FLAVIA

Freight and Logistics Advancement in Central/South-East Europe - Validation of trade and transport processes,
Implementation of improvement actions,
Application of co-coordinated structures

WP 3
Trade and transport between Central Europe and South-East Europe

Report Action 3.5.3
Missing liner services

Date: 10.10.2011
Version: [final]

Public Document

CENTRAL EUROPE COOPERATING FOR SUCCESS.
EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

Involved *FLAVIA* partners:

	University "POLITEHNICA" of Bucharest - Transportation Research and Consulting Centre , Romania, Contact: Ms. Prof. Mihaela Popa
	University of Allied Science Wildau, Germany, Contact: Mr. Prof. Herbert Sonntag, Mr. Conrad Schmidt
	Pro Rail Alliance, Germany, Contact: Ms. Jolanta Skalska
	GVZ Development Corporation Southwest Saxony Ltd., Germany, Contact: Mr. Alfons Wagener
	Ministry of Economy of the Federal State Brandenburg Germany
	Interport Servis Ltd. Slovak Republic, Contact: Mr. Ing. Dušan Trnka,
	Upper Austria University of Applied Sciences, R & D Ltd. – LOGISTIKUM.research Austria, Contact: Mr. Prof. Friedrich Starkl
	Institute of Logistics and Warehousing (ILIM) Poland, Contact: Ms. Izabela Jelen
	Technical University of Kosice, Faculty of Manufacturing Technologies with seat in Presov, Slovak Republic, Contact: Ms. Romana Hricová, PhD
	Hungarian Logistics Association , Hungary, Contact: Mr. Dr. Zoltán Doór
	EXPRESS Interfracht, Czech Republic, Contact: Ms. Lilja Krutonog, MBA

Content:

1 Executive Summary

The *FLAVIA* project intends not to develop a new physical spatial corridor. The approach of the project is logistic process oriented with the aim to improve intermodal cargo flows instead of the building of new infrastructure. The Action 3.5 is dealing with technical and organizational bottlenecks in the corridor and measures to overcome and its main goal is to examine the capacity of rail networks and signaling in *FLAVIA's* countries, identification of missing liner services and missing terminals. Inside the Action 3.5 frame there is the 3.5.3 sub-action regarding the missing liner services on the corridor. The aim of this report is to:

- define the liner service and its main features;
- identify the needs of operators in terms of rail liner services at national and international level along the *FLAVIA* corridor, and inside the *FLAVIA* countries;
- to propose the relevant and feasible rail liner services between the most economic clusters (centres) / intermodal terminals.

The methodology is survey based (web-completed and/or face-to-face completed) for every *FLAVIA* country. The experts in rail transport or transport operators were asked to express their opinion related to the missing rail liner services, in intermodal transport, both for their own country and for transnational level in *FLAVIA* territory. In a second stage, we applied a selection & elimination process in order to find the actual needed liner services (included inside the declared missing liner services), relevant for economic and demographic clusters, having intermodal features. This selection was preceded considering several criteria.

The main findings of 3.5.3 Action are as follows:

- there are actual needed rail liner services in each country, even in Germany were a large number of liner services are already operating; they connect important economic and demographic centers and/or intermodal terminals;
- -there are actual needed rail liner services at transnational level, connecting important economic and demographic clusters from the different seven *FLAVIA* countries, crossing more than two neighbor countries, especially from the Central part of Europe to the South East part (to the Black Sea);
- - in order to assure an easier implementation of several missing liner services, at the end, a selection of the most covering liner services is provided.

Taking into account the operational feature of a rail liner service (no interruption along the entire route, significant freight, regularity by the fixed frequency of service, as main characteristics), the proposed rail liner service are the core of operational actions which will accomplish the main objectives of CENTRAL EUROPE program: improving accessibility and territorial cohesion.

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

2 Relevance for the CENTRAL EUROPE Goals

FLAVIA as a project is part of the Central Europe Programme. In this connection its aims are consistent with the programme goals (http://www.central2013.eu/about-central/priorities/), as follows:

- to improve Central Europe's interconnectivity,
- to develop multi-modal logistics cooperation between market players,
- to promote sustainable and safe mobility, especially green transport.

The *FLAVIA*'s 3.5.3 action has, as a main objective, the identification of transnational solutions in terms of interconnection between Central Europe and South-East Europe, from the operational perspective, considering first of all the needs of transport operators as liner services (meaning a scheduled and correlated service, without interruption, having a certain frequency along corridor, and necessary operational capacity).

In this view, a better, efficient and sustainable way for the existing transport network usage can be supplied, instead of a new transport infrastructure development. The identifying of the missing rail liner services allow us to provide a list of the both, feasible and necessary liner services for a better interconnectivity across Europe.

The provision of the intermodal rail liner services will contribute to the European economic stronger integration considering the time-based accessibility improvements.

3 Methodology

3.1 Rail liner service concept

3.1.1. Literature review

The scientific literature related to the concept of transport corridors is quite large[1], but in the same time, relatively recent, but mostly of it considering maritime and air transport.

For rail operation, a "liner train", or "freightliner", was the term used for the first time in UK, for a train carrying intermodal containers[2]. The name was coined by Richard Beeching in the 1960s, and later became the Freightliner sector of British Rail. This was sold off as a private enterprise, Freightliner, in 1995, as part of the privatization of BR. In railway enthusiasts' slang, "freightliner" or "liner" may mean either intermodal services run solely by Freightliner, or intermodal services in general.

The conceptualization of liner service dedicated to the rail industry is difficult to find. By similarity with shipping and air transport, there is also in freight rail transport a degree of economies of trade density besides of the economies of scale related to the size of firm[3]. We may find also more concern on railway mergers and railways alliances in terms of antitrust fight. The vertical integration in railways sector, different models of integration and comparison, the access price for the rail infrastructure usage, are the most discussed issues[4]. Substantial interests are involved into the rail network design, meaning the main hub-and-spokes structure deserving a certain area[5] [6].

Under organizational aspect, there are three main features of transport corridors: *the capacity*, *the continuity* and *the fluidity*[7]. All three features are more or less interconnected. The capacity is related mostly to the train capacity, but the capacity of rail infrastructure and its structure and interoperability, as well.

---

[1] Debrie J. and Comtois C. (2010), *Une relecture du concept de corridors de transport: illustrasion comparee Europe/Amerique du Nord*, Les Cahiers Scientifiques du Transport, no.58, 2010.

[2] Hardy, R.H.N. (1989). *Beeching: Champion of the Railway?*. London: Ian Allan Ltd. pp. 44–48

[3] Jansson, J.O, Shneerson, D. (1985) *Economies of trade density in liner shipping and optimal pricing.* Journal of Transport Economics and Policy, Jan. 1985, Vol.19, No.1, pp.7-22.

[4] Pittman, R. (2005) *Structural separation to create competition? The case of fright railways,* Review of Network Economics 2(2005), 181-196.

[5] Arnold, P., Peeters, D., Thomas I. (2004), *Modelling a rail/road intermodal transportation system*, Transportation Research Part E 40 (2004) pp. 255–270.

[6] Jeong, S.-J, Lee C.-G. ,Bookbinder J.H.(2007), *The European freight railway system as a hub-and-spoke network,* Transportation Research Part A 41 (2007) pp. 523–536

[7] Chapman D., Dickins I., Dixon A., Larkham P., Pratt R. (2003) *Concepts and definition of corridors: evidence from England's Midlands*. Journal of Transport Geography, Vol.11, no3, pp.179-191.

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

The last two features, meaning continuity and fluidity, are our concern here, as long as the liner service concept addresses in the same time to both of them. The frequency, regularity, and intermodality of the rail service are the means to accomplish those features: continuity and fluidity.

3.1.2. Rail Liner concept

Taking into consideration the above several considerations in literature, we will address all below requirements in order to conceptualize the rail liner service.

As a definition of this report meaning - The intermodal rail liner service (**RLS**), can be organized only if the following requirements can be accomplish:

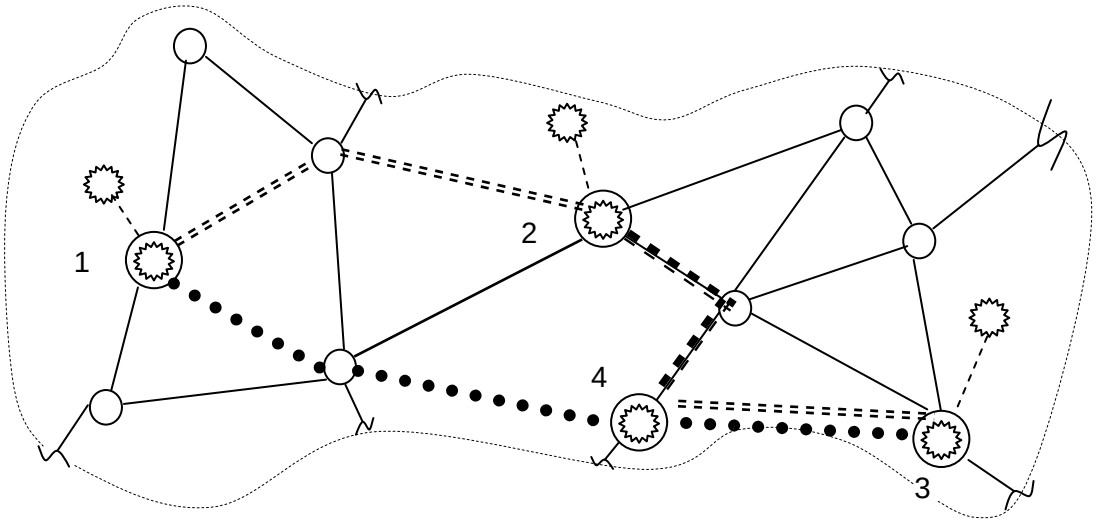
- there is a massive fright flows connecting regions, economic and demographic clusters, or economic centers (for specific unit loads, usually containers, boxes, swap bodies), for a certain duration, usually medium or long-term;
- there is plenty of rail infrastructure capacity in order to assure the planned frequency requirement;
- the schedule of trains is planned with continuity (e.g. crossing at country's borders or region's borders etc), as a chain (meaning that the arriving time at a border of a country side is related to the departure time at the same border of the neighbor country side, and so on);
- the chained (correlated at borders) service can be planned between two intermodal terminals (first one located beside the origin of flow and the second - located beside to the destination of flow), for goods which has all physical, commercial and logistic features well known and specified;
- all planned transport services are publicly known and the schedules are fixed and free of charge for users' and operators' information;
- all specific requirements for goods and their load-units (in terms of: the prices, transshipments requirements, transport security and traffic safety) are provided, well-known and publicly informed;
- all interested economic actors have regulated access to transport service according to their needs;

It is necessary to make a clear distinction between following two cases:

- when the transport beneficiary (meaning freight owner) is the single one in origin and/or in destination locations, there is a single document of transport for entire cargo, then the liner service acts as a private service and there is no publicly known requirements;
- the otherwise, when a number of transport operators or freight owners are more then one, they can use in common the same rail liner service. In this case, we may call this service as a publicly RLS.

