



# H2020 INCLUSION

## Deliverable D7.5

### Exploitation and Innovation Management Report

Version: 1.0

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This project has received funding from  
the European Union's Horizon 2020  
research and innovation programme  
under grant agreement No. 770115

## Document Control Page

Title		Exploitation and Innovation Management Report	
Editors		Michele Masnata, Raffaella Tedesco (SOFT)	
Contributors		MEM, RUPPRECHT, MOSAIC, UNIABDN, VRS, BUSIT, TAXISTOP, HITRANS, BUSUP, BKK	
Nature		Report	
Dissemination Level		Confidential, only for members of the consortium (including the Commission Services)	
Version number		1.0	
Planned Delivery Date		30 09 2020	
Version date		30 09 2020	
Abstract		The exploitation strategy is developed to ensure a proper and effective usage of the project outcomes and recommendations after the project ends. The exploitation strategy is developed in cooperation with the Pilot Labs to capture the most interesting and promising results and potentials. The maximisation of impacts and transferability of the concepts and solutions is assessed with the criteria and indications identified throughout the whole project duration. These includes: the preliminary analysis and findings of WP1 and WP2, the evaluation carried out in WP5 and the business models and financial sustainability patterns developed in WP6.	
Version	Date	Modified by	Comments
0.1	09/08/2019	Michele Masnata (SOFT)	First release.
0.2	19/06/2020	Michele Masnata (SOFT)	Second release
0.3	31/07/2020	Michele Masnata (SOFT), Raffaella Tedesco (SOFT)	Third release
0.4	01/09/2020	Michele Masnata (SOFT), all contributors	Integration of individual exploitation plans
0.5	16/09/2020	Michele Masnata (SOFT)	Final version for peer review
0.6	28/09/2020	POLIS	Peer-reviewed version
1.0	30/09/2020	Raffaella Tedesco (SOFT) Michele Masnata (SOFT)	Quality review, final version

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# 1 Executive summary

The INCLUSION exploitation strategy has been developed with a methodological approach to ensure the achievement of effective outcomes in terms of introduction of project results to the market and scientific contexts. The strategy is based on 3 main pillars: INCLUSION solutions, including business models, recommendations, Individual partners' interests and the Market context (section 3).

The exploitation strategy first analyses the exploitation background with the identification of the priorities and principles that should drive the introduction of the INCLUSION results to the market and in scientific exploitation contexts. The most suitable approach for market development has been identified by highlighting the importance of public-private partnerships which emerged as one of the key aspects for the effective transferability and replicability of the innovations. It has been also remarked that an effective approach to introduce the solutions should have an holistic approach given the need to consider the transport system as a whole and the importance of the social dimension of inclusive transport which makes the exploitation relevant not only in a pure financial view but also considering the social aspects vs. the real needs/priorities (sections 3.5 and 3.6).

The target markets have then been analysed (section 4) from the analysis of the exploitable results, the relevant stakeholders, roles, interests, the market conditions and the opportunities. A comprehensive summary of exploitation and marketing opportunities has been produced considering the perspective and opportunities for the relevant stakeholders: public and private Transport Service Providers, community (volunteer)-based service providers, technology providers as well as other stakeholders operating in different contexts like health, social, education, event organization, commerce. A dedicated analysis has been done for marketing challenges considering the drivers and barriers emerging in the previous project activities (Impact and process evaluation of the introduced solutions, business model design and validation, transferability analysis and recommendations). An evaluation of the impacts of the COVID-19 emergency complements the analysis of the INCLUSION envisaged target marketing conditions. Conclusions on this topic have been formulated by taking into account the opportunities for single types of actors and the potential for cooperation and public-private partnerships.

The exploitation strategy includes a commercial strategy that identifies the most effective approach to potential customers, the communication channels and IPR aspects (section 5). The exploitation strategy is also intended to include the development of a set of Business Models for the identified solutions and results. INCLUSION has a dedicated Work Package (WP6) for this activity. Although the deliverable contains a summary of the main findings of this Work Package (section 6), the WP6 reports (Deliverables D6.1 and D6.2) should be actually seen as complementary to this document as they contain the complete information on the developed INCLUSION Business Models.

Finally, the exploitation strategy includes all individual exploitation plans from the INCLUSION transport operators, industrial partners and academic partners. The individual exploitation plans are developed from a set of suggested guidelines proposed for each partners' profile (section 7).

## 2 Introduction

### 2.1 About INCLUSION

The main objective of the INCLUSION project is to understand, assess and evaluate the accessibility and inclusiveness of transport solutions in European prioritised areas, identify gaps and unmet needs, propose and experiment with a range of innovative and transferable solutions, including ICT-enabled elements, ensuring accessible, inclusive and equitable conditions for all and especially vulnerable user categories. INCLUSION is addressing a large set of case studies involving different forms of geographical areas and transport contexts, demographic categories, population groups and mobility solutions, providing concrete experiences from various European sites and pilot initiatives involving a variety of regulatory and business frameworks, supporting technologies, organisational and operational conditions. Complementary to this, a number of innovative solutions are being concretely tried out and validated through real-life experiments in the so-called innovation Pilot Labs in a mix of urban, peri-/sub-urban and rural target areas.

In particular, the project produced a set of innovative solutions which were tested in the following **Pilot Labs**: **Rhein-Sieg region** – Germany; **Flanders region** – Belgium; **Budapest** urban area – Hungary; **Florence** metropolitan area – Italy; **Barcelona** peri-urban area and neighbouring conurbation – Spain; **Cairngorms National Park** rural area – Scotland, UK.

### 2.2 Exploitation and innovation management

The overall aim of INCLUSION's dissemination framework is to promote the project, its mission and results to a wide group of stakeholders, including city authorities and decision makers, product developers (ICT), researchers and consultants, interest groups on transport and related challenges to accessibility, equity and inclusion. Through different targeted activities, dedicated communication tools and appropriate communication channels, INCLUSION wants to understand and unlock the potential of concepts and solutions with the regard to transport's accessibility and inclusivity of vulnerable travellers in peri-urban, Rural/remote areas and urban areas in Europe. In particular with remote/rural area is meant an area that is characteristic of, or relates to the countryside rather than the town; peri-Urban is relating to or situated on the edge of an urban area

Within WP7, the communication and dissemination aim described are translated into the following operational objectives:

- Define and implement a common strategy for effective and integrated communication and dissemination of INCLUSION activities and results.
- Develop and design the necessary tools for appropriate dissemination.
- Inform the relevant stakeholders at local, national, European and international levels and ensure a wide visibility of the project.
- Increase the project's visibility, thus broadening the project acceptance and influencing the uptake potential.



- 
- Enhance media coverage and local awareness via local workshops in the Pilot Labs.
  - Inspire a wide uptake of innovative solutions for accessible and inclusive transport across Europe.
  - Leverage the additional multiplier effect offered by the INCLUSION Stakeholder Forum to widen the outreach capabilities of project achievements and recommendations.

The aim of the exploitation strategy is to capture and disseminate the most interesting and promising results and potentials by looking specifically at the transferability of the concepts, solutions, initiatives, actions and measures analysed, implemented and validated both at research level (only in terms of analysis) and in the pilots (also for the aspects of implementation and validation).

The present deliverable reports on the exploitation strategy developed in the project, based on the mobility and transport services and solutions identified, implemented and validated. It includes a market analysis to identify the main opportunities, a commercial strategy, guidelines for the exploitation and the individual exploitation plans developed by the INCLUSION industrial partners, service operators and academic institutions.

The exploitation strategy per se, is intended to include the development of a set of Business Models for the identified solutions and results. INCLUSION has a dedicated Work Package (WP6) for this activity. Although this deliverable contains a summary of the main findings of this Work Package, the WP6 reports (Deliverables D6.1 and D6.2) should be actually seen as complementary to this document as they contain the complete information on the developed INCLUSION Business Models.

## 3 Methodology and background

The methodological approach is defined to ensure the achievement of effective outcomes in terms of exploitation of the results. This takes also into account the outcomes of internal and external interactions:

- Feedback from main actors of the pilots and local Stakeholders.
- Evaluations from experts on INCLUSION innovative solutions (T2.3 questionnaires on innovation).
- Discussion and validation of the INCLUSION Business Models with members of the Stakeholders' Forum (Project meetings: Barcelona Workshop 23<sup>rd</sup> Oct 2019; Virtual Meeting 15<sup>th</sup> Jul 2020).
- Suggestions on which organizations, actors, companies to contact by the Stakeholders' Forum (Barcelona Workshop).

### 3.1 Main exploitation themes

The INCLUSION exploitation plan considers the different and individual roles, interests and plans expressed by the Project's Partners and are grouped in four main themes as follows.

#### Transport innovation

The project results are exploited to consolidate the experience in the definition of innovative strategies and tools to carry out the users' needs analysis in terms of mobility requirements (WP1, WP3) considering co-participative processes. New concepts/ideas developed in WP2 allows to consolidate the expertise compared to the EU level research focused on the design of innovative solutions (service planning, IT, resources/organization, operational procedures) to improve accessibility for PT: these concepts also deals with areas (PT marketing, set up of commercial strategies) which are complementary to the core services and skills of the company (more focused on service planning and ITS operation). The knowledge gained in the project allows the Partners active in transport innovation to offer enhanced and integrated package of consultancy services improving potential in the core market of Mobility and PT Operators, Mobility Agencies and Statutory Authorities.

#### ICT innovation

The experience taking place from selected ICT providers allows a sharing of knowledge and competencies in the development of IT solutions targeted to collect and satisfy users' needs for the development of "business intelligence" and "knowledge based" tools.

Another segment of exploitation is the know-how and technology demonstrated in the pilot sites providing Big Data services for the personal mobility market. These are exploited to develop and offer ICT solutions in this field to private or public transport operators.

## Service provision

Service providers take advantage of the approaches, methodologies and results validated by Inclusion project in order to enhance their capabilities to map PT accessibility drawbacks in the different covered areas (metropolitan/large urban areas, small/medium towns, suburbs and peripheral settlements, dispersed villages, rural areas), assess them and define the most suitable solutions to ensure the compliance with the mobility needs of the different vulnerable users categories involved in the various typologies of prioritized areas. Since the area types and user categories considered in the project represent a wide range of typologies with different features, the knowledge built (in particular through the development of innovative concepts in WP2 and the extensive survey carried out in WP3) is extensively exploited by the service operators to solve different accessibility problems in different realities and improve the market potential of their services in prioritized areas. In particular, as pointed out by providers like BUSIT and BUSUP, it is expected to have an improvement of expertise in carrying out users' needs surveys and marketing campaign by increasing the role of initiatives and actions like co-creation, crowdsourcing, use of social media able to guarantee a closer relationship with their users (current and potential). The coverage of the services will guarantee a high potential for the scale up of the mobility solutions in terms of prioritized areas, target users, societal/mobility/technological background.

## Scientific and networking

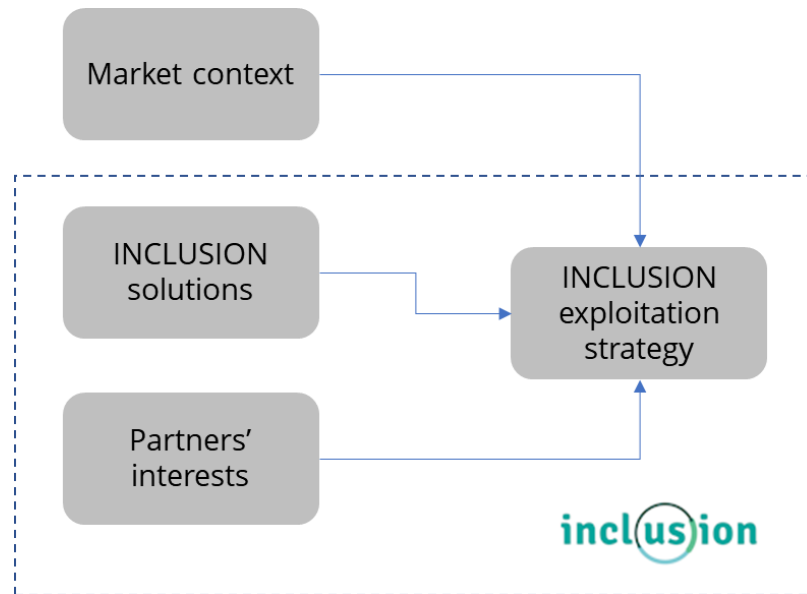
Most of the project's partners are deeply involved in EU and worldwide scientific activities including conference papers, articles and publications. The new concepts, methodologies and tools developed by the Inclusion project will allow the organizations active in academic, scientific and networking context to gain/consolidate knowledge on PT marketing techniques and communication strategies which can be easily integrated in their scientific production.

Scientific and networking activities have been carried out during the project lifetime with articles (i.e. an article for on UK test site -Cairngorms National Park- for the magazine of ITS UK by UNIABDN), presentation at industry-facing events and to relevant organisations such as: ITS UK (The trade association for Intelligent Transport Systems, [www.its-uk.org.uk](http://www.its-uk.org.uk)) Transport Systems Catapult (TSC <https://ts.catapult.org.uk/>), UITP as well as with academic journal articles (e.g. Transportation Research A; Case Studies in Transport Policy) and conference papers.

## 3.2 Strategy

The INCLUSION exploitation strategy is based on 3 main pillars:

1. INCLUSION solutions, including business models, recommendations
2. Individual partners' interests
3. Market context



*Figure 1 – Main elements of the INCLUSION exploitation strategy*

- The solutions, business models and recommendations designed, analysed and validated in INCLUSION have a clear impact on the exploitation strategy. The innovative character of the **solutions** provides the uniqueness, which gives the project results high potential in an exploitation and commercial environment. INCLUSION innovative solutions are providing value for inclusive **Transport innovation**, **ICT innovation**, **Service provision** and **Scientific and networking activities**. The INCLUSION exploitable results and knowledge based on these solutions are described in this document.
- The **individual partners' interests**, participating in the project, guides the exploitation strategy. Especially looking at possible future opportunities that each organization will have thanks the gained experience. Furthermore, the consortium members have detailed their individual exploitation plans in this document. INCLUSION has a dedicated Work Package (WP6) for the definition of the **business models** supporting the exploitation. The INCLUSION business models are developed also according to the individual broad strategy of the project members in order to assure investments.
- The analysis of the **market context** helps INCLUSION partners to identify and evaluate opportunities for their exploitation. It allows monitoring other initiatives (commercial or research ones) and gives the opportunity to move towards a strong market position regarding potential competitors in the field of inclusive transport. In order to develop a clear understanding of the market potential, a market analysis is performed in this document.

### 3.3 Definitions

Some useful definitions related to the exploitation strategy are described in the table below.

Definitions	
<b>INCLUSION Exploitable Results</b>	Outputs of the project studied and validated from the business point of view.
<b>INCLUSION Exploitable Knowledge</b>	Methodologies and expertise that INCLUSION partners have acquired during the project.
<b>Business Ecosystem</b>	The different types of stakeholders who interact to implement, deliver and make use of the solution on the market.
<b>Business Model</b>	The business models of the different types of stakeholders, as they are now and as they can evolve thanks to implementation of the INCLUSION solutions.
<b>Business Concept</b>	The business concept is a potential new business, based on INCLUSION solutions, that the partners intend to explore for potential exploitation on the market. The business concept can be explored by a single partner or jointly by a group of INCLUSION partners who would like to exploit it together.
<b>Exploitation Plan</b>	The exploitation plan describes the strategy, goals, commercial and financial plan for the exploitation of a Business Concept. The exploitation plan is a concrete implementation plan of the Business Concept.

*Table 1 - Definitions*






### 3.4 Target quality standards: the user principles

The exploitability of results requires compliance with a minimum level of quality that needs to be assessed in relation to the results themselves. Setting the quality standards involves particularly the aspects that makes the results:




1. competitive, relevant, interesting and incisive for growth in the marketing or research scope where it is exploited
2. suitable for the user needs.

The first aspects shall be investigated in accordance to the marketing conditions and opportunities which are identified in chapter 4 of this deliverable.

The second aspect shall consider the user needs, which have been identified through literature review, expert workshops, the stakeholder forum and surveys/interviews with user groups, operators / service providers and funding organisations in INCLUSION WP1<sup>1</sup>. Specifically, to establish a quality reference standard for the INCLUSION exploitable results, from the point of view of the user needs, it is adopted a set of **key user principles** defined and applied for the assessment of the transport solutions throughout the project. These principles are recalled in the table below.

Principle		Description
ACCESSIBLE		The transport network, stations, vehicles and information are barrier-free (physically, sensorially and linguistically). This also includes ticket machines, apps for smartphone accessibility features, simple user-centric access to digital devices, acoustic and visual announcements at stations and aboard vehicles.
AFFORDABLE		Transport services are affordable for all users, in particular vulnerable users, relative to their income and proportional to their other overall cost of living. An inclusive society will have to cover related costs and subsidies and avoid imposing a major cost factor on any particular user group(s).
CONVENIENT		The time and/or effort required for vulnerable users to reach a transport service (e.g. first and last mile) are minimised so that these users can benefit from the service in their everyday lives. Distance to the nearest service, reliability and adequate information provision about the service (e.g. timetables, route planning) contribute to its convenience.
EFFICIENT		Once vulnerable users are aboard a vehicle, the time and/or effort required to use the service (e.g. longer journey times, changing vehicles multiple times) are minimised so that these users can benefit from the service in their everyday lives. The main factors contributing to efficiency are vehicle routes, network coverage and intermodal connectivity.
EMPOWERING		Mobility solutions that build vulnerable users' capacities to get around confidently in their everyday lives. This idea can manifest in a training course or a scheme of "travel buddies" for certain social groups so that they are enabled to use certain transport options without requiring help by other people. Also, technology can play a role here if it creates new degrees of freedom.

<sup>1</sup> The complete reporting of these activities is in deliverables D1.2 and D1.3. Deliverable D6.1 contains a synthesis of the main WP1 conclusions

EMPATHETIC		Empathy-building initiatives foster awareness and build capacities (e.g. through training) among the transport provider and general public for vulnerable users' needs and increase their readiness to help. Sometimes, mobility options would be more accessible if there were some kind of "helping hand" (literally or metaphorically) to support vulnerable users.
GENDER EQUITABLE		Gender equitable mobility services enable all users, regardless of gender identity or orientation, to have access to transport services that meet their daily needs. This does not require providing equal services for all, but rather providing services that are equivalent but different, recognising that not all groups have the same mobility needs. Measures that improve and facilitate inter-modality, accessibility and safety are primary considerations for gender equity.
SAFE		Mobility services that increase the perceived and actual safety of all vulnerable users by preventing accidents, theft, violence and harassment. Related interventions include hard measures (e.g. lighting, spatial layout, station and vehicle design, signage, emergency buttons, etc.) as well as soft measures such as human surveillance, communication, staff training and public awareness campaigns.

*Table 2 - INCLUSION user principles to evaluate the quality of exploitable results*

### 3.5 Identification of the priorities

INCLUSION identified several priorities from the case studies, piloting and validation activities. Each priority should of course be intended and combined with the user principles presented in the previous section. From the point of view of the exploitation of results, the following considerations are formulated.

- Given the limited **Public transportation options** in some areas and conditions (inflexible, infrequent during night-time or with bad public transport connectivity), the only option for traveling is often by private car. The results of the above needs is the high car ownership in rural and peri-urban areas which puts pressure on existing rural public transport, determining a diminished service, which in turn tends to encourage even higher car ownership, leading to PT decline and to a vicious circle  
The **infrastructure** itself, on these areas, has been for long planned for car ownership which makes very complex to deliver more diverse transport options. For instance, buses and taxi services can use the infrastructure, but at the same time this situation, creates a barrier for services like bike, e-bike or scooter sharing to be introduced in a fully functional way. However, although there is a high car ownership in rural and peri-urban areas, certain vulnerable user groups always require other transport modes to achieve a **transport independency**. A comprehensive service ensuring **more coverage and less travel time** is then a priority.

- **Sharing of resources** and other **new forms of transport** are opportunities to overcome the barriers described above. For example, the implementation of services such as asset sharing models (e.g. car sharing, carpooling, etc.), Volunteer-based and Peer-to-peer services can help complementing traditional PT services and creating new options for regular trips in rural and peri-urban areas. In general, an **increase inter-modality or choice** is a priority to be addressed.
- Providing useful and significant **information** to improve PT service provision to vulnerable users is another key aspect. The information flow should be bi-directional: local networks that represent vulnerable user groups are essential for the PT authorities to understand vulnerable users' needs. It is very important to keep an active communication with all the local networks and act according to the needs expressed by them. If there is a group of vulnerable users that is not represented by any network, their needs will be barely considered. Moreover, **plurality of choice, enhanced integration** and **increase confidence to travel** are associated and achieved through better information
- Travellers with mobility impairments and special needs require **vehicle design** in line with their disabilities. A dedicated assistance would give a significant benefit to mobility impaired travellers, increasing their confidence to travel. In general, an **increased awareness** of the user needs and capabilities from staff, planners and service providers can be identified as a priority.
- **Financial barriers** may exist among the most vulnerable groups (for example travellers with migrant background) and this generates a condition of transport poverty in the strict financial sense. This is another priority to be considered.

WP6 (Deliverable D6.1 – section 4.2) - *Delivering new accessible and inclusive mobility: solutions and socio-business models* - specifically identifies eight inclusivity goals in relation to vulnerable users' needs and addressing the identified mobility gaps.

1. Ensure vehicle design accommodates vulnerable user's needs
2. Provide information that is tailored to vulnerable user needs
3. Ensure station design accommodates vulnerable user's needs
4. Reduce financial barriers for vulnerable users to travel
5. Provide services that increase coverage / reduce travel time
6. Provide services that increase inter-modality or choice
7. Provide support to increase confidence to travel
8. Make staff / planners / providers more aware of the needs and capabilities of vulnerable users

The delivery of services addressing these goals requires compatibility with **policy priorities** set for the cities and regions where users live. This is achieved by considering the second edition of the **Sustainable Urban Mobility Plan (SUMP 2.0) Guidelines**<sup>2</sup>, released in October 2019 as it addresses

<sup>2</sup> [http://www.rupprecht-consult.eu/uploads/tx\\_rupprecht/SUMP\\_Guidelines\\_2019\\_mediumres.pdf](http://www.rupprecht-consult.eu/uploads/tx_rupprecht/SUMP_Guidelines_2019_mediumres.pdf)



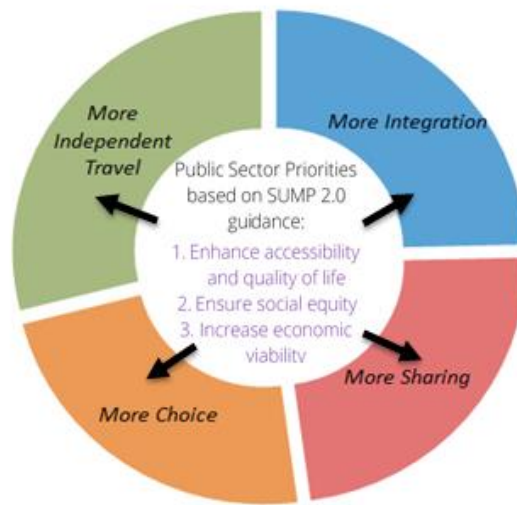
exactly such mobility-related policy priorities over the next decade. This provides the main planning guidance by indicating the priorities in terms of investment of public funds and staff resources.

The SUMP puts emphasis on the involvement of citizens and stakeholders, the coordination of policies between sectors and broad cooperation across different layers of government and with private actors. The plan also emphasizes the need to cover all aspects of mobility modes and services in an integrated manner. The most relevant objectives of the SUMP, relevant for inclusive mobility include:

- Enhancing accessibility and quality of life, including social equity, health and environmental quality, and economic viability
- Integrated development of all transport modes and shift towards sustainable mobility
- Combination of infrastructure, market, regulation, information and promotion
- Interdisciplinary planning
- Planning with the involvement of stakeholders and citizens using a transparent and participatory approach
- Optimise efficiency and cost effectiveness;

As done in the methodological approach for the development of the INCLUSION Business Models in WP6, the SUMP priorities are matched with INCLUSION needs, gaps and opportunities. Furthermore, four key priorities for public sector promotion, support and investment (illustrated in the Figure) starting from the public-sector policy and planning priorities stipulated in SUMP2.0 guidance are highlighted:

- Enhancing **accessibility and quality of life** through delivery of both transport and support services that all people can access and utilise ensuring ability to **travel independently**
- Enhancing **social equity** through **more choice** of services that are usable by vulnerable users and that provide connection to destinations vulnerable users desire access to.
- Increasing **economic viability** and expanding the range of sustainable travel options by supporting **more sharing** of resource both amongst end users and through interdisciplinary sharing between public authorities in different sectors.
- **Optimise efficiency and cost effectiveness** by **improving integration** in planning, financing and delivery of services leading to more **socially equitable** mobility options for vulnerable users.



*Figure 2 - Key priorities for public sector promotion, support and investment for inclusive mobility*

### 3.6 A holistic approach

The identification of economic revenues and definition of business models for a project with the objectives like those of INCLUSION should always consider the importance of the non-financial (or, better, not-always-for-profit) aspects. Finding the financial resources to sustain the new, proposed transport options, especially if they cannot ensure revenues is certainly a big problem. A conflict exists in terms of Public vs Private interests or Liberalisation vs. privatization of Public transport sector. There may be a hybrid model, commercial with some service operations managed by the local governors. In fact, although is often challenging, a harmonization of private and public resources would be needed.

