed by cities[97], i.e. an urban development network at EU level in order to promote networking and exchange of experience on sustainable urban development[98]. Areas that are naturally disadvantaged from a geographical viewpoint (remote, mountainous or sparsely populated areas) and the outermost areas can also benefit from receiving specific ERDF assistance in order to address possible disadvantages due to their remoteness[99].

The overall ERDF budget for 2014-2020 is over EUR 185 billion[100].

### *Cohesion Fund (CF)*

The objective of the CF is the support of poorer EU regions with a GNI per inhabitant of less than 90 % of EU average by co-financing actions to, among others[101]:

- develop Trans-European Transport Networks (TEN-T),
- support sustainable transport projects which do not form part of trans-European transport networks in order to further the EU's environmental objectives.

One of the investment priorities is sustainable transport and removing bottlenecks. The maximum co-financing rate is 85 % of public expenditure[102].

For the programming period of 2014-2020, the eligible MS are Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia and Slovenia[103].

Under the CF, 63.4 BEUR are allocated to activities in the following categories[104]:

[97] http://ec.europa.eu/regional_policy/en/funding/erdf/
[98] http://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX:32013R1301
[99] http://ec.europa.eu/regional_policy/en/funding/erdf/
[100] http://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX:32013R1301
[101] http://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX:32013R1300
[102] http://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX:32013R1300
[103] http://ec.europa.eu/regional_policy/en/funding/cohesion-fund/
[104] http://ec.europa.eu/regional_policy/en/funding/cohesion-fund/

- TEN-T, notably priority projects of European interest as identified by the EU. 10 BEUR are available in the funding period of 2014-20 to co-finance transport infrastructure projects provided for in the CEF[105].

- Environment where the CF can also support projects related to energy or transport, as long as they clearly benefit the environment in terms of energy efficiency, use of renewable energy, developing rail transport, supporting intermodality, strengthening public transport, etc.

The CF is of interest for the study since in some cases small-scale border crossings might be a new option resulting from major investment in TEN-T networks in road and rail. CF projects as Major Projects[106] are in most cases named and described in the respective Operational Programmes. The LRAs in Cohesion Countries which are situated along such new major transport infrastructure usually consider it as a major potential impetus for development. In some cases the TEN-T investment could be an opportunity to define new functions for the existing border-crossing infrastructure. With the completion of TEN-T corridors existing road crossings might become secondary crossings or the use of existing railways lines might undergo significant change. It is evident that this will have an impact on local and regional economies of LRAs in border regions. Ancillary investment plans linked to investment in secondary transport infrastructure could be an important element to prevent or mitigate eventual adverse impact for LRAs which function as border-crossing points.

## *Transport projects supported by ERDF and CF*

Ex-ante conditionalities

According to Annex XI CPR, the ex-ante conditionality for supporting projects under the thematic objective 7 "Promoting sustainable transport and removing bottlenecks in key network infrastructures" is "*a comprehensive plan or plans or framework or frameworks for transport investment in accordance with the Member States' institutional set-up (including public transport at regional and local level) which supports infrastructure development and improves connectivity to the EN-T comprehensive and core networks*". For railway, inland waterways, maritime or ports projects, this transport plan has to comprise a mode-specific section. For actions under TO 4 "Supporting the shift towards a

[105] http://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX:32013R1300

[106] In the sense of CPR, Article 100; these are projects with a total investment volume of 50 MEUR or more; for such projects the CPR foresees several specific requirements related to planning and approval by the Commission; in short these projects have to be far better prepared than standard projects (which is understandable given their size).

low carbon economy in all sectors", no specific ex-ante conditionality is foreseen.

The table below summarises the ex-ante conditionalities for the relevant TO as listed in the overview of Annex XI CPR.

***Table 14. Ex-ante conditionalities for ESIF transport projects***

| Thematic objective | Investment priorities | Ex-ante conditionality | Criteria for fulfilment |
|---|---|---|---|
| 4. Supporting the shift towards a low carbon economy in all sectors | ERDF + Cohesion Fund:<br><br>(Art.5(4) ERDF Regulation and Art.3(a) CF Regulation).<br><br>[…]<br><br>Promoting low-carbon strategies for all types of territories, in particular for urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaptation measures. | n/a | n/a |
| 7. Promoting sustainable transport and removing bottlenecks in key network infrastructures | ERDF + Cohesion Fund:<br><br>(Art.5(7) ERDF Regulation and Art.3(d) CF Regulation):<br><br>■ Supporting a multimodal Single European Transport Area by investing in the TEN-T<br>■ Developing and rehabilitating comprehensive, high quality and | 7.1. Transport:<br><br>The existence of a comprehensive plan or plans or framework or frameworks for transport investment in accordance with the Member States' institutional set-up (including public transport at regional and local level) which supports | ■ The existence of a comprehensive transport plan or plans or framework or frameworks for transport investment which complies with legal requirements for strategic environmental assessment and sets out:<br><br>- the contribution to the single European Transport Area consistent with Article 10 of Regulation (EU) No 1315/2013 of the European Parliament and of the Council 54 , including priorities for |

| Thematic objective | Investment priorities | Ex-ante conditionality | Criteria for fulfilment |
|---|---|---|---|
| | interoperable railway systems, and promoting noise-reduction measures.<br>■ Developing and improving environmentally-friendly, including low-noise, and low-carbon transport systems including inland-waterways and maritime transport, ports, multimodal links and airport infrastructure, in order to promote sustainable regional and local mobility.<br><br>ERDF:<br><br>(Art.5(7) of the ERDF Regulation)<br>- Enhancing regional mobility by connecting secondary and tertiary nodes to TEN-T infrastructure, including multimodal nodes. | infrastructure development and improves connectivity to the TEN-T comprehensive and core networks. | investments in:<br>- the core TEN-T network and the comprehensive network where investment from the ERDF and the Cohesion Fund is envisaged; and<br>- secondary connectivity.<br>- a realistic and mature pipeline for projects for which support from the ERDF and the Cohesion Fund is envisaged.<br>■ Measures to ensure the capacity of intermediary bodies and beneficiaries to deliver the project pipeline. |
| | | 7.2. Railway:<br><br>The existence within the comprehensive transport plan or plans or framework or frameworks of a specific section on railway development in accordance with the Member States' institutional set-up (including concerning public transport at regional and local level) which supports infrastructure development and improves connectivity to the TEN-T | ■ The existence of a section on railway development within the transport plan or plans or framework or frameworks as set out above which complies with legal requirements for strategic environmental assessment (SEA) and sets out a realistic and mature project pipeline (including a timetable and budgetary framework);<br>■ Measures to ensure the capacity of intermediary bodies and beneficiaries to deliver the project pipeline. |

| Thematic objective | Investment priorities | Ex-ante conditionality | Criteria for fulfilment |
|---|---|---|---|
| | | comprehensive and core networks. The investments cover mobile assets, interoperability and capacity building. | |
| | | 7.3. Other modes of transport, including inland-waterways and maritime transport, ports, multimodal links and airport infrastructure: The existence within the comprehensive transport plan or plans or framework or frameworks of a specific section on inland-waterways and maritime transport, ports, multimodal links and airport infrastructure, which contribute to improving connectivity to the TEN-T comprehensive and core networks and to promoting sustainable regional and local mobility. | ■ The existence of a section on inland-waterways and maritime transport, ports, multimodal links and airport infrastructure within the transport plan or plans or framework or frameworks which:<br>- complies with legal requirements for strategic environmental assessment<br>- sets out a realistic and mature project pipeline (including a timetable and budgetary framework);<br>■ Measures to ensure the capacity of intermediary bodies and beneficiaries to deliver the project pipeline. |

*Source: CPR, Annex XI and European Commission Directorate-General Regional and Urban Policy, Guidance on Ex-ante Conditionalities for the European Structural and Investment Funds - PART II, 13 February 2014 pp.118, 164, 173.*

The table shows that:

- for urban mobility projects, no specific conditions are set out
- other transport projects essentially either need to be located on the TEN-T (see the respective chapter above) or have to fulfil the condition of „secondary connectivity“. However, there is no legal definition of secondary and tertiary nodes[107].

One possibility is the definition of primary, secondary and tertiary nodes in the TEN-T provided by the Commission Staff Working Document on "The New Trans-European Transport Network Policy Planning and implementation issues" (SEC(2011) 101 final) and subsequently "The planning methodology for the trans-European transport network (TEN-T)" (SWD(2013) 542 final, adopted by the European Commission on 7.1.2014)[108]. Primary nodes are the cities, conurbations, airports, ports etc. of the highest strategic importance in the EU for passenger traffic and/or for freight traffic, identified at the beginning of the planning process and defining the Core Network configuration. The multimodal links representing branching and/or crossing points between primary nodes can turn into secondary nodes, provided they represent adequate cities and/or multi-modal connections. Whenever required for the optimization of the network, smaller cities and connections between nodes can be included into the network with them in turn becoming tertiary nodes[109].

This has to be considered as an ancillary interpretation of Art. 5.7(b) of the ERDF Regulation mentioning "*enhancing regional mobility by connecting secondary and tertiary nodes to TEN-T infrastructure, including multimodal nodes*" [110].

The reference to "*public transport at regional and local level*" also refers to secondary connectivity. According to the EC, this means that the transport plans have to demonstrate how such projects contribute to the Single Transport Area. "*The level of detail will depend on each Member State. As regards Romania, a focus on Bucharest and other major regional areas would seem opportune.*" [111]

The linking of secondary connectivity and local and regional transport seems problematic since the latter need not be connected with TEN-T; it may just connect two peripheral areas with each other, like in many cases of missing small-scale cross-border links.

[107] FAQ on Ex Ante Conditionalities relating to Transport.
[108] *Ibidem.*
[109] *Ibidem.*
[110] *Ibidem.*
[111] *Ibidem.*

Urban mobility is covered by TO 4 which does not require specific ex ante conditionalities. Metro and tram projects are eligible if MS can demonstrate how their investments will contribute to climate change objectives. "*Since urban is understood as including "functional urban areas", related investment in rural suburbs are eligible providing they are part of functional urban areas and they contribute to sustainable urban mobility*." [112]

The criterion of a "*realistic and mature project pipeline*" is linked with the project cycle which goes from planning to implementation[113]. The requirements are[114]:

- A feasibility study including options analysis and preliminary design.
- A positive socio-economic cost benefit analysis including detailed estimated costs and demonstrating financial viability and the need for public financial contributions.
- An environmental impact assessment and comparable required assessments have at least been initiated and consent is at least to be expected.
- The identification of potential state aid.
- A detailed implementation timetable including procurement procedures and permission procedures (the latter being ready to start).

In order to fulfil the criterion of "*Measures to ensure the capacity of intermediary bodies and beneficiaries to deliver the project pipeline*", MS "*have to ensure the capacity of intermediary bodies and beneficiaries to deliver the project pipeline*" [115]. The EC proposes an analysis of respective bottlenecks and weaknesses, focusing on:

- Tendering.
- Implementing environmental requirements.
- Developing and prioritising project pipelines.
- Funding of maintenance and operations.
- Managing intelligent transport systems (e.g. ERTMS).

[112] *Ibidem.*
[113] *Ibidem.*
[114] *Ibidem.*
[115] *Ibidem.*

At a first glance, the list primarily targets the key problems of the first project steps, i.e. developing the project and preparing the investment. The procurement procedure and the construction works are regarded as the major milestones.

Despite the need to strengthen capacities in these project steps, the later project stages of maintenance and recycling/demolition should not be forgotten, especially in view of adopting a modern life-cycle cost approach. Maintenance costs can make up a high percentage of total project cost. This is evident for rail projects where operation and maintenance are essential elements of planning. However, maintenance cost must not be neglected in case of roads either. The critical element of road maintenance is evident in case of mountainous areas but e.g. adequate road sub base design, proper drainage systems, safety elements might at first raise the investment cost but for sure pay off due to significantly lower maintenance cost.

The problematic side of ERTMS especially for small-scale infrastructure has already been mentioned above.

Generally speaking, raising funds for operation and maintenance may cause problems for the most disadvantaged areas where sufficient resources may neither be available for detailed studies nor for later implementation.

*Allocations and projects*

The table below shows the ESIF budget for Thematic Objective (TO) 7 (Sustainable transport) per MS (EU-28 total 58.5 BEUR 2014-2020). The budget that is relevant for our analytical purposes, i.e. related to small-scale border crossings, are the general resources from ERDF for transport as well as the resources from ERDF for ETC. It is important to note that this is the general financial framework where funding of such infrastructure is more likely: on the one hand given the thematic scope, on the other hand given the options for most substantial support rates from ESIF.

***Table 15. ESIF: TO 7: Network infrastructures in transport and energy***

| | Budget CF | Budget ERDF | Total ESIF |
|---|---|---|---|
| BG | 1.144.687.261 | 281.542.473 | 1.426.229.734 |
| HR | 910.205.755 | 400.000.000 | 1.310.205.755 |
| CY | 85.000.000 | 14.250.000 | 99.250.000 |
| CZ | 3.723.015.754 | 2.519.745.265 | 6.242.761.019 |
| EE | 475.904.255 | | 475.904.255 |
| FR | | 376.723.368 | 376.723.368 |
| EL | 833.792.815 | 1.664.801.695 | 2.498.594.510 |

| | Budget CF | Budget ERDF | Total ESIF |
|---|---|---|---|
| HU | 2.700.708.949 | 631.099.276 | 3.331.808.225 |
| IT | | 2.446.976.684 | 2.446.976.684 |
| LV | 924.294.295 | 235.477.563 | 1.159.771.858 |
| LT | 763.156.109 | 390.625.213 | 1.153.781.322 |
| MT | 76.209.738 | 28.403.760 | 104.613.498 |
| PL | 14.542.076.880 | 9.326.047.875 | 23.868.124.755 |
| PT | 609.000.000 | 250.000.000 | 859.000.000 |
| RO | 3.404.255.320 | 2.678.208.359 | 6.082.463.679 |
| SK | 2.307.139.166 | 1.187.989.455 | 3.495.128.621 |
| SI | 223.092.280 | 39.668.020 | 262.760.300 |
| ES | | 2.222.001.662 | 2.222.001.662 |
| SE | | 76.434.084 | 76.434.084 |
| UK | | 164.312.815 | 164.312.815 |
| Interreg | | 866.937.280 | 866.937.280 |
| Total | 32.722.538.577 | 25.801.244.847 | 58.523.783.424 |

*Source: https://cohesiondata.ec.europa.eu/themes/7*

For the present study, a more detailed breakdown for TO 7 has not been available: out of the four Investment Priorities in the framework of TO 7 three are potentially relevant with regards to small-scaler border crossings:

- 7b) where small-scale border crossings in road transport could be financed provided that their contribution to secondary connectivity can be demonstrated;
- 7c) which would allow for sustainable transport (rail, water) promoting sustainable regional and local mobility e.g. in cross-border functional areas;
- 7d) support to interoperable railways systems.

Additional hints on the intended use of ERDF and CF are provided through the aggregate output indicators on transport investment.

Whereas almost all new ESIF-funded rail connections and three quarters of reconstructed rail links and newly built road links are located on the TEN-T, 90% of reconstructed road sections are non-TEN-T projects.

The table below shows that road projects make up for almost twice the total length compared to rail projects (12,800 km vs. 7,400 km). It illustrates the details and provides findings at level of MS.

***Table 16. ESIF: achievements (targets) in km; EU-28 and the respective major MS***

| Transport mode | Country | Total | TEN-T | Non-TEN-T | Non-TEN-T share |
|---|---|---|---|---|---|
| Rail (new) | EU-28 | 628 | 571 | 57 | 9,1% |
| | ES | 524 | 475 | 49 | 9,4% |
| | EL | 96 | 96 | 0 | 0,0% |
| | PL | 9 | | 9 | 100,0% |
| Rail (reconstructed) | EU-28 | 6,802 | 4,636 | 2166 | 31,8% |
| | PL | 2,214 | 632 | 1582 | 71,5% |
| | ES | 1,275 | 1,082 | 193 | 15,1% |
| | LV | 998 | 998 | 0 | 0,0% |
| | HU | 468 | 278 | 190 | 40,6% |
| | RO | 390 | 390 | 0 | 0,0% |
| | IT | 270 | 172 | 98 | 36,3% |
| | PT | 262 | 262 | 0 | 0,0% |
| | BG | 190 | 190 | 0 | 0,0% |
| | EL | 153 | 153 | 0 | 0,0% |
| | SK | 111 | 78 | 33 | 29,7% |
| Road (new) | EU-28 | 3,088 | 2,022 | 1066 | 34,5% |
| | PL | 1,303 | 834 | 469 | 36,0% |
| | RO | 389 | 375 | 14 | 3,6% |
| | EL | 370 | 251 | 119 | 32,2% |
| | HU | 285 | 237 | 48 | 16,8% |
| | CZ | 269 | 95 | 174 | 64,7% |
| | SK | 170 | 126 | 44 | 25,9% |
| | HR | 72 | | 72 | 100,0% |
| | BG | 62 | | 62 | 100,0% |
| | ES | 53 | | 53 | 100,0% |
| | Interreg | 38 | 8 | 30 | 78,9% |
| Road (reconstructed) | EU-28 | 9,615 | 798 | 8817 | 91,7% |
| | PL | 2,550 | 33 | 2517 | 98,7% |
| | RO | 2,250 | | 2250 | 100,0% |
| | LV | 919 | 345 | 574 | 62,5% |
| | CZ | 777 | 48 | 729 | 93,8% |
| | BG | 665 | | 665 | 100,0% |
| | IT | 488 | | 488 | 100,0% |
| | SK | 436 | | 436 | 100,0% |
| | Interreg | 382 | | 382 | 100,0% |
| | EL | 354 | 31 | 323 | 91,2% |
| | LT | 273 | 157 | 116 | 42,5% |
| | ES | 207 | 31 | 176 | 85,0% |
| | HU | 107 | 11 | 96 | 89,7% |
| | EE | 105 | 105 | 0 | 0,0% |
| Tram/metro | EU-28 | 182 | | | |
| | HU | 132 | | | |

| Transport mode | Country | Total | TEN-T | Non-TEN-T | Non-TEN-T share |
|---|---|---|---|---|---|
| | SK | 27 | | | |
| | RO | 9 | | | |
| | CZ | 8 | | | |
| | EL | 6 | | | |

*Source: https://cohesiondata.ec.europa.eu/themes/7*

The table demonstrates the importance of ESIF in road rehabilitation in EU-13 Cohesion Countries: Poland and Romania account for about 50% as regards the target in reconstructed roads.

ETC (Interreg)[116] accounts for 382 km of intended roads: one should assume that these are mostly roads of cross-border relevance, although not necessarily roads which constitute border-crossings.

*Summary*

The ERDF is the by far most attractive and in most cases the only option for EU funding of small-scale border crossing infrastructure, especially in terms of

- project volumes (since the CF is implicitly the facility for major transport projects which rank among national priorities);
- the option to receive grants as the by far most attractive form of financing in particular for LRAs in EU-13[117]; ETC is of interest due to the option of a particularly high co-financing rate from ERDF[118];
- The option to invest in road projects;[119] a limitation as regards the potential location of such investment is the secondary connection to TEN-T which is required in the ex-ante assessment.

## 2.2 Connecting Europe Facility (CEF)

The Connecting Europe Facility (CEF)[120] is the main EU co-funding instrument for TEN-T investment with 24.05 (26.25) BEUR for the period 2014-2020.

[116] Thereof the cross-border strand which accounts for 75% of the total allocation to ETC according to Article 4 of Regulation (EU) 1299/2013 (ETC-Regulation).
[117] In many of the EU-13 countries the share of own resources in financing is lowered by automatic co-financing from national budgets' to shares ranging from 5% % to 15%.
[118] Up to 85% from ERDF.
[119] Despite the overarching objective of sustainable transport; thus the second objective of removing bottlenecks is in practice a determining factor in transport investment in ESIF.
[120] Established with Regulation (EU) No 1316/2013.

Thereof, 11.305 BEUR are available only for projects in MS eligible for the Cohesion Fund (see below)[121].

The Innovation and Networks Executive Agency (INEA), the successor of the Trans-European Transport Network Executive Agency (TEN-T EA), has been responsible since 01.01.2014 for the implementation of[122]:

- Connecting Europe Facility (CEF).
- Parts of Horizon 2020 – Smart, green and integrated transport + Secure, clean and efficient energy.
- Legacy programmes: TEN-T and Marco Polo 2007-2013.

INEA implements the main part of the CEF budget, 27.4 BEUR in the forms of grants out of 30.4 BEUR (22.4 BEUR for transport, 4.7 BEUR for energy, 0.3 BEUR for telecom)[123].

CEF financial support uses two main types of instrument[124]:

- grants as non-reimbursable investment from the EU budget;
- contributions to innovative financial instruments, developed together with financial institutions, mainly the European Investment Bank: Marguerite Fund, Loan Guarantee for TEN Transport (LGTT), Project Bond Initiative (see dedicated section below).

The annual and multi-annual work programmes describe the priorities and amount of financial support per priority and per year starting with 2014[125].

About 50 % of CEF budget has already been allocated to TEN-T projects in the first call in September 2014[126].

The list of CEF-co-funded projects in the Annex (Table 19) shows examples of missing cross-border links; the list is not exhaustive and helps to give a basic understanding on the type of projects[127]. The projects have a strong bias towards rail projects and the investment volume is not below 50 MEUR (the projects with lower volume being studies).

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[121] https://ec.europa.eu/inea/connecting-europe-facility/cef-transport; http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/project-funding/cef_en.htm
[122] https://ec.europa.eu/inea/en/welcome-innovation-networks-executive-agency
[123] https://ec.europa.eu/inea/en/connecting-europe-facility
[124] http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/project-funding/cef_en.htm
[125] http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/project-funding/cef_en.htm
[126] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 14.
[127] https://ec.europa.eu/inea/en/connecting-europe-facility/cef-transport/projects-by-country

Generally speaking CEF is a facility to fund studies and investment for large-scale infrastructure. Beside the basic apparent problem that missing cross-border links may not necessarily be located on TEN-T or even on a feeder (e.g. mountain passes in the central Pyrenees), there are mode-specific characteristics of the CEF programme that have to be taken into consideration.

*CEF road investment*

TEN-T explicitly comprises motorways and high-quality roads[128]. Therefore, it does not seem the optimal funding programme for closing missing links in small-scale border infrastructure.

*CEF rail investment*

In case of rail investment support as part of the TEN-T framework the relevant Directives impose certain interoperability requirements. On the one hand, the provisions will facilitate the implementation of cross-border projects in the long-term by overcoming interoperability problems. On the other hand, they tend to raise costs of operation.

