DOCUMENTATION OF AN EXPERT WORKSHOP ON IT TOOLS TO

Title	Documentation of an expert workshop on IT tools to promote seamless journey planning
Deliverable	D.T2.2.5
Authors	Piotr Kupczyk (PP3 UMWW), Andrea Burzacchini and Daniele Berselli (PP6 aMo)
Contributors	Attila Aba (Budapest University of Technology and Economics), Gennaro Ciccarelli (TTS Italia), Adam Steindel (Medway sp.z.o.o.),
Status	Final version
Reviewed by	Domokos Esztergár-Kiss (PP8 BME)
Submission	

Summary

1. General information

On the 29th of June 2021 the wokshop entitled *"Digitalization applied to Public Transport in rural regions: MaaS and other IT solutions"* was held online. The workshop took place as part of the deliverable D.T2.2.5 "Documentation of an expert workshop on IT tools to promote seamless journey planning".

The workshop was organized by UMWW and aMo, supported by BME and T Bridge, with promoters of MaaS4EU and other relevant research projects to exchange ideas about innovative IT tools and interfaces to faciliate offering seamless journey planning in rural regions. The workshop lasted about two and a half hours and was followed by 27 participants online from Austria, Croatia, Germany, Hungary, Italy, Poland, and Slovenia (Annex 1).

2. Agenda

14:00	**Domokos Esztergár-Kiss** *Budapest University of Technology and Economics*	Welcome and presentation of the workshop
14:05	**Piotr Kupczyk** *Marshal's Office of the Wielkopolska Region*	Introduction of the RegiaMobil Project
14:20	**Adam Steindel** *Medway sp.z.o.o.*	Improve public transport using IT tools
14:40	**Gennaro Ciccarelli** *TTS Italia*	The MaaS experience inside H2020 MyCorridor project and its results in terms of impacts on the mobility and economic system
15:00	**Attila Aba** *Budapest University of Technology and Economics*	Definition and basics of MaaS besides the introduction and results of MaaS4EU project
15:20	**Andrea Burzacchini** *aMo Modena*	Round table with Experts and Partners about mobility in rural regions
16:00	**Francesco Misso** *T Bridge Genova*	Closure of the Workshop

3. Presentations

Domokos Esztergár-Kiss from Budapest University of Technology and Economics has started the workshop presenting the content and the speakers.

The first presentation was held by Piotr Kupczyk from Marshal's Office of the Wielkopolska Region. In his presentation (Annex 2) Mr. Kupczyk presented the RegiaMobil project, illustrating the characteristics, the budget, the main outputs, the partners, the pilot actions and the WPs.

The second presentation was introduced by Adam Steindel of Medway sp.z.o.o. The presentation (Annex 3) was about how to improve public transport using IT tools. Mr Steindel represented the Department of Transport of the Marshal's Office of the Wielpolska Region in Poznan, and informed the audience about the softwares used at the depatment, going into details regarding the Transport Platform which was developed within the Interreg Cental Europe SubNodes project. The functionalities of the tool have been described related to the technical characteristics sharing their experience about the various challenges and criticalities that have been faced during its development.

The third presentation was given by Gennaro Ciccarelli from TTS Italia. The presentation (Annex 4) was focused on the challenges still need to be addressed by MaaS to become a mature "technology". The H2020 MyCorridor experience was reported in details, illustrating findings and lessons learnt from the project. Then a simplified Multi-Criteria Analisys approach for MaaS was presented as well as the MaaS contribution to the post pandemic mobility.

The fourth intervention was made by Attila Aba from Budapest University of Technology and Economics. The presentation (Annex 5) had as its main topic the Budapest MaaS pilot. This pilot was adopted in the H2020 MaaS4EU project and in the presentation the process has been described that led to the definition of the MaaS system, the technological structure, the functionalities, the benefits brought, the level of integration reached, the data collected. In addition, the predisposition for use and the reasons for its success were illustrated.

4. Roundtable

After the presentations, a roundtable was held concerning the topics covered. It was moderated by Andrea Burzacchini and was realized with the active participation of various speakers.

The topics covered in the roundtable were the following:

- Is there a risk that investments made in technologies may divert investment in services because there may be a feeling that ITS (Intelligent Transport Systems) make it less important to invest in delivered public transport services?

  - ➢ **Mr. Kupczyk answer:** ITS will be needed only when proper public transport services are delivered. In turn the public transport services will be attractive for passengers, more effective for transport providers and safer if the ITS accompany them. Thus, both investments are evenly important and should be delivered parallel.

  - ➢ **Mr. Ciccarelli answer**: I agree with the presence of this risk as it happened to observe that some decision makers regarding local public transport policies are led to think that technologies can represent a tool that can solve more problems than they are able to do.

    This attitude can lead to an underestimation of the problems that still persist in public transport that require investments regardless of technologies.

Investments in ITS and services must go hand in hand; technologies are indispensable but cannot remedy to the structural issues of public transport; this aspect was clearly highlighted during the pandemic where in Italy it was clearly seen that public transport services are often at a level of saturation in their use and any disturbance that intervenes to modify the existing unstable equilibrium has the result that the entire system is no longer able to respond to user needs.

➢ **Mr. Aba answer**: While it is indeed a risk when attention on public transport services is decreasing, there is another risk if third party companies start to offer such services without providing proper guarantee that public good will be taken account. Investment in ITS and investment in public transport services must not be mutually exclusives, in contrast, these developments should exploit synergies.

- Are the European Projects important for the technological development of public transport?

➢ **Mr. Kupczyk answer**: Certainly, they are. Let us have as an example quite expensive projects on the European Railway Traffic Management System (ERTMS) developing co-financed from the Connecting Europe Fund. Thanks to it safety of passengers and better organization of the railway public transport is provided. Another example: I had the pleasure to talk to the mayor of the town Osterburg – one of two small towns in the Saxony-Anhalt which established citizen small buses in the range of the CE Interreg REGIAMOBIL project. They serve among others the respective railway station of each municipality and are very positive received by the local inhabitants. Drivers were also pleased as they got tablets with a software enabling ticket sales and the transmission of operating data to the backend system. Similar idea was realized in the region of Modena. New software to better direct on-demand bus services (Prontobus) to customer needs consisting of a web part and mobile apps for users and drivers was implemented during the pilot action by aMo.

Wielkopolska has created an application which informed passengers landed at the Poznań airport about timetables and tariffs of the public transport from the airport to the city and the main railway and bus station (in the CE project CHAMPIONS) and established a digital transport platform in the Interreg CE project Subnodes) which will be now developed on a wider scale.

I would like also to just only mention there are some successful research projects on this theme financed from the EU sources which are or can be used in future for technological investments in PT.

To conclude: there is a lot of examples that the European Projects can bring a valuable input regarding the implementation and development of modern technologies in the field of public transportation.

➢ **Mr. Aba Answer**: Absolutely. The framework for projects in the European Union is suitable for gathering both local and general experience when research and development is done within international consortiums. Diversity of partners in such projects from academic through authorities to operators (and of course, many other stakeholders could be mentioned here) is a good opportunity that all the relevant aspects is examined in a balanced and proper way.

- What will be the possible 5G contribution to the development of new ITS and MaaS?

➢ **Mr. Steindel answer**: As the modern IT solutions are more and more complex and need more space for data collection and processing the 5G contribution seems to be indispensable for the development of new ITS and MaaS. Especially the 5G technology is a good tool for ensuring a passengers' safety and driving comfort. The governments and IT companies ought to convince societies that 5G is not dangerous to the human health but on the contrary – it can guarantee people safer, faster and more comfortable mobility.

➢ **Mr. Aba answer**: Although I am not an expert in telecommunication technologies, I am sure that the whole domain of mobility will benefit from 5G, of course, autonomous vehicles are in the top of the beneficiaries. For a good MaaS service, 4G seems to be enough for me, but traffic control and traffic management could benefit from higher capacities and lower latency of 5G as well.

> ➢ Mr. Ciccarelli answer: new technologies have always represented new opportunities and the same will happen with 5G and ITS and MaaS.

> To favour intermodality, the integration of services and payments that characterize MaaS, it is necessary to have increasingly performing infrastructures both to make more and more functionalities usable but also to give to customers a user experience that meets expectations that everyone has in the use of technologies.