One of the most relevant challenges is the **financial management** where the requirements are opposite (need for resources vs lack of revenues). But besides the financial profit, it must be considered the **social dimension** and the consequences that the lack of inclusive mobility can have in terms of social costs (monetary and non-monetary) for the society. The INCLUSION business model and exploitation strategy should then aim at ensuring that the newly proposed transport options are suitable for the creation of new business and organizational models where the financial dimension is combined with the social costs.

During the exchange of opinions with the INCLUSION Stakeholders' forum members it was remarked the risk to be focused on small things, on a narrow scope, while it seems more important to adopt an approach which takes into account a wider context, a long-term perspective and a constant link with the macro transport systems.

A holistic approach to the problem seems to be then necessary. Mobility often is not seen as a mean to answer people needs *as a whole* because the focus is on individual mobility *only*. Experts highlight that inclusive mobility would require a change of perspective: often, there is a mismatch between urban planning, transport, and economic opportunity. The focus should not be just on the transport sector, but also on its related sectors in order to promote an integrated approach.

From this perspective, the problem of inclusive mobility can be addressed with a combination of a **top-down and bottom-up approaches**. A top-down approach would enlarge the scope of the objectives, findings and results considering also that driving the policy level should be the main outcome. On the other hand, a bottom-up approach allows to get a more complete picture of what people really needs. For example, people love the flexibility of the car, and they are used of this flexibility. What to do if they are not willing to change their behaviour? The answer, in this case, requires a better understanding of the user categories and their cultural attitude: young people for example says that the most important thing is “sustainability”, because young generations are less car dependent, the elderly says, “the comfort”. This is an example how the combination of top-down and bottom-up approach can give more useful and effective indications for the exploitation of the inclusive transport solutions developed in INCLUSION.

A holistic travel approach should be also adopted from the point of view of service operators (public and private) and other actors such as connectivity providers, payment providers and internet businesses. These actors shall work together to provide integrated mobility platforms that are suitable for the complex needs of the users and capable of offering tailored solutions considering customer preferences and expectations.

From the economic point of view, given the limited capacity of current mobility systems and the level of investment required to expand them, the management of the mobility is a particularly vital issue to be led by the transport authorities. Therefore, because of the growing limitations of public financing, **collaboration between all stakeholders** of the mobility ecosystem is needed to come up with innovative and integrated business models through partnerships and alliances with third parties. The creation of a single market for inclusive transport is challenging but it can be facilitated by addressing issues like common service standards or facilitating procurement. These measures will enable European businesses to fully benefit from the entire European transport market and to create new market opportunities.

## 3.7 Summary of the project results

This section describes very synthetically the activities and results achieved in the project having a relevance from the point of view of the exploitation. This description is provided as introduction and support for a stand-alone reading of this document and to justify the identification of target markets done in the next section.

### 3.7.1 Analysis, case studies, innovation design

The initial detailed analysis, classification, study of **prioritized areas, user groups, accessibility gaps** and identification of main user groups who are vulnerable to exclusion from the transport system, can be intended not only as the background for all subsequent project activities but also as a complete knowledge base for products requirements, targeted investments and future research. Similar considerations can be formulated for the **51 Case Studies (10 in-depth case studies and 41 overview)** on Inclusive Mobility and Transport, which have been conducted by critically assessing them and looking at the transferability of concepts and identification of aspects of interest (or issues) for the concerned user groups and areas. The “typology and description of underlying

principles and generalizable lessons” from the analyzed case studies is a very practical tool. It can be adopted for the opportunities analysis of the innovative solutions to improve the inclusivity of the transport system and meet user’s needs where inclusivity gaps exist.

Another field of research aimed at investigating the role of **Information and Communication Technology** as supportive of operation, design and implementation of new or existing mobility solutions or even of organizational aspects involving institutions, operators and other stakeholders. The specificity of this research was the combination of ICT with the **social-innovation** and co-design methods and approaches.

The research resulted in the definition of a number of new ICT concepts and ideas tailored to achieve specific goals in terms of accessibility, co-design, integration, planning and operation of the transport services.

### 3.7.2 Pilot site activities, implementation of innovative solutions

The **experimental activities** in the six pilot sites allowed to implement and validate part of the above concepts plus a number of procedures, organizational methods and measures specifically design for the local objectives. The activities have been conducted by local transport service providers and with the support of scientific and technological partners for the duration of the planned period (with a small reduction imposed by the COVID-19 pandemic).

The addressed target areas includes: Urban, suburban and rural area, tourist area while the target user categories includes families with young children and teenagers, disabled, blind and visually impaired citizens, tourists and non-native language speakers, low income, migrants, rural commuters, young and leisure travellers, women, elderly people, persons of reduced mobility, local residents who suffer from fuel poverty, people with mobility issues; migrant jobseekers.

This is a very synthetic list of the implemented measures:

- Implementation of tools for understanding the needs of people with reduced mobility
- training the public transport staff to better understand the needs and capabilities of vulnerable users
- Extraction of demand data from social media for large events and use of the resulting information to inform the design of commercially viable bus routes from peri-urban and rural areas to the event location.
- Promotion of active travel with e-bikes and increase active travel options
- Improvement of access to public transport in areas with a high number of migrants and low-income people inhabitants and provide a better integration with the existing public transport services.
- Improvement of the connectivity between different bus lines, the intramodality between bus and rail services, and the quality of the user information for the integrated services in rural areas.
- Introduction of a new technology to elderly and disabled target groups to make leisure and social activities more accessible, provide a service that is more responsive to user needs and to provide for urgent trips;

- Improvement of the operations of existing volunteer-based services by means of ICT-based automation of trip requests.
- Expansion of existing volunteer-based services to more people with mobility issues (such as young people, or people in poverty) and increase of the pool of volunteer drivers.
- Improvement of access to job opportunities for migrants through increased awareness and use of mobility solutions by (un)employed migrants (with low income) by means of personal mobility budgets.
- Improvement of access to public transport in rural areas by improving existing connections in terms of accessibility and trip options for user groups having limited travel possibilities, with a co-design and tailored information suitable to be shared among other stakeholders.

The following are interesting examples of combination of the technological, organizational solutions deployed in the INCLUSION Pilot sites by considering the user priorities and the social and demographic barriers for their effective use.

- An existing **online crowd-sourcing platform** has been enhanced to offer a public transport specific sub-page for better understanding the needs of people with reduced mobility. This was accompanied by a marketing and promotion campaign called 'without barriers', promoted jointly by BKK (the transport operator in the city of Budapest) and Járókelő NGO, to inform the public and encourage them to submit feedback or 'announcements' about issues encountered or improvements needed regarding use of public transport. (ref. deliverable: D4.7)
- **Data analytics tools** for demand analysis have been developed in relation to attendance in large events located in peri-urban areas. This allowed to design demand-tailored transport services. The success of this measure has been achieved thanks to the combination of the technological, organizational and service provision developments and processes. (ref. deliverable: D4.6)
- Tailored information provision has been implemented to better meet migrant needs and capabilities through additional on-bus information panels and simplified **journey planning app** information also thanks to co-design workshops and focus groups involving all stakeholders, including users' association to facilitate the contact with the target users and produce a "multiplying effect" for promotion and communication to more target users. (ref. deliverable: D4.3)
- The needs of users and operators of peer-to-peer transport services operated by **volunteer drivers from the public** have been collected and a mobile app has been extended with additional functionalities which offer at the same time more responsiveness for the user needs especially for urgent trips and make the workload more bearable for the employees. (ref. deliverable: D4.5)
- An existing **MaaS app** provided by employers to be used by their employees has been reworked to simplify the interface and introduce some new functionalities/features to allow its use by low income and migrant job seekers. A specific feature introduced was a personal mobility budget of €30 provided automatically through the mobile app, in line with migrant job seekers availability. The technological solution, therefore, was here only a part of a bigger organizational process with the involvement of NGOs, private companies and institutions. This is one of the most interesting cases of public-private partnership for which drivers and barriers have been deeply analysed. (ref. deliverable: D4.5)

- **Online feedback tools** have been provided in relation to a re-organization of transport services in a rural area (Florence) and improved connection between bus and train services. The indications from the users aims to drive corrective actions to the service and information provision to improve their quality according to the punctual user needs. (ref. deliverable: D4.3)
- Within the Cairngorm National Park pilot it has been planned and explored in detail the involvement of additional key transport services within the Pilot project, looking at a full integration of the e-bikes scheme including the Community Car Scheme, a car sharing scheme with **volunteer drivers** using their own cars to take clients to and from a destination of their own choice. Eventually this option was not included in the fully implemented measure. (ref. deliverable: D4.4)

The outcomes from the above and all other measures have been elaborated with a **broader view on transferability** by presenting results from cross-site assessment to highlight factors that provide common drivers or barriers to the successful delivery of particular types of measure. From all studies done in pilot sites implementation, explained in from deliverable D 4.7, with the validation summary in deliverable D5.6, a knowledge base composed of software tools, methodologies, organizational process and recommendations, has been developed and can be re-used for future applications.

### 3.7.3 Impact and process evaluation

The results of the experiments have been captured and analysed by the **impact and process evaluation** activities, conducted on well-established plans and methodologies. The evaluation allowed to get a very detailed report of the quantitative impacts and lessons learned in terms of potential, opportunities, drivers, barriers, obstacles, lessons learned of each single measure which represent a valuable knowledge base for a future exploitation of the same concepts. A total amount of more than 30 recommendations has been formulated (in WP5 "Impact and process evaluation"), including those on transferability of the solutions.

The impact analysis demonstrated that INCLUSION **contributed to improve accessibility** offered by public transport systems especially in terms of:

- increase in number of trips involving transport connections to the PT network
- Increase type of transport services feeding the PT network
- increase in number of travel options to get to key services / opportunities (within acceptable time and cost) for vulnerable users
- increase in number of trips made using PT by vulnerable users

### 3.7.4 Business model development

INCLUSION identified and developed 14 different **business models** from 8 business concepts to support accessible and inclusive mobility. Each business model relates to a particular type of solution and provides a detailed description of the key information concerning: main market targets; value proposition; actors involved; communication / engagement strategies; identification of costs and revenue including funding mechanism; the activities required for setup and delivery, etc. The set business models provide a holistic package of solutions for accessible, inclusive and

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equitable mobility in prioritised areas. Some business models have strong dependency on others and should be delivered as a combined solution. Others complement each other and, although they can be delivered as stand-alone solutions, they can become more effective and benefit a greater number of vulnerable users through combined delivery.

The developed business models consider a variety of scenarios and needs starting from the priorities set by the SUMP 2.0 guidelines. Several alternative funding possibilities are discussed including: interdisciplinary cross-sector funding, Public-private partnership, funding schemes for social enterprise organisation (i.e. providing travel assistance, non-profit collective transport providers or peer-to-peer volunteer services), 'Person-centred' funding approach through MaaS and others.



## 4 Target markets

### 4.1 Stakeholders, roles, interests

The inclusive mobility scenario comprises different stakeholders to whom INCLUSION can provide value. It is important to identify them in order to design the right message for each one and to assess the potential revenue sources. This section gives an overview of stakeholders, their interests and benefits of implementing the INCLUSION solutions and measures.

#### Users, travellers

Travellers represent the main INCLUSION end-users because through the different measures they can benefit from more efficient transport opportunities.

The main interests identified for this category are:

- Availability of tailored transport services suitable for their needs
- Better overall experience
- Personalised information
- Travel assistance
- Incentives and rewards that stimulate use of innovative services

#### Public authorities

This group of actors usually aims to provide a public transport network that is affordable, accessible, integrated and for everyone. Transport authorities can use the INCLUSION innovative solutions to integrate and deploy a variety of measures to improve inclusive transport.

The main interests identified for this category are:

- Cost-efficiency (including reduction of the cost of implementation, deployment and maintenance)
- Knowledge gained can be transferred to other sectors
- Better adaptation of transport planning thanks to feedback from the users
- Increase public transport usage at the expense of car usage

#### Mobility operators

Mobility operators act as a single point of contact for travellers and as full-service provider. The mobility integrators aggregate all the mobility service providers across different modes of transport (bus, metro, bike, car sharing, flexible services, etc.), offering a solution that considers customer preferences and needs. At the same time, these stakeholders can be responsible for recording of personal user data to better understand travel behaviour, preferred destinations and requirements. This information can be used to improve the performance of the transportation system (planning), to provide personalized and multi-modal mobility services according to users' specific needs and to better exploit the solution (by offering personalised advertising, e.g.).



The main interests identified for this category are:

- Reach and gain more users
- Improve passenger experience through information
- Better transport statistics for planning purposes and thus for a better exploitation of the network capacities
- Improve accuracy and quality of their service offerings by incorporating feedback from end users
- Tools and services that enable customer fidelity

### ICT service providers

They are particularly SMEs operating as system integrators and ICT solutions developers in different fields. SMEs can have access to mobility data and develop and deploy their own sustainable ICT solutions at an affordable cost, by increasing their competitiveness.

The main interests identified for this category are:

- Development of new mobility services
- Increasing competitiveness
- Save time on development of new services
- Rapid implementation of prototypes and new services

### Local businesses

Local businesses can establish cooperation with transport operators to improve the services and at the same time make their products or services known by the users themselves. An example is the bike sharing partnership done in the Cairngorm National Park INCLUSION Pilot site with private bike shops. The low financial attractiveness which may be found in providing the transport services is compensated by the advertisement of their activity.

The main interests identified for this category are:

- Reach and gain more customers
- New ways and channels to contact customers and offer incentives, advertising or indirect sales

## 4.2 Overview of market conditions

In many European rural areas, the provision of transport services is scarce due to a limited amount of available resources and difficulties in operating viable transport services due to dispersed demand. In this situation, as confirmed by some of the INCLUSION case studies, the accessibility of villages is improved thanks to services operated by not-for-profit organisations (that could directly operate the service or subcontract to community-based operators if the organisation act as contracting authority) complementing or integrating the existing transport offer. Due to the purpose of the service, specifically tailored to addressing vulnerable user needs in rural areas, it is

important that fares are kept at affordable prices. This creates specific and sometimes unique organizational and marketing conditions.

In an inclusive transport market perspective, all transport services should be included: Conventional PT, flexible collective public bus, shared taxi, volunteer cars, peer-to-peer lift sharing offers, car share, bike and e-bike share. However, even if they are integrated and extended to rural areas, to form a MaaS system, a traditional approach may not be suitable for the most fragile user categories, for example where the travellers are not comfortable with planning a complex travel or because they have a mobility impairment incompatible with some transport modes.

From a marketing perspective, one of the main issues with the provision of inclusive transport services is the financial viability and the identification of revenue streams compatible with the design, launch and operation of the services. This compatibility is missing for some user categories and geographical areas and that's where the problem has to be solved in a holistic perspective, considering also the social costs as discussed in previous chapters and with unconventional business models. The prominence of volunteer services in some of the INCLUSION case studies and pilot experiences can somehow confirm that the conditions for the success in this context often are not associated with traditional economic approaches.

From this perspective, INCLUSION has analysed several success stories and implemented some of the most promising concepts, by complementing the study with several Business Models to find the most interesting value proposition and how these can be exploited for certain customer segments. The project recommends moving forward into these promising marketing sectors, to gain experience from them and explore in the future other solutions even where the conditions were considered previously unattractive.

Due to limits on public financing, public transport stakeholders are struggling to improve the attractiveness, capacity and efficiency of public transport and system innovation may be the only answer. At the same time, specialized players from other sectors – notably automotive OEMs, financial institutions/payment providers and internet businesses – are assessing opportunities to play a role in the extended mobility ecosystems of tomorrow.

In the transport sector, **bundling the public services with private sector partners** is a form of cooperation suitable where it is not commercially viable for private sector to provide public transport services. Private sector providers tailor their services for vulnerable user groups or to extend commercial services into non-commercially viable prioritised areas.

Private companies can offer on-demand services, ridesharing taxi services, delivery packages such as service for medicine, pick-up service for school kids, and other forms of transportation to complement the existing offerings. An example from INCLUSION comes from the 'last-first mile connection' case study (see Deliverable D3.3) where first and last mile length for connecting journeys in rural areas has high-costs and there is limited supply of public services. In this case, private operators can offer complementary services in various forms. First-last mile transportation, however, may have high costs for private sector providers as well; therefore, subsidies sometimes are needed to ensure the affordability of these services. Subsidies should work as financial input, after ensuring that all other self-sustaining methods are exhausted.

Another good example from INCLUSION comes from the e-bikes measure implemented in the Cairngorms National Park (CNP) Pilot Site. Through the establishment of a public and private partnership with local bike shops, that already existed in the main towns of the CNP area, the public-sector partner (HITRANS in the CNP case) provided the financial support to purchase the e-bikes. Then, they became partners with local bike shops that own suitable premises and employ office/admin staff who can host and operate the service. The overall cost of delivering the service was then significantly reduced compared to the cost of the public sector providing the service on its own.

Public-private partnerships can also be established between public companies and **not-for-profit organizations** which can offer reduced fares with participation of volunteers. However, this solution is limited for certain aspects. For transportation of people with specific mobility conditions, for example, volunteers may not have the appropriate professional experience to offer appropriate assistance. Equipped vehicles may also be not affordable for Not-For-Profit organizations. Public sector partners could participate in the co-financing of the vehicles in order to use their accessible vehicle 'pool' to provide service to their clients but again this is not always feasible, financially or operationally.

Public-private partnerships can be established in other forms besides the provision of the mobility services. One of the most relevant, is the development of **ICT tools** supporting travellers' mobility choices. Public transport companies often have low ICT budgets; therefore, it becomes necessary to foster public-private partnerships that combine industry with public investments. In this way, public authorities usually assume the role of convincing the most important players to participate in the development and deployment of smart mobility solutions and other supporting ICT tools.

## 4.3 Market opportunities

The following are the main scopes identified in relation to the marketing opportunities for the INCLUSION solutions.

### 4.3.1 Intelligent Transport Systems

Intelligent Transport Systems (ITS) are widely used to implement and promote a more sustainable and ICT integrated mobility. ITS aims to provide innovative services relating to different modes of transport and traffic management and enable travellers to be better informed and make safer, more coordinated, and smarter use of transport networks. This approach is strongly promoted by the EU and covers many issues, such as smart cards, sale and electronic payment of tickets, traffic management, travel information, regulation of access and demand management, etc.

The use of ITS has been studied to address the needs identified for the prioritized areas and user needs identified in the project with several proposed solutions and an in-depth analysis and application for a selection of them, which can offer interesting exploitation opportunities. However, the aspects of digital acceptance are still a problem for many people and the problem of digital exclusion must be carefully considered. Technologies create new facilities but may also introduce - for some aspects- a new degree of inaccessibility due to digital exclusion. The experience gained in

the INCLUSION Pilot Sites reveals that users that are digitally excluded may not feel comfortable using ICT services (like apps for booking their trips) and may prefer the traditional way. This barrier should be avoided by organising workshops and trainings for vulnerable users to be learn how to use the technological tools and feel confident with the services offered in it. It is also important to develop tailored tools to reduce the barriers. Private sector technology developers usually spend a lot of resources in this field, and partnership with public sector also requires a lot of effort in order to deliver this solution in the most adequate manner. However, the characteristics of the vulnerable users that might potentially benefit from tailored ICT tools are different and then the risk of social demographic barrier is still high.

### 4.3.2 Data analytics

Data analytics allows to analyse and better address the user needs thanks to information processing from data coming in various forms from the travellers. The collection of large amounts of data and the procedures set up to process this information (big data analysis) allows diverse types of information to be analysed together. Data is captured across multiple devices and systems (sensors or through actions or passively from citizens) and then processed to improve the quality of services: transport operators and policy-makers can make informed decisions based on these data (short-term or real-time actions) or get a support for a better service planning (mid/long-term actions). The public sector can share information across departments, organizations and citizens providing added-value services, information and tools. Big data are then highly important and constitutes a promising marketing opportunity.

Under the same scope, crowd-sourced data collection and social media data mining are two of the fields of application investigated more in depth by INCLUSION where market investments can be directed. The conclusions from the process evaluation activities, (Deliverable D5.3) however, suggest that from the marketing perspective particular attention should be given to data collection methods and tools which may be often ineffective for the following reasons:

- Unwillingness or inability to use technological tools by certain user categories
- Low participation in polls and surveys by the users (also, but not only, as a consequence of the previous point)
- Surveys not always helpful to fully understand the specific user needs
- Cultural reasons (e.g. people with migrant background may provide few information and this can be sometimes difficult to fully understand without the support of migrant associations, for example)
- Technical complexity and unavailability of data (e.g. social media data can be particularly difficult to acquire and process to achieve the expected result)

This suggest that investments should be done firstly to identify the appropriate data collection methods in order to have a sufficient and representative baseline of data. Here, the amount by itself may probably be not indicative of a higher effectiveness (quality over quantity).

### 4.3.3 MaaS systems

Dedicated mobile apps providing user information targeted to vulnerable users' groups can be one of the most relevant ICT-related market segments for INCLUSION. The main potential customer segments are the city Authorities and the Transport Operators (public and private) who can offer these products to the travellers. Other segments are the category associations (e.g. communities of migrants; disabled people, etc.) for which complete and tailored solutions could be offered (es. tracking, trip support, booking, ticketing etc. which all together can be seen in the form of Mobility as a Service - MaaS). The ICT products are generally developed by external ICT providers and companies, since it is not very common to find the necessary professional resources and experience inside the authorities and transport companies themselves.

MaaS systems may be one of the approaches for inclusive mobility support under certain circumstances but the risk is to rely on products that by their nature (being designed and commercialized in a large scale) may still lack support for the user categories that have special needs.

A service, providing discount payments through MaaS is an example of form of financial sustainability for personal mobility, developed in INCLUSION. The potential of MaaS systems has been combined with the provision of free or discounted travel to eligible users in certain vulnerable user groups. Then a reimbursement has been given to transport provider from the public sector to compensate them for reduced fare revenues.

### 4.3.4 Travel assistance with specialized personnel

Travel assistance is an important asset for mobility impaired people. Travel Buddies are an example of travel assistance explored in INCLUSION. They are fully trained adults with disabilities who are paid to accompany service users on their required journeys offering advice and practical support when using PT. The scheme aims to increase and show a commitment to developing independent travel skills. The Travel Buddy Service provides independent travel training and travel support to adults with a physical disability or mental health difficulty. The services provided include: Training for using PT, One-to-one travel support, Group buddy support, One-off journey support, Safety awareness workshops.

### 4.3.5 Accessibility of Vehicles

Vehicle's design should accommodate vulnerable user's needs and remove accessibility barriers to provide a fully accessible public transport bus service. Wheelchair users and those utilisers who require low floor access will be finally able to rely on the conventional public transport network rather than on limited and expensive services like specialist client transfers for health or social services. Moreover, not only wheelchair utilisers, but also other categories of vulnerable users will benefit from this approach: i.e. families with buggies and/or young children, elderly, sensory disabled, etc. This way of conceiving business strategy will certainly increase patronage on conventional PT services, and it will reduce the need for specialist transport provision/budgets.

#### 4.3.6 Asset sharing

Asset sharing is when vehicles (scooters/bikes/e-bikes/mopeds/cars) are collectively owned (by the municipality, local company or community group) and are made available for shared use by either individuals or local groups. Asset sharing models can provide more travel choices to users without the need for private ownership and can foster cooperation between sectors and hence reduce sector specific dedicated services, resulting in more cost-effective delivery. The two main scenarios related to asset sharing can be defined according to the users, type of asset and the type of area. The goals are providing services that increase inter-modality or choice and increase coverage or reduce travel time.

#### 4.3.7 Ridesharing

Ride sharing options allow aggregation of the mobility demand for sharing a ride in the same vehicle, two scenarios are envisaged:

1. public-private partnership ridesharing services using shared taxis with professional drivers;
2. peer-to-peer ridesharing services such as carpooling (where private individuals share the journey they are already making in their own car with other people going in the same direction at the same time) or volunteer lift giving schemes (where drivers, usually with their own vehicle, offer lifts to certain users for free or for a small reimbursement).

These types of solution can increase coverage at low cost for non-essential trips at a low cost and increase integration to the core transport network.

#### 4.3.8 Collective transport services

New collective transport services are services scheduled to pick up and drop off people in accordance with the actual needs of the passengers based on demand and aimed at getting lower cost services that better meet vulnerable user demands. The services can better accommodate needs of some vulnerable users by offering door-to-door pick-up and drop-off or by providing niche services where timings and routes are tailored to the demands of certain vulnerable user groups. They can be considered as flexible services that span the wide space between taxis and conventional public transport and are often a more cost-efficient form of supply in environments with niche/specific or low levels of demand.

#### 4.3.9 Travel support with ICT tools

Technology solutions in the form of mobile applications or other ICT tools installed for example in stations or bus stops, can reduce information barriers, thereby increasing uptake and usability. Technology can also be applied to improve the quality of information that is made available to vulnerable users on the travel. Using technology to provide information tailored to their needs can empower vulnerable users to help them to travel independently in a safe manner and with confidence

In the market of mobile apps, investments and developments have been done for years and the space for improvements and new investments may appear to be reduced compared to the past, thus making this market not highly attractive. However, the inclusive transport market can generate some opportunities. For example, one of the main issues still unsolved in many cases, is to make the ICT tools easily available and usable for people experiencing difficulties in using them. In the past, this aspect has not always been considered appropriately by all transport authorities, because of the necessary additional investments that this entails and due to lack of local normative. Over the years the legislation at EU and national level has imposed additional constraints on accessibility features at several levels of the service provision, including the ICT tools for the users. This created new marketing opportunities which are still valid.

#### 4.3.10 Tailored Information

Tailored information can be provided via ICT tools but also in the form of printed materials that are easy to understand by vulnerable users is important to raise awareness of travel options available to vulnerable users with specific requirements and who do not have access to information via mobile apps. This also includes information made available at stops/stations and in-vehicles. Additionally, tailored audio information at stops/stations and in vehicles can provide valuable assistance to vulnerable users with reading or sight impairments.

