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Integrated and Sustainable Transport in Efficient Network - ISTEN

DT2.2.9 – Local Action Plan for Serbia (Belgrade area)

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Document information

Abstract

The deliverable T2.2.9 – Local Action Plan for Serbia defining the Key Actions needed for improvement of intermodal transport in the area of the City of Belgrade, as the focus area in Republic of Serbia, aiming to define the Belgrade as the integrated hub of the network connecting Adriatic and Ionian sea ports with their hinterland.

Key actions are defined through 2 clusters – infrastructural and innovation/institutional, based on the findings from deliverable T1.1.9 - Local Context Analysis for Serbia, where main bottlenecks are defined and described.

The Local Action Plan for Serbia is based on the work of the Local Working Group where guidelines and prioritization were given.

Key Actions within infrastructural measures are completion of road and rail network by Construction of Sectors B and C of Belgrade by-pass and Construction of Intermodal Terminal "Batajnica", while in innovation/institutional cluster, the key actions are defined as Creating the legal framework and standardization for digital communication related to transport and logistics and Improving the educational standards in the area of digital communication and new technologies skills.

Keywords

Local Action Plan (LAP) for Serbia, Local Context Analysis, Key Actions, Canvas Action Plan, Road/Rail Belgrade by-pass, Intermodal terminal "Batajnica", Legal framework and standardization for digital communication, Improvement of educational standards and skills for digital communication

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1 INTRODUCTION

As a result of the ISTEN Local Context Analysis conducted within WPT1, main bottlenecks were detected in each of 5 clusters: Market, Infrastructure, Operations, Institutional and Innovation.

Having in mind the economic development of Serbia and effects of past decades political, social and economic changes, it is expected that infrastructural development is at lower level comparing the needs and demands.

There is an obvious need for improving the transport infrastructure and complete the transport network, enabling the connectivity and economic growth. On the other side, starting from year 2000, a lot of preparation and works were started on infrastructure improvement. These actions were strongly intensified in last few years, by completing the road Corridors (Core Network) and started reconstruction and construction of Railway tracks.

When it's about road network and related main Corridors, the major missing link is the by-pass around the Belgrade, which is not completed at full highway profile.

Another fact is that in Serbia specific nodes for integrating different modes of transport and allowing intermodal operations are missing. The intermodal terminals are needed to enable full scale intermodal transport.

So called soft bottlenecks are present at wide level, but as usual, requiring the systematic approach which is difficult to set as separate or single action. For that reason, PP09-CCIS based on consultation with stakeholders, decided to present, beside mentioned infrastructural cluster of actions, the Innovation bottlenecks, to be covered by set of actions.

In terms of innovation/institutional bottlenecks, the fast changing information environment and need for implementation of new technologies requires the legal framework for secure information exchange and use of internationally recognized standards and rules related to new technologies and IT solutions. For example, even the use of digital signature is legally well defined according to international standards, the proper use of electronic consignment note – eCMR is not possible before the ratification of the protocol to the CMR Convention. This ratification would create the legal framework for Customs and other stakeholders to start developing the system for use of eCMR.

On the other side, this fast changing environment initialize the need for educated and skilled workforce in terms of new technologies and IT solutions at both, development and user levels and within private and public sector as well. Education system of Serbia recognized the need to include "digital skills" into the formal education, but there is a high number of employees who needs to be trained through recognizable vocational education and trainings, Companies trying to invest in their employees, but those actions are individual and different from case to case.

2 Infrastructure CLUSTER

2.1 Introduction (and goals)

Transport infrastructure of Serbia is characterized as well structured and developed, with network density above EU average. On the other side, the capacity of the network, the quality and application of standards in terms of interoperability are on the mid to poor level, especially of railway network which is mostly old and not well maintained. In previous period of few decades, the focus was set to road infrastructure. Main corridors were completed in full freeway

profile, connecting the country with the region from Croatia and Hungary on one side, to Bulgaria and North Macedonia on the other side. Construction works currently ongoing are at Route 4, connecting Belgrade to border of Montenegro.

The railway network, even well developed in terms of density, is in much lower conditions, with huge number of slow ride points and old and inefficient objects and equipment. This is the reason why Serbia set the priority on railway infrastructure projects and high number of construction and reconstruction works are currently ongoing.

Having in mind the specific position of Serbia within the ISTEN project, where practically entire national territory was treated as playground for analysis, during the Local context analysis the focus was set on Belgrade area, even if infrastructural and other bottlenecks were detected in wider context, at lower level of detail.

After consultations at project level, ISTEN group of private and public Serbian stakeholders agreed to set the focus of local context analysis and local action plan to the area of the City of Belgrade, which is not only Capitol of Serbia, but also the zone with highest economic, industrial and trade activities, including transport and logistics. Moreover, the city of Belgrade represents the main transport node at regional level, where all of three regional corridors intersect.

The context analysis detected numerous infrastructure bottlenecks at the different levels. Most obvious infrastructural bottlenecks are missing links and inadequate transport network, together with infrastructural objects, such are intermodal nodes and terminals, railway shunting yards and stations, for enabling the intermodality in Serbia.

Actual intermodality issues are not represented only by low volume of intermodal units, where annual throughput in Serbia is estimated to 60-80.000 TEU, which is about few high-capacity sea vessels, but also by huge number of empty containers leaving Serbia (over 70%), which showing the poor level of intermodal activities in total logistics chains.

Main goals of actions proposed is to ensure the connectivity of regional multimodal corridors, including the River of Danube, and enable intermodality through better interconnection of existing and future terminals, together with construction of new high-capacity intermodal terminal in Batajnica.

2.2 Stakeholders involved

During activities of ISTEN project, there were several main stakeholders involved in the local context analysis - where bottlenecks were detected and analysed – and during the prioritizing of actions for Local action plan.