In the report, the second case is considered and the above definition is made. However, both RLSs, private and public, are the operational base of a transnational or national freight corridor.

For a better understanding, Figure 1 is depicted. In the figure below there are four liner services between four pairs of intermodal terminals: (1,2), (1,3), (4,3) and respectively (2,4). There is no liner service between intermodal terminals no.2 and no.3. For (1,3) liner service, there is no interruption of service in terminal no.4 (in order to take or to leave a number of wagons).



Legend:

- rail terminal;
- origin/destination location of a certain product;
- intermodal origin/destination terminal;
- the links in the European rail network (between rail terminals);
- rail liner services for different load-units (swap bodies or containers);
- "last miles" connections by road from the origin location to the intermodal terminal at origin (and similar, from the destination intermodal terminal to the destination location).

Figure 1: **The example of a rail network part and the most important elements of the transport corridor (hub-and-spoke structure)**

(Source: authors)

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

3.2 Methodology description

The methodology comprises the following stages:

A. Identification of actual needs of transport operators in terms of liner services. This implies a survey among users, scientist, rail sector experts, the rail operator's from *FLAVIA* country, for both national and international trade flows (**Annex 1**). The answers of this survey are called *DECLARED* missing liner services. The results of this stage are included into the **Annex 2** (Lists 1a: The declared missing rail liner services, national levels and List 1b: The declared missing rail liner services, transnational level)

B. Identification of the missing liner services. In this stage, several comparisons between the already provided public liner services (called EXISTING rail liner services), intermodal terminals database, economic and demographic clusters and economic centers, on one hand, and the actual (DECLARED) needs of the transport operators, on the other hand, allow us to determine the ACTUAL missing liner services for all FLAVIA countries and for the entire corridor.

There is also another category of missing liner services, which are declared, but there is no intermodal terminal, closely located (but the origin/destination is economic centre/clusters, which is large enough to generate an important freight flow). This category of missing liner service is called "FORECASTED" rail liner services. The results of this stage are included into the Figures 3.1 - 3.7: The maps of missing RLS, at national levels and Figure 3.8: The maps of missing RLS, transnational level. Also the related working tables are provided in **Annex 2**, as follows:

- Lists 1a: Declared actual missing liner services, national level
- List 1b: Declared missing liner services, transnational level

Annex 3 is dedicated to the detailed information contained into the maps, as follows:

- Lists 2a: Actual missing liner services, national level
- List 2b: Actual missing liner services, transnational level
- Lists 3a: Forecasted liner services, national level
- List 3b: Forecasted liner services, transnational level

C. Short analyses about the relevance of survey results

The results survey is different from one country to another, in terms of number of questionnaires completion. That is the reason of the short analyses related to the relevance of the answers. In this report the short analyses is presented at the beginning of Chapter 4, as *weakness of survey.*

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

3.3 Procedure implementation

A synthesis of procedure implementation is depicted in the Figure 2. In the *first stage*, the on-line survey was submitted to the various economic actors, especially to the rail operators. All the answers were structured in order to facilitate the further selections and analyses.

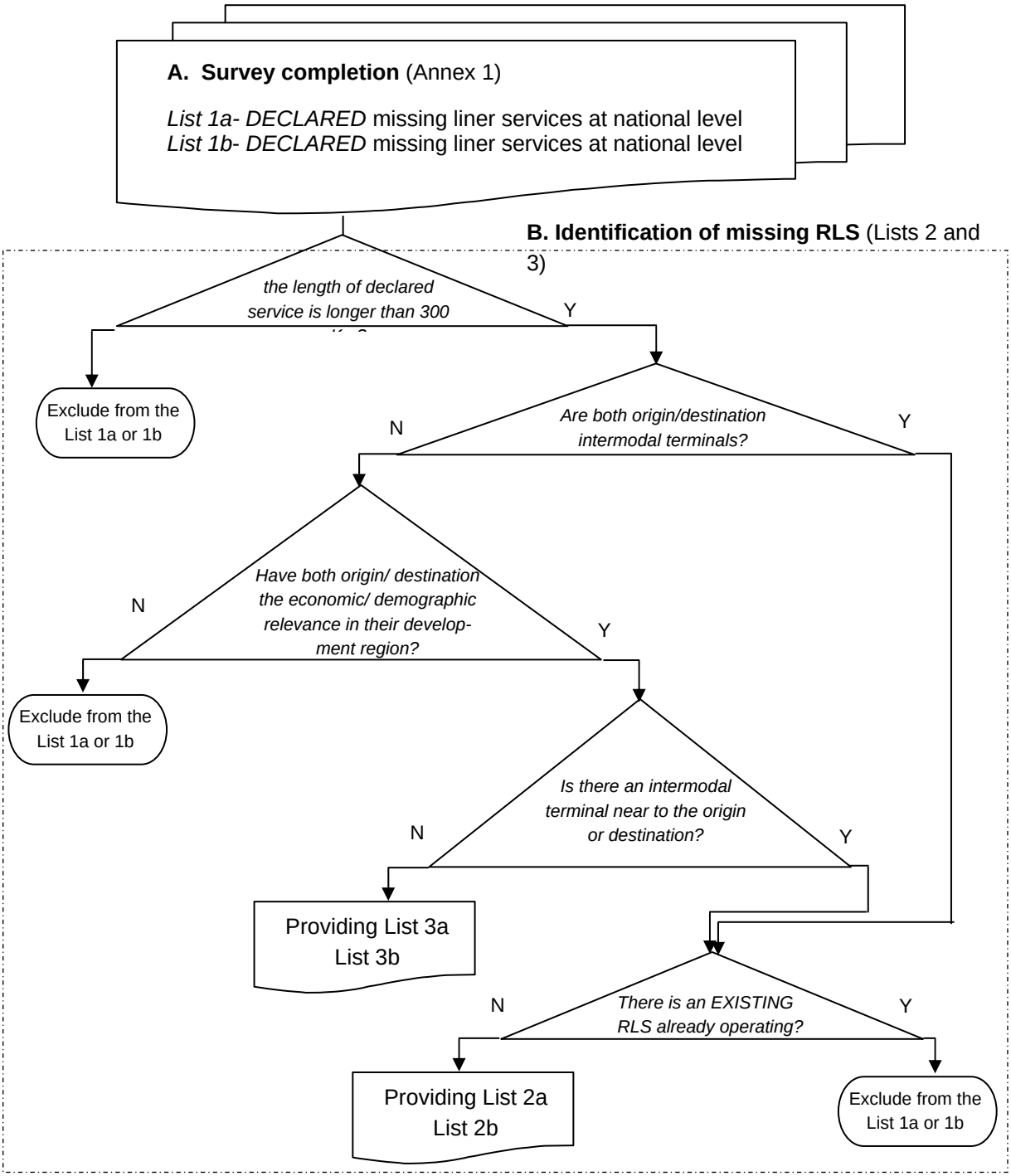


Figure 2: **The flowchart of implementation**
(Source: authors)

The *second stage* contains the successive selections and exclusions, as follows:

i) excluding the declared missing liner services having the total length from origin to destination locations of the freight flow with less than 300 km. This limit is suggested by the White Paper of Transport, 2011[8];

ii) excluding the declared missing liner service for which, the origin/destination has no economic or demographic relevance (the origin/destination is not located near to an economic centre - as in 3.3.1 Activity Report, nor inside of economic/demographic clusters, as given in 3.1.1 Activity but also the origin/destination is not an intermodal terminal or nor beside to an intermodal terminal (inside the area of interest with a 50 km radius-covered area of the intermodal terminal, as used in 3.5.4 Activity Report);

iii) excluding the declared missing services for the origin-destination pair which are currently operating[9]. After the selection, the lists of currently missing RLS, and forecasted RLS are provided as Lists 2 and respectively Lists 3 (**Annex 3**).

According to the implementation procedure, we used a code-method in order to select the actual and future missing RLS, as follows:

- when the length of declared service is less than 100 km, the figure 0 is filled-in; for a distance between 100 and 300 km the figure 2 is filled-in; for this two cases no actual missing RLS is considered; only for a length more than 300 km (with figure 1) there is a selected RLS;

- in case, that for an origin or destination there are no economic clusters nor economic centers located in the nearby (up to 50 km), and also there is no intermodal terminal located closely, then the red horizontal line indicate an exclusion of the declared missing RLS;

- in case, that for an origin and destination there are economic clusters or economic centers located in the nearby (up to 50 km), and there is no intermodal terminal located closely, then this service is called future RLS, and it is colored in blue (they are selected into the Lists 3);

- the rest of the declared missing RLSs are actually missing RLSs (they are selected into the Lists 2);

[8] EC: White Paper: Roadmap to a Single European Transport Area, Brussels, 2011

[9] TUAS Wildau- Data base of existing rail liner services in EU corridors.

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

4 Results

The maps below are based on the web survey **(Annex 1**) and the working tables of **Annex 2**. Some of the interviewed persons filled out information about missing liner services (in their opinion) only for national level, others, only for transnational level, but several of them filled out information for both levels. In **Annex 2** (Lists 1.a and List 1.b) it is counted the number of answers but also the numbers of interviewed persons. For transnational level there are in total: 38 respondents, 57 responses (from which, 21 Non-responses or no declared missing liner services, meaning about 37%). *The weakness of the survey design:* In a country where relatively large number of persons were asked to answer, there is a large number of declared missing liner services (e.g. Romania), even the existing number of RLSs is quite similar with other countries (e.g. Hungary and Romania). The number of interviewed persons and their number of answers showing this is presented in Table 1.

- a relatively large number of similar answers were registered in a country where a relatively large number of persons filled out the survey. This similarity represents a proper qualitative indicator of the survey;
- The maximum numbers of answers were up to five because of the questionnaire template which provided tables with maximum five lines;
- if the interviewed persons were asked for answers in a face-to-face style (as in Romania case), then they would usually be asked for more than one answers; this strength seems to be questionable;
- as a general conclusion, all other transport operators or economic actors asked to fill in our questionnaires proved a minor interest for this kind of surveys;
- there are several confusions related to the national liner services or transnational services; there are also several cases of the unclear specification of the origin/destination name or coordinates (e.g. CZ border; SE Slovakia etc.);
- a large part of the declared missing RLS has no specification related to the via of the route, so the drawing of the actual missing RLS was made on the shortest route basis, without any concern about the desired route by the operator.