> ITS and MaaS are therefore destined to enter common use thanks to these new technologies.

5. Conclusions

The final considerations that can be made after this workshop are dedicated to digitalization and can be applied to public transport solutions in rural regions.

The IT and MaaS solutions realized in this area are starting to be numerous and effective. It can certainly be said that they have come out of a purely experimental phase, while public transport is entering a situation in which these technologies are rapidly maturing with the perspective of becoming ordinary in the short term.

This process has been achieved above all thanks to European funding sources which, in the context of various projects, has given an efficient support to the development of smart solutions facilitating the introduction of new mobility services in urban, but also in rural areas.

In fact, there is no doubt that in order to mitigate the depopulation process for rural areas, caused by so increasing difficulties in mobility for those who live there, it is essential to recur to the use of new technologies, such as MaaS that allows optimizing already available resources. It should be able to create a balance between the economic resources invested to establish services and the number of citizens who can use them.

It is evident that the MaaS framework has become necessary to identify instruments that are able to get out of the paradigm that leads to the tendency of increasingly reducing services that have low efficiency in terms of money spent per capita in favour of more performing situations from this point of view, such as those that can be applied in urban areas.

All this without forgetting that for the new technologies to work must guarantee an easy access to various services, making it easier is not only to find information on their availability but also to pay for them.

As a conclusion, in the workshop the confirmation emerged that the keywords that will govern public transport in rural areas (but not only) in the near future will be flexibility, integration, inclusion, intermodality, and accessibility.

Annex 1 - Attendance list

Organisation	Name	First name	Signature
LP – SMR	Just	Peter	
PP2 – T Bridge	Misso	Francesco	
PP3 – UMWW	Kupczyk	Piotr	
PP6 – aMo	Burzacchini	Andrea	
PP6 – aMo	Berselli	Daniele	
PP6 – aMo	Paolino	Daniele	
PP8 – BME	Esztergár-Kiss	Domokos	
PP10 – Osijek	Kukić	Srećko	
AMAT Milano - IT	Botti	Alberto	
AMI Ferrara - IT	Giunta	Piero	
AMR Romagna - IT	Bartoli	Davide	
AMRE Reggio Emilia - IT	Zanoli	Sara	
Budapest University – BME	Aba	Attila	
Core-Consult	Borek	Urszula	
Core-Consult	Stöger	Gerald	
JS WIEN - AT	Winfried	Ritt	
LPP - SL	Peter	Brleč	
Medway - PL	Steindel	Adam	
MOL Group - HU	Szarvas	Bálint	
Pest county - HU	Wolf	Peter	
Roma Mobilità - IT	Tavani	Carla	
SAD Bolzano - IT	Schneider	Petra	
SETA Modena - IT	Canapi	Marco	
SETA Modena - IT	Cantoni	Massimiliano	
SRM Bologna - IT	Amadori	Marco	
TTS Italia - IT	Ciccarelli	Gennaro	
VVS Stuttgart - DE	Helmle	Joachim	

Annex 2 – Presentation of Piotr Kupczyk

Digitalization applied to Public Transport in rural regions: MaaS and other IT solutions

Introduction of the RegiaMobil project

Piotr Kupczyk| Marshal's Office of the Wielkopolska Region in Poznań   29 June 2021

PROJECT TITLE

Enhancing Mobility Services in Rural Regions

TAKING COOPERATION FORWARD

INTERREG CENTRAL EUROPE

WOJEWÓDZTWO WIELKOPOLSKIE

Interreg
CENTRAL EUROPE
RegiaMobil

TAKING **COOPERATION** FORWARD

4. Cooperating on transport to better connect CENTRAL EUROPE

4.1 To improve planning and coordination of regional passenger transport system for better connections to national and European transport networks

TAKING COOPERATION FORWARD   3

INTERREG CENTRAL EUROPE

WOJEWÓDZTWO WIELKOPOLSKIE

Interreg
CENTRAL EUROPE
RegiaMobil

Capitalisation Through Coordination: Our Fourth Call

Interreg
CENTRAL EUROPE

RegiaMobil capitalises on outputs resulting from four Interreg Central Europe projects (Rumobil, SubNodes, Shareplace, Connect2CE) and results of HORIZON 2020 operations (MaaS4EU, MoTiV, SIADE) in the domain of smart public transport.

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INTERREG CENTRAL EUROPE

Project duration:

01.04.2020 - 31.03.2022

Budget:

1.660.086,00 EURO in total
1.367.371,80 EURO from
The European Regional
Development Fund

TAKING COOPERATION FORWARD   5

PARTNERSHIP

aMo

MŰEGYETEM 1782

HŽPP

Jikord s.r.o.

Rottal-INN meineWelt

STAATSMINISTERIUM FÜR REGIONALENTWICKLUNG

Freistaat SACHSEN

BRIDGE
Management Consulting e ICT

SAMORZĄD WOJEWÓDZTWA WIELKOPOLSKIEGO

TAKING COOPERATION FORWARD   6
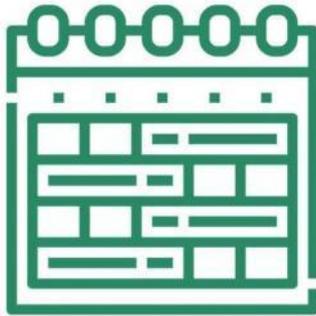
Interreg
CENTRAL EUROPE
European Union
European Regional
Development Fund

RegiaMobil

WORK PACKAGE T1

Two action plans are elaborated to capitalise & mainstream on previous learning from Rumobil (Interreg Central Europe) and other related projects to better connect Central Europe. For Liguria Region a plan to introduce an on-demand bus service concept is prepared together with the regional government. For Trenčín's regional self-government an action plan for investments in multimodal stations is prepared.

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WORK PACKAGE T1

Based on learning from the project RUMOBIL a strategy is elaborated for Croatian Passenger Railway Company (HZPP) to launch new tourism-based rail services in the country. While elaborated specifically for Croatia, the strategy will outline how other smaller rail operators in Central Europe can achieve increased rail use from coordination with tourism services in rural regions.

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WORK PACKAGE T2

Demonstration projects are realised in Saxony, Rottal-Inn, SouthBohemia, Modena, Wielkopolska and Osijek to transfer and integrate innovative and smart mobility solutions that had been results of Interreg and Horizon 2020 projects. The activities aim at improving service standards and interoperationality of public transport in rural regions.

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WORK PACKAGE T2

Recent events, related to the COVID-19 outbreak, have shown how essential IT systems are nowadays. They not only make it possible to move work from the office to the home, but above all to react quickly in critical situations.

    Passengers , transport organizators and providers need innovative smart IT solutions to make public transportation faster, cheaper, enviromentally friendly and more comfortable.

Today's expert workshop within the WP2 is aimed to promote seamless journey planning – not only from the view of passangers but also transport organizators.

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MORE INFORMATION

More information about the project RegiaMobil you can find on the website:

https://www.interreg-central.eu/RegiaMobil

You can also contact a representative of the Lead Partner :

Dr. Ludwig Scharmann - Saxon State Ministry for Regional Development
Ludwig.Scharmann@smr.sachsen.de

or me:

Piotr Kupczyk - Marshal's Office of the Wielkopolska Region; Transport Department
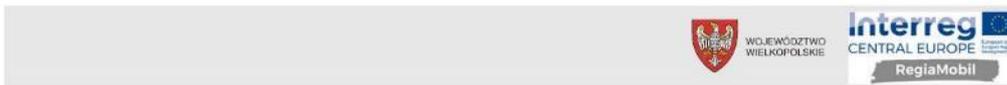Piotr.Kupczyk@umww.pl

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IMPROVE PUBLIC TRANSPORT
USING IT TOOLS

ADAM STEINDEL
MEDWAY SP. Z O.O.

TAKING **COOPERATION** FORWARD   1

TRANSPORT DEPARTMENT

Department of Transport of the Marshal's Office of the Wielkopolska Region in Poznań is **responsible for all matters related to public transportation of provincial importance, especially rail and bus** transport. It cooperates in the development of draft provincial development strategies and provincial programs in the field of transport.

