
D.T1.3.3

IDENTIFICATION OF BOTTLENECKS IN INFRASTRUCTURE AND SERVICE IN CETC AREA

Work paper

Version 1.0
04.2020

1. FORM FOR DETAILED BOTTLENECK INVESTIGATION

BOTTLENECK NO. 1

Cargo road/rail/sea/river terminals: Missing terminals

BOTTLENECK ALLOCATION

transport infrastructure	X
rolling stock / machinery	
services / operations	
legislation / administration	

PROBLEM DESCRIPTION

At the moment, there are 6 intermodal terminals in Westpomeranian, Lubusz and Lower Silesian Region combined (Fig. 1). These terminals represents 15% of all terminals on the territory of Poland (Fig. 2). Their total annual transshipment capacity is nearly 0,5 mln TEU (Fig. 3). Taking into account the growth trend (Fig. 4), assuming the growth rates and investments of railway carriers in intermodal platforms are maintained, the number of terminals and their total annual transshipment capacity will be insufficient.

Fig. 1 Map of terminals in Poland



Source: The Office of Rail Transport (UTK)



Fig.2 Regions statistics about railway infrastructure

No.	Voivodeship	Size of the voivodeship in km2	Density of the railway network per 100 km2	Number of terminals	Number of terminals per 100 km2
1	łódzkie	18 219	5,9	7	0,038
2	śląskie	12 333	15,8	4	0,032
3	pomorskie	18 310	6,6	4	0,022
4	podkarpackie	17 846	4,8	3	0,017
5	wielkopolskie	29 826	6,3	5	0,017
6	dolnośląskie	19 947	8,8	3	0,015
7	lubelskie	25 122	3,6	3	0,012
8	opolskie	9 412	8,3	1	0,011
9	zachodniopomorskie	22 892	5,1	2	0,009
10	mazowieckie	35 558	4,8	3	0,008
11	lubuskie	13 988	6,5	1	0,007
12	małopolskie	15 183	6,7	1	0,007
13	podlaskie	20 187	3,6	1	0,005
14	warmińsko-mazurskie	24 173	4,4	1	0,004
15	kujawsko-pomorskie	17 972	6,7	0	0,000
16	świętokrzyskie	11 711	5,1	0	0,000

Source: own study based on the Office of Rail Transport (UTK) data.

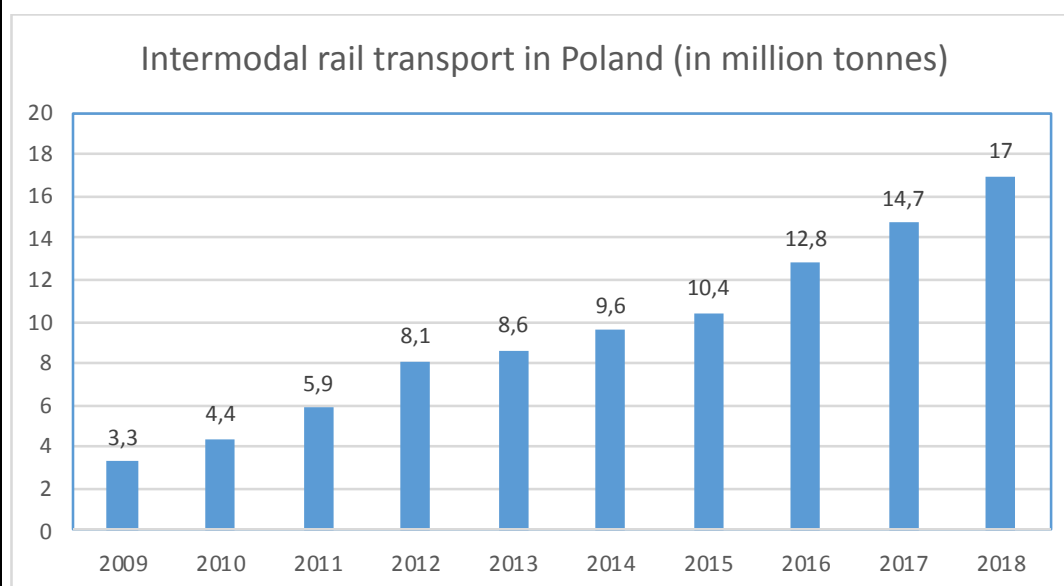
Fig. 3 List of terminals in the analysed region