FLAVIA's Country	Number of interviewed person	Number of interviewed person located inside the country	Number of declared missing RLS
DE	7	3	15
AT	4	0	6
PL	2	2	5
CZ	4	2	8
SK	6	3	9
HU	3	2	8
RO	12	11	36
Total	38	-	87

Table 1: **The number of interviewed persons and their responses**
(source: Authors)

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

Railway network Austria and intermodal terminal coverage

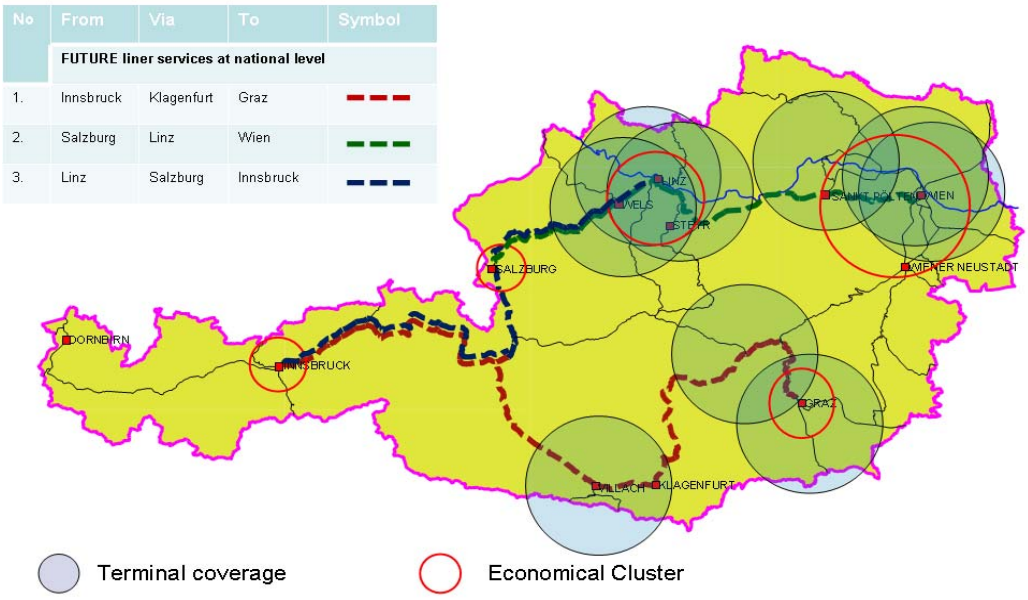


Figure 3: Map of missing RLS, national level - Austria

The above map of Austria shows that:

- -there is a necessary collecting-freight liner service for internal area of Austria, meaning Salzburg-Wien, as long as Wien represents a large economic and demographic cluster in Austria;
- -there are at least two other necessary freight liner services (for internal freight collecting/distributing) connected by the transnational liner services, in Graz (for Poland connection) and, in Linz (for Romania connection).

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

Crt. Nr.	From	Via	To	Simbol
ACTUAL missing liner services at national level				
1.	Dusseldorf	Kassel	Dresden	
2.	bremen	-	Erfurt	
3.	bremen	-	Hof	
4.	bremen		schweinfurt	
5.	Dresden	Nürnberg	Stuttgart	
6.	Dresden	Magdeburg	Hannover	

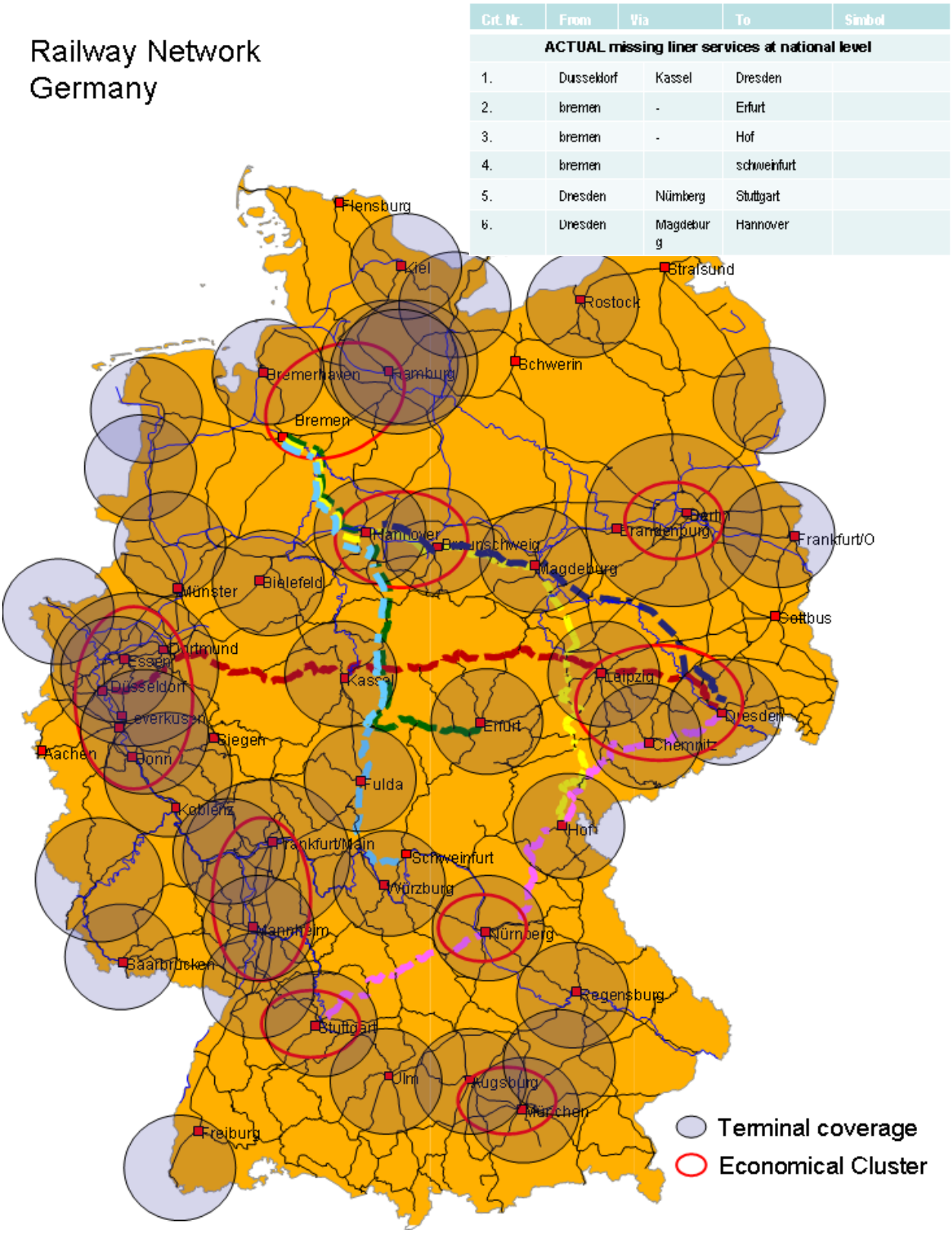


Figure 4: Map of missing RLS, national level - Germany

The above map of Germany shows that:

- -even in case of Germany, where there are more than four hundred of public rail liner services there still needed to add new liner service, in order to connect better the important intermodal terminals and Western part with Eastern part of it;
- -there is an important economic and demographic cluster in the North-Western part of Germany, meaning Bremen zone. It needs rail liner services to be connected with intermodal terminals on South direction (but may be having good road coverage): Erfurt, Hof, and Schweinfurt;
- -there are also needed liner services to connect the Eastern part cluster (represented by the Dresden/Leipzig) with South-West part (Stuttgart), with West part (Dusseldorf etc.) and with Central part of Germany (Hannover).

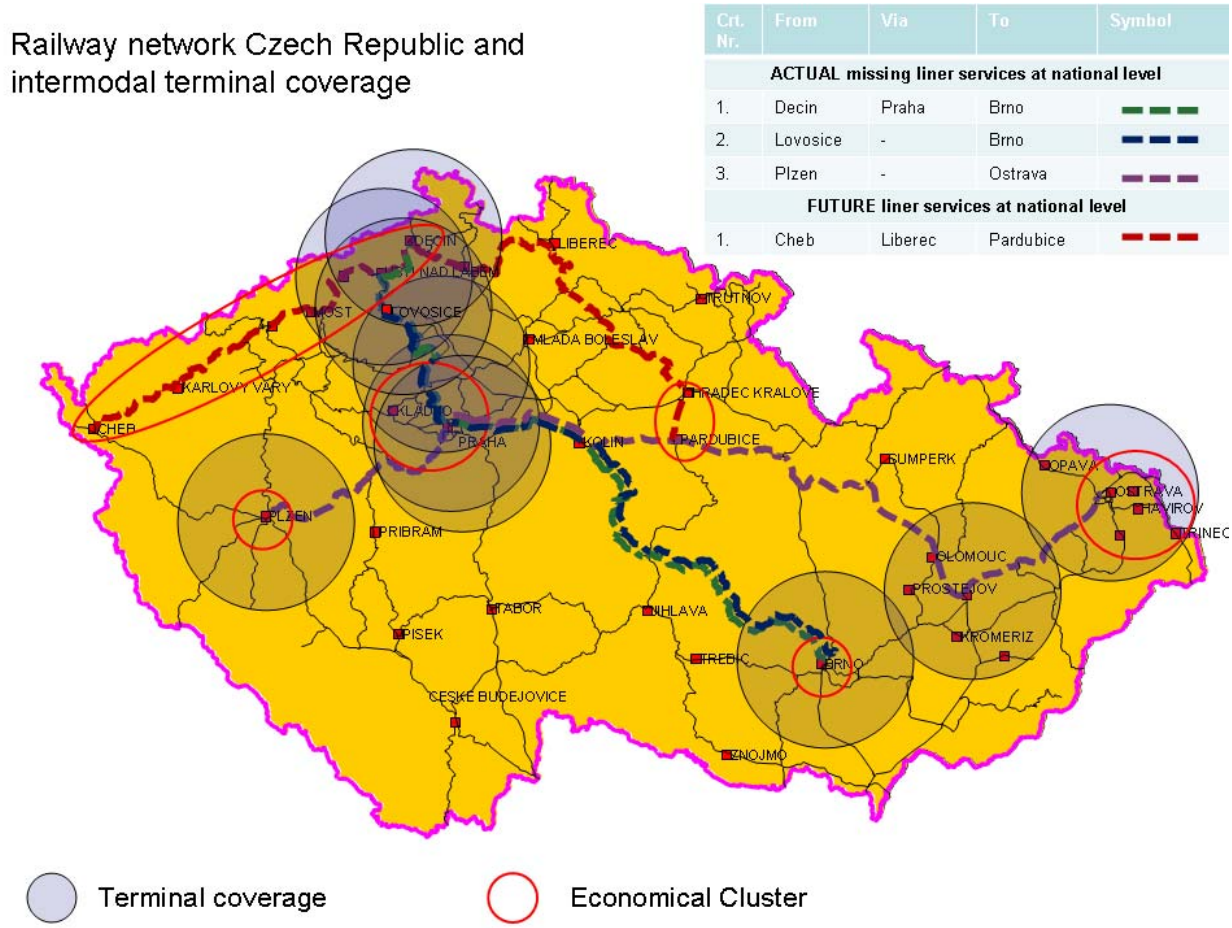


Figure 5: Map of missing RLS, national level - Czech Republic

The above map indicates, at least, the following considerations:

- inside Czech Republic there are several needs represented by the liner service connections from North (Decin and Lovosice) to South-East (Brno cluster);
- -there is also the missing liner service to connect Western part (Plzen) to Eastern part of country (Ostrava);
- -considering that Pardubice as a developing cluster, it is revealed a future liner service from a new terminal from there to the North-Western part of Czech (Cheb/ Karlovy Vary etc).