Based on the so-called Interoperability Directive[129] and the TSI on control command and signalling (CCS TSI)[130], railway infrastructure projects that are co-funded by the EU have to implement the new harmonized train control standard ERTMS[131] requiring relatively expensive equipment not only on the infrastructure side but also for the railway undertakings operating the train[132]. Secondary railway lines that are connected with the main network (which is the case for most of the rail links as discussed in Part 1) have to implement the costly system. This provision has been considered as potentially hostile to smaller private railway undertakings in general and may also endanger EU co-financing for the closure of cross-border missing links in the secondary network. Art. 9 of 2008/57/EC however grants a derogation *for any proposed renewal, extension or upgrading of an existing subsystem, when the application of these TSIs would compromise the economic viability of the project and/or the compatibility of the rail system in that Member State*.

[128] https://ec.europa.eu/inea/connecting-europe-facility/cef-transport/projects-by-transport-mode
[129] Directive 2008/57/EC of the European Parliament and of the Council of 17 June 2008 on the interoperability of the rail system within the Community.
[130] Commission Decision of 25 January 2012 on the technical specification for interoperability relating to the control-command and signalling subsystems of the trans-European rail system.
[131] CCS TSI, Recital 8 and Annex III 7.3.2.4.
[132] Exemptions cover metros, trams and other light rail systems, for functionally separate networks exclusively for local, urban or suburban passenger services (2008/57/EC, Art. 1.3), for projects already under way and for geographically isolated networks (2008/57/EC, Art. 9).

TEN-T comprises a specific section for the implementation of ERTMS, the implementation of common standards being an explicit objective of the CEF[133]. However, CEF funding for railway rolling stock in order to upgrade it to ERTMS seems highly problematic in terms of competitive distortion, especially for the incumbent state railway undertakings with their usually dominant market position. ERTMS has a certain inherent danger to unwillingly become an instrument to squeeze smaller private competitors out of the market and it is questionable if EU support directed exclusively to the incumbents is advisable.

In rail transport considerations on path dependencies and life-cycle cost should become standard elements in planning and design. The much-discussed example of China's rapidly built high-speed rail network with its subsequent maintenance problems[134] clearly shows that the question of later maintenance is crucial for the practical feasibility of a project. For this reason, it is advisable to base feasibility analyses for infrastructure on life-cycle cost principles. Such an approach is also strongly advocated by the "Christophersen-Bodewig-Secchi Report" of the research team working for the former Vice-President of the EC H. Christophersen[135].

## 2.3 European Fund for Strategic Investment (EFSI)

The European Fund for Strategic Investment (EFSI) is a joint initiative of the EIB and the EC which aims at mobilizing private financing for strategic investment and thus overcoming the respective investment gap. The objective of EFSI is to stimulate funding of economically viable projects with a higher risk profile than usual EIB projects in order to address market failures in risk-taking.[136]. The EFSI portfolio includes strategic infrastructure investment including digital, transport and energy sectors[137].

Projects have to be bankable and have to contribute to EU objectives and to sustainable growth and employment. Potential beneficiaries are besides companies, banks or public sector entities also funds and collective investment vehicles[138].

[133] https://ec.europa.eu/inea/connecting-europe-facility/cef-transport/projects-by-transport-mode
[134] For example, http://www.scmp.com/lifestyle/technology/article/1299188/chinas-high-speed-rail-programme-case-too-far-too-fast or http://factsanddetails.com/china/cat13/sub86/item1848.html
[135] Christophersen, H. – Bodewig, K. – Secchi, C., Action Plan – Making the best use of new financial schemes for European transport infrastructure projects, June 2015, p. 5-6 and 13-16.
[136] http://www.eib.org/efsi/what-is-efsi/index.htm?lang=en
[137] http://www.eib.org/efsi/what-is-efsi/index.htm?lang=en
[138] http://www.eib.org/efsi/how-does-a-project-get-efsi-financing/index.htm

Secondary border crossings in particular in road transport will not per se become a focus of the EFSI: it is rather difficult to argue the aspect of higher risk and the implicit target of leverage of private funding. Such road investment will be considered mostly as public task and the interest of private investors in secondary (regional and local) roads will be quite limited.

The table below provides an overview on the first wave of transport projects financed under EFSI.

***Table 17. List of transport projects financed via EFSI***

| Title | Country or Territory | Description | Budget |
|---|---|---|---|
| A6 Motorway PPP | Netherlands | Promoter: Kingdom of the Netherlands.<br><br>Design-build-finance-maintain public-private partnership (DBFM-PPP) road scheme involving major upgrade and widening works of four existing highways in the conurbation of Amsterdam, located on the comprehensive TEN-T road network. | EUR 234 million, thereof 100 million EFSI |
| EUROMED RORO | Italy | Promoter: Grimaldi Group SpA.<br><br>Modernisation and enlargement of Grimaldi Euromed SpA fleet (acquisition of 10 new car/truck carrier vessels) on the Europe-North-America route. | EUR 500.9 million, EFSI 200 million |
| Trenitalia Regional Rolling Stock | Italy | Promoter: Trenitalia SpA.<br><br>Acquisition of rolling stock for regional passenger railway services in the Lazio, Liguria, Veneto, Piedmont and Tuscany regions in Italy. | EUR 616.8 million<br>EFSI EUR 300 million |
| Spanish State Fund for Ports Accessibility | Spain | Promoter: Organismo Publico Puertos del Estado.<br><br>Framework loan to fund rail and road access investments in state-owned ports in Spain through a State Fund - "PAF" (Port Accessibility Fund). | EUR 425.36 million, EFSI EUR 105 million |
| Balearia Green Fleet Renewal | Spain | Promoter: Balearia Eurolineas Maritimas SA.<br><br>Modernisation of the promoter's fleet through the acquisition of new dual-fuel vessels for operation between Spain and the Balearic islands. | EUR 350 million, EFSI EUR 75 million |

| Title | Country or Territory | Description | Budget |
|---|---|---|---|
| Quaero European Infrastructure Fund | France | Promoter: Quaero Capital SA.<br><br>Fund targeting equity investments in small to medium-sized infrastructure projects in Europe with a focus on western and northern Europe in several sectors, including transport. | EUR 40.1 million for all sectors |
| Grand Contournement Ouest de Strasbourg (A355) | France | Promoter: République Francaise.<br><br>Construction of a 24 km motorway by-passing the city of Strasbourg in the west. | EUR 510 million, EFSI EUR 280.35 million |
| D4R7 Slovakia PPP | Slovakia | Promoter: public entity.<br><br>Design, construction and financing of ca. 27 km of the D4 motorway around Bratislava, part of the D4R7 public-private partnership (PPP). | EUR 1003.4 million, EFSI EUR 500 million |
| A6 Wiesloch-Rauenberg to Weinsberg PPP | Germany | Promoter: public entity.<br><br>Widening of a 25.5 km section of the A6 motorway between Wiesloch-Rauenberg and Weinsberg (south of Heidelberg, north of Stuttgart) and maintenance of the overall section of 47.1km under a 30-year concession design, build, finance and operate contract (DBFO)., including a 1.3 km viaduct crossing the Neckar Valley. | EFSI financing EUR 250 million |

*Source: http://www.eib.org/efsi/efsi-projects*

All transport investment projects supported by EFSI have an investment volume of at least 75 MEUR. The instruments of funds like the French Quaero fund are the most interesting ones for the focus of the present study: the actual outreach of such infrastructure funds will be seen in practice. One also has to see that next to EFSI, the EIB also offers 'standard' loans for the generally public agenda in transport – an option which seems more realistic in case of secondary border-crossings.

Moreover infrastructure funding from EFSI seems to be an option in the EU-15 rather than in the EU-13. In the EU-13 such funds will face 'competition' from ESIF which constitutes the essential funding source for public investment.

## 2.4 European Investment Bank (EIB)

The EIB supports transport and infrastructure projects with loans and financial instruments in order to promote:[139]

- Cross-border and domestic trade.
- Labour mobility.
- Environmentally benign travel.
- Social integration.
- Regional development.

The main instruments provided by the EIB are[140]:

- Lending, often with maturities of more than 30 years, directly for major projects and via intermediaries, e.g. local banks, for smaller operations. Direct loans are provided for individual projects with total investment cost of more than 25 MEUR. In certain cases, direct loans can go to midcap companies with up to 3000 employees with a loan volume of between 7.5 MEUR and 25 MEUR. These loans can cover up 50% of the total cost, but the average share is about one-third[141]. Projects classed as Trans-European Networks can receive extra help.

- Structured Finance Facility allowing a higher degree of credit risk in project financing as additional support for priority projects using certain instruments with a higher risk profile than are normally accepted. These priority areas include TEN-T and other infrastructure[142].

- Loan Guarantee Instrument for Trans-European Transport Network Projects (LGTT) covers for revenue shortfall from lower than anticipated traffic volumes of projects or part-projects that are deemed of common interest (as defined in Decision No 1692/96/EC) and receive income from user charges. LGTT normally guarantees a maximum of 10% of senior debt (20% in exceptional instances) up to a maximum of 200 MEUR per project. Once the EIB has become creditor, amounts due under the LGTT will be ranked junior to other debt.[143]

- Fund investment – funding from public and/or private sources:

[139] http://www.eib.org/index.htm
[140] http://www.eib.org/index.htm
[141] http://www.eib.org/products/lending/loans/index.htm
[142] http://www.eib.org/products/blending/sff/index.htm
[143] http://www.eib.org/products/blending/lgtt/index.htm

- Marguerite Fund: Six Core Sponsors and several additional investors have contributed more than 700 MEUR at initial closure at the beginning of 2010; fund-raising target is at 1.5 BEUR. At least 65% of the Fund shall be invested in green field projects with a minimum investment of 10 MEUR and a maximum of 10% of total fund size. Approximately 40% of the project portfolio financed by the Fund will go into renewable energy projects [144].
- European Energy Efficiency Fund: It focuses on financing energy efficiency, small-scale renewable energy, and clean urban transport projects targeting municipal, local and regional authorities and public and private entities acting on behalf of those authorities[145]. The founding investors are the EIB, Cassa Depositi e Prestiti SpA (CDP)[146] and Deutsche Bank. Direct investments are carried out in energy efficiency and renewable energy projects in the range of 5 MEUR to 25 MEUR. The instruments used are senior debt, mezzanine instruments, leasing structures and forfeiting loans (in cooperation with industry partners)[147].

Table 20 in the Annex lists all transport-related EIB loans signed during the period between December 2015 to February 2016 that are located in EU MS[148]. The table illustrates the dominant focus on large-scale transport infrastructure such as motorways, airports in capital cities, urban public transport or ports development.

Usually, EIB direct financing is targeted at projects with a volume of more than 50 MEUR. Smaller projects are funded via global grants or infrastructure funds. Another option is EIB financing of small-scale infrastructure as part of a more comprehensive development project. Mr. Brunkhorst of the EIB Vienna Office mentioned Czech municipalities as an example where EIB finances e.g. a stadium, a police station and transport infrastructure of the same municipality as part of a wider investment programme. Even bicycle lanes could be funded by the EIB as part of a wider tourism programme for a region. The main criteria for a funding decision are[149]:

- Project volume;
- Credit structure;
- Project promotor (public sector).

[144] http://www.eib.org/attachments/news/marguerite-faq-final-at-10-03-15-en.pdf
[145] http://www.eeef.eu/
[146] CDP is a (a joint-stock company under public control, with the Italian government holding 70 percent and a broad group of bank foundations holding the remaining 30 percent.
[147] http://www.eeef.eu/eligible-investments.html
[148] http://www.eib.org/projects/loans/sectors/transports.htm?lang=en
[149] Interview with M. Brunkhorst, EIB Office Vienna, on 03.05.2016.

A cost-benefit analysis is part of the assessment. Rail projects will probably need PSO funding to be economically viable. A cross-border component is considered as an asset during project evaluation, especially when EU13 borders are involved[150].

Interesting examples of EIB funding in the context of the study are:

- the major loans taken by Hungary for the modernisation of the road and rail network; in the EIB lending to Hungary the transport and telecommunications sectors account for about 20% of the overall amount; in case of road and railway infrastructure it is foreseen to co-fund the investment also from ESIF[151];
- the example of Poland which, besides major investment in road and rail infrastructure[152], has also taken up a major loan for the rehabilitation of a municipal infrastructure in one of the most disadvantaged parts of the country.[153]

One has to see that cross-funding with ESIF is possible: EIB loans could be used to provide match-funding to projects funded from ERDF. Depending on the MS and the type of region the support rate from ERDF for road or rail infrastructure ranges in practice between 50% and 85%[154]. The national public match-funding either comes from the national, regional or local level or is a combination of these sources[155]. Any of the elements of the national match-funding for a project or a bundle of projects[156] could also be covered from an EIB loan. The EIB considers participation in projects starting with a funding volume of more than 50 MEUR or for bundles of projects. Thus MS could consider financing either Major Projects[157] or bundles of projects with a funding mix from ERDF, national funds and EIB loans. The CPR explicitly refers to this option.[158]

[150] Interview with M. Brunkhorst, EIB Office Vienna, on 03.05.2016.
[151] 140 MEUR for road infrastructure; 184 MEUR for rail infrastructure; in case of rail infrastructure this is one financing element of an investment plan amounting to 1.2 BEUR – cf. European Investment Bank, The EIB in Hungary 2014, February 2015, p. 2.
[152] European Investment Bank, The EIB in Poland 2014, February 2015, p. 1-3.
[153] Rzeszow: municipal infrastructure; total of 66 MEUR.
[154] Maximum support rate from ERDF in ETC.
[155] E.g. many MS in EU-13 foresee a fixed funding split between ERDF, national fund and own resources, the latter in case of a LRA coming from regional or local funds.
[156] Such as for example the road projects under Investment Priority 7b) in a Regional Operational Programme.
[157] In the sense of the ESIF-Regulations, i.e. single projects with a volume of more than 50 MEUR.
[158] Cf. Regulation (EU) 1303/2013, Article 31: *The EIB may, at the request of Member States, participate […] in activities relating to the preparation of operations, in particular major projects, financial instruments and PPPs.*

# 3 Assessment of private sector involvement

The idea of raising private capital complementing sparse public budgets is tempting. According to the OECD, institutional assets amounted to 75,000 BUSD (2010) worldwide and concerned mainly pension funds, insurance companies and investment companies. In Europe, insurance and pension companies hold 12,000 BEUR of assets, more than 90 % of EU GDP. As the "Christophersen-Bodewig-Secchi Report" points out, the interest of these institutions in infrastructure debt is increasing since it is long-dated and provides more attractive yield than government or corporate bonds. This matches long-term liabilities like pension or insurance pay-outs. *"This makes institutional investors particularly suitable to undertake counter-cyclical, long-term investments in sectors of the real economy characterised by high productivity and therefore able to generate stable streams of revenue"*[159].

Looking for new investors becomes even more important in the wake of the financial crisis since public budgets are reduced and many banks have abandoned the infrastructure sector while generally reducing their lending volume because of the strict "Basel III" capital requirements[160].

However, the inclusion of private sector financing poses specific problems for small-scale infrastructure.

- The "Christophersen-Bodewig-Secchi Report" of the research team working for the former Vice-President of the EC H. Christophersen mentioned two possible instruments for attracting private funding to railway projects[161]:
  - "Concession-like finance": in PPP projects without revenues, the concessionaire provides the infrastructure and makes it available for the period whereas the state, railway undertakings and infrastructure manager pay amortization and interest.
  - Mixed funds: cross-financing from project-related revenues, environmental taxes, ear-marked taxes or, if legally possible, from road charges.

[159] Christophersen, H. – Bodewig, K. – Secchi, C., New financial schemes for European transport infrastructure projects – Interim Report, p. 7.
[160] Christophersen, H. – Bodewig, K. – Secchi, C., New financial schemes for European transport infrastructure projects – Interim Report, p. 24-25.
[161] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 15.

## Public-private partnership (PPP)

The general advantages of a PPP structure could be of budgetary nature (cost savings, spread of payments over a longer period), clear result orientation (output-based contracts) and, ideally, the PPP approach could free capacities of the public body to focus on regulatory issues (since even the management tasks related to infrastructure could be delegated). Inherent risks are the loss of control over public assets (e.g. due to shared decisions on tariffing, levels of service) and rigidities in long-term contracts (due to difficulties to react adequately to changes in the economic situation)[162].

PPP structures are not uncommon in the transport sector (toll roads, airports, ports, intermodal terminals), showing mixed results. For example, Germany has different PPP models for road construction with the private contractor planning, financing, constructing and operating the section and the public side remaining owner of the infrastructure[163]:

- A-model for expansion or upgrade of motorway sections: The private contractor receives the road toll paid by heavy duty vehicles for use of the section as refinancing; public start-up financing is possible.

- F-model for structures like bridges, tunnels, mountain passes: The private contractor is permitted to collect user tolls; public start-up financing is possible.

- V-model for all types of transport infrastructure: No user tolls, the public side pays a monthly fee for availability of the road or at fulfilment of certain quality requirements.

The "Christophersen-Bodewig-Secchi Report" points out that the PPP-A model is as efficient as more conventional methods of construction. Procurement is based on a life-cycle cost approach. The construction time is reduced and the quality of construction and operation is high[164].

However, in the case of small-scale road projects, revenue generation for special purpose vehicles seems highly problematic since in the absence of an area-covering road-toll system, secondary and tertiary roads usually do not generate any revenues at all. Even if such a system existed, it is highly doubtful that it

[162] UN, Habitat, 2011, pp. 6-8.
[163] http://www.oepp-plattform.de/verkehr/verkehr-oepp-modelle/-modell/
[164] Christophersen, H. – Bodewig, K. – Secchi, C., Action Plan – Making the best use of new financial schemes for European transport infrastructure projects, June 2015, p. 14.

would generate any substantial net-revenues in case of small-scale border crossings.

Rail infrastructure generates revenues from the obligatory infrastructure fees (Directive 2012/34/EU); however, the income usually is very low for secondary lines with relatively little traffic. For the rail case, concession-type models including PSO-supported public transport operations may be an option.

For large rail projects with a volume of more than 1 BEUR, such models already exist[165], e.g. the Oresund fixed link were revenues from road tolls are cross-financing rail investment (2.7 BEUR, 95 % self-financing) or the LGV Tours-Bordeaux (7.8 BEUR, 48 % self-financing over a concession period of 50 years; however, there are doubts about the underlying assumptions[166]).

PPP structures may also be beneficiaries of ESIF.[167] The CPR foresees a certain amount of flexibility for PPP financing under ESIF thus clearly encouraging the model.

It should not be forgotten that the implementation of well-functioning PPP structures requires specialist skills that are not necessarily available in all MS. Since PPP models are based on risk-sharing, public authorities need to be able to adequately assess the risks and set up suitable structures. Therefore, the "Christophersen-Bodewig-Secchi Report" proposes to install facilities for technical assistance[168].

**Taxation**

Transport infrastructure projects can have a positive impact on the value of adjacent land and real estate. On this basis, special taxes on the benefits incurred can be levied[169]. An interesting example is the South Lake Union Streetcar in Seattle that was constructed 2005-2007 (2.1 km; 56.4 MUSD). 25 MUSD were paid by the property owners along the route via a "Local Improvement District"

[165] Christophersen, H. – Bodewig, K. – Secchi, C., Action Plan – Making the best use of new financial schemes for European transport infrastructure projects, June 2015, p. 16.

[166] E.g. http://www.lefigaro.fr/societes/2015/03/12/20005-20150312ARTFIG00062-la-facture-tres-salee-de-tours-bordeaux-pour-la-sncf.php
http://france3-regions.blog.francetvinfo.fr/elus-et-citoyens/2016/02/07/lgv-tours-bordeaux-le-ppp-un-modele-economique-qui-deraille.html

[167] Cf. Regulation (EU) 1303/2013, Article 63 either the public law body initiating the PPP or – upon proposal of the public law body a body governed by private law may act as beneficiary, Article 64 foresees that also the expenditure paid by the private body may be considered as incurred by the beneficiary (in derogation from Article 65).

[168] Christophersen, H. – Bodewig, K. – Secchi, C., Action Plan – Making the best use of new financial schemes for European transport infrastructure projects, June 2015, p. 14.

[169] EY, Transport corridors – Catalyzing private sector and cross-border investment for gains (Government and Public Sector Insights), 2015, p. 12.

tax[170]. A European example is the so-called "U-Bahn-Steuer" ("Subway Tax") in Vienna, a municipal tax paid by employers since the 1970ies that is dedicated to the expansion of the Viennese metro network (2013: 67 MEUR p.a.)[171].

"User-pays" and "polluter-pays" principles could be adopted more widely. Precondition would be an exact calculation of external costs and monetising of external benefits induced by the infrastructure[172]. The Swiss LSVA (Leistungsabhängige Schwerverkehrsabgabe; redevance poids lourds liée aux prestations - RPLP), introduced in 2001, is a well-known pioneering example of a road toll system for heavy duty vehicles covering all types of roads[173].

The "Christophersen-Bodewig-Secchi Report" mentions AlpTransit (CH) as best practice. Revenues from road tolls are used to cross-finance measures to shift Alps-crossing freight transport flows to the Lötschberg and Gotthard rail tunnels. In order to match revenues with investment requirements, the fund can borrow public money issuing additional sovereign bonds. Such structures may be well suited for projects generating low or no revenues in the operational phase. They enable the pooling of individual projects[174] and might therefore be suited for the financing of small-scale border infrastructure.

**Special lending instruments**

The EC has previously tried to introduce new financial instruments together with the EIB in order to foster private finance for transport infrastructure[175]:

- Loan Guarantee Instrument for Trans-European Transport (LGTT) providing liquidity for serving debt in the starting phase of the project (see above)[176];
- Euro bond finance enabling mostly PPP to attract additional private finance from institutional investors such as insurance companies and pension funds[177].

[170] https://en.wikipedia.org/wiki/South_Lake_Union_Streetcar
[171] https://de.wikipedia.org/wiki/Dienstgeberabgabe
[172] Christophersen, H. – Bodewig, K. – Secchi, C., Action Plan – Making the best use of new financial schemes for European transport infrastructure projects, June 2015, p. 8.
[173] Schweizerische Eidegenossenschaft - Bundesamt für Raumentwicklung ARE, Fair und effizient – Die Leistungsabhängige Schwerverkehrsabgabe in der Schweiz, Bern 2015.
[174] Christophersen, H. – Bodewig, K. – Secchi, C., Action Plan – Making the best use of new financial schemes for European transport infrastructure projects, June 2015, p. 17.
[175] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 15.
[176] http://www.eib.org/attachments/press/2008-005-fact_sheet_en.pdf
[177] http://www.eib.org/products/blending/project-bonds/?lang=en

However, according to a recent study, the instruments were not quite successful, due to two main reasons identified[178]:

- The economic crisis;
- Transport infrastructure investment often cannot provide stable and sufficient revenues in order to pay back credits.