Stakeholders actively involved are:

- Ministry of construction, transport and infrastructure of Republic of Serbia, Department for Railway and intermodal transport
- Private Company Nelt Co. Ltd, Belgrade – Logistics provider
- Free Zone Pirot, Pirot
- Associated Partner – Faculty of Transport and Traffic Engineering, University of Belgrade

Stakeholders who were informed, partly involved, and occasionally consulted are:

- Transport Secretariat of City of Belgrade – local authority

- Serbia Cargo, AD, Belgrade – national railway operator
- Railway Integrated transport (ŽIT) doo, Belgrade – state owned intermodal terminal
- Milšped doo, Belgrade – private logistics provider
- European Contract Logistics Serbia doo, Belgrade – private freight forwarder
- RALU doo, Belgrade – private operator in road transport
- Office Ivanovic, Belgrade – consulting, experts

One of the main stakeholders from the beginning of the project, who was involved actively in Local context analysis, was South East Europe Transport Observatory - SEETO, Belgrade. Unfortunately, the SEETO was closed on December 31st 2018. After SEETO closure, based on Treaty signed in 2017 in Trieste, the Permanent Secretariat of Transport Community is established in second half of 2019, but until today, the formal involvement of Transport Community is not achieved.

Two joint meetings were held with stakeholders and several bilateral meetings. One in the July 2018 and another in April 2019. Bilateral meetings were held with the Ministry of CTI, Transport Secretariat of the City of Belgrade, Logistics Unit of company Nelt Co and Free Zone Pirot in period from November 2019 to February 2020. Meetings in 2018 were related to Local Context analysis and bottlenecks detection, but also shaping action plan, while meetings in 2019 and 2020 were dedicated to prioritizing actions and action plan consultations. Beside mentioned meetings, a series of calls and online conversations were held during the state of urgency due to COVID-19 outbreak and home-based work.

2.3 Key Actions

Even numerous actions were identified in different phase of development, two infrastructural actions are recognized as key intermodality and connectivity enablers from the perspective of Belgrade area, and which most efficiently can improve Belgrade area transport system. Infrastructural bottlenecks in Serbia are numerous, especially railways, where high number of points of slow ride is introduced due to poor condition of tracks. On this regard, numerous projects on railway infrastructure are on-going or planned in near future. According to national policy defining the railway infrastructure reconstruction as the highest priority, the key action is focused on developing missing links and enabling higher share of intermodal transport in Belgrade area.

For the Belgrade area, there are two main detected infrastructural bottlenecks. One in the area of missing links in road and railway transport, and second in the area of intermodal transport enabling and development.

In the group of network missing links, the first detected bottleneck is road/railway by-pass around the City of Belgrade. The road by-pass is partly completed at the level of full highway profile, partly at the level of ordinary two lane road and the last part is in preparation phase. The railway part of by-pass is the part of complex Belgrade railway node. It is completed for the pan-European Corridor X, but there is a missing link on the same route as road. The key action is completing of road/railway by-pass around the City of Belgrade.

The second detected infrastructural bottleneck, is missing intermodal terminal. At the moment, there is one private, low capacity (half train length) terminal, owned by company Nelt, located in western zone of the Belgrade, one integrated railway terminal - state owned terminal “ZIT” in

the south zone of the City. In the time of drafting this document, there are construction works in the port of Danube in Pančevo, at the left bank of Danube River, where private port operator is working on construction of three-modal terminal in the port. All terminals are insufficient capacity and not well connected. The key Action is development and construction of state owned intermodal terminal in settlement of Batajnica, at the North-West side of Belgrade. The locations of the terminals relative to the bypass are shown in the figure below.

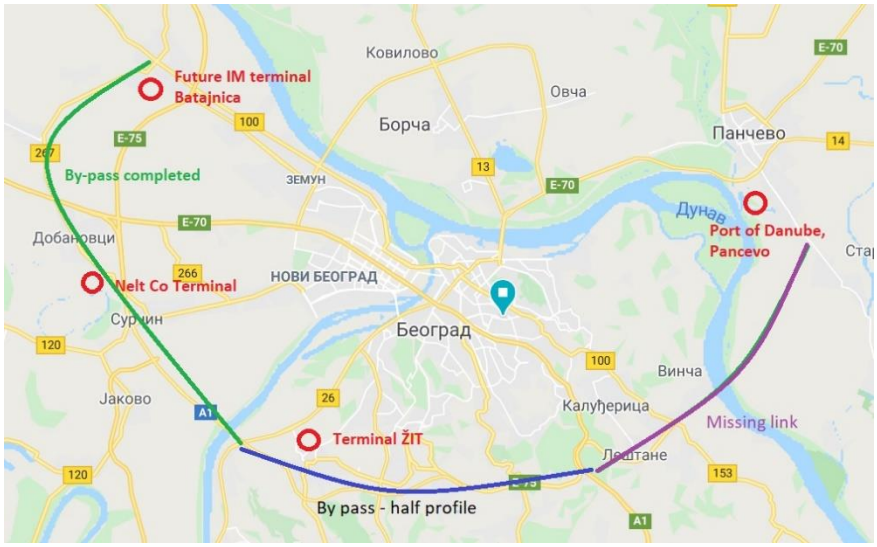

Figure 1 – Location of terminals and position of route of Belgrade Road/Rail by-pass

2.3.1. Action 1 – Railway/Road by-pass around the City of Belgrade (Belgrade by-pass)

Belgrade railway/road by-pass is the part of bimodal Orient/East-Med TEN-T Corridor (pan-European Corridor X) and it's the only part of the entire corridor which contains the road section as ordinary two-lane road. The rest of couple hundreds kilometres of corridor has highway profile. The railway part of the by-pass is electrified single track and belongs to the Belgrade railway node with good connections to the existing and future terminals. From the aspect of Belgrade area, the railway infrastructure main issue is the missing link of by-pass on south side of the City (same as road) and poor condition of tracks on certain points due to the lack of proper maintenance in previous period.