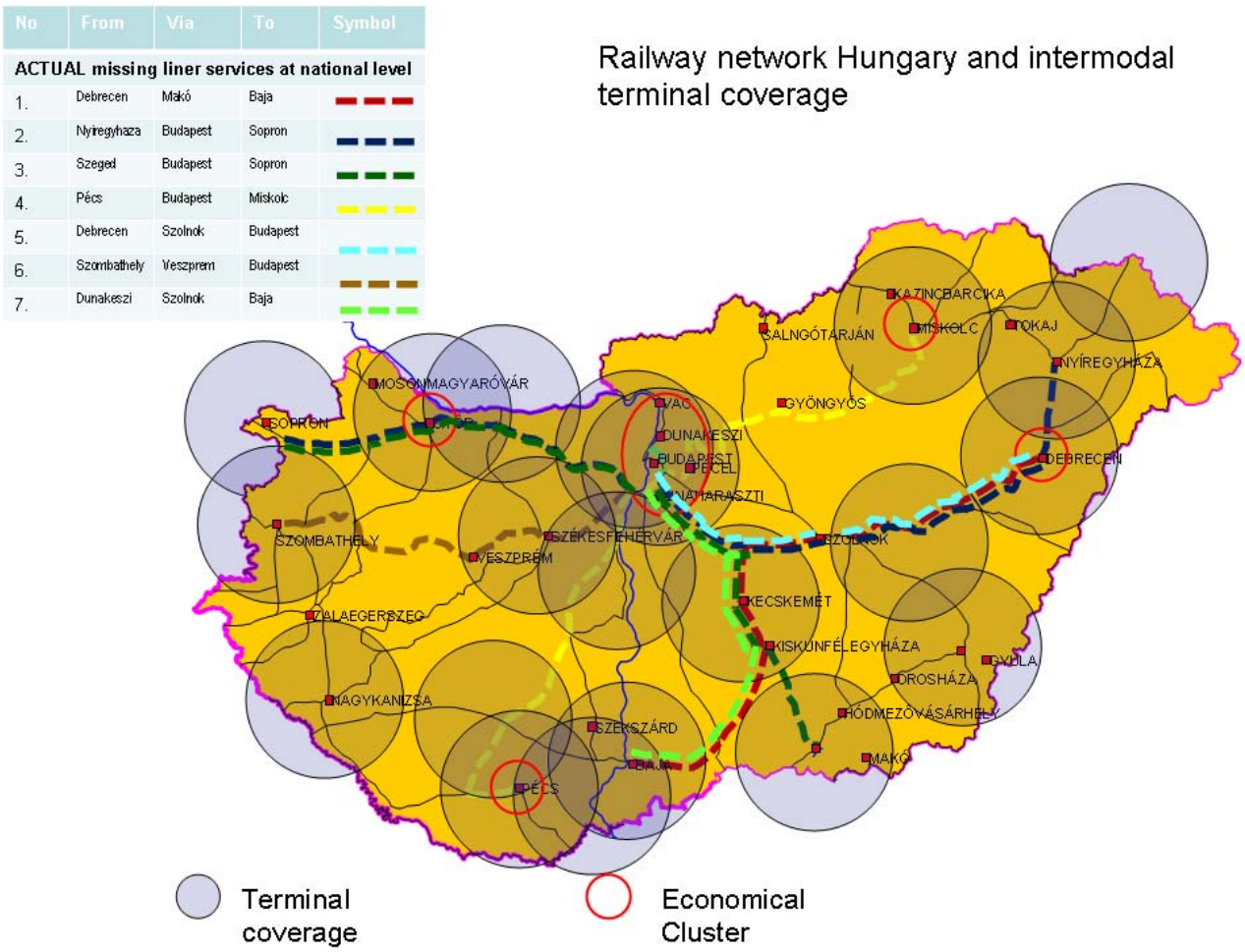


Figure 6: Map of missing RLS, national level - Hungary

In Hungary, according to the above map find several services are necessary, as follows:

- -from Budapest - significant cluster, as a central hub (including Dunakeszi terminal), to the Eastern part of country (Debrecen), to the Southern part (Baja) and to the Western part (Szombathely);
- -there are declared also long liner services, crossing the almost entire country, but also having Budapest as crossing area:
  - -from North-West (Sopron) to East (Nyiregyhaza) and to South (Szeged);
  - -from North-East (Miskolc) to South-West (Pecs);
  - -from North-East (Debrecen) to South (Baja)

Hungary, as well as the most of the other new entered in EU countries, has a small number of public rail liner services actually operating. The answers at our survey prove that there is a really need of this kind of services across the country.

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

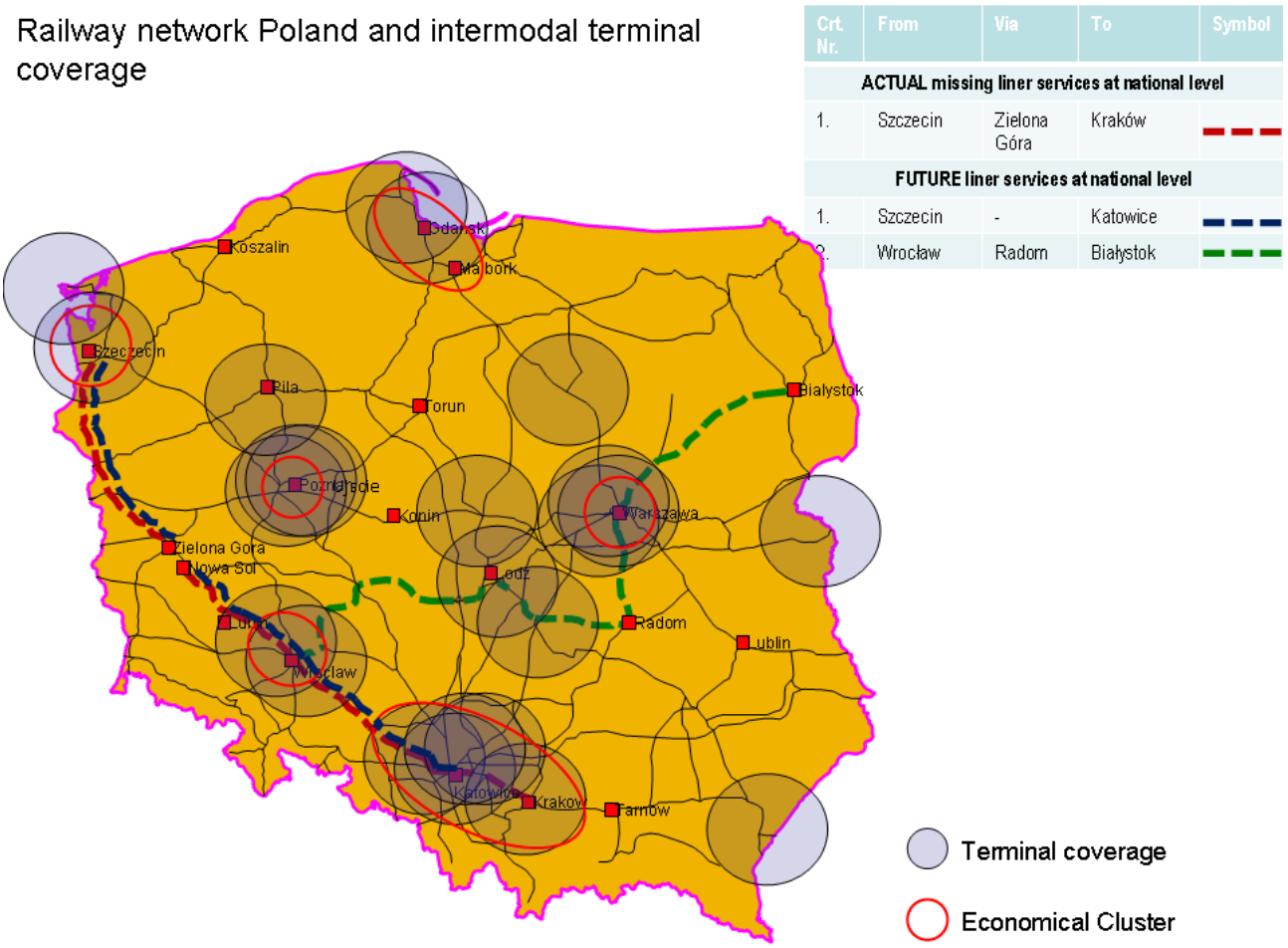


Figure 7: Map of missing RLS, national level - Poland

Because of the small number of interviewed persons, there were identified only a small number of missing liner services in Poland; according to the above map, currently only a single liner service is missing: it connects North part of Poland (Szczecin) to Krakow, along the Western border. Supposing that the investments for intermodal terminals, as Katowice and Bialystok, will be operational in a convenient future, then there will be the need for another two future liner services from Szczecin to Katowice and from Wroclaw to Bialystok, via Radom.

Note: There is some uncertainty related to the last connection in respect with declared route (longer then the shortest path; local condition may explain the chosen route).