No.	Terminal Name	Owner / Manager	Availability	Rail transport service	Road transport service	River transport service	Maritime transport service	Total terminal area [ha]	Maximum annual transhipment capacity [TEU]
Westpomeranian Region									
1	OT Port Świnoujście - container terminal	OT Port Świnoujście Sp. z o.o.	24/7	YES	YES	YES	YES	20	70 000
2	DB Port Szczecin	DB Port Szczecin Sp. z o.o.	Sun. 22:00 - Sat. 14:00	YES	YES	YES	YES	12,7	150 000
Lubusz Region									
1	Rail Terminal Rzepin	Rail Terminal Rzepin Sp. z o.o.	24/7	YES	YES	NO	NO	1,6	40 000
Lower Silesian Region									
1	PCC INTERMODAL - TERMINAL PCC BRZEG DOLNY	PCC Intermodal S.A.	Mon. - Fri.: 06:00 - 22:00 Sat.: 07:00 - 15:00	YES	YES	NO	NO	9	110 000
2	Container terminal Schavemaker Kąty Wrocławskie	SCHAVEMAKER INVEST SP. Z O.O.	Mon. - Fri.: 07:00 - 21:00 Sat.: 07:00 - 15:00	YES	YES	NO	NO	5	75 000

3	Container terminal Wrocław Siechnice	Rail Polska Sp. z o.o./Baltic Rail AS	Working days: 6:00-22:00 working hours on holiday depend on demand	YES	YES	NO	NO	10	50 000
---	--------------------------------------	---------------------------------------	--	-----	-----	----	----	----	--------

Source: own study based on the Office of Rail Transport (UTK) data.

Fig. 4 Intermodal rail transport in Poland (in million tonnes)



Source: own study based on the Office of Rail Transport (UTK) data.

BOTTLENECK CONSEQUENCES

(Select the level of consequences with X)

low	<input type="checkbox"/>
medium	<input type="checkbox"/>
high	<input checked="" type="checkbox"/>

PROBLEM-SOLVING APPROACH

It is needed to run an analysis and indicate areas where building new intermodal terminals are best justified. If the indicated areas would belong to the local government units, state-owned enterprises or other state-owned entity, it is recommended to consider building a modern intermodal terminal in a cooperation with private investors in a public-private partnership.

Newly opened terminals would eliminate this bottleneck by raising the total annual transshipment capacity in the indicated areas.



RESPONSIBILITY

- Local government units
- State-owned enterprises
- Private investors

TIME FRAME

Immediately	
Short-term	
Mid-term	
Long-term	X

EXPECTED BENEFIT

Low	
Medium	
High	X
Vast	

AN EXAMPLE OF BEST PRACTICE

An example of intermodal investment in Public-Private Partnership formula, is being implemented in Kuyavian-Pomeranian Region. Region's self-government is planning to build a transshipment terminal on the border of Bydgoszcz and Solec Kujawski. The terminal will operate river, road, and rail cargo transport. Conceptual work on the project is currently underway. Two companies are interested in the investment.

You can read more about the investment here:

- <https://bydgoszcz.wyborcza.pl/bydgoszcz/7,48722,24844759,wojewodztwo-ma-plany-platformy-przeladunkowej-koszt-1-4-mld.html>
- <http://www.portalkujawski.pl/bydgoszcz/item/16508-kto-bedzie-korzystal-z-uslug-terminalu-w-emilianowie>
- <http://www.pgt.pl/terminal-multimodalny-w-solcu-kujawskim>