The study adds that especially for railway infrastructure, market revenues are low and exposed to political risk and that railway infrastructure PPPs may risk conflicts with the incumbent infrastructure manager[179].

However, the Christophersen-Bodewig-Secchi Report points out that for many transport projects, financial instruments alone may not be sufficient for providing sufficient funds because only a part of the investment can be covered by the revenues. In this case, the blending of financial instruments and EU grants (CEF, ESIF) might be an option[180].

[178] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 15.
[179] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 15.
[180] Christophersen, H. – Bodewig, K. – Secchi, C., New financial schemes for European transport infrastructure projects – Interim Report, p. 23.
Christophersen, H. – Bodewig, K. – Secchi, C., Action Plan – Making the best use of new financial schemes for European transport infrastructure projects, June 2015, p. 5 and 26.

# 4 Conclusions

Before concluding, it must be stressed that the share of EU funding in infrastructure financing should not be overestimated. A recent study splits the funding mix of European railway infrastructure as follows[181]:

- 50 % national funding,
- 12 % EU funding (CF, ERDF, CEF, EIB, EFSI),
- 38 % concessions, PPP, loans, equity capital, rail infrastructure fees (to a lesser extent).

It is assumed that the situation for road transport is similar since in large parts of the EU-15 road financing is not part of EU-funding. In particular, when looking at secondary road links, the overwhelming share of road investment is paid from public sources either derived from the national or sub-national levels.
However, EU co-funding plays a crucial role for especially areas eligible for CF, as it is the case with large parts of the EU13.

***Table 18. Evaluation grid for funding possibilities***

| Step | Role of EU funding |
|---|---|
| Planning/design | Could be financed from ETC programmes. |
| Implementation/investment | Small scale: also implementation could be funded from ETC programmes, but restrictions in ERDF Regulation[182]. |
| Operation/maintenance | In case of rail infrastructure, the investment decision might have far-reaching systemic consequences; interoperability and eventual adverse effects of system decisions have to be considered. Problems of competitive distortion have to be taken into consideration when operators' vehicle fleets are supported by EU. |

The ERDF is the obvious instrument of choice for EU funding of small-scale border infrastructure in terms of project volumes and with the implicit focus on road projects. With this instrument, revenue generation plays a role with respect to rail and port infrastructure. A major current challenge for secondary transport links is the TEN-T connection required in the ex-ante assessment.

EIB, CEF, EFSI seem less suitable as funding instruments since the present study is primarily dealing with secondary and tertiary infrastructure. EIB-supported funds set up at national level distributing the money to smaller

[181] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 14.
[182] Cf. Regulation (EU) 1301/2013, Art. 5, Thematic Objective 7: Roads are only accepted as feeder routes to TEN-T, rail.

projects could however be an option. EIB loans could also be used for cross-funding, i.e. EIB loans could be combined with grants from ERDF.

When it comes to private funds, the problem consists in the lack or non-existence of revenues for most of the projects observed. Innovative concession or PPP models could be set up with alternative sources of revenue (e.g. public purse paying for the use of privately built infrastructure, ear-marked taxes).

# Part 3: Detailed presentation of several case studies demonstrating the lessons learned and best practices potentially replicable through the EU

# 1 Selection of case studies

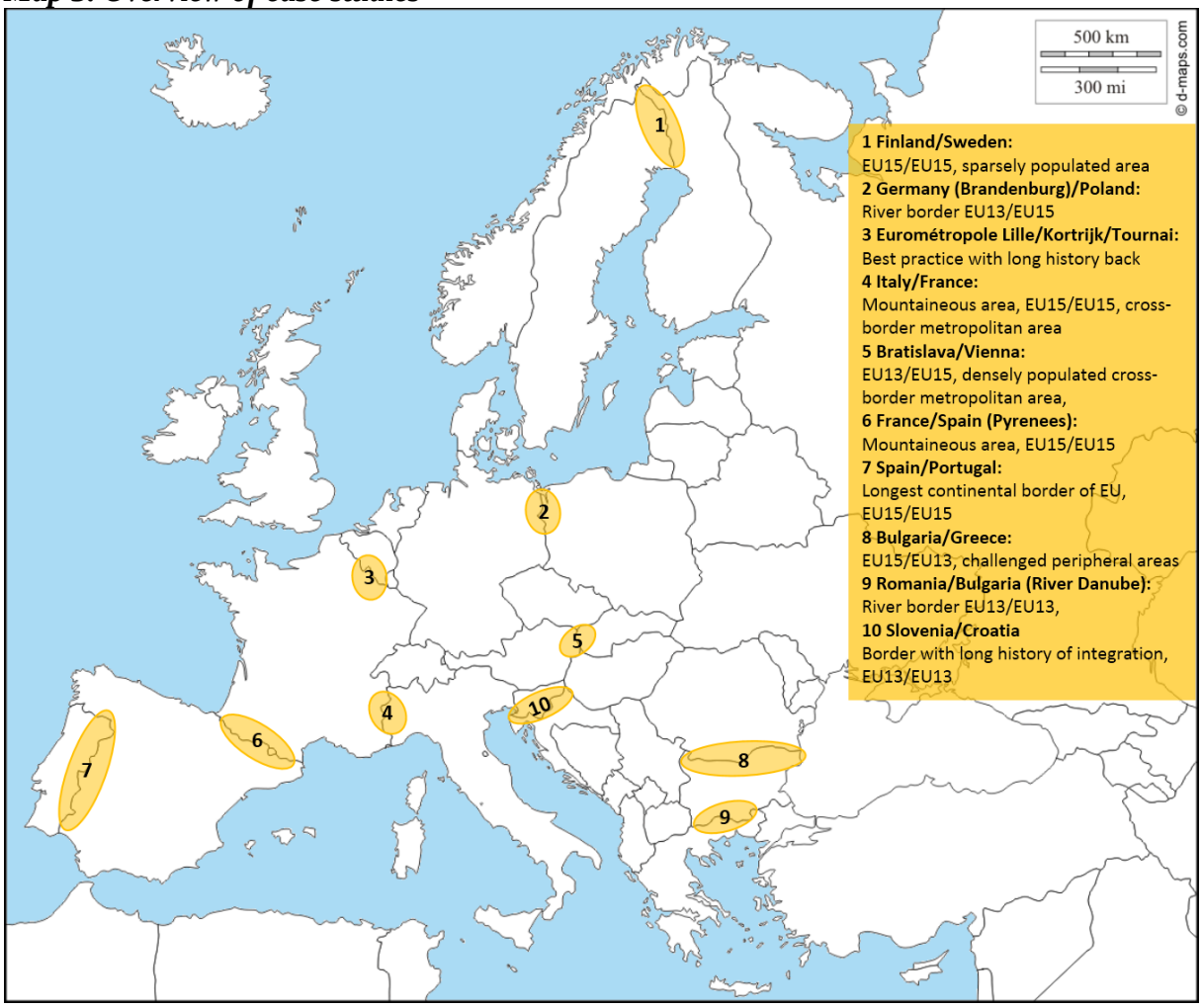
Ten case studies have been selected with the objective of combining the required geographical scope and a comprehensive coverage of the related challenges and solutions. The list of examples includes:

- existing secondary and tertiary links in order to point out the function of such links as well as
- planned/missing links in order to give an understanding of the underlying challenges, investment needs, eventual gaps in planning etc.

Selection criteria:

- Geographic balance all over EU-28 territory;
- Examples for natural barriers: mountain, river;
- Examples for densely and sparsely populated areas;
- Representative examples for borders EU15/EU15, EU13/EU15, EU13/EU13;
- Representation of different government types of Member States with different roles of local and regional authorities (LRA): centralist states, federal states (Belgium, Germany, Austria);
- Transport modes: main focus on road, representative number of rail projects, eventually cycling and water transport;
- Mixture of best practice and challenges (see above).

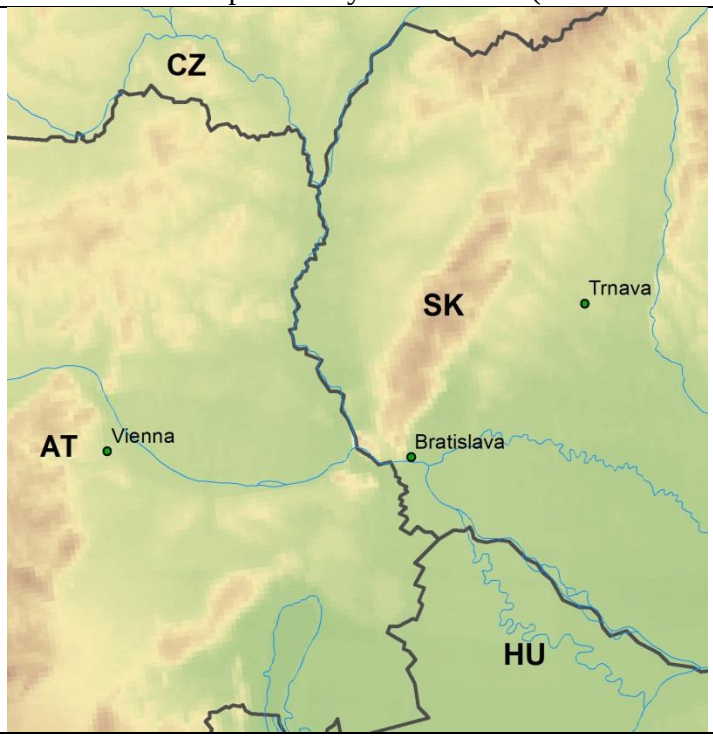
***Map 3. Overview of case studies***



# 2 Appraisal of case studies

The sample has been analysed according to the issues covered in the following grid:

| | |
|---|---|
| **Location** | MS involved, municipalities connected. |
| **Justification of choice** | According above selection criteria. |
| **Map** | |
| **Transport mode (focus)** | The transport mode the case study focuses upon: road, rail, eventually cycling, water transport. |
| **Short description** | Type of region, geographical characteristics; the project. |
| **Implementation procedures** | Role of LRA in investment, operation, maintenance. |
| **Costs and financing** | |
| **Practical difficulties** | E.g. raising of funds, project planning and design/differences of standards/interoperability, local acceptance. |
| **Lessons learned** | |

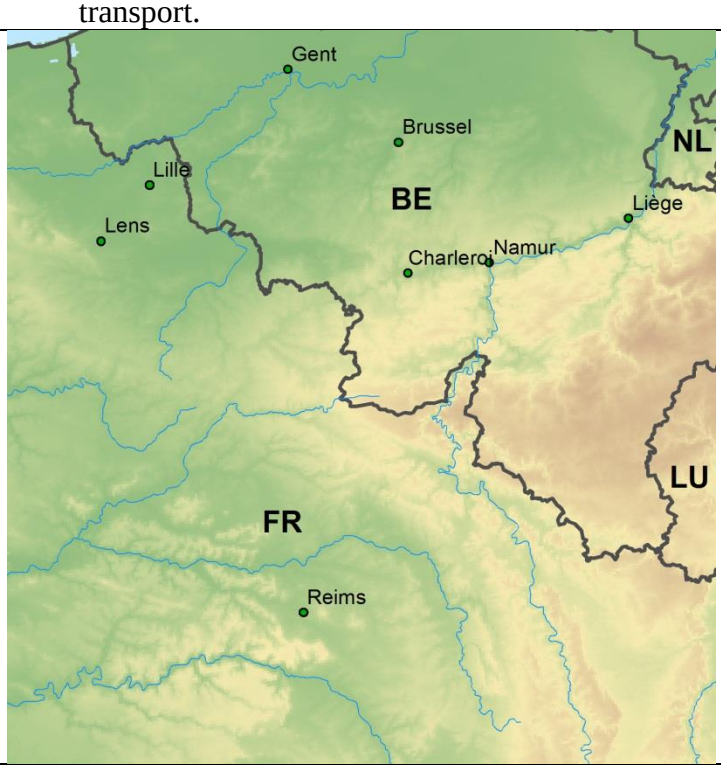
| | |
|---|---|
| **Location** | AT/SK<br>Bratislava/Vienna |
| **Justification of choice** | ▪ EU13/EU15 border along the former Iron Curtain.<br>▪ Densely populated cross-border metropolitan area highly interesting for public transport next to rather rural areas separated by river border (March/Morava). |
| **Map** |  |
| **Transport mode (focus)** | Road, rail, cycling, water transport. |
| **Short description** | For a detailed description of the case, please refer to the boxes Part 1 on the Morava bridges and the railway |

| | |
|---|---|
| | connection Vienna/Bratislava.<br><br>Main defining factor is the close proximity of the two capital cities Vienna and Bratislava with the following consequences:<br><br>▪ major markets for public transport and other environmentally friendly transport modes,<br>▪ growing cross-border suburbanization, especially in the case of Bratislava[183]. |
| **Implementation procedures** | Austria: roads: initiatives by municipalities (that are also responsible for communal roads); case study projects financed by EU and Federal State of Lower Austria (responsible for non-motorway through-roads); rail: state infrastructure manager ÖBB Infrastruktur AG responsible for maintenance (some lines are managed by so-called private, usually federal state-owned railways or regionalized, i.e. responsibility is with federal states); construction of new lines based on national investment plans drafted and financed by the Ministry of Transport, Innovation and Technology.<br><br>Slovakia: roads: initiatives by municipalities, financed by EU and national funds (responsibility for roads either at national level or with the kraj/district[184]); rail: state-owned railway infrastructure manager Železnice Slovenskej republiky (ŽSR, Railways of the Slovak Republic). |
| **Costs and financing** | Vienna-Bratislava<br>A6 (Austrian part of the motorway connection): 2004-2007; 22 km; 146 MEUR[185].<br><br>Small-scale border crossings along the River Morava:<br>Cycling/pedestrian bridge Schlosshof-Devinska Nova Ves: opened 2012; 1 km; 4.6 MEUR; 85 % EU co-funding, 15 % funded by Lower Austria and Slovakia.<br><br>A new road bridge at Angern/Zahroská Vés (cost estimated at 14 MEUR) was planned to be financed from the Interreg V-A Programme Slovakia-Austria, the plan had to be dropped due to the rejection in a local referendum on Austrian side. This was the end of an intense planning process lasting several years. |
| **Practical difficulties** | Connection Vienna/Bratislava (see also rail examples of Part 1):<br><br>Suboptimal rail links between Vienna and Bratislava: the |

[183] Interreg V-A Slovakia-Austria - Description of the Cooperation Programme, 11.06.2015, p. 59.
[184] https://de.wikipedia.org/wiki/Slowakei#Stra.C3.9Fen
[185] https://de.wikipedia.org/wiki/Nordost_Autobahn

| | |
|---|---|
| | former so-called Pressburger Bahn (Austrian light rail S7) coming from Vienna and serving Vienna Airport stops at Wolfsthal and does not reach the border; the tracks leading to Bratislava having been demolished in Austria in 1959 and in Slovakia in the 1980s and the real estate having been sold[186].<br><br>Currently the northern rail axis between the two cities is upgraded on Austrian side. The corresponding investment plan on Slovak side (electrification, double tracks) exists as intent but construction start is not yet confirmed; the rail link on Slovak territory could also be upgraded to function as inner-city connection between Bratislava main station and the Southern parts of the city.<br><br>River Morava border North of Bratislava (see box Part 1): since 1945, almost all border crossings had been closed. At the moment, only one road bridge, one ferry (flying bridge), one bridge for cyclists and pedestrians. Lack of Austrian local acceptance for additional border crossings, for fear of additional traffic and criminality. |
| **Lessons learned** | Iron curtain: Many former road and rail links have been interrupted during the period 1945-1989. The effects are quite lasting: in 25 years three new crossing along a river stretch of about 60 km have been newly constructed – thereof just one fully-fledged road bridge.<br><br>Local acceptance: Economic crisis, rising unemployment combined with considerable commuting and immigration flows, refugee crisis make additional EU15/EU13 cross-border links increasingly unpopular for local population in the EU-15.<br><br>Environmental issues: riparian forests are ecologically sensitive area; promotion of cycling tourism. |

[186] https://de.wikipedia.org/wiki/Pressburger_Bahn

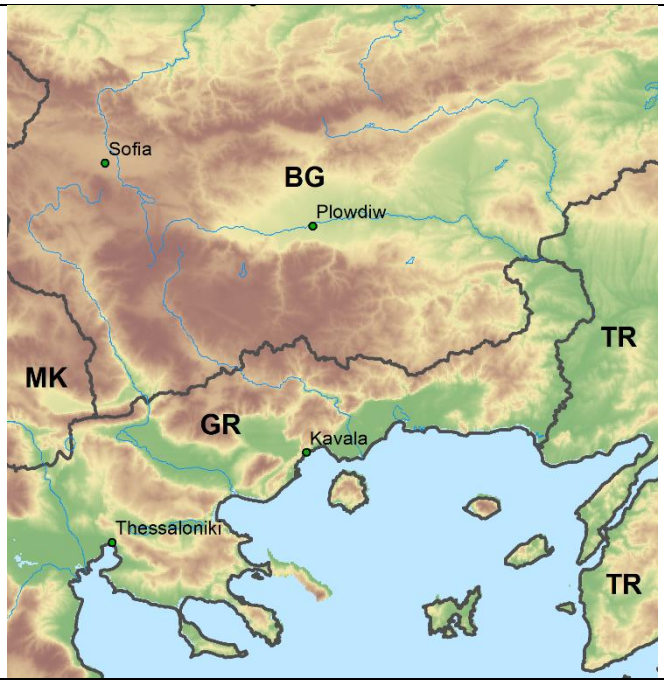
| | |
|---|---|
| **Location** | BE/FR<br>Eurométropole Lille/Kortrijk/Tournai. |
| **Justification of choice** | ▪ EU15/EU15 border representing best practice with long history of integration back to the nineteen-sixties.<br>▪ Densely populated area highly interesting for public transport. |
| **Map** |  |
| **Transport mode (focus)** | Rail |
| **Short description** | The Lille-Kortrijk-Tournai Eurometropolis covers a territory of 3,500 km² including the Lille metropolis in France, seven districts and 3 communes in Belgium, making a total of 147 communes. Each workday, 161,000 people cross the border. However, cross-border railway lines show only 1,000-3,000 passengers per day as opposed to 15,000-20,000 on the domestic connections. The EGTC claims a better rail offer in terms of frequency and tarification. On part of the network, there capacity bottlenecks because of conflicting path requirements between freight trains and passenger trains. A proposed solution would be a light rail or tram-train connection between Lille and Kortrijk[187]. |
| **Implementation procedures** | The Lille-Kortrijk-Tournai Eurometropolis is the first EGTC in Europe. It was created in 2008 and it has about 2.1 million inhabitants. It brings together all French and Belgian government levels via 14 institutions in order to erase the "border effect". Six cooperation bodies have been set up within Eurométropole: The Presidency, the |

[187] Transitec – SumResearch, Mobilité et accessibilité de l'eurométropole Lille - Kortrijk – Tournai – Synthèse - Conclusions du diagnostic partagé et identification des enjeux en matière de mobilité.

| | |
|---|---|
| | Assembly, the Board, the Cross-Border Agency, the Thematic Working Groups and the Conference of Mayors and Burgomasters.<br><br>Concerning rail projects, the EGTC is only competent for project coordination; the actual implementation depends on the cooperation of state railways SNCF and SNCB. The EGTC wishes a harmonisation of networks between the towns of Lille, Courtrai and Tournai. Based on an agreement between the Eurometropolis, the SNCF and the SNCB, the link between Brussels and Tournai has now been extended to Courtrai, via Mouscron with hourly services and at a reduced fare (-20 %)[188]. |
| **Costs and financing** | Lille-Kortrijk-Tournai EGTC: yearly budget 2,024,000 EUR (2012), proportional contributions from the 14 partners according to population size (50/50 between the French and Belgian partners) plus project-specific funds[189].<br><br>So far the EGTC has not been directly involved in the financing of transport infrastructure investment. |
| **Practical difficulties** | There have been problems with SNCF and SNCB that have put a special tax on cross-border tickets that they did not impose on purely domestic rail trips[190]. |
| **Lessons learned** | The EGTC Eurométropole sees a double challenge concerning cross-border rail transport[191]:<br><br>▪ a higher level of territorial integration would increase cross-border passenger movements,<br>▪ the development of a sufficient offer of cross-border rail services keeping pace with territorial integration. |

| | |
|---|---|
| **Location** | BG/EL |
| **Justification of choice** | ▪ Challenged peripheral areas: EU15/EU13 border; mountainous topography.<br>▪ Border between Schengen/non-Schengen countries. |

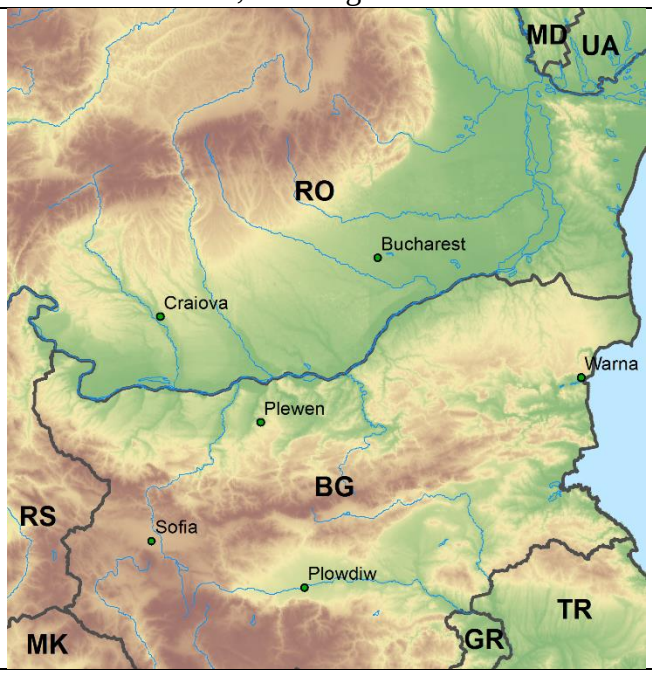
[188] http://www.eurometropolis.eu/areas-focused-on/mobility/railways.html
[189] https://portal.cor.europa.eu/egtc/CoRActivities/Pages/EGTC-Lille-Kortrijk-Tournai.aspx
[190] Information provided by Jonathan Boudry, MOT.
[191] Transitec – SumResearch, Mobilité et accessibilité de l'eurométropole Lille - Kortrijk – Tournai – Synthèse - Conclusions du diagnostic partagé et identification des enjeux en matière de mobilité, p. 10.