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

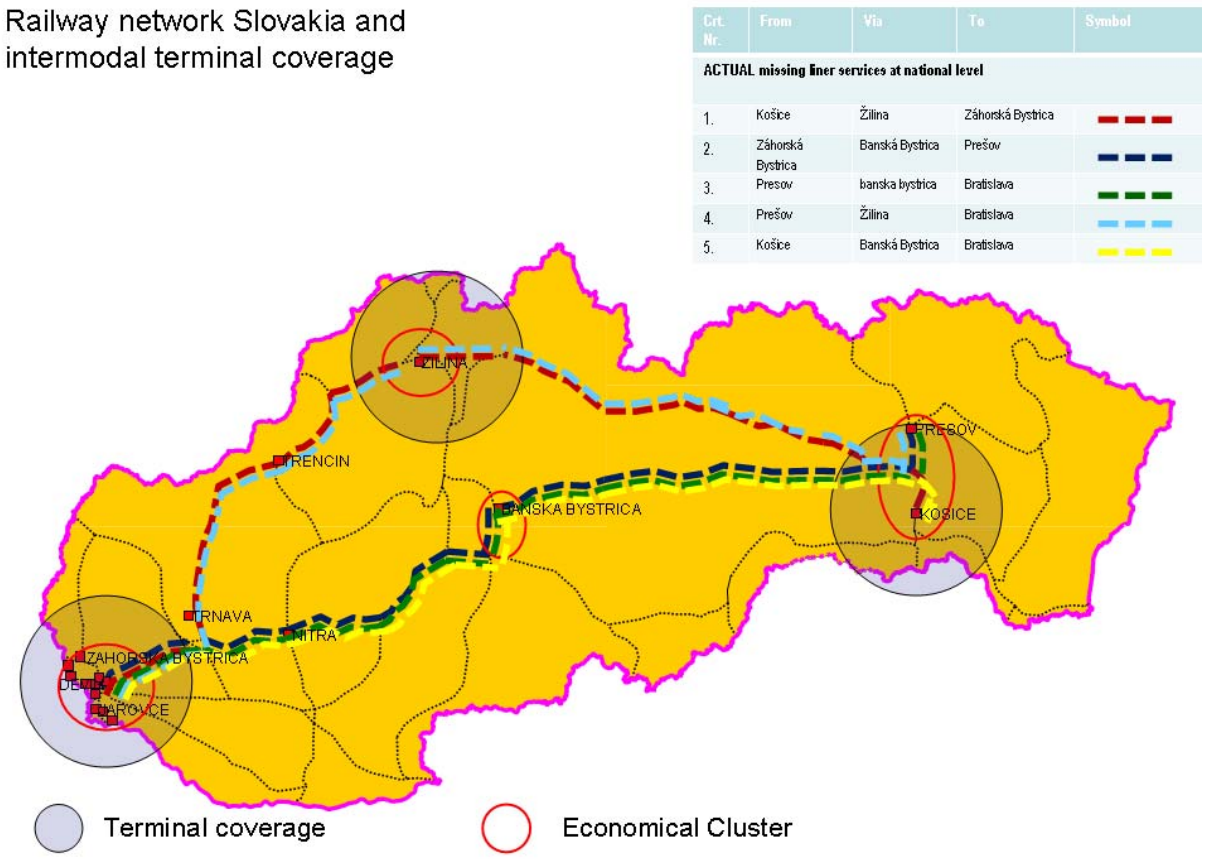


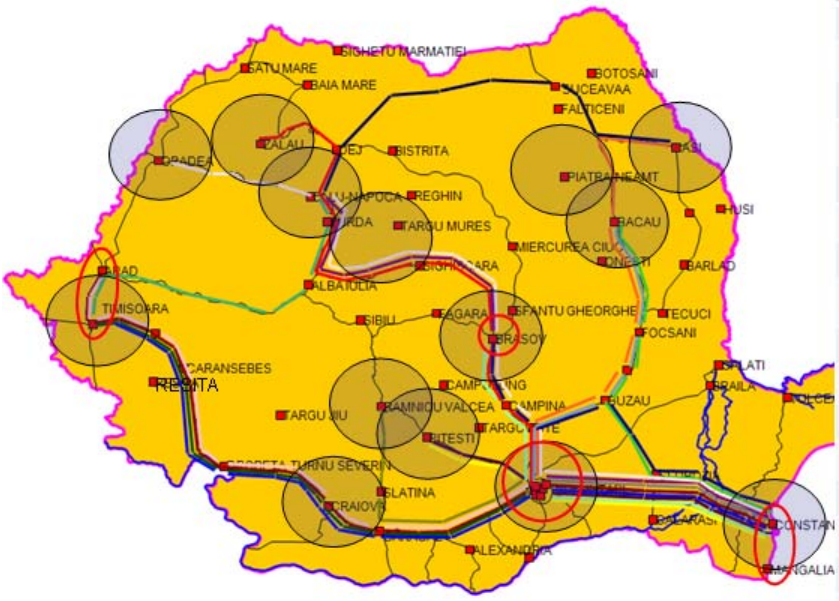
Figure 8: Map of missing RLS, national level - Slovakia

All the missing liner services, in Slovakia have similar pattern: they connect the South-West economic cluster (meaning Bratislava zone) to the Eastern part of country (Presov/Kosice zone).

The main difference inside this pattern is related to the followed route: two connections are crossing through North (via Zilina) and the other three routes are crossing through the Central part of Slovakia (via Banska Bystrica).

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

Railway network Romania and intermodal terminal coverage



No	From	Via	To	Symbol
ACTUAL missing liner services at national level				
1.	Arad	Craiova	Mangalia	
2.	Voluntari	Braşov	Zalău	
3.	Bucuresti Progresul	Craiova	Glogovat	
4.	Bucureşti		Constanţa	
5.	Bucureşti	Craiova	Timişoara	
6.	CONSTANTA	Bucuresti	TIMISOARA	
7.	VOLUNTARI (BUCURESTI)	BUZAU	BACAU	
8.	Constanta		Bucuresti	
9.	Constanta	Buzau	Bacau	
10.	Constanta	Buzau	Brasov	
11.	Constanta	Bucuresti	Bradu de Sus	
12.	BRASOV	PLOIESTI	Constanta	
13.	Iasi	-	Bucuresti	
14.	Iasi	-	Cluj	
15.	Cluj	-	Timisoara	
16.	Brasov	-	Cluj	
17.	Ramnicu Valcea	-	Bucuresti	
18.	Pitesti	Bucuresti	Constanta	
19.	Constanta	Bucuresti	Oradea	

Terminal coverage

Economical Cluster

Figure 9: Map of missing RLS, national level - Romania

The largest number of declared missing liner services in Romania may have as explanation the worst state of rail infrastructure: the transport operators may consider that it is possible to compensate the low commercial speed by the regularity of service.

The above map reveals three branches of the rail network, connecting the country territory with capital (Bucharest) and Black Sea side (Constanta Harbor), meaning main three axes: the Eastern axis, the central axis from the North-West and the Southern axis from the South-West cluster (Timisoara/Arad). A small number of services have different orientation: connection from East to North-West (Iasi - Cluj), or North-West to South-East (Cluj - Arad/Timisoara), both crossing the mountains. There is also a special connection from the automotive plant (Dacia-Renault) to the Constanta Harbor.

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

5 Conclusions

This report is dedicated to the identifying the needs of transport operators and economic actors along *FLAVIA* corridor. This report provides the lists of the missing and future liner services, for national and transnational level (**Annex 3** to be seen).

The liner service for rail means a continuum, constant frequently, directly connecting the two important economic centers/clusters service, and using intermodal terminals. This represents the operational structure for freight corridors.

There is a quite easily-to-draw conclusion, from the above map in Figure 10: almost half of the demanded liner services are connecting the *FLAVIA* countries (except Slovakia) to the Black Sea region (Constanta Harbor) via the two economic clusters in Romania (Bucharest and Arad/Timisoara).

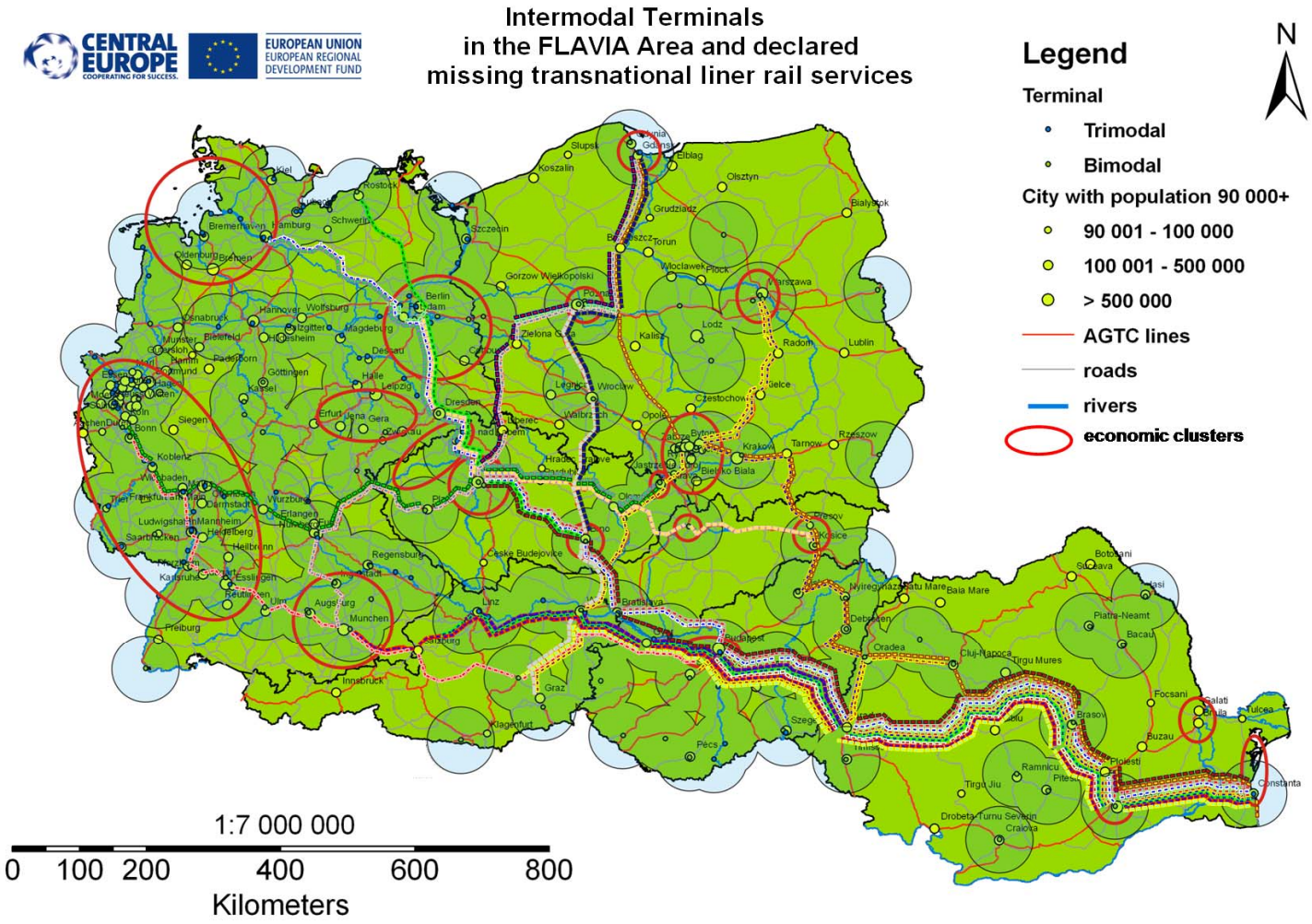
Besides that, there are also declared missing connections between countries in corridor, as follows: between CZ, PL and AT; between CZ and DE; between DE and HU; between CZ, DE and PL; between DE and SK (see below Table 2).

From Central Europe to the Black Sea most of the missed liner services are using the TEN-T corridors. The number of missing liner services (actual and future) for both levels: national and transnational between *FLAVIA's* countries (in pairs) is shown in the below 7x7 matrix, in Table 2.