Missing link is Sector B of road by-pass around the Belgrade as well as railway link. This missing part of road and railway network should connect main Corridor X (Orient/East-Med) with Port of Danube and Route 4 to Romanian border. The biggest investment on this missing link is the new bridge over the Danube River which needs to be constructed. Regarding that missing link routes are almost the same for road and railway, the new bridge over the Danube is planned for both, road and railway traffic.

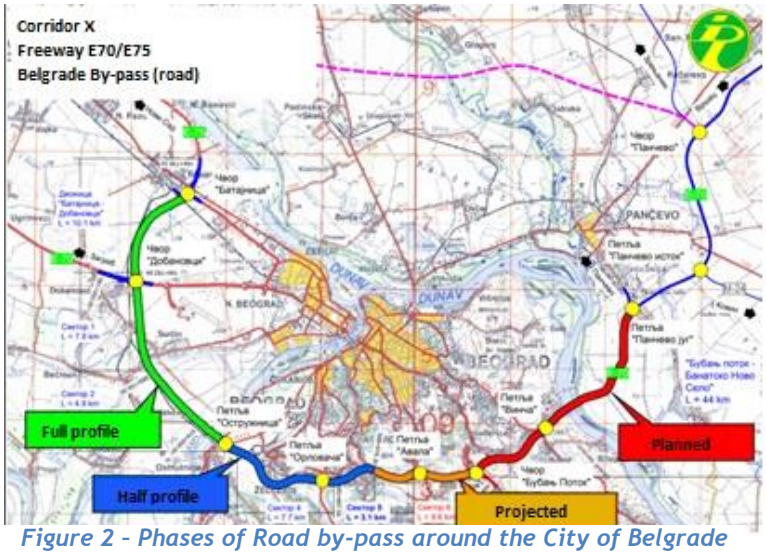

Figure 2 – Phases of Road by-pass around the City of Belgrade

Regarding the road network, entire by-pass is divided into several sectors, where sector A is fully completed, Sector B is projected and partly completed and the rest of by-pass, including the new bridge over the Danube River is in preparation phase. After completion of Sector A, the efforts for completion of entire Belgrade by-pass were slowed down, because the connectivity issue is

partly solved. Still, the quality, capacity and safety of existing Sector B is at very low level, causing the time lost and generating additional costs, directly to private sector and indirectly for the state and society.

Upgrading the Sector B from the ordinary road to the level of highway would speed-up the transport flows, increase the road safety and attract additional economic activity to Southern part of Belgrade area. Moreover, it would cut the time and costs for international and national transit flows, connecting south-east and north-west parts of Serbia and Europe further.

Moreover, the completion of entire by-pass around the Belgrade will allow a direct connection between the industry zone of the City of Pančevo at the left bank of Danube River, where Oil refinery, chemical industry and port of Danube are located, with the pan-EU corridor X, removing the heavy transport from the city centre of Belgrade.

Regarding the railway network, the issues are very similar to the road ones, where main problem is missing link at the south side of the city. Currently, freight flows from/to Pančevo industrial zone and further to Romanian border, going through the city centre through underground tunnels and urban area. The railway network of Belgrade node and locations of terminals and missing link is shown at following picture.

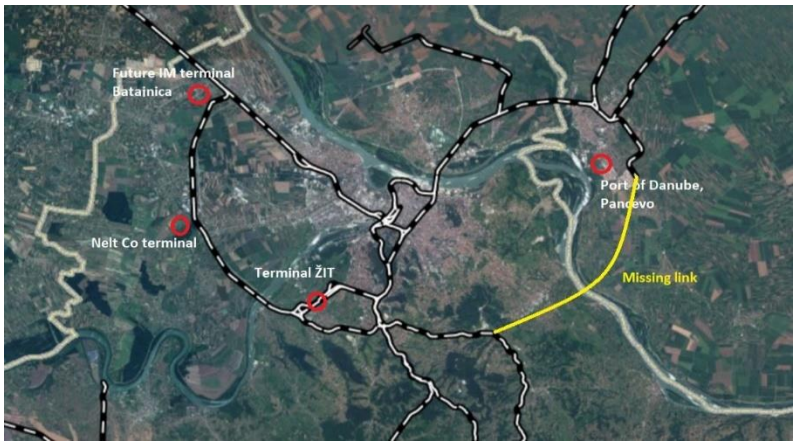

Figure 3 – Locations of intermodal terminals in relation to Railway Belgrade node network

By completion of the by-pass, connectivity issues of Route 4, connecting the road corridor through Romania and Hungary, road and railway corridor through Croatia-Serbia-North Macedonia-Greece, with Adriatic corridor and port of Bar, would be solved together with problems of freight flows through the urban area. The following map showing the main Corridors passing the Belgrade zone. The south-north connection, Route 4 is going through the urban area and construction of mentioned missing link is the key enabler for intermodality and solving freight transport in Belgrade area.

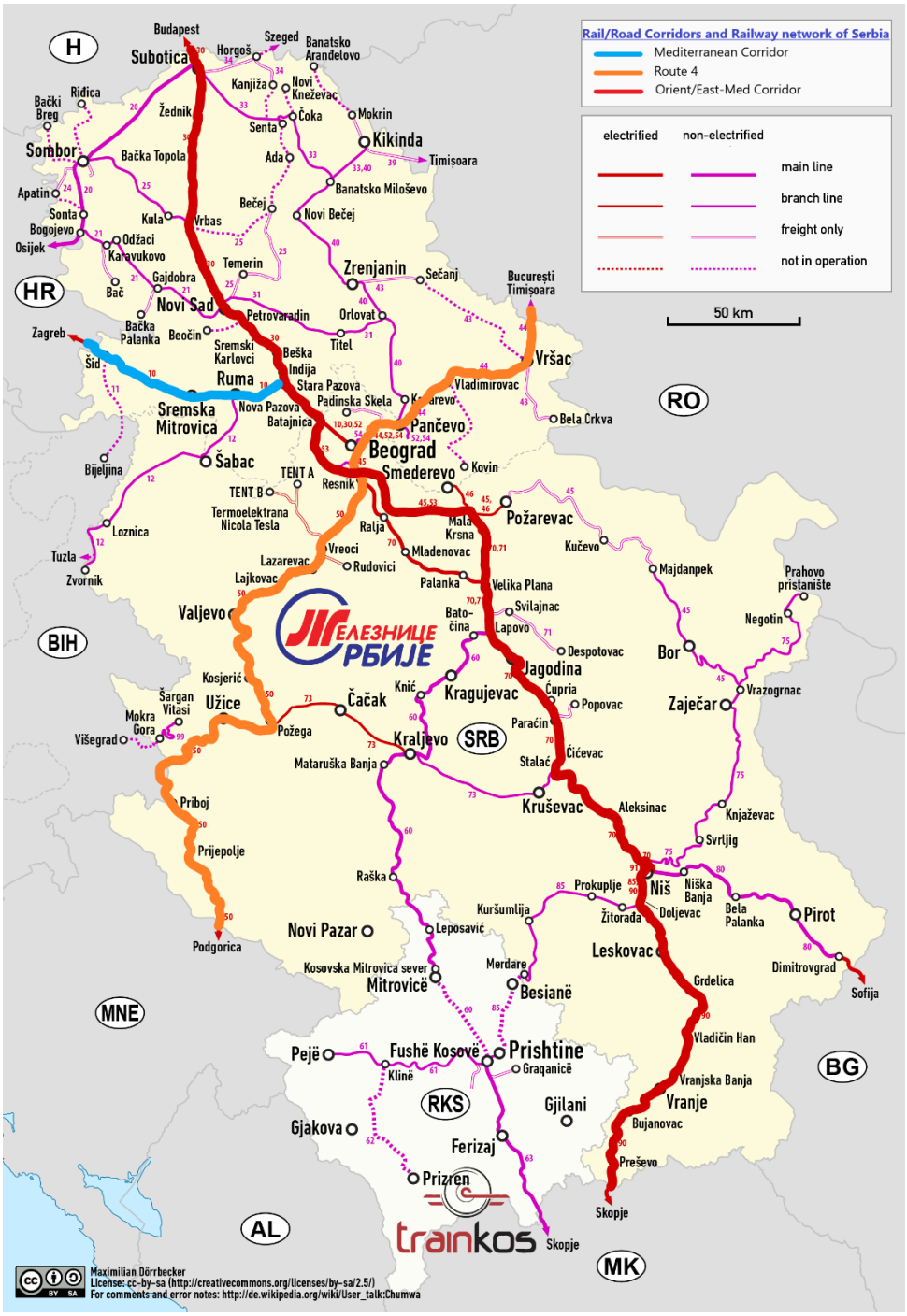

Figure 4 – Main freight Corridors and Railway network in Serbia

2.3.2. Action 2 – Construction of new Intermodal terminal "Batajnica"

Construction of new intermodal terminal at north-west side of the city of Belgrade, located near railway station "Batajnica" and near highway system connecting main brunches of Orient-East/Med corridor to Croatia and Hungary and Belgrade by-pass, is the project of national interest and importance not only for the city of Belgrade. This project was under preparation for several years and it came into construction phase during the drafting of this document.

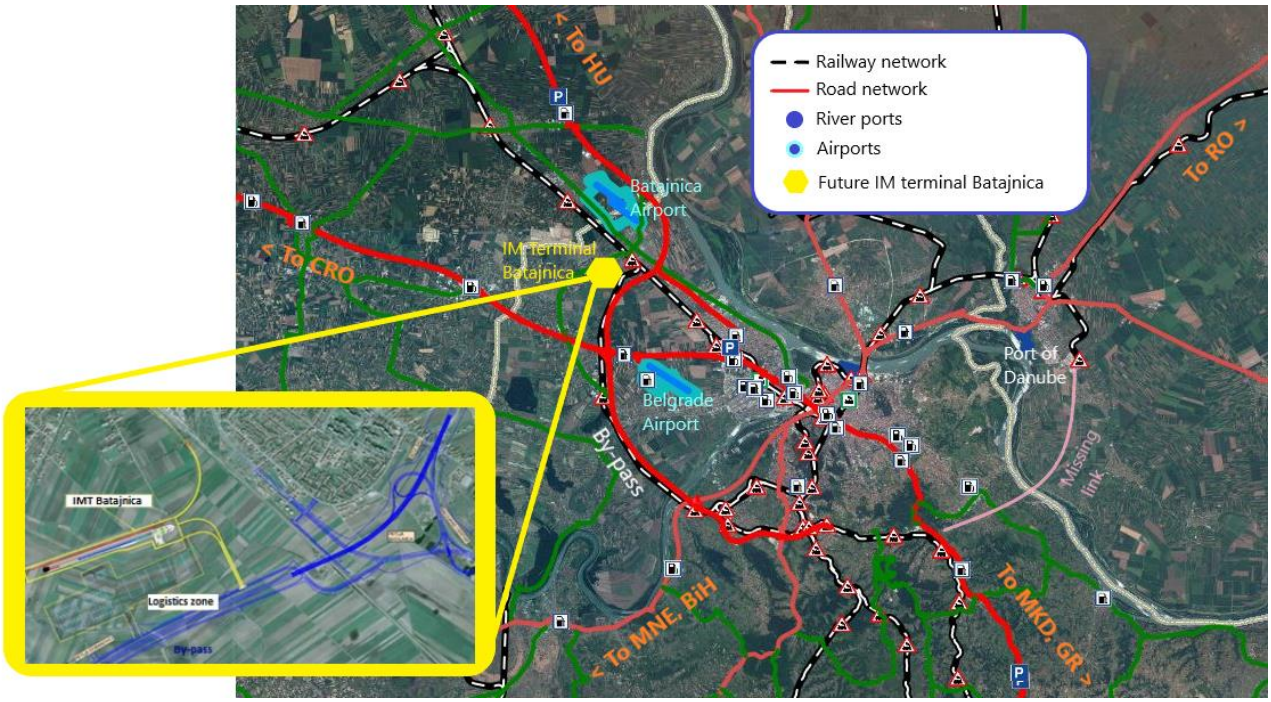

Figure 5 – Location of future Intermodal Terminal in Batajnica in relation to main Belgrade connections, with micro-location

The project and technical documentation was completed in period from 2014-2016, funded by direct help of European Commission of 2M Euro and Ministry of CTI. From 2016, the lack of funds, administrative issues and lack of political will slowed down the beginning of construction.

The project is conducting under the Government of Republic of Serbia – Ministry for Construction, Transport and Infrastructure and investor is Government of the City of Belgrade – Directorate for Construction Land and City development.

Intermodal terminal will have direct connection to road and railway Corridor 10, where railway connection will be reached by railway station "Batajnica" located nearby.

Total surface of the terminal is projected at 13 hectares.

The tender for Construction is completed in January 2020 and Contractor is STRABAG AG Austria.

Further development of the location is planned through the planned logistics centre at total surface of 85.5 hectares.

2.4 Aims

City of Belgrade is the capital and largest city of Serbia. It is located at the confluence of the Sava and Danube rivers and the crossroads of the Pannonian Plain and the Balkan Peninsula, but

also located at the crossroad of main rail and road corridors, connecting the east and west, north and south.

The aim of the actions presented is to complete the infrastructural missing links and enable direct and transit flows as well as to enable and introduce intermodality in full capacity for the City of Belgrade and wider area.

Following picture showing the position of Serbia and Belgrade within the TEN-T network and it's part extended to Western Balkan. Strongest economic and trade catchment area, as well as transport flows O/D point is also showed. The impact area of City of Belgrade as a capitol and center of industrial and trade activities is much wider, but in terms of direct supply we can say that area of 150-200 km is under strong dependency of Belgrade activities.

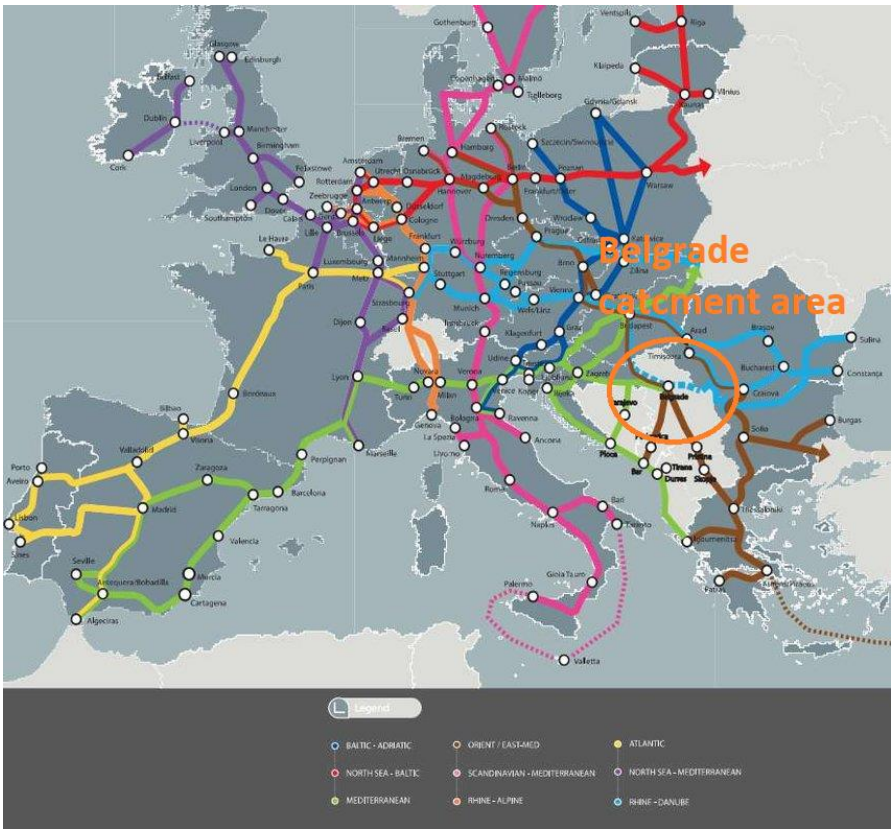

Figure 6 – Core TEN-T network with indicative extension to WB6 and position of Belgrade catchment area

At the moment, freight flows coming from/to Romanian border (Route 4) to existing terminals at south-west of the city, have to go through the city center. Moreover, flows from west and central Europe (from Croatia or Hungary – Corridor X) or from Adriatic sea (from Montenegro – Route 4) going to east (or vice versa) have to transit incomplete Belgrade junction or to drive through the city urban area. In that terms, it is crucial to complete the full capacity rail/road by-pass around the Belgrade and to enable intermodal transport on corridor connection positions. This will enable faster transnational freight flows, increase attraction of Belgrade as important transport node and improve connections to east and central Europe, creating the more competitive far hinterland for ADRION sea ports.

In general, aim is to complete connections of Orient-East/Med corridor's branches and Danube River, enabling the smooth transport flows across road, rail and IWW modes.

The positions of main intermodal terminals (existing and future) together with completion of missing parts of the by-pass should enable efficient transition of goods by different modes of transport, including local direct supply, national and international transport connectivity and

trade, avoiding the flows of road and railway freight transit through the urban zone of the Belgrade city.

Infrastructure missing links will also connect the locations of existing and future intermodal terminals, and together with construction of terminals should provide better access to logistics, industrial and trade zones around the city, but also to increase attraction of the Belgrade as investment destination, for domestic and foreign investors.

The last, by completing the missing link of by-pass, and construction the bridge on Danube River at the south side of the City, heavy freight transit through the city will be removed and connection of north-east and central Serbia established. In the current situation, all the freight from Banat (North of Serbia) to Central Serbia and vice versa, is moving over two bridges in the City. In addition, the dangerous goods on railway are transiting the Belgrade central area through tunnels under the city centre, which is potentially high risk for citizens in case of any incident.

At the end, setting the intermodal terminals around the City and completing the road/rail by-pass will enable faster transnational freight flows, increase attraction of Belgrade as important transport node and improve connections to east and central Europe, creating the more competitive hinterland for ADRION sea ports.

2.5 Problems faced during the implementation of the CAP

Regarding that from Local context analysis to Local Action Plan drafting period the competent authorities intensified the work on two detected bottlenecks – infrastructural projects, detection of main challenges was very clear. The main obstacle for implementation of actions was funding. It is not surprising, having in mind that transport infrastructure is expensive, especially for small economies such Serbian is.

Second issue which slowed down the implementation was unsolved land use and ownership issues which was the obstacle during expropriation of the land.

2.6 Timescale implementation

- Construction of Sector B of Belgrade by-pass: 1 to 3 years (2024)
- Project and construction of Sector C of Belgrade by-pass 4 to 6 years (2026)
- Construction of Intermodal Terminal “Batajnica” – contracted 30+12 months from January 2020 (2023)

2.7 Risk analysis

Main risks in construction of Sector B of Belgrade by-pass is lack of funding. Regarding that this Sector B is the part of EU TEN-T corridors, the lack of future traffic is not expected to be treated as significant risk.

For Sector C, from highway to the City of Pančevo, the main risks are delays in project documentation, lack of funding and possible land expropriation issues.

Regarding construction of Intermodal Terminal, main risk is related to market position of Terminal. Construction is started, but still it is not clear who will be the clients and how many services will be used. Also, next to the Intermodal Terminal it was planned construction of Logistics facilities, but this project is under preparation yet. The economic sustainability of the Intermodal Terminal should be ensured through long-term contract services and strategic positioning at the market, even before construction finalization in order to mitigate the economic risk.

2.8 Funding resources

Funding resources for construction of Sectors B and C of Belgrade by-pass are not defined. Several negotiation processes are conducting in parallel (from European funding mechanisms to possible different bilateral arrangements). Investment for three sections needed for completion of Sector B is estimated to around 200 million euro, while Sector C is in preparation. Knowing that Sector C will include the new road-railway bridge over the Danube River, the investment will be much higher.

Funding of Intermodal Terminal "Batajnica" is foreseen through IPA2015 and national Serbian budget. Total amount of investment is 18.4 million euro.

2.9 Impacts on bottlenecks

As mentioned above, Belgrade is located at road and railway Corridor X and river Corridor VII (TEN-T Orient-East/Med and Danube) and has problems with transit traffic, especially road freight and transport of dangerous goods. Currently, the highway ring (the by-pass) is under construction around the Belgrade, which aims to connect existing highways to Hungary, Croatia, North Macedonia, Bulgaria, and future highways to South-Adriatic and Romania (existing routes). Special issue for the City of Belgrade is road and railway freight traffic through the City Centre and over the Danube Bridge to City of Pančevo (north part of the country and industrial and agricultural zones).

By constructing the Belgrade by-pass to full extent, connections of existing and future highway and railway corridors through the country will be enabled as fast, safe and more environment friendly way of transport, as well as faster way for transit flows.

Construction of Intermodal Terminal "Batajnica" will represent the first fully operational and well connected Intermodal Terminal in Serbia. Even some intermodal facilities already exists, this facility will actually enable the use of containerized export activities, while current facilities are mostly focused to import of goods or bulk containers. The estimated current annual throughput of containers is 60-80.000, where over 80% are going out of Serbia empty. There are several issues to improve the intermodal transport in Serbia, but main precondition is Intermodal Terminal with logistics facilities where goods and transport related services can be organized, creating the market for new services and transport solutions.

2.10 CANVAS Action Plan (CAP)

Stakeholders involved	**Key actions**	**Aims**	**Problems faced**	**Timescale implementation**
Ministry of CTI City of Belgrade-Transport Secretariat Nelt Co. Ltd	Construction of Sectors B and C of Belgrade by-pass Construction of Intermodal Terminal "Batajnica"	Connection of three Corridors within the Trans-European Transport Network (TEN-t) – indicative extension to the Core Network Corridors Enabling the full scale intermodal transport in Serbia, focused to the Belgrade area	Funding sources Land expropriation	Long term (3 to 5 years) Medium term (1 to 3 years)
Funding sources		**Risk analysis**		
National budget IPA Bilateral arrangements		Lack of funds Administrative issues Market and economic sustainability		

Table 1 - CANVAS Action Plan (CAP) for infrastructural cluster

3 Innovation/institutional CLUSTER

3.1 Introduction (and goals)

Through the Local context analysis, the low innovation content in the services provided was identified as main general bottleneck in the area of innovations and implementation of new technologies.

Fast changing environment and fast development of technology in the area of communication, digitalization and consequently new services and business models characterizing today's world, especially visible in the area of transport and logistics, where the need of right, accurate and fast information is the crucial requirement and highlighted element of competitiveness.

To overcome the identified bottleneck, it is not enough only to push the efforts or investments into the new technologies, but some preconditions have to be achieved.

Two main preconditions for higher level of innovation content in transport and logistics services, identified through local context analysis and consultations with stakeholders, are:

- Legal framework and standardization of digital communication
- Gap of employees' skills in technological innovation

In that terms, creating the legal framework and improving standardization of digital communication, and overcoming the gap in employee's skills in technological innovation, are two main proposed actions, focused on creation and enhancement of environment for implementation of innovative solutions.

For that reason, the proposed actions could be characterized as innovation, but also as institutional, regarding that legal framework creation is essential task.

Main objectives of proposed actions are to set the general preconditions for further development and implementation of innovative solutions, but also for certain existing systems which are already implemented and in use within European Union framework or wider.

3.2 Stakeholders involved

Stakeholders actively involved are:

- Ministry of construction, transport and infrastructure of Republic of Serbia, Department for Railway and intermodal transport
- Private Company Nelt Co. Ltd, Belgrade – Logistics provider
- Free Zone Pirot, Pirot
- Associated Partner – Faculty of Transport and Traffic Engineering, University of Belgrade

Stakeholders who were informed, partly involved, and occasionally consulted are:

- Transport Secretariat of City of Belgrade – local authority
- Serbia Cargo, AD, Belgrade – national railway operator
- Railway Integrated transport (ŽIT) doo, Belgrade – state owned intermodal terminal
- Milšped doo, Belgrade – private logistics provider

- European Contract Logistics Serbia doo, Belgrade – private freight forwarder
- RALU doo, Belgrade – private operator in road transport
- Office Ivanovic, Belgrade – consulting, experts

Comparing to Infrastructural actions, there was no special meetings held on this topic. Several consultations by phone and online communication tools were conducted during period March-April 2020.

3.3 Key Actions

3.3.1 Action 1 – Creating the legal framework and standardization for digital communication related to transport and logistics

Even the title of the action is more general, the action is proposed more as demand to competent authorities to adopt certain specific transport-related legal framework as the precondition for implementation of certain solutions.

What was identified during consultations with stakeholders, directly related to trade and transport facilitation, which have to be adopted by government decisions:

- eCMR - Ratification of second additional protocol to UNECE CMR convention have to be initiated. In February 2008 an additional e-protocol was added to the CMR convention, which entered into force in June 2011. The e-protocol provides a legal framework and standards for the use of electronic means to record the CMR consignment note. At the moment of drafting this LAP, 27 countries ratified this protocol, but not the Serbia. Out of ADRION participants, only Slovenia ratified it.
- Single window - Establishing the necessary legal environment is a pre-requisite for Single Window implementation. Related laws and legal restrictions must be identified and carefully analysed. For example, changes in legislation are required in order to facilitate electronic data submission/exchange and/ or an electronic signature system. Restrictions concerning the sharing of information among authorities and agencies, as well as organisational arrangements for the operation of a Single Window, need to be overcome. Finally, setting the lead agency and the legal issues related to delegating power and authority to a lead agency need to be adopted through legal framework.

3.3.2. Action 2 – Improving the educational standards in the area of digital communication and new technologies skills

For private sector, large companies and corporations mostly found the way to train their employees, by internal trainings or by outsourced trainings. However, those trainings are mostly focused on specific implemented solutions or general trainings for standard tools (e.g. Office, Internet, Operating Systems etc.).

Proposed action is to introduce the education module in formal and unformal education system which would be dedicated to specific educational programmes in transport and Logistics area. Educational module should be focused on Information flows in transport and logistics and specific electronic transport documents and systems supporting the digital data exchange and digital communication along transport and logistics chains.

To achieve mentioned, the following tasks should be completed:

- Adoption of formal educational system, according to European Qualification Framework (EQF):
    - Review of Key Competences related to new technologies
    - Improve the standards for digital skills
    - Revision of the Serbian Qualification Framework
- Including the digital skills development into the certain formal educational programmes at high school and university level, related to transport and logistics needs, focusing on
    - Electronic transport documents – practical use
    - Telematics systems – practical use
    - Data collection, processing and reporting – practical use
- At Vocational Education and Training (VET) level
    - Introducing the training modules related to specific needs of transport and logistics sector and VET certification system which will be recognized by private and public sector equally
    - Setting the standards and requirements for e-Learning in order to be accepted and recognized equally as conventional method of learning, at least for programmes and modules related to digital skills in transport and logistics sector (e.g. FIATA training programme for freight forwarders)

3.4 Aims

A Single Window can lead to a better combination of existing governmental systems and processes, while at the same time promoting a more open and facilitative approach to the way in which governments operate and communicate with business.

Benefits for government

- More effective and efficient deployment of resources
- Correct (and often increased) revenue yield
- Improved trader compliance
- Enhanced security
- Increased integrity and transparency

The main benefit for the trading community is that a Single Window can provide the trader with a single point for the one-time submission of all required information and documentation to all governmental agencies involved in export, import or transit procedures.

Benefits for trade

- Cutting costs through reducing delays
- Faster clearance and release
- Predictable application and explanation of rules

- More effective and efficient deployment of resources
- Increased transparency

On the other hand, overcoming the gap in employee's skills in innovation technology use is the long lasting process which is already defined within formal education system. However, existing employees needs to be additionally trained. There are two main groups of employees, those who work in private sector and officials and staff in public sector.

What was identified, there is no systematic trainings for the transport and logistics solutions which would give the background to employees to understand the benefits for them self, for the company and the authorities and agencies and particularly to establish the foundation in terms of information security, corporate security and application of standards and recommendations.

In that terms, standardized and systematic Vocational Education and Trainings should be established through recognized VET certification.

3.5 Problems faced during the implementation of the CAP

Enabling the higher level of innovative content in services have to be conducted as harmonized at international level. One of the main problems in implementation of new technologies is very heterogenic structure and numerous different solutions and platforms for development, causing incompatibility. Low standardization level and common legal framework are characteristics of fast growing digital industry. On the other side, one of the requirements for transport and logistics material and information flows is interoperability of infrastructure and international data exchange.