| | |
|---|---|
| **Map** |  |
| **Transport mode (focus)** | Road, rail |
| **Short description** | The border between Bulgaria and Greece has a length of 475km and it is characterized by its mountainous and therefore difficult to access character with very few border crossings (6).<br><br>Unemployment and risk of poverty and social exclusion are very high, especially on the Greek side[192]. Level of mobility according to Eurobarometer results on the CBC Programme is very low with 34 % (EU average 53 %)[193].<br><br>Road connections between Greece and Bulgaria have been improved by the Egnatia motorway (constructed 1994-2009), several vertical axes connecting Greece and Bulgaria and the construction of large parts of the Bulgarian motorways A3 (Struma Motorway going South from Sofia) and A4 (leading to Svilengrad at the Greek and Turkish border). However, lower-level roads are often in disrepair, especially in Bulgaria, thus making traffic difficult in mountainous areas. Several vertical axes as agreed in the Transnational Agreement between Greece and Bulgaria in 1998 are still missing or under construction, e.g. the connection of the Bulgarian Road II-86 over the Rozhen Pass with Greece or parts of the Bulgarian motorways[194].<br><br>The rail network still requires heavy investment leading to |

[192] (Interreg V-A) EL-BG - Greece-Bulgaria, p. 6-7.
[193] http://ec.europa.eu/regional_policy/en/policy/cooperation/european-territorial/cross-border/#5
[194] (Interreg V-A) EL-BG - Greece-Bulgaria, p. 6-7.

| | |
|---|---|
| | a problematic predominance of road transport (long queues of lorries at the borders)[195]. Railways between Thessaloniki and the Bulgarian border are of poor quality, single track, not electrified[196]. The border crossing section Kulata-Promachonas (BG/EL) one of the major cross-border railway projects[197]. Intercity passenger trains have been stopped and there are low transport volumes[198]. In general, there is a lack of cross-border public transport services[199]. |
| **Implementation procedures** | Although there is decentralization de lege underway in both countries, the cut-down of financial means for LRA in the aftermath of the crisis de facto seems to hamper LRA involvement[200]. |
| **Costs and financing** | Crossborder programme BG-EL with 129 MEUR (EU contribution 110 MEUR).<br><br>Rehabilitation of Road II-86 Chepelare-Sokolovtsi (Rozhen Pass): 14 km; 5.118.000 MEUR; co-financed by European Territorial Cooperation Programme Greece – Bulgaria 2007-2013 (85 %) and national budgets of Greece and Bulgaria (15 %). Lead Partner: Egnatia Odos, Greece, project partner Bulgarian Road Infrastructure Agency.[201] |
| **Practical difficulties** | Lack of horizontal co-ordination or cross-border co-operation as regards the planning or delivery of national/regional/local public policies. |
| **Lessons learned** | Border region challenged in many respects and heavily dependent on EU co-financing for providing basic transport infrastructure. |

[195] (Interreg V-A) EL-BG - Greece-Bulgaria, p. 6-7.
[196] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 126.
[197] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 122.
[198] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 126.
[199] (Interreg V-A) EL-BG - Greece-Bulgaria, p. 6-7.
[200] Council of European Municipalities and Regions (CEMR), Decentralisation at a crossroads - Territorial reforms in Europe in times of crisis, Brussels, October 2013, p. 24 and 50.
[201] http://www.greece-bulgaria.eu/index.php?option=com_eventlist&view=details&id=82:the-rehabilitation-of-14-km-from-road-ii-86-chepelare-sokolovtsi-has-been-completed&Itemid=15

| | |
|---|---|
| **Location** | BG/RO<br>River Danube |
| **Justification of choice** | ▪ River border.<br>▪ EU13/EU13, challenged areas. |
| **Map** |  |
| **Transport mode (focus)** | Road, rail |
| **Short description** | The Danube is the natural border between Romania and Bulgaria. It is the only border in Europe, where a river makes large parts of the border. Both countries are not yet part of the Schengen area. Level of mobility is 27 %, the second lowest level in the EU (EU average 53 %)[202].<br><br>There are only two bridges across the Danube for road transport between the two countries[203]:<br><br>▪ Giurgiu-Ruse: heavy repair required; used to be the main railway connection between Bulgaria and Romania, however, railway deck is closed at the moment; restoration is planned.<br>▪ Calafat-Vidin: newly build road and rail bridge; opened in 2013 with ca. 500,000 vehicles crossing in the first year[204].<br><br>Up to two new rail and road bridges are planned. At the moment, there are many dead-end infrastructures and a lack of connectivity between the two MS. A good example consists in the twin cities of Calarais (RO) and Silistra (BG) that are currently only connected via ferry (since 2008)[205]. |

[202] http://ec.europa.eu/regional_policy/en/policy/cooperation/european-territorial/cross-border/#5
[203] Interreg V-A Romania – Bulgaria, p. 15-16.
[204] https://en.wikipedia.org/wiki/New_Europe_Bridge
[205] Interreg V-A Romania – Bulgaria, p. 15-16.

| | |
|---|---|
| | Generally, roads in the area are in bad condition, often exposed to flooding, congestions, safety issues[206].<br><br>Interreg V-A strategic project on the harmonization of the territorial development policies for the border area: pre-feasibility study "Construction of the third bridge over the Danube between Romania and Bulgaria", pilot project analysing the existing road network, possibility of developing of a "Panoramic Way of the Danube" [207]. |
| **Implementation procedures** | Although there is decentralization de lege underway in both countries, the cut-down of financial means for LRA in the aftermath of the crisis de facto seems to hamper LRA involvement[208]. |
| **Costs and financing** | Cross border programme Romania-Bulgaria total budget 2014-202 EUR 258,504,125[209].<br><br>Danube programme total budget 2014-2020 EUR 262,989,839,00[210].<br><br>Danube bridge Calafat-Vidin: 226 MEUR. |
| **Practical difficulties** | Lack of horizontal co-ordination or cross-border co-operation as regards the planning or delivery of national/regional/local public policies.<br><br>The joint cross-border cooperation programme is not fully aligned with the national legislations of Bulgaria and Romania, especially with regards to the documents proving the eligibility of applicants NGOs. |
| **Lessons learned** | Better harmonisation needs to be made between the regulatory rules for the identification of economic operators in both countries. The public procurement rules in the two countries need to be better explained to the economic operators in order for them to be able to participate in economic activities in the other country. The focus should be placed on the electronisation of information exchange in project implementation. |

[206] Interreg V-A Romania – Bulgaria, p. 15-16.
[207] Interreg V-A Romania – Bulgaria, p. 15-16.
[208] Council of European Municipalities and Regions (CEMR), Decentralisation at a crossroads - Territorial reforms in Europe in times of crisis, Brussels, October 2013, p. 24 and 35.
[209] http://www.fpdd.bg/en/page/cbc_bg-ro
[210] http://www.dtpevent.eu/programme

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| **Location** | DE/PL<br>Germany Brandenburg, Poland –Lubuskie[211] |
| **Justification of choice** | ▪ EU13/EU15 border (before WW II there were 50 bridges over the Neisse, now there are only five[212]).<br>▪ River border. |
| **Map** |  |
| **Transport mode (focus)** | Rail |
| **Short description** | The German-Polish border, at a length of 472 km, mainly follows the course of the Oder and its tributary, the Neisse. For this reason it is frequently referred to as the "Oder-Neisse" line. However, in the north the border moves away from the Oder, passing to the west of Szczecin.<br><br>Rail modal split in cross-border traffic between the two countries is only at 2 %. An alternative to the upgrading of rail connections could be long-distance buses facilitated by the liberalisation of bus transport in Germany since 01.01.2013[213].<br><br>The second track of the Prussian Eastern Railway (Preußische Ostbahn, Berlin-Kaliningrad via |

[211] Case study based on interview with Marcin Krzymuski, EGTC Transoderana, on 29.04.2016. Additional sources used: http://www.transoderana.eu/de/, http://www.ostbahn.eu/html/igob-ewiv.html, http://www.neb.de/, https://bahndepl.wordpress.com/

[212] MKW Wirtschaftsforschung GmbH – Empirica, Kft., Scientific Report on the Mobility of Cross-Border Workers within the EU-27/EEA/EFTA Countries – Final Report (study commissioned by European Commission - DG Employment and Social Affairs), Munich, January 2009, p. 48-49.

[213] ETC Transport Consultants GmbH, Handlungsbedarf für den grenzüberschreitenden Verkehr zwischen Deutschland und Polen (commissioned by Industrie- und Handelskammern in Berlin und Brandenburg), May 2013, p. 3 and 33.

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| | Küstrin/Kostrzyn and Gorzow Wielkopolski) was demolished after WWII.<br><br>At the moment 19 train pairs between Berlin and Kostrzyn, operated by Niederbarnimer Eisenbahn AG (NEB), a non-incumbent German railway undertaking co-owned by local LRAs (33 %) on the basis of an open PSO tender. On 20.03.2016, one train pair per day started as first border-crossing train on the route between Berlin-Lichtenberg to Gorzów Wielkopolski and Krzyż Wielkopolski, financed by the Federal States Berlin and Brandenburg and the Lubusz Voivodeship and operated by NEB together with DB Regio, Przewozy Regionalne (PR) and Arriva RP[214]; another connection between Berlin-Lichtenberg and Zielona Góra started on 01.04.2016, financed by the Federal States Berlin and Brandenburg and the Lubusz Voivodeship and operated by DB Regio and Przewozy Regionalne [215]- there is no feedback on passenger numbers available yet.<br><br>Between Frankfurt (Oder) and Slubice, the first border-crossing bus operations have started in 2012, operated by municipal public transport operator Frankfurter Stadtverkehrsgesellschaft and co-financed by Brandenburg (130 KEUR p.a.) and the Municpality of Slubice (30 KEUR p.a.) in a contract until 2017[216]. |
| **Implementation procedures** | The EGTC Transoderana was initiated by the Mayor of Seelow (DE), Jörg Schröder. Its predecessor was the IGOB Interessengemeinschaft Eisenbahn Berlin-Gorzów EWIV (EEIG). The latter focused on the upgrade of the railway line and comprised also Polish and German LRAs, mainly municipalities like Rehfelde (DE), Seelow (DE), Gorzow (PL, regional centre with 100,000 inhabitants). There were EU-cofinanced projects led by LRAs: reconstruction and signage of stations, park & ride, exploitation of railway stations. Due to the decision to change the legal structure to EGTC, it was dissolved on 01.01.2014.<br><br>The EGTC Transoderana was initiated 2013 by all LRAs in the region. Set-up meetings were supported by Interreg funds. The EGTC would have a wider agenda than the former EEIG and it would not be exclusively focused on rail anymore; development of rail is still an objective, but more focused on the development of stations. The competent ministries for the set-up are: |

[214] http://www.vbb.de/de/article/ueber-uns/presse/taeglich-eine-direkte-zugverbindung-zwischen-den-woiwodschaften-wielkopolskie-und-lubuskie-und-berlin/374862.html
[215] http://www.vbb.de/de/article/ueber-uns/presse/neu-ohne-umstieg-von-zielona-g-ra-nach-berlin/381596.html
[216] http://www.berliner-zeitung.de/berlin/buslinie-frankfurt--oder----slubice-knackevoll-ueber-die-grenze-5971682

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| | • Brandenburg (DE): Ministry of the Interior.<br>• PL: Ministry of Foreign Affairs.<br><br>However, establishment procedures have been suspended since September 2015 (see below).<br><br>Responsible for the rail network are the two state infrastructure managers, DB Netze and PKP (Polskie Koleje Państwowe) Polskie Linie Kolejowe S.A. Concerning the operational side, LRA in Germany act as purchasers of regional transport services via their respective public transport authorities ("Aufgabenträger"; here at the federal state level) and PSO contracts[217]. |
| **Costs and financing** | Estimated investment amounts to ca. 121 MEUR[218]. |
| **Practical difficulties** | The MoI Brandenburg doubts the financial capacity of the intended EGTC; in Poland, this is no relevant criteria. The main underlying reason is a differing opinion and legal interpretation of the EGTC's liability. From the current perspective the major consequence is:<br><br>▪ There would be an imbalance if the German members of the EGTC were liable and the Polish members were exempted from liabilities.<br>▪ The German members of the EGTC are uncertain whether they should proceed at all.<br><br>Rail aspects<br><br>▪ The EGTC Transoderana would advocate for an extension of the trains to Pila (PL); first talks have taken place but Pila is located in the Greater Poland Voivodeship and not in the Lubusz Voivodeship anymore.<br>▪ It took five years for NEB rolling stock to be authorized for use on the Polish network[219].<br>▪ Electrification and construction of a second track on the German side is not included in the German Federal Transport Infrastructure Plan. |
| **Lessons learned** | Despite very dedicated actors at level of LRAs the issue of cross-border secondary rail connections appears as an enormously demanding issue in case of lacking political backing at higher levels. |

[217] https://de.wikipedia.org/wiki/%C3%96PNV-Aufgabentr%C3%A4ger
[218] http://www.stadtentwicklung.berlin.de/verkehr/politik_planung/step_verkehr/download/StEP_Verkehr_Berlin_Anhang_Massnahmen.pdf
[219] European Commission, State of play of cross-border railway sections in Europe, February 2016.

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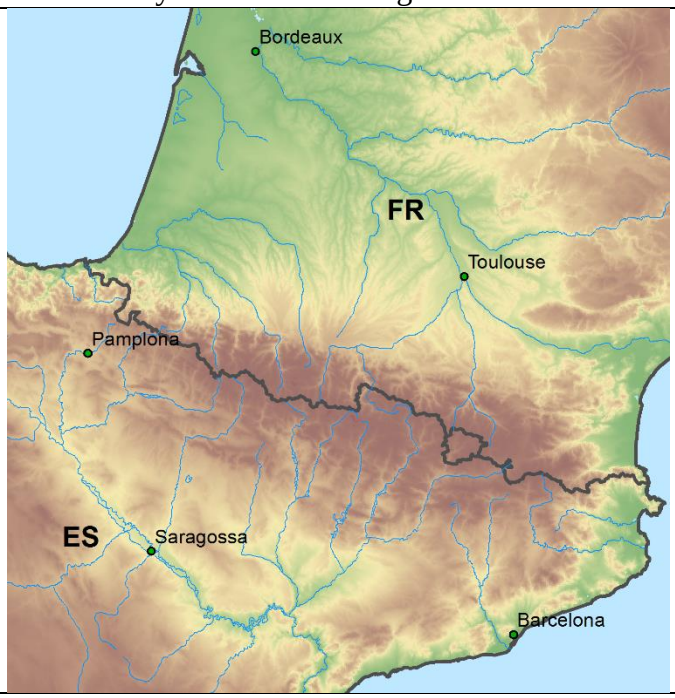
| **Location** | ES/FR<br>**Regions concerned:** France: Departments – Pyrénées-Atlantiques, Hautes-Pyrénées, Haute-Garonne, Ariège, Pyrénées orientales; Regions – Aquitaine, Midi-Pyrénées, Languedoc-Roussillon.<br>Spain: Regions – Basque Country, Navarra, Aragon, Catalonia.<br>Principality of Andorra |
| **Justification of choice** | ▪ EU15/EU15 border in a mountainous area, low density of border crossings |
| **Map** |  |
| **Transport mode (focus)** | Road |
| **Short description** | About 85 % of the cross-border traffic is concentrated on the two littoral corridors[220]. Road transport consists mainly of short-distance trips around the border points of Irun and Le Perthus[221]. Public transport has a limited cross-border offer and the two systems on either side of the border are poorly integrated[222].<br><br>Since the 1988, on behalf of the Communauté de Travail des Pyrénées, connections between the two countries have been improved, not only along the coasts, but also with new road connections in the Central Pyrenees: Cerdagne (E9), Somport (E7; finished 1991 with 40 km of tunnel)[223].<br><br>The EGTC "**Espacio Portalet**" **at the French-Spanish** |

[220] Interreg V A Espagne-France-Andorre (POCTEFA) 2014-2020, 19.05.2015, p. 66.
[221] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 109.
[222] Interreg V A Espagne-France-Andorre (POCTEFA) 2014-2020, 19.05.2015, p. 66.
[223] Manual de Cooperación Transfronteriza 2014, p. 347.

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| | **border** was created by the Département des Pyrénées-Atlantiques (FR) and the Comunidad Autónoma de Aragón (ES) in 2011 to jointly manage and maintain the mountain passage of Portalet (road A136 in Spain and road D934 in France) by the Comunidad Autónoma de Aragón (ES) and the Département des Pyrénées-Atlantiques (FR) with a budget of 738.6 MEUR. Its task is the improvement of roads and infrastructure between two regions with a population of two million people[224]. The objective of the current programming period is to increase the safety measures against natural hazards such as avalanches, rock fall and landslides. The EGTC wants to increase the number of scientific research projects in the area and increase the cooperation with other European mountainous regions with similar issues.[225]<br><br>The **Cerdanya plateau** is a French-Spanish cross-border conurbation of 30,000 inhabitants located at an altitude of 1,200 m. It is isolated from the respective hinterlands and can only be reached via bridges and tunnels. In 2011, the Pyrenees-Cerdanya EGTC was established. An important project was then opening of the Cerdanya Hospital serving the whole cross-border area. At the moment, 150 m of direct cross-border road access from France is yet to be established; however the implementation is delayed by administrative procedures.[226] |
| **Implementation procedures** | The Communauté de Travail des Pyrénées was established in 1983 at the suggestion of Council of Europe in order to create in the Pyrenees a structure of cross-border cooperation similar to other European borders. Since 2005, it has become a Consorcio according to Spanish public law. Members: FR: Aquitaine-Limousin-Poitou-Charentes, Languedoc-Roussillon-Midi-Pyrénées; ES: Catalunya, Aragón, Navarra, Euskadi; Andorra[227].<br><br>A specific feature of this border is the very large number of cooperation agreements, both bilateral (at regional, departmental/provincial and local levels) and multilateral.[228] An example is the Cerdanya Cross-Border Hospital EGTC. This EGCT was created to jointly manage the operation of the hospital, which is expected to serve the entire Pyrenées-Mediteranée cross-border region. |

[224] http://cor.europa.eu/en/documentation/studies/Documents/EGTC_MonitoringReport_2014.pdf http://www.espalet.eu/fra/gect-espace-portalet/membres/
[225] Interview with Santiago Fabregas Reigosa, Director of the EGTC Espacio Portalet.
[226] http://www.espaces-transfrontaliers.org/en/resources/territories/borders/borders-in-europe/border-france-spain-andorra/border-france-spain-andorra-1/; http://cor.europa.eu/en/documentation/studies/Documents/EGTC_MonitoringReport_2014.pdf
[227] https://www.ctp.org/modulos.php?idmodulos=6
[228] http://www.espaces-transfrontaliers.org/en/bdd-frontieres/frontiers/frontier/show/france-espagne-andorre/

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| **Costs and financing** | European Programme Interreg IVA France-Spain-Andorra POCTEFA. In September 2014, the cross-border hospital opened its doors in the commune of Puigcerdà (Catalunya) not far from the French border. 65% of the costs were covered by the ERDF. Total cost amounts to EUR 28 million[229].<br><br>The EGTC Espacio Portalet applied to POCTEFA for the road between El Portalet and Bielsa-Aragnouet with a total amount of EUR 9.5 million. [230] |
| **Practical difficulties** | Administrative difficulties (asymmetries in terms of competences and functioning). Health is a regionalised competence in Spain yet it is a national competence in France. |
| **Lessons learned** | Different administrative structures and procedures lead to friction between the partners with a long history of cooperation. The language barrier also exists between the technicians. It is important to work in small teams (5-6 persons) in the project concept and implementation phase. Lessons learned of good practices are an important factor to overcome the different legal aspects on each side of the border.[231] |

[229] http://ec.europa.eu/regional_policy/en/projects/spain/a-cross-border-hospital-in-cerdanya-improves-healthcare-for-french-and-spanish-citizens
[230] Interview with Santiago Fabregas Reigosa, Director of the EGTC Espacio Portalet.
[231] Interview with Santiago Fabregas Reigosa, Director of the EGTC Espacio Portalet.

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| **Location** | ES/PT<br>Municipalities connected: Alentejo (PT) and Extremadura (ES)<br>Rail connection between the cities Evora (PT) and Caia-Badajoz (ES). |
| **Justification of choice** | ▪ Longest continental border of EU<br>▪ EU15/EU15 |
| **Map** |  <br>  |
| **Transport mode (focus)** | Rail |

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| **Short description** | 15 million cross border trips within the Iberian Peninsula are estimated per year with road (private car) share of 80% and rail share of 6%[232].<br><br>Missing Link of the Atlantic Corridor of the Transeuropean Transport Networks and missing link in the High Speed connection Lisbon/Sines-Madrid: The missing link Évora/Caia (border) forces the majority of rail flows to travel via the Vilar Formoso border and most of the freight trains from Sines-Lisbon-Setubal ports to a long detour to reach Spain and further north.[233] The idea is to develop the first line in Iberian gauge with polyvalent sleepers, the electrification at 25 kV, ERTMS and second line in UIC gauge waiting for the full shift to UIC gauge in the direct connection (at least on the Spanish side)[234; 235]. This is essential for strengthening the external connectivity of territory, reducing in 140 km the distance, travel time at about 3h, the viability of circulation with electric traction all the way, the feasibility of the movement of trains with 750 m long, and the increased load capacity towed to 1400 t with simple electric traction.<br><br>The procedures are in its course for the execution of the infrastructure modernization project of the section between Evora and Evora North (9km), as well as the contracting of the construction of a new section between Évora North and Elvas-Caia (extension 92 km) interoperable, electrified, with signaling systems, telecommunications and speed control and modernization of about 11km to link with the East line, through which the connection to Spain is ensured, with completion scheduled for 2020, with entry into operation in 2021[236]. |
| **Implementation procedures** | **Implementation schedule:**<br>Start date: April 2014<br>End date: December 2020<br><br>**Implementing body:**<br>Infraestruturas de Portugal S.A. |
| **Costs and financing** | Estimated cost of the action: EUR 315,446,963[237]<br>Percentage of EU support:<br><br>▪ 50% (Studies)<br>▪ 40% (Works - Évora-Caia section) |

[232] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 110.
[233] Information provided by César Morcillo, Director of the Office of Extremadura in Brussels.
[234] Information provided by César Morcillo, Director of the Office of Extremadura in Brussels.
[235] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 110.
[236] Information provided by César Morcillo, Director of the Office of Extremadura in Brussels.
[237] https://ec.europa.eu/inea/sites/inea/files/fiche_2014-pt-tm-0627-m_final.pdf

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| | ▪ 30% (Works - South Line section)<br><br>Maximum EU contribution: EUR 127,716,150.9 |
| **Practical difficulties** | Construction works stopped on the Portuguese side in 2011 because of the Financial Crisis; the Portuguese Central Court nullified the procurement in 2012[238].<br><br>From the social point of view, after the announcement of the intention to proceed with the process, a movement of residents from Évora who live near the possible route started, accompanied by local and national political powers, which manifest themselves against the passage of trains in urban areas, citing the proximity of housing, noise, transport of dangerous goods and fearing the city split in two by the railway line[239]. |
| **Lessons learned** | Political decisions about infrastructure projects can be blocked / delayed during their implementation, and that situation postpones considerably the expected effects. This kind of projects should be taken into account looking at the medium / long term effects, being aware of the difficulties involved in its implementation. There is a need of having enough institutional support at the highest level for the development of infrastructure projects between different administrations in time of crisis[240]. |

[238] https://de.wikipedia.org/wiki/Schnellfahrstrecke_Lissabon%E2%80%93Madrid
[239] Information provided by César Morcillo, Director of the Office of Extremadura in Brussels.
[240] Information provided by César Morcillo, Director of the Office of Extremadura in Brussels.

