TOOLBOX

DELIVERABLE D.T3.2.1

TRANSNATIONAL TOOLBOX FOR IMPROVING REGIONAL AND CROSS-BORDER RAILWAY AND PUBLIC TRANSPORT CONNECTIONS IN CENTRAL EUROPE

Version 0.5

112019

1. Background

ABOUT THE PROJECT

CONNECT2CE project has worked on analysis of the current situation of Central Europe peripheral and cross-border accessibility to regional/national/European networks and hubs in order **to provide tools and toolboxes to help decision makers take the measures and prepare specific projects for gradual improvement of the situation**. A role of decision makers can be taken by any entity, authorised for improvement of cross-border public transport, i.e. public authority, transport agency or transport operator.

The aim of transnational toolboxes is to facilitate improvement of peripheral and cross-border accessibility in Central Europe to regional, national and European networks and hubs.

The objective of the transnational toolboxes is **to provide practical guidance** for public authorities and passenger transport operators **for implementation of measures to improve public transport in the area**.

Objective of transnational tools is to provide the user with identification of different options when strategically planning improvement of cross-border public transport connectivity and suggestions to choose among them (**WHAT TO DO**). The tools are available on EUSurvey web platform:

https://ec.europa.eu/eusurvey/runner/CONNECT2CE_Transnational_tool.

The toolbox gives the user practical guidelines on implementation of improvement system or service in cross-border public transport – **HOW TO DO a project implementation plan**.

2. Toolbox structure

Three different Toolboxes are implemented, to cover the three main topics addressed by CONNECT2CE:

*Toolbox for improving **regional and cross-border railway and public transport connections** in Central Europe*	*Toolbox for applying **multimodal integrated tariff schemes and ticketing** in Centrral Europe*	*Toolbox for implementing **info-mobility systems** in Central Europe*

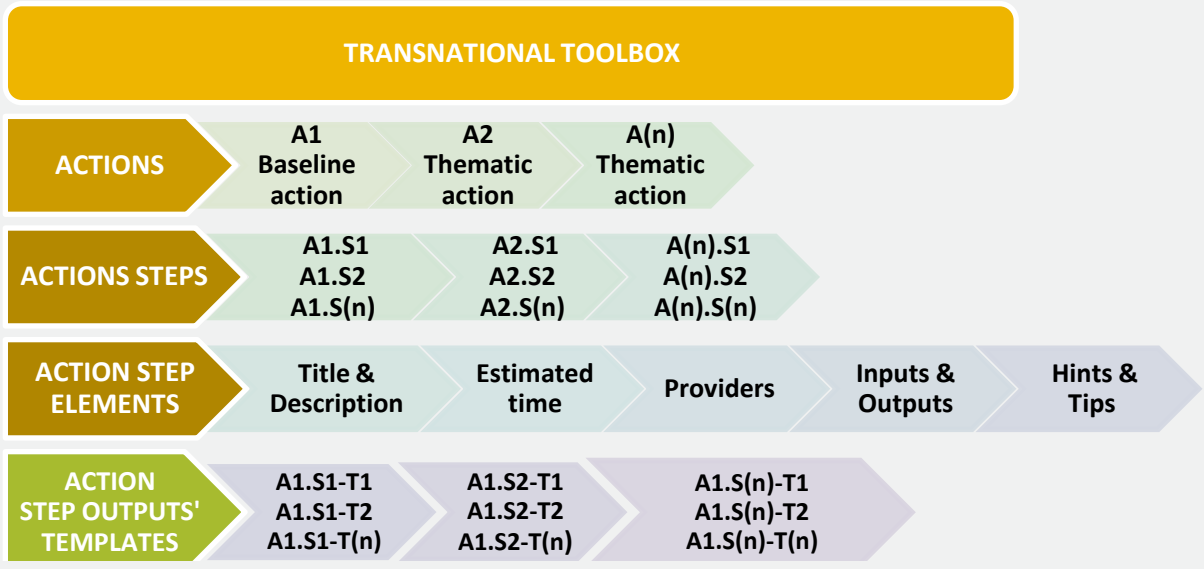
Both, tools and toolboxes together form an aggregated transnational toolbox that answers both questions – **WHAT AND HOW to implement** when taking **measures for improvement of peripheral and cross-border transport accessibility**.