### 4.4 Marketing challenges

The following main challenges emerged from the analysis of the mobility solutions and should be considered in an exploitation perspective.

#### 4.4.1 Public Transport Service providers

- Difficulty of deploying a service in rural areas without a commercial environment.
- Study the potential demand for transport services in rural areas to choose correctly which types of asset to purchase that meet the needs from each area.
- Specifying minimum operating times and areas covered by the service while keeping flexibility in terms of specific stops and pick-ups.
- Financing any required accessible vehicle purchase
- Transition from traditional discount travel schemes to innovative subsidised payments through a MaaS App.
- For vulnerable users assistance: understanding the more complex vulnerable users' capabilities and needs. Delivery trainings that encompass all the needs from the different vulnerable user groups.
- For crowdsourced data collection: development of a solution that may not be usable for certain vulnerable user groups (e.g. digitally excluded). Obtaining crowdsourced data that needs to be transformed into action can also be not always possible due to budget constraints.



#### 4.4.2 Private transport service providers

- On-demand PT Operator should provide commercially viable services where there is low demand, or the total demand is partially unknown.
- Adapt the service offering to the user from traditional schemes to integration in a MaaS App can also be problematic. The integration in a MaaS App leads to share the platform with potential transport service competitors.

#### 4.4.3 Community (volunteer)-based service providers

- Management and coordination of rides is required for a high-quality service and it needs additional resources (personnel and financing).
- Attracting, retaining and coordinating volunteers, ensuring a rigorous vetting and training.
- Ensuring safety and trust when providing ridesharing services. Being empathetic and understanding of vulnerable users' needs and capabilities is a further requirement.
- Lack of accessible vehicles that some vulnerable users need can be problematic and requires additional budget.
- Volunteers usually don't have the professional background to transport people with special needs. Legislative constraints must also be considered in that respect.

#### 4.4.4 Technology providers

- Technology providers needs to have a full understanding of mobility problems and trends in order to have a bigger impact in the model development and to avoid incorrect or low-quality solutions.
- Digitalise all the processes involved in the service requires specific knowledge and background.
- MaaS apps requires Integration of many transport services with different operation and management schemes. The development, update and maintenance has to be in line with innovation and technology updates.

#### 4.4.5 Other stakeholders (e.g. commercial, event organizers, other service providers etc.)

- Give enough information about all the different transport modes and emphasise the most sustainable ones is a key requirement.
- Reallocation of client transport budgets to help finance the collective transport service can be difficult.

#### 4.4.6 Users, travellers

Although not involved in marketing operations directly, some of the impacts of the innovative measures on travellers should be considering in a marketing perspective:



- Switch from traditional transportation modes to others more innovative and sustainable (for example give less weight to private car and enhance collective and sustainable transport options) is not always a smooth process.
- Reliability (availability when needed) of services using volunteers can be an issue.
- Adaptation to new forms of flexible collective transport services (e.g. booking, flexible stops etc.) can be difficult especially for users with special mobility needs.
- In case of personalized travel budgets, users may spend their allocated budget too quickly or may not make best value choices.
- In case of travel assistance: users should trust PT services and staff in order to have reliability on the service (e.g. trust that someone will help them boarding, give them extra time, securing wheelchairs etc.)
- Vulnerable users need to adapt to new technologies wherever ICT usage is needed for the provision of a transport service (e.g. booking, payment, information etc.)

## 4.5 Legislation

The following legislation can be relevant for the potential target markets identified.

### All public transport bus services to be fully accessible

"Equality before the law" right, means that everyone is equal before the law. Therefore, it requires that all bus, rail and taxi vehicles available to the public to be accessible to disabled persons with a range of impairments by 2020. This has been partly adopted in urban areas, but not on all services. Transport providers also have a duty to make reasonable adjustments to existing vehicles by adding auxiliary aids or equipment such as audio-visual passenger information, priority seating and contrasting handrails. Furthermore, under equality legislation transport providers have a duty to make reasonable adjustments to the way vehicles are operated so that disabled people can use services. E.g. to assist a person with a mobility impairment in getting on and off a vehicle or a bus driver telling a visually impaired person when they have reached their stop.

EU Directive 2004/18/EC (Article 26) specifically says that public authorities should introduce contract performance requirements relating to social and environmental considerations if these are publicised in advance. It is recommended to use this Directive in order to encourage transport providers to submit tender bids that include 'added value' components (e.g. accessible vehicles and staff awareness training) which address the needs of vulnerable users. Authorities can then include an assessment to weigh up and compare different kinds of social benefits (including meeting vulnerable user's needs) being offered by tenderers when awarding the contracts. Contracts with a value greater than €139,000 excluding VAT usually must be awarded through competitive procedures (tenders)<sup>3</sup>.

<sup>3</sup> [https://europa.eu/youreurope/business/selling-in-eu/public-contracts/public-tendering-rules/index\\_en.htm](https://europa.eu/youreurope/business/selling-in-eu/public-contracts/public-tendering-rules/index_en.htm)

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## Private sector ridesharing services using shared taxis

Ridesharing and taxi sharing are new form of moving limiting the private car use. In particular, people who don't know each other agree to share in the same cab/car the ride, saving money.

Direct awards to private sector providers through partnerships for enhanced service provision are limited to the threshold at which general EU procurement rules apply. That is, up to a lifetime contract value of €214,000 excluding VAT when partnership is with a local public authority<sup>4</sup>.

In cases where no competition exists and demand for the service is not commercially viable as a standalone service, partnerships with selected private sector enterprises can dramatically reduce cost of operation. For example, partnership payments to private sector taxi companies can be designed to secure services offering first and last mile connections to support integration with the mainline public transport network.

## Peer-to-peer ridesharing services

For peer-to-peer lift-sharing services and volunteer car services using private vehicles the financial reimbursements to drivers is limited by legislation to ensure that private car insurance policies remain valid.

These services are not obliged to adhere to equality legislation. They are therefore, in most cases, not suitable for persons requiring accessible vehicles. Barriers could be removed by the access to a community pool where user can assess the volunteer driver's vehicle accessibility. It is important that a number of the accessible vehicles in the asset sharing community pool are 8 seats or less as these do not require special licenses to drive.

## Asset sharing in rural or peri-urban areas where the users of the asset are individual members of the public

The pilot experience in Cairngorm National Park has highlighted that state aid rules<sup>5</sup> place limitations on the operators and operation of these services when public sector funding is used to finance part of the service delivery, in this case to purchase the vehicles. The asset sharing services provided need to be non-commercial and there cannot be other competition in the area to provide the service to the target users. So, where public private partnership funding is used to pay for bikes or e-bikes and for maintenance of these, the private sector provider cannot make direct profit from the operation of the service but can profit from indirect sales of merchandise to the bike-share users. (see Deliverable D4.4 - *Innovation Pilot Lab Cairngorm implementation and results*).

## Crowd sourced information

Data collected from transport systems have traditionally been non-personal data, such as vehicle flows. However, privacy concerns have emerged in the context of the growth of the collection of

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<sup>4</sup> [https://ec.europa.eu/growth/single-market/public-procurement/rules-implementation/thresholds\\_en](https://ec.europa.eu/growth/single-market/public-procurement/rules-implementation/thresholds_en)

<sup>5</sup> [https://www.gov.uk/guidance/state-aid:https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/582049/state-aid-self-assessment.pdf](https://www.gov.uk/guidance/state-aid:https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/582049/state-aid-self-assessment.pdf)

personal data by private and public sectors. The collection, storage and processing of personal data is regulated by the General Data Protection Regulation (EU) 2016/679 (GDPR), a regulation in EU law on data protection and privacy. The GDPR aims primarily to give control to individuals over their personal data and contains provisions and requirements related to the processing of that data (formally called “data subjects” in the GDPR) who reside in the EEA, and applies to any enterprise—regardless of its location and the data subjects' citizenship or residence—that is processing the personal information of data subjects inside the EEA. Controllers and processors of personal data must put in place appropriate technical and organizational measures to implement the data protection principles and provide safeguards to protect data (for example, using pseudonymization or full anonymization where appropriate). Data controllers must design information systems with privacy in mind, for instance use the highest-possible privacy settings by default, so that the datasets are not publicly available by default and cannot be used to identify a subject. No personal data may be processed unless this processing is done under one of six lawful bases specified by the regulation (consent, contract, public task, vital interest, legitimate interest or legal requirement). When the processing is based on consent the data subject has the right to revoke it at any time.

## 4.6 The impact of COVID emergency

The COVID-19 emergency created unprecedented and dramatic changes in the world economy. At the time of writing this deliverable the impacts on the economy in the medium-long term are still not foreseeable exactly. The impact on the transport sector in general and rural mobility specifically is also debated and studied. This section summarizes some of the main considerations emerging from the first analysis which can have an impact on the exploitation of the INCLUSION results.

The public transport usage, due to the virus, has been negatively affected, facing a significant decrease all around the world. The physical distancing with getting infected fear are the main reason, as it becomes the norm, the way of movement around the city has changed. Several analyses revealed a drastic reduction of public transport usage in the period Feb-Mar 2020.

The prevention measures imposed in all countries include restrictions on travel. These have been relaxed to a certain extent at the end of the first semester in 2020 but remain in place due to physical distancing needs. Homeworking has been promoted where possible to allow people to continue working despite the lack of mobility and to prevent the infections. Other temporary solutions include home shopping (e-commerce) but still, more *social* needs like meeting other people cannot be met in a satisfactory way.

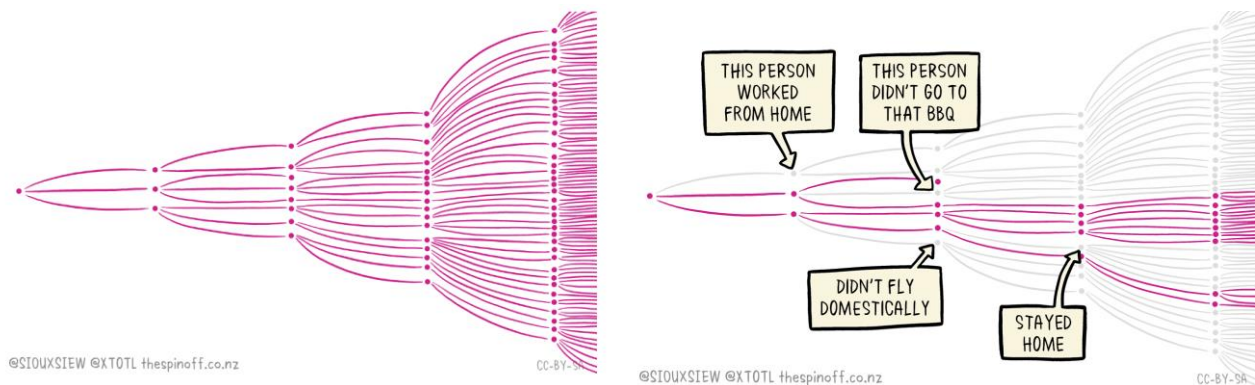


Figure 3 – Restrictions adopted to reduce COVID transmission

This graphic was created by Spinoff and is available at <https://thespinoff.co.nz/wp-content/uploads/2020/03/Covid-19-Transmission-graphic-01.gif> (CC-BY-SA<sup>6</sup>)

The restrictions on movement, determined and may still determine in the near future a reduction of travels. All this creates a lower demand with big impacts on the transport market in general and on inclusive mobility offerings specifically.

#### 4.6.1 Social groups affected

The social groups more exposed to the COVID-19 emergency are in large part coinciding with the vulnerable groups identified in INCLUSION, primarily looking at elderly people. The following diagram shows the median age of patients with SARS-CoV-2 infection and SARS-CoV-2 positive deceased patients in Italy (June 2020).

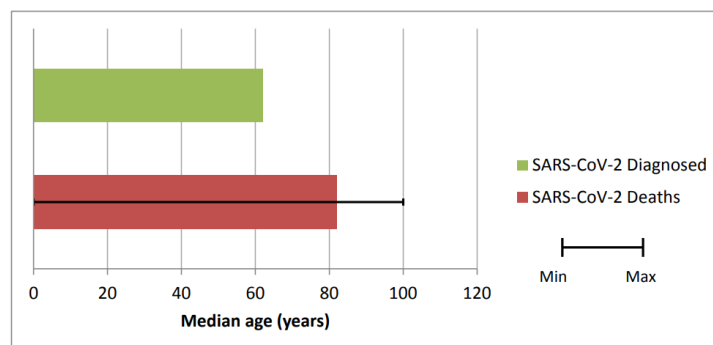


Figure 4 - Median age of patients with SARS-CoV-2 infection and SARS-CoV-2 positive deceased patients in Italy

Source: Istituto Superiore della Sanità ([https://www.epicentro.iss.it/en/coronavirus/bollettino/Report-COVID-2019\\_25\\_june\\_2020.pdf](https://www.epicentro.iss.it/en/coronavirus/bollettino/Report-COVID-2019_25_june_2020.pdf))

<sup>6</sup> <https://creativecommons.org/licenses/by-sa/4.0/>

#### 4.6.2 Impact on rural areas

Rural areas are heavily affected by the health emergency. Studies revealed that contagion risks are more likely to result from crowding rather than from density of population. Although rural populations may have less risk to contract the disease, generally they also have less means to treat it<sup>7</sup>. Less efficient and performant transport infrastructures and services can make transport and mobility in rural areas even more problematic, especially for the difficulties in taking care of patients affected by COVID-19. The following are some of the most relevant problems:

- Poor healthcare access in rural areas
- It can be harder for people to access information
- Residents in sparsely populated areas often travel longer distances to access health care and testing
- Isolating or evacuating infected patients is problematic due to lack of infrastructure and appropriate transport services
- Longer turnaround times for testing, longer delivery times of medical equipment

Other negative impacts, in relation to the rural population, are:

- Self-isolation and disruption of support services and solidarity networks can severely affect elderly people and those with specific mobility needs.
- Public transport is the lifeline allowing workers living in rural areas to get to their jobs, but PT offering was significantly reduced. Essential transportation for employees and workers also requires additional safety and adequate protection.
- The existing digital infrastructure and the profile of rural jobs do not allow most rural residents to work from home. The differences in potential remote working capacity in cities, towns and rural areas, depicts a situation where rural workers are disadvantaged in that respect<sup>8</sup>.

The physical distancing measures and the increased concerns for the risk of contagion determined a decline in public transport usage and an increasing use of the car which was already one of the preferred modes of transport in rural areas. The problem with people not able to travel by car then risks getting even worse.

Volunteer-based services are among the most promising transport options studied in INCLUSION to overcome this problem but many volunteer-based services have been temporarily discontinued during the lockdown. Furthermore, the COVID-19 emergency introduces new elements in the relationship between the drivers and the passengers which was one of the key social components of the service itself: often the users wish to select the driver because of past relationships and trust in them.

<sup>7</sup> (Bliss and Capps, 2020 <https://www.bloomberg.com/news/articles/2020-03-13/are-suburbs-safer-from-coronavirus-probably-not>)

<sup>8</sup> [https://read.oecd-ilibrary.org/view/?ref=134\\_134296-u9iq2m67ag&title=Capacity-for-remote-working-can-affect-lockdown-costs-differently-across-places](https://read.oecd-ilibrary.org/view/?ref=134_134296-u9iq2m67ag&title=Capacity-for-remote-working-can-affect-lockdown-costs-differently-across-places)

Further effects on the transportation sector from the point of view of the service provision include:

- Further drop in profitability for public transport in sparsely populated areas already problematic before.
- Transportation revenues are decreasing even more substantially in rural areas ([https://tripnet.org/wp-content/uploads/2020/04/TRIP Rural Roads Report 2020.pdf](https://tripnet.org/wp-content/uploads/2020/04/TRIP_Rural_Roads_Report_2020.pdf))
- Many jobs are at risk in all rural areas where trade, transport and utilities constitute a significant share.
- Many rural and coastal areas depend entirely on the tourism sector including touristic transportation (see the following example for France: [https://stats.oecd.org/index.aspx?DataSetCode=TOURISM\\_ENTR\\_EMPL](https://stats.oecd.org/index.aspx?DataSetCode=TOURISM_ENTR_EMPL))

It is also relevant to mention the following impacts on rural supply chains and local business including:

- Disruption of important rural urban linkages
- Small businesses running on low margins vulnerable to fluctuations in trade and supply disruptions
- Restricted cross-border mobility of the agricultural labour force

#### 4.6.3 New social trends and market changes

Changes in daily life affected habits, trends, and determined new priorities for travel and mobility. During the lockdown period for example, shopping in stores has been replaced by online shopping, leisure activities and habits have changed, and many daily behaviours have been transformed. With the progressive easing of the lockdown measures many of the past behaviours have been recovered but not all: as the emergency is not ceased some behaviours are still needed but it's also happening that some of the new experiences have changed the way of thinking and acting of many people. Probably one of the most evident examples is the usage of ICT. The emergency has accelerated the process of getting familiar with new technologies especially by people who previously not feeling comfortable with that.

Other new trends which can be observed in association with the lockdown period, in the field of mobility includes:

- Increased use of bikes and e-bikes
- Existing shared mobility and other form of unconventional transport have been given new life and importance. Flexible, demand-responsive transport has been also newly introduced as complementary services in urban and peri-urban areas as alternative to car usage.
- Integration of transport services with other services (e.g. booking of access to a non-transport services combined with reservation of transport) to better manage access of people and avoid crowd.
- Care for human factor and health: new services providing information related to health bundled with transport.
- Higher use of artificial intelligence and deep learning in public transport. COVID-19 may accelerate the development of artificial intelligence in many different areas representing a

reduction of human contact or proximity. For example, digital assistants could be used to check the temperatures of boarding travellers as well as regulate the number of passengers.

- Incorporating physical distancing, crowding information and information on sanitary measures into a MaaS platform would be one way of ensuring that travellers are provided with all available and safe mobility options.

McKinsey & Company have carried out a studio<sup>9</sup> about “The new normal: the impact of Covid-19 on future mobility solutions” evaluating the uptake in Europe of shared mobility and electric vehicles.

#### 4.6.4 Impact on INCLUSION solutions

The health emergency has had some effects on the validation of the INCLUSION measures implemented in the Pilot Sites. Deliverable D5.5 describes in detail for each site the impact of the lockdown on data collection. On the other hand, the introduced measures can also give some opportunities, considering the travel restrictions. The introduction of e-bikes in Cairngorm National Park Pilot is an example. E-bikes offer a safe alternative for many rural dwellers once the Covid-19 restrictions are relaxed. This is particularly important for more able older persons and those with underlying health conditions. Although the e-bike hire has been closed during the Covid-19 lockdown, the bike shops have received lots of enquiries from 60+ age group about hiring and purchasing e-bikes once they reopen.

The following are some of the scopes of research of INCLUSION where opportunities for mobility improvements can be explored:

- **Big data analysis:** data scraping algorithms and dictionaries used to elaborate data coming from social network needs to be updated according to the new needs and type of messages. Privacy issues may become even more strict, however.
- The role of **volunteer transport** seems to be more important now, but more than before, giving the new requirements and competences, the service should be supported by the authorities. New forms of partnership and organization shall be identified and introduced to compensate any lack of quality in terms of safety provision.
- Any form of **transport planning** (from shared taxis to MaaS) must consider the parameters related to: vehicle capacity, physical distancing and other safety-related needs. Accurate pre-trip and on-trip information related to health safety should be provided in real time to the travellers.
- . Before COVID-19, there were numerous barriers to **disabled, older, and low-income people** attempting to make a “complete” trip. Now, the barriers are even bigger. Performing a complete trip, from the beginning to the end seamlessly, during a pandemic may be challenging unless several solutions are improved. For example, providing real-time seating and wheelchair space availability to help to comply with physical distancing.

<sup>9</sup> (<https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/the-impact-of-covid-19-on-future-mobility-solutions#>)



- **Crowd-sourced data collection** may now be used to get feedbacks on the level of occupancy of a vehicle or to express an evaluation on the quality of the same type of information, if provided by the service provider.
- **Travel assistance** should address not only travellers with physical or cognitive impairments but also any other person needing indications how to behave, information or simply reassurance.
- **Assets sharing** may benefit from a sort of certification of sanitization of the shared equipment (e.g. bikes).
- **Digital assistants** could be used to substitute human contact regarding purchasing fare products or even performing like a wheelchair tie-down after a traveller in a wheelchair boards a bus.

#### 4.6.5 Possible measures to address inclusive mobility

The following synthetic list of topics can be associated with the measures addressing inclusive mobility in the COVID-19 scenarios.

- Safety measures for transport employees and users
- Knowledge and data collection on impacts by income, gender, ethnicity, geography to better target mobility support for specific populations
- Essential deliveries, statutory and voluntary run care services for the elderly and vulnerable people should be maintained during the crisis
- The role of community transport seems to be more important now, but often dependent on volunteers and donations, these may require more state support
- Flexible medical transport solutions enabled by tech

Long term focus:

- Better knowledge of accessibility and requirements of different user groups, as needs are often different to urban areas (e.g. demographics)
- Integrated responses to public service deserts, cross sectoral approaches and policy coordination beyond the transport sector (broadband infrastructure, education, health care and social services)
- Specify precise inclusion and accessibility objectives so that programmes can be evaluated against these objectives
- Climate policies that do not exacerbate existing inequalities, such as fuel tax compensations and better public transport accessibility . Micro mobility for rural areas.
- Leveraging technology for more user centred mobility solutions, include a focus on affordability and access for low income residents
- Social participation in the planning / marketing of rural transport services
- New types of public-private partnerships that allow for more integration and complementarity between public transport, private new mobility services, and private or public-private on-demand transport services



## 4.7 Conclusions on marketing opportunities.

This section provides a summary of the main exploitation and marketing opportunities emerging from the analysis conducted in INCLUSION, grouped by type of stakeholder.

It is relevant underlined how important is the stakeholder cooperation and partnership. Find out points of connection and supporting coworking is the biggest opportunity for improving transport inclusivity. Stakeholders could come together and cooperate through new types of public-private partnerships, partly subsidised private services by the public sector and related new business models.

### 4.7.1 Public Transport Service Providers

Public Transport Service Providers cannot be seen as strongly market-oriented by their nature. However, an exploitation of the INCLUSION results can give benefits in terms of optimization of service planning and costs. The main target seems to be the mobility gaps that are left by limited conventional PT services in rural and peri-urban areas for specific groups of people and that should be filled.

- **Social media and big data analysis** -based service planning gives the opportunity to optimize the costs by replacing inflexible and infrequent fixed route bus services with low passenger numbers with services that better meet user demands. Flexible transport service can be created in partnership with private operators to better meet vulnerable users' needs (e.g., door to door) and increase PT service scope by providing connections to conventional PT network.
- **MaaS** can help to provide a more seamless integration of PT with other transport services. MaaS App can improve the PT thanks the availability of information and data about user multimodal behaviour.
- In terms of **assistance to vulnerable users**, providing more tailored PT services for vulnerable users with special needs can enhance the feeling of empowerment and empathy towards vulnerable users that want to use PT.
- **Crowd-sourced data collection** can help establishing direct channels of information with vulnerable users to identify their mobility needs and then plan the services accordingly.

### 4.7.2 Private Transport service providers

Private Transport service providers can operate autonomously or in partnership with public operators but always to ensure an integration with the existing public transport options. Private service providers for example can operate to complement the existing services in specific situations, areas or times of the day, and for special groups, when or for whom conventional services are not available. Examples are big events (like for the Barcelona Pilot site), remote areas, night times, etc.

- For the above situations, **social media data analysis** is an opportunity to get more accurate information on user needs and tailor transport services based on them.

- **E-bikes asset sharing** can increase the number and type of people using bikes as alternative mode of transport. A further marketing opportunity comes from cooperation with bike resellers: many people who try e-bikes through shared hire schemes go on to purchase an e-bike.
- **MaaS solutions** offer the opportunity to private operators to enlarge the market share by the integration of their services into a digital platform. Opportunities for service providers not traditionally funded through service contracts can emerge if they are included in new MaaS schemes. The private sector is therefore motivated to enhance promotion and marketing of service to vulnerable users thanks to the personalised mobility budget some vulnerable users will be able to manage their personal budgets and make informed choices.
- **Ridesharing services** allow to reach more destinations in a cheaper way than door-to-door transport services.

#### 4.7.3 Community (volunteer)-based service providers

Community (volunteer) based service providers can offer a real door-to-door transport service that meets vulnerable users' demands and are affordable for them. The potential result is a service that better meets and adapts to vulnerable users' demands by strengthen at the same time the social cohesion.

- **Incentives** can be used to encourage volunteers to agree to transport different types of user or at times of day most demanded.
- **Local champions** can help to raise awareness and promote the service to difficult-to-reach groups in the community.

#### 4.7.4 Technology providers

Inclusive transport solutions and services often rely on ICT; therefore, there are relevant exploitation opportunities for technology providers:

- **Social-media and data mining solutions** can enlarge the market segment of data analysis techniques by their application for transportation studies and routes optimisation based on bus stops selection.
- A fully integrated system can be created with **MaaS** solutions with all the transport services available and a booking and payment system allowing users to have all the options in one go. Data collected from the App can continuously improve the service tailored to the user and provide mobility-related information to public sector focused on user insights. This can generate a new market of (vulnerable) users with related share of subscriptions/booking payments.
- **Crowd-sourced data processing** can enlarge the market segment of data collection techniques by application in transportation studies.
- **Technology applied to transportation**, information provision, planning, service organization, in general are all fields where technology providers can gain marketing shares.