To / From	AT	CZ	DE	HU	PL	RO	SK	Sum
AT	3	-	-	-	-	-	-	3
CZ	1	4	3	-	1	1	-	10
DE	-	-	6	1	1	-	1	9
HU	-	-	-	7	-	-	-	7
PL	2	-	-	-	3	-	-	5
RO	2	1	2	2	2	19	-	28
SK	-	-	-	-	-	-	5	5
Sum	8	5	11	10	7	20	6	67

Table 2: Matrix of number of missing rail liner services at national and transnational level

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND



No	FROM	Via	TO	Symbol
1.	Constanta	Bucuresti, Curtici	Budapesta	
2.	Constanta	Curtici, Gyor	Hamburg	
3.	Bucharest	Episcopia Bihorului, Kosice	Varszawa	
4.	Arad	Curtici	Wels	
5.	CONSTANTA	CURTICI	LAMBACH	
6.	Bucuresti	Curtici	Budapest	
7.	Constanta	Curtici	Munchen	
8.	Constanta	Curtici	Praga	
9.	Mangalia	Kosice	Gdańsk	
10.	Poznań	Brno	Graz	
11.	Munchen	Praha	Gdańsk	
12.	Bonn	Graz	Budapest	
13.	Berlin	Praha	Kosice	
14.	Ostrava	Bad Schandau	Duisburg	
15.	Ostrava	Chalupki	Brest	
16.	Brno	Bad Schandau	Rostock	
17.	Warszawa	Prerov	Graz	
18.	Prague	-	Gdansk/Gdyna	
19.	Prague	-	Konstanta	
20.	Brno	-	Gdansk	

Figure 10: Map of missing RLS, national level – transnational level

As a general direction of missing liner services, **the West to East direction prevails the North to South direction**. We may note that the scroll of directions had not a specific warning for surveyed persons, and hence, we may consider as well East to West and West to East, simple as a single direction. The missing liner services is not concentrated on specific country, even that for Romania, in contrast with other countries, there is largest number of declared missing liner services: there is no certainty that this number is due to the largest number of the surveyed persons or is due to the actual needed services.

Most of the origins/destinations of missing liner services are economic clusters and several of them represent only intermodal terminals. There is no liner service having both origin and destination without economic or demographic relevance.

If one looks at the map for *FLAVIA* corridor (Figure 10) one may easily observes that **from Budapest to the Constanta Harbour it is possible to have a bundling effect**: most of the services use Budapest for crossing, which is a natural effect, considering the geographical arrangement of the involved countries.

From the map with transnational missing liner services it is obvious that almost all of them are main routes. Additional study is necessary for a comprehensive hub-and-spoke structuring, considering all rail networks of *FLAVIA* countries, as single one.

A better connectivity of the *FLAVIA* corridor may be demonstrated considering a *bid with several liner services selected* from the above identified transnational services; comparisons between currently situation on one hand, and a proposed operational bid of liner services, on the other hand, may help to find the range of improvements in connectivity index.

The profile of the missing liner services, having a high degree of implementation, may be described by the following features: it is connecting the important economic and /or demographic clusters from at least two neighbour countries; it is quasi-often asked by the transport operators; it is rather short than long, considering the number of countries border to transit, and taking into account (being aware by) the administrative difficulties of implementation; it follows the direction Central Europe to South-East Europe (without importance of scroll direction); it may have the bundling effect. Having these in mind we may select as the missing liner service with a high degree of implementation the following several non-exclusive options:

- -Hamburg/Bremen, DE - Prague, CZ;
- -Gdansk, PL - Prague, CZ;
- -Munich, DE - Lintz, AT - Budapest, HU
- -Prague, CZ - Budapest, HU
- -Budapest, HU - Constanta Harbour, RO;

Prague and Budapest are therefore candidates to take over the role of full rail hubs at the level of the *FLAVIA* corridor.

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

LIST OF FIGURES

LIST OF TABLES

ANNEX 1 - Template of questionnaire

1. Do you think there are missing terminals in [*country*]?

Use the grid to identify the area where a terminal is missing in your opinion. Your answers shall be filled in the matrix below.

Column 1 "coordinate"

Please insert the coordinate of the terminal by using the form: T (number, letter) e.g. T (13,G)

Column 2 "mode of traffic"

Please insert the modes of traffic the terminal should process by using the form: road, rail, IWW (inland waterway) or sea.

Column 3 "type of load unit"

Please insert the type of load unit you want to use (e.g. container or swap body)

Column 4 "type of good"

Please insert the type of good you want to transship at the terminal (e.g. chemical products)

	Coordinate	Mode of traffic	Type of load unit	Type of good
Terminal 1				
Terminal 2				
Terminal 3				
Terminal 4				
Terminal 5				

2. In your opinion are there missing national liner services within [*country*]?

Please use the country map to identify the missing connections by naming the start point, via points and the arrival point of the connection. Please use the following matrix:

	From	**Via**	**To**
Connection 1			
Connection 2			
Connection 3			
Connection 4			
Connection 5			

3. In your opinion are there missing transnational liner services within the corridor?

Please use the corridor map to identify the missing connections by naming the start point, via points and the arrival point of the connection. Please insert the cross border points at the VIA column. Please use the following Matrix:

	From	**Via**	**To**
Connection 1			
Connection 2			
Connection 3			
Connection 4			
Connection 5			

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

ANNEX 2 - The DECLARED missing and future rail liner services

List 1a: DECLARED missing liner services at national level, DE

No of response	Type of institution	DECLARED MISSING RAIL LINER SERVICES at national level								Already Existing Rail Liner Services (1 -is operating; 0- there is no actual liner service)
		FROM (origin)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the origin)	Is the origin an intermodal terminal or is it located near to an intermodal terminal? (y/n)	VIA	TO (destination)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the destination)	Is the destination an intermodal terminal or is it located near to an intermodal terminal?	Lenght of service>300km =>1; Lenght of service <100 km=>0; lenght between 100-300km=>2	
1	Transport Operator	Bielefeld	-	n	-	Munchen	Ausburg-Munchen	y	1	---
2		Bielefeld	-	n	-	Saarbrucken	-	y	1	0
3	Transport Operator	Dusseldorf	Dorthmund-Essen-Dusseldorf	y	Bielefeld	Gotbus	-	n	1	---
4		Dusseldorf	Dorthmund-Essen-Dusseldorf	y	Kassel	Dresden	Leipzig-Dresden	y	1	0
5	Scientific/ educational	bremen	Bremen-Hamburg	y	-	stuttgart	Stuttgart	y	1	1
6		bremen	Bremen-Hamburg	y	-	erfurt	-	y	1	0
7		bremen	Bremen-Hamburg	y	-	hof	-	y	1	0
8		bremen	Bremen-Hamburg	y	-	Nürnberg	Nürnberg	y	1	1
9		bremen	Bremen-Hamburg	y	-	schweinfurt	-	y	1	0
10	Public institution	Bremenhaver	Bremen-Hamburg	y	-	Bremen	Bremen-Hamburg	y	0	---
11	Transport Operator	Cuxhaven	Bremen-Hamburg	y	Berlin	CZ border	-		TRANSNATIONAL ROUTE (?)	
12		Regensburg	-	y	Hof	CZ border	-		TRANSNATIONAL ROUTE (?)	
13	Scientific/educational	Dresden	Leipzig-Dresden	y	Nürnberg	Stuttgart	Stuttgart	y	1	0
14		Mannheim	Frankfurt-Mannheim	y	Leverkusen	Bremen	Bremen-Hamburg	y	1	1
15	Transport Operator	Dresden	Leipzig-Dresden	y	Magdeburg	Hannover	Hannover-Braunschweig	y	1	0

7 interviewed persons (3 located in DE) with 15 results

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

List 1a: DECLARED missing liner services at national level, AT **ANNEX 2**

No of response	Type of institution	DECLARED MISSING RAIL LINER SERVICES at national level								Already Existing Rail Liner Services (1 -is operating; 0- there is no actual liner service)
		FROM (origin)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the origin)	Is the origin an intermodal terminal or is it located near to an intermodal terminal? (y/n)	VIA	TO (destination)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the destination)	Is the destination an intermodal terminal or is it located near to an intermodal terminal?	Lenght of service>300km =>1; Lenght of service <100 km=>0; lenght between 100-300km=>2	
1	Transport Operator	Bernhardstahl	(about 80 km to Wien)	y	-	Tarvisio	-	y (Villach)	1	1
2	Scientific/educational institution	Innsbruck	Innsbruck	n	Klagenfurt	Graz	Graz	y	1	0
3		Salzburg	Salzburg	n	Linz	Wien	Wien	y	1	0
4	Public institution	Linz	Linz-Steyr-Wels	y	Salzburg	Inssbruck	Inssbruck	n	1	0
5	Transport Operator	Salzburg	Salzburg	n	Linz	CZ border	-		TRANSNATIONAL ROUTE (?)	
6		Wien	Wien	y	-	CZ border	-		TRANSNATIONAL ROUTE (?)	

4 interviewed persons (none of them located in AT) with 6 results; none of them located in Austria

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

List 1a: DECLARED missing liner services at national level, PL **ANNEX 2**

No of response	Type of institution	DECLARED MISSING RAIL LINER SERVICES at national level								Already Existing Rail Liner Services (1 -is operating; 0- there is no actual liner service)
		FROM (origin)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the origin)	Is the origin an intermodal terminal or is it located near to an intermodal terminal? (y/n)	VIA	TO (destination)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the destination)	Is the destination an intermodal terminal or is it located near to an intermodal terminal?	Lenght of service>300km =>1; Lenght of service <100 km=>0; lenght between 100-300km=>2	
1	Terminal Operator	Szczecin	Szczecin	y	-	Katowice	Katowice-Kraków	n	1	0
2	Scientific/educational institution	Kraków	Katowice-Kraków	y	Ostrów Wielkopolski	Gdańsk	Gdańsk-Malbork	y	1	1
3		Szczecin	Szczecin	y	Zielona Góra	Kraków	Katowice-Kraków	y	1	0
4		Wrocław	Wrocław	y	Radom	Białystok	at about 300 km to Warsawa	n	1	0
5		Koszalin	-	n	Łódź	Rzeszów	less than 300 near to Krakow	n	1	---

2 interviewed persons (all located in PL) with 5 results

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

List 1a: DECLARED missing liner services at national level, CZ

ANNEX 2

No of response	Type of institution	DECLARED MISSING RAIL LINER SERVICES at national level								Already Existing Rail Liner Services (1 -is operating; 0- there is no actual liner service)
		FROM (origin)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the origin)	Is the origin an intermodal terminal or is it located near to an intermodal terminal? (y/n)	VIA	TO (destination)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the destination)	Is the destination an intermodal terminal or is it located near to an intermodal terminal?	Lenght of service>300km =>1; Lenght of service <100 km=>0; lenght between 100-300km=>2	
1	Transport Operator	Ceske Budejovice	-	n	Tabor or Pisek	Prague	Kadno-Praha	y	2	----
2		NW Czechia	Děčín-Most-KarlovyVary-Cheb	y	Prague	SE Moravia	Brno	y	1	1
3		NE Czechia	Hradec-Kralove-Pardubice	n	Jihlava	S Moravia	Brno	y	1	1
4	Scientific/educational institution	Cheb	Děčín-Most-KarlovyVary-Cheb	n	Liberec	Pardubice	Hradec-Kralove-Pardubice	n	1	0
5		Děčín	Děčín-Most-KarlovyVary-Cheb	y	Praha	Brno	Brno	y	1	0
6	Transport Operator	Lovosice	Děčín-Most-KarlovyVary-Cheb	y	-	Brno	Brno	y	1	0
7		Plzeň	Plzeň	y	-	Ostrava	Havirov-Ostrava	y	1	0
8	Public institution	Plzeň	Plzeň	y	Cheb	Karlovy Vary	Děčín-Most-KarlovyVary-Cheb	n	0	----