The toolbox is composed of **toolbox actions**. Each action is further **divided to several steps**, related to the thematic field of the particular toolbox. **Toolbox steps** are actually suggested activities for completing the toolbox actions. A particular focus is cast to a **"Project implementation risks assessment" step** for being a **baseline step** to be taken before starting implementation any thematic project activity.

Normally, the **steps** need to be taken in accordance with the time plan but they **can** still **be regarded and implemented independently** taking into consideration of the level of the already implemented integration steps (activities). For implementation of the action **not always all steps are necessary to take**.

The **toolbox is composed of three sections**:

- **toolbox outline**; giving overview of the toolbox (List of contents),
- **description of actions and steps**,
- **tables of contents** and descriptions of output documents; the **templates for all steps** are collected **in the appendix**.



3. Project risks assessment

A particular focus is cast to a **"Project implementation risks assessment" step** for being a **baseline step** to be taken before starting implementation any thematic project activity. This deals with the assessment of risks and barriers that can substantially affect feasibility of implementation of a cross-border project and identification of measures for risks mitigation. Risks and barriers to harmonisation of multimodal cross-border public transport systems and facilities are usually similar for the entire Central Europe area.

To tackle such risks and barriers, it is important to **identify differences on each side of the border** that can represent obstacle for implementation in terms of e.g.: funding of public transport systems, responsibilities of transport authorities (national, regional level), tendering procedures and practices, development planning horizons (e.g. 15 years strategic planning horizon in Germany), commitment to bilateral agreements, technical backgrounds and existing solutions, organisational backgrounds, cultural characteristics, availability of financial resources etc. **Good practices** from other cross-border projects and experiences from previous cooperation in this cross-border area should be taken into consideration.

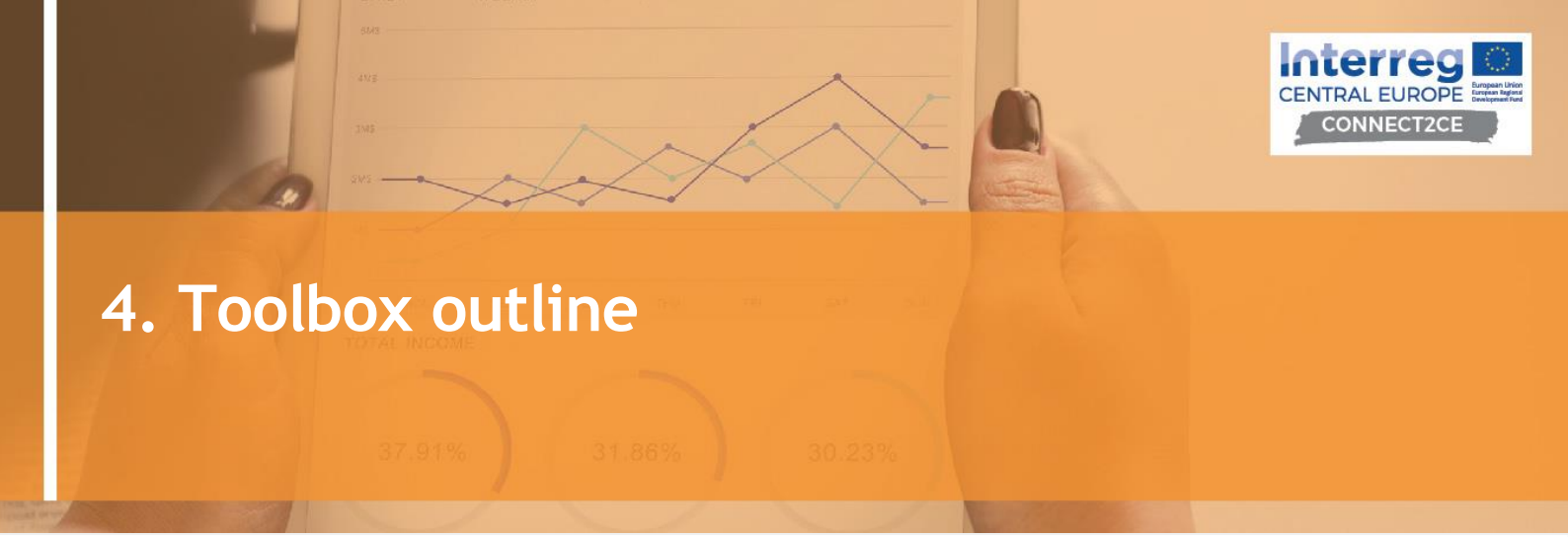
The **responsible actors** of such process are the project ordering authority or the appointed project research team, while transport operators and authorised public transport entities from the area are the **involved actors**. **Data** such as technical, social, organisational, legal environment data at cross-border transport area are needed for this process and can be obtained from **sources** as: transport authorities, transport operators, social contacts, reference projects, formal and informal initiatives, letter of intent, international agreements, national/local strategies, legislation and organisational acts on public transport, financial sources and funding schemes, etc.