2. FORM FOR DETAILED BOTTLENECK INVESTIGATION

BOTTLENECK NO. 2

Lack of the labour force: Lack of knowledge

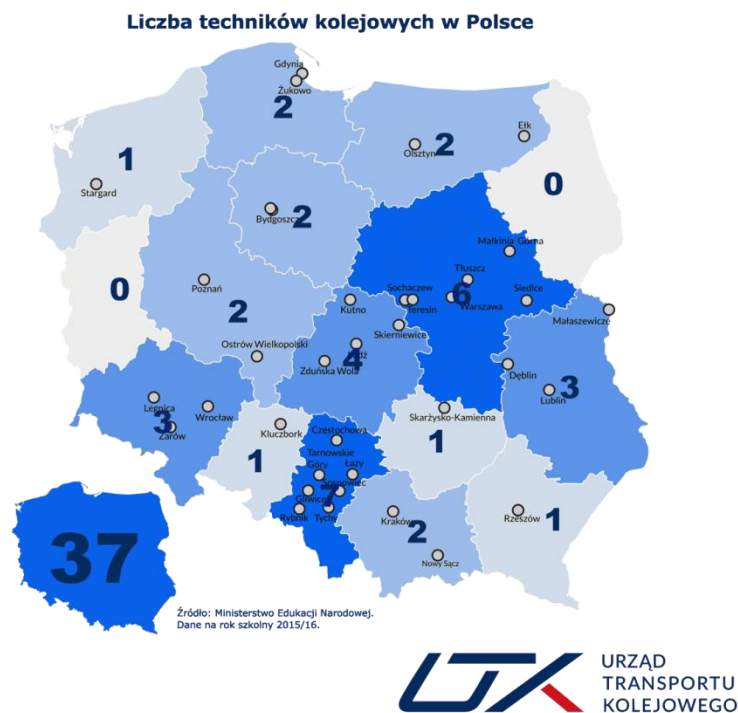
BOTTLENECK ALLOCATION

transport infrastructure	<input type="checkbox"/>
rolling stock / machinery	<input type="checkbox"/>
services / operations	<input checked="" type="checkbox"/>
legislation / administration	<input type="checkbox"/>

PROBLEM DESCRIPTION

Apart from the train driver, there are no accurate statistics on labour shortages in the market for all technical professions related to rail transport. However, based on the data published by the Office of Rail Transport, difficulties in attracting qualified staff for these professions are expected in the coming years. Main reason for this bottleneck to take place is that only few schools teach these professions. This situation is caused by the restructuring of the railway sector in Poland at the beginning of the century, which meant that there was little demand for new workers, and some of those who had worked on the railways had to leave the industry. Technical professions related to rail transport got less and less popular, which reduced the number of schools teaching in these professions. Another visible complication is mandatory medical examination for candidates to learn these professions (Fig.1, Fig.2). An example of the problem described is the recruitment for the Kołobrzeg Technical School for a railway transport technician class in 2019. Only 16 candidates signed up, where 6 of them have not passed the medical examination. Due to low number of candidates which meet all of the requirements, the class has not been created.

Fig.1 Number of railway technicians in Poland



Source: The Office of Rail Transport (UTK)

Fig 2. Table of professions

No .	Region	School name	Profession
1	Westpomeranian	Construction and Technical Secondary Complex School in Stargard Szczeciński	Railway and Engineering Facilities Technician
2	Westpomeranian	Secondary Complex School No. 4 of Home Army name in Szczecin	Railway Power Engineering Technician
3	Lower Silesian	Secondary Complex School of Gen. S. Kaliski name in Góra	Railway Power Engineering Technician
4	Lower Silesian	Secondary Complex School in Głogów	Railway Transportation Technician
5	Lower Silesian	Secondary Complex School of H. Pobożnego name in Legnica	Railway Transportation Technician

6	Lower Silesian	Secondary Complex School of Jędrzej Śniadecki name in Żarów	Railway Transportation Technician
7	Lower Silesian	Secondary Complex School No. 23 in Wrocław	Railway Transportation Technician
8	Lower Silesian	Secondary Complex School No. 23 in Wrocław	Automatic Railway Control Technician
9	Lower Silesian	Secondary Complex School No. 23 in Wrocław	Railway Power Engineering Technician

Source: own study based on the Office of Rail Transport (UTK) data.

BOTTLENECK CONSEQUENCES

low	
medium	X
high	

PROBLEM-SOLVING APPROACH

To solve a problem causing this bottleneck, cooperation between schools and railway employers is necessary. In an exemplary case, the employer takes patronage of a classroom trained in an occupation where a labour demand is observed by the employer. The patronage would make the class more prestigious, offering great opportunities to acquire practical knowledge in the employer's facilities, which usually is not available at this level of education. Local government units could serve as intermediaries in establishing cooperation, and promotion of newly established profession classes.

RESPONSIBILITY

Ministry of National Education
 Local government units
 High Schools
 Railway companies

TIME FRAME

Immediately	
Short-term	
Mid-term	X
Long-term	



EXPECTED BENEFIT

Low	
Medium	X
High	
Vast	

AN EXAMPLE OF BEST PRACTICE

An example of best practice is collaboration of the PESA Bydgoszcz S.A. - a major manufacturer of rolling stock in Poland and Craft and Entrepreneurship Secondary Complex School in Bydgoszcz. As part of the collaboration, „PESA Patronage Class” has been established. The actions taken are characterised by great diversity and concentrate not only on teaching students through practical vocational training, study visits and meetings with the employer, they include support for teachers in complementing competences in dynamic technological and business environments as well. Additionally, both students (through scholarships) and the school can count on material support and access to the most modern tools often unavailable in the educational process.

