

D.T2.4.3 DIGITALIZING MOBILITY SERVICES IN SHAREPLACE REGIONS

planning, governance, technology

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1. Executive Summary

This deliverable is the third component of the transnational technology-based service hub (O.T2.1) defined as follows:

- Component 1 (D.T2.4.2) Mobility data governance and management in the context of the development of a service hub - Strategic guidelines for cities and regions (AustriaTech).
- Component 2 (A.T2.5) Open-source code developed at pilot level for different pilot sites, and made available to third parties on a common repository (e.g. github.com) (Ulm).
- **Component 3** (D.T2.4.3) Guidelines (local strategic plans) for policymakers and planners on digitalization of mobility services in SHAREPLACE regions (Redmint).

This document summarized the view of main relevant stakeholders at regional level engaged in dedicated workshops in order to share their views and elaborate strategic approaches to the digitalization of mobility services, identifying requirements and conditions for digitization, impacts for citizens and opportunities for expansion of demand, and contributing to the definition of transparent rules for data sharing.

The deliverable is based on the findings of the workshops held in the Lombardy region (Italy, June 9th, 2020), in Ulm (Germany, June 23rd, 2020) and in Hungary (September 24th, 2020).



2. Governance, standards, formats

The first theme investigated by the workshops refers to data typologies, standards and formats are relevant for the digitalization of mobility networks and the creation of an ecosystem, and which governance elements must be put in place in order to allow its correct functioning.

2.1. Which data for the ecosystem

The legal basis for the digitalization of mobility data is represented by the Delegated Regulation (EU) 1926/2017, aiming at promoting intermodal mobility, creating a data ecosystem between EU member states. The document identifies different levels of data for which opening and securing access must be guaranteed. A first level, already active since 2019 on TEN-T networks, is represented by the static transport data for scheduled modes of transport. A second level, which should be guaranteed from December 2020 on TEN-T networks, includes fare data for all scheduled mobility services in the EU as well as demand responsive modes of mobility (DRT¹). Data should anyway be available from 2023 on also in territories not covered by TEN-T network infrastructure.

Static and dynamic data are important for the operation of the systems; one of the relevant aspects is the sharing of data enabling specific features (e.g. ticketing), for which a high level of coordination between transport operators, agencies, region is required; not to be forgotten, in a broader perspective, are other service providers (e.g. car sharing) and re-sellers (MaaS operators).

2.2. Formats and standards

GTFS is the relevant format for mobility data, the critical factor is digitalization rather than standardization. In fact, as emerged in the workshops GTFS data can be hardly available in some contexts,

Moreover, it is fundamental to reduce dependency on closed systems, formats and digital service providers managing them.

2.3. Governance

A system of rules for sharing is missing; for its definition and implementation, it would be desirable to identify an external entity as the guarantor of transparency. One of the reasons is that the approach based on voluntary sharing of data is not sufficient to support digitalization and integration of information bases.

Tender specifications and service contracts should include incentive mechanisms to support digitalization and data sharing.

The characteristics, role and powers of an independent body acting as guarantor of transparency and non-discrimination must be defined, as well as its geographical coverage.

¹ DRT as defined in DR 1926/2017 include shuttle bus, shuttle ferry, taxi, car-sharing, car-pooling, car hire, bike-sharing, and bike-hire



3. Benefits and rules for sharing

The second theme of the debate is represented by the expected benefits for service providers, public authorities and citizens combined with a set of necessary rules to enable and foster the sharing of data emerged from the debate conducted in Ulm.

3.1. Expected benefits for business, administrations and citizens

The need for sustainable, multi-modal and integrated mobility is increasing, and with this also the role of information systems as a critical factor of success. Passengers must have a complete picture of the offer, even in real time, in order for the system to be competitive with motorized private mobility.

Cooperation between different parties must generate shared benefits, both for users and for the supply system. And in this scheme, mobility ecosystem operators must be both data providers and users to maximize integration opportunities.

Shared service operators benefit from the opening of information flows (e.g. carpool operators can share data on bookings and availability of connections and use data available on parking spots, but also on timetables for train, metro, etc.).