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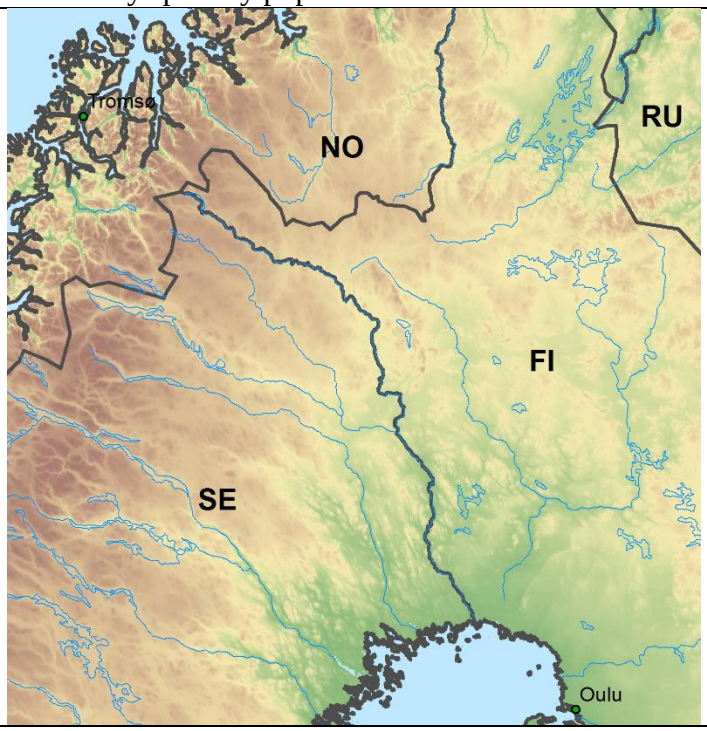
| **Location** | FI/SE<br>Functional areas of Lapland (FI) and Norrbotten (SE) |
| **Justification of choice** | ▪ EU15/EU15<br>▪ Very sparsely populated and remote area |
| **Map** |  |
| **Transport mode (focus)** | Road, air |
| **Short description** | The Interreg Vb Northern Periphery And Arctic Cooperation Programme 2014–2020 identifies transport to major urban centres as a key challenge in the region. Population density is very low, distances between settlements are long and accessibility to the few larger conurbations is low (often more than five hours drive compared to e.g. two to three hours in Central Spain)[241]. Transport volumes are low and road transport dominates. Logistics cost is high. The long distances combined with low traffic create challenges for maintenance and extensions[242]. 43 % of Sweden's developed land is transport infrastructure (93 % of which being road). Almost 90 percent of Sweden's roads are outside urban areas. However, concerning population the ratio is the opposite: 85 % of the population lived in urban areas in 2010[243]. |

[241] Interreg Vb Northern Periphery And Arctic Cooperation Programme 2014–2020 - Approved by the European Commission on 16th December 2014, p. 10 and 19.
[242] Tervala, Juhani, TEN-T in the North and the Bothnian corridor, Presentation for NSPA seminar on "Transport infrastructure in the European Arctic", 20.11.2014 (http://www.northsweden.eu/english/news/nspa-seminar-transport-infrastructure-in-the-european-arctic.aspx).
[243] Statistics Sweden, Large increase of roundabouts in five years – Land used for transport infrastructure (Statistical news from Statistics Sweden 2013-11-27).

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| | Air transport plays a crucial role[244]. With January 2015, a new route "Arctic Airlink" connects the three northern university towns Oulu, Luleå and Tromsø with flight time from Oulu to Luleå of 40 minutes and from Luleå to Tromsø of 1:20 h. *Currently travelling from Oulu to Northern Norway takes as long as the travel to the other side of the world*[245]. |
| **Implementation procedures** | The border connects the Norbotten county (SE) and the Lappland province (FI). It is covered by the Nordic cross-border co-operation committee "Tornedalsradet", which is part of the "Bothnian arc cross-border area", funded by the Nordic Council of Ministers[246].<br><br>The network for Northern Sparsely Populated Areas (NSPA) has been established to improve collaboration between the three northern most counties of Sweden (Norrbotten, Västerbotten, Västernorrland, Jämtland), the seven northernmost and eastern regions of Finland (Lapland, Oulu, Central Ostrobothnia, Kainuu, North Karelia, Pohjois-Savo and Etelä-Savo) and of North Norway (Finnmark, Troms, Nordland). |
| **Costs and financing** | The Nordic Council of Ministers provides structural, but relatively limited, funding for developing cross-border co-operation in the Nordic space. The association is co-funded by the local authorities that comprise the Board.[247]<br><br>The 2007-13 EU Interreg programme IVA Nord (EUR 34 million) Interreg funding is the principal funding source for the projects and seems necessary for their sustainability: 85% of the project managers state that they have |

[244] Interreg Vb Northern Periphery And Arctic Cooperation Programme 2014–2020 - Approved by the European Commission on 16th December 2014, p. 10 and 19.

[245] https://www.finavia.fi/en/news-room/news/2014/new-route-connecting-oulu-lulea-and-troms-opens-in-january-2015/

[246] Established in 1952, the Nordic council is an inter-parliamentary body in which five countries (Denmark Finland, Iceland Norway and Sweden) and three self-governing territories (the Faroe Islands, Greenland and Åland) are represented. In 1971 the Nordic Council of Ministers, an intergovernmental forum for cooperation, was established to complement the Council. The Nordic Council of Ministers consists of ten thematic councils of ministers which meet twice per year. The committees have a small budget from the Nordic Council of Ministers, and firms, municipalities and public organisations can apply for funding. Cooperation objectives often centre upon economic development and cultural cooperation, including infrastructure and tourism.

[247] This intervention is linked to the strong focus of Nordic policy on cross-border co-operation as a way to improve the position of the Nordic area in global competition. The 2009-12 Nordic Regional Policy Co-operation programme states: "The Nordic Council of Ministers believes that the border regions should be highlighted as key players with a new weight in Nordic integration work."
Nauwelaers, C., K. Maguire and G. Ajmone Marsan (2013), "The Case of the Bothnian Arc (Finland-Sweden) – Regions and Innovation: Collaborating Across Borders", OECD Regional Development Working Papers, 2013/17, OECD Publishing :
http://www.oecd.org/gov/regional-policy/publicationsdocuments/Bothnian%20Arc.pdf

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| | approached Interreg with an application for a follow-up project.[248] |
| **Practical difficulties** | There are limitations to this Interreg funding programme, despite its crucial role for cross-border projects via complementing limited allocations from municipalities:<br><br>▪ Lack of participation of SMEs.<br>▪ Problems with sustainability of the projects: challenge of attracting more private funding in view of the fact that most of the initiatives implemented under the Bothnian Arc seem to be unsustainable beyond the period of public funding.<br>▪ Lack of overall strategy for the cross-border region ("smart specialisation" strategy capitalizing on existing strengths and synergies as a condition for accessing EU Structural Funds). |
| **Lessons learned** | The development of structural (as opposed to temporary) cross-border initiatives relying on the alignment of regional/national initiatives on both sides of the border would increase the scope and reach of cross-border collaborative ventures. This would also allow for more leverage of national and regional funding sources[249]. |

[248] Kontigo (2012), "Towards a borderless innovation system in the Nordic region: Final report from the evaluation conducted by Interreg IVA Nord", report to the European Commission.

[249] Nauwelaers, C., K. Maguire and G. Ajmone Marsan (2013), "The Case of the Bothnian Arc (Finland-Sweden) – Regions and Innovation: Collaborating Across Borders", OECD Regional Development Working Papers, 2013/17, OECD Publishing:
http://www.oecd.org/gov/regional-policy/publicationsdocuments/Bothnian%20Arc.pdf

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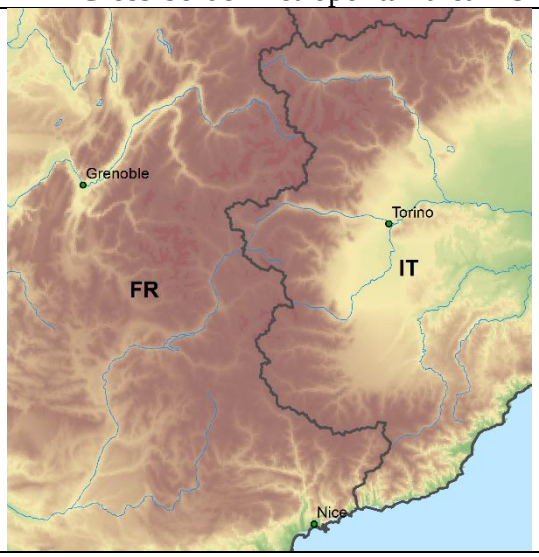
| **Location** | FR/IT<br>**Regions concerned:** France: Regions: Provence-Alpes-Côte d'Azur, Rhône-Alpes, Departments: Alpes-Maritimes, Alpes de Haute-Provence, Hautes-Alpes, Savoie, Haute-Savoie; Italy: Regions: Liguria, Piemonte, Valle d'Aosta. |
| **Justification of choice** | ▪ Mountainous area<br>▪ Cross-border metropolitan area EU15/EU15 |
| **Map** |  |
| **Transport mode (focus)** | Rail |
| **Short description** | 40 % of the respondents in the Eurobarometer results on the CBC Programme perceive a problem in accessibility, markedly higher than EU average (30 %)[250].<br><br>Italy – France cross-border transport is generally characterised by strong road traffic[251]. Main current rail connection is the line Nice-Monaco-Ventimiglia. A new Lyon-Torino rail link is planned. |
| **Implementation procedures**[252] | Operations on existing rail line: Financed by the regions; French regions have to conclude a contract with state monopoly SNCF; Italy: open tender every even years; rolling material is either provided by operators or by the regions.<br><br>Construction Lyon-Torino: based on international agreements at MS level. |
| **Costs and financing** | Lyon-Torino: Total cost of the new rail cross-border section: 65 km; estimated at 8.5 BEUR (at constant euro 2010 prices) including the construction of 57 km of cross border tunnel, the new international railway stations of Susa and Saint-Jean-de-Maurienne and the connection to the existing line in Bussoleno (increase from an original |

[250] http://ec.europa.eu/regional_policy/en/policy/cooperation/european-territorial/cross-border/#5
[251] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 109.
[252] Information provided by Jonathan Boudry, MOT.

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| | sum of 8.1 BEUR at 2010 prices because of stricter safety standards and of project improvements on the Italian side). Expected EU contribution: 40% within the framework of the TEN-T priority project.[253] |
| **Practical difficulties** | ▪ Nice-Monaco-Ventimiglia existing line: lack of technical interoperability (mainly electrification and communication standards); people have to change trains at the border since currently no dual-system rolling stock homologated in both countries exists; purchase of such rolling stock would be very expensive since production batch size would only be eight trains (homologation would take four years); the railway operators are not interested so the regions would have to buy the vehicles and they cannot afford them[254]<br><br>▪ Lyon-Torino new rail link: According to the European Green Party (EGP), marked increase in projected costs from 12 BEUR in 2002 to 26 BEUR in 2012 (including tunnel); the EGP rather favours an improvement of existing infrastructure, strengthening of multimodal transport and introduction of road tolls for lorries[255]. |
| **Lessons learned** | Missing links in rail infrastructure are not confined to lacking track infrastructure per se; deficiencies can also concern technical harmonisation of electrification or communication systems resp. the lack of suitable vehicles. |

[253] http://www.ltf-sas.com/five-key-reasons-develop-new-lyon-turin-rail-link/
[254] Information provided by Jonathan Boudry, MOT.
[255] Die Grünen – Europäische Freie Allianz, Die Lücke muss weg – 15 Projekte für das Zusammenwachsen Europas auf der Schiene (commissioned by Michael Cramer), Brussels.

| | |
|---|---|
| **Location** | HR/SI<br>Draženci (SI)-Macelj (HR) |
| **Justification of choice** | ▪ EU13/EU13 border with long history of integration<br>▪ New borders arising<br>▪ PPP model |
| **Map** |  |
| **Transport mode (focus)** | Road |
| **Short description** | The last missing link in the motorway connection Maribor-Zagreb (Avtocesta 4; opened 2009) between Draženci and Gruškovje (13 km) is about to be closed (originally planned for 2012; now scheduled for 2018)[256].<br><br>19 % of the respondents in the Eurobarometer results on the CBC Programme perceive a problem in accessibility, markedly lower than EU average (30 %)[257].<br><br>After a centuries-old history of integration (Habsburg Empire, Yugoslavia), the permeability of the HR/SI-border has come under pressure for political reasons:<br><br>▪ Schengen border: Slovenia is part of the Schengen area, Croatia not – resulting in thorough border controls.<br>▪ Refugee crisis: Like other countries along the so-called "Balkan Route", Slovenia is setting up border |

[256] http://www.eunterwegs.de/verkehrswege/slowenien-schneller-ueber-maribor-nach-zagreb/ https://de.wikipedia.org/wiki/Avtocesta_A4

[257] http://ec.europa.eu/regional_policy/en/policy/cooperation/european-territorial/cross-border/#5

| | |
|---|---|
| | obstacles in order to halt the influx of immigrants from the Middle East and Africa[258].<br>▪ Border disputes concerning the sea border and several sections of the land border[259]. |
| **Implementation procedures** | Although there is decentralization de lege underway in both countries, the cut-down of financial means for LRA in the aftermath of the crisis de facto seems to hamper LRA involvement[260].<br><br>Slovenian A4 is managed by Družba za avtoceste v Republiki Sloveniji (DARS d.d.), the state-owned Motorway Company in the Republic of Slovenia[261]; the Croatian continuation A2, a toll road, constructed and managed by Autocesta Zagreb - Macelj, a PPP limited liability company established 2003 with 49 % of the shares retained by the Republic of Croatia and 51 % held by Pyhrn Concession Holding GmbH, in turn owned by Strabag (28-years concession); operations subcontracted to Egis Road Operation Croatia d.o.o.[262]. |
| **Costs and financing** | A4 Draženci-Gruškovje: 13.03 km; total 2.21 MEUR; thereof EUR 1,105,000 (50 %) EU-finance (TEN-T)[263].<br><br>A2 Macelj-Zagreb (59.2 km): equity of PPP SPV initially 60 MEUR; 2008 decreased to 12 MEUR[264]. |
| **Practical difficulties** | Investigations are carried out on alleged corruption issues concerning Croatian highway projects[265]. |
| **Lessons learned** | The increasing permeability of borders in the EU single market is not a one-way street. Political developments may lead to the erection of new border obstacles, too. |

[258] http://diepresse.com/home/politik/aussenpolitik/4942104/Slowenien-und-Serbien-schliessen-Balkanroute
http://sputniknews.com/europe/20151024/1029057833/slovenia-croatia-migrants-river.html
http://www.telegraph.co.uk/news/worldnews/europe/slovenia/11987447/Refugee-crisis-Slovenia-to-build-temporary-obstacles-on-its-border-with-Croatia.html
[259] https://en.wikipedia.org/wiki/Croatia%E2%80%93Slovenia_border_disputes
[260] Council of European Municipalities and Regions (CEMR), Decentralisation at a crossroads - Territorial reforms in Europe in times of crisis, Brussels, October 2013, p. 25 and 53.
[261] http://www.dars.si/Novice/Bruselj_bo_sofinanciral_izdelavo_projekta_za_zgraditev_avtoceste_Drazenci-Gruskovje_1126.aspx
[262] https://en.wikipedia.org/wiki/Autocesta_Zagreb_%E2%80%93_Macelj
http://www.azm.hr/page.asp?pageID=35&lang=eng
Strabag Societas European, Consolidated Financial Statements 2013, p. 74.
[263] http://www.dars.si/Novice/Bruselj_bo_sofinanciral_izdelavo_projekta_za_zgraditev_avtoceste_Drazenci-Gruskovje_1126.aspx
[264] http://www.azm.hr/page.asp?pageID=35&lang=eng
[265] http://kurier.at/wirtschaft/unternehmen/korruptions-ermittlungen-gegen-drei-ex-mitarbeiter-der-strabag/93.111.352
http://www.vienna.at/kroatien-autobahnbau-unter-korruptionsverdacht/news-20091017-01351113

# 3 Conclusions of case studies

This section offers conclusions on the case studies above, focusing on the following aspects:

- Historical and geographical barriers: According to Eurobarometer results on the CBC Programme, the level of mobility[266] is highest in the highly integrated Eurométropole Lille/Kortrijk/Tournai (62 %)[267]; it is also comparatively high for the other borders between EU15, even for those that are geographically challenged (e.g. ES/FR 56 % or FI/SE 56 %); in case larger cities are located in proximity of the border a significant cross-border mobility in historically closely integrated border regions has been reported, even when these are border between EU15 and EU13 or within EU13 (e.g. AT/SK 48 %, DE/PL 58 % or HR/SI 56 %). Some border areas reflect the strong role of natural barriers such as mountains and border rivers: very low levels of mobility mark the borders between BG and EL (34 %) and between BG and RO (27 %)[268]:

- Lack of harmonization and cooperation: Differing administrative structures, procedures and regulations as well as technical standards between neighbouring MS delay and hamper border crossing projects.

- Requirement of political backing: The development and planning of border crossing transport infrastructure is demanding and requires prudent process management and dedication of all actors. Whenever the processes are not backed by all levels of government, the efforts risk failing. Also, minor administrative or legal stumbling blocks might turn into a reason for the suspension of investment plans.

- Need of local acceptance: The acceptance of cross-border infrastructure has become increasingly vulnerable over the recent years; the refugee flows of 2015, high unemployment rates, fears of criminality and a general trend of rising nationalism endanger the acceptance for additional border crossings at local and national levels.

- Responsibility of LRA without resources: The competence of LRA for their local infrastructure often exists only de iure: in an era of a general shortage of public investment money in the wake of the financial crisis,

[266] "Mobility" is the number of respondents to the Eurobarometer Survey in the respective cross-border region that have traveled to the other side of the border.
[267] As compared to the EU average of 53 %.
[268] http://ec.europa.eu/regional_policy/de/policy/cooperation/european-territorial/cross-border/#5

decentralisation approaches without adequate financial endowments have de facto more an effect of shuffling off responsibility to the weakest link in the chain.; It is evident that scarce local budgets will be used to cover the most immediate repair needs but will not allow to venture into developments with a cross-border perspective.

- Importance of EU funding: In economically challenged regions, the projects are mainly financed by EU funding. The role of ETC is also reflected in the case studies: it is used to finance investment preparation but it is also the key financial lever for EGTCs which play a decisive role in three of the case studies[269] and have become important as vehicles for cooperation based on a longer-term commitment.

- Procurement: Errors in procurement procedures or at least retroactive cancellation of procurement processes seem to be an issue. In part, this can be due to a lack of expertise and/or capacity on the part of LRAs, in part, the situation is impaired by frequent changes of the procurement acts[270], and in part qualified infringements might be the cause.

- Power of the incumbent state railways: In some countries, models for the regionalization of railway lines that are scheduled for closure exist (e.g. Germany, Italy, Austria). However, LRA often have no real influence on decisions concerning missing railway links.

- Rail infrastructure: Missing links in rail infrastructure do not necessarily concern construction-related issues. Instead, the missing links are often rooted in operational problems or in the lacking technical harmonization.

[269] The example of the Eurometropolé (FR, BE), the intended EGTC Transoderana (DE, PL), the Hospital Ccerdanya (ES, FR) and its short missing road link.
[270] Frequent changes of the procurement acts seem to be an issue in many MS thus posing additional risks.

# Part 4: Recommendations

# 1 Challenges

The analysis in the previous parts of this study identified the following issues:

- Provision of funds
  - The majority of EU funding targets large projects. However, there is often no national financing for small-scale projects available, either due to a lack of funds or a lack of relevance from a national point of view.
  - EU-funding is strongly coupled with the TEN-T concept. However, missing links in small-scale infrastructure do not necessarily need to be located on TEN-T or be even a feeder to TEN-T. Often, the issue is regional connectivity between origins and destinations that do not have any relation with TEN-T.
  - It seems very laborious to find private funding since it is difficult to generate revenues from small-scale infrastructure.
  - The focus is on the project preparation and the project implementation phase; however, LRA or other infrastructure managers have to finance operation and maintenance as well. Particularly in the case of secondary railway connections, the cost of operation will most probably outweigh the challenge related to investment.
  - As for the funding of operations, potential problems arise with competitive distortion.
- Implementation of small scale infrastructure projects
  - Situation of LRA:
    - In many MS, LRA depend on national bodies or powerful state enterprises for implementation of infrastructure projects.
    - In the aftermath of the crisis, budgets for LRA were often cut.
    - LRA seem to lack resources for project preparation and project implementation.
    - Lack of acceptance or willingness: a major point is that despite clear regional benefits, the incidence of traffic has to be considered from a local perspective. Particularly for smaller road border crossings, the local population might disagree with the consequent

increase in traffic since even secondary crossings might be used as bypasses for congested areas.

- Cooperation and harmonization:
  - Differing administrative structures, procedures and regulations as well as technical standards between neighbouring MS negatively affect border crossing projects.
  - Cooperation between the responsible bodies in the two states often does not work well.

- Political acceptance of border-crossing infrastructure projects has become a relevant issue in the aftermath of the refugee flows of 2015 combined with high unemployment rates, fear of criminality and a general trend of rising nationalism.

These overarching challenges have to be kept in mind when developing possible solutions.

A recent study by DG MOVE draws the following recommendations for successfully closing the missing links in rail infrastructure[271]:

- Cross-border cooperation initiative with a suitable governance structure: The structures should involve the national level, LRA and the infrastructure managers who should agree on a clear definition of the project and the steps to be taken.

- Early involvement of citizens: Since many border-crossing projects faced opposition from the local citizens, public consultation should start at an early stage of the project.

- Cooperation of EU institutions based on a common list of validated projects: EU institutions should support cooperation between LRA in order to enable a coordinated implementation of projects. A single project list of validated projects listing the respective promoters should be set up.

- Cost-benefit analysis: For most of the small-scale border crossing projects under discussion, no cost-benefit analysis exists. However, it would be essential to show the local impact and added value. This would also help prioritising the steps.