PESA Bydgoszcz SA cooperation with local schools was in great interest of local media. You can read more about the cooperation here:

- <https://bydgoszcz.tvp.pl/20295262/39004012/przyjmujemy-wnioski-od-komitetow-wyborczych?fbclid=IwAR3Jy4fQrHLgJ9v7bpXZokx7BuaSFWQp7DzqtVLsq7h4iN7f6Fi5lm3Bqno>
- https://brief.pl/upominamy_sie_o_szkoly_zawodowe/?fbclid=IwAR2Lol8EarCsxVa3Tf9lOS-y7Ad0dqSxvhVnyQ5FlauumyyXnKHISXGxfAM
- https://bydgoszcz24.pl/pl/12_biznes/10675_maly-krok-w-strone-odbudowy-szkolnictwa-zawodowego.html

3. FORM FOR DETAILED BOTTLENECK INVESTIGATION

BOTTLENECK NO. 3

Legislation for labour force: Labour certifications

BOTTLENECK ALLOCATION

transport infrastructure	
rolling stock / machinery	
services / operations	
legislation / administration	X

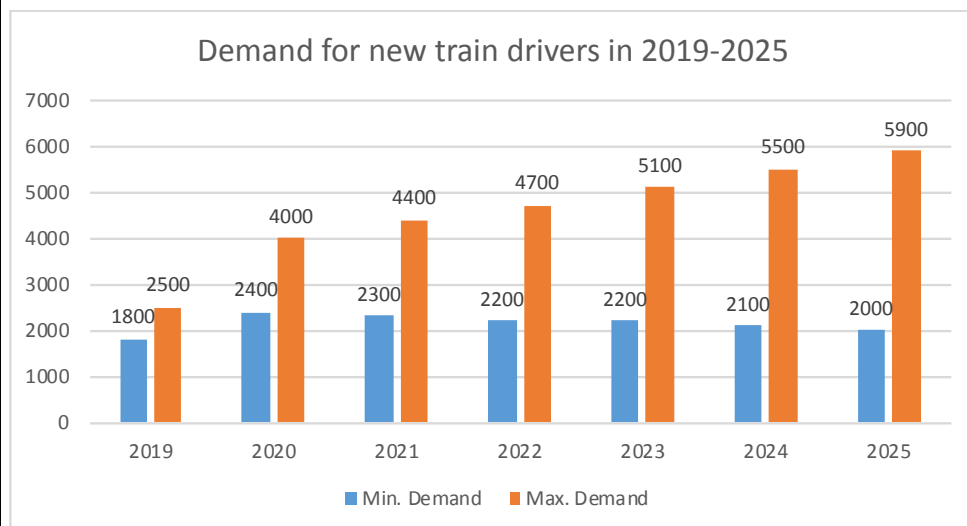
PROBLEM DESCRIPTION

In the report "Innovative and effective system of training and professional development of train drivers" of November 2019, forecasts of demand for new drivers in 2019-2025 were presented (Fig.1). Among the reasons for the projected shortage, the complex process of training and certification, one of the most restrictive in Europe, is indicated above all.

According to the Regulation of the Polish Minister of Infrastructure and Development dated February 10th 2014 on the train driver's certificate (Journal of Laws of 2014, item 212), training time in Poland is from 1062 to 2878 hours long, in order to obtain approval to operate a train as a train driver (Fig.2, Fig.3).