An appropriate segmentation and focus of shared and flexible services is crucial to the success of an integrated system: in particular shared services, born and developed in a context of competition in the market (even with other modes) in densely populated areas, must integrate spatially and temporally with traditional networks to provide diversified, capillary and intermodal services.

A conceptual mistake of the past should be avoided, as the attempt to develop an "app of apps": today the ecosystem approach is more promising, based on a mix of Open APIs and incentive rules

The pandemic situation has an impact on the development and spread of digitization. In the light of the new COVID-19 emergency rules, the need to develop solutions such as crowd detection systems, booking and information on rules and behaviours, dematerialization of tickets, requires information sharing and integration of sources and channels.

For public administrations in charge of mobility policies and planning, the digitalization process generates a huge benefit in terms of knowledge of phenomena and enhancement of planning capabilities. This has an impact on the design and fine tuning of services, mobility measures and infrastructure, but also in terms of cost savings connected to a better knowledge of traffic flows and user behaviours.

3.2. Common rules for sharing information

Documentation of data flows is a prerequisite for knowing how to export data and securing access to third parties. Use for third parties is to be secured by either licensing data in the public domain (CC-0 or DL-DE Zero) or, in the case where author's rights need to be protected under European copyright law, they should be secured with CC BY Creative Commons licenses. If IT service providers are assigned to implement solutions, it is viable to clearly state those licensing terms in the contract.

Creative Commons licensing terms guarantee that data is still accessible once requirements change unexpectedly, rigid systems may no longer work or a change of service provider is necessary.

A focus should be set upon (ideally international) standards (GBFS, NeTEX, GTFS) and open interfaces ensure adaptability to changing circumstances.



4. Barriers and conditions for digitalization

Another aspect investigated with the support of expert stakeholders refers to the barriers to digitalization of mobility networks. The section is completed with the identification of a set of technical conditions for digitalization complementing the findings of the previous chapters.

4.1. Barriers to digitalization of mobility networks

One barrier to digitalization is the critical mass: in particular, with regard to suburban systems and low-density areas, integration costs can be an economic barrier; There is a minimum efficient size for integration, under which inefficient ecosystems are created; in these ecosystems, moreover, often there is a lack of services to be integrated (e.g. bike sharing).

For flexible services there are social and cultural barriers both concerning the digitization of the population and the acceptance of sharing; in both cases, the process must allow for evolution to more efficient systems where service costs (e.g. call centers) can be reduced.

At the information level, an example of a barrier to the dissemination of new services and solutions is interoperability and availability of data on charging points for electric car sharing. The Lombardy Region through E015 intends to develop a mapping to improve the level of information available, to ensure the continuity of electrical routes and better access to infrastructure; this example can be an attractive benchmark for the development of good information sharing practices in the context of sustainable mobility.

Another range of barriers can be classified as “behavioural”. For example, people living outside Budapest are used to being able to buy the printed timetable booklet containing all the lines with the departures. In Budapest in the last 30 years there were no printed book about the lines at all and the company is not even planning to bring it back (it sounds interesting as the printed booklet can be found even in the western countries in Europe). Generally people are used to the old system and are afraid of any changes, so leaders are afraid of it as well, because in case there is a change and 99% of the users will have better solution for their demands, still that 1% is the loud and critical.

Last but not least, technological lock-ins in mobility digitalization can represent a relevant barrier especially when standardization and openness represent conditions to exploit the benefits of integration.

4.2. Conditions needed to support the digitalization process

On the one hand, a strategy to overcome economic barriers can be the replicability of solutions, on the other hand the modulation of services to be integrated can be developed through a joint market action and regulation/programming of services. In both cases (replicability of solutions for digitization and modulation of ecosystem services) these processes must also be accompanied through experimentation of innovative models and schemes.

For flexible services, there is a tradeoff between service flexibility and economic efficiency; the goal must be to identify possible balance points through cost reduction and increased demand captured.