#### 4.7.5 Other stakeholders (e.g. health, social, education, event organizers, commerce, other service providers etc.)

Non-transport providers and other stakeholders can benefit from additional transport offerings to improve their offerings and make them reachable by users. Partnerships with mobility providers can be established for bundled offerings to the final users.

- **Data mining solutions** can provide accessible, demand-oriented **transport services** to vulnerable users that otherwise would not have an option to attend the event.
- **Volunteer-based services** gives the opportunity to provide door-to-door accessible transport services to meet their clients' needs.

#### 4.7.6 The potential of cooperation and partnerships

The identified opportunities suggest that inter-sectorial cooperation and partnerships are fundamental to achieve more integration and complementarity between public transport, private new mobility services, private or public-private on-demand transport services. Local authorities and providers, especially, can expand their range of transport solutions and offering by using specific external expertise and knowledge for aspects where, comprehensibly, the same expertise was not developed internally.

The following table describes the main types of partnerships and cooperation identified for an effective exploitation while targeting the INCLUSION user categories and priorities from the lessons learnt.

Type of activity that implies a cooperation/partnership	Actors involved in the partnership, together with local authorities and public transport providers.	Description
On-demand transport operated by private providers, complementary to existing transport offering	Private service providers	This is one of the most interesting solutions where the public transport cannot be provided in areas or times of the day where the public offering is not available.
Peer-to-peer, or community-based transport management	Community-based services, experts in management.	Community-based services can be an excellent service complementary to existing transport offer. However, planning, service design, maintenance of vehicles etc. are all activities that can be

		managed withing the community service but for certain aspects can require additional expertise and management. Professionals can then be involved to advise, plan, start or manage the community-based organizations.
Provision of training to staff / volunteers	Professionals with a specific background in relation to the user typology or needs (e.g. social or health)	This professional skill is required to provide specialized training to staff or volunteers in relation to the needs of specific user categories (e.g. elderly people, user with special mobility needs, users with cognitive impairments etc.).
Development and management of ICT solutions	ICT specialists, designers, developers	Although, to a certain extent, ICT experts are usually already in force at local authorities, they may not have the resources and know-how to develop and manage ICT tools that supports innovative (ICT-based) solutions.
Support for co-design and learning of ICT tools	Local communities, user associations	For certain user categories (elderly, people with migrant background and others) the collection of requirements and feedbacks on usage of ICT tools should be done by professionals with an expertise on the specific user needs.
Data analytics, social media data extraction, Crowd-sourced information analysis	ICT specialists, data managers.	The analysis of the demand is crucial for an efficient transport planning. The expertise required to manage the data analysis tools may not be found in transport organizations and therefore a partnership with private firms is necessary in this case.
Efficient information provision. Promotion of new services.	Communication experts	Communication experts should already operate within transport organizations. However, promoting and encouraging the use of new services seems still to be challenging. Often the services aren't used because people is not informed and/or

		their feedback/needs are not sufficiently taken into account.
Design of innovative Transport Services.	External transport planners, designers	Although this can be managed by personnel already in force to the organization, specific and innovative solutions can require the involvement of external, private companies.

*Table 3 – Forms of public-private partnerships*

## 5 Transferability: dissemination and marketing strategies

The main objective of the dissemination and marketing activities is to maximise the visibility of the results in order to stimulate the interest of the stakeholders and exploit market opportunities. As the consortium of the INCLUSION project is composed of very different types of organisations and not all organisations have the same business objective. Some of them are public entities and not for profit. Therefore, the focus for the commercialization is principally on partners that are planning to further invest in the results to allow them to reach the market and get the benefits of potential sales.

The strategy of the commercial partners is to approach stakeholders (like Cities, Local Authorities, private companies/SMEs, etc.) and offer them the exploitable results (products, consultancy, technologies) as part of (or to be integrated into) a larger framework. Marketing resources will be also used to contact and establish relationships with other interested parties, like business sponsors and mobility services developers.

More information on the dissemination strategy and activities during the project is provided in the Final Dissemination Report (Deliverable D7.4). The following sections gives more insights on the commercial and marketing strategies and channels in relation to the exploitation of the project results.

### 5.1 Stakeholders and initiators

The initiators of a new solution are the stakeholder that take the initiative to start developing suggestions and proposals. Other stakeholders might get involved at a later stage, depending on technological, funding or political support needs. The identification and establishment of contacts with the right initiators can be the first step towards the deployment of products and solutions.

The understanding and investigation of the typical interactions and processes that involves the different initiators and stakeholders, their potential roles, their strengths and weaknesses is crucial to address the right actors and eventually to define an effective exploitation strategy. The final analysis of the 50+ INCLUSION Case Studies (ref. Deliverable D3.4 - *Typology and description of underlying principles and generalisable lessons*) found that in each case study, a specific initiator (group) could be identified. Initiators typically fall into one of three main categories:

- Public sector
- Private sector
- Community organisations

The guidelines developed in D3.4, together with the recommendations and lessons learned formulated as final outcome of Work Package 5 (process and impact evaluation) are the project's

reference documents for understanding the problems, opportunities, drivers and barriers and transferability. All this information could be particularly interesting for actors involved in the market.

### 5.1.1 Public authorities

Public authorities typically lead the initiatives on improving the transport system and its inclusivity. Many public authorities are operating on limited budgets; however INCLUSION proposes some entry points for the public sector to fill mobility gaps and possibly partner with the private sector or community organizations in co-developing, implementing and maintaining solutions.

To provide more **accessible** and **affordable** mobility solutions it should be explored the possibility to subsidise the operations and/or fares for collective transport services. **Convenience and efficiency** may be pursued by finding cost-effective ways of making use of existing infrastructure, e.g. by partnering with local taxis to extend existing bus lines during off-peak hours especially in rural areas. Another important aspect is giving **empathetic** services, such as being trained to assist disabled and elderly people during their journeys and to offer more friendly, helpful service overall.

### 5.1.2 Private sector

The private sector is active in developing innovative, **convenient and efficient** mobility solutions for people who are vulnerable to transport exclusion. As highlighted by the project's case studies and pilot sites' measures, public-private partnerships are one of the most effective conditions to help ensuring optimal **affordability** and innovativeness of solutions. The public sector is increasingly willing to collaborate and innovate – even to take risks on new ideas, as long as there is sufficient financial backing from the private sector.

Example of success stories are the revamping of collective mobility services in areas where public transport was discontinued by replacing them with more flexible options but in general good options for the private sector are the introduction of services that are complementary to the existing public transport network in poorly served areas. Opportunities of collaborations exists in the form of marketing and communication, or ICT service provision to improve the **accessibility** of collective mobility services.

### 5.1.3 Community organizations

Community organizations have unique characteristics which gives them a primary role in the delivery of inclusive mobility service as they are in close contact with residents and local businesses who have a potential role to play in co-developing, implementing and maintaining the transport services. These actors operate in existing structures of trust and opportunities for face-to-face communication which is important not only to co-design the solutions but also to build a local sense of ownership for them which is an important factor addressing social isolation.

Volunteer-based services revealed to be very effective during the project analysis of existing and new transport measures. However, initiatives that rely exclusively on volunteers (without enforceable contractual obligations) pose a risk of the continuity of service of a project. Support of professionals is therefore important to ensure this continuity and to complement the job of



volunteers with more specialized competences when necessary. When the solution needs to be scaled up the responsibility for coordinating its operations, especially in specific situations like transport of people with physical impairment, should be handed over ideally to the public sector.

## 5.2 Dissemination and communication channels

The above considerations suggest that a tailored communication should be operated to deliver efficient and suitable solutions intended as part of the INCLUSION product packages. In the exploitation scenarios relevant for the project, however, it is very important to consider also the social impacts and implications of the mobility solutions identified and developed in the project. INCLUSION has constantly given importance to this social dimension by analysing the drivers, opportunities and transferability considerations having a significant relation with the needs of the user groups not only in terms of transport but also considering their attitudes, expectations and habits. The exploitation and dissemination of the INCLUSION solutions shouldn't be conducted without considering these aspects. Deep knowledge of the inclusive mobility scenarios, user priorities and implications are equally important as the efficiency of a mobility solution in terms of connections, travel times and other performance indicators of the same nature. In that respect, consultancy services, academic activities and further research projects are all important exploitation aspects that needs to be considered.

From these considerations the main stakeholders and channels identified for dissemination of the knowledge and results of INCLUSION are:

- User associations, NGOs working directly with users & other practitioners and professionals including:
  - Organisations that influence stakeholders, e.g. UITP, POLIS, Eurocities, other city networks (including national level)
  - Not only transport-related: it is important to address all areas that influence accessible and inclusive transport
- Transport operators and authorities
- Policymakers:
  - Including council people in peripheral areas, not just in urban centres
  - Local Members of Parliament
- Other public bodies, e.g. employment offices, health department
- Social entrepreneurs
- Researchers (also in related fields, e.g. economics, urban planning)
- Treasury/ public bodies responsible for allocating funding for transport projects
- Organizations that facilitate the exchange of information, knowledge and experience in the field of sustainable urban mobility in Europe (for example the ELTIS Urban Mobility Observatory)
- Universities and research centres as they target next generation of planners, policy makers and solutions providers in the private sector
- New and shared mobility service providers, micro-transit operators, MaaS operators

To maximize the dissemination impacts, peer-to-peer learning on good practice (e.g. city to city exchange visits) and direct communication are also very important to convey complete and tailored messages. The options identified and developed within the INCLUSION dissemination and exploitation strategies are:

- increase the project's ambition to get published by external channels including target specialised media outlets (e.g. magazines, conferences)
- effectively analyse and develop business cases including. economic considerations, e.g. the amount of resources saved with the proposed mobility solutions.
- communicate transferability very clearly.

In that respect interesting possibilities have been identified with tools like:

- Storytelling formats on good practice: this option has been explored and developed in the project by producing three high-quality designed brochures that synthesizes and present in a more accessible way the contents of the following deliverables:
  - o Deliverable D3.4 *Typology and description of underlying principles and generalisable lessons*
  - o Deliverable D5.6 *Evaluation of findings and transferability potential at European level*
  - o Deliverable D6.2 *Recommendations on the transferability of the proposed business models*
- Option generator tools: a web-based, interactive decision facility where the stakeholders can easily indicate their requirements with a step-by-step procedure with instructions and get the links to the most appropriate and suitable INCLUSION resources. This tool has been designed in the project.

The main channels are identified for the communication are the following:

### Visits and Consulting activities, demonstrations.

Direct marketing through visits to potential customers, consulting and training (seminars) activities, recommending the use and implantation of the INCLUSION platform and its most appropriate mobility services, in terms of feasibility and sustainability, as well as regarding the benefits it would bring to their citizens.

In situ demonstration focusing on the actual pilots with end-users and presenting the use of the services in real scenarios, evidencing the obtained impact.

### Tracking of contacts

Once the potential customers are approached, an important activity will consist in ensuring the gathering and tracking of contacts, since monitoring potential adopters, stakeholders and end-users' feedback on exploitation is of utmost importance.

Besides the input they can provide with respect to the way to exploit the project results and the operation and financial model that would best fit their needs, it is important to keep in touch with them and maintain the contact. Therefore, a mechanism has been designed to track those interactions and establish a follow-up programme for the monitoring of all exploitation opportunities deriving from project outputs:

- Establishment of a list of contacts relevant for the exploitation of the project results together with a plan for the follow up of these contacts (e.g. give them periodical information about demonstrations and seminar events).
- Analysis of the feedback from users and potential adopters of the INCLUSION offer: number of interactions, potential business opportunities, etc.

### Events, conferences, webinars

After the end of the project, most INCLUSION partners have the intention to continue disseminating and promoting the project results. In general, they plan to attend conferences and present INCLUSION results as part of their usual activity. Public not-for-profit organisations will use their own budget to cover personnel, travel and fee costs, while for business-oriented organisations this will be part of their investment.

Partners will be able to use graphical materials produced during the project that demonstrate the innovative services:

- Printed material, like leaflets
- Videos from the pilot sites
- Newsletters and social media feeds, with a focus on potential adopters

### Website / Portal & Social Networking

This includes advertisement campaigns through the web sites of the Consortium partners, the INCLUSION website itself, and other social media such as Facebook and Twitter. Content updates are important to keep the site up-to-date and to increase the chance to attract more interest. Actions consider expanding the reach via circular links from other web sites, where INCLUSION could be mentioned or promoted. Content updates will be asked regularly to partners and the technical updates of the site will be performed by ALGOWATT. Additionally, some commercial partners plan to update their own website with information about INCLUSION results and will invest time and money in doing this.

Social and media platforms has a primary importance. In a fast-changing and time-saving world, channels like YouTube, Twitter, Facebook are often more attractive and used than traditional web sites. Receiving a quick and attractive notification can be much more effective than discovering an information on a web site. Therefore, INCLUSION has put efforts on these channels since the project start for the dissemination of the results.

### Ambassadors, replicators

External experts having a quite consolidated view and knowledge of the INCLUSION results can act as ambassadors for the project. It is particularly interesting the role that the stakeholder forum can play in that respect. The experts have been involved at several stages to discuss the project methodologies and results with the objective to keep the highest quality level for the findings, especially in relation to the needs of the real world they know very well. Therefore, considering their expertise and external role, the Stakeholders' Forum members can convey effective and credible messages for the replicability of the solutions.

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### 5.3 Intellectual Property Rights (IPR) aspects

The INCLUSION project includes knowledge, solutions, research, and innovation developed by its partners. To avoid conflicts on Intellectual Property (IP) Rights within the consortium, special attention is paid to the specific IP contents in the Consortium Agreement, dealing with (joint) ownership and possible transfer of the IP and the access rights for project partners and affiliates. In principle, each partner owns its new IP and other results generated in the project together with the existing knowledge and IP (Background).

The identification, analysis, assessment and auditing of project IPR aspects gives a basis to steer the technological activities (towards non-infringement of Third Party IPR), enforce the collaboration (via understanding of the Consortium IPRs, and providing more appropriate agreements) and building up of project IPR itself. If a certain IP is selected for future business opportunities of the involved partner(s), the necessary steps are taken to protect that IP.

## 6 Business Models

In the WP 6 “New Solutions and Business Models” the lessons learnt from the previous work packages have been framed and the derived transferable solutions have been depicted as regards to technological, social and organisational innovation and their combination into effective, efficient and affordable mobility solutions with viable socio-business models (i.e. models not only economically, but also socially, acceptable and sustainable). Several business concepts have been established from the inclusivity goals while ensuring compatibility with the policy and planning priorities for the next 10 years as highlighted in the SUMP 2.0 guidance. Then, informed from analysis of the 50+ case studies explored in WP3 and thanks to the demonstration measures implemented in WP4, a series of business scenarios is developed. The outcome is a visualization of the most plausible approaches to deliver the business concepts.

The most appropriate approach was situation specific and it depended on the area types, the kinds of providers, the capacity or capability of those providers, the funding options and associated funding conditions related to different types of provider, and other organisational and legislative frameworks that apply according to the types of target user. These different approaches and their features are described through a number of potential scenarios associated with each business concept.

The complete reporting on the INCLUSION Business Models can be found in the following deliverables:

- Deliverable D6.1 - *Business concepts and models to support accessible and inclusive mobility*
- Deliverable D6.2 - *Recommendations on the transferability of the proposed business models*

The following sections summarize the main aspects of them and are included in this report just as a quick reference.

### 6.1 Business Concept 1 - Accessible Vehicles Strategy

The first Business concept is “Accessible vehicles Strategy”. This involves that every conventional PT vehicle has to be inclusive for all. This strategy is focused primarily on the vehicle’s design which should accommodate vulnerable user’s needs and remove accessibility barriers.

The resulting scenario would consist in a fully accessible public transport bus service. Wheelchair users and those utilisers who require low floor access will be finally able to rely on the conventional public transport network rather than on limited and expensive services like specialist client transfers for health or social services. Moreover, not only wheelchair utilisers, but also other categories of vulnerable users will benefit from this approach: i.e. families with buggies and/or young children, elderly, sensory disabled, etc. This way of conceiving business strategy will certainly increase patronage on conventional PT services, and it will reduce the need for specialist transport provision/budgets.

Regarding the public sector, the main challenges for the institutions concern contracts stipulation and attention to the customers. According to the former, introducing new accessible vehicle requirements to service contracts could affect contract renewal since any change can take a long time to become implemented. Concerning the latter, the new requirements would consist in always being aware of vulnerable user needs, by a constant research and a continuous implementation of new solutions. The main objective of this business strategy is to create a big impact in accessible transport service providers by adapting legislation and service contract requirements according to the evolution of vulnerable users' needs.

Considering the private sector and transport providers instead, the main challenges will be represented by the need for investments in order to have a enough accessible vehicles in their fleet and the constant vehicle adaptations in relation to the continuous change of legislation. On the other hand, the opportunities like an enhanced competitiveness and an addition of social component to their service will significantly increase the value and the image of the companies.

Finally, the most important issue from the user side could be given by the necessity of adaptiveness and openness to change from a specialised transport service to a conventional accessible PT service. Nevertheless, adopting this new business model could represent for them a chance to feel more socially included and accepted through the access to a more dedicated service.

## 6.2 Business Concept 2 - Exploit the Power of Crowdsourced Data

The second business concept is "Exploit the Power of Crowdsourced Data". It looks to develop tools whereby information on vulnerable users' mobility demands and needs can be exchanged, captured and analysed. This information is utilised by transport planners and providers to deliver more efficient and effective services and more integrated planning decisions.

Two different scenarios emerge for this concept:

1. Using mobile apps to collect crowdsourced data from vulnerable users to identify where improvements to PT services are needed.
2. Analysis of social media data to better identify where vulnerable user demand for transport services exists

The inclusivity goals of this business concept are making planners and providers more aware of the demands, needs and capabilities of vulnerable users and provide services that increase inter-modality or choice.

For what concern the public transport operator in the first scenario, "Crowdsourced data capture to identify where improvements to PT services are needed", challenges are especially twice. One is the development of a solution, that may not be usable by all vulnerable user group, as people without digital skill or devices, thus not generally inclusive. Another issue is the transformation of crowdsourced data into action, since is not always possible due to budget constraints. On the other hand, this new data technology could represent a real opportunity for public transport operator which can rely on a direct channel of information with vulnerable users to identify their mobility needs.

Considering the technology providers, the collection of massive amounts of data that need to be processed and prioritised could be a challenging task. But, at the same time, it lets the expansion of the market segment of data collection techniques by their application in transportation studies.

Furthermore, capture the needs of users that are unwilling to use these platforms represent an issue for community organisations that must take all necessities into account. Needs from users would be highlight to PT operator through a direct channel.

Once the vulnerable users have adapted to new technologies for sharing, their needs will be considered when improving PT services, enhancing empowerment.

In the second scenario, “Big data analysis to better identify where demand for transport services exists”, technology providers will bump into some issues: data policies uncertainty when analysing social media; necessity of data mining techniques knowledge to interpret non-structured information; quantity and quality of data is often not optimal for the development of the solution (e.g. lack of geolocation). Nevertheless, technology providers would enlarge the market segment of social media data analysis techniques by their application in transportation studies and would increase their ability to identify potential demand for transport services.

As far as it concerns the on-demand PT operator, it could be a challenge dealing with data mining, but at the same time an opportunity to provide, for lower density areas, non-commercially viable services where there is low demand, or the total demand is partially unknown.

Unfortunately, if users do not have access to Social Media, they will not be represented when studying different transport options to attend an event organized on them. On the other hand, considering users potential demand, previously unidentified, it would be always taken into account when planning on-demand routes, and more young people would have access to leisure or socio-cultural events without reliance on parents driving them, supporting their independence and an inclusive travel opportunity.

### 6.3 Business Concept 3 (BC3) - Asset sharing models

The third business concept is “asset sharing model”, aiming at increasing transport options for the users in an economically viable manner. Asset sharing is when vehicles (scooters/bikes/e-bikes/mopeds/cars) are collectively owned (by the municipality, local company or community group) and are made available for shared use by either individuals or local groups. Asset sharing models can provide more travel choices to users without the need for private ownership and can foster cooperation between sectors and hence reduce sector specific dedicated services, resulting in more cost-effective delivery. The two main scenarios related to asset sharing can be defined according to the users, type of asset and the type of area. The goals are providing services that increase inter-modality or choice and increase coverage or reduce travel time.

Two main scenarios:

1. Asset sharing in rural or peri-urban areas where the users of the asset are individual members of the public



## 2. Asset sharing of buses where the users of the asset are organisations providing a service for members of the public

Considering the first scenario, public authorities must choose correctly which types of asset to purchase that meet the needs from each area. Without a commercial environment, they could face some difficulties of deploying such a service in rural areas. However, some opportunities for the public authorities have been underlined: possibility to fill the mobility gaps that are left by limited conventional PT services in rural and peri-urban areas; provide sustainable and active transport modes to rural and peri-urban dwellers and consequently reduce car ownership.

As the private sector and service providers instead, the main challenges will be represented by the adaptation of facilities to provide maintenance and management of the services and by the way to carry out operation of the service (i.e. booking, asset control). On the other hand, the revenues will increase due to the indirect sales of their merchandise as well as the number and type of people using bike, especially in low season.

Adapting new mobility schemes needs different user behaviour. Indeed, they should give less weight to private car and enhance collective and sustainable transport options. However, not all user will benefit from these new schemes like older people, those with some physical disability or people that are not able to use bike or e-bike. Nevertheless, experiencing this new business model could enlarge sustainable transport options that empower vulnerable users when traveling in rural and peri-urban areas and help boosting active lifestyle.

The primary purpose of the second scenario is to enable community transport groups in rural areas to build up a core network of fully accessible flexible public minibus services. It also opens the opportunity for not-for-profit organisations such as community transport groups, charities and social enterprise companies to utilise accessible vehicles as and when they need them for their clients.

Public authorities, in order to provide an alternative collective transport and fill the mobility gaps, must study the potential demand for this services and purchase or lease an adequate fleet of vehicles.

Local community (community transport groups, charities and social enterprise companies) must deal with driver's licence: large vehicles with more than 8 seats need a minibus licence. This may present a barrier for volunteer drivers; thus, local community should ensure some smaller vehicles (<9 seats) in the vehicle pool to overcome the problem. Moreover, local community must establish an operation scheme in order to coordinate all the organisations that want to use the vehicles. These services are characterized by low use cost and available to volunteers' drivers when private car is not suitable due to access needs or group size.

Then, some availability limitations could occur: public-sector partners (e.g. health, social, education) have to discuss at the planning stages of the services about requirement and likely demand, since vehicles can be in-use by other partners at the time needed and about the availability of shared fully accessible vehicles that can be used by other public sector partners for transporting their clients as and when needed. At the same time, public-sector partners can outsource door-to-door accessible transport services to meet their clients' needs at lower cost and without the need to

maintain a vehicle. In this way, acquisition cost is split into different public sector partners that allows to have a larger and diverse fleet of vehicles.

Finally, two opportunities are clear for the user: Lower cost for door-to-door accessible transport services and more availability of transport for those requiring accessible vehicles. For what concern the challenges, they have to adapt to new forms of using the service and be aware about safety issues linked with the use of volunteer drivers.

## 6.4 Business Concept 4 (BC4) - Expand Ridesharing

Ride sharing options allow aggregation of the mobility demand for sharing a ride in the same vehicle, the concept is about utilise ride-sharing options to plug gaps in core service at low cost. This can be done through two scenarios:

3. public-private partnership ridesharing services using shared taxis with professional drivers;
4. peer-to-peer ridesharing services such as carpooling (where private individuals share the journey they are already making in their own car with other people going in the same direction at the same time) or volunteer lift giving schemes (where drivers, usually with their own vehicle, offer lifts to certain users for free or for a small reimbursement).

These types of solution can increase coverage at low cost for non-essential trips and increase integration to the core transport network.

The first scenario is about establishing public private partnerships with taxi providers or other commercial ride-sourcing operators (e.g. Uber) to secure services offering first and last mile connections at affordable fares to support integration with the mainline public transport network. Regarding public authorities' challenges, they have to negotiate with ridesharing taxi service providers that operate in a commercial basis and select the ones that meet the most vulnerable users' needs. Then they could have some issues around state aid funding where services could be commercially viable. On the other hand, many opportunities came out for them: complement the PT network by providing adequate first and last mile options using ridesharing taxi services; using taxi companies in the local areas would reduce the investment needs away from new fleets and limit it to the booking and integration systems; services delivered through partnership, often planned with public bodies in other sector, made available to target the priorities of these sectors and/or address shortcomings in providing access to services provided by these sectors. E.g. subsidised shared taxi services to hospitals or to out of town employment sites from deprived urban areas.

Concerning the ridesharing taxi service provider, if they change the operation scheme from commercial door-to-door services to public-private partnerships to deliver first and last mile connection services, they will increase viability and market segment. Furthermore, users will have the opportunity to reach more destinations using PT services instead of expensive door-to-door transport services.

In the second scenario, some volunteers give lift services using their own private vehicle, filling gaps without public sector funding. The results are an extension of the range of transport services available for non-essential travel. These services can be small in scale, with only a few volunteers

requiring little coordination and management, up to large scale schemes, with hundreds of volunteers that require substantial time input to attract and retain other volunteers. Usually, larger scale schemes are managed by community transport groups using a paid manager supported by volunteer staff.

Community transport organizations must manage and coordinate the rides, and be able to attract and retain volunteers, ensuring a rigorous vetting and training. In this way they will provide a door-to-door transport service that meet vulnerable users' demands.

Considering the volunteers, they face some challenges as: being empathetic and understanding of vulnerable users' needs and capabilities; ensuring safety and trust when providing ridesharing services; lack of accessible vehicles that meet some vulnerable user needs; encouraging volunteers to widen the range of users they are willing to help. At the same time, they will be responsible of ensuring a new inclusive mobility for all and strengthening social cohesion. Moreover, incentives can be used to encourage volunteers to transport different types of user or at times of day most demanded.