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TRANSPORT DEPARTMENT

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Interreg CENTRAL EUROPE — RegiaMobil

Transport Department

| TD-I Planning, Budget and Administration Department | TD-II Rolling Stock Projects Department | TD-III Railway Transport Department | TD-IV Bus Transportation Department |

TAKING **COOPERATION** FORWARD   3

WOJEWÓDZTWO WIELKOPOLSKIE

Interreg CENTRAL EUROPE — SubNodes
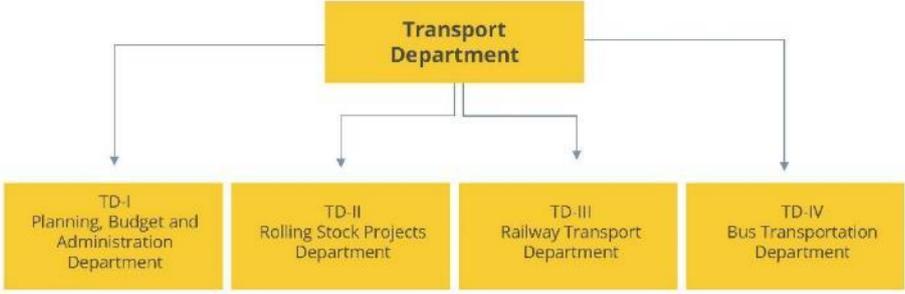
SOFTWARE USED IN TD

TAKING **COOPERATION** FORWARD   4

SOFTWARE USED IN TD
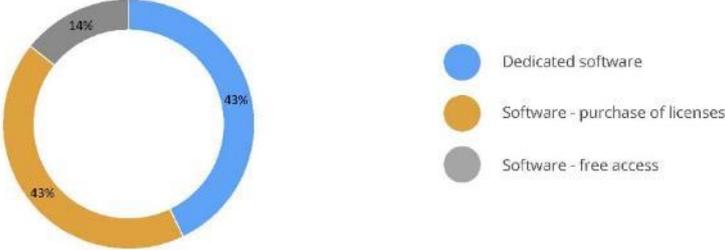
- Dedicated software
- Software - purchase of licenses
- Software - free access

43%
43%
14%

TAKING COOPERATION FORWARD 5

SOFTWARE BY DEPARTMENT

TD-I Planning, Budget and Administration Department	TD-II Rolling Stock Department	TD-III Transportation Railroad Department	TD-IV Transportation Bus Department Department
Transport platform	EZD	EZD	EZD
EZD	Microsoft Office	SEPE	Concessionary ticket subsidy system
Microsoft Office		Microsoft Office	RJA
		SKRJ	Microsoft Office

TAKING COOPERATION FORWARD 6

TRANSPORT PLATFORM

The system, made available as a web application, available at platformatransportowa.com, was implemented with **funding from the Interreg Central Europe Programme** in 2020. (under the Subnodes project).

The implementation of the application took place in the **form of pilotage** and it was to be based on data concerning the district of Wągrowiec.

The purpose of the platform is to **collect, store and make available data on public collective transport**.

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REDUCED-FARE TICKET SUBSIDLY SYSTEM

The purpose of the application is to **collect, store and process data on subsidized for reduced-fare bus transport**.

The application has a number of functions which enable in to perform the above mentioned activities:

- submitting and processing applications
- payment management, including creation of transfer instructions and balance settlement
- generating various types of reports

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THE MOST IMPORTANT PROBLEMS IDENTIFIED
DURING THE ANALYSIS

- Lack of suitable tools on the market ready for purchase
- The tool used on a monthly subscription basis is not being developed
- Failure of the software currently in use to comply with current legislation

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**CONCLUSIONS FROM
THE PILOT
IMPLEMENTATION
OF THE TRANSPORT
PLATFORM**

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USE OF AN APPROPRIATE DATABASE

The designed Internet platform is implemented on the basis of **NoSQL database**. The use of this type of database is often **encountered in "Big Data" projects**, but this solution is rather chosen to store data with a non-standard structure, which cannot be easily defined.

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PROBLEMS WITH DATA ACQUISITION

Within the implementation of the platform, the contractor was obliged to **supply the database with timetables of 7 carriers** and transport organizers.

Subsequent provision of data to the platform was to be carried out **using the application programming interface (API)**, and the integration and proper use of this mechanism was to be the responsibility of individual entities.

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CHOOSING THE RIGHT SERVER

According to the contract documentation, the Internet platform was developed in **the serverless technology**, which was supposed to have a **positive impact on its scalability**.

The choice of serverless technology in combination with the NoSQL database meant that the **costs of maintaining the platform were very high** as for a pilot solution.

The monthly costs of maintaining the platform in the **Google Cloud service** exceeded PLN 1,300.00 on average, and the platform had a very low number of visits during the last few months.

PROBLEMS WITH SUPPORTING PEOPLE WITH DISABILITIES

According to the Act of 4 April 2019 on digital accessibility of websites and mobile applications of public entities, **all websites of public entities should be digitally accessible**. Such accessibility is defined by the Web Content Accessibility Guidelines (**WCAG**) standard, and version 2.1 of these guidelines is currently in force.

As the concept for the IT platform was developed by independent experts in December 2018, when **the standard had not yet been universally applicable**, the platform design documentation **did not include support for the disabled** and was therefore not implemented by the platform contractor.

ADAPTATION OF THE PLATFORM TO MOBILE DEVICES

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The pilot version of the web platform, despite the absence of such a provision in the tender documentation, has a **responsive user interface**, so it can adapt to different screen sizes.

A deeper analysis of the platform template developed by the contractor, identifies some problems that may indicate that it was not developed in a **"mobile first" approach**.

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RECOMMENDED SOFTWARE DEVELOPMENT MODULES

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SOFTWARE IMPLEMENTATION STAGES

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Stage 1
2 modules

Stage 2
2 modules

Stage 3
2 modules

Stage 4
1 module

Stage 5
4 modules

Stage 6
2 modules

Stage 7
1 module
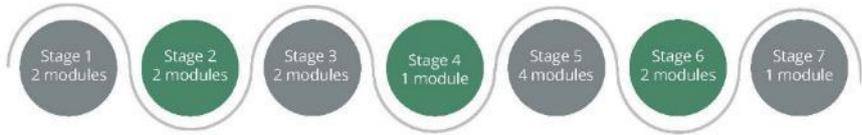
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TRANSPORT PLATFORM - BASIC DEVELOPMENT

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As part of the module, the data storage system will be modified to a **relational database**. Data stored in the NoSQL database will be migrated to the newly created database.

On the publicly accessible part of the platform, the **WCAG 2.1 standard** will be implemented.

The platform will be migrated **from a cloud service to a physical server**.

An extended ACL system will be implemented, which will allow more extensive user management and the possibility of supporting future modules that will extend the functionality of the Transport Platform will be introduced.

INFO

Implementation:

REQUIRED

Stage: **1**

Estimated cost of implementation:

PLN 140,000 net

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SURCHARGE SYSTEM –
FUNCTIONALITIES EXTENSION

Performing **all works that are necessary** to make the system available to carriers.

It is important that all work related to extending the functionalities is implemented by the Contractor by the end of October 2021 so that the system can be used from 1 January 2022.

INFO

Implementation:

REQUIRED

Stage: **1**

Estimated cost of implementation:

PLN 25,000 net

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TRANSPORT PLATFORM –
BUS STOP INFRASTRUCTURE

As part of the Transport Platform, a bus stop management module will be developed. A **Google Maps** mechanism will be implemented, allowing to determine the position of a bus stop on the basis of a **satellite image**. **Stops** coming from the RJA system **will be imported**. As part of the Transport Platform, a tool for moderation of newly added stops will be developed.

A parameter "Bus stop administrator" will be introduced, which will indicate the administrative manager of the bus stop in reality and will allow this manager to modify the name of the bus stop or to move its position (if it is necessary to create a temporary bus stop).

INFO

Implementation:

OPTIONAL

Stage: **2**

Estimated cost of implementation:

PLN 28,000 net

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TRANSPORT PLATFORM - TEMPLATE FOR MOBILE DEVICES

A module introducing **full support for mobile devices**, which will extend the solutions already implemented in the platform so that it fully adapts to the screens of these devices.

INFO

Implementation:
OPTIONAL

Stage: **2**

Estimated cost of implementation:

PLN 11,000 net

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FINAL CONCLUSIONS

HAGROWIEC

SA 134-008

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In the coming years the Marshal Office of the Wielkopolska Region will **have to face a number of challenges** brought about by **changes in legislation in Poland or imposed by the European Union.**

The liberalisation of the railway market, which will take place with the implementation of the EU's 4th railway package, will mean that all the processes associated with **establishing the timetable** will **have to be carried out very quickly,** so that UMWW will always have time to select (as part of a public procurement) the carriers that will perform the connections included in the timetable.

COVID-19

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Recent events, related to the COVID-19 outbreak, have shown **how essential IT systems are nowadays.** They not only make it possible to move work from the office to the home, but above all to **react quickly in such crisis situations.** The epidemic caused the majority of official matters to take much longer, because letters had to be quarantined. Remote work of UMWW employees also proved to be a problem, as **without such tools they could not carry out their work at home exactly as it would be done in the office buildings.** In the case of such an important element as public transport, which is used by tens of thousands of passengers every day, it is necessary to take all possible measures so that in the event of another outbreak the UMWW is fully prepared for it.

ACTION PLAN FOR THE COMING YEARS

The UMWW should **create an action plan for the coming years** which will lead to the implementation of all the modules recommended in our concept.

It is necessary to carry out the work in such a way as to prevent the situation in which certain mechanisms created earlier have to be completely changed due to the implementation of modules planned for earlier stages.

It is necessary, when concluding agreements with module contractors, to ensure within those agreements a period of support and updates for such modules, and the agreements themselves have to guarantee the transfer of full copyright to the UMWW - all this will allow for further development of systems and their adaptation to current needs.

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THANK YOU FOR YOUR ATTENTION

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Annex 4 – Presentation of Gennaro Ciccarelli

TTS ITALIA — Associazione Italiana della Telematica per i Trasporti e la Sicurezza

Mobility as a Service:

what do we (still) need to make it work?

Gennaro Ciccarelli
Project Manager, TTS Italia
29th June 2021

TTS Italia

- Italian ITS Association founded in 1999 as a no profit association with the **mission to foster a user-centric development and deployment of ITS** and increase awareness and spread knowledge and information on ITS

- Contact network: **80+ members**; Italian **local authorities platform** (30+ among cities & regions); contact DB: 11+ k; **member of ERTICO & IRF**; long-standing work relationships with Italian Ministries and sister ITS Associations (Australia, Singapore, Taiwan, etc.)

- Membership activities: coordination of Working Groups on strategic issues concerning ITS, with the aim of producing useful and incisive documents to relevant Authorities; **promoting the interoperability** of ITS applications; supporting the updating and further development of the **National Plans on Telematics applied to Transport**; long-standing cooperation with *Italian Ministries and sister ITS Associations*

Interreg
CENTRAL EUROPE
European Union
European Regional
Development Fund

RegiaMobil

EU-funded transport research

TTS ITALIA

- *EU-funded transport research* – FP7, H2020, CEF, Interreg Europe, etc.
    - Multi-stakeholder engagement, dissemination & communication
    - Use case design, pilot coordination & monitoring
    - Evaluation & impact assessment
    - Evidence-based policy making to boost sustainable mobility

My CORRIDOR

socialcar

SHOW AUTOMATED URBAN MOBILITY

FENIX NETWORK

PriMaaS Interreg Europe
European Union
European Regional
Development Fund

C-ROADS ITALY 2

TRUSTONOMY

ITS NATIONALS
NETWORK OF NATIONAL ITS ASSOCIATIONS

Toward net-zero carbon mobility

TTS ITALIA

- **Bold ambition**: achieve 90% cut in emissions by 2050, delivered by a *smart, competitive, safe, accessible and affordable transport system*

- *Mobility is at an inflection point* – consumer behaviour driven by **accessibility over ownership culture**, digitalisation, connectivity, environmental awareness leading to more sustainable travel choices

- Isolated solutions without **systemic approach and PP cooperation** will not achieve net zero

- Reduction of **travel demand and modal shift, and implement 'polluter pays user pays'** principles

SUSTAINABLE & SMART
MOBILITY STRATEGY

Putting European transport
on track for the future

#MobilityStrategy

By 2030, integrated electronic ticketing facilitates seamless multimodal passenger transport. Freight transport will be paperless.

By 2030, automated mobility will be deployed on large scale.

Unleash full potential of **data**.

TTS ITALIA

MaaS ≠App

- Single platform which integrates multiple services and features and with a single payment system
- Customized and accessible on demand, able to meet any mobility needs
- Able to offer a real alternative to a car ownership

| Commercial integrator | Open back-end platform | Transport as the integrator | Decentralised ledger technology |
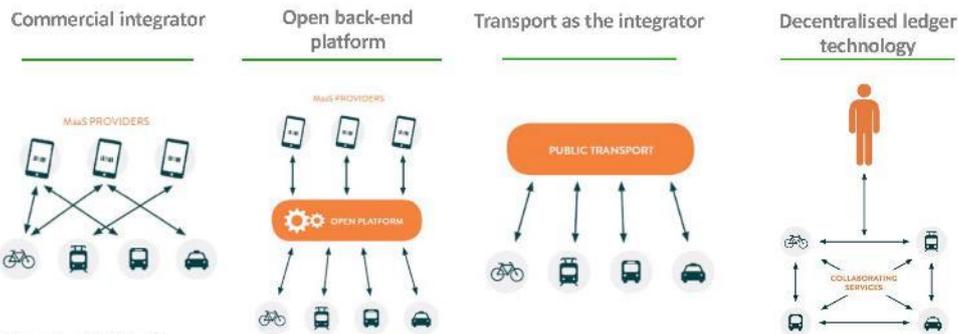
Source: UITP, Policy brief Ready for MaaS, May 2019

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Insights from previous MaaS pilot studies

	UbiGo	Smile	Whim
Pilot setup	▶ Pilot duration: 6 months from November 2013 ▶ Participants: 195 in 83 households	▶ Pilot duration: 6 months from November 2013 ▶ Participants: 1k+	▶ Pilot duration: 12 months from November 2017 ▶ Participants: 70k+
Data	▶ Survey respondents: 164 pre, 161 during, 160 post pilot ▶ Significance: over-representation of city centre inhabitants	▶ 170 post pilot ▶ matched the gender and age for early adopters, with average user being male, aged 20-40 and with high education and income.	▶ Survey respondents: nearly 170 post pilot ▶ Significance: fair representation of all age groups
Modal split impacts	▶ Private car: -44% ▶ PT: +46% bus/tram ▶ Cycling: -3% private, +7% shared ▶ Walking: +15%	▶ Private car: -21% ▶ PT: +48% bus/tram ▶ Cycling: +4% electric private, +10% shared ▶ +20-26% PT with car-bike	▶ Private car: -4% ▶ PT: +25% ▶ taxis 3x more with PT ▶ Bike+walking: -23% ▶ +2.4x by taxi
Infrastructure development	▶ Relevant for users with high availability to PT in terms of routes and frequency ▶ Access to car-sharing within less than 300m	▶ In 2015 Vienna recorded: ▶ PT 40% ▶ Active modes 33%	▶ 68% of all Whim trips in areas with the highest PT access ▶ 12% of bike trips are taken within 30 minutes before PT, 30% of bike trips within 90 after PT

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So…what about rural areas?

Public transportation can be a **source of anxiety for suburban residents**

Significant share of the working age population live in areas with low access to public transport

Public transport being still not 100 % reliable, **car remains the best option in sparsely populated areas**

Rethinking MaaS outside the city is urgent
MaaS can be at the heat of public policies aimed at reduced solo car use
Integration of DRT can encourage a modal shift

NETWORK OF NATIONAL ITS ASSOCIATIONS

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H2020 MyCorridor: findings & lessons learnt

To facilitate *sustainable travel in urban & interurban areas & across borders and replace private vehicle ownership by private vehicle use*

- an *integrated/multi-modal MaaS chain*
- provision of an *innovative one-stop-shop platform*
- combine connected traffic management, ITS and multi modal mobility, infomobility and added value services
- thus facilitate modal shift.

Our World with MaaS

- Building a **one-stop-shop** for MaaS!
- **Services (multimodal)**:
  - Mobility services
  - Infomobility services
  - Traffic management services (TM2.0 ➡ TM2.1)
  - Added value services (cultural, sports, etc.)

Integrate several types of services to offer in a MaaS pattern.

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H2020 MyCorridor: findings & lessons learnt

The idea

SUPPORT ON PAN-EUROPEAN LEVEL: AMCO, IRU, Tom Tom, VivaWallet

25 transportation services integrated into the one-stop-shop platform:
6 mobility services
11 infomobility services
4 traffic management services
1 aggregated added value service
3 external trip-planners, provided also as an aggregated hybrid trip planner.

Targets

MONITORING PERIOD From March to October 2020		**PILOT SITES** 5	
USERS 60x5=300		**TRIPS** 180x5=900	

Overall pilot results

160 No. of users across pilots

934 No. of trips across pilots

70% / 30%

80% users are highly educated (higher or postgraduate education) and 60% between 25-45

60% users are family members, living with partners and/or with children

60% users have at least one car in the household

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H2020 MyC: two-stage impact assessment

KPI levels: Individual/user level; business/organisational; societal

- Definition of alternatives
- Stakeholder criteria and weighting factors
- Evaluation and ranking of alternatives

Selection of impact area KPI's
Data requirements and collection methods
KPI estimation methods
Context-aware analysis of situational factors
Data extrapolation and knowledge transferability

→ input → output

Semi-quantitative assessment to assess *impacts on environment, economy, society* using semi-quantitative data (both objective and subjective ones)

Simple MCA to evaluate future deployment paths of MyC; potential impacts on businesses, service providers and operators; req. changes to practices, policies and regulations

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H2020 MyCorridor: findings & lessons learnt

Modal shift	
Car	+2%
PT	+15%
cycling	+10%

Total no. of multimodal trips	
	+6%

Travel cost & travel time per individual	
	Negligible: +0,2€ & +6min per user

Road-based CO$_2$ emissions (TM2.0)	
	-23%
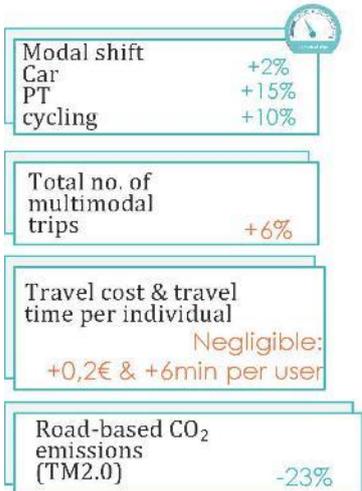
Operational:

- Integration of a **large number of mobility services** - *dense, frequent and integrated*
- **Not only innovative functionalities** (booking & payment) but also serving basic needs (mapping and routing)
- The **MaaS App has to show a clear added value** (compared to pure navigation apps for example) and has to be easy to use, clearly structured and intuitive.
- **TM features** valued by car drivers as MaaS users

Technical:

- An open, fair and transparent data governance system
- **Larger volumes of user group specific data** are needed for more focussed evaluation of MaaS uptake
- **Awareness raising of key benefits** and supporting policies
- MyCorridor triggered **sustainable travel** and generated positive economic and social impacts **despite the challenging context**

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H2020 MyCorridor: scaling up and replicability

Objective

Evaluating future deployment paths addressing overall perceived impact of MaaS and relative contextual factors; how impact would vary in accordance with business model and deployment setting (public vs private; urban vs rural)

Method: simplified multi-criteria analysis

average weighted criteria by stakeholder group and overall

expected impact of each scenario across the criteria for each stakeholder group and by average

Multi-stakeholder weighted evaluation chart (across criteria and by stakeholder group)

Simplified MCA: future MaaS deployment scenarios
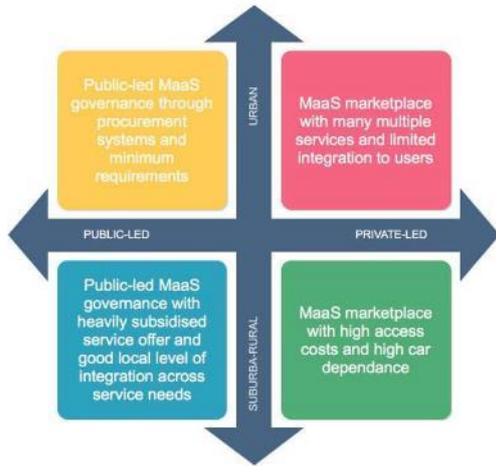
- **Urban – Private-led:**
  - Strong competition among players over profitable customer demand segments
  - Services integration potentially low restricting wide adoption
- **Suburban – Private-led**
  - High access cost due to low population density
  - Lack of critical mass produces low QoS and dependency on private car
- **Urban – Public-led:**
  - Services delivery is heavily driven by procurement systems and minimum requirements
  - MaaS offer seamlessly meeting diverse needs of customers
- **Suburban – Public-led:**
  - Heavily subsidised services offering service at no more than satisfying levels
  - Public-led nature does provide a good level of integration such as school trips, hospital visits, etc

Simplified MCA: key results

31 participants:
- Country (AT =8; CZ = 4; GR = 4; IT = 6; NL = 1; UK = 8);
- Role (Policy = 5; Mobility and transport = 14; MaaS ICT and aggregators = 9; others = 3)
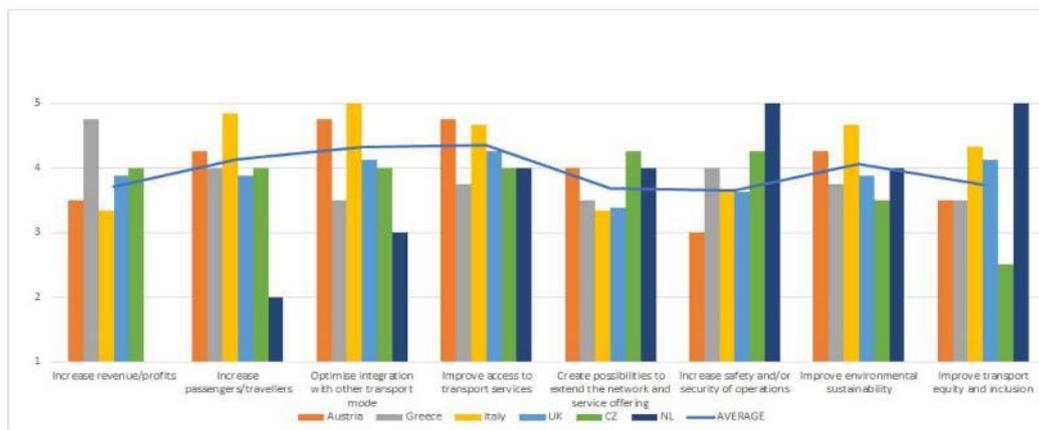
Simplified MCA: key results

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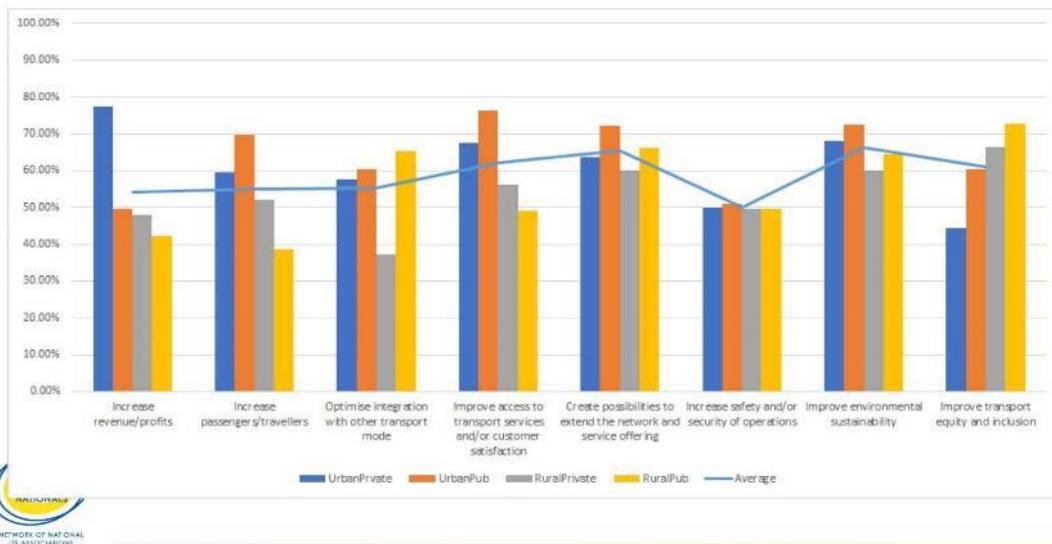
Simplified MCA: lessons learnt

- Optimising services and improving access are the highest rated impact criteria
- Urban public is the most amenable context for change
  - MaaS offers a means for integration and expanding service
- Rural private is the most challenging scenario
  - But potential market opportunity for niche providers
- Reasonable consistency of findings across countries – Austria and Italy value rural more than others
- Not a private / public distinction, but public-private partnership
- Greatest barriers are around data, data policy and equitable data / revenue sharing
- Covid-19 has reset transport, leading to new opportunities

TTS ITALIA — Does COVID-19 hold anything for MaaS?