Another condition in order to achieve good levels of acceptance is to implement system that respect the privacy of citizens and are compliant with the General Data Protection Regulation (EU) 2016/679 (GDPR). A good example is provided by the Wienmobil application, where the use of anonymized travel behaviour data is subject to request.



5. Experiences and good practices

5.1. Lombardy

E015 digital ecosystem is an open, competitive, non-discriminatory digital environment for the development of integrated software applications. It represents a link between the provider and the user of the data, acting as a facilitator of exchanges on a voluntary basis.

Through the E015 environment, each "adherent subject" (company, body, association) can join the ecosystem:

membership is free and can be activated online through the E015 Website. E015 provides members with guidelines for participating in the ecosystem -i.e., the E015 "common language" -for interoperating with other members.

Members can contribute to the ecosystem in different ways. They can:

- publish E015 APIs, i.e., expose part of their own information assets in the ecosystem through Web services, so that other members can ask for them in order to build integrated applications for the end-user.
- build E015 end-user applications, i.e., develop Web sites, mobile apps, information kiosks etc. providing end-users with value added contents and functionalities by asking for the data provided in real-time by the E015 APIs.

Concerning public transport, few companies offer API providing basic data (e.g. ATB Bergamo shares its timetables, the Region provides an intermodal route planner based on static data (Muoversi in Lombardia), and others published their app (e.g. the Bergamo Trasporti consortium, integrating the Muoversi in Lombardia API).

5.2. Ulm

The SHAREPLACE pilot plan focuses on the creation of a mobility digital ecosystem for the City of Ulm, through the development of a multimodal route planning integrating the mobility services available in the area.

Rather than on a business or publicly oriented approach, the pilot activity mainly relies on the principles of collaborative economy involving local and national/international communities of developers and provides an adaptable and scalable approach to the challenge of creating and integrated ecosystem.

Ulmrouting is already in operation and in continuous development, and is complemented by a second element called Openbike, a proof of concept for a new bike sharing system.

5.3. Hungary

BKK FUTÁR is the multimodal trip planner for Budapest, based on a proprietary software. During the development, unique interfaces were created. Regarding the further development of the system, the main problem is the regular data flow, as the data structure of this service is not like written in the later law (Transmodel or SIRI), these are not compatible with each other. The biggest problem about having a unique product is having niche market, there is only a few possible connections to the system, but GTFS and GTFS-RT (FUTÁR also handles real time data) is one of them. The new solution to be adopted will be GTFS-based.



6. Conclusions

The objective of this deliverable was to complement the desk analysis on mobility data governance and management developed by AustriaTech within component 1 of the transnational technology based service hub, with the view of expert stakeholders on relevant critical elements of the digitalization process in regions.

The workshops allowed, through the sharing of experiences and opinions, to highlight a number of critical factors of success as necessary conditions for the digitization and development of integrated mobility systems.

Stakeholders confirm the **potential of digitalization**, and the importance on data both in order to reach higher levels of integration of services, and to develop new services and functionalities that improve the adaptability of mobility networks to evolving needs of citizens and communities.

Concerning **formats and standards**, the view of expert stakeholders confirmed that as general trend a certain level of alignment on common standards exists, while challenges refer to the availability of digitalized data, and in terms of approach the dependency on closed systems should be reduced.

A good **governance** must ensure transparency and foster the participation to the ecosystem through incentive mechanisms connected for example to contracts, permits and licenses.

The **benefits** of the digitalization process sustained by data sharing depend on context conditions; for citizens, depend on the availability and characteristics of the services populating the ecosystem, for operators are related to the transparency of rules and the collaborative approaches put in place, for policymakers and planners are connected with the availability and quality of information enhancing the knowledge of mobility trends. In terms of **rules** for sharing, experts agree that an open and adaptive approach is required.

There are several typologies of **barriers** to digitalization: engaged stakeholders mainly focused on economic and behavioural ones, identifying among conditions for success the definition of market size and competitive-collaborative approaches.

Experiences and good practices presented three approaches related to the regional and local contexts investigated: the E015 Lombardy experience, based in open APIs and voluntary participation, the open source city-oriented by Ulm and the proprietary approach in Budapest Functional Urban Area.