Users, relying on services managed by volunteers, will reach more destinations using ridesharing services instead of expensive door-to-door transport services.

## 6.5 Business Concept 5 (BC5) – Encourage new collective transport services

New collective transport services are services scheduled to pick up and drop off people in accordance with the actual needs of the passengers based on demand and aimed at getting lower cost services that better meet vulnerable user demands. They need to be booked in advance of travel either through telephone booking or using mobile app technology. Software algorithms aggregate bookings to generate a schedule of pick-ups and drop-offs either door-to-door or at designated locations. The services can better accommodate needs of some vulnerable users by offering door-to-door pick-up and drop-off or by providing niche services where timings and routes are tailored to the demands of certain vulnerable user groups. They can be considered as flexible services that span the wide space between taxis and conventional public transport and are often a more cost-efficient form of supply in environments with niche/specific or low levels of demand.

Two distinct scenarios can be developed related to this business concept:

1. Commercially viable collective transport services that better meet vulnerable user demands
2. Not-for-profit collective transport services that better meet vulnerable user demands in rural areas

This Business concept wants to open-up new market segments, provide services that increase coverage and reduce travel time.

Commercially viable collective services provided by the private sector often do not use accessible vehicles. Profit margins are tight, and the additional cost of accessible vehicles is often the difference between generating a profit or incurring a loss. Ensuring private sector providers invest in accessible vehicles is difficult without additional incentive or leverage from the public sector. Private sector providers will respond to vulnerable users' needs where this result has enough

revenue generation to pay for any enhancements. Niche services that have been developed in response to high levels of demand from vulnerable users will include features required or desired by those users.

On-demand PT operators face some challenges, as provide commercially viable services where there is low demand, or the total demand is partially unknown and expand the market segment on the service by offering the service for different events. On the other hand, they can provide services which meet vulnerable users' needs, identified using social media data analysis technology. Moreover, they would promote more sustainable transport services for attending events.

Considering technology providers, in order to have a bigger impact in the model development, they should understand the mobility problems and trends, as well as be able to digitalise all the processes involved in the service. As opportunity, they can enlarge the market segment of social media data analysis techniques and develops an optimization algorithm for routes based on confirmed bus stop.

The event organisers have to furnish enough information about all the different transport modes to attend the event and emphasise the most sustainable ones; thus, they will contribute to provide accessible transport services to vulnerable users that otherwise would not have an option to attend the event.

To achieve this scenario objectives, users should switch from traditional transportation modes to others, more innovative and sustainable, dealing with uncertainty if booked trip is cancelled due to insufficient passengers. Then user will have the possibility to reach events by affordable and reliable transport options that otherwise would be difficult to reach. Moreover, user can travel safer than driving when alcohol is consumed at event.

The second scenario is about Not-for-profit collective transport services that better meet vulnerable user demands in rural areas. Most collective services provided in peri-urban or rural areas are to replace poorly used conventional public transport services, or to provide a service in rural areas where no other public transport exists. To better meet the needs of more vulnerable users in rural and peri-urban areas, it is recommended that these collective transport services are made open to all and operate using accessible vehicles and paid drivers.

Public authorities should study the potential demand for this service to purchase an adequate fleet of vehicles and specify the minimum operating times and areas covered by the service while keeping flexibility in terms of specific stops and pick-ups. Moreover, they should finance accessible vehicle purchase. Many opportunities are opening for them: alternative collective transport to fill the mobility gaps created by the limited conventional PT services; opportunity to save money by replacing inflexible and infrequent fixed route bus services with low passenger numbers with services that better meet user demands; flexible transport service that better meets vulnerable users' needs (e.g., door to door) and increase PT service scope.

Considering the community of transport providers, they will provide a service that better meets and adapts to vulnerable users' demands, but they have to face some issues: adaptations to deliver flexible collective services that do not follow traditional PT schemes (e.g. flexible specific stops and

pick-ups; attract volunteer drivers, paid drivers can improve reliability and stability of the service but incurs significant cost.

For what concern the other public-sector partners (e.g. health, social, education), they should reallocate client transport budgets helping to finance the collective transport service. Then, there's the opportunity to provide door-to-door accessible transport services to meet their clients' needs, removing need for separate expensive dedicated client transport often using taxis.

If the users are able to adapt themselves to new form of flexible collective transport services, they won't need any longer to own a car, they will have, anyway, accessible, affordable and flexible option with greater independence and freedom, especially for them that are vulnerable and isolated.

## 6.6 Business Concept 6 (BC6) - Discount payments through MaaS

The current approach to reduce financial barriers for travel by vulnerable users is to offer free or discounted travel to eligible users in certain vulnerable user groups, and then give to transport provider reimbursement payments from the public sector to compensate them for reduced fare revenues. This approach has typically been delivered in urban areas through discount travel schemes for conventional bus and taxi use. This type of funding can be applied to both deregulated commercial services as well as in regulated environments where net cost contracts are awarded by the public-sector transport authority to the private sector transport provider. It may also be appropriate in regulated environments where gross cost service contracts are awarded by the transport authority to a private sector provider, but the discount travel scheme is funded by a different public-sector partner (e.g. social care who reimburse free travel for their clients). In such cases, reimbursement payments would be between the public-sector partners rather than to the private sector operator. However, a requirement for this approach to be effective and suitable is that the transport services are accessible, attractive and convenient for the vulnerable users.

The more limited numbers of accessible buses and taxis combined with the sparsity of the public transport network in peri-urban and rural areas has resulted in more limited choice of affordable travel options in these areas. Furthermore, discounted travel is not available to utilise the growing number of non-conventional transport services that are becoming more prevalent in urban, peri-urban and rural areas.

Alternative ways of funding discounts for vulnerable users are needed which allow the discounted travel to be extended to a wider range of services, allowing users choice on the services they can afford to use. This requires inclusion of new collective flexible services provided by both private sector and community organisations, asset sharing hire services and possibly also volunteer and peer-to-peer services to be included in discounted travel schemes. An approach for achieving this is through use of a MaaS-type system that offers a subscription payment model for use of all the transport options in an area. This has the potential to not only provide more affordable choices to vulnerable users supporting more independent travel, but also motivate commercial mobility providers to cater for vulnerable users. The MaaS technology platform offers a mechanism by which other sectors (from health, education, social care sectors) can provide funding for discounted travel by their vulnerable client groups. Summing up, this business concept wants to reduce financial

barriers for vulnerable user to travel e provide an economical support and stimulate new service provision.

The considered scenario is about new forms of subsidised travel through MaaS systems. Some challenges for technology provider came out: development, update and maintenance of the MaaS App in line with innovation and technology updates; integration of many transport services with different operation and management schemes in the MaaS App; provide payment functions that allow vulnerable users from different public sector clients to spend their personalised mobility budget in the transport mode that they prefer. On the other hand, they have several opportunities from this concept development: create a fully integrated system with all the transport services available and a booking and payment system that allow users to have all the options in one go; use the data collected from the App to continuously improve the service tailored to the user and provide mobility-related information to public sector focused on user insights; attract a new market of users (vulnerable users) and the share of subscriptions/booking payments this generates.

The PT service providers must deal with the transition from traditional discount travel schemes to innovative subsidised payments through a MaaS App and the uncertainty of revenue due to payments per trip rather than service contract. But they will be able to provide better PT connections through the MaaS App relying on the integration of different types of transport services. Moreover, they can use multimodal data collection from the App to improve the PT services considering the information from the users.

Furthermore, the private transport service provider has the same issues as the private, but more opportunities: enlarge the market share by the integration of the service with potential competitors; collaboration with other transport services by sharing users' data to have a deeper user understanding; direct payments to users give those users more empowerment and individual choice to demand transport. The private sector is therefore motivated to enhance promotion and marketing of service to vulnerable users.

Unfortunately, this concept has some usability limits: people without digital skills will be unable to use the service and receive the personalized budget, and some vulnerable users may have lack of trust and difficulties when using the App. Moreover, users are free to use the allocated budget as quick as they want, therefore they may not make best value choice. In this sense, they have the possibility to rely on the community sector organisations that can act as a broker between vulnerable users and providers.

Looking for positive aspect, there are several opportunities in the user side: they have all the transport services easily available in one App anytime and everywhere and they are free to choose the transport mode thanks to the personalised mobility budget.

## 6.7 Business Concept 7 (BC7) - Provide Training and Assistance

To increase uptake, there is a need to address confidence and information barriers through human dimension solutions. The user needs related to the human dimensions include the need for service provision to be empowering, empathetic, gender equitable, and safe. Solutions which address these needs ensure that staff and volunteers, who are in contact with vulnerable users, have a



means of recognising them, have a good understanding of their additional needs and knowledge of how to best deliver service to them. This includes greater recognition that less visible disabilities such as autism, dementia or anxiety can be just as much of a barrier to travel as a visible disability. The types of solution can relate to include delivery of training to staff and/or to volunteers on interacting with users who have complex needs, introduction of some mechanism for identifying yourself as a user with complex needs, and travel support or accompanying services offered by providers using staff or volunteers. There are therefore two main types of human intervention to support independent travel by vulnerable users:

1. providing training to ensure public transport staff are aware of the needs and capabilities of different vulnerable users and can then provide appropriate support where necessary
2. empowering vulnerable users to travel independently by providing them with travel assistants to help them and teach them how to use the transport services in a safe manner and with confidence

The human intervention to support independent travel by vulnerable users has the aim to provide support to increase confidence to travel and to make staff more aware of the needs and capabilities of vulnerable users.

The first scenario is “providing staff awareness training to increase confidence and safety in using public transport services”. Staff awareness training on understanding vulnerable users’ needs and capabilities should be included as mandatory elements in service contracts, where these exist. Awareness training should be provided to all staff who meet vulnerable users during their journey, from ticket sales staff, to drivers, inspectors and customer service staff.

PT authorities and operators should understand the more complex vulnerable users’ capabilities and needs since they have the responsibility to delivery trainings that encompass all that needs. They will be able to provide safer PT services, enhancing the feeling of empowerment and empathy towards vulnerable users that want to use PT.

Users should trust PT services and staff in order to have reliability on the service (e.g. trust that someone will help them boarding, give them extra time, securing wheelchairs etc.). Since PT staff understands how to assist them when travelling, they will feel more included in the society and the risk of incidents is reduced by having proper assistance.

The second scenario is “Providing travel assistants to enable use of public transport services”. For vulnerable users with more complex sensory disabilities and cognitive/mental health impairments, awareness of user needs by staff can support user confidence and capability to travel independently. Those with more complex needs require personal assistance provided by trained travel buddies who accompany the vulnerable user when starting to use conventional public transport until they are confident to travel independently in a safe manner. Travel assistants provide a larger contingent of vulnerable users with the opportunity to transfer from limited and expensive-to-procure specialist door-to-door services to conventional public transport, resulting in more choice and greater freedom for vulnerable users as well as reduction in public spending on specialist services.



Public transport providers, in addition to the challenges faced for the first scenario, here they must ensure that other physical barriers to travel are removed through use of suitable accessible vehicles. As opportunities, they will improve PT accessibility and inclusivity by providing adequate assistants to help vulnerable users travel independently and with confidence. Furthermore, they will understand user needs through direct telephone and face-to-face communication, in order to assist them properly. Then they will reduce the expenditure on specialist door-to-door transport provision.

Assistants (social services, charities or volunteer organisations) must understand all diverse needs and capabilities in order to help in a more adequate manner. Then they must attract appropriate staff/volunteers through a process of checking. Furthermore, they can boost social community feeling by helping the ones with more difficulties and enlarge buddies for vulnerable users' market segment.

In addition to providing travel assistants to accompany vulnerable users while using PT, travel training can be provided on how to use PT services and on the use of technologies that aid the use of PT services.

## 6.8 Business Concept 8 (BC8) - Tailored Information

Tailored information in the form of printed materials that are easy to understand by vulnerable users is important to raise awareness of travel options available to vulnerable users with specific requirements and who do not have access to information via mobile apps. This also includes information made available at stops/stations and in-vehicles. Additionally, tailored audio information at stops/stations and in vehicles can provide valuable assistance to vulnerable users with reading or sight impairments.

Technology solutions in the form of mobile applications can reduce information barriers, thereby increasing uptake and usability. Technology can also be applied to improve the quality of information that is made available to vulnerable users on the travel. Using technology to provide information tailored to their needs can empower vulnerable users to help them to travel independently in a safe manner and with confidence.

Two scenarios have been studied:

- Tailored information (visual or audio) to raise awareness of options available or provide journey assistance
- Tailored mobile applications to reduce information barriers thereby increasing uptake and usability

The first scenario involves provision of understandable information in the form of printed leaflets, maps, or signage at stops/stations and on-vehicles. It also includes providing audio messages at stops/stations and in vehicles to assist those with reading or sight impairments. Audio messages in multiple languages can also assist those that are not native language speakers. In most cases these are relatively simple and cheap interventions to be produced, but they require detailed knowledge of vulnerable user requirements and it is also necessary to know the best way to communicate messages to the target groups. Co-participation workshops involving vulnerable users, transport

providers and transport authorities should be held to fully understand the information needs and capabilities of users.

Transport providers and authorities must find the adequate information and channel of communication to feasibly transmit the necessary information in the most efficient manner. Moreover, they must face the lack of cooperation and consultation between multiple modes, providers, public sector actors and vulnerable user groups, in order to ensure that consistent and appropriate information is delivered to vulnerable users. Thanks to the tailored information, there will be more inclusive transport, with a reduced expenditure on specialist door-to-door transport provision.

Users could have problem with provision of different information items available due to not clear instructions. On the other hand, this inclusive solution allows vulnerable users to understand the PT services available to them and provides knowledge on how to use the services through use of tailored information and personalised workshops to communicate the information.

The second scenario, "Tailored mobile applications to reduce information barriers thereby increasing uptake and usability" requires development of technology solutions that are specifically designed with attention to the needs of vulnerable user groups. These technology solutions are typically developed by private sector technology companies. Although there are some circumstances where they can be delivered on a fully commercial basis through user charges/subscriptions, in general, public private partnerships offer the best means of delivering these. Within the partnership, the public-sector shares data on services and user requirements and the private sector developers build and deliver the services to users for a fee paid by the public sector.

Considering challenges about this scenario concept development, the PT operator and authorities must understand the more complex vulnerable users' capabilities and needs in order to provide the adequate technology that help meeting these needs. Moreover, they should promote the application to vulnerable users and their training for its use. Speaking about opportunities, through this app, they can improve PT accessibility and inclusivity thanks to easy-to-access information and helping vulnerable users to travel independently and confidently. A virtual assistants and focus group/workshops contribute to better understand user needs. In addition, expenditure on specialist door-to-door transport provision is reduced.

Technology providers should always be UpToDate with app features and be able to develop them according to users' need. At the same time, they can enlarge their market segment of app development for information provision to vulnerable users.

Concerning users, if they are not able to use technological items or do not have phone connected, they will be excluded; as well as some vulnerable users that have lack of trust and difficulties when using the app. On the other hand, this concept represents an opportunity for users: social inclusion in transport services for the ones who need more independence and freedom.

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## 6.9 Conclusions on Business Models development

The Business Models developed provide a detailed description of the key information concerning main market targets; value proposition; actors involved; communication / engagement strategies; identification of costs and revenue including funding mechanism; the activities required for setup and delivery, etc. Besides, the social factors experienced by certain demographic groups of the population have been evaluated in a detailed manner, in order to identify social-demographic barriers that highlight potential challenges and barriers to use by certain target groups. Common social factors spanning demographic groups that lead to barriers to use include:

- Willingness to change habits
- Lack of trust/confidence
- Aversion to uncertainty

These social-demographic barriers emphasize the relevance of user engagement through education and promotion by trusted stakeholders for all Business Model solutions. It also highlights the significance of co-creating solutions together with the target users so that the solutions developed are wanted and needed.

Within each business model, key weaknesses and opportunities are highlighted. These are presented in relation to the main actors involved in the business model and include: public sector authorities; private sector transport providers; technology providers (where applicable); volunteers or assistants (where applicable); and vulnerable users. This indicates potential for transferability between target users and to other prioritised areas and highlights where new technology or social innovation can increase the effectiveness and/or the acceptance of the solution.

## 7 Individual exploitation plans

### 7.1 Guidelines for the development of the plans

To ease the preparation of the individual exploitation by the INCLUSION Consortium partners and have a homogeneous set of information, some suggested guidelines have been prepared. The goal of the exploitation in INCLUSION is to ensure the sustainability of the project's results beyond the project end.

These guidelines are a set of proposed lines of action or development where concrete exploitation opportunities can be found but does not necessarily exhausts all possibilities.

The partners are grouped in three categories, based on the respective expertise and role in the project:

- Industrial partners, including consultancy firms
- Transport Operators
- Academic partners

A first set of common guidelines, listed in the next section, is applicable to all roles.

#### 7.1.1 Common guidelines

The following guidelines are identified as applicable to all project partners:

- Focus on the main results from the project (products, services, ...) and their commercial viability.
- Identify drivers for a successful exploitation and consider how those drivers can be harnessed and strengthened.
- Consider new markets, customer segments and business models that become possible with the project.
- Consider a timeline, suitable to understand how the exploitation can be structured in phases. Identify the prospective time frame after the end of the project to bring the results to the market.
- Identify concrete customer needs that are addressed with the solutions and products identified and describe ways to quantitatively measure the success.
- Consider synergies for exploitation with other projects, possibly also funded ones.
- Assess the impact of general technological progress on the exploitation scenarios.
- Pay attention to legal aspects, privacy aspects, etc. and their influence on exploitation.

#### 7.1.2 Guidelines for transport operators

- Investigate and address the needs of user categories previously unexplored to find more transport innovation opportunities

- Explore the opportunities offered by big data analytics and crowd-sourced data collection to understand and address more specifically the users' needs.
- Consider new operating models studied and validated by the project.
- Consider new organizational methods for both internal and external processes.
- Explore new forms of partnership (public-private, private-private)
- Design new, innovative transport models and measures starting from the innovations investigated in the project.
- Develop new forms of integration among transport modes or fleets to address the needs of impaired mobility users
- If there are obstacles to a successful exploitation of the project from today's perspective, address them early on.
- Public-private partnerships to complement supply and address service gaps

### 7.1.3 Guidelines for Industrial Partners

- Put a focus on technological exploitation of the results.
- Consider the need to involve marketing, product-management, and sales departments early in the process.
- Aim at a quick access to the market. If necessary, create new markets for a successful exploitation.
- Consider the need to trigger interest in the industry for your project results
- Assess the competition for the developed results, in Europe and worldwide.
- Consider protecting intellectual property, for example, through patents.

### 7.1.4 Guidelines for Academic Partners

- Put a focus on how European stakeholders can profit from the exploitation of the results by considering also the advantages compared to competitors.
- Consider the possibility to offer seminars, lectures, lab-courses and the-like with topics related to the project. Let the results of the project influence and/or improve education and training.
- Consider exploiting the research in the project for improving the contributions to European research, like building scientific communities, organizing or participating in workshops and conferences.
- Explore new scientific communities or try to get into other, relevant communities.
- Consider protecting intellectual property, if any, for example, through patents.
- Consider the advantages for researchers in terms of gaining valuable knowledge by their work in the project.

## 7.2 Specification of the individual exploitation plans

The individual exploitation plans of the relevant INCLUSION partners in the exploitation strategy are presented in **Annex 1 – Individual exploitation plans**.

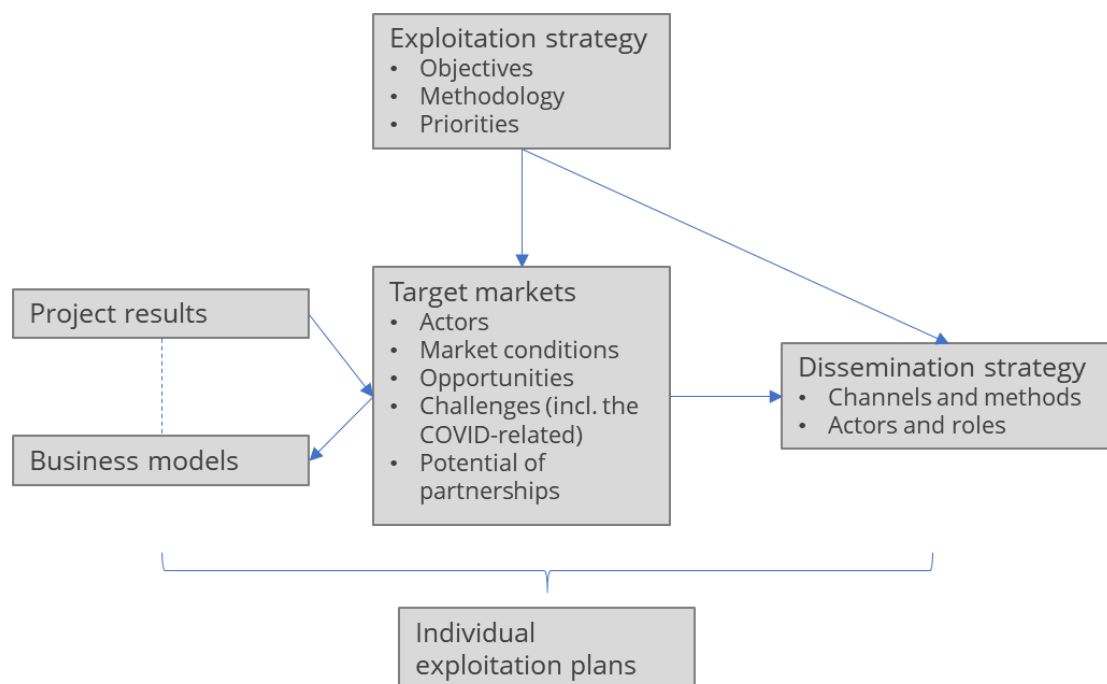
## 8 Conclusions

INCLUSION conducted a three-year research activity on inclusive mobility with real-life experiments on innovative solutions, an extensive process and impact evaluation on the results from the project's pilot sites, the definition of a number of Business Models suitable for the identified priorities and scenarios and several dissemination activities.

One of the key overall objectives of the project was to produce substantial impacts in relation to the objectives and challenges of the **MG8.4 topic of the work programme** related to current public transport systems and their frequent inability to provide adequate answers to the mobility needs and capabilities of particular population groups and meet the challenges arising in specific geographical areas or social contexts.

While contributing to this objective, the INCLUSION consortium gained a considerable amount of knowledge and experience and developed solutions, methods and tools which can be seen, all together, as a *package* of fully exploitable results.

This report describes the objectives, methodology, priorities behind the INCLUSION exploitation strategy, the market conditions and opportunities for the exploitable results and the business models to make the solution economically sustainable and to identify possible revenue streams. A dissemination strategy is developed to maximize the impacts.



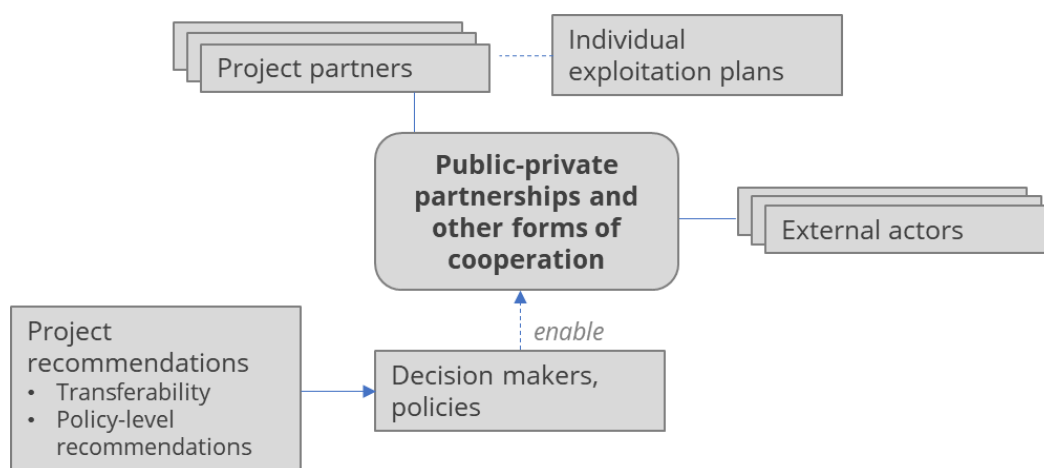
*Figure 5 – Structure of the INCLUSION exploitation strategy*

The main conclusions can be formulated against the following four main lessons learnt deduced from the project outcomes:

1. The most successful solutions are those where extensive **demand analysis** or user requirements work was undertaken and where **co-design** formed a key element of the process
2. Building **partnerships** and providing one-to-one support are essential for increasing user awareness, confidence and capability, leading to greater uptake. Local businesses and community organisations have a key role here.
3. **ICT solutions** can play an important role if the needs and skills of vulnerable people are fully comprehended. It is important to involve vulnerable users in co-designing the tools from the start. ICT should be there to streamline and supplement the human touch. The human element of delivering mobility solutions is especially important for socially isolated vulnerable user groups.
4. The **public sector** has a role to play through financing, monitoring, assuring quality and safety. **Public-Private Partnerships** (or Public Community Partnerships) often provide the best means of delivering solutions. The public sector funding provides the leverage to ensure vulnerable user needs are properly catered for. These partnerships also add value by increasing promotion and engagement within the local community.