An alternative to Air Travel for cross-border journeys?

Adding information about social distancing when travelling?

Reducing the need for physical tickets and use of ticket machines?

Giving information about passenger loading for public transit?

Giving people an easy way to access and understand public transit and encourage them not to use cars?

Including micro-mobility for low-carbon alternatives to private car?

From stakeholder consultations conducted in MyC involving PT & mobility operators, MaaS operators & aggregators, data & content providers, LAs, …

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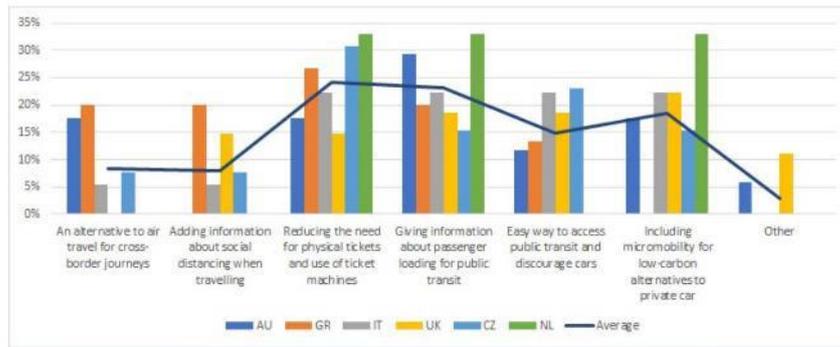
TTS ITALIA — Measures to make infrastructure proof-ready for MaaS?

PriMaaS webinar series - Going back to the new normal – The challenges and implications for regional transport systems and the widespread of sustainable MaaS in the post-pandemic era

- Integrated services
- Interoperability
- Cycling infrastructure
- Micromobility
- Intermodal hubs
- **MaaS as a tool to recoup PT demand from pandemic and limit car use**
- **MaaS to collect travel demand data** to fine tune mobility service provision (O/D)
- MaaS within traffic modelling
- **MaaS to monitor and reward sustainable travel choices**
- Integrate **MaaS into planning**

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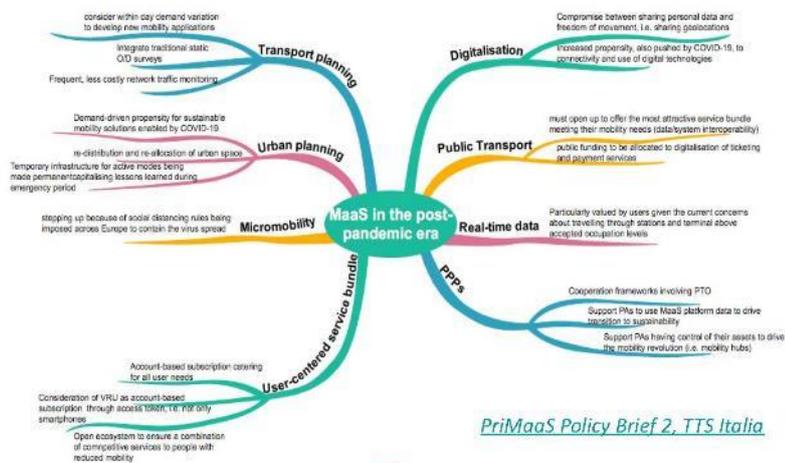
PriMaaS Policy Brief 2, TTS Italia

www.interregeurope.eu/primaas

PriMaaS
Interreg Europe

With the participation of:

MaaS ALLIANCE · UbiGo · moovit · SEI Stockholm Environment Institute · mobilità ROMA · TRAFIKLAB · OPENMOVE