4 interviewed persons(2 located in CZ) with 8 responses

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

List 1a: DECLARED missing liner services at national level, SK

ANNEX 2

No of response	Type of institution	DECLARED MISSING RAIL LINER SERVICES at national level								Already Existing Rail Liner Services (1 -is operating; 0- there is no actual liner service)
		FROM (origin)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the origin)	Is the origin an intermodal terminal or is it located near to an intermodal terminal? (y/n)	VIA	TO (destination)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the destination)	Is the destination an intermodal terminal or is it located near to an intermodal terminal?	Lenght of service>300km =>1; Lenght of service <100 km=>0; lenght between 100-300km=>2	
1	Transport Operator	Central Slovakia	Banská Bystrica	-	Trencin	CZ border (?)	-	-	UNKNOWN ORIGIN/DESTINATION	
2		SE Slovakia	Záhorská Bystrica - Bratislava	-	Bratislav or Trencin	CZ border/UAE border	-	-	UNKNOWN DESTINATION	
3	Transport Operator	Čierna nad Tisou	-	-	-	Čadca	-	-	TRANSNATIONAL ROUTE (?)	
4	Scientific/educational institution	Košice	Prešov-Košice	y	Žilina	Záhorská Bystrica	Záhorská Bystrica - Bratislava	y	1	0
5		Záhorská Bystrica	Záhorská Bystrica - Bratislava	y	Banská Bystrica	Prešov	Prešov-Košice	y	1	0
6	Public institution	Košice	Prešov-Košice	y	Čierna nad Tisou	Ukraine			TRANSNATIONAL ROUTE (?)	
7	Public institution	Presov	Prešov-Košice	y	banska bystrica	Bratislava	Záhorská Bystrica - Bratislava	y	1	0
8	Scientific/educational institution	Prešov	Prešov-Košice	y	Žilina	Bratislava	Záhorská Bystrica - Bratislava	y	1	0
9		Košice	Prešov-Košice	y	Banská Bystrica	Bratislava	Záhorská Bystrica - Bratislava	y	1	0

6 interviewed persons (3 located in SK), with 9 responses

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

List 1a: DECLARED missing liner services at national level, HU ANNEX 2

No of response	Type of institution	DECLARED MISSING RAIL LINER SERVICES at national level								Already Existing Rail Liner Services (1 -is operating; 0- there is no actual liner service)
		FROM (origin)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the origin)	Is the origin an intermodal terminal or is it located near to an intermodal terminal? (y/n)	VIA	TO (destination)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the destination)	Is the destination an intermodal terminal or is it located near to an intermodal terminal?	Lenght of service>300km =>1; Lenght of service <100 km=>0; lenght between 100-300km=>2	
1	Scientific/educational institution	Nagykanizsa	-	y	Budapest	Tokaj	Miskolc	y	0	-
2		Debrecen	Debrecen	y	Makó	Baja	Pécs	y	1	0
3	Transport Operator	Nyiregyhaza	-	y	Budapest	Sopron	Gyor	y	1	0
4		Szeged	-	y	Budapest	Sopron	Gyor	y	1	0
5		Pécs	Pécs	y	Budapest	Miskolc	Miskolc	y	1	0
6		Debrecen	Debrecen	y	Szolnok	Budapest	Budapest	y	1	0
7		Szombathely	-	y	Veszprem	Budapest	Budapest	y	1	0
8	Business Association	Dunakeszi	Budapest	y	Szolnok	Baja	Pécs	y	1	0

3 interviewed persons (2 located in HU), with 8 responses

List 1a: DECLARED missing liner services at national level, RO

ANNEX 2

No of response	Type of institution	DECLARED MISSING RAIL LINER SERVICES at national level								Already Existing Rail Liner Services (1 -is operating; 0- there is no actual liner service)
		FROM (origin)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the origin)	Is the origin an intermodal terminal or is it located near to an intermodal terminal? (y/n)	VIA	TO (destination)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the destination)	Is the destination an intermodal terminal or is it located near to an intermodal terminal? (y/n)	Lenght of service>300km =>1; Lenght of service <100 km=>0; lenght between 100-300km=>2	
1	Scientific/educational institution	Arad	Arad - Timisoara	y	Craiova	Mangalia	Constanta-Mangalia	y	1	0
2		Voluntari	Bucuresti	y	Braşov	Zalău	-	y	1	0
3	Transport Operator	Bucuresti Progresul (10,H)	Bucuresti	y	Craiova (10,E), Tg.Jiu (8,E)	Glogovat (6,G)	-	y	1	0
4	Transport Operator	Bucureşti H10	Bucuresti	y		Constanţa L10	Constanta-Mangalia	y	1	0
5		Bucureşti H10	Bucuresti	y	Craiova E10	Timişoara B7	Arad - Timisoara	y	1	0
6		Bucureşti H10	Bucuresti	y		Bradu de Sus G9	-	y	3	---
7		Bucureşti H10	Bucuresti	y	Ploieşti H9, Braşov H7	Oradea C4	-	y	1	0*
8		Bucureşti H10	Bucuresti	y	Bacău J5	Suceava I2	-	n	1	----
9	Transport Operator	CONSTANTA	Constanta-Mangalia	y	Bucuresti	TIMISOARA	Arad - Timisoara	y	1	0
10		VOLUNTARI(BUCURESTI)	Bucuresti	y	BRASOV	CLUJ NAPOCA	-	y	1	0*
11		VOLUNTARI(BUCURESTI)	Bucuresti	y	BUZAU	BACAU	-	y	1	0
12	Business Association	Constanta	Constanta-Mangalia	y		Bucuresti	Bucuresti	y	1	0
13		Constanta	Constanta-Mangalia	y	Buzau	Bacau	-	y	1	0
14		Constanta	Constanta-Mangalia	y	Buzau	Brasov	Brasov	y	1	0
15		Constanta	Constanta-Mangalia	y	Bucuresti	Bradu de Sus	-	y	1	0
16		Constanta	Constanta-Mangalia	y	Buzau	Dolhasca	-	n	1	----
17	Transport Operator	Constanta Port	Constanta-Mangalia	y		Bucharest	Bucuresti	y	1	0*
18		Bucharest	Bucuresti	y	Brasov	Arad - Curtici	Arad - Timisoara	y	1	0*
19	Transport Operator	CURTICI	Arad - Timisoara	y	BRASOV	PLOIESTI	Bucuresti	n	1	0
20		BRASOV	Brasov	y	PLOIESTI	CONSTANTA	Constanta-Mangalia	y	1	0

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

No of response	Type of institution	DECLARED MISSING RAIL LINER SERVICES at national level								Already Existing Rail Liner Services (1 -is operating; 0- there is no actual liner service)
		FROM (origin)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the origin)	Is the origin an intermodal terminal or is it located near to an intermodal terminal? (y/n)	VIA	TO (destination)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the destination)	Is the destination an intermodal terminal or is it located near to an intermodal terminal? (y/n)	Lenght of service>300km =>1; Lenght of service <100 km=>0; lenght between 100-300km=>2	
21		BUCURESTI	Bucuresti	y	-	CONSTANTA	Constanta-Mangalia	y	1	0*
22	Infrastructure Owner	Iasi	-	y	-	Bucuresti	Bucuresti	y	1	0
23		Suceava	-	n	-	Bucuresti	Bucuresti	y	1	---
24		Iasi	-	y	-	Cluj	-	y	1	0
25		Cluj	-	y	-	Timisoara	Arad - Timisoara	y	1	0
26		Brasov	Brasov	y	-	Cluj	-	y	1	0
27	Transport Operator	Galati	Galati	-	Buzau	Suceava	-	n	1	---
28		Galati	Galati	-	Bucuresti	Drobeta-Turnu Severin	-	n	1	---
29	Transport Operator	Constanta	Constanta-Mangalia	y	Bucuresti	Arad - Curtici	Arad - Timisoara	y	1	0*
30	Transport Operator	Ramnicu Valcea	-	y	-	Bucuresti	Bucuresti	y	1	0
31		Pitesti	-	y	Bucuresti	Constanta	Constanta-Mangalia	y	1	0
32	Transport Operator	Constanta	Constanta-Mangalia	y	Bucuresti	Arad - Curtici	Arad - Timisoara	y	1	0*
33		Constanta	Constanta-Mangalia	y	Bucuresti	Oradea	-	y	1	0
34		Constanta	Constanta-Mangalia	y	Buzau	Suceava	-	n	1	---
35		Siret	-	n	Bucuresti	Giurgiu	Bucuresti	n	TRANSNATIONAL ROUTE (?)	
36		Iasi	-	y	Brasov	Giurgiu	Bucuresti	n	INCONSISTENT ROUTE (?)	

12 interviewed persons (11 located in RO), with 36 responses

*- above counted as missing services

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

List 1b: DECLARED missing liner services, transnational level **ANNEX 2**

No of re-sponse	Country of institution location	DECLARED MISSING TRANSNATIONAL LINER RAIL SERVICES							Already Existing Rail Liner Services (1 -if it is operating; 0- there is no liner service) 0* - already counted above
		FROM (origin)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the origin)	Is the origin an intermodal terminal or is it located near to an intermodal terminal? (y/n)	VIA	TO (destination)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the destination)	Is the destination an intermodal terminal or is it located near to an intermodal terminal?	
1	DE	Bielefeld	-	n	Poznan	Warschaw	Warsaw	y	----
2	DE	Romania	-	-	Donau, Main, Rhein	Duisburg	Dorthmund-Essen-Dusseldorf	y	un-known
3	DE	Hungary	-	-	Donau, Main, Rhein	Duisburg	Dorthmund-Essen-Dusseldorf	y	un-known
4	RO	Constanta	Constanta	y	Bucuresti, Curtici	Budapest	Budapest	y	0
5	RO	GERMA-NY(unknown terminal)			CURTI-CI(ARAD), GIURGIU NORD	TUR-KEY(unknown terminal)			un-known
6	RO	TUR-KEY(unknown terminal)			GIURGIU NORD, CURTI-CI(ARAD)	GERMA-NY(unknown terminal)			un-known
7	RO	Constanta	Constanta	y	Curtici, Gyor	Hamburg	Bremen-Hamburg	y	0
8	RO	Bucharest	Bucharest	y	Episcopia Bihorului, Kosice	Varszawa	Warsaw	y	0
9	RO	ARAD	Arad-Timisoara	y	CURTICI	WELS	Linz-Steyr-Wels	y	0
10	RO	CONSTANTA	Constanta	y	CURTICI	LAMBACH	Linz-Steyr-Wels	y	0
11	RO	Bucuresti	Bucharest	y	Curtici	Budapest	Budapest	y	0
12	RO	Bucuresti	Bucharest	y	Curtici	Budapest	Budapest	y	0*
13	RO	Constanţa	Constanta	y	Bucureşti, Timişoara	Budapesta	Budapest	y	0*
14	RO	Constanta	Constanta	y	Curtici	Munchen	Munchen	y	0
15	RO	Rijeka, Croatia			Curtici	Kiev			out of FLAVIA
16	RO	Constanta			Curtici	Milano			out of FLAVIA
17	RO	Constanta	Constanta	y	Curtici	Praga	Praga	y	
18	RO	Alexandroupoli			Giurgiu, Siret	Varsovia			out of FLAVIA
19	RO	Bucharest	Bucharest	y	Brasov - Curtici	Budapest	Budapest	y	0*
20	PL	Mangalia	Constanta	y	Kosice	Gdańsk	Gdańsk-Malbork	y	0