[271] European Commission, State of play of cross-border railway sections in Europe, February 2016.

- Solution of interoperability issues: Despite the ongoing efforts at EU level, interoperability issue is still a major problem for many rail border crossings. Ad-hoc solutions could be dual-system rolling stock or modifications of the infrastructure.

- Financing structure: According to the prevalence of local or EU-wide benefits, suitable financing options could be either funding by LRA/CF/ERDF or CEF and the new financial instruments offered by EC and EIB.

- Harmonisation of administrative procedures, especially procurement procedures: While respecting the principle of subsidiarity, the study proposes to harmonise MS legislation in order to develop a framework that is easily applicable for cross-border projects, especially concerning e.g. procurement, environmental issues, technical standards.

- Legal framework at EU level for cross-border projects: An option could be a legal framework for cross-border projects that can be directly devolved from EU legislation and does not require transposition into national law.

The following chapters will take the points raised by the DG MOVE study into detailed consideration. The presentation of the recommendations adheres to the following structure:

- First, the cornerstones for a policy framework will be set out which is essentially based on the identification of missing links in small-scale infrastructure;

- Recommendations concerning funding options are brought forward.

- Possible business models for the implementation of border crossing infrastructure are discussed.

- A chapter is dedicated to interoperability challenges as one of the major border obstacles in Europe.

# 2 The policy framework

## 2.1 Building the policy framework

The table below provides an overview of the relevant actors at each policy level.

***Table 19. Identification of actors***

| Level | Actors | Policy levers |
|---|---|---|
| **European** | DG MOVE with ERA, INEA | TEN-T, regulation and legislation.<br>Development of standards (rail).<br>Executive agencies on specific topics. |
| | DG REGIO | Development of policy framework for Cohesion Policy and the weight of transport policy therein.<br>Management of ESIF. |
| | EIB | Development of funding packages.<br>Cooperation on funding instruments with EC – e.g. EFSI, JASPERS. |
| **Inter-national, bilateral** | Member States and Regions | Political agreements on cooperation (memoranda, treaties, agreements).<br><br>ETC programmes: role of MS and/or regions as programme partners and/or beneficiaries and/or members of the Monitoring Committee being in charge of selection of projects. |
| | **Rail**<br>International organisations related to the railway sector[272] | Interest groupings of railway undertakings, infrastructure managers, railway industry. |
| **National** | Ministry of Transport | Regulatory and budgetary competences:<br><br>National transport strategies.<br><br>Management of budgets for expansion and maintenance of the road network, setting-up of PSCs and PSOs etc.<br><br>The actual role depends on the political-administrative system of the MS. |
| | **Rail**<br>Incumbent rail infrastructure manager<br>Incumbent railway | Large state-owned companies which have a strong role in decisions on network expansion and operation respectively shutting down of lines as well as monopolistic or quasi-monopolistic bargaining power concerning the setting of prices. |

[272] Just to mention the most important ones: Union of Railways (UIC), Union of the European Railway Industries (UNIFE), Community of European Railways and Infrastructure Companies (CER), European Infrastructure Managers (EIM), International Association of Public Transport (UITP).

| Level | Actors | Policy levers |
|---|---|---|
| | undertakings | |
| **Regional, local** | LRAs | In federal states regulatory and budgetary competences, i.e. planning and financing of secondary roads (often as task in cooperation with the national level).<br><br>Character and scope of the role depends largely on the budgets of LRAs; this – in turn – is largely dependent on the political administrative system and the existence of systems for fiscal equalisation. |
| | | **Rail**<br>Regionalisation of secondary railways, PSO funding, Railway authority for non-incumbent railways. |

*Source: own considerations.*

First, the table shows the wide diversity of policy levers. Second, the scope for action of LRAs is strongly dependent on the political-administrative system of the MS. Therefore it seems clear that next to general agenda-setting at European level the specificities of the MS have to be taken into account. This is of utmost importance when defining the most appropriate strategies and policy incentives at European level.

Closing missing links in small-scale border infrastructure is a multi-faceted topic which in terms of:

- policy development is situated at the cross-road between identifying the needs and opportunities and raising the interest of policy-makers and stakeholders across borders,

- technical preparation is about coordination and harmonisation of transport plans, shared prioritisation and decision-making, technical project preparation, the identification of funding options and the definition of implementing structures.

It is evident that in practice both steps have to go hand in hand but the challenges and skills required for successful approaches differ:

- Policy development is a challenge in terms of political leadership in order to raise interest and to gain or safeguard acceptance at the local and regional level – acceptance ranks among the crucial criteria for success.

- Technical preparation requires dedication to mid- and longer-term processes: each project will reveal quite specific underlying challenges be it technical questions of interoperability in rail transport or the alignment

of plans for a road bridge across a border river where requirements from multiple legal frameworks have to be met.

The current study is a first step providing first insights but it cannot draft up a full list of all potentially missing small-scale links. Such a list has to be understood as a cooperative and reiterative process based including all major stakeholders. It might reap obvious benefits since:

- cross-border mobility at all levels is a genuine European agenda;
- regions of rather centralised MS might benefit from a larger policy initiative and the formulation of a European policy package and initiatives shared with other regions (which is a likely situation along the EU15-EU13 border).

The analysis in part 1 of the study has identified three types of challenged border zones:

- Densely populated areas with high commuter flows that may need additional border crossings due to their high demand, even when existing infrastructure is highly developed (usually EU15/EU15 borders). These are most interesting for public transport infrastructure investment, too.
- EU 13/EU 15 and EU 13/EU 13 borders, mainly because of investment backlog, scarcity of investment funds and low demand for many years.
- Borders with geographical obstacles like rivers or mountains with often low population density, where investment requirements for new border infrastructure are very high.

Consequently, the highest regional benefits from EU funding are to be expected in the cases of:

- high population density or high commuter flows when a high number of persons has reduced travel times and cost,
- poorly connected regions when marginal utility of an additional cross-border connection is highest in terms of regional development.

The development of a policy framework which could be turned into an element of a European agenda is a challenging venture. In quantitative terms cross-border road connections clearly rank first, followed by border-crossing railways.

When looking closer at the two transport modes, marked differences in the structure and number of key actors have to be highlighted:

- In road transport the disperse structure of the prime actors – i.e. the LRAs along land borders - as well as the multi-layered structure of decision-making depending on the political-administrative systems of the respective MS represent the major challenge; expanding the secondary border-crossing road networks as the key physical ties which make Europe work essentially calls for Multi-level-Governance (MLG);

- the railway sector has its specificities which are rooted in history – the number of key actors is limited, the network is set but in contrast to the road networks the expansion of networks is limited, the tendency is the (investment) focus on high-speed networks and major freight corridors – the approach poses a challenge in terms of raising interest for the expansion respectively the upgrade, often even the conservation of secondary border-crossing lines.

## 2.2 Identifying the missing links

The obvious first step of closing the missing links in cross border infrastructure is their identification. The identifications process as such is one of the key opportunities to raise awareness and interest at the European level. For the identification process of potentially interesting connections in border regions, the following approaches are recommended:

- Contact with the national and regional transport authorities and analysis of the transport strategies and plans which have been set as part of the Ex-ante conditionalities for the period 2014-2020 in order to match policy interests and investment plans.

- Contact with regional stakeholders and/or support structures in ETC-programmes in order to collect information from stakeholders acting ‘on the ground’.

- Contact with EGTCs situated in the two major types of regions where the question might be of interest – i.e. the highly integrated and densely populated border regions in EU15/EU15 as well as the regions along the EU13/EU15 border; EGTCs as ‘vehicles for cooperation’ represent a longer-term commitment and thus might act as supportive structures in order to bring stakeholders together and facilitate the emergence of a shared political intent.

- Impetus for the discussion and facilitation of the discussion process among actors in the railway sectors – on the one an impetus for shared policy development is needed, on the other hand it would be important to gather expertise on options for cost-effective investment and operation.

- Contact with JASPERS (Joint Assistance to Support Projects in European Regions); the joint technical assistance partnership of EC, EIB and EBRD is about to set up an interesting holistic approach to regional transport infrastructure. The instrument of "Functional Regional Concepts" defines functional domestic or cross-border regions via an analysis of commuter flows. Taking into consideration all sectors generating traffic (e.g. schools, tourism, etc.), a comprehensive strategy including transport infrastructure has been developed. Network extension is thus based on a functional concept[273].

CoR could take on a facilitating and guiding role in order to give momentum to the process and foster the exchange of expertise. The options to support awareness-raising and bundling of interest are manifold:

- a survey among its members could be launched in order to systematically identify any missing links in road and rail infrastructure,

- successful examples for an active role of respectively the empowerment of LRAs in border-crossing transport policies should be highlighted,

- the capacities of the CoR will help to bring the topic on the European agenda based on a strong policy rationale: secondary border crossings constitute the physical ties which make Europe work in the everyday life of citizens.

**Recommendations: Identifying missing links**

CoR should initiate a policy network by systematically contacting national and regional transport authorities, regional stakeholders and support structures in ETC-programmes, EGTCs, JASPERS for the identification of missing links.

A working group consisting of representatives of CoR, Association of European Border Regions, DG REGIO, DG MOVE, TRAN, INEA, EIB, JASPERS, road and railway associations should be set up in order to develop and communicate recommendations on the issue of missing links in small-scale border-crossing infrastructure.

[273] Interview with L. Zeller, JASPERS Office Vienna, on 09.05.2016.

The working group should develop a joint assessment method for projects concerning the closing of missing links (cost-benefit analysis). Possible best practice models exist, e.g. the German Standardised Assessment Method. The results:

- enable a prioritisation of the projects;
- contribute to the set-up of bankable project proposals.

Road transport

When prioritising projects for closing missing links in road infrastructure, the following criteria shall be taken into consideration:

- High population density, existence of cross-border functional areas.
- Low density of existing border crossing points, long distance to the adjacent border crossing points, especially in the case of:
  - Borders along the former Iron Curtain and EU13 borders.
  - Geographical obstacles.

Rail transport

Since network length and coverage of European railways is much easier to oversee than road infrastructure, the objective should be a comprehensive list of missing cross-border links. The point of departure is the list collected by MEP Michael Cramer and the recent DG MOVE study based thereupon. The list can be complemented with information provided by the CoR network via a survey involving regional stakeholders and EGTCs. In this way, a common reference list of projects can be set up, as proposed by the DG MOVE study[274].

## 2.3 The perspective of LRAs

The incidence of transport policy is always local and regional. In the best case LRAs are actors in transport policy in the sense of MLG, but often LRAs are on the receiving end and have limited capacity to influence the planning and decision-making process.

When looking at the challenge from the perspective of LRAs, two major concerns arise:

[274] European Commission, State of play of cross-border railway sections in Europe, February 2016. Directive 2014/25/EU of the European Parliament and of the Council of 26 February 2014 on procurement by entities operating in the water, energy, transport and postal services sectors and repealing Directive 2004/17/EC.

- The question of regional and local acceptance of secondary border-crossings.

- The often difficult position for regions to negotiate with incumbent state-owned infrastructure managers and railway undertakings.

*Regional and local acceptance*

Even if all technical problems and funding are resolved the challenge of gaining acceptance at regional and local level might remain. Also the current situation in Europe tends to raise fears rather than to heighten the interest in open borders.

On the one hand side, one would rather say that in the current situation in many parts of the EU it needs courage and political leadership at regional and local level to further the discussion process on secondary border-crossings.

But, on the other hand side, there are hundreds of such crossing points where people cross on a daily basis for various reasons – predominantly for jobs and education but also for other purposes such as shopping and tourism. This is Europe at work and one of the cornerstones of a functioning Union.

As the DG MOVE Study points out, best practice examples in citizens' involvement at an early stage can serve as a basis for developing models of civic involvement.

**Recommendations: Local acceptance**

It is recommended that one of the actors in the suggested policy network (or Working Group) initiates the collection of a number of best practice examples of small-scale border crossing projects as a by-product of the above-mentioned list of projects. Positive statements of persons using the border-crossing, but also stories of local and regional politicians help to point at the essential function of the crossings. This might implicitly help to bring new aspects into the discussion. Next to the general function of the crossing point also awareness-raising for technical mitigation measures which address frequent fears should be pointed out (e.g. noise protection, safety or security measures).

In order to improve local and regional acceptance of additional border-crossing infrastructure, models of civic involvement based on best practice should be set up and disseminated. At a later stage, such models could become part of ESIF-funded projects.

*Regional impetus for the use of secondary railway connections*

Cost effective approaches to the operation of secondary railway connections are the key to maintain a fine-meshed railway network across Europe. In many MS the railway network and service providers are constantly reducing the secondary network with the cost argument. The regions concerned have either no role in the discussion process or have to enter the process in an asymmetric position due to lack of knowledge on options and/or technical expertise in order to judge the statements by the railway companies.

In order to strengthen the position of regions in the process of discussion and negotiation positive examples could be a major help: it is evident that not all models can work in all countries but the bottom line is, that more cost-efficient models for operation have to be identified and put as an argument in the discussion.

A second aspect is the key role of LRAs in fostering the use of train with a broad range of measures – also the exchange on successful models in publicity, information and client service is required to make such connections a success in terms of cost coverage.

**Recommendations: Regional rail connections**

Contacts with the European state railways should be sought in order to constructively discuss issues of border-crossing regional railways and finding joint solutions (regionalization like in Germany, Italy or Austria, dedicated subsidising schemes).

## 2.4 EGTCs as policy instrument

The development of "vehicles for cooperation" is of paramount importance to support a longer-term agenda like the issue of small-scale border crossings. The case studies presented in this study draw the attention to the opportunities which lie in EGTCs. These structures for cooperation could be applied in policy development, investment preparation but also in the operation and maintenance of transport infrastructure.

The legislation on EGTC highlights the possibility of implementing and exploiting cross-border infrastructures and equipment: The EGTC Regulation recognises full legal capacity to the EGTCs and foresees the possibility of joint implementation and exploitation of an item of infrastructure via this legal tool. In parallel, the Directive (EU) 24/2014 on Public Procurement recognises that an

EGTC can do cross-border procurement. The EGTC conventions can determine which national legislation is applied to the EGTC bodies and to its activities, keeping primacy above national law.

A recent study for the CoR[275], whose executive summary has been incorporated as annex to this study, outlines the following possibilities for EGTCs in the area of transport infrastructure:

- **Transport policy** is strongly dependent on public actors; cross-border connectivity and interoperability still pose challenges in many parts of the EU. Due to its importance for the every-day life of citizens transport infrastructure is a recurring theme in the portfolio of EGTCs. However, so far the approach is rather directed towards strategy development. The EGTC Portalet is currently the EGTC with the most accentuated focus on transport infrastructure.

- **Investment preparation**: In substantial investments with cross-border character, the value-added of the EGTC becomes apparent since all related steps require a cross-border perspective and have to develop a bilaterally shared view – despite EU/EIB standards for the preparatory documents such as feasibility studies or CBA and EIA.

- **Implementation:** Investment in ESIF requires experienced staff. The basic requirement to be expected from an EGTC is proficient skills and experience related to process management and reporting. Especially since the decisive step in terms of a safe implementation is public procurement, the bridging function of an EGTC can be an important asset.

A few case studies demonstrate the manifold options inherent to EGTCs in a nutshell:

- **Eurometropole Lille-Kortrijk-Tournai:** set-up of an agreement with the incumbent state railways SNCF and SNCB for the extension of rail links,

- **Espace Portalet:** set-up with the aim to support the upgrade and maintenance of a mountain pass road and to embed it in a wider strategy for regional tourism development,

- **EGTC-GO Gorizia – Nova Gorica – Šempeter–Vrtojba**, has as main priority project the linking of the international railways with the national

[275] Metis GmbH, The EGTCs investing: implementing EU funds. Which role in the European Fund for Strategic Investments? Which procurement? – Final Report (commissioned by the Committee of the Regions, 2016). See executive summary in annex 4.

lines of Slovenia and Italy (700 metres of railway needed), adding intermodality and special local links,

- **Transoderana**, an intended EGTC which was based on a former EEIG dedicated to the upgrade of a border-crossing railway connection. Examples of the actions initiated and supported in the framework of cooperation are introduction of new rail cross-border rail connections and lobbying for infrastructure upgrade. The key intent of the EGTC is to embed the railway connection into a wider concept of regional development in an emerging cross-border functional area.

## EGTCs and the European Fund for Strategic Investment (EFSI)

As already stated in Part 2 of the study the secondary border crossings will not become a focus of the EFSI without referring to anything else. EFSI involvement in financing of transport infrastructure would only be feasible if such infrastructure will be generating revenue. If not, such investment will be considered mostly as public task.

According to the intervention logic of the EFSI, the EGTCs could in principle appear in two roles, i.e. as:

- owner or investor: that would in most MS require the integration of the national level in existing Groupings – projects backed solely by the financial commitment of LRAs might most probably fail to be ranked as safe;

- project beneficiary in a project as part of a funds set-up as frame respectively as project bundle: the option which seems more likely given the character and intent of EGTCs, i.e. a strong involvement of LRAs.

## The potential role of EGTCs in ESIF investment

European Territorial Cooperation (ETC) is the Objective of Cohesion Policy (CP) where EGTC act as beneficiaries and models for the implementation of cross-border and transnational investments exist. In this case, the EGTC as sole beneficiary might be in an attractive position coming up with a pre-negotiated and pre-discussed 'all-in-one' solution.

EGTC s could be used also in a national Operational Programme. Nevertheless the pre-financing problem might emerge. In particular in EU-13 such programmes are mostly set up at national level and the reimbursement principle is often a challenge for LRAs as the key stakeholders of an EGTC. Also the project set-up might be difficult. The resulting option could be that a larger

project is being split into several partial projects which are partly funded from national mainstream programmes and e.g. partly from ETC. In any case such arrangements will require a strong political backing of the EGTC in both MS.

The common provisions on ESIF foresee the option of a cross-border or transnational financial instruments (FI). The funding volume for an FI poses quite a challenge though: the Interact Study speaks of a recommended size of about 40 to 100 MEUR in order to achieve the diversification of risk and a balanced portfolio. In any case a strong rationale for the cross-border niche addressed by the FI is required: given the numerous offers at national level it might be difficult to define the niche for the cross-border product. EGTCs could act as implementing agency or as intermediary. In order to become first choice in the development and management of a FI most probably a new set-up of EGTC would be required: partners with relevant expertise in the field would be the key asset. The concept of an EGTC acting as cross-border business development agency remains tempting and could become a model.

**Recommendations: EGTCs**

The EGTCs can be vehicles of implementation of cross-border infrastructures, but legal obstacles may appear via disparities in national legislations. The EGTC convention can be a useful tool to overcome these disparities, and Member States should remove these obstacles to cross-border cooperation.

It is highly recommended that CoR keeps up its continuous efforts to disseminate and raise awareness about the instrument of EGTCs in Europe.

# 3 Recommendations for closing the funding gaps

Funding gaps arise from several sources:

- Small-scale border crossing infrastructure has no high priority from a national point of view since passenger flows are usually much lower than on domestic routes, whereas EU funding rather concentrates on projects with higher investment volumes.

- European policy and funding instruments such as ESIF are important levers but their effectiveness in closing small-scale missing links is hampered by the concentration on TEN-T and its feeders.

With regards to European transport policy, the policy and funding instruments ERDF and CF are trapped in a goal conflict which refers particularly to road transport. The goal conflict is inherent to the formulation of Thematic Objective 7[276] on transport:

- Sustainable transport would imply concentrating on rail transport; however, in particular MS in EU-13 target mainly the completion of the motorway networks in TEN-T. In this way, the effective contribution to sustainable transport will be limited since the upgrade of the European motorway network works in favour of further increases in road transport.

- Removal of bottlenecks in key infrastructures currently strongly focuses on TEN-T. In particular in the EU-13 this results in a concentration of (scarce) public investment funding on these networks. In the end the transport policy fuels the trend of growing urbanisation and spatial concentration. In contrast to these policy objectives missing links in small-scale infrastructure follow logics of regional connectivity and not of corridors of trans-European passenger or goods flows; many missing links concern the interconnection of regional centres across the border and do not have any relation with TEN-T.

With these implications of the major European transport policy objectives in mind, the most challenging situation arises for LRAs in larger landlocked border territories which are distant from the wide-meshed TEN-T networks. In these areas most probably the improvement of road connections is the prime objective of LRAs.

[276] As stipulated in Regulation (EU) 1301/2013 on ERDF in Article 5.

Among the existing EU policy and funding instruments, the best option for funding of small-scale border crossing infrastructure projects is the ERDF as part of national operational programmes on transport or as part of ETC cross-border cooperation programmes: the Fund and the option to provide grants is by far the most attractive and currently the most realistic option for LRAs. This is particularly true for MS of the EU-13 where fiscal equalisation mechanisms hardly exist and thus investment capacity of LRAs is low. However, when it comes to transport bottlenecks, it is important that the mainstream operational programmes at both sides of the borders select priority (7) of Art. 9 CPR related to "promoting sustainable transport and removing bottlenecks in key network infrastructures", and that those programmes keep coherence with the actions started in the past related to these cross-border transport infrastructures. Finally it is important to bear in mind that Art. 96.3 (d) CPR foresee the possibility of allocating funds for cooperation in the operational programmes, and that these funds could be implemented by an EGTC.

Given these challenges, a reform of the policy objectives in transport policy should be considered. The fact that border-crossing road connections are a European priority at all levels has to be acknowledged, regardless of their position in connection to TEN-T.

Michael Cramer, MEP, made the interesting proposal to increase EU co-funding for the cross-border sections of transport corridors since the latter tend to be neglected during project implementation because of their usually lower user and passenger frequency[277].

The rationale of the proposal is evident and underlines cross-border transport links as essential part of a European agenda bringing EU Policies 'to the ground'.

In technical terms several aspects should be considered:

ERDF as prospective funding source

As is proposed by the Consultant the use of ERDF for upgrading or constructing secondary cross-border links should be made more flexible, i.e. decoupled from TEN-T (see above and Part 2) - this would require slight changes to the current formulation of the Investment Priorities for the ERDF (Regulation 1301/2013 – Art 4, 5 resp. Regulation 1303/2013 - Annex XI); planning or construction of cross-border transport links could also receive higher co-funding rates (similar to the maximum rate in ETC respectively the CF which is 85% (ETC) resp. 80 % (CF)).

[277] Interview with Jens Müller, EP, on 18.05.2016.

Cohesion Fund and CEF

- In general the Consultant assumes that Cohesion Fund (CF) Projects for the Period 2014-2020 are mostly set in the respective Programmes and co-financing rate in CF is substantial - thus CF is not considered as an 'open facility' (given also the focus of CF on TEN-T).