In terms of achieving the set of actions, problems foreseen and faced are mostly related to political will and efficiency of competent authorities. For that reason, capacity building of institutions which are responsible for creation and improvement of legal framework, is needed.

Lack of dedicated projects which will enable communication between private and public sector and determine and update the needs and incorporate the findings into legal solutions.

3.6 Timescale implementation

Determining the timescale or time horizon for actions related to new technologies and fast changing environment is not the essential. The only right approach in this terms is continuous improvement, where initial basis should be updated at least on annual basis.

The period for creation legal framework as basic foundation is one year. Everything beyond that can be treated as late, because demands and requirements will be aged due to new solutions which will come meanwhile.

3.7 Risk analysis

Risk for failure of proposed actions is manly related to following characteristics of public sector and competent authorities:

- Lack of political will
- Lack of capacities of personnel at competent authorities

- Lack of funds for specific projects

3.8 Funding resources

To implement proposed actions, the funding resources are required only to staff costs of competent authorities and amounts shouldn't be significant.

Sources of funding should be national budget and EU funds.

3.9 Impacts on bottlenecks

As it was mentioned in introduction, the main bottleneck detected through Local context analysis is low innovation content in transport and logistics services. To start introducing innovative solutions in proper and standardized way, two preconditions are identified – setting the legal framework and overcoming the gap in employee's skills in innovative technologies.

The proposed actions should contribute to enabling the faster and more effective implementation of innovative technologies and new solutions based on digitalization and communication, and integration with existing transport and logistics services as well as creation of new business models and services.

3.10 CANVAS Action Plan (CAP)

Stakeholders involved	**Key actions**	**Aims**	**Problems faced**	**Timescale implementation**
Ministry of CTI City of Belgrade-Transport Secretariat Nelt Co. Ltd Free Zone Pirot	Creating the legal framework and standardization for digital communication related to transport and logistics Improving the educational standards in the area of digital communication and new technologies skills	Enabling the implementation of new and innovative technologies	Low standardization level Numerous different platforms Incompatible solutions	One to two years (2022)
Funding sources National budget / EU funds		**Risk analysis** Lack of political will Lack of funds Capacity building		

Table 2 - CANVAS Action Plan (CAP) for innovative/institutional cluster

4 CONCLUSIONS

Guided by Local Context Analysis, where numerous different bottlenecks were detected across 5 different aspects or clusters, the actions selected to be proposed within action plan are focused on measures for enabling the improvement of transport and logistics sector.

The aim of the actions presented raised from the fact that upgrading and improving the transport and logistics sector requires good foundations and preconditions: infrastructure, legal framework and knowledge.

Regarding that CCIS is the only partner who is not dealing directly with certain ADRION sea Port, but with whole national transport system of the country of Serbia, which represents a major hinterland and connection node for the ADRION ports, this action plan aims to bring a substantial contribution to strategic decisions at national and regional level in terms of priorities.

Within the ISTEN activities, the focus was set on area of City of Belgrade as the most active area in terms of economics and trade and highest number of population.

Having in mind that ISTEN is related to efficient network at first place, focus of actions was set to infrastructure network and facilities enabling better connections and intermodality through actions focused on enabling innovative content in transport and logistics services, where data exchange and digital communication were prioritized in terms of efficiency.

The first group of actions is set to infrastructure, where among number of bottlenecks, the priority was set to finalization of core corridors network by construction of missing link of Belgrade by-pass. The construction of Road and Railway routes together with new bridge over the Danube River on south side of the City will provide several benefits:

- At transnational regional level, better connection of Core Corridors (Orient/East-Med corridor, Route 4 and River of Danube) which will enable faster and reliable fright flows from Central and West Europe to the East, connection of ADRION ports to Central Europe and transverse connection of three parallel corridors going from west and central Europe to south-east (Corridor IV, Corridor X and Adriatic route – from Romania to Montenegro). This will enable the Serbia and Belgrade region to become one of the main transport nodes in connecting Ionian-Adriatic and Danube Regions.
- At national and regional level, by completing the by-pass, locations of existing and future intermodal terminals will be connected by road, railway and IWW transport network, which will together with construction of new intermodal terminal in Batajnica, enable better utilization of intermodal transport
- At local level, by completing of by-pass, the transversal freight flows from north to south will avoid transiting through Belgrade urban area and enable more efficient distribution of goods.

The actions defined in this LAP as priority measures are also recognized by national strategic documents and regional transport strategies and plans, such are Transport Community MAPs (Multi-Annual Plans) relied on TEN-T indicative extension to Western Balkan 6 participants and belonging to Core Corridor network of the region.

On the other side, the focus of regional and EU strategic transport documents is set to higher share of railway transport and improvement of intermodal transport solutions, but not only through infrastructure measures but more by “soft” measures, including organizational,

administrative and legal actions as well as innovations and implementations of solutions using new technologies.

In order to enable effective and efficient implementation of such innovative IT measures, it is recognized that legal framework and education (at development and user level) should be improved and enabled through adoption of certain legal instruments and improvement of educational system, especially the part related to Vocational education and Training.

The expected benefits of proposed actions can be monitored through several indicators:

- Expected increase of traffic volume on Belgrade by-pass and decrease of freight traffic through the Belgrade urban area,
- Expected acceleration of freight traffic flows, especially regional transit flows,
- Expected increase of intermodal transport, monitored through number of TEU throughput in Serbia,
- Expected higher number and increased efficiency of logistics services, including new services,
- Expected improvements in intermodal and multimodal services monitored through share of empty containers runs,
- Expected higher attraction of Belgrade transport node at regional level, including function of far hinterland integrated hub to ADRION sea ports.