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

No of re-sponse	Country of institution location	DECLARED MISSING TRANSNATIONAL LINER RAIL SERVICES							Already Existing Rail Liner Services (1 -if it is operating; 0- there is no liner service) 0* - already counted above
		FROM (origin)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the origin)	Is the origin an intermodal terminal or is it located near to an intermodal terminal? (y/n)	VIA	TO (destination)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the destination)	Is the destination an intermodal terminal or is it located near to an intermodal terminal?	
21	PL	Bremen	Bremen-Hamburg	y	Munchen	Arad	Arad-Timisoara	y	1
22	PL	Poznań	Poznań	y	Brno	Graz	Graz	y	0
23	PL	Munchen	Munchen	y	Praha	Gdańsk	Gdańsk-Malbork	y	0
24	PL	Bonn	Bon	y	Graz	Budapest	Budapest	y	0
25	SK	Berlin	Berlin	y	Praha	Kosice	Prešov-Košice	y	0
26	CZ	Ostrava	Havirov-Ostrava	y	Bad Schandau	Duisburg	Duisburg	y	0
27	CZ	Ostrava	Havirov-Ostrava	y	Chalupki	Brest	Bremen-Hamburg	y	0
28	CZ	Brno	Brno	y	Bad Schandau	Rostock	Bremen-Hamburg	y	0
29	CZ	Dresden	Leipzig-Dresden	y	Lovosice	Bucuresti	Bucuresti	y	1
30	CZ	Warszawa	Warsaw	y	Přerov	Graz	Graz	y	0
31	CZ	Prague	Prague	y	-	Gdansk/Gdyna	Gdańsk-Malbork	y	0
32	CZ	Prague	Prague	y	-	Konstanta	Constanta	y	0
33	CZ	Brno	Brno	y	-	Gdansk/Gdyna	Gdańsk-Malbork	y	0
34	CZ	Summerau	Linz-Steyr-Wels	y	AT, IT	CZ			unknown
35	CZ	Schirnding			DE	CZ			unknown
36	CZ	Jablunkov			SK, UAE				unknown

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

ANNEX 3 - The actual missing and future rail liner services

List 2a: ACTUAL missing liner services at national level

Curent number	FROM (origin)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the origin)	Is the origin an intermodal terminal or is it located near to an intermodal terminal? (y/n)	VIA	TO (destination)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the destination)	Is the destination an intermodal terminal or is it located near to an intermodal terminal?
DE							
1	Dusseldorf	Dorthmund-Essen-Dusseldorf	y	Kassel	Dresden	Leipzig-Dresden	y
2	bremen	Bremen-Hamburg	y	-	erfurt	-	y
3	bremen	Bremen-Hamburg	y	-	hof	-	y
4	bremen	Bremen-Hamburg	y	-	schweinfurt	-	y
5	Dresden	Leipzig-Dresden	y	Nürnberg	Stuttgart	Stuttgart	y
6	Dresden	Leipzig-Dresden	y	Magdeburg	Hannover	Hannover-Braunschweig	y
PL							
1	Szczecin	Szczecin	y	Zielona Góra	Kraków	Katowice-Kraków	y
CZ							
1	Děčín	Děčín-Most-KarlovyVary-Cheb	y	Praha	Brno	Brno	y
2	Lovosice	Děčín-Most-KarlovyVary-Cheb	y	-	Brno	Brno	y
3	Plzeň	Plzeň	y	-	Ostrava	Havirov-Ostrava	y
SK							
1	Košice	Prešov-Košice	y	Žilina	Záhorská Bystrica	Záhorská Bystrica - Bratislava	y
2	Záhorská Bystrica	Záhorská Bystrica - Bratislava	y	Banská Bystrica	Prešov	Prešov-Košice	y
3	Presov	Prešov-Košice	y	banska bystrica	Bratislava	Záhorská Bystrica - Bratislava	y
4	Prešov	Prešov-Košice	y	Žilina	Bratislava	Záhorská Bystrica - Bratislava	y
5	Košice	Prešov-Košice	y	Banská Bystrica	Bratislava	Záhorská Bystrica - Bratislava	y
HU							
1	Debrecen	Debrecen	y	Makó	Baja	Pécs	y
2	Nyiregyhaza	-	y	Budapest	Sopron	Gyor	y
3	Szeged	-	y	Budapest	Sopron	Gyor	y
4	Pécs	Pécs	y	Budapest	Miskolc	Miskolc	y
5	Debrecen	Debrecen	y	Szolnok	Budapest	Budapest	y
6	Szombathely	-	y	Veszprem	Budapest	Budapest	y
7	Dunakeszi	Budapest	y	Szolnok	Baja	Pécs	y

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

Curent number	FROM (origin)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the origin)	Is the origin an intermodal terminal or is it located near to an intermodal terminal? (y/n)	VIA	TO (destination)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the destination)	Is the destination an intermodal terminal or is it located near to an intermodal terminal?
RO							
1	Arad	Arad -Timisoara	y	Craiova	Mangalia	Constanta- Mangalia	y
2	Voluntari	Bucuresti	y	Braşov	Zalău	-	y
3	Bucuresti Progresul	Bucuresti	y	Craiova	Glogovat (6,G)	-	y
4	Bucureşti	Bucuresti	y		Constanţa L10	Constanta- Mangalia	y
5	Bucureşti	Bucuresti	y	Craiova	Timişoara B7	Arad -Timisoara	y
6	CONSTANTA	Constanta- Mangalia	y	Bucuresti	TIMISOARA	Arad -Timisoara	y
7	VOLUNTARI(BUCURESTI)	Bucuresti	y	BUZAU	BACAU	-	y
8	Constanta	Constanta- Mangalia	y		Bucuresti	Bucuresti	y
9	Constanta	Constanta- Mangalia	y	Buzau	Bacau	-	y
10	Constanta	Constanta- Mangalia	y	Buzau	Brasov	Brasov	y
11	Constanta	Constanta- Mangalia	y	Bucuresti	Bradu de Sus	-	y
12	BRASOV	Brasov	y	PLOIESTI	Constanta	Constanta- Mangalia	y
13	Iasi	-	y	-	Bucuresti	Bucuresti	y
14	Iasi	-	y	-	Cluj	-	y
15	Cluj	-	y	-	Timisoara	Arad -Timisoara	y
16	Brasov	Brasov	y	-	Cluj	-	y
17	Ramnicu Valcea	-	y	-	Bucuresti	Bucuresti	y
18	Pitesti	-	y	Bucuresti	Constanta	Constanta- Mangalia	y
19	Constanta	Constanta- Mangalia	y	Bucuresti	Oradea	-	y

List 2b: ACTUAL missing liner services, transnational level **ANNEX 3**

No of re-spo nse	Country of institu-tion location	ACTUAL MISSING TRANSNATIONAL LINER RAIL SERVICES						
		FROM (origin)	ECONOMIC/ Demo-graphic CLUSTER or economic centre (beside the origin)	Is the origin an intermodal terminal or is it located near to an intermodal terminal? (y/n)	VIA	TO (destina-tion)	ECONOMIC/ Demo-graphic CLUSTER or economic centre (beside the destination)	Is the destina-tion an inter-modal terminal or is it located near to an intermodal terminal? (y/n)
1	RO	Constanta	Constanta	y	Bucuresti, Curtici	Budapest	Budapest	y
2	RO	Constanta	Constanta	y	Curtici, Gyor	Hamburg	Bremen-Hamburg	y
3	RO	Bucharest	Bucharest	y	Episcopia Bi-horului, Kosice	Varszawa	Warsaw	y
4	RO	ARAD	Arad-Timisoara	y	CURTICI	WELS	Linz-Steyr-Wels	y
5	RO	Constanta	Constanta	y	CURTICI	LAMBACH	Linz-Steyr-Wels	y
6	RO	Bucuresti	Bucharest	y	Curtici	Budapest	Budapest	y
7	RO	Constanta	Constanta	y	Curtici	Munchen	Munchen	y
8	RO	Constanta	Constanta	y	Curtici	Praga	Praga	y
9	PL	Mangalia	Constanta	y	Kosice	Gdańsk	Gdańsk-Malbork	y
10	PL	Poznań	Poznań	y	Brno	Graz	Graz	y
11	PL	Munchen	Munchen	y	Praha	Gdańsk	Gdańsk-Malbork	y
12	PL	Bonn	Bon	y	Graz	Budapest	Budapest	y
13	SK	Berlin	Berlin	y	Praha	Kosice	Prešov-Košice	y
14	CZ	Ostrava	Havirov-Ostrava	y	Bad Schandau	Duisburg	Duisburg	y
15	CZ	Ostrava	Havirov-Ostrava	y	Chalupki	Brest	Bremen-Hamburg	y
16	CZ	Brno	Brno	y	Bad Schandau	Rostock	Bremen-Hamburg	y
17	CZ	Warszawa	Warsaw	y	Přerov	Graz	Graz	y
18	CZ	Prague	Prague	y	-	Gdansk/Gdyna	Gdańsk-Malbork	y
19	CZ	Prague	Prague	y	-	Konstanta	Constanta	y
20	CZ	Brno	Brno	y	-	Gdansk/Gdyna	Gdańsk-Malbork	y

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND

List 3a: FUTURE liner services at national level

Curent number	FROM (origin)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the origin)	Is the origin an intermodal terminal or is it located near to an intermodal terminal? (y/n)	VIA	TO (destination)	ECONOMIC/ Demographic CLUSTER or economic centre (beside the destination)	Is the destination an intermodal terminal or is it located near to an intermodal terminal?
AT							
1	Innsbruck	Innsbruck	n	Klagenfurt	Graz	Graz	y
2	Salzburg	Salzburg	n	Linz	Wien	Wien	y
3	Linz	Linz-Steyr-Wels	y	Salzburg	Inssbruck	Inssbruck	n
PL							
1	Szczecin	Szczecin	y	-	Katowice	Katowice-Kraków	n
2	Wrocław	Wrocław	y	Radom	Białystok	at about 300 km to Warsawa	n
CZ							
1	Cheb	Děčín-Most-KarlovyVary-Cheb	n	Liberec	Pardubice	Hradec-Kralove-Pardubice	n
RO							
1	CURTICI	Arad -Timisoara	y	BRASOV	PLOIESTI	Bucuresti	n

List 3b: FUTURE liner services at transnational level

There is no future liner service

CENTRAL EUROPE COOPERATING FOR SUCCESS. EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND