

# D.T2.2.8

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Evaluation Report:

Pilot Activity 4

05.2020

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The document shows the process and results of the pilot activity, achievements as well as deviations in order to fulfil the SUBNODES pilot action in Central Slovenia region.

## 1. Pilot Activity

In order to improve public passenger transport services, useful intermodal passenger information are offered at regional passenger intermodal points through installed smart interactive displays. The pilot includes also IT integration of public passenger transport information and other data that are demonstrated on displays, such as: live train and bus arrivals, info on integrated timetables (bus, train), transport and mobility related information, weather information and other useful data.

There were two intermodal displays installed within SUBNODES pilot 4 project.

Smart intermodal displays, demonstrated within the project will attract new passengers and contribute to better connection of regions and consequently make mobility more sustainable.

Intermodal displays were installed at two SUBNODES locations and test areas: Grosuplje and Škofljica.

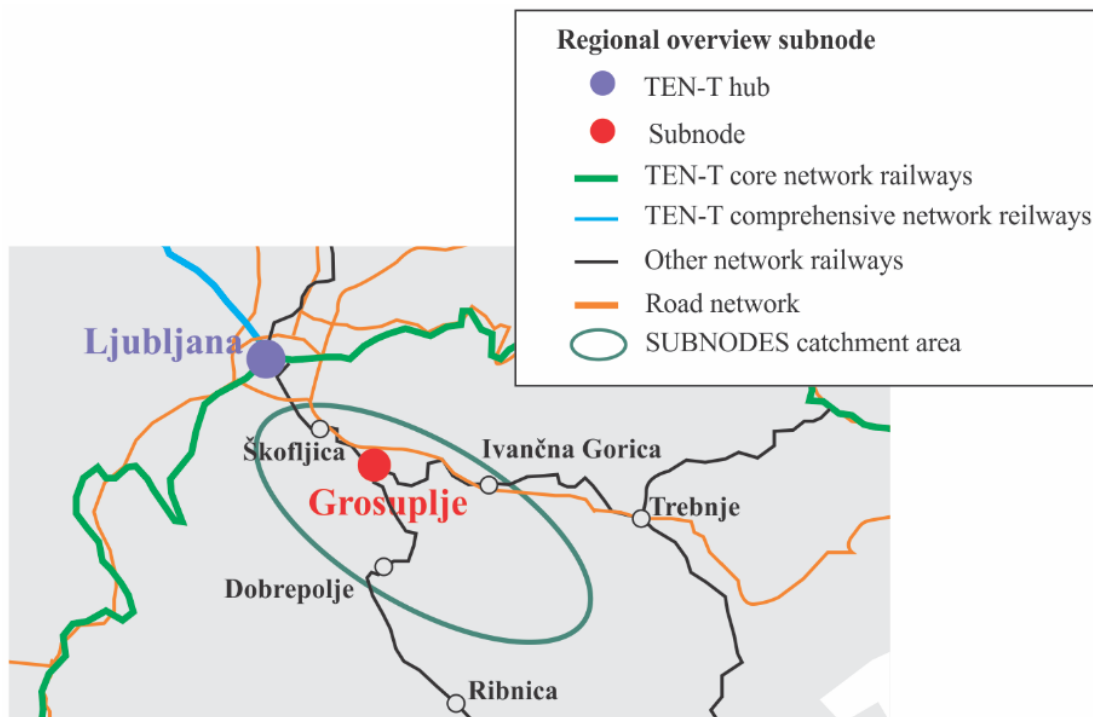


Figure 1: Map with regional overview of pilot project with main sub-node Grosuplje connecting TEN-T hub Ljubljana

Main TEN-T hub in Slovenia is Ljubljana, the capital and centre of the Central Slovenia region (NUTS 3). Catchment area - the main sub-node, confirmed by project partners, is Grosuplje which is a medium-sized municipality located on the south-eastern edge of Ljubljana. It is known for its rich cultural and historical heritage and as a developed craft and industrial city. The town



Grosuplje is today a centre of Municipality and an administrative, economic and transport centre.

Grosuplje is connected with Ljubljana (TEN-T hub) via bus and train (public transport). The journey to Ljubljana by public transport takes approximately 30 min.

## 2. Process

According to main aims, targets and objectives in autumn 2018 the pilot action was defined in detail. The main goal of pilot is improvement of public passenger transport services with useful intermodal passenger information that will be offered at regional passenger intermodal points through installed smart interactive intermodal displays.

Project partner (PROM) made a research of state of the art technologies on offering intermodal information to passengers, taking into account latest technologies implemented in other cities/regions in Europe.

Initially, there were more displays planned for this pilot, but through in-depth technology research it was later realized that the costs within budget planned for the pilot are enough for 2 displays and data integrations. Two most suitable locations were selected; Grosuplje wick was selected and confirmed by project consortium as a main node, and Škofljica, which is directly connected with the Municipality of Ljubljana (TEN-T node).

The pilot includes also IT integration of public passenger transport data and other data that are demonstrated on displays, such as: info on integrated timetables (bus, train), weather information, and other transport related information.

PROM started with tendering procedure in spring 2019, the service contract was signed in May 2019 with selected company for intermodal displays and data integration.

After signing the service contract the meetings with relevant stakeholders were held. The main stakeholders were PT data providers - Slovenian Railways and Ljubljana City Public Transport Company (LPP). They provided relevant data on real-time bus and train arrivals. Train arrivals data were not compatible and were modified by Slovenian Railways and selected service provider (Netko d.o.o.).

First test demonstration of first smart display was demonstrated in June 2019 in Grosuplje. The full pilot implementation was long term process, needed a lot of time and a lot problems to solve, mainly with data integration, data availability and design. During the following months new functionalities were added (real time arrivals of intercity buses, information on public and other transport, weather information, improved design, tourist information,..).

Tendering, delivery and installation of intermodal displays (hardware) was in line with time plan from the Pilot launch report document and was finished by June 2019.

On the other hand there were some delays with IT integration of public transport data in smart interactive displays and screen design. The data have been only integrated by the end of July for city buses and trains, but not for intercity buses.

The reasons for delay were the following:

- delay in data integration of intercity buses - the modification of API was needed and took more time,
- more time for data acquisition, system testing and for touch screen calibration,
- delay in obtaining data on additional functionalities,
- more time for final screen design.

The main event on pilot was held in March 2020 where the main stakeholders were invited at the locations of both pilots with the presence of media, where also Slovenian national television (RTV) was presented.

### 3. Output

The outputs of the pilot activity are two intermodal displays with the following functionalities:

- public passenger transport timetables,
- real time bus arrivals (city and intercity buses),
- real time train arrivals,
- information on public transport offer,
- QR codes for additional information,
- other useful information: news, weather information, tourist information.



Figure 2: SUBNODES intermodal smart display in Grosuplje



15:02
Grosuplje torek 02.06.2020

**Grosuplje**  
torek, 14:00

**23 °C**  
Vetar: 6 km/h  
Vlaga: 39%

Jutri	Četrtek	Petek	Sobota	Nedelja	Ponedeljek	Torek	Sreda
24 °C 12 km/h	22 °C 14 km/h	18 °C 18 km/h	19 °C 10 km/h	21 °C 19 km/h	20 °C 11 km/h	20 °C 11 km/h	22 °C 14 km/h

PRIHODI
TURIZEM
NOVICE
DOGODKI

**AVTOBUS**

Zadnja posodobitev: 02.06.2020 15:02

Linija	Relacija	Predviden prihod / odhod
90	BEŽIGRAD - GROSUPLJE	1 min
78	Ljubljana - AC - Grosuplje - Videm	10 min
78	Ljubljana - AC - Grosuplje - Videm	22 min
71	Grosuplje - Luča na Sali - Grosuplje	23 min
90	BEŽIGRAD - GROSUPLJE	26 min
72	Grosuplje - Peč - Polca	33 min
90	BEŽIGRAD - GROSUPLJE	43 min
69	Ljubljana AC - Grosuplje - Ivančna Gorica - Šentvid pri Stični - Temešnica	51 min

**VOZNI RED** klikni

**VLAK**

Zadnja posodobitev: 02.06.2020 15:02

Vlak	Relacija	Predviden prihod	Zamuja
3219	Ljubljana - Novo mesto Šiškef	Prigel	0 min
3216	Novo mesto Šiškef - Ljubljana	35 min	0 min
603	Ljubljana - Metlika	41 min	0 min
3217	Ljubljana - Novo mesto Šiškef	1h 10 min	0 min
609	Ljubljana - Novo mesto	1h 54 min	0 min
3295	Ljubljana - Ivančna Gorica	2h 17 min	0 min
3214	Metlika - Ljubljana	2h 21 min	0 min
3223	Ljubljana - Metlika	2h 46 min	0 min

**VOZNI RED** klikni

\* Sistem je še v fazi testiranja. Podatki so lahko netačni.

**Naslednja postaja...**

Zagreb / 9€	Ljubljana Trst / 15,40€	Minchen / 29€
Opotza / 19€	Bregovci / 29€	Frankfurt / 49€
Pulj / 19€	Budimpešta / 18€	Zarich / 29,90€
Trst / 18€	Dunaj / 29€	Praga / 39€

Interreg CENTRAL EUROPE Investicija sofinancira Interreg program Srednja Evropa v okviru projekta "SUBNODES". Projekt se osredotoča na povečanje glavnih TEN-T transportnih vozlišč (Ljubljana, Maribor) z lokalnimi

Figure 3: Detailed view of SUBNODES display information

Main finding of the pilot action, based also on the performed users' survey (passengers), is better use of public passenger transport which was also the main expectation of the project.

There was also a good acceptance of other stakeholders.



## 4. Objectives

Better quality of services is demonstrated through SUBNODES smart intermodal displays, installed within the project. The modern technology attracts new customers/passengers and contributes to better connection of regions and consequently make mobility more sustainable.

According to typology the pilot fits with two types of measures:

- Type C - service, integration and improvements: Integrated transport, information, communication, rapid transit
- Type D - digitalisation: data-management, real-time information, system architecture

Public passenger transport data and information were integrated, including public rail and bus transport, where timetables, delays, and other transport data were included (Type C measure). Through developed system architecture and proper public passenger transport data-management, real-time information for passengers will be demonstrated at the passengers' stations through smart intermodal displays (Type D measure).

The pilot was monitored and evaluated by customers' satisfaction.

Main objectives were achieved. This was shown also through a short evaluation survey by questionnaires (see chapter 5) where very positive feedback from users (passengers) was received. Good acceptance was also from other stakeholders (Municipalities, Region, Transport service providers).

The implemented measures raise awareness and encourage other stakeholders in region and wider (public passenger operators, local authorities, Ministry...) to improve the quality of passenger transport service in the same way.

## 5. Internal & external evaluation

The project was successfully implemented in terms of time and quality. Objectives and measures were meaningfully defined and could be processed largely according to plans and specifications.

There was a lively exchange of information and experience with various stakeholders, which contributed to a successful conclusion of the pilot activity. Information such as comments from project partners were taken into account.

### Internal assessment

Remarks of the pilot collected from Peer Review participants:

- pilot project exhibits interchange nodes for the transfer between different services including private transport (constructional integration)

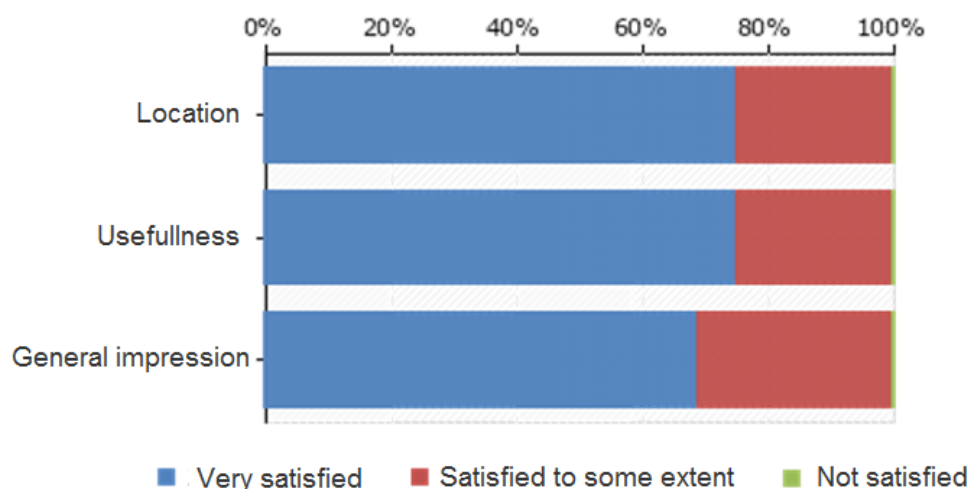


- actions taken are based on identified bottlenecks and weak spots (to avoid congestion on roads near Ljubljana with using PT (a lot of daily commuters))
- actions taken are appropriate for qualifying or improving the respective sub-node as intermodal transport hub (many people commute every day from selected “SUBNODES” to Ljubljana)
- actions taken serve to exploit accessibility gains of TEN-T in this respective regional hinterland
- actions taken are to some extent appropriate to really canvass new passengers (new information regarding real time, not new connections, no integrations between bus and trains timetables)
- actions taken are to some extent capable of better responding to passengers’ needs
- the pilot action demonstrates an innovative solution which is attractive for Pt users and other stakeholders
- the close joint work with stakeholders is important. The approach should be continued.

### External assessment (user’s/passenger’s survey)

There was a survey conducted by PROM, where feedback was received directly from end-users - passengers using PT services and experiences SUBNODES intermodal displays. The survey was made in spring 2020. The analysed questions from performed survey are presented below.

Q1: How are you satisfied with SUBNODES smart intermodal display with live information of PT arrivals? (n = 16)

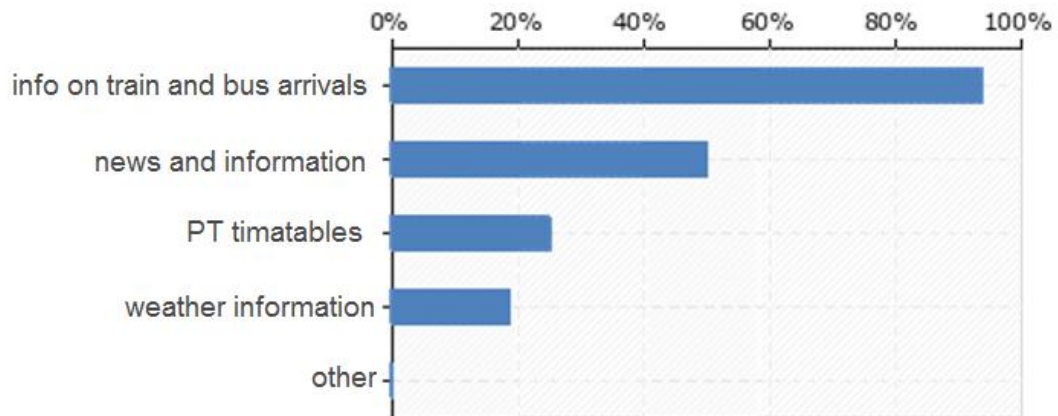


The majority of PT users were satisfied with SUBNODES intermodal displays for all categories asked - Q1 (location, usefulness and general impression).



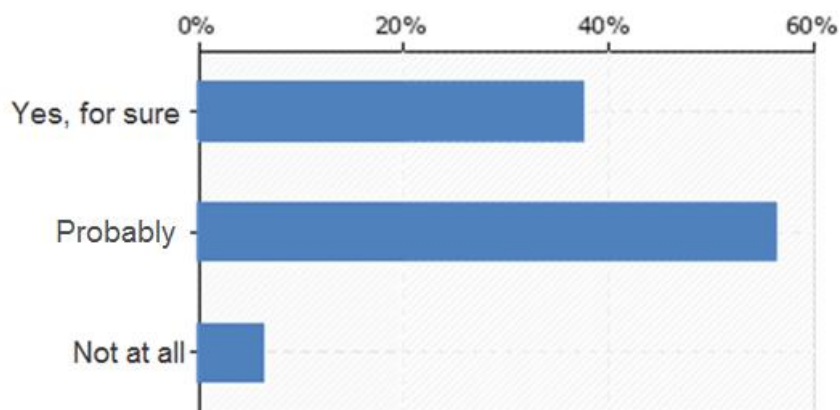


Q2: For what purposes will you most often use the SUBNODES display  
(max. two answers possible)? (n = 16)



The smart displays will be most often used for real time train and bus arrivals (more than 90% of users) - which was the main purpose of the pilot - integrated real-time information; a half of users for news and information, 25 % for timetables and around 20 % for weather information.

Q3: Would you use PT more often due to the higher quality of services (new smart displays, etc.)? (n = 16)



The key message from the survey is the fact that the majority of the respondents - PT users would more often use PT services due to the higher quality of services such as SUBNODES smart displays - Q3 (94% would probably or for sure more often use PT).



## 6. Obstacles and Success factors

Obstacles and success factors experienced within pilot activities are outlined below.

Obstacles:

- Since this is first integration of public passenger information in Slovenia there were some obstacles and problems, mainly with complex data integration, but thanks to the high interest, transport operators (data owners) were willing to help in data integration (provided very good technical support)
- Lack of experience by all stakeholders, since this was the first time that live PT data were integrated, but this risk was successfully mitigated and the goals were successfully achieved.

Success factors

- The continuous close cooperation and the involvement of various stakeholders enabled successful implementation of the pilot action - good presentation of pilot goals and benefits for stakeholders was important.
- The close communication with political stakeholders was very important; mayors highly supported the pilot action.
- The pilot action demonstrates an innovative solution which is attractive for PT users and other stakeholders,
- The development of a concept will have a high long-term effect on other municipalities/regions to implement the same measures in other locations.

## 7. Conclusion

According to the pilot action plan the main goals were achieved. It was demonstrated a new technology in order provide integrated PT passenger information in one place and attract new passengers.

This was achieved at two locations, Municipalities of Grosuplje (main sub-node) and Škofljica. PT passengers information was successfully integrated (real-time bus/train arrivals), including information on timetables. Also other useful information is offered (news, weather information, etc.)

Although there were some difficulties in data integration (which was expected since this was a novelty in Slovenia) the final results were successful. Also the continuous close cooperation and the involvement of various stakeholders enabled successful implementation of the pilot action.

The acceptance of all stakeholders was very positive. Also a regional campaign was made to promote innovative integrated public passenger transport solution.

A successfully implemented pilot is a good opportunity for other municipalities/regions to implement the same or similar measures for improving integrated public passenger transport.