Annex 5 – Presentation of Attila Aba

Introduction
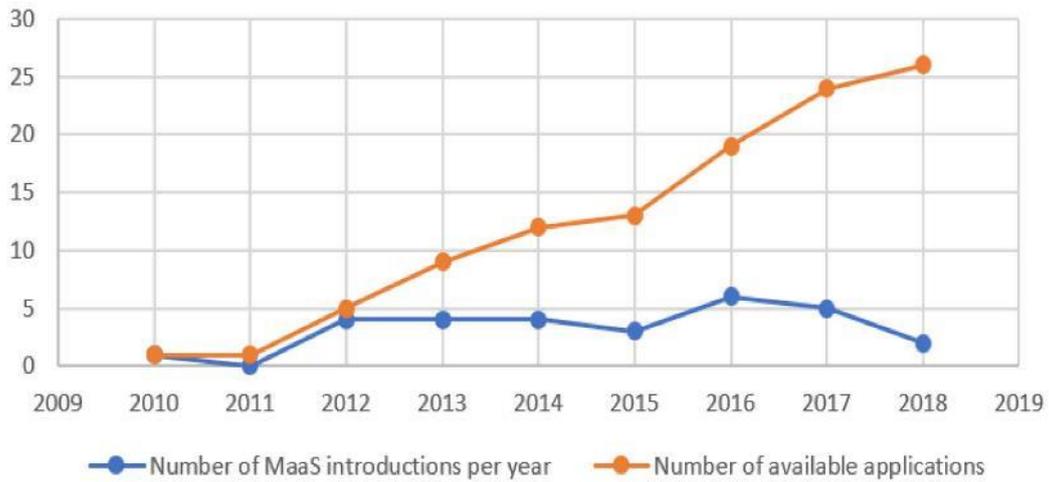
Mobility-as-a-Service

- planning

- booking

- ticketing
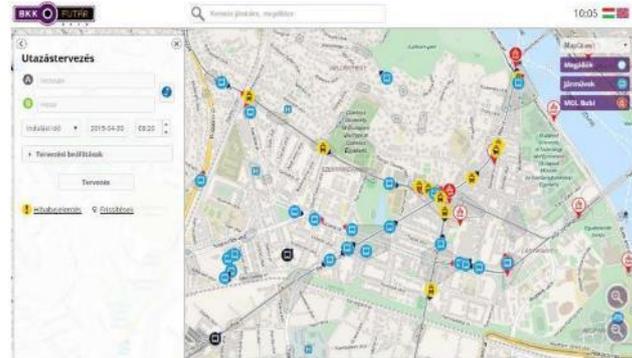
- payment

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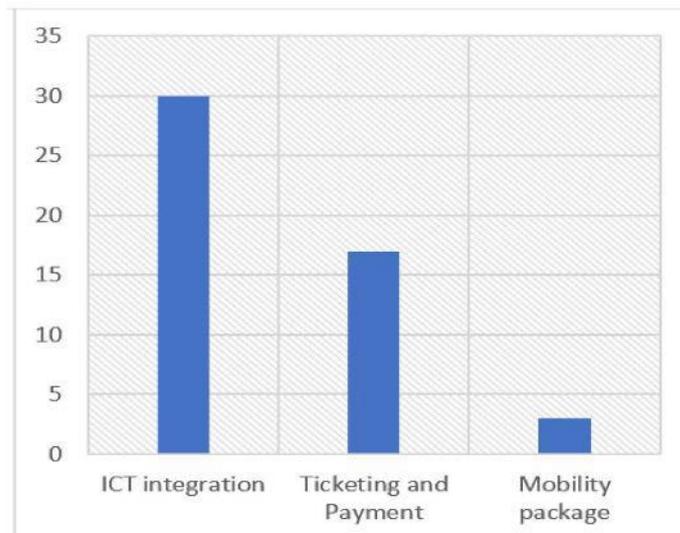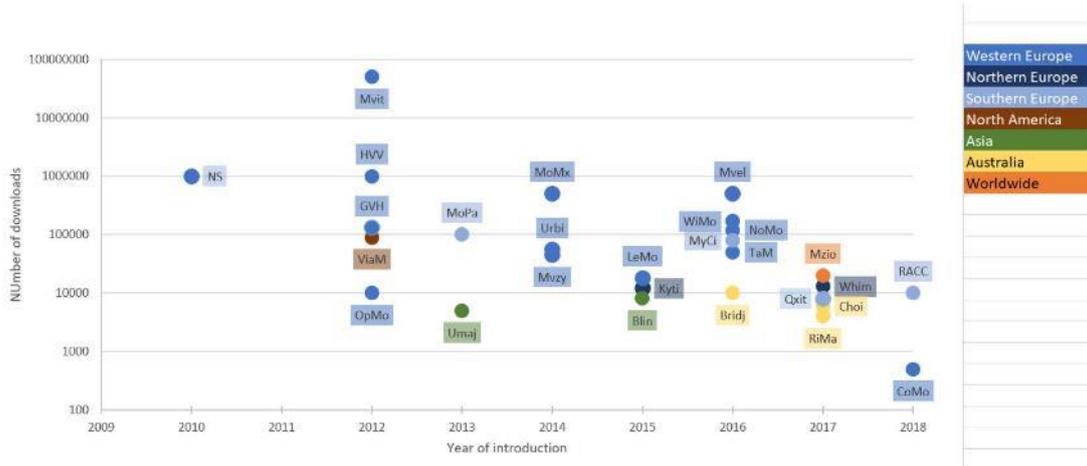**FACULTY OF TRANSPORTATION ENGINEERING AND VEHICLE ENGINEERING**

2

MaaS scheme
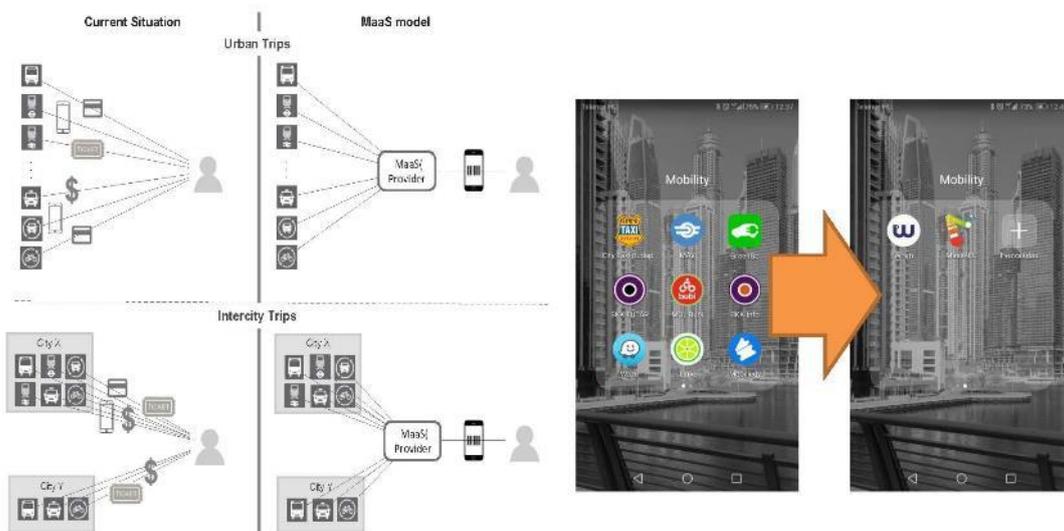
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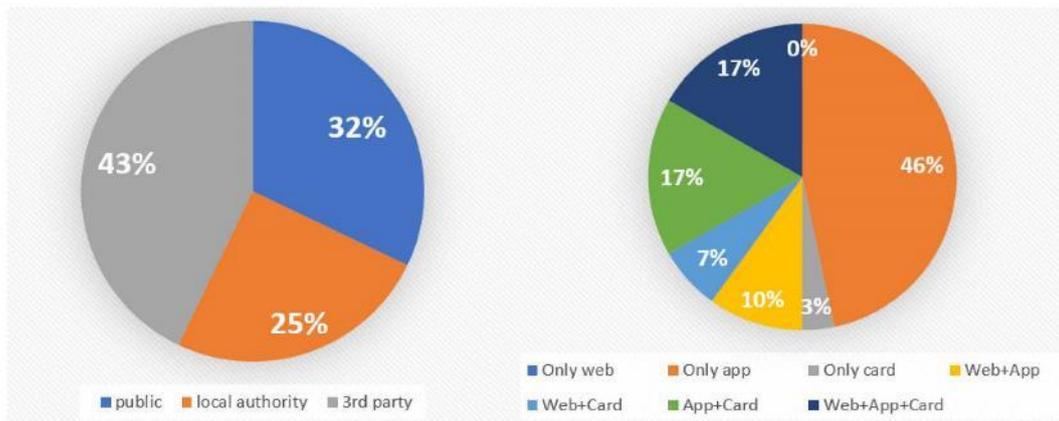**FACULTY OF TRANSPORTATION ENGINEERING AND VEHICLE ENGINEERING**

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MaaS4EU overview
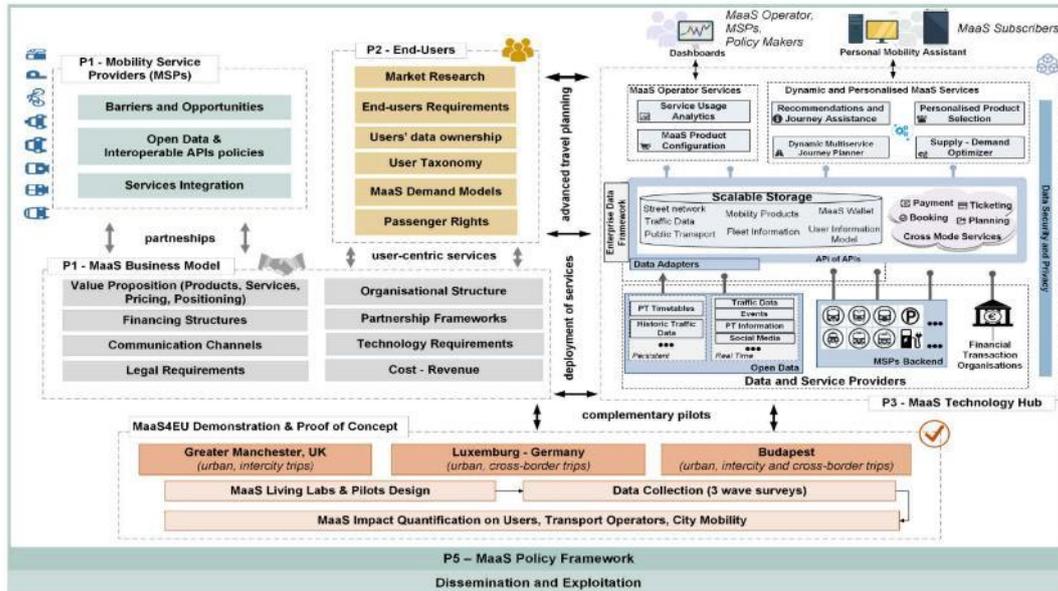
Budapest pilot

Budapest

- urban and cross-border trips
- locals and tourists
- Toll Service is the MaaS operator

Participants

- BKK: bus, metro, tram
- Mol BuBi: bikes-sharing
- Taxi: on demand
- MÁV-Start: railway
- Oszkár: ride sharing
- GreenGo: car sharing
- ITM: ministry of development
- KTE: transport association
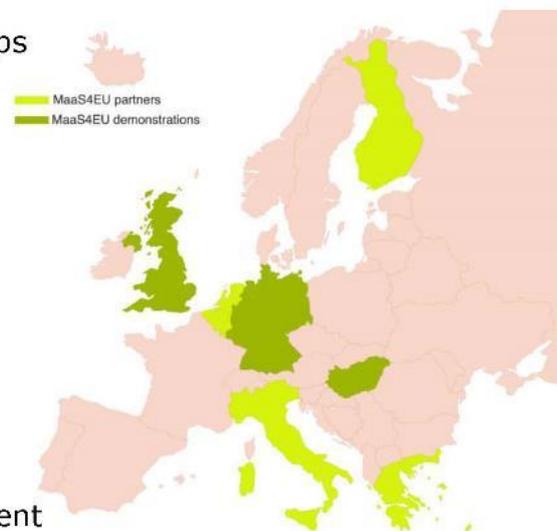
MaaS4EU partners
MaaS4EU demonstrations