The main **outputs** are the **Project implementation risks management plan** and the **Risk management table:**

Identified Risk	Probability of a risk (points) *Low = 1 point* *Medium = 2 points* *High = 3 points*	Possible risk impact (points) *Low = 1 point* *Medium = 2 points* *High = 3 points*	Risk assessment (points)	Risk mitigation measures	
				What to do	**Reference to step**
A	**B**	**C**	**D=B*C**	**E**	**F**

Accordingly, the **priority of risk mitigation measures actions** can be defined:

Risk assessment points	Level of priority	Actions
1-2	Low	Risk monitoring needed.
3-5	Medium	Risk monitoring, act if necessary.
6-9	High	Implementation of risk mitigation measures.



4. Toolbox outline

The objective of transnational toolbox for applying multimodal integrated tariff schemes and ticketing in Central Europe (**"Transnational toolbox for improving regional and cross-border railway and public transport connections in Central Europe"**) is to provide **guidelines for implementation of the tariff and ticketing integration actions in cross-border areas of Central Europe** and consists of three actions. Implementation of the **Action A1 is a prerequisite for successful implementation of the other actions**. Actions and pertaining steps are presented in the presented table. **A detailed description of each step follows below the table.**

Action	Step
Action A1: Raise awareness and set-up of a new cross-border PT connection project	Step A1.S1: Agree on a new cross-border PT connection project
	Step A1.S2: Technical analyses and data collection of existing and potential traffic demand (technical backgrounds)
Action A2: Operational Planning and Setting Up of a New Cross-Border PT Service	Step A2.S1: Analyse the existing services timetable offer
	Step A2.S2: Identify gaps in the public transport service
	Step A2.S3: Detailed operational check at the gaps (turnaround times, capacity, etc.)
	Step A2.S4: Elaborate proposals for new solutions
	Step A2.S5: Consultation with possible connecting services' operators & stakeholders
Action A3: Introduction of a Cross-Border PSO (Public Service Obligation Contract)	Step A3.S1: Current status of legal background to get licences for new PT service (stop usage, tariff offer, route permission, etc.)
	Step A3.S2: Tender documentation (competitive tender, in-house award)
	Step A3.S3: Operate the new service

RAISE AWARENESS AND SET-UP OF A NEW CROSS-BORDER PT CONNECTION PROJECT

STEP A1.S1 – Agree on a new cross-border PT connection project

Elaboration and signature of an agreement on cooperation on project for improving regional and cross-border railway and public transport connections in Central Europe.

To outline

PROVIDERS

Responsible actors: authorised public transport entities form the area, PT ordering authority.
Involved actors: Local/national/regional authorities, Transport operators (members of consultancy body in the project structure).

INPUTS

Data: commuting statistics, past service attempts ticketing statistics, road and stop conditions and ownership, travel survey

Sources: letter of intent, international agreements, call for tenders for EU projects, national/local strategies, legislation and organizational acts on public transport

OUTPUTS

O1.1.1: Agreement/Letter of Intent on cooperation on cross-border public transport services (A1.S1-T1)

IMPLEMENTATION TIME

short		long
○	●	○

HINTS

Activities within this step should be finished in 3-6 months but can vary depending on availability of resources (state of documented and non-documented agreements among the partners) and extent of the cross border-area (e.g. number of authorities, transport modes…).

Before starting project implementation formal prerequisites and financing of the project must be provided: contract among authorised public transport providers, EU project co-financing agreement & partnership agreement etc.

The willingness is crucial when establishing new services. Make sure that on both side of the border there are incentives (economical, financial, planning, political) to make the new services running.

RAISE AWARENESS AND SET-UP OF A NEW CROSS-BORDER PT CONNECTION PROJECT

STEP A1.S2 - Technical analyses and data collection of existing and potential traffic demand (technical backgrounds)

Elaboration a technical pre-feasibility study for the planned new cross-border PT service.

To outline

PROVIDERS

Responsible actors: authorised public transport entities form the area, PT ordering authority.
Involved actors: Local/national/regional authorities, Transport operators (members of consultancy body in the project structure), possible external expert.

INPUTS

Data: commuting statistics, past service attempts ticketing statistics, road and stop conditions and ownership, travel survey

Sources: operators' internal data, scientific/technical literature, EU project materials, national/local strategies, legislation and organizational acts on public transport

OUTPUTS

O1.1.2: Recommended structure and contents of a technical study (A1.S2-T1)

IMPLEMENTATION TIME

short		long
○	●	○

HINTS

Activities within this step should be finished in 3-6 months but can vary depending on availability of resources (state of documented and non-documented past service data among the partners) and extent of the cross border-area (e.g. number of authorities, transport modes…).

Before starting project implementation formal prerequisites and financing of the project must be provided: contract among authorised public transport providers, EU project co-financing agreement & partnership agreement etc.

A proper team or at least a (partly) assigned dedicated person should deal with the new cross-border PT service issue. The expected pre-feasibility study should enumerate the potential cost and service scenarios.

OPERATIONAL PLANNING AND SETTING UP OF A NEW CROSS-BORDER PT SERVICE

STEP A2.S1 - Analyse the existing services timetable offer

Collect all the available relevant transport system timetable offers from the analysed area. Make sure that the footnotes and other service restriction how eventually impact the real service offer.

To outline

PROVIDERS

Responsible actors: transport operators, transport authorities.
Involved actors: transport operators, transport authorities.

INPUTS

Data: static timetable offer data about weekday or weekend public transport services of the analysed area. Wider area timetable connection frame.

Sources: Publicly available timetable offer both online and offline versions (if needed).

OUTPUTS

O2.1.1: Proposal of cross-border integrated timetable concept (A2.S[1,2]-T1).

IMPLEMENTATION TIME

short		long
●	○	○

HINTS

Before starting new PT services should be well analysed the existing service offers. Parallelism should be avoided but the partnership between operators and a synchronised schedule is desirable.

Based on the WPT1 Transnational tool focus on your chosen travel segment needs.

OPERATIONAL PLANNING AND SETTING UP OF A NEW CROSS-BORDER PT SERVICE

STEP A2.S2 - Identify gaps in the public transport service

Elaboration of the potential missing links and bad connections areas. In a cross-border dimension the missing links can be just a few kilometres only on existing routes.

To outline

PROVIDERS

Responsible actors: transport operators, transport authorities, regional/local authorities.
Involved actors: transport operators, transport authorities, consultancy.

INPUTS

Data: timetable data shown on route and network maps. Operational hours and service frequency difference data preferably shown on diagrams.

Sources: local area GIS maps (eg.- open source maps), available timetable in GTFS or pdf/analogue paper based, population data, traffic flow and cross-sectional data.

OUTPUTS

O2.2.1: Proposal of cross-border integrated timetable concept (**A2.S[1,2]-T1**).

IMPLEMENTATION TIME

short ● ○ ○ **long**

HINTS

Starting new PT services often does not need big infrastructure investments if the rail/road is available and it is already used by private cars or freight trains. While passengers do not really wish to make transfers due to operational reasons, but without the legal or technical complications the border transfer seems to be the easiest solution to start a new service. Regional train services between South Tyrol and Austria with a change at Brenner pass or between Pécs (Hu) and Osijek (Croatia) are well-known and recent good examples. . Within the current CONNECT2CE project the already existing MICOTRA train (AT-IT) has been extended from Udine to Trieste, thus on weekends and public holidays direct services from Trieste, Italy to Villach, Austria are provided.

OPERATIONAL PLANNING AND SETTING UP OF A NEW CROSS-BORDER PT SERVICE

STEP A2.S3 - Detailed operational check at the service gaps

Elaboration of detailed operational system check based on the internal data of drivers and vehicles turnaround times, technological issues, as shunting requirements from turning locomotive hauled trains.

To outline

PROVIDERS

Responsible actors: transport operators, transport authorities.
Involved actors: transport operators, transport authorities consultancy

INPUTS

Data: technical data from operator companies and infrastructure managers

Sources: internal information of the given operator or infrastructure owner and operator

OUTPUTS

O2.3.1: Technical checklist for operation (A2.S[3,4]-T1)

IMPLEMENTATION TIME

short		long
○	●	○

HINTS

Before starting new PT services should be well-analysed the operational restrictions from staff and vehicle turnaround time. Syndicates and other agreements between the employer and employee as well as EU directives require certain periods for resting of the crew during the working hours. Vehicles may need to be refuelled more likely at certain places/depots and in rail transport conventional non EMU/DMU trains require shunting and other tasks.

OPERATIONAL PLANNING AND SETTING UP OF A NEW CROSS-BORDER PT SERVICE

STEP A2.S4 - Elaborate proposals for new solutions

Elaboration of new operational scenarios with different complexity and related cost measures

To outline

PROVIDERS

Responsible actors: transport operators, transport authorities.
Involved actors: transport operators, transport authorities, consultancy.

INPUTS

Data: internal operational and cost structure data

Sources: operators internal data source, infrastructure data

OUTPUTS

O2.4.1: Technical checklist for operation (A2.S[3,4]-T1)

IMPLEMENTATION TIME

short ○ ● ○ long

HINTS

Starting new PT services can be realised on certainly different ways which might be more or less costly but on the other hand their attractiveness can also be significantly different. Decision makers on both side should be able to have a good overview what can they offer for the certain amount of extra operational cost.

OPERATIONAL PLANNING AND SETTING UP OF A NEW CROSS-BORDER PT SERVICE

STEP A2.S5 - Consultation with possible connecting services' operators & stakeholders

To outline

Based on the detailed analyses the potential solutions should be discussed with the operators and any potentially interested body of the area.

PROVIDERS

Responsible actors: transport operators, transport authorities.
Involved actors: transport operators, transport authorities, consultancy, municipalities, NGOs.

INPUTS

Data: contact list of the potential stakeholders

Sources: public directories, formal and informal networks

OUTPUTS

O2.5.1: Public involvement guidelines (**A2.S5-T1**)

IMPLEMENTATION TIME

short ○ ● ○ **long**

HINTS

Several public involvement strategies exists from regular meetings to interactive open workshops.

A Horizon 2020 project called Cities4People is dealing with public involvement practices in mobility related decision making processes. It deals with urban environments but most of its tools and resource can easily be adopted in rural border areas as well. See more at: https://cities4people.eu/

INTRODUCTION OF A CROSS-BORDER PSO

STEP A3.S1 - Current status of legal background to get licences for new PT service

Stop usage, tariff offer, route permission, etc.

To outline

PROVIDERS

Responsible actors: Authorized public transport entities on the cross-border area
Involved actors: transport operators, transport authorities (on both sides of the border)

INPUTS

Data: legal requirements mapping, past service attempts experiences, road and stop conditions and ownership
Sources: EU projects, national/local strategies, legislation and organizational acts on public transport

OUTPUTS

O3.1.1: Report/checklist on usual requirements for starting new PSO (A3.S1-T1)

IMPLEMENTATION TIME

short		long
○	●	○

HINTS

Make sure that the new service fulfils all the legal administrative requirements on both sides of the border area.

INTRODUCTION OF A CROSS-BORDER PSO

STEP A3.S2 - Tender documentation

To outline

Elaboration of a competitive tender or in-house award

PROVIDERS

Responsible actors: appointed project team of the competent public body
Involved actors: transport operators, transport authorities.

INPUTS

Data: requirements ensuring from the agreement on cross-border PT service project, analysis of the existing service award systems.

Sources: O2.2.1: Main contract aspects

OUTPUTS

O3.2.1: Main contract aspects (A3.S[2,3]-T1)

IMPLEMENTATION TIME

short		long
○	●	○

HINTS

Coordination of different aspects and situations can be time consuming. It is generally not too often to contract separately for a certain line for cross-border services. It is advised to tender together with an ongoing regional tender package for regional services. Once the tender has selected the best bidder the contracting process can be processed. Contracting an operator should be carefully elaborated both from legal and operational point of view as in the worst case it could potentially lead to low service level and/or to cost overruns.

INTRODUCTION OF A CROSS-BORDER PSO

STEP A3.S3 - Operate the new service

To outline

Elaboration of the operational environment with at least partly multilingual staff, information system, continuously monitor the performance and if necessary take the needed steps.

PROVIDERS

Responsible actors: transport operators, transport authorities.
Involved actors: transport operators, transport authorities.

INPUTS

Data: travel satisfaction from travel surveys and complains from customer service, ticket sales data, operational data about delays or cancelled services

Sources: Organised travel surveys and internal traffic monitoring sources

OUTPUTS

O3.3.1: Main contract aspects (A3.S[2,3]-T1)

IMPLEMENTATION TIME

short		long
○	●	○

HINTS

Starting new PT services should be well-promoted in local and regional media. Even with good communication services usually need at least 2 years to reach their potential number of passengers as travel habits changes slowly even with stabile and attractive service provision. Continuous monitoring and urgent reactions are needed.

A1.S1-T1 Agreement/Letter of Intent on cooperation on cross-border public transport services

Contents

To outline To step

1. **Proposed content**
   - Objectives (modal shift, environmental aspects)
   - Proposed service segment (leisure, work, school, shopping, touristic)
   - Definition of the potentially served areas (geographical designation)
   - Roles and names of the stakeholders who supposed to sign it
2. **Basis for cooperation (EGTC, EU project finance, bilateral cooperation)**

APPENDIX

A1.S2-T1 Recommended structure and contents of a technical study

Contents

To outline To step

1. **Introduction**

   The importance of the analysed topic should be well described for any potential professional or political reader. The factors leading to deal with the cross-border project and the main general aim of the desired aim should be well-described.

2. **Framework, status analysis, potential estimation**

   Information about the legal background, legal & administrative organisational aspects, geographical overview and delimitation are all part of the framework.
   The status analysis should deal with the existing public transport network on both side of the analysed area with a focus on both spatial and time coverage of the provided public transport services.
   Concerning the potential demand previous studies, census data, other surveys and professional/scientific literature can be used. Preferably own passenger survey and/or traffic counting should be realised and then a traffic demand should be developed by an in-house or externa expert.

3. **Timetable provision**

   Timetable plans with different volume and cost scenarios should be developed once the potential demand has been identified and the spatial/temporal scope of the new cross-border services are decided. Timetables should be pulsing/periodic (e.g. hourly/two-hourly services) with stops at the main employment and population hubs where connection with the existing services should be secured. The travel time should allow certain flexibility in order to offer a robust service even in the case of regular traffic jams or other smaller scale service disruptions. Technical specification particularly at railway border crossings should be carefully analysed due to the different legal requirements of safety systems and technical differences such as the type of the electrification.

4. **Cost estimate and financing**

   If a route permission is needed from the general bus/rail transport authority then sufficient time and the required administrative cost should be secured. Mapping of the existing services km fees are essential to calculate realistic service cost estimation for the new cross-border services. In-house operator direct award or open gross or net cost contract based tenders should be decided to implement in advance. Bonus-malus for operation and quality levels should be defined, thus decision makers can understand for which level of service they should raise money from regional/national or EU founds. The sharing of cost between the two adjacent member states should be defined.

A2.S[1,2]-T1 Proposal of cross-border integrated timetable concept

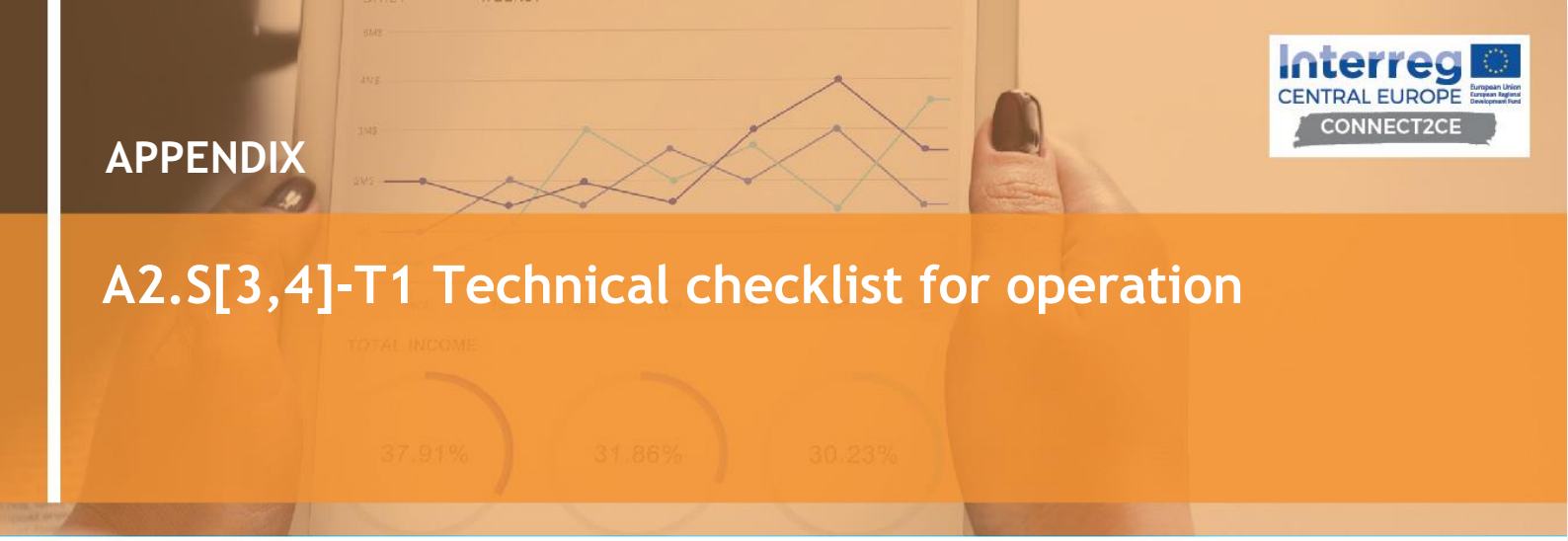
Contents

To outline To step

A2.S[1,2]-T1 Proposal of cross-border integrated timetable concept

To outline To step

2. **Have you planned all of the following parameters?**
    1. frequencies (hourly or peak-hours or daily)
    2. capacity (per train/bus service, per day, per year)
    3. utilization distribution (utilization in each Member state to share cross-border loss-finance costs proportionally)
    4. vehicle utilization (mileage)
    5. peak time (time interval, percentage of total operating time, peak afternoon and afternoon peak)
    6. transfer rate (one trip, the typical trip)
    7. average waiting time (calculated by frequency until the first scheduled service arrival)
    8. average waiting time for connecting services (in case of transfers)
    9. share of direct travel relations with respect to the total passenger traffic



APPENDIX

A2.S[3,4]-T1 Technical checklist for operation

Contents

To outline To step

1. Is the turnaround times and staff resting period allowed by the planned schedule?
2. Does the rolling stock has the safety and technical requirements to run cross-border?
3. Is it needed to procure new rolling stock for cross-border operations?
4. Do you have bilingual requirements and if yes what level for staff?
5. Is there any short-term infrastructure improvement related closure that you need to respect (divert or cancel services)?
6. Is the road/rail traffic not too much on the selected route what could make regular delays to your services?
7. Do you have a feeder service if yes then how is the connection secured?
8. Will you take part in local services (within a municipality) if yes how is contracted?

Find out more at:

Inventory of obstacles:

http://ec.europa.eu/regional_policy/sources/policy/cooperation/european-territorial/cross-border/factsheets/list.cfm

EU Border Focal Point

https://ec.europa.eu/futurium/en/border-regions

A2.S[3,4]-T1 Technical checklist for operation

To outline To step

9. Is the turnaround times and staff resting period allowed by the planned schedule?
10. Does the rolling stock has the safety and technical requirements to run cross-border?
11. Is it needed to procure new rolling stock for cross-border operations?
12. Do you have bilingual requirements and if yes what level for staff?
13. Is there any short-term infrastructure improvement related closure that you need to respect (divert or cancel services)?
14. Is the road/rail traffic not too much on the selected route what could make regular delays to your services?
15. Do you have a feeder service if yes then how is the connection secured?
16. Will you take part in local services (within a municipality) if yes how is contracted?

Find out more at:

Inventory of obstacles:

http://ec.europa.eu/regional_policy/sources/policy/cooperation/european-territorial/cross-border/factsheets/list.cfm

EU Border Focal Point

https://ec.europa.eu/futurium/en/border-regions

A2.S5-T1 Public involvement guidelines

Contents

To outline To step

1. Create a database of potential interested stakeholders and public forums (NGOs, civil associations) and potential events to interact with the public
2. Organise stakeholder workshops at different planning phases of the services
3. Adjust the time schedule of the meeting for the normal office working hours for stakeholders
4. Adjust the time schedule of the meeting for after the normal office working hours for public or NGOs as they are usually work as a part of voluntary job or civil activity. Even better to co-organiser with other events e.g. car-free days.
5. Elaborate quick and easy to understand slides and focus on the inclusion of the audience
6. If the venue permits beside the usual questionnaire filling and instant votes you might use more specific tool for instance the ones listed at the co-creation navigator, world café
7. Try to stay in touch with your audience via emails, social media on your post with eye-catching content

Find out more at:

Co-creation navigator:

https://ccn.waag.org/

Public involvement tools

https://cities4people.eu/resources/tools-and-resources-for-replication/

A3.S1-T1 Report/checklist on usual requirements for starting new PSO

Contents

To outline To step

1. **Access to the existing infrastructure elements**

   In case of road (bus) transport the situation is usually easier. The bus stops are normally owned by the respective municipality or its incumbent operator who ideally partner in the services. In case of rail transport the railway network operator companies should be requested with the necessary rail safety certifications of the planned rolling stock which is mandatory for running in another member state.

2. **Need to advertise the tariff products**

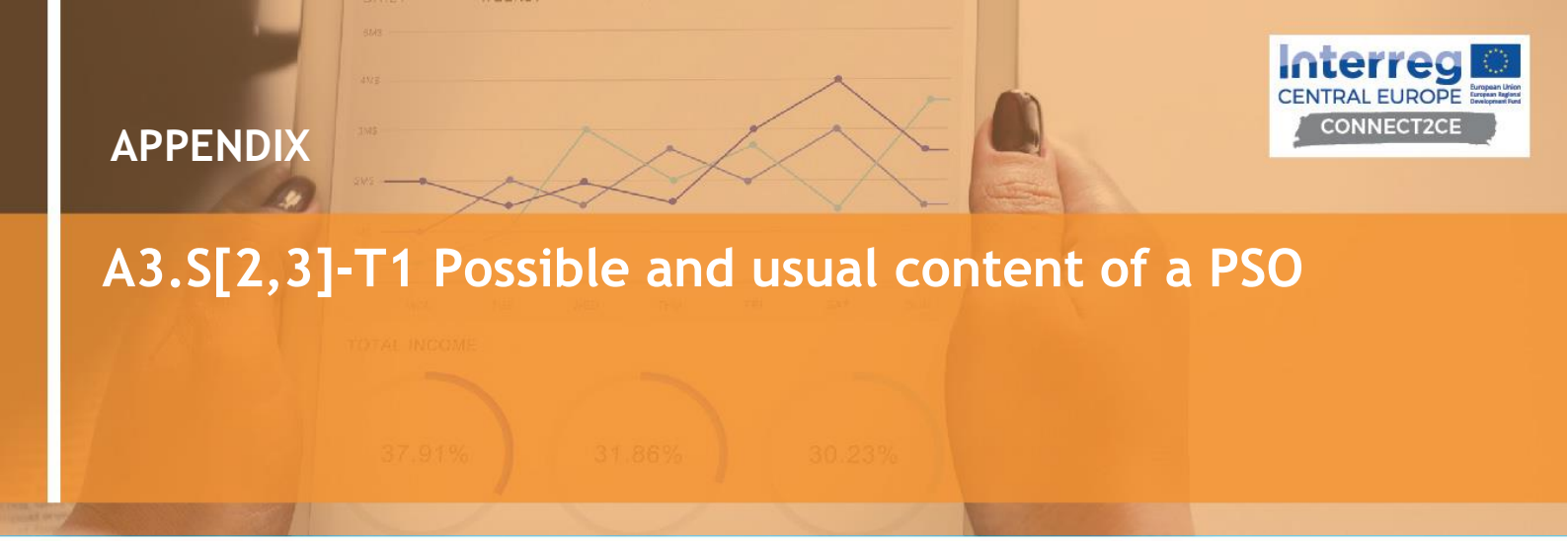
   Information about ticket types with the discounts and distance based or joining to the preferred integrated tariff system should be well indicated at the involved stops, vehicles and online areas. For more detailed information see the tariff integration toolbox.

3. **Timetable provision**

   Timetable (static or real time) should be well indicated at the involved stops, vehicles and online areas. In some cases route maps are also expected. For more information see the ITS toolbox.

4. **Route permission by authority and/or or train path allocation body**

   The route permission is needed from the general bus/rail transport authority. In certain cases the respective roads or railway lines might require special permissions for running services on infrastructure elements which are normally allowed for smaller vehicles only.



APPENDIX

A3.S[2,3]-T1 Possible and usual content of a PSO

Contents

To outline To step