- CEF - the notion of corridors in the CEF could be made broader, i.e. also to allow for support to cross-border links other than TEN-T provided that certain criteria are met.

Definition of pre-requirements

Finally it is important to define a concise set of quality criteria; two main aspects should be considered:

- The link should be based on a clear agreement between the MS: secondary cross-border which could benefit from the new opportunity should be accompanied by a an agreement of the respective MS/LRAs either to start construction synchronously or to prepare one shared planning document; i.e. there should be a clear mid-term perspective to implement the cross-border link.

- It should serve actual needs or support an impetus to development: the links should either demonstrate clear relation to significant cross-border commuter flows in highly integrated parts of Europe or open new development perspectives in challenged border regions across Europe.

The option for cross-funding between ESIF and EIB is a further potential lever which could be used to broaden the scope of ESIF programmes and to support LRAs with particularly low financing capacity: there are already examples of MS which make use of the option.

For LRAs in EU-15's more developed regions - where EU Cohesion Policy funding plays hardly a role in financing (basic) infrastructure – ETC programmes and EIB loans might be an option in addition to national funding.

The "Christophersen-Bodewig-Secchi Report" mentions two possible instruments for attracting private funding[278]:

[278] Claus Doll, Werner Rothengatter, Wolfgang Schade, The Results and Efficiency of Railway Infrastructure Financing within the EU (study requested by European Parliament, Policy Department D: Budgetary Affairs), Brussels October 2015, p. 15.

- "Concession-like finance": in PPP projects without revenues, the concessionaire provides the infrastructure and makes it available for the period whereas the state, railway undertakings and infrastructure manager pay amortization and interest.

- Mixed funds: cross-financing from project-related revenues, environmental taxes, ear-marked taxes or, if legally possible, from road charges.

As the "Christophersen-Bodewig-Secchi Report" points out, for projects which do not generate sufficient revenue to cover the whole investment, a blend of financial instruments, credit funding or private equity funding with EU grants (CEF, ESIF) should be enabled[279].

In order to foster PPP financing, the "Christophersen-Bodewig-Secchi Report" proposes limiting the inclusion of public guarantees under the debt that is relevant for the Stability and Growth Pact via off-balance sheet treatment of EU guarantees, defining ex-ante schemes of contracts that can be kept off-balance sheet or via limiting the Maastricht-relevant debt to the sole cost of the guarantee[280].

The implementation of well-functioning PPP structures requires specialist skills that are not necessarily available in all MS. Since PPP models are based on risk-sharing, public authorities need to be able to adequately assess the risks and set up suitable structures. Therefore, the "Christophersen-Bodewig-Secchi Report" proposes to install facilities for technical assistance[281].

An interesting option is the set-up of a dedicated fund for financing small-scale border crossing infrastructure projects cross-financed by road tolls or environmental taxes, similar to the Swiss AlpTransit fund. However, at the moment it is not clear how such a fund could be financed on an EU level without charging or taxation at EU level.

When discussing funding, the question of maintenance of (EU-funded) infrastructure has to be taken into serious consideration since MS that are not able to finance the construction of infrastructure might have difficulties with maintenance, too. Next to the reflections on development of cost-efficient and cost-effective solutions for operations a general point is to strengthen the

[279] Christophersen, H. – Bodewig, K. – Secchi, C., Action Plan – Making the best use of new financial schemes for European transport infrastructure projects, June 2015, p. 5 and 26.
[280] Christophersen, H. – Bodewig, K. – Secchi, C., Action Plan – Making the best use of new financial schemes for European transport infrastructure projects, June 2015, p. 9.
[281] Christophersen, H. – Bodewig, K. – Secchi, C., Action Plan – Making the best use of new financial schemes for European transport infrastructure projects, June 2015, p. 14.

introduction of life-cycle cost principles in the financial assessment of the projects.

**Recommendations: Funding**

The CoR should stress that in the second half of the Multi-Annual Financing Framework (MFF) the main attention should be focused to political priorities and challenges that have a direct or indirect impact on the well-being of European citizens. Although the EFSI was set up without a revision of the MFF ceilings, the redeployment of existing programmes (reduction of Horizon 2020 by 2.2 BEUR and reduction of the Connecting Europe Facility by EUR 2.8 BEUR would have an impact on growth and employment The MMF revision should compensate for these EFSI-related cuts to these programmes. This is also one of the requests of the current draft CoR Opinion on Mid-term revision of the MFF[282]. An establishment of a 'CEF' for small-scale infrastructure and possibly for rehabilitation of infrastructure projects could be considered.

In the upcoming Mid-Term Review MFF the CoR should support an amendment to the ESIF-Regulations (i.e. the CPR and the ERDF Regulation) in order to enable the use of ESIF funds (mostly ERDF) for non-TEN-T road projects when they can prove significant European added value along the criteria set out above.

The main line of the argument is that added value of border-crossing infrastructure at EU level need not necessarily be linked with:

- project size,
- location at major transport corridors.

Neither project volume nor proximity to major traffic corridors are pre-conditions for fostering cohesion or producing supranational benefits. A relatively small investment can remove a serious bottleneck; and additional border infrastructure might be especially important for regional connections in remote areas far away from main European passenger and freight flows.

Among the European funding policy options, the ERDF will remain the main instrument of supporting small-scale border –crossing infrastructure projects in particular in EU-13. It might be considered to reformulate the underlying policy objective for transport: the aspect of secondary connectivity should be decoupled from the concentration on TEN-T and its feeders. Border-crossing

[282] CoR 2016-009.

transport infrastructure should be considered as a substantial part of the European agenda same as the TEN-T.

When it comes to using ERDF in cross-border infrastructures, the coordination between operational programmes at both sides of the border is essential, either by selecting the same priority 7 on sustainable transport, by undertaking joint cross-border cooperation projects, or by foreseeing these actions in cooperation in both operational programmes using Art. 96.3 (d) CPR, which may include the use of the EGTC. The requirements of result-oriented budget involve measures to ensure the achievement of these infrastructures where preliminary actions have been undertaken in previous programmes.

Provided that a larger policy package of missing links in EU-15 regions can be identified, a 'CEF' for small-scale infrastructure is advisable: Upon initiative of the EC and several MS the EIB could set up a dedicated fund supporting small-scale border-crossing infrastructure projects. The major criteria in project appraisal should be connectivity and improved access to labour markets. Following an idea of MEP Cramer, higher EU cofounding rates could compensate for a lower interest from the side of the MS in investing in border sections of corridors.

The development of PPP models should be closely followed and best practice should be disseminated. Specific technical assistance in order to improve transfer know-how on PPP should be provided. For PPP projects that do not generate sufficient revenues to cover the whole investment, a mix of financial instruments, credit funding or private equity funding with EU grants should be made available and possible in order to attract private investment.

The life-cycle cost principle should be introduced into project assessment in order to avoid maintenance problems in later stages of the project.

# 4 Business models for small-scale infrastructure projects

## 4.1 Rail transport

When discussing business models for small-scale border crossing a clear distinction has to be made between road and rail (as well as water transport)– in case of border crossings on secondary rail connections the operation cost of a secondary line might be the far more decisive argument for the investment decision than the investment cost as such: if there is no chance to find a service provider to operate the railway line, in the longer run the investment of the network provider is hard to argue.

The main challenges of small-scale border-crossing rail projects are:

- The low capacity of revenue-generation because of limited demand which results in few trains thus generating low revenues from infrastructure fees.

- The dominant position of the single or few railway operators and network providers and the inherent tendency to focus on large-scale projects such as high-speed or high-capacity links. This makes it difficult for LRAs to argue with railway operators to maintain connections which are not part of main lines[283].

It becomes evident that models supporting low operating costs are an essential pre-requirement to discuss the increased use or even the revitalisation of secondary railway lines. Funding of operations is mainly relevant for railway (and sometimes bus) operations where Regulation (EC) No. 1370/2007 on Public Service Obligations (PSO) applies. To some extent the current policy model in rail transport is marked by lacking incentives to strive for cost-efficiency in operation and infrastructure management. MS are obliged to balance the accounts of infrastructure managers whereas operations are subsidised via Public Service Contracts (PSC). One has to be aware of the fact that concerning subsidies of essentially loss-making regional rail systems, infrastructure funding and PSO support for operations are "communicating vessels". Financial means essentially come from the state budget: on one end the railway undertaking (operator) receives PSO subsidies, on the other end the operator pays infrastructure fees to the infrastructure manager. Higher infrastructure fees require higher PSO payments to the railway undertaking;

[283] In the end a situation which is similar to the concentration on TEN-T in European transport policy.

higher infrastructure subsidies enable lower PSO payments. In order not to distort competition, several options are possible for supporting operations like:

- Regionalisation of railways systems: tendering out of concessions thereby strengthening a regionalisation of railways systems.

- Support the development of a competitive regional market of operators: e.g. through the provision of a vehicle pool for railway undertakings (or bus operators) by a LRA or by the national level.

*Regionalisation of railway systems*

Regionalisation of railway systems leads to a stronger role of regions in deciding and defining the required rail services and having more options to influence the decision-making process on the use of secondary lines. This is an ongoing process which is in part supported by the European policy to strengthen markets for service providers in the European railway systems.

It is evident that this is a more likely option for the federal states in EU-15. However, MS and regions throughout the EU can learn from examples, be they successful or unsuccessful. One of the (few) successful stories of a revitalisation of a secondary railway line is the Vinschgaubahn.

**Example: Revitalisation of the Vinschgaubahn**

A well-known example is the reopening of the regional railway line Vinschgaubahn (IT) 2005 after line closure by the incumbent state railway Ferrovie dello Stato (FS) in 1990. At this time, it was part of the FS policy of shutting down deficit-making peripheral infrastructure after the train services had been replaced by buses in the late 1980s. In 1999, the line was taken over by the region South Tyrol (IT) via its concessioned infrastructure manager Südtiroler Transportstrukturen AG/Strutture Trasporto Alto Adige S.p.A. (STA), 100% owned by the Autonomous Province Bozen. Refurbishment took place in the years 2000-2004 and the line was reopened in 2005. Operations are carried out by Südtiroler Automobildienst (SAD) Nahverkehr AG/Servizio Autobus Dolomiti (SAD) Trasporto Locale spa; 11,02 % co-owned by STA. The project has been considered a success story because of increasing passenger numbers from 400,000 p.a. in 2005 to 2 Mio in 2013[284]. Total investment amounted to

[284] http://www.vinschgauerbahn.it/de/news.asp; http://de.wikipedia.org/wiki/Vinschgaubahn
Legambiente, Rapporto Pendolaria 2013 (www.altreconomia.it/site/download.php?allegato=phpcbdjke8189.pdf)
http://www.vinschger.com/vinschgerzug%201992%20bis%202005.htm
http://www.provinz.bz.it/de/downloads/PAB_partecipazioni_dirette_e_indirette_attuale1.pdf

116 MEUR for revitalisation of 60 km non-electrified railway line; operational cost add up to ca. 7 MEUR p.a.; cost coverage is ca. 30-40 %[285].

Operation models of regionalised railways across borders might even offer new opportunities since at least the two railway undertakings on both sides of the border might be interested in providing services. The key point is to mobilise the relevant state and regional authorities and to sort out the options in negotiations with the railway undertakings.

*Support to emerging markets in regional public transport*

Striving for cost efficiency in public rail transport can be supported with new and unconventional approaches. One option to develop regional markets in public transport by supporting the market entry of smaller service providers is the set-up of vehicle pools. Often, smaller railway undertakings have lower overhead and operations costs than the large incumbent railway undertakings and can therefore make attractive offers when their inherent disadvantages caused by economies of scale and lacking state guarantees are compensated.

**Example of a vehicle pool**

The Landesnahverkehrsgesellschaft Niedersachsen mbH (LNVG) is a 100% subsidiary of the Federal State of Lower Saxony (DE) and acts as its public transport authority ("Aufgabenträger"). In this function, it is the purchaser of regional rail services via open tenders and PSO contracts. In 1997, it decided to become the owner of a vehicle pool in order to guarantee equal starting conditions for all potential operators (2014: 377 vehicles). In 1997, the incumbent DB had utilized the capacities of all major vehicle producers to the full. At this time, a market for renting or leasing rail vehicles from private so-called rolling stock companies (ROSCOs) had not yet been established. Therefore, it would have been almost impossible for the smaller competitors to obtain vehicles under similar conditions as DB. A second reason was that the usual depreciation period of new vehicles of 15-20 years was longer than the intended concession period. A study came to the conclusion that a vehicle pool was financially more advantageous than leasing models or subsidizing a vehicle purchase by the railway undertaking with a difference of hundreds of MEUR. The pool was financed via regionalization funds. The main advantages of the vehicle pool are better market access for new entrants, lower purchasing price because of larger batch size and early planning and longer depreciation periods without risk for the railway undertakings[286]. Cost coverage from ticket sales is

[285] http://www.vinschgerbahn.it/de/streckenfuehrung.asp; http://www.regionale-schienen.at/0_thema_200802.asp?mid=23; http://www.vinschger.com/vinschgerzug%20heute.htm
[286] http://www.lnvg.de/spnv/fahrzeugefahrzeugpool/fahrzeugpool/?no_cache=1

about 40 % for public urban and regional rail transport in Germany; vehicle costs represent ca. 22 % of total cost[287].

**Recommendations: Cost efficiency and new models in rail transport**

In the end, the discussion of the re-use or upgrading or new construction of secondary border crossings in rail transport depends on the coverage of operation cost as the cornerstone of a viable and sustainable connection.

The first major point is the position of regions in the political-administrative system as well as in the market for railways services – it is obvious that the stronger their financing capacity and the better their position in the market for rail services the more open the debate on the use of secondary lines will have to be. Established cross-border cooperation mechanisms such as standing conferences and committees or EGTCs can be a valuable support in raising awareness, lobbying and elaboration of viable solutions and should be used as policy instruments.

The second major point is to foster options to reduce operating costs via regional vehicle pools, tendering of concessions etc. Thus, smaller and potentially more cost-efficient service providers might have a chance to enter the markets. Such innovative models for the support of cross-border operations should be initiated, promoted and financially supported by EU institutions. Potentially adverse impacts of competitive distortion in the rail sector could thus be diminished.

## 4.2 Road transport

I

n most parts of Europe, financing and maintenance of secondary roads is considered as genuine public agenda. Hence there is hardly any serious debate on business models for small-scale cross-border road links. The only exceptions are exceptionally cost-intensive sections like:

- mountain passes,
- bridges,
- tunnels,
- motorway sections.

In these cases, PPP models are not uncommon. Well-established examples are the German PPP models for road construction[288]:

[287] http://www.lnvg.de/spnv/finanzierung-spnv/kostenzusammensetzung-im-spnv/
[288] http://www.oepp-plattform.de/verkehr/verkehr-oepp-modelle/-modell/

- A-model for expansion or upgrade of motorway sections: The private contractor receives the road toll paid by heavy duty vehicles for use of the section as refinancing; public start-up financing is possible.

- F-model for structures like bridges, tunnels, mountain passes: The private contractor is permitted to collect user tolls; public start-up financing is possible.

- V-model for all types of transport infrastructure: No user tolls, the public side pays a monthly fee for availability of the road or upon fulfilment of certain quality requirements.

An Austrian example illustrates some of the challenges related to the establishment of a PPP structure[289].

**Example: PPP model for a road tunnel**

An interesting example mentioned by M. Brunkhorst, EIB Office Vienna, is the planned two-lane Gitzentunnel in Salzburg/AT. Estimated investment volume for tunnel construction is 110 MEUR. About two half of today's passenger car traffic (13,000 p.d.) and two thirds of lorry traffic (3,000 p.d.) should be shifted from the surface to the tunnel. The project is part of a connection to Germany; at a later stage a bridge over the Salzach to Bavaria is foreseen (additional investment of 25 MEUR). Therefore the tunnel can be considered as border-crossing road infrastructure. A PPP model is envisaged where an operating company (owned by e.g. construction companies or banks) finances and constructs the tunnel. The operating company holds a building lease, however it is not owner of the tunnel. The building lease is rented back by the federal state, resulting in a usage fee paid by the federal state over a 25 year period. The Federal State of Salzburg opted for this financing structure since it does not raise the Maastricht-relevant deficit which is close to the maximum permitted according to the Maastricht criteria for Salzburg. Additionally, the federal state does not have to provide for maintenance of the tunnel over the 25-year period and does not have to pay interest rates that would be due in case of credit financing. However, the construction raises total cost of the project to 220 MEUR. Because of the high cost, the competent minister of the Federal State of Salzburg tries to receive co-financing from municipalities, real estate owners and companies that would reap benefits from the project (up to 10-15 % of the project volume). At the moment, the project is under heavy discussion[290].

[289] For recommendations concerning PPP structures, kindly refer to the previous chapter on funding.

[290] http://www.salzburg.com/nachrichten/salzburg/politik/sn/artikel/der-gitzentunnel-kommt-mit-privatem-geld-159790/

## 4.3 Other modes of transportation

A third transport mode which might be relevant in case of small border-crossing transport infrastructure is ferries crossing border rivers[291]. Similar to the example of rail transportation in case of ferries the investment costs are just one element. The decisive cost is financing of operation and maintenance in the long run.

http://www.salzburg.com/nachrichten/salzburg/chronik/sn/artikel/gitzentunnel-bleibt-ein-umstrittenes-grossprojekt-174325/
http://www.salzburg.com/nachrichten/salzburg/politik/sn/artikel/millionenprojekt-gitzentunnel-ist-noch-lang-nicht-auf-schiene-179935/

[291] An example is the ferry across the border river March/Morava which links the municipalities of Zashorská Vés (SK) and Angern/March (AT): the ferry was established in 1999, funded mostly from the pre-accession fund PHARE CBC; the ferry is operated by the Slovak municipality – two persons operate the connection and the wage gradient between Slovakia and Austria allows to run it with a comparatively high cost coverage. The plan to replace the ferry with a bridge funded from Interreg V-A Slovakia-Austria had to be cancelled due to the negative result of a local referendum on Austrian side (see Part 1).

# 5 Harmonisation and interoperability

Compared to other business sectors, transport projects have long lead times and time-consuming approval procedures[292]. As the case studies have shown, the problem becomes even more virulent when two MS are involved and many administrative procedures are duplicated.

A recent DG MOVE study recommends the set-up of a specific cross-border legal framework at EU level. The new Procurement Directive 2014/25/EU is a first step into this direction while allowing the application of one MS law when the company is located in another MS, as it is the case with the Brenner Basistunnel BBT SE (Societas Europaea) where Italian law is applied for works in Italy and Austrian law for works in Austria[293].

The "Christophersen-Bodewig-Secchi Report" suggests a single contact point "one-stop-shop" for applying for cross-border projects streamlining the different national regulations at EU level[294].

For the funding of cross-border projects, Ernst & Young highlights the importance of multi-level commitment at local, national and EU level[295].

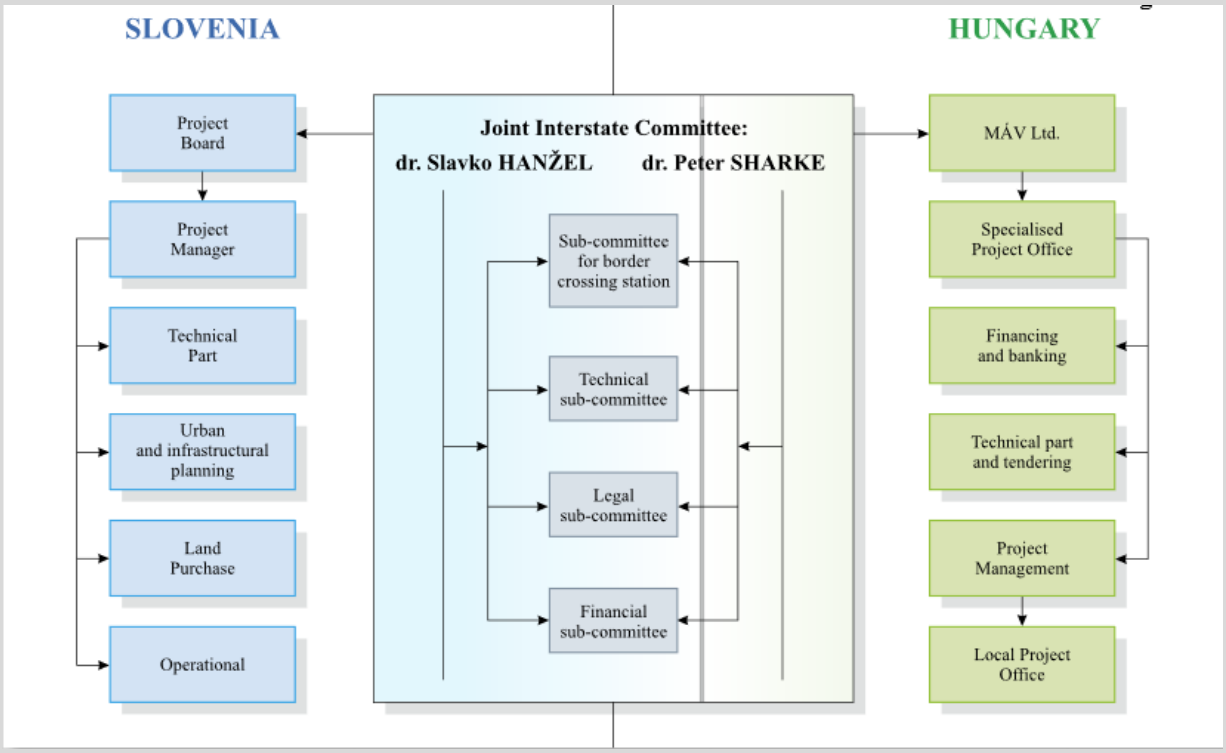
In order to rule out potential state aid issues, the "Christophersen-Bodewig-Secchi Report" proposes to introduce a "single-window fast-track clearance procedure" for the notification of grants and other national support when linked with financial instruments provided by EFSI or CEF. The financial instruments themselves should be regarded as consistent with state aid rules. The argument is that EIB instruments are offered to all market players and that market failure has been proved during the ex-ante assessment[296]. However, since all these instruments are rather targeted at large project volumes and therefore probably large project promotors, the question remains if this would not result in a de-facto discrimination of smaller market players.

[292] Christophersen, H. – Bodewig, K. – Secchi, C., Action Plan – Making the best use of new financial schemes for European transport infrastructure projects, June 2015, p. 12.
[293] European Commission, State of play of cross-border railway sections in Europe, February 2016. Directive 2014/25/EU of the European Parliament and of the Council of 26 February 2014 on procurement by entities operating in the water, energy, transport and postal services sectors and repealing Directive 2004/17/EC
[294] Christophersen, H. – Bodewig, K. – Secchi, C., Action Plan – Making the best use of new financial schemes for European transport infrastructure projects, June 2015, p. 7.
[295] EY, Transport corridors – Catalyzing private sector and cross-border investment for gains (Government and Public Sector Insights), 2015, p. 5.
[296] Christophersen, H. – Bodewig, K. – Secchi, C., Action Plan – Making the best use of new financial schemes for European transport infrastructure projects, June 2015, p. 7.