Market analysis

MaaS applications on the market

- —●— Number of MaaS introductions per year
- —●— Number of available applications

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MaaS integration levels

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Penetration of applications

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Service types

Type of MaaS operators / Share of service platforms
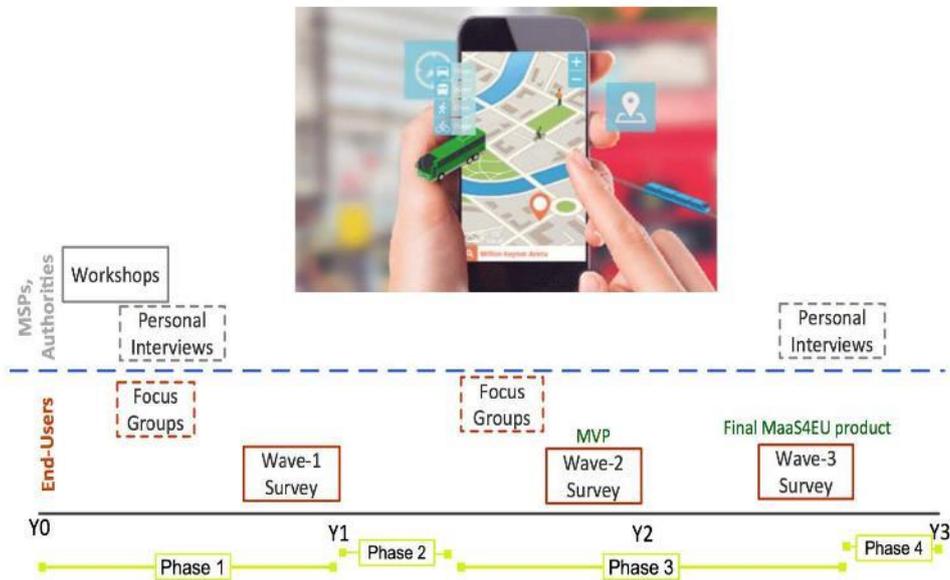
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Interreg
CENTRAL EUROPE
European Union
European Regional
Development Fund
RegiaMobil

Data collection

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Workshop

- BKK Centre for Budapest Transport
- Municipality of the City of Budapest
- Ministry of Innovation and Technology
- KTI Institute for Transport Sciences
- Moving Mass Association
- Motar car-pooling
- GreenGo car-sharing
- City Taxi
- MÁV-START railways
- National Mobile Payment
- MaaS.global
- Here technologies

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Pilot development
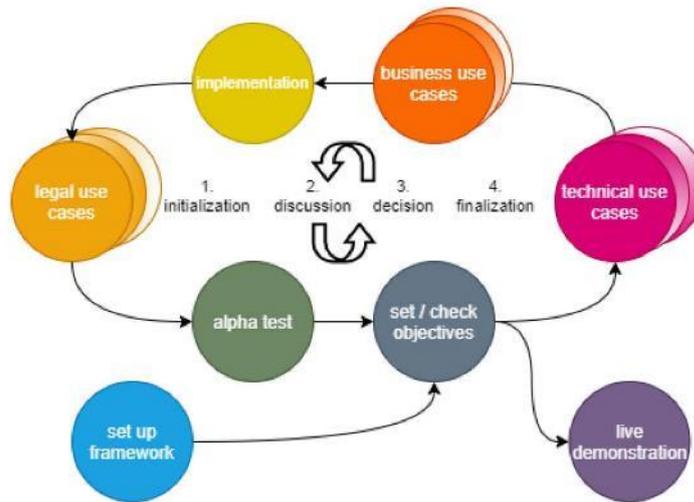
Criteria of successful implementation

- **Service reliability**
- **Real time information**
- **Privacy**
- Include all transport means available in the city
- Integrate other services apart from mobility services
- **Secure payment options**
- Promote use of public transport
- Provide data back to the involved actors

Data collection
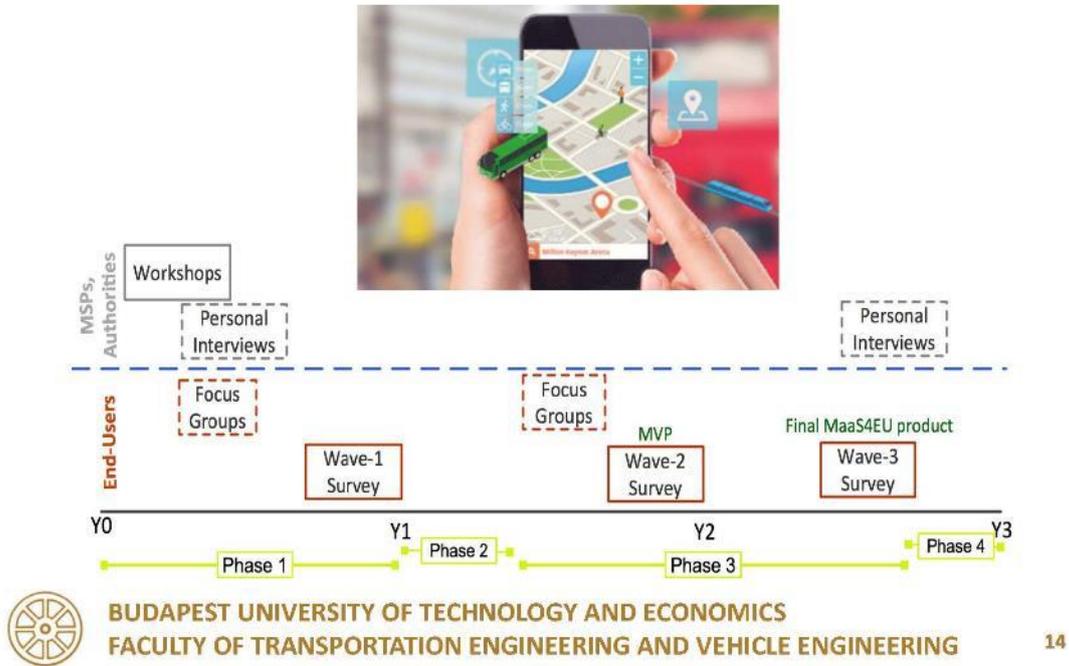
Level of integration

	Routing	Booking	Ticketing	Payment
Public transport (BKK)	MaaS4EU app	N/A	routing with vending machine	at vending machine
Bike-sharing (MOL-BuBI)	MaaS4EU app	MaaS4EU app	N/A	MaaS4EU app
Car-sharing (GreenGo)	MaaS4EU app	MaaS4EU app redirects to GreenGo app	MaaS4EU app	MaaS4EU app
Taxi (CityTaxi)	MaaS4EU app	MaaS4EU app	N/A	partially through MaaS4EU app
Ride-sharing (Motar)	MaaS4EU app	MaaS4EU app redirects to Motar app	N/A	N/A

MaaS package choices

	Public Transport	Taxi	Car-sharing	Bike sharing
Basic	Monthly pass			
Sharing Start	Monthly pass		1 hour	Monthly pass
Sharing Max	Monthly pass		3 hours	Monthly pass
Combo Start	Monthly pass	3 000 HUF		Monthly pass
Combo Plus	Monthly pass	6 000 HUF		Monthly pass
Combo Max	Monthly pass	9 000 HUF		Monthly pass
Full Start	Monthly pass	3 000 HUF	1 hour	Monthly pass
Full Plus	Monthly pass	6 000 HUF	1 hour	Monthly pass
Full XL	Monthly pass	3 000 HUF	3 hours	Monthly pass
Full Max	Monthly pass	6 000 HUF	3 hours	Monthly pass

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MaaS4EU application

Data collection

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Promotion

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Willingness to use

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THE BUDAPEST MAAS PILOT

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