These key findings have a strong impact on the transferability of the solutions looking at a successful exploitation and future applications of the project results, defines influences. Inter-sectorial cooperation, stronger focus on the final users and establishment of public-private partnerships seems to be the key elements of an effective strategy for developing inclusive transport solutions. All this creates new market opportunities but at the same time, should be in the focus of the decision-making process to set the primary enabling conditions for any development and exploitation.

The potential of public-private partnerships allows enhanced integration and complementarity between public transport, private new mobility services, private or public-private on-demand transport services. However other forms of interdisciplinary cooperation have been identified as described in section 4.7.6. The individual exploitation plans developed by the project partners provides further confirmations and details in this scenario.



*Figure 6 – Establishment of public-private partnerships, roles and actors*



The consortium's **industrial partners** have of a primary role as private firms in future public-private partnership. They have declared a high interest and identified concrete exploitation possibilities in relation to the product lines, consultancy and research activities currently consolidated in their organizations but also new market opportunities. Examples are: the development of Intelligent Transport System including flexible, on-demand services, from the specification and business process analysis to the integration with external system and the operation management; Workflow management and IT services provision; identification of asset/ride sharing service schemes as opportunity to integrate the mobility offer in low demand areas; investigation of private-public cooperation schemes and innovative business concept to sustain the operation of mobility services in low demand areas. Interest has been raised by the usage of data analytics solutions and tools, which -combined with other measures- have produced remarkable results in the project. The opportunities offered by these tools are identified as development of instruments suitable for sentiment analysis<sup>10</sup>, users' clustering; demand analysis through social networks; development of multimodal planners and ad-hoc data analytics in the frame of mobility of people and goods.

The target exploitation scenarios offered by INCLUSION, however, should not be only considered purely in a product-development perspective. The exploitation plan from Rupprecht Consult, is an example of target scenario where the consultancy activities in terms of qualitative data collection, analysis, assessment of transferability and recommendations for inclusive mobility solutions have a primary role. The knowledge acquired from the studies (literature review, case studies, review of existing experiences) and the evaluation methodologies, constitutes valuable results by themselves with strong exploitation opportunities.

This consideration is applicable for the INCLUSION **Transport operators**. Based on the design and refinement of the pilot measures, the activities on the field and the results, they have identified several opportunities for the development of new mobility services and for the improvement of the existing ones. The main themes covered by the transport operators' exploitation plans includes:

- tariffs, including optimization of booking and digital payment;
- bundling of various transport offers in one single communication platform;
- new possibilities for service integration;
- new approaches for the promotion of how information on Public Transport can be accessed;
- deeper knowledge on user categories at risk of exclusion;
- good practices on new cooperation schemes between private PT operator and no-profit organizations;
- management of integrated end-user's information services;
- new business models applicable;
- empowerment of local support policies;
- new forms of collaboration among the stakeholders involved (for example collaboration with commercial stakeholders for the provision of e-bike services);
- infrastructure development;

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<sup>10</sup> Analyses an incoming message and tells whether the underlying sentiment is positive, negative or neutral

Not less important are the exploitation opportunities in future research activities, teaching and lectures as specified by the consortium's **scientific partner** University of Aberdeen. The findings from the research can feed into teaching materials for MSc course in Transport and Intelligent Mobility, lead to future ideas for further research and funding applications and supports future publications.

The exploitation possibilities encompass a plethora of themes and interests, which have been identified in relation to the activities and businesses of the INCLUSION organizations. Looking at the **future plans**, the envisaged exploitation scenarios have certainly common points, aspects of mutual interest and dependencies, which means that the different degree of knowledge developed within each organization will likely create the conditions where one partner will ask for another partner's support when needed paving the road for stronger forms of partnerships. As the INCLUSION partners know each other very well, especially in terms of experience gained within the project, the mutual exchange of information and cooperation in the future is something that the consortium is strongly encouraged to pursue. This can get shape with new project proposal, to investigate more specific themes of inclusive mobility in response to new calls from the EC, or in form of bi-lateral or multi-lateral cooperation for the development, design and provision of new inclusive mobility solutions.

## 9 Annex 1 – Individual exploitation plans

### 9.1 Industrial partners

#### 9.1.1 Algowatt

Partner's profile	
Organization background	As a leading innovation company in the ICT and engineering market and a research-oriented enterprise, AlgoWatt S.p.A. is a supplier of innovative software solutions in several business sectors, including transport and mobility, manufacturing and process industry, telecommunications, energy, finance, security and government.
Specific segments / Niches	<ul style="list-style-type: none"> <li>• Real Time Traffic Information management and multi-channel delivery platforms (middleware, SOAs);</li> <li>• solutions for traffic monitoring and management of technical equipment for motorway applications;</li> <li>• fleet monitoring, vehicle location and tracking software – for Public Transport, logistics and technical services;</li> <li>• vehicle dispatching solutions – for Demand Responsive Transport, taxi and shared taxis, freight and city logistics operation;</li> </ul>
Market Position	AlgoWatt established footprint in the smart-mobility segment delivers advanced solutions to support implementation and operation of sustainable transport applications, including: real time travel and traffic information management and multichannel delivery platforms (middleware, SOAs); fleet monitoring, vehicle location and tracking for Public Transport, logistics and mobile services; vehicle dispatching solutions for Demand Responsive Transport, taxi and shared taxis, freight and city logistics operation.
Summary of exploitable results & knowledge	<p>The main sectors which are expected to benefit from the exploitable results, especially from the knowledge gained in terms of user-centred and ICT-enabled Social Innovation solutions are:</p> <ul style="list-style-type: none"> <li>• Intelligent Transport System development including flexible, on-demand services, from the specification and business process analysis to the integration with external system and the operation management.</li> <li>• Workflow management and IT services provision in public / private cooperation contexts and heterogeneous corporate environments</li> <li>• Data collection and content generation (data integration): acquisition, collection, integration, processing of data in the domain of mobility and traffic.</li> </ul>
Business objectives	Consolidate and improve the position as a well-known market player in the intelligent transport systems and smart cities services provision.

## Exploitable result #1 Crowd-sourced information collection tools

Product/service developed or optimized exploitable as a result of the participation of the partner in the project	Crowd-sourced information collection tools with enhanced and user-centred features.
Main practical applications for the final client	<p>Provide the travellers with an easy-to-use ICT tools (e.g. a functionality integrated in an existing mobile app) to collect user needs, preferences and travel behaviour information.</p> <p>The customers will have a management tool to consult and process the collected data.</p>
Expected technological relevance	<p>Service interface adapted to the user needs, responsive, intuitive and able to collect as much information as possible without a specific intervention of the user, by keeping the integrity of all privacy requirements (privacy by design approach for the development of the service).</p> <p>Push technology and mobile device notifications associated with detection of punctual travel conditions in real time is used to facilitate the task of the travellers. Options and settings allow choosing the types of notifications/requests to avoid undesired interactions.</p> <p>The management tool for the customer can be integrated into the existing systems to allow an efficient exchange of information thanks to interfaces designed from international or regional data standards.</p>
Level of development obtained at the end of the project	Mature solution. However, the technical components will typically need specific adaptations for integration into the customers' existing environment or systems. Adaptations are typically requested in terms of user interface, data exchange interface and layout of the mobile service.
Market analysis and Strategy:	<p>The customers are typically local authorities and transport service providers. Entrance barriers are significant as many competitors exist, mainly other ICT firms providing mobile apps for mobility planning and information having the same actors as customers and the end users as final consumers.</p> <p>However, Algowatt already has a set of products for mobility management and information where the above solution can be integrated, and this will give an added value to the whole product. There are also several existing consolidated customers of these products to whom the new crowd-sourced data collection service will be offered.</p> <p>In addition, the experience gained by developing the product for the INCLUSION-specific prioritized areas and user categories will open new market</p>

	<p>opportunities in terms of customers (local authorities, transport service providers) located in remote or rural areas.</p> <p>The strategy is then to offer this product as a tool embedded into an integrated solution (comprising all needed) and to elaborate and show the concrete advantages that this entails for the end users and in terms of reduction of costs for the customer.</p>
<b>Economic analysis, sustainability strategy</b>	<p>The ICT tool has been developed thanks to the involvement in the INCLUSION project (Florence Metropolitan area pilot site) although at a later stage a different mobile app with similar features has been introduced in the market by Busitalia. The estimated costs for design, development of the service for a different environment can vary from 5.000 to 10.000 € approximately and can be included in the final price of the product if combined with a complete suite. Alternatively, an offering can be formulated, based on these costs, for an integration into an existing environment.</p> <p>The solution addresses efficiency in transport and infrastructure use and it is expected to be always necessary and interesting for transport authorities and service providers. This is the most driver for the economic sustainability of any further investments in this product.</p>
<b>Communication and commercial strategy</b>	<p>Besides the information and promotion given by means of usual channels (web site, documents, paper brochures etc.), the most effective commercial strategy identified is based on dedicated contacts, meetings and effective communication with the customers to whom it is necessary to explain clearly and effectively which are the cost-efficiency and benefits of interest.</p>

<b>Exploitable result #2: Insight of Europe user needs</b>	
<b>Product/service developed or optimized exploitable as a result of the participation of the partner in the project</b>	<p>Deep knowledge about Europe user needs: insight of what is missing, and which are the emerging needs of other disadvantaged user groups.</p> <p>Understanding of the different attitudes of citizens towards mobility and public transport services</p>
<b>Main practical applications for the final client</b>	<p>Availability of accessible and all needs comprehensive tools: developers will be able to anticipate and foresee what user will need and insert on the market always up to date products.</p>
<b>Technological relevance</b>	<p>Developing suitable customer-centred services and maintaining a deep understanding of the users and their service needs.</p>
<b>Level of development reached at the end of the project</b>	<p>Moderate. A deep analysis has been performed; thus the level of development could have been defined as completed. However, user needs are constantly changing, as their perception of transport accessibility, inclusivity and equity in terms of mobility in specific prioritised areas</p>

Market analysis and Strategy	<p>Information coming from this result will be useful for AlgoWatt itself, both for the research and for the development of user-centred products in the mobility sector. In terms of user interfaces, the wide spread of mobile apps and other systems used directly by people of any age and technical skill, requires full responsiveness and ease of use. In terms of functionalities and features, it is more and more important to develop services that are fully compliant with the real user needs. This requires an in-depth analysis that is not always possible to perform with satisfactory results within the often-tight schedule of products development. Therefore, developing an internal know-how reusable for an effective product design is a medium-long term strategy that is expected to have very positive impacts on the market.</p> <p>The adoption of user-centred approach, when accompanied with an effective, deep and convincing communication can be a strong factor of promotion of new products and solutions especially when the clients are public administrations who are committed at providing high quality serviced to the public. Based on the gained knowledge, more convincing arguments can be proposed to the public administration, looking eventually at the establishment of a public-private partnership.</p>
Economic analysis	<p>Based on the general level of description of this exploitation scenario, it is not possible to quantify exactly the economic benefits in all development scenarios because this depends on the single products. The main economic benefit is the time saving and improved final quality of the products that takes advantage of the know-how. The requirement analysis is a fundamental step of a product design. Whenever the INCLUSION knowledge is applicable, a substantial amount of time can be saved with the adoption of already well-known patterns of usability and development principles.</p>
Communication and commercial strategy	<p>Usual channels and seminars could help in order to shar new concept and knowledge. In particular, internal focus group and meetings is relevant to show which and how INCLUSION results are going to be useful in the future. Moreover, communication with customer is another key step in order to align INCLUSION user needs to actual AlgoWatt's customer need.</p>

Exploitable result #3: Substantial archive of existing experiences on ICT-enabled social innovation	
Product/service developed or optimized exploitable as a result of the participation of the partner in the project	<p>Analysis and study of the existing service integrators and innovative technologies and solutions able to combine services and ICT-offerings from different transport providers. Knowledge about aspects like social acceptance and business models, combined with the review of ICT affecting factors in general and in the specific context.</p>
Main practical applications for the final client	<p>Harmonization of different mobility offer in near area: revealing which are the policies, technologies, offers, who are the actors involved in the same geographical area, will facilitate to build a common and cooperative environment.</p>

<b>Technological relevance</b>	Information and deep knowledge of different ways ICT make use. Availability of existing service integrators and innovative technologies and solutions able to combine services and ICT-offerings from different transport providers. In particular, different ICT segment analysis and information are available for future development: mobile apps, web-based services, on street services as panels and interactive kiosks, green card infrastructures, info service, journey planners, booking system, system integrators, flexible transport system, crowd-sourced based application.
<b>Level of development reached at the end of the project</b>	Mature and completed overview of all existing experience in this field.
<b>Market analysis and Strategy:</b>	<p>Clients are public transport operator and provider, agencies, public authorities and administrations. Consultancy market includes large and small companies which are in general specialized in some area. Barriers are represented by difficulties to create a collaborative environment since actors are not usually willing to share information and integrate their services.</p> <p>Like for the exploitable result described in the previous section, a strong factor of promotion of new ICT solutions is the gained experience on the results and implications of the solutions themselves. Based on the gained knowledge, and the presentation of concrete results obtained from the adoption of the ICT solutions implemented in INCLUSION, a dialogue with the public administration is expected to become more effective with increased possibilities of establishing public-private partnerships.</p>
<b>Economic analysis</b>	<p>The development of innovative ICT solutions can benefit from the experience gained in the project in terms of time saving for the analysis of the target solutions and to get a deeper knowledge of the feasibility and expected results of an innovative product.</p> <p>Initial investments can be considered for ICT tools that have been developed by other partners of the consortium, since they can provide full consultancy and knowledge. Although there are currently no specific plans for the establishment of an entity that groups together the INCLUSION partners (or a number of them) for the exploitation of the results, it is not excluded that bilateral or multi-lateral agreements can be created in the future.</p>
<b>Communication and commercial strategy</b>	Information and promotion given by means of usual channels (web site, documents, paper brochures etc.), as well as trying to contact relevant actors in communities, organized meetings, lead effective communication with the customers and authorities to whom it is necessary to explain clearly and effectively which are the cost-efficiency and benefits of interest.

## 9.1.2 MEMEX

Partner's profile	
Organization background	<p>As engineering and consultancy company proactively engaged in the field of international research on mobility solutions and ITS, MemEx acts at two different levels: 1) as consultancy company, assisting Mobility Operators, Agencies and Public Administrations in the design/integration, implementation and operation of innovative mobility services and solutions (mainly based on ITS operation) increasing accessibility to public transport and mobility services by vulnerable users and in low demand areas, 2) as ITS supplier, commercializing technological products for Public Transport fleet monitoring, service performance assessment and data integration/analytics. Most of the solutions which have been developed by MemEx are targeted for the market of small and medium Operators and Agencies (predominant target market in low demand areas) and have been/will be enhanced with functionalities directly coming from INCLUSION research and testing activities (WP3, WP4, WP6)</p>
Specific segments / Niches	<ul style="list-style-type: none"> <li>• Design of innovative mobility solutions for low demand areas including flexible service schemes, asset sharing, ride sharing (aggregation of the demand and use of private car as transport mode)</li> <li>• Integration of innovative mobility solutions as key parts of a coordinated mobility offer able to serve low demand areas with service solutions well responsive of the specific needs of the target population and more sustainable compared to Public Transport. These services will act as feeder of conventional PT lines to be concentrated in the main mobility axis and O/D connections</li> <li>• Developing public-private partnership schemes and assisting the Mobility Operators, Agencies and Public Administrations in defining innovative business models involving pools of Mobility Operators</li> <li>• Design of innovative services to be implemented by Mobility Operators and Authorities based on the use of crowdsourced data, integration of data coming from different sources for the provision of multimodal "added value" end-users information services, innovative payment solutions (credit card, interoperable solutions involving different mobility services and Operators, implementation of MaaS approach and tuning of the concept to rural areas). These services are targeted to improve the accessibility to mobility services and enhance the quality of the services perceived by the customers</li> <li>• Commercialization of: <ul style="list-style-type: none"> <li>◦ Data mining solutions (CERT&amp;Info) to assess the performance of the operated services and adjust the planning to provide higher quality to the customers</li> <li>◦ Low-costs fleet monitoring and end-user information system (CELISO, target to small and medium Transport Operators). Based on the concepts consolidated in WP3, the experience of BUSITALIA Pilot Lab and WP6 feedbacks (Business Case 5), CELISO has been</li> </ul> </li> </ul>



	updated with crowdsourcing functionality (on-line questionnaires) and seat reservation
<b>Market Position</b>	The position is differentiated about the consultancy and the ITS supply market. As consultancy service provider, MemEx has a primary role at national level offering a unique combination of methodological guidance, "on site" assistance and operational support. MemEx is a newcomer in ITS market. In any case this market is largely fragmented being divided between a number of international, national and local (smaller) providers, any of them has a dominant market position so the market does not present critical barriers to be accessed. The segment of small/medium Operators and peripheral/rural areas is not properly addressed with low cost target solutions. Furthermore, CERT&Info and CELSO present unique advantages among the comparable market solutions.
<b>Summary of exploitable results &amp; knowledge</b>	<ul style="list-style-type: none"> <li>• Improved awareness of the role of asset/ride sharing service schemes to integrate the mobility offer in low demand areas</li> <li>• Reshaping of flexible service concept through the introduction of innovative technologies for the management of "on-demand" request and the dynamic optimization of the scheduled service</li> <li>• Example of private-public cooperation schemes and innovative business concept to sustain the operation of mobility services in low demand areas</li> <li>• Key end-user functionality (on-line questionnaires, seat reservation) to enhance the low-cost fleet monitoring CELSO</li> </ul>
<b>Business objectives</b>	Consolidate the market position as consultancy service provided and improve the potential for market penetration as ITS supplier having introduced innovative functionalities to CELSO system.

Exploitable result #1 - integrated mobility offer for prioritized/low demand areas	
<b>Product/service developed or optimized exploitable as a result of the participation of the partner in the project</b>	Consolidation of the concept of integrated mobility offer for prioritized/low demand areas. The integration is approached on two levels: from the point of view of service design and from the point of view of "accessibility" services (integration of users' information and payment services, MaaS implementation and concept's adaptation to the local context)
<b>Main practical applications for the final client</b>	Consultancy services for: <ul style="list-style-type: none"> <li>• Service design</li> <li>• Definition and introduction of supporting conditions</li> <li>• "On-site" operational assistance for services performance assessment</li> <li>• Definition of specifications for data integration to provide innovative users' information and payment services (towards MaaS approach)</li> <li>• Assistance in the procurement/contracting of the new ITS solutions</li> <li>• Implementation supervision, testing procedure and support in the management of the contract</li> <li>• Training of the staff and capacity building on ITS</li> </ul>

	<ul style="list-style-type: none"> <li>Commercialization of data analytics module (CERT&amp;Info) for the assessment of service performance as supporting tool</li> </ul>
Technological relevance	ITS has a relevant role for enhancing the accessibility of the services (users' information, payment MaaS, integration of data from different services/Operators to enable a more coordinated operation, assessment of the performance of the operated services and feedbacks for planning improvements)
Level of development reached at the end of the project	Mature. The offer of these services is already included in consultancy provided by MemEx but the experience grown in INCLUSION allowed to better focus them on the specific needs of prioritized/low demand areas and highlight the problems related to the smooth integration of mobility services and their coordinated operation
Market analysis and Strategy:	Clients consist of Mobility/PT Operator, Agencies and Public Administrations. Consultancy market includes large and small companies which are in general specialized in some area (i.e. market research for service design, service operational planning, etc.). Very few can provide the full range of MemEx experience (including "on-site" practical assistance). This competitive strength allows MemEx to operate as sole consultant or to join consortia of consultancy companies/experts integrating their competences with specific skills. Being part of its well developed consultancy, any risk is envisaged even the competition is very high in the consultancy market.
Economic analysis	<ul style="list-style-type: none"> <li>The main cost category is the internal staff and the travel costs (depending on the type of activities and client location). Revenues will be usually defined as "flat rate" (in particular when the contract is assigned through a tender) but for specific activities (i.e. the assessment of the service performance) they will be fixed per day (to give more flexibility to the client). The module for data mining will be offered as "SaaS" or license to be implemented in the client's server</li> </ul>
Communication and commercial strategy	<p>Besides the information and promotion given by means of usual channels (MemEx web site, paper brochures, CVs etc.), the most effective commercial strategy identified is based on dedicated contacts, meetings and effective communication. The commercial strategy is based on the exploitation of MemEx contacts and on the scouting of opportunities for bidding.</p> <p>The commercial strategy will be based on different packages (scalable depending on the needs and the resources of the client): consultancy for support in the design/operation or consultancy + service performance assessment.</p>

## Exploitable result #2 - Enhancement of low-cost fleet monitoring system

Product/service developed or optimized exploitable as a result of the participation of the partner in the project	Enhancement of CELSO low-cost fleet monitoring system with crowdsourcing functionalities (on-line questionnaires) and seats reservation.
Main practical applications for the final client	CELSO system allows the PT Operator (or the Authority contracting the service) to get the customers more involved in the process of service quality assessment, needs analysis, new ideas/proposal generation and to get a wider set of data to be used in service planning modification. The functionality of seat reservation allows to cope with the post COVID restrictions and launch innovative service scheme ("on-demand trips" to be operated when the request is confirmed) which can be more sustainable on the long-term operation
Technological relevance	<p>The info-users APP (CELSO INFO) included in CELSO system allows to collect crowdsourcing data in an anonymized way. CELSO INFO is available for Android operative system. Based on the technological solutions adopted, the on-line questionnaires can be customized according to the specific needs of the clients and the typology of feedback to be collected.</p> <p>The booking functionality is available under two different modalities: 1) the customers' requests related to specific scheduled trips (to be operated once the request has been achieved) are collected by a call centre. Under this scenario, CELSO allows also the operator to create new trips to answer to customers' requests; 2) the customers' requests are directly notified by the customers through a website. Once registered the customer can select and book the seat on the scheduled trip. The system assigns automatically the seat and sends a conformation to the customer. Afterwards the customer is notified in case of any modification to the trips on which he booked the seat. A QR code can be generated for on-board verification by the driver. The integration of booking functionality within CELSO INFO APP is under progress.</p>
Level of development reached at the end of the project	CELSO was already demonstrated in Elba for the management of tourist bus services in 2018 and 2019 summer. The crowdsourcing functionality is under operation in Tiemme for the management of school services whereas the functionality for seats reservation is under internal final testing and it will be firstly upgraded in Tiemme version for initial on-site testing and then included in the CELSO standard version.
Market analysis and Strategy:	CELSO primary market consists of small and medium PT Operators and Authorities (largely present in low demand areas) but it is not restricted to. Competitors are AVM (Fleet Monitoring Systems) compared to CELSO provides all the functionalities i.e. fleet monitoring, service control and regulation, end-users information (and service performance assessment) at low costs (both for investment and operation as CELSO is based on driver APP rather than on-board unit). AVM market is spread out among a number of international players, national IT companies and local suppliers, all owning limited market

	share. Any dominant position is present thus the AVM market has not big barriers to entry.
Economic analysis	CELISO feasibility analysis was funded by SME-Phase 1 funds and the product was developed by MemEx with internal resources and regional funds. The integration of new functionalities has been carried out with company resources (financial and technical). The development and internal testing required 4 person-month.
Communication and commercial strategy	<p>Communication channels for CELISO commercialization are the product page on the MemEx web site and paper brochures. Demo and product presentations are also organized for clients' engagement at bilateral meetings, workshops/on-line mobility conferences and specific technical seminars. The commercial strategy is based on the exploitation of MemEx contacts among PT Operators/Authorities to which the company already provide consultancy services and networking built through the participation to EU projects.</p> <p>The commercial strategy will be based on different packages (scalable depending on the needs and the resources of the client): CELISO as SaaS, CELISO as license, CELISO + Cert&amp;Info and CELISO+Cert&amp;Info+service performance assessment.</p>

### 9.1.3 RUPPRECHT

Partner's profile	
Organization background	Rupprecht Consult - Forschung & Beratung GmbH is a fully independent private research and consultancy company. Its team of internationally-experienced consultants work on developing innovative solutions for sustainable development in cooperation with its partners from all over Europe, and internationally.
Specific segments / Niches	<ul style="list-style-type: none"> <li>• Developing and implementing innovative solutions and strategies for sustainable mobility in cities and regions in Europe and worldwide, in cooperation with other stakeholders, through concrete projects in the areas of: <ul style="list-style-type: none"> <li>◦ collective and intelligent mobility</li> <li>◦ people-focussed mobility solutions</li> <li>◦ integrated planning</li> </ul> </li> <li>• Project development and management</li> <li>• Evaluation and assessment of project impacts</li> <li>• Dissemination</li> <li>• Capacity building</li> <li>• Development of learning activities</li> <li>• Strategy development</li> <li>• Independent project monitoring</li> </ul>

Market Position	<p>Rupprecht Consult is well known across Europe for its work on sustainable urban mobility planning (SUMP), collective transport and new technology applications, as well as integrated and people-focussed mobility solutions.</p> <p>Rupprecht Consult are experts in learning and knowledge transfer. Senior staff members are experienced advisers on strategic policy development and the staff very successfully develop and manage large and small projects across Europe. Rupprecht Consult's team of internationally experienced consultants is well-connected and are trusted providers of quality research and consulting services.</p>
Summary of exploitable results & knowledge	<ul style="list-style-type: none"> <li>• Data collection, analysis and content generation; best practice knowledge on inclusive mobility measures throughout Europe and worldwide</li> <li>• Process evaluation of inclusive mobility measures in rural, peri-urban and deprived urban areas; assessment of the transferability potential of inclusive mobility measures</li> </ul>
Business objectives	Deliver quality services to support innovators in cities and regions in all stages of the innovation cycle

Exploitable result #1: Strengthening of thematic and methodological competence	
Product/service developed or optimized exploitable as a result of the participation of the partner in the project	Qualitative data collection, analysis, assessment of transferability and recommendations for inclusive mobility solutions
Main practical applications for the final client	Practical methodologies and knowledge that Rupprecht has gained through INCLUSION can be applied for the benefit of mobility practitioners in cities and regions that are interested in implementing inclusive mobility measures, by supporting knowledge sharing and helping cities to determine the most feasible solutions for their local context. Recommendations developed in INCLUSION can inform future policy development.
Technological relevance	Not applicable
Level of development reached at the end of the project	Mature (methodologies can be used in future projects to continue building upon the knowledge gathered in this project).
Market analysis and Strategy:	Rupprecht's customer is typically the European Commission (via EU-funded projects in which we typically play a coordinating role and/or provide support to local authorities and transport service providers), as well as cities and regions that tender calls for support in developing mobility strategies and plans. Competitors are mainly other consulting firms and research institutions.