**Example: Cross-border governance structure**

A recent DG MOVE study proposes specific governance structures for cross-border projects including national authorities, LRA and the infrastructure managers. Best practice could be a Joint Interstate Committee HU-SI for the reopening of the line Murska Sobota-Hados[297]. The Committee was set up in 1995 by the Ministry of Transport (MPZ) of the Republic of Slovenia and the Ministry of Transport, Communication and Water Management (KHVM) of the Republic of Hungary with subcommittees for legal, financial, technical and technological issues. The respective incumbent state railways should implement the project whereas the Ministries of Finance were constantly involved (total investment HU: 40 MEUR, SI 90 MEUR). The line is operational since 2001 [298].

Structure of the Joint Interstate Committee HU-SI:




*Source: Audit report on railway construction Zalalövő–Bajánsenye–Hodoš–Murska Sobota, 2003.*

Concerning the related question of technical rail interoperability, the CoR has to be aware of an inherent ambivalence of the topic from the point of view of LRAs:

[297] European Commission, State of play of cross-border railway sections in Europe, February 2016.
[298] http://docplayer.hu/10411470-Audit-report-on-railway-construction-zalalovo-bajansenye-hodos-murska-sobota.html

- On the one hand side, the implementation of rail interoperability will facilitate the implementation of cross-border projects with the removal of technical interfaces.

- On the other hand side, there is an inherent danger of giving way to the lobbying of industry and incumbent state railways towards high-cost solutions. Such systems can jeopardise the financial viability of regional rail transport and/or impose high cost on LRA, be it in the role regional transport operators or be it as payer of PSO subsidies.

**Recommendations: Harmonisation and interoperability**

Based on best practice, specific set-up and governance structures for the implementation of cross-border projects shall be developed and exposed. A specific cross-border legal framework at EU level as well as harmonised permit procedures are interesting options that should be investigated in more detail.

The on-going activities at EU level concerning rail interoperability should be closely monitored and their impact on LRAs constantly assessed.

# 6 The last word

A traditional point of departure for regional development is that a region has to increase its population to have a basis for economic growth. Improved transport is a means to achieve larger labour market regions without people having to migrate to get jobs. Improved transport links are an essential piece of an effective regional development policy.

In general, the economic performance of border regions is below that of the EU as a whole. Moreover, border regions have less access to basic services and problems of accessibility: the proximity to hospitals or universities is lower than in the rest of the Union.

Improved transport links both within the Europe's border regions and with the rest of the EU should be an essential component of both the EU's Cohesion Policy and the EU's mobility policies, not only for passengers but also for freight. Promoting greater economic growth in border regions would contribute to the effective functioning of the internal market and the territorial cohesion of the Union as a whole.

It is just the small-scale cross-border infrastructure that provides the many tiny physical ties stitching Europe together in everyday life. With European integration being challenged from many sides, beyond all budgetary issues it is probably political leadership that is most required to keep the vision of a unified Europe alive.

# References

## Interviews

***Table 20. Conducted Interviews***

| Date | Name | Institution | Function | Topic |
|---|---|---|---|---|
| 18.02.2016 | Herbert Seelmann | Brno University of Technology, Institute of Railway Constructions and Structures, CZ | Researcher | Information on CZ railway border crossings |
| 18.02.2016 | Rudolf Windisch | Rail Cargo Austria, AT | Retired, ex-Sales Representative in Munich, ex-Intermodal, Terminals Service Austria | Assessment of "Cramer-List", especially AT, DE railway border crossings |
| 25.02.2016 | Dieter Schmid | Civil Engineer, Neuchatel, CH | | Cost data of road construction |
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| 22.03.2016 | Jonathan Boudry Alexandra Lafont | Mission Opérationnelle Transfrontalière, FR | Transport Expert Policy Officer | FR/IT, FR/CH, FR/ES, FR/BE, DE/CZ, BG/RO border crossings |
| 20.04.2016 | Anna Gigantino | European Railway Agency, FR | Head of Interoperability Unit | Railway interoperability, FR/BE border crossings |
| 27.04.2016 | Gudrun Schulze | European Commission, Directorate General for Mobility and Transport (DG MOVE), BE | Team Leader Trans-European Transport Network B1 | Policy and financing concerning small-scale border crossings |
| 29.04.2016 | Marcin Krzymuski | Viadrina Center B/Orders in Motion EVTZ-Kompetenzzentrum, DE/PL | | EGTC Transoderana, DE/PL rail border crossing Küstrin-Kostrzyn |
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http://www.salzburg.com/nachrichten/salzburg/politik/sn/artikel/millionenprojekt-gitzentunnel-ist-noch-lang-nicht-auf-schiene-179935/

# Annex 1

***Table 21. Some examples for CEF-co-funded projects aiming at the closure of missing cross-border links***

| Project | Mode | Budget |
|---|---|---|
| Design for a second tube for the Karawanken tunnel on the cross-border section Austria-Slovenia (2014-AT-TA-0156-S) | Road | EUR 7,050,887 Thereof CEF EUR 3,525,443.50 |
| Preparation of the project design for the acquisition of a building permit and the executive design for the Karavanke motorway tunnel (2014-SI-TA-0357-S) | Road | EUR 7,456,000 Thereof CEDF EUR 3,728,000 (50 %) |
| Planning of the A5 North motorway, section between Poysbrunn and the Austria-Czech border (2014-AT-TA-0063-S) | Road | EUR 2,644,332 Thereof CEF EUR 1,322,166 (50 %) |
| Planning and construction of the A5 North motorway. Schrick-Poysbrunn section (2014-AT-TA-0064-M) | Road | EUR 200,060,723 Thereof CEF EUR 21,077,519 (10.54 %) |
| Knappenrode-Horka-German/Polish border section: upgrade, electrification and ETCS planning (2014-DE-TA-0285-M) | Rail | EUR 83,000,000 Thereof CEF EUR 33,300,000 (40.12 %) |
| Upgraded line (ABS) (Amsterdam) D/NL border-Emmerich-Oberhausen (2014-DE-TM-0252-M) | Rail | EUR 67,475,000 Thereof CEF EUR 32,684,100 (48.44 %) |
| Implementation study for the quality improvement of the crossborder railway connection between Groningen (NL) and Bremen (2014-EU-TA-0122-S) | Rail | EUR 16,661,506 Thereof CEF EUR 8,330,753 (50 %) |
| The Fehmarnbelt tunnel - The fixed rail and road link between Scandinavia and Germany (2014-EU-TM-0221-W) | Rail, road | EUR 1,472,500,000 Thereof CEF EUR 589,000,000 (40 %) |
| Rhein-Ruhr Rail Connection: Feasibility study on an alternative cross-border railway link ("3RX") (2014-EU-TM-0407-S) | Rail | EUR 1,000,000 Thereof CEF EUR 500,000 (50 %) |
| ViA15 road project, missing link study (2014-NL-TA-0072-S) | Road | EUR 5,813,834 Thereof CEF EUR 2,906,917 (50 %) |
| Development of a 1435 mm standard gauge railway line in the Rail Baltica corridor through Estonia, Latvia and Lithuania (2014-EU-TMC-0560-M) | Rail | EUR 540,427,656 Thereof CEF EUR 442,230,615 (81-85 %) |
| Improvement of the railway connection between Louvain-la-Neuve and Luxembourg (EuroCap-rail) (2014-BE-TM-0653-W) | Rail | EUR 88,880,000 Thereof CEF EUR 7,235,000 (40 % [sic]) |
| Cross Border Section of the New Lyon-Turin Rail Link - Mont Cenis Base Tunnel (TBM) (2014-EU-TM-0401-M) | Rail | EUR 1,915,054,750 Thereof CEF EUR 813,781,900 (40-50%) |
| Studies for the infrastructure upgrading on sections of Thessaloniki-Promachonas Railway Line (Part of OEM Corridor) (2014-EL-TM-0311-S) | Rail | EUR 1,000,000 Thereof CEF EUR 500,000 (50 %) |
| Connecting Core Network elements in the transport sector: Corridor Rhine-Danube Komarom-Komarno | Road | EUR 117,726,283 Thereof CEF EUR |

| Project | Mode | Budget |
|---|---|---|
| cross-border Bridge (2014-EU-TMC-0485-W) | | 100,067,341 (85 %) |
| Railway connection Sines/Elvas (Spain): Évora-Caia Section and Technical Station at km 118 of the South Line (2014-PT-TM-0627-M) | Rail | EUR 315,446,963 Thereof CEF EUR 127,716,150.9 (30-50 %) |
| New high-capacity rail: Central Trans-Pyrenees crossing. Studies (Phase 2) (2014-EU-TM-0548-S) | Rail | EUR 1.500,000 Thereof CEF EUR 750,000 (50 %) |

*Sources:*
*http://www.eeef.eu/current-investments.html*
*http://www.marguerite.com/fund-overview/investments/*

# Annex 2

***Table 22. Sample transport projects financed by EIB loans***

| | | |
|---|---|---|
| Road Network Modernisation | Hungary | EUR 140,000,000 |
| Regione Basilicata 2014 - 2020 Co-Financing | Italy | EUR 6,000,000 |
| Helsinki Airport Expansion | Finland | EUR 230,000,000 |
| N25 New Ross Bypass PPP | Ireland | EUR 21,805,500 |
| Autobahn A94 PPP E-Road | Germany | EUR 158,261,829 |
| Fomento Road Renewal & Rehabilitation | Spain | EUR 161,300,000 |
| Budapest Urban Transport | Hungary | EUR 200,000,000 |
| Trenitalia Regional Rolling Stock | Italy | EUR 300,000,000 |
| Bilbao Port New Quay and Expansion | Spain | EUR 85,000,000 |
| Lublin Municipal Infrastructure II | Poland | EUR 62,533,922 |
| Dublin Port Development | Ireland | EUR 100,000,000 |
| Porto di Gaeta - PL | Italy | EUR 27,000,000 |
| NS Rail Rolling Stock | Netherlands | EUR 300,000,000 |
| Lithuanian Railways V | Lithuania | EUR 68,000,000 |
| Accessibility Ports Infrastructure | Spain | EUR 105,000,000 |
| Rzeszow Municipal Infrastructure II | Poland | EUR 66,109,546 |
| Renfe Railway Upgrade and Rolling Stock | Spain | EUR 50,000,000 |
| Nahverkehr Brandenburg | Germany | EUR 150,000,000 |
| Bydgoszcz Municipal Infrastructure IV | Poland | EUR 28,116,872 |

*Sources:*
*http://www.eeef.eu/current-investments.html*
*http://www.marguerite.com/fund-overview/investments/*

# Annex 3

***Table 23. Sample transport projects of other EIB financing instruments***

| Instrument | MS | Project | Budget |
|---|---|---|---|
| EEEF | FR | Bolloré<br>Clean Urban Transport: electric cars | 30 MEUR (senior funding) |
| EEEF | RO | Banco Transilvania<br>Financial intermediary (investment EE, RE, Clean Urban Transport) | 25 MEUR (subdebt) |
| Marguerite Fund | HR | Zagreb Airport | n/a |
| Marguerite Fund | ES | Autovía de Arlanzon A1 | n/a |
| Marguerite Fund | IE | N17/N18 Motorway | n/a |

*Sources:*
*http://www.eeef.eu/current-investments.html*
*http://www.marguerite.com/fund-overview/investments/*

# Annex 4

## The role of the EGTCs in implementing cross-border investments

***Source:*** *Metis GmbH, The EGTCs investing: implementing EU funds. Which role in the European Fund for Strategic Investments? Which procurement? – Final Report (commissioned by the Committee of the Regions, 2016).*
*Information available at [www.cor.europa.eu/egtc](www.cor.europa.eu/egtc)*

*Background: What is the EGTC*

The European Groupings of Territorial Cooperation or EGTC are entities with legal personality governed by Regulation (EC) 1082/2006 amended by Regulation (EU) 1302/2013 and implemented at national level. An EGTC allows public entities of different Member States to get together under a new entity with full legal personality. Since 2013, entities of public law can be members of an EGTC under certain conditions and the participation of entities from outside the EU has been made easier. The EGTC has been the first European cooperation structure with a legal personality defined by European Law designed to facilitate and promote territorial cooperation (cross-border, transnational and interregional cooperation), in view of strengthening the economic and social cohesion of the European territory.

*Cross-border investments*

Investments with a genuine cross-border dimension are often challenging ventures: obvious border crossing investments are infrastructure networks but there are many other facilities and infrastructure elements where a cross-border approach bears significant potentialities be it:

- in terms of economic viability such as for health infrastructure serving a larger catchment area,
- in improved effectiveness and efficiency such as for environmental infrastructure, e.g. when it comes to river management,
- in forming a critical mass such as for RDTI infrastructure,
- in supporting specific economic factors such as could be the case for a Financing Instrument.

*Possible involvement of EGTCs at different stages of an investment*

The EGTC could be involved at different stages of an investment project.

| Stages of the project | Potential strengths of the EGTC |
|---|---|
| Project development | The EGTC representing a long-term commitment could become a safe and stable framework to guide the project through all stages.<br><br>EGTC as a cooperation vehicle could see its specific role in building a bridge between countries with differing regulatory environment (such as e.g. has been the case for the Hospital de Cerdanya). |
| Planning, implementation approach | Experience with cross-border investment shows that it usually requires an intense and dedicated process management and that the pathway to shared understanding and definition of the best solution takes longer than for purely national approaches – again the stable framework of an EGTC could be an asset. |
| Procurement | The Directive on Public Procurement would allow for EGTCs a certain flexibility in the application of the national rules. |
| Implementation | Again the EGTC could act as multi-lingual and multi-level bridge in the day-to-day management of the implementation process e.g. foreseeing regular and shared monitoring of progress.<br><br>In case of a service or a financial instrument other aspects might come in – management skills and bridging functions might be more important and of a more permanent nature. |
| Operation and maintenance | A continuous involvement of the EGTC in operation and maintenance seems rather likely in case of health or social infrastructure due to the aspect of staff management as well as the continuous need for supply management; with the Hospital de la Cerdanya an excellent example exists.<br><br>When it comes to technical infrastructure the role of the expectable EGTC would be rather in management of an external service provider or a bridging function between two authorities in charge of maintenance. |

*The potential role of EGTCs in ESIF investment*

| Funding Instrument | Considerations on the options and challenges for EGTCs |
|---|---|
| European Territorial Cooperation (ETC) (ERDF) | ETC is the Objective of Cohesion Policy (CP) where EGTC act as beneficiaries and models for the implementation of cross-border and transnational investments exist.<br><br>In this case the EGTC as sole beneficiary might be in an attractive position coming up with a pre-negotiated and pre-discussed 'all-in-one' solution. |
| ERDF, Cohesion Fund (CF) (in a national | Realistically speaking in case an EGTC ventures into a 'mainstream'-programme the intended investment will exceed the usual volume of an ETC project. |

| Funding Instrument | Considerations on the options and challenges for EGTCs |
|---|---|
| Operational Programme) | Financing challenge:<br>First there might be the pre-financing challenge. In particular in EU-13 such programmes are mostly set up at national level and the reimbursement principle is often a challenge for LRAs as the key stakeholders of an EGTC.<br><br>The project set-up:<br>It is obvious that the most challenging venture is an infrastructure investment which physically crosses the border. In the view of the Consultant the most adequate option would be a project set-up which is based on cross-funding. The resulting option could be that a larger project is being split into several partial projects which are partly funded from national mainstream programmes and e.g. partly from ETC. In any case such arrangements will require a strong political backing of the EGTC in both MS. |
| Connecting Europe Facility (CEF) | The types of intended projects are pre-defined since the CEF is the instrument for the implementation of projects of common interest as part of the Trans-European Networks (TEN) in transport, energy and broadband networks. The scope and character of the project will involve in almost all cases authorities at national level. A fact which clearly limits the options for most of the current EGTCs to act immediately and directly in the framework of the CEF.<br><br>The project set-up:<br>The Commission sees a major gap in the institutional and administrative capacity required in order to develop projects of significant European added-value. Thus with a view to this gap the potential role of EGTCs in CEF might be primarily in the preparation of the projects. |
| Financial Instruments (FI) | The common provisions on ESIF foresee the option of a cross-border or transnational FI.<br><br>Financing challenge:<br>The funding volume for an FI poses quite a challenge: the Interact Study speaks of a recommended size of about 40 to 100 MEUR in order to achieve the diversification of risk and a balanced portfolio.<br><br>The project set-up:<br>In any case a strong rationale for the cross-border niche addressed by the FI is required: given the numerous offers at national level it might be difficult to define the niche for the cross-border product. EGTCs could act as implementing agency or as intermediary. In order to become first choice in the development and management of a FI most probably a new set-up of EGTC would be required: partners with relevant expertise in the field would be the key asset. The concept of an EGTC acting as cross-border business development agency remains tempting and could become a model. |

*EGTCs in the European fund for Strategic Investment (EFSI)*

When looking at the EFSI the aspects of risk and timing deserve attention:

- Risk: the EFSI should address investment areas with as pertinent risk of market failure. On the one hand this feature might not be an incentive for the mostly public stakeholders of an EGTC; on the other hand it is often - next to the essential role of public financial incentives such as the guarantees provided under the EFSI – the dedicated involvement of public actor which makes a project with rather unprecedented aspects work.

- Timing: the clear intent of the EFSI to provide an investment injection with visible effect in a mid-term perspective; so far only a few of the existing EGTC have the capacity and the partnership structure to immediately start working on a large-scale investment in one of these areas. Thus it would require the expansion of existing or the set-up of a new EGTC – a process which takes its time.

According to the intervention logic of the EFSI the EGTCs could in principle appear in two roles, i.e. as:

- owner or investor: that would in most MS require the integration of the national level in existing Groupings – projects backed solely by the financial commitment of LRAs might most probably fail to be ranked as safe;

- project beneficiary in a project as part of a funds set-up as frame respectively as project bundle: the option which seems more likely given the character and intent of EGTCs, i.e. a strong involvement of LRAs

When looking at the strands of the EFSI the infrastructure investment seems the key field where EGTCs might be entrusted with actual investment activities.

The EFSI is based on a broad portfolio of topics where strategic investment should be fostered. The following reflections on the potentialities of EGTCs in investment areas of the EFSI rest on a combined view of the role of public actors in the investment area, the general strengths of EGTCs and their current portfolio. Research Development and Innovation (RDI), transport, environment protection and natural resources as well as health infrastructure would offer the most significant potentialities for EGTCs.

| EFSI Themes / Types of infrastructure | Tentative assessment of the potentialities of EGTCs |
|---|---|
| Research, development and innovation (RDI) | In the field of RDI one of the implicit strengths of EGTCs – the provision of a regulated framework which is open for approaches in multi-level governance – might be considered as a major asset. Universities which are in large parts of Europe public entities could join groupings with other institutions at national, local and regional level. Thus the development of scientific clusters based on teaming and pooling resources and working towards international hubs could be supported. |
| Transport infrastructure, equipment, technologies; link to TEN-T and CEF, synergy projects with Information and Communication Technologies (ICT) and energy, sustainable urban transport, urban mobility | The field of transport is strongly dependant on public actors; cross-border connectivity and interoperability still pose challenges in many parts of the EU; transport infrastructure is a recurring theme in the portfolio of EGTCs but so far mostly from the perspective of strategy development.<br><br>Given the long lead-in times for the development of large-scale projects in transport EGTCs could become an interesting option due to the underlying long-term commitment and the set-up of a bi- or even multi-national structure (thus supporting processes such as a cross-border Environmental Impact Assessment (EIA) or the alignment of designs according to differing norms and country-specific regulation defining the terms of use). A very interesting venture could be sustainable urban transport solutions in cross-border functional areas. |
| Environmental protection, natural resources | An area where the role of public actors is very strong and long-term commitment is an essential feature of any infrastructure project.<br><br>E.g. the ecological rehabilitation of rivers which integrates mitigation of flood protection is just one of the examples which underline the potentialities for EGTCs: rivers form borders and rivers cross borders all across Europe. The EU Water Framework Directive underlines the need for integrated river basin management. |
| Health and medicine | The Hospital of Cerdanya is one of the showcases for the role of an EGTC in a sector where cross-border governance becomes increasingly important for reasons of efficiency and effectiveness.<br><br>The EGTC has proven as a valuable multi-level governance (MLG) vehicle providing a framework to run the negotiations to build a bridge between the differing social security systems of two MS (as the key point to make the cross-border hospital an operative and sustainable investment). |

*EGTCs as investors and the operative approach to the public partnership*

Finally it is important to review the key legal frameworks which have to be considered in the context of an investment undertaken by an EGTC. Two aspects deserve particular attention:

- Public procurement (PP): a major investment activity will include almost always public procurement.

- The Convention and the Statutes: the legal frame of the EGTC defines the scope of action and almost all aspects which are decisive for a shared major investment.

The PP Directive and the EGTC Regulation form a clear legal basis for the approach to PP in case of a major investment: procedures are aligned at European level. In case of procurement below the thresholds set out in the PP Directive the overarching principle of transparency – next to the principle of diplomacy - makes fair and open procedures a necessity. Implicitly such an approach should also consider the technical and qualitative aspects which make the procedures fair for SMEs.

Another important point is that for investment financed from ESIF the requirements related to PP procedures are particularly high in terms of compliance with all procedural aspects but also in terms of documentation: PP is one of the most frequent sources of financial corrections in ESIF, thereby having in most cases significant financial impact. The national control and audit systems have reacted to that and have implemented quite rigid control standards.

Beyond these obvious aspects which point at the need for a particularly careful approach to procurement in the context of an EGTC its role as stable framework for cooperation could be used in order to support the use of PP as an instrument for innovative approaches such as green procurement or procurement considering life-cycle cost.

For an investment project all mandatory elements of the Convention and the Statutes are of major importance. In a strict interpretation of the legal hierarchy the Convention of the EGTC prevails over the national law of the participating MS. In factual terms the room for manoeuvre in terms of derogations appears to be quite limited since:

- The convention is subject to approval by the participating MS, i.e. by national institutions which have to understand, assess and finally share the reasoning for any derogations from national laws – this might pose a risk for a quick approval procedure.

- If – what appears to be highly plausible – the investment is financed from ESIF, i.e. most probably from ERDF (ETC) the eligibility rules of the respective programme have to be observed – and this means again to be

confronted with a more or less national interpretation of the rules by the national financial control of the MS concerned.

A small room for flexibility is open due to the provisions of the PP Directive which explicitly allows for the EGTC to define the applicable procurement rule according to types of contracts.