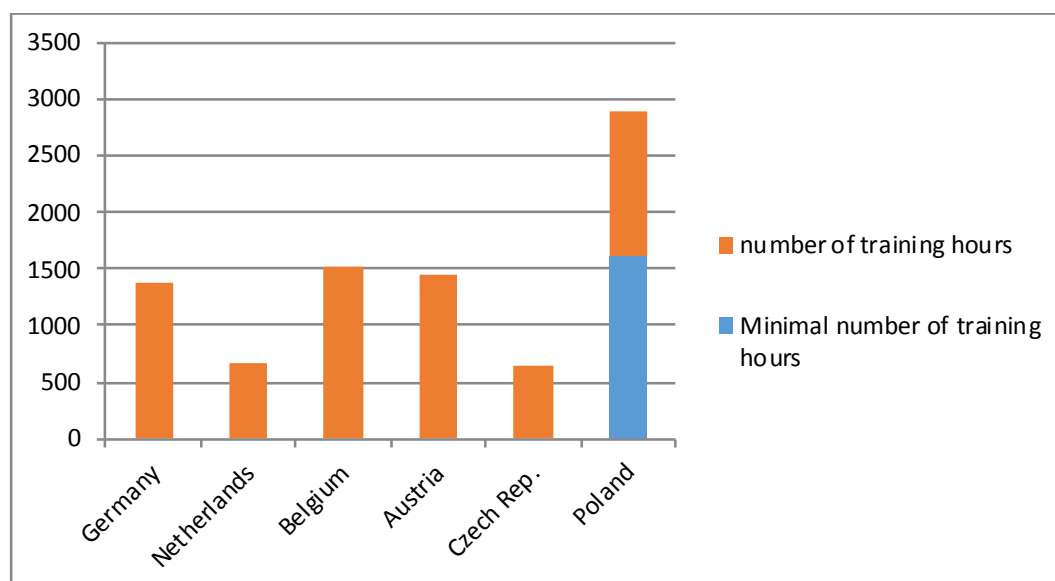
With this in mind, a significant barrier to the development of rail freight transport is the lack of certified train drivers, due to unjustified regulation of training system.

Fig. 1 Demand for new train drivers in 2019-2025



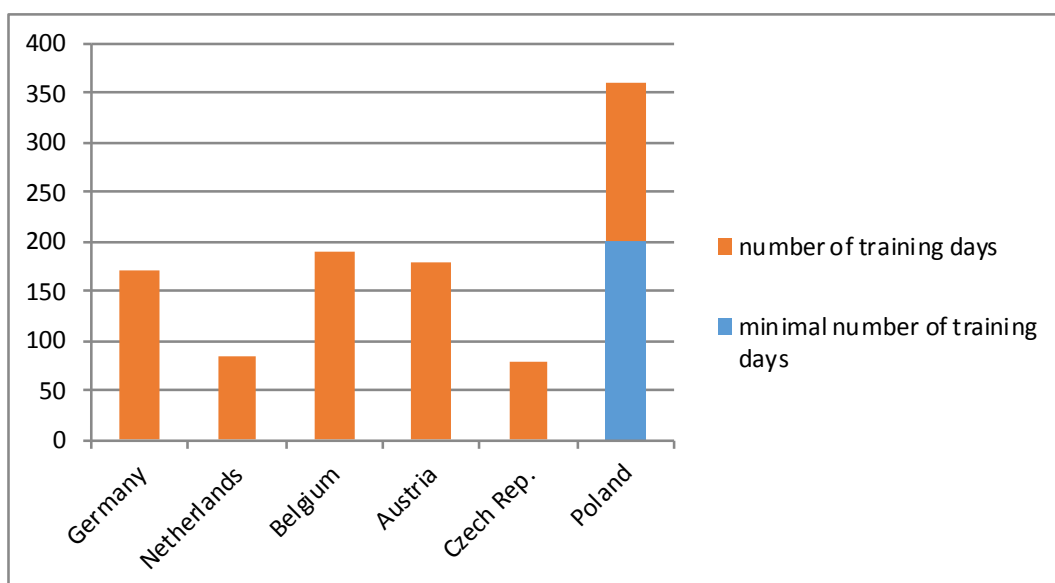
Source: Report "Innovative and effective system of training and professional development of train drivers", Warszawa- Gdansk, November 2019.

Fig.2 Number of training hours



Source: Report "Innovative and effective system of training and professional development of train drivers", Warszawa- Gdansk, November 2019.

Fig. 3 Number of training days



Source: Report "Innovative and effective system of training and professional development of train drivers", Warszawa- Gdansk, November 2019.

BOTTLENECK CONSEQUENCES

low	
medium	
high	X

PROBLEM-SOLVING APPROACH

In order to eliminate this bottleneck, it is proposed to align the timing and scope of training and health qualifications to the level of the EU directives dealing with this issue.

The recommendations for the training and examination system require the following changes of legislation:

- Polish Railway Transport Act (Journal of Laws of 2019, item 710), in particular with regard to the regulation of concerning: train driver license (Article 22), training and examination centres (Article 22a) and train driver's certificate (Article 22b),
- Regulation of the Regulation of the Polish Minister of Infrastructure and Development dated February 10th 2014 on the train driver's certificate (Journal of Laws 2014, item 212), in particular Attachment no. 3,
- Regulation of the Polish Minister of Infrastructure and Development dated February 10th 2014 on the train driver's license (Journal of Laws 2014, item 211), in particular Attachment No. 4.