	<p>However, Rupprecht is already a market leader in this area, with a large network of practitioners in the public and private sector with whom we regularly collaborate (e.g. within the CIVITAS network). Therefore, competition in this sense is limited.</p> <p>The methodologies developed, knowledge gained and recommendations developed in INCLUSION (e.g. through the 51 case studies, the process evaluation of the INCLUSION Pilot Labs) will be integrated into future e-courses on Rupprecht's Mobility Academy eLearning platform. This will provide a continuous space for mobility practitioners to learn and exchange about these solutions.</p>
Economic analysis	Not applicable
Communication and commercial strategy	<p>Rupprecht Consult's extensive network of partners and customers includes major international and European organisations, authorities on all levels of government (local, regional and national), user networks and non-government organisations, service operators and commercial companies from various sectors, as well as academic and research institutions.</p> <p>Rupprecht staff regularly present at major conferences in Europe and worldwide. Already immediately following the close of the INCLUSION project, Rupprecht will present INCLUSION at the Urban Mobility Days 2020 in the session "Affordable, accessible and inclusive mobility", taking place on Thursday, 1 October from 11:45 to 12:45 (CEST).</p> <p>The EU Horizon2020 project SUNRISE, which Rupprecht coordinates, will integrate the recommendations and lessons learned from INCLUSION into the final project outputs wherever possible.</p> <p>Current project proposals in which the methodologies and knowledge gained in INCLUSION will be injected include:</p> <ul style="list-style-type: none"> <li>• The EC's Green Deal - Area 10 (empowering citizens for the transition towards a climate neutral, sustainable Europe) Topic 1 (Behavioural, social and cultural change for the Green Deal)</li> <li>• The EC's Green Deal – Area 1 (increasing climate ambition and Green Deal impact with cross-cutting solutions) – Topic 2 (Towards climate-neutral and socially innovative cities)</li> <li>• The German Federal Ministry of Transport and Digital Infrastructure's call for proposals for the R&amp;D project No. 70.982/2020 ("Urban cable railroads in public transport - Guidelines for the implementation of cable railroads in German cities as part of public transport")</li> </ul>

#### 9.1.4 MOSAIC

Partner's profile	
Organization background	MOSAIC is an SME specialized in Big Data and Artificial Intelligence (AI) for sustainable Mobility of People and Goods. MOSAIC team has a large experience in research and innovation, having participated in multiple European, national and company research and innovation projects. MOSAIC develops private sector projects related with the mobility in the city of Barcelona. Technical competences of MOSAIC include: Logistics Clusters, Secure Supply Chains, Mobility as a Service (MaaS), Urban mobility, Electric and Connected vehicles and User Behaviour. MOSAIC team brings expertise in cutting edge ICT technologies such as Big and Small Data Analytics, Data Privacy, Data Security and Governance, Machine Learning, Prediction Models, Sentiment Analysis and Ad Hoc Software Development.
Specific segments / Niches	<ul style="list-style-type: none"> <li>• Social networks' data analysis for on-demand transport</li> <li>• Customer sentiment analysis</li> <li>• Synthetic Data Generation</li> <li>• Mobility data analysis in the frame of MaaS.</li> <li>• Solutions for smart organization in ports and modal shift.</li> <li>• AD-hoc data analysis and software solutions.</li> </ul>
Market Position	<p>Mosaic is focused both in local and European markets with:</p> <ul style="list-style-type: none"> <li>• Big (and Small) Data Analytics projects</li> <li>• Consultancy in mobility</li> <li>• AD-Hoc Software developments</li> </ul>
Summary of exploitable results & knowledge	<ul style="list-style-type: none"> <li>• Mood detector: Analyse customer insights through crowd sourced data collection to better understand users' habits, preferences and needs.</li> <li>• Sentiment analysis: Analyse users' sentiments by information scrapping from social networks and other relevant sources</li> <li>• Users' clustering: Clustering of users by several parameters considering transport data as well as other social and demographic characteristics.</li> <li>• Demand Analysis through social networks</li> <li>• Multimodal Inland Planner: Solution for the smart organization of containers placed on a port's terminal with different destinations and modes of transport. It helps to reduce storage time at ports and to increase the percentage of use of more sustainable transport modes, by using real time data sharing and rail/barge data for cargo bundling and consolidation.</li> <li>• AD-hoc data analytics in the frame of mobility of people and goods.</li> </ul>
Business objectives	The objectives of MOSAIC are (i) to create and improve innovative services using advanced data techniques helping the actors involved in the mobility and logistics ecosystems and (ii) to consolidate as a well-known entity in Big Data and AI applied to mobility and logistics"



Exploitable result #1 - Forecasting tool in order to identify unmet needs/demands of people that want to attend Canet Rock festival	
Product/service developed or optimized exploitable as a result of the participation of the partner in the project	Forecasting tool in order to identify unmet needs/demands of people that want to attend Canet Rock festival. This tool defines potential geographical areas to propose the most suitable bus-stops locations for the uncovered demand (vulnerable users) that want to attend to specific events.
Main practical applications for the final client	Development of a model for demand prediction that allows BusUp (a transport service provider) and the event organizer (Canet Rock) to gather a better understanding of the latent vulnerable mobility demand to the event (in terms of geographical location) prior to event ticket purchase. Then, this information is used to provide more informed design and delivery of tailored bus routes that better meet the demand and increase the overall transport accessibility.
Technological relevance	The technical solution is implemented in two consecutive steps. The first one focuses on data mining of social networks plus other data sources compatible with the topic to enrich and make a robust base, such as demography, transport connectivity, local relevance, etc. This ensures that the possible data acquisition setback, obstacles or barriers can be overcome in an appropriate manner. Social networks are analysed through the development of modular dictionaries (differentiating between TRANSPORT, MUSIC, LOCATION) which allows updating them in a dynamic and simple way. In a second step, all the information extracted and previously processed is integrated in an algorithm which extracts the high-probability demand locations clustering the municipalities into demand areas via stochastic simulation. This algorithm is also designed to not underestimate rural and peri-urban areas by looking at the balance of aggregated demand and quality of transport connection.
Level of development reached at the end of the project	<p>The solution developed in the frame of Barcelona Pilot Lab is a mature solution. The model is constructed on simple and robust grounds easily scalable and replicable to other sorts of multidisciplinary events such as other music festivals, politics meetings or sportive events.</p> <p>Also, there is the potential to use some modules of the algorithm for other purposes such as commuting trips (including also park&amp;ride), school trips, etc.</p>
Market analysis and Strategy:	<p>The customers for this tool are transport service providers and event organizers. Also, local authorities can benefit from this tool as it can be useful in order to organize transport to rural areas.</p> <p>Competitors are other organizations dealing with data analytics. However, Mosaic brings an important expertise in the frame of mobility of people and goods that gives an added value to these analyses. In addition, the experience gained developing this tool for the INCLUSION Barcelona pilot lab is also a plus.</p> <p>A potential entrance barrier could be the availability of data. However, the actual model can easily overcome this challenge by analysing and merging different data sources.</p>



Economic analysis	<p>The tool has been developed thanks to the involvement in the INCLUSION project Barcelona pilot lab.</p> <p>The customization of the tool for another customer can have an estimated cost of 8.000 euro approximately.</p> <p>The revenues will be the cost of the product adding a fee for the customization of the tool.</p> <p>A key driver for further investments in the solution is that it is addressing efficiency and inclusivity in transport use and it is expected to be always necessary and interesting for transport service providers and local authorities.</p>
Communication and commercial strategy	<p>Usual dissemination channels: web site, social networks, webinars, documents and paper brochures.</p> <p>Network contacts in the local and European markets, providing effective communication with the customers to whom it is necessary to clearly explain which are the benefits of the tool for their specific business.</p>

## 9.2 Scientific partners

### 9.2.1 UNIABDN

Partner's profile	
Organization background	<p>Founded in 1495, the <b>University of Aberdeen</b> is Scotland's third oldest and the UK's fifth oldest university. Teaching at the University of Aberdeen is organised across a broad range of disciplines in academic schools. Multidisciplinary research centres and institutes bring together experts at the cutting-edge of their fields to work with colleagues across the UK and beyond on the big issues of today.</p> <p>The <b>Centre for Transport Research (CTR)</b> (<a href="http://www.abdn.ac.uk/ctr">www.abdn.ac.uk/ctr</a>) is a research centre housed in the School of Engineering, and acts as the focus for transport research at the University. CTR specialises in the sustainability of transport systems with emphasis on environment, society and technology. The Centre applies an inter-disciplinary approach to research and knowledge exchange, drawing on expertise from areas such as geography, psychology, sociology, economics, computing science and engineering.</p>

Specific segments / Niches	<ul style="list-style-type: none"> <li>• Rural mobility</li> <li>• Public and shared transport service design</li> <li>• ICT applications in transport</li> <li>• Evaluation of transport and technology solutions</li> </ul>
Market/Research Position	<p>Recent research has been sponsored by the EPSRC, ESRC, TSB, RCUK Digital Economy Programme, UK Energy Research Centre, European Commission, the Department for Transport (DfT), Scottish Government, University of Sydney and consulting firms.</p> <p>Activities in inclusive mobility range from understanding the requirements of users, to the development of new technologies, to measurement of impact.</p> <p>Located in the city of Aberdeen in North East of Scotland, the University has a very large rural hinterland. Established partnerships have been created with the rural local authorities of Aberdeenshire Council and Highland Council as well as regional transport authorities NESTRANS and HITRANS which have predominantly rural catchments.</p> <p>Close relationships exist with First Bus, one of the largest bus operators in the UK, which has its headquarters in Aberdeen.</p>
Summary of exploitable results & knowledge	<ul style="list-style-type: none"> <li>• Findings from the research feeds into teaching materials for MSc course in Transport and Intelligent Mobility</li> <li>• Outcomes from the research lead to future ideas for further research and funding applications</li> <li>• Data and results from the research supports future publications</li> <li>• Data and findings from the work provides evidence backed knowledge to lobby policy makers and to underpin policy.</li> </ul>
Business objectives	<ul style="list-style-type: none"> <li>• Knowledge exchange</li> <li>• Innovative research</li> </ul>

Exploitable objective #1: Knowledge exchange to feed into teaching and wider dissemination	
Product or service developed, knowledge gained or other valuable key results obtained in the project.	Knowledge gained in the INCLUSION project feeds into teaching materials delivered to undergraduate and postgraduate students at the University of Aberdeen.
Scientific relevance (or technological relevance if applicable).	<p>New concepts and ideas on inclusive mobility relating to vulnerable user needs and practical solutions will be taught to students who graduate to become the next generation transport planners, policy makers and transport entrepreneurs.</p> <p>Academic conferences and invited lectures to professional bodies will also support the knowledge exchange objective and provide more immediate awareness amongst the professional transport community.</p>
Level of development of the product/service (if applicable) or scientific knowledge reached at the end of the project.	New insights into understanding and delivery of solutions that respond to vulnerable user needs have been established in the project. These can be shared immediately with the student, academic and practitioner communities.
Exploitation strategy.	<p>Delivery through lectures to 50+ students each year in courses including Intelligent Mobility: Data and Delivery; Evaluation of Transport Systems; and Intelligent Mobility: People and Planning.</p> <p>The project has also been discussed in the context of other academic/industry network events including the 2019 CIVITAS PORTIS General Assembly meeting and UK Transport Planning Camp.</p> <p>Invited talks and lectures (around 10 per year) to other academics and transport practitioners (e.g. local authority planners, service providers, technology developers, policy makers).</p>

Exploitable result #2: Future ideas for further research and funding applications	
Product or service developed, knowledge gained or other valuable key results obtained in the project.	<p>Further ideas and funding applications have been developed in the areas of</p> <ul style="list-style-type: none"> <li>▪ Crowdsourced data <ul style="list-style-type: none"> <li>○ ENhancing and enCOuraging bUs tRAvel usinG crowdsourcEd Data (ENCOURAGED) proposal to ERA-NET – also involves other INCLUSION partners</li> </ul> </li> <li>▪ Shared transport solutions (expansion to new markets) <ul style="list-style-type: none"> <li>○ Estimating demand for FTS/Microtransit through secondary data analysis – (proposal to ESRC submitted August 2020)</li> </ul> </li> <li>▪ MaaS solutions in rural areas <ul style="list-style-type: none"> <li>○ PhD project exploring the potential for Mobility as a Service (MaaS) in Rural Environments</li> </ul> </li> <li>▪ Multidimensional aspects of transport vulnerability <ul style="list-style-type: none"> <li>○ Resilience of Transport in the Post-COVID World: Insights from Africa – proposal to High Volume Transport Research programme, UK</li> </ul> </li> </ul>
Scientific relevance (or technological relevance if applicable).	<p>Future research applications include developing innovative ideas which build upon the outcomes from the INCLUSION work. These are related to developing specific solutions that have a technology element such as the crowdsourced data proposal, or focussed on developing support tools for planners that ensure new knowledge on vulnerable user needs is integrated in the planning and design process.</p>
Level of development of the product/service (if applicable) or scientific knowledge reached at the end of the project.	<p>The knowledge gained from the project provides better understanding of the problem and helps to identify areas where further innovation and research is required. This forms the basis for the ideas developed in the funding proposals.</p>
Exploitation strategy.	<p>Identify areas where further research is needed.</p> <p>Build strong partnerships with project partners to co-operate in further research proposals – helps ensure cross-disciplinary research</p> <p>Greater awareness of related or complementary research elsewhere leads to cross fertilisation of ideas for future research and greater transferability of work.</p>

Exploitable result #3: Data and results from the research to support future publications	
Product or service developed, knowledge gained or other valuable key results obtained in the project.	<p>The data and results from the project will be published in academic journals.</p> <p>At least three papers are targeted for publication in highly ranked peer-reviewed academic journals.</p> <p>Other peer reviewed publications routes will be considered where opportunities arise – e.g. peer reviewed book chapters.</p>
Scientific relevance (or technological relevance if applicable).	<p>Only outcomes with substantive innovation, novel ideas, or new insights will be considered as worthy of publication.</p> <p>Only peer-reviewed journals with high impact factor and standing amongst the academic community will be considered as the platform for publication.</p>
Level of development of the product/service (if applicable) or scientific knowledge reached at the end of the project.	<p>Papers based on INCLUSION work which have been submitted and are under review by the following journals:</p> <p>TRANSPORTATION RESEARCH Part C - Emerging technologies (Impact factor 6.077)</p> <p>“Generating demand responsive bus routes from social network data analysis”.</p> <p>Journal of Research in Transportation Economics (Impact factor 1.896)</p> <p>“Can multi-modal integration provide enhanced public transport service provision to address the needs of vulnerable populations?”</p>
Exploitation strategy.	<p>To work with other INCLUSION partners to develop data, findings and insights generated from the project into academic publications.</p> <ul style="list-style-type: none"> <li>- Example 1: Potential to collaborate with Rupprecht to develop the WP3 outcomes related to user principles.</li> <li>- Example2: Potential to work with MEMEX and MOSAIC to develop WP6 outcomes related to business models.</li> <li>- Example3: Case studies in Transport Research paper developed from selected measure experiences</li> </ul> <p>To contribute learnings from INCLUSION to other academic publications such as book chapters; e.g. Routledge Handbook of Public Transport: Chapter on Flexible Transport Services</p>

Exploitable result #4: Provide evidence backed knowledge to lobby policy makers and to underpin policy	
Product or service developed, knowledge gained or other valuable key results obtained in the project.	<p>The needs specific to vulnerable users and to prioritised areas have been identified through the project. Legislation and regulation that hinders rather than supports solutions that address these identified needs is presented through the business model work.</p> <p>This highlights areas where policy reform is necessary to create an environment conducive to providing mobility solutions that are suitable for vulnerable users.</p>
Scientific relevance (or technological relevance if applicable).	Improved governance for vulnerable users and for prioritised areas.
Level of development of the product/service (if applicable) or scientific knowledge reached at the end of the project.	Findings from INCLUSION have been raised in the context of evidence gathering for a number of emerging policy and planning initiatives. Initial engagement, for example, has taken place with a representative from Innovate UK on their forthcoming work on mobility vulnerability, and INCLUSION was included in communications with the ongoing European Parliament study on transport infrastructure in sparsely populated areas. Furthermore, in June 2020, UNIABDN submitted related evidence to the UK Government Future of Transport Regulatory Review: Call for Evidence (Specific sections on Flexible Transport Services and MaaS in rural areas).
Exploitation strategy.	<p>Informing policy through engagement with National government policy makers to influence funding decisions and to provide evidence and knowledge for policy reform to account for the specific needs of vulnerable users and of prioritised areas.</p> <p>e.g. Responses to calls for evidence.</p> <p>Attend meetings with government policy officers.</p> <p>Feedback on research funding consultation exercises.</p>

## 9.3 Transport operators

### 9.3.1 VRS

Partner's profile	
Organization background	The Verkehrsverbund Rhein-Sieg GmbH (VRS) is the transport association for all 26 transport service providers active in the Rhineland region with its well over three million inhabitants. All types of public transport, uniform tariffs, coordinated timetables and a uniform approach to customers are offered under the roof of the VRS.
Specific segments / Niches	The VRS bundles and coordinates all questions concerning the applied tariff, organises and calculates the distribution of revenue for the transport companies, carries out passenger counts and surveys, plans and organises network-wide market research, agrees timetables with the transport companies, implements all customer communication (print and digital), conducts image campaigns, coordinates between the interests of the Ministry and those of the transport companies, awards funding for infrastructure projects in the region, operates and organises the data hub for the network-wide PT app, organises and also leads large customer events, supports transport companies at smaller customer events on site, acts as a mouthpiece for local political bodies and plans, coordinates and supervises all mobility management and road safety prevention measures throughout the country.
Market Position	The Verkehrsverbund Rhein-Sieg GmbH is financed by the State of North Rhine-Westphalia and the transport companies involved in the VRS and is the only local player of its kind in the Rhineland region.
Summary of exploitable results & knowledge	<ul style="list-style-type: none"> <li>• Simplification of tariff offers</li> <li>• Bundling of the various transport offers in one communication platform including booking and payment (digital)</li> <li>• strengthening communication on mobility issues</li> <li>• Development of new mobility services</li> </ul>
Business objectives	The transformation of the transport association into a mobility network that bundles all types of mobility in a customer- and user-oriented manner and offers intelligent (digital) systems from a single source.



Exploitable result #1 - Development of user-oriented mobility services at local level for families with (young) children.	
Product/service developed or optimized exploitable as a result of the participation of the partner in the project	Development of user-oriented mobility services at local level for families with (young) children.
Main practical applications for the final client	Development of an exemplary guideline for municipalities/counties for the creation of a mobility offer mix with special integration of the needs of local residents (here especially families and their everyday routes).
Technological relevance	Integration of the services into existing information apps and expansion of communication at this level.
Level of development reached at the end of the project	Report and experience can be adapted and applied to other areas.
Market analysis and Strategy:	<p>VRS GmbH is not a company subject to the usual laws of the market, but is financed from public funds and therefore may not (and does not wish to) sell any product.</p> <p>Its customers or buyers include towns and municipalities. They are confronted with similar challenges within the VRS area, but also in many other regions and - especially the smaller municipalities - do not always have the human resources to develop a suitable project.</p> <p>By means of the exemplary approach from the INCLUSION project, which can be handed over to other municipalities free of charge, they are more likely to develop appropriate local measures and to orient themselves to the approach and results of the Pilot Lab area Hennef Im Siegbogen.</p> <p>This provides an opportunity for local authorities to develop and implement measures which are as far as possible oriented towards local residents with often limited financial resources and to further advance the planning and development of local mobility.</p> <p>The free transfer of the main results from the Pilot Lab Rhein-Sieg means that the hurdle to act locally is as low as possible.</p>

Economic analysis	<p>A prerequisite for the implementation of the exemplary procedure carried out in the Pilot Lab Rhein-Sieg is an awareness of the usually limited budgets of public funds. As a result, local measures are ideally cost-effective and effective and customer-oriented.</p> <p>Therefore, analysis via market research offers a favourable framework from which the measures and their possible effects can be derived. This helps local actors to convince political decision-making bodies more quickly and to initiate appropriate planning processes. This is particularly helpful if, in a reverse process, a certain budget is available for measures and action must be taken within this financial framework.</p>
Communication and commercial strategy	<p>A summary of the project will be presented to the city of Hennef and the Rhein-Sieg municipality and explained at further meetings within the public sector nationwide. The focus will be on the approach and the - desired - adaptation of the project.</p> <p>Furthermore, in Hennef Im Siegbogen the residents will be informed about the main results of the project by means of a further distribution of households (print and digital) in order to provide the residents with appropriate access to the results. Ideally, these results will then be spread by word of mouth to other parts of the city and town.</p> <p>Another pillar of communication will be the presentation of the project results at local public events (as soon as they are possible again according to the restrictions imposed by the Covid 19 pandemic).</p> <p>Finally, the VRS will also present the topic to various local political bodies.</p>

### 9.3.2 BUSIT

Partner's profile	
Organization background	<p>Busitalia - Sita Nord is the largest Italian Public Transport operator in Italia, owned National Railway Operator, Trenitalia. Busitalia operates (directly or by its controlled companies) PT services in various Regions located in North and Central Italy (Tuscany, Umbria, Veneto, and Emilia Romagna) and in the Netherlands (through its subsidiary QBuzz). Busitalia operates bus and other transport modes (trams, boats, escalators, elevators, and funiculars). The services provided include urban, suburban, and rural areas and also interurban connections.</p> <p>Currently, Busitalia offer covers 155 Million km/year operated by buses, 2,7 Million km/year operated by trams, 40000 nautical miles operated by vessels. The whole fleet is composed of 2350 buses, 16 trams, and 7 motor vessels. The transported passengers are about 190 Million/year, with total revenues of about 612 million Euros (395 in the national market).</p>

Specific segments / Niches	<p>Busitalia operates in the following market segment:</p> <ul style="list-style-type: none"> <li>• Planning and operation of Public Transport services</li> <li>• Provision of “added value” services (i.e. users information, ticketing, customer assistance, etc.) based on the implementation of innovative technologies to make PT more reliable, responsive to customers’ needs and easy to access by flexible demand</li> <li>• Cooperation with other transport operators in the served areas to provide aggregated services to the customers</li> </ul> <p>Technical assistance to Public Authorities for the optimization of PT service planning and the integration among different mobility services in a “coordinated” multimodal offer. As part of this assistance, for example, Busitalia is contributing (by the provision of technical expertise and data on operated service) to the restructuring of services to answer to post COVID-19 limitations.</p>
Market Position	At national level, Busitalia is ranked third in terms of mileage and fourth in terms of revenues.
Summary of exploitable results & knowledge	<p>The main results/knowledge gathered by Busitalia from the INCLUSION project are the following:</p> <ul style="list-style-type: none"> <li>• Lessons learnt and deeper understanding on how to engage “vulnerable” end-users (i.e. people with a migrant background, low income) as “co-creative” actors in the assessment of their requirements and definition of suggestions to improve the service to be more responsive to their needs;</li> <li>• Implementation of innovative methods (i.e. “co-creation events”, focus group, more “customized” surveys, implementation of crowdsourcing activities, etc.) to carry out needs’ analysis for “vulnerable group” users;</li> <li>• Consolidation of operational and organizational know-how for the management of integrated end-users information services to be provided at interchange point of the network/multimodal hub;</li> <li>• Good practices from other sites and INCLUSION case studies’ review how to establish cooperation schemes between private PT operator and no-profit organizations to operate the services in low demand/prioritized areas;</li> <li>• Guidelines and recommendations how to define innovative business models supporting the abovementioned cooperation. These recommendations include contribution to be provided to Public Authorities (contracting the service) how to adapt the Italian regulation accordingly;</li> </ul> <p>New approaches for the promotion of how information on Public Transport can be accessed (targeted on immigrants and low income residents)</p>
Business objectives	<p>The knowledge gained by Busitalia from INCLUSION project can be used to provide “high quality” services (more responsive to vulnerable users and prioritized areas needs) and to replicate the good practices identified in the Florence Living Lab (and during the project as a whole benefitting from the project research and from the experience of other Living Labs) in other served area which share similar problems of PT poor accessibility.</p>

Exploitable result #1 - Innovative methodologies for the engagement of “vulnerable” end-users	
Product/service developed or optimized exploitable as a result of the participation of the partner in the project	<p>Innovative methodologies for the engagement of “vulnerable” end-users in the assessment of their needs and implementation of a combined set of initiatives (“co-creation events”, focus group, more “customized” surveys, implementation of crowdsourcing activities, etc.) to carry out users’ needs analysis.</p> <p>More targeted promotional activities to improve awareness of added-value services.</p>
Main practical applications for the final client	<p>The introduction of a “co-creation” approach and supporting tools (combined with more traditional ones) helps the “vulnerable” users’ groups to feel themselves effective contributors to the service planning process and to understand that their needs are actually taken into account. A more responsive and accessible service can be experienced when the solutions identified are feasible and sustainable. On the contrary, when the solutions provided are not able to cope with the expectations of the users or are operated only for a pilot (and not on a long-term basis) the application of this engagement method can be counter-productive.</p>
Technological relevance	<p>Technologies can contribute but it has not a primary role. Technologies can be adopted for the implementation of “on-line surveys” or “crowdsourced” data collection.</p>
Level of development reached at the end of the project	<p>The engagement strategies have been demonstrated in the Florence Living Lab. The approaches and tools used for the engagement can be easily transferred to other areas served by Busitalia.</p>
Market analysis and Strategy:	<p>Innovative engagement strategies are not yet adopted at a full scale in the Public Transport sector where the definition of service requirements and users’ needs analysis is often based on historical data rather than actual involvement of the target users (in particular vulnerable groups). This is true in particular for the Italian market. Some past experience on engagement of end-users to carry out a proactive dialogue for needs analysis has been already done by Tiemme (in Tuscany, during H2020 CIPTEC project) but the wider application of such approach (on a long-term basis) can be a strength point for Busitalia to increase customers and revenues.</p>
Economic analysis	<p>The costs relate to the implementation of engagement strategies (i.e. organization of “co-creation event”, implementation of the surveys). These costs consist of internal resources (for design of survey, practical organization of events, coordination, etc.) and contracting of a “social association/entrepreneurship” which can support the implementation and carry out the survey and data collection. Depending on the target users and local context, the association to be involved (which could be representative of the end-users) can act on a “volunteer basis”, considering the benefit of the associated citizens to benefit from service improvements. Revenues can be estimated in the increase of PT use by the target users.</p>

Communication and commercial strategy	A strong communication campaign is envisaged both for the implementation of engagement strategies and the promotion of new solutions adopted as results of the end-users' needs analysis. This can combine traditional and innovative approaches and channels.
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Exploitable result #2 – new Ataf app	
Product/service developed or optimized exploitable as a result of the participation of the partner in the project	Introduction of a new Ataf App with an easy-to-use interface and simple graphic, including graphic, symbols and additional functionalities.
Main practical applications for the final client	<p>The development of a new Ataf app with additional functionalities improved the level (and quality) of information provided to the users. Vulnerable users main benefit from the new App thanks to the intuitive interface and simple language used. The integration of the real-time information of the train services also improved the provision of multimodal travel information services.</p> <p>A "light" crowdsourcing functionality has also been piloted for gaining users feedback about the quality of the operated service.</p>
Technological relevance	The new Ataf App is one of the primary channel with which the users can access the relevant information about the Public Transport service.
Level of development reached at the end of the project	A brand new App has been developed and promoted to the users. The new planned functionalities have been successfully included in the app.
Market analysis and Strategy:	APPs are seen by Public Transport Operator as a profitable communication channels to provide "high-quality" services to the end-users, promote their offer and establish "innovative" modalities to manage customers relationships and access info (according to the last technological developments and current trends). Busitalia (owner of ATAF) can build on the ATAF experience to extend the APP to other areas (peripheral/rural ones) or replicate in other regions (in particular for the "crowdsourcing" functionality).
Economic analysis	<p>The costs relate to the implementation of the new app consist of ICT supplier contracting and internal resources (the personnel cost for the meetings held with the ICT supplier, promotional activities, etc.).</p> <p>Revenues can be estimated in the increase of PT use by the target users thanks to the improved quality of information.</p>
Communication and commercial strategy	A strong communication campaign is envisaged for the promotion of the new version of the app. This can combine traditional (i.e. printing brochure, leaflet, newspapers) and digital channels.