RESPONSIBILITY

Ministry of Infrastructure

The Office of Rail Transport

TIME FRAME

Immediately	
Short-term	X
Mid-term	
Long-term	

EXPECTED BENEFIT

Low	
Medium	X
High	
Vast	

AN EXAMPLE OF BEST PRACTICE

It is worth to take example from Czech Republic, where the number of training hours has been reduced to 640 h, and the number of training days to 80 days. Training results are satisfactory and fully compliant with European regulations, while taking much less time to accomplish.

Report "Innovative and effective system of training and professional development of



train drivers" includes detailed analysis of the problem, European examples of solving the problem, and vast description of steps needed to take in polish case.

You can read the report here:

<http://www.klasterluxtorpeda.pl/raport-podsumowuj%C4%85cy-proj-maszynistowskiego-fin.pdf>

4. FORM FOR DETAILED BOTTLENECK INVESTIGATION

BOTTLENECK NO. 4

Railway lines regarding technical parameters: **Missing links**

BOTTLENECK ALLOCATION

transport infrastructure	X
rolling stock / machinery	
services / operations	
legislation / administration	

PROBLEM DESCRIPTION

The abandoned railway line Rédics - Lendava

There is a 7 km long missing railway connection between Lendava (Slovenia) and Rédics (Hungary). The track were moved after the World War II.

Restoring the rail link would have a positive effect not only for environment (CO2 emission) but on tourism an economic cooperation between the two countries as well. Express passenger train services would be available between Budapest (Hungary) and Ljubljana (Slovenia) and between Budapest and Zagreb (Croatia). The traffic of vehicles with high axle loads on the main road No. 86 (Zala county road network) could be reduced providing better quality of living in some municipalities (Zalabaksa, Kálócfa, Irsapuszta, Zalaölvő) of Zala county, Hungary.



<https://railroadforums.com/forum/index.php?media/sz-pragesko-hodos-line.10753/>

BOTTLENECK CONSEQUENCES

(Select the level of consequences with X)

low	<input type="checkbox"/>
medium	<input type="checkbox"/>
high	<input checked="" type="checkbox"/>

PROBLEM-SOLVING APPROACH

Reconstruction of the railway line between Rédics - Lendva:

Preparing the constructions plans.

Preparing the detailed cost estimation by type of work.

Reconstruction of the 50 km long railway line between Zalaegerszeg - Rédics (Hungary). The procurement process for preparing the plan documentation of this line has been already started.



RESPONSIBILITY

- Government

TIME FRAME

Immediately	
Short-term	
Mid-term	X
Long-term	

EXPECTED BENEFIT

Low	
Medium	
High	X
Vast	

AN EXAMPLE OF BEST PRACTICE

-



5. FORM FOR DETAILED BOTTLENECK INVESTIGATION

BOTTLENECK NO. 5

Lack of Information communication technologies in transport: Information flows

BOTTLENECK ALLOCATION

transport infrastructure	
rolling stock / machinery	
services / operations	
legislation / administration	X

PROBLEM DESCRIPTION

The public transport services are not harmonized in the Hungarian-Croatian-Slovenian cross-border region.

Harmonized timetable of railway and bus companies does not exist.

It would be necessary for day-to-day commuters to use different services and public services, travelling because of business cooperation, education (schools, kindergartens), cultural cooperation, employment.

BOTTLENECK CONSEQUENCES

low	X
medium	
high	

PROBLEM-SOLVING APPROACH

To solve a problem causing this bottleneck and providing public transport services in the tri-border region, cooperation between the public transport companies and public authorities is necessary:

- The travel needs and passengers' demand should be surveyed.
- The available services should be mapped.
- The current legal and administrative background should be reviewed.
- Proposals should be offered for harmonization of public transport services.



RESPONSIBILITY

- Public transport companies
- Local municipalities
- Local public authorities

TIME FRAME

Immediately	
Short-term	
Mid-term	X
Long-term	

EXPECTED BENEFIT

Low	
Medium	X
High	
Vast	

AN EXAMPLE OF BEST PRACTICE

Cross-border autobus service between Komárno (Slovakia) and Komárom (Hungary):
<http://www.skhu.eu/funded-projects/improvement-of-cross-border-public-transport-services-between-komarno-sk-and-komarom-hu>