### 9.3.3 TAXISTOP

Partner's profile	
Organization background	Taxistop is an NGO that aims for the optimalization of use of personal goods. With regard to mobility, Taxistop's motto 'doing more with less' is reflected in all proposed projects. Taxistop looks for ways to innovate in order to respond to users' needs and offers alternative solutions to save time and money throughout Belgium. This happens through creating new services, new projects and being a part of the network of sharing economy. Share to impact, that's what drives Taxistop.
Specific segments / Niches	<ul style="list-style-type: none"> <li>• Taxistop has developed a great amount of expertise in the organisation and sensibilisation of carpooling and carsharing. This knowledge reaches further than its own experiences through collaborations throughout Belgium and abroad.</li> <li>• Taxistop is also a pioneer in different sharing initiatives and always uses the newest technologies. This means creation of apps, API's, open data...</li> <li>• Taxistop also invests in social inclusion and making transport services more accessible for poorly served target groups.</li> <li>• Taxistop also participates in the commission private transport of the Flemish Council for Mobility. This makes that Taxistop gets the chance to do a lot of policy work.</li> </ul>
Market Position	Taxistop is active on the layer of transport on demand. Public transport is seen as the backbone of the society where shared mobility is seen as a support of the PT services. Taxistop claims this vision by developing shared transport options as first/last mile solutions and transport on demand. Taxistop has succeeded in keeping this position by investing in technological and social innovation, by keeping an eye on the needs of the poorly served people and by collaboration with civil society organisations throughout Belgium and abroad.
Summary of exploitable results & knowledge	<ul style="list-style-type: none"> <li>• Organisation and sensibilisation on carpooling and carsharing.</li> <li>• Development of new technologies such as carpool app and Mobitwin app</li> <li>• Support local entrepreneurship by investing in new technology players such as MaaS solution Olympus Mobility app.</li> <li>• Policy work on Mobihubs in Flanders and abroad. The creation of Mobipunt VZW (ngo)</li> <li>• Policy work on including poorly served groups in existing transport services.</li> <li>• Collaboration with civil society organisations to keep up with the changing needs of poorly served target groups</li> <li>• Providing the Less Mobile Station to less mobile and elderly people</li> </ul>
Business objectives	<ul style="list-style-type: none"> <li>• Social and economic impact of new shared transport solutions</li> <li>• Social and technological innovation</li> <li>• Policy work</li> <li>• Collaboration throughout Belgium and abroad</li> </ul>

Exploitable result #1 – Mobile apps development	
Product/service developed or optimized exploitable as a result of the participation of the partner in the project	<ul style="list-style-type: none"> <li>- Mobitwin app as a digital (real-time) version of the current Less Mobile Station (LMS) service provided by Taxistop. The target group are less mobile and elderly people in Flanders</li> <li>- An adjusted version of the (commercial) Olympus Mobility app for the INCLUSION project. The target group are jobseeking migrants.</li> </ul>
Main practical applications for the final client	<ul style="list-style-type: none"> <li>- Mobitwin app: realtime capacity for requesting trips + the possibility for members of the LMS to request a trip through the app and for the voluntary drivers to insert their availability themselves.</li> <li>- A simplified version of the Olympus Mobility app + a budget of 30 euro that testpersons can use to reimburse their trips to job interviews, internships, trainings,... every first step to find or keep a job.</li> </ul>
Technological relevance	<ul style="list-style-type: none"> <li>- Mobitwin app: by creating an app with a real-time option, Taxistop had the opportunity to explore the needs and wishes when an urgent ride is needed by the target group. The current version of the service only provides rides that need to take place after 2 days.</li> <li>- Olympus Mobility app: This 'Mobility as a Service' solution collects several sustainable and shared transport options in one app. Users get the opportunity to book and pay for their tickets in one app instead of changing through different apps.</li> </ul>
Level of development reached at the end of the project	<p>The INCLUSION project contributed to presenting these new technologies to poorly served people and also to gaining rich insights on optimizing these apps. Both of the apps have reached high standards for usability, but there are still technological adjustments to be made and new forms of partnerships need to be formed to optimize the relevance of the apps for the target groups.</p>
Market analysis and Strategy:	<p>The customers/users are less mobile and elderly people and jobseeking migrants. These target groups experience barriers for using regular public transport options.</p> <p>The LMS service is an on demand door to door transport options that provides affordable rides to less mobile and elderly people. The LMS services are a very customized and personal transport service and, therefore, have unique position on the market.</p> <p>A new strategy for the Mobitwin app could be to consider the feedback received during the INCLUSION project and present it at a solution the employees of het LMS services instead of the less Mobile and elderly people. Another strategy can be a possible collaboration with the city of Mechelen. The city experiences a major need for customized and affordable door to door transport for their elderly people. The idea is to make specifc technological adjustments in the app and test it with the elderly people in the city of Mechelen.</p> <p>The Olympus Mobility app is a commercial MaaS solution provided as a solution for commuters. This app is not the only app on the market, but the experience from the INCLUSION project gave Taxistop a lot of insight on how to present</p>



	<p>such a technology to jobseeking migrants. A disadvantage was the fact that the government already provides reimbursements for certain trips for jobseekers.</p> <p>A new strategy is to collaborate with the government to implement the existing reimbursements in the Olympus Mobility app so that these advantageous tickets are also available digital in one app.</p>
<b>Economic analysis</b>	<p>Both of the apps were already developed before the INCLUSION project.</p> <p>The Mobitwin app was a creation of Taxistop. The cost for developing the Mobitwin app in general was around 80000 euro. The development of the back office (current system of the LMS service) was around 120000 euro. For the Mobitwin app there will be some technological adjustments made by the IT team of Taxistop to optimize the app. These possible adjustments are still in the early in the process of planning so right now it's difficult to mention a specific cost.</p> <p>Taxistop is a stakeholder of the Olympus Mobility app. There was no financial involvement in the development of the app. Taxistop has the role of bringing the app to poorly served people. There is a very concrete conversation going on for collaboration with the government. The role of Taxistop is not specified yet.</p>
<b>Communication and commercial strategy</b>	<p>Mobitwin app: The Mobitwin app will be communicated as a solution for the employees of the LMS services instead of presenting it to the members (who mostly don't have the digital skills to use the app). Taxistop will also invest in recruiting new and younger volunteers as potential future users of the Mobitwin app. Therefore, communication and collaboration with local stakeholders will be very important (sportclubs, schools, ...).</p> <p>Olympus Mobility app: The app providers are already in conversation with a government service to implement existing reimbursements in the app.</p>

### 9.3.4 HITRANS

Partner's profile	
<b>Organization background</b>	<p>The Highlands and Islands Transport Partnership (HITRANS) is the statutory regional transport partnership covering Eilean Siar (Western Isles), Orkney, Highland, Moray and most of the Argyll and Bute area. HITRANS is one of seven Regional Transport Partnerships in Scotland which were established through the 2005 Transport Scotland Act. The area accounts for around 50% of Scotland's land mass but is home to less than 10% of Scotland's population. HITRANS works with Local Authorities, the Scottish Government, Transport Scotland, Highlands &amp; Islands Enterprise (HIE), transport operators and other stakeholders to improve transport services and infrastructure in the north of Scotland and on routes to the Highlands and Islands.</p>

Specific segments / Niches	<ul style="list-style-type: none"> <li>• Real-time travel information management and delivery</li> <li>• Electric Vehicles (EVs)</li> <li>• Integration of transport modes</li> <li>• Active Travel</li> </ul>
Market Position	HITRANS works with Local Authorities, the Scottish Government, Transport Scotland, Highlands & Islands Enterprise (HIE), transport operators and other stakeholders to improve transport services and infrastructure in the north of Scotland and on routes to the Highlands and Islands. Particular focus is made on improving the mobility and accessibility of key services for those living in remote and rural areas
Summary of exploitable results & knowledge	<p>The main results/knowledge gathered by HITRANS from the INCLUSION project are the following:</p> <ul style="list-style-type: none"> <li>• An understanding of the needs and issues facing vulnerable users in the region – elderly, young individuals and those with reduced mobility - in the assessment of their requirements and identifying solutions to improve their experiences and to be more responsive to their needs.</li> <li>• Surveys and interviews conducted with ebike users and owners of hire shops provided the opportunity to modify and improve this service later based of feedback.</li> <li>• The capability of the service to be adaptable in the face of the Covid-19 pandemic reveals its transferability in different scenarios and different target groups. Confirming its demand responsive nature.</li> <li>• Encouraging that the e-bike hire scheme has been used to access work as well as to increase mobility options for mobility impaired and older users. Therefore, in the winter months when the elderly demographic are less likely to use this service, they will not go unused – instead presenting a year round mobility option for a variety of customers.</li> <li>• The continued support of the bike shop owners to continue the arrangement with HITRANS in the future. They all see the potential for growth and are keen to discuss opportunities to expand the arrangement to more target users and with more cycles</li> </ul>
Business objectives	The main aim of the e-bike share service is to promote active travel and increase active travel options for vulnerable users in CNP. A long-term goal is for residents to cycle more and to purchase their own e-bike as a result of experiencing use through the e-bike share scheme.

Exploitable result #1 - Use of e-bikes	
Product/service developed or optimized exploitable as a result of the participation of the partner in the project	The continued hiring of e-bikes from shops involved in the pilot

<b>Main practical applications for the final client</b>	Providing locals and tourists with an alternative transport mode that is sustainable and accessible for a variety of demographics.
<b>Technological relevance</b>	HITRANS secured MaaS Investment Fund support in December 2019 the project is now underway. The HITRANS MaaS Solution will deliver a new unified MaaS platform (website and app) with a range of functions including journey planning, booking and payment for public transport services. Through working with Maas Scotland, Transport Scotland, local stakeholders and experts, HITRANS have assessed if Mobility as a Service could work in the CNP pilot area. Furthermore, real time information throughout the HITRANS area is being further enhanced with the implementation of the new RTPI contract and infrastructure upgrades and configurations commence in September with new battery powered displays being installed at key stops in Skye and Lochalsh and Badenoch and Strathpey.
<b>Level of development reached at the end of the project</b>	A solution which will be continued and developed further by the e-bike hire shops. There remains potential following Covid-19 for greater adoption and integration for local communities.
<b>Market analysis and Strategy:</b>	<p>The customers are typically local commuters and seasonal tourists. There were no significant entrance barriers identified, with the exception of regular, manual bikes available for hire at the same locations. However, those wishing to use an e-bike are typically looking for a more leisurely/easy cycle when compared to regular bike users. Therefore, these different bicycles are aimed at different target markets and are unlikely to be in competition with each other.</p> <p>HITRANS has lots of experience with sustainable mobility in the form of electric vehicles and bikes, as well as knowledge of active travel within the region – adding value to this pilot. The main aim of the e-bike share service is to promote active travel and increase active travel options for vulnerable users in CNP. A long-term goal is for residents to cycle more and to purchase their own e-bike as a result of experiencing use through the e-bike share scheme. Furthermore, raising awareness of the advantages of e-bike usage in terms of health, mobility, accessibility and reduction of costs.</p>
<b>Economic analysis</b>	<p>HITRANS were able to secure funding from National funding sources; Smarter Choices, Smarter Places/Energy and Saving Trust to part-fund the e-bike equipment and market the service. The bike shops themselves benefit from this arrangement as they have these assets at the end. It is also beneficial from an economic perspective as these bike shops run and maintain the e-bikes.</p> <p>This proved a significant stumbling block early in the project and led to several delays. As the INCLUSION project could not support direct funding of the e-bike equipment, it took several applications to a national funding pot before being successful. A key reason for being unsuccessful was due to the populations of the proposed towns being too small to demonstrate value for money for providing e-bikes, despite CNP receiving 1.87million visitors per</p>

	<p>year. This reasoning highlights the difficulties in obtaining funding from national sources where local context might be misunderstood. Also, the funding mechanisms are split that results in funding needing to be obtained from multiple sources to successfully operate a pilot. For example, one funding source is used for the e-bike equipment, another for the docking stations and another for the marketing of the scheme. This can result in significant delays as all funding sources must align for the pilot to run as intended.</p> <p>The MaaS project is another example where funding timelines has resulted in the MaaS pilot occurring after the INCLUSION project ends. However, HITRANS were one of only two places in Scotland awarded funding for the scheme and is a first of its kind for the area.</p> <p>Covid-19 significantly impacted the planned Spring 2020 marketing campaign for the e-bike hires. Funding had been obtained from Smarter Choices Smarter Places to expand upon the initial launch in January 2020 with the intention to create a boost for the Spring tourist season leading into the busy Summer season. Additional funding was then required to further market the Thistle Assistance Card, but this highlights again that limited marketing budgets for authorities will result in under-utilised schemes with limited ability to promote the availability and use of such schemes.</p>
Communication and commercial strategy	<p>Alongside traditional methods of promotion word of mouth has proven to be an effective communication strategy as users share their experiences first-hand.</p>

### 9.3.5 BUSUP

Partner's profile	
Organization background	<p>BusUp is a bus management platform, that allows companies, business parks, universities, schools and event organizers to offer and manage more tailored, efficient, safe and sustainable mobility solutions for their employees, students or attendees. The company founded in 2016 has been awarded with an SME Phase 2 Grant (2017), has been selected by EU Top 20 SMEs by Early metrics (2018), and EU Top 50 EU mobility start-ups by EU Start-up Prize (2020), and is currently operating in ES, PT, BR, PE and US.</p>
Specific segments / Niches	<ul style="list-style-type: none"> <li>- Corporate commuting management services (Corporations, Hospitals, Universities)</li> <li>- Shared Corporate commuting management services (Business Parks)</li> <li>- School bus management services (private schools)</li> <li>- Crowdsourced bus travel services for event organizers (cultural and sports events, rallies and demonstrations)</li> </ul>
Market Position	<p>BusUp does not operate their own buses but it relies in the existing fleet availability of local bus operators with whom it partners and establishes a win-win relationship. BusUp positions as a technological service, fully complementary to the services provided by bus operators, that is capable to digitalize the service and optimize the routes so as to make it viable in areas</p>

	where there is no PT alternative, more efficient and more sustainable. BusUp is currently the market leader in Europe and the 2 <sup>nd</sup> largest solution in Latin America.
Summary of exploitable results & knowledge	Social media and big data analysis will provide BusUp with the opportunity to identify unsatisfied demand, optimize the costs by replacing inefficient bus stops with low passenger numbers with services that better meet user demands, especially vulnerable users' needs (e.g., door to door) and increase the number and quality of collective transportation services in areas where there is limited PT.
Business objectives	Consolidate market leadership in Europe, while gain further market presence in Latin America and USA.

Exploitable result #1 - Social media and big data analysis	
Product/service developed or optimized exploitable as a result of the participation of the partner in the project	Social media and big data analysis: forecasting tool to identify unmet needs/demands of people that want to attend to specific events. This tool defines potential geographical areas to propose the most suitable bus-stops locations for the uncovered demand (vulnerable users) that want to attend to specific events.
Main practical applications for the final client	Improve services' offering for all clients (schools, corporates, events, etc) and user types (students, workers, attendees) by improving the number, the quality and the efficiency of the bus routes' offering.
Technological relevance	Access to social media and big data analysis to better identify optimal routes and bus stops is a breakthrough for the company as today it only relies on crowdsourced information from potential users. By exploiting this new result BusUp will be able not be reactive, only, to users' needs and requests but also pro-active.
Level of development reached at the end of the project	This is a mature solution that may need further testing in case new data sources may be considered such as mobility trends extracted from anonymous GPS positioning provided by telcom companies
Market analysis and Strategy:	<ul style="list-style-type: none"> <li>Some of the main competitors are: Zeelo (UK), Volt Lines (TK), Gogobus &amp; Busforfun (IT) and Fretadao (BR).</li> <li>BusUp has the most advanced tech platform and route aggregation and optimization algorithms</li> <li>Access to relevant data for each market segment may be a barrier. Anonymous GPS data may be more reliable for commuting services than social media, and this data is expensive.</li> </ul>

Economic analysis	<ul style="list-style-type: none"> <li>The technology developed by Mosaic will not imply any additional development costs for BusUp but it would imply an additional cost per use to be agreed with Mosaic. A fee per new route or stop identified could be agreed with Mosaic, and charged as percentage of the of the cost of the route.</li> <li>The tool has been developed thanks to the involvement in the INCLUSION project Barcelona pilot lab. The customization of the tool for another customer can have an estimated cost of 8.000 euro approximately.</li> </ul>
Communication and commercial strategy	<p>There are two differentiated communication strategies:</p> <p>Clients (B2B): online channels such as website and social media (Linkedin) and promoters such as Public Authorities (City Councils, Transport Authorities, etc)</p> <p>Users (B2C): The best communication strategy to reach final users is through our client (companies, schools, universities or event organizers), by means of their main communication channels, intranets, websites and social media accounts</p>

### 9.3.6 BKK

Partner's profile	
Organization background	<p>BKK Centre for Budapest Transport is the mobility manager of Budapest, and it is a municipality owned company. The mobility manager established in 2010 by the city of Budapest to organize daily public transport, supervise transport operators and taxis, coordinate public transport and road allocation projects, manager and developer of SUMP in Budapest. BKK is also a strategic road and bicycle manager, operator of bike sharing system in Budapest and responsible for traffic safety in the capital of Hungary.</p>
Specific segments / Niches	<p>BKK orders and supervises the public transport service from transport operators (BKV, VT-Arriva) and plans public transport timetables.</p> <p>BKK checks the validity of tickets, season tickets, and passes on public transport vehicles, and operates customer service centers and TVMs.</p> <p>BKK developed the Budapest Mobility Plan, which is the first SUMP of Budapest. It is approved by the General Assembly of Budapest in May 2019. Budapest Mobility Plan is the basic framework of every road space allocation, public space development in Budapest, and it contains a strategic view of sustainable urban</p>

	<p>mobility for the next 10 years, which determines the projects in the following years.</p> <p>BKK is a strategic transport and public road manager in Budapest and manager of main (EU funded) transport oriented developments in the municipality.</p> <p>BKK supervises taxi companies and cars, operates FUTÁR the transport planning app and system, MOL Bubi the public bike-sharing system in Budapest.</p> <p>BKK is a member and contributor of several EU funded R+D projects (e.g. INCLUSION), member of national and international transport organizations and associations.</p>
<b>Market Position</b>	<p>BKK is a municipality-owned mobility manager of Budapest, it is similar to TfL in London. BKK has strong connections with municipalities, NGOs, and other municipality-owned transport companies, with Budapest Public Road, the main public road operator of Budapest, with Budapest Urban Planning Ltd., the urban planner of Budapest, with Budapest Transport Ltd. (BKV), the main public transport operator of Budapest.</p>
<b>Summary of exploitable results &amp; knowledge</b>	<p>BKK has experience at public transport management, infrastructure development (i.e. road-space allocation, bicycle-oriented development, hard infrastructure investment), IT transport solution, transport oriented legal framework, SUMP, and participative planning, international R+D managing and participating.</p> <p>Through BKK's international contacts, the mobility manager is constantly informed about new mobility tools issues (e.g. e-mobility, carsharing, micromobility (e-scooters)) and has its own experience in using and regulating them.</p>
<b>Business objectives</b>	<p>BKK's main objectives are to achieve the modal split target set in Budapest Mobility Plan (SUMP) by 2030 (more public transport user, pedestrian, and cyclist, less private car user), managing sustainable urban mobility solutions and developments, providing adequate services for public transport users and regulating transport for older and newer mobilities.</p>

#### Exploitable result #1, Sensitization training for public transport employees

<b>Product/service developed or optimized exploitable as a result of the participation of the partner in the project</b>	<p>The first product developed as a result of the participation of the BKK in the INCLUSION project is keeping sensitizing training and developing training materials for public transport employees (e.g. ticket inspectors, customer service employees, public transport vehicle drivers) who have daily contact with customers with reduced mobility (e.g. blind and partially sighted, deaf and hard of hearing, disabled people).</p>
<b>Main practical applications for the final client</b>	<p>The completed sensitizing training material can also be used and applied to transport managers (e.g. BKK) and transport operators (Budapest Transport</p>



	Ltd. (e.g. BKK)) in the further training of employees who have daily contact with people on reduced mobility.
Technological relevance	Universal design change in the attitude of people. Simple technical tools are needed, which are mainly illustrative ones, such as a wheelchair, white stick, eye mask, public transport vehicle.
Level of development reached at the end of the project	The training material has been fully developed and is expected to be included in the employees' training curriculum of BKK and BKV in the future.
Market analysis and Strategy:	Sensitization training material is educational material for public transport workers to better understand the needs of customers who have mobility-related difficulties in everyday life. Partnership with local NGOs and stakeholders is important, they are able to identify target groups, necessary interventions and KPIs.
Economic analysis	Preparing and practicing the use of the training material requires organization, less financial investment, and cooperation with local NGOs and transport operators. The outcomes of training are difficult to identify with quality and quantity measures, but they can identify with specific focus group surveys with the clients.
Communication and commercial strategy	The main issues at communication aspects are a partnership and strong communication with local NGOs and stakeholders on reduced mobility. They can help to reach people on reduced mobility in direct way. It is important to inform them about sensitization training of PT employees, which can result in better and safer transport for people on reduced mobility. The communication can one-way (commercials, citylights, brochure) and two-way (negotiations and participative planning between transport companies and stakeholders).

Exploitable result #2, Public campaign to improve public spaces for people with mobility reduced	
Product/service developed or optimized exploitable as a result of the participation of the partner in the project	BKK together with the Járókelő NGO has developed an online platform called 'Without Barriers', in which people with reduced mobility could report their transportation-oriented public space and vehicle difficulties (high curb, missing sign) and reports are transparent. The online platform has forwarded the comments and announcements to the companies in charge to solve reported problems. BKK has supervised transportation-oriented reports.
Main practical applications for the final client  Fő gyakorlati alkalmazások a végső ügyfél számára	The clients are citizens with reduced mobility who can report their transport-oriented problems. By forwarding the report to the responsible company in a transparent manner, the customer can be sure of solving the problem (benefit of transparency). If the announcement cannot be resolved (problem-solving needs more time and high financial cost), the announcer receives a professional response on its report.

Technological relevance	IT solution, social innovation.
Level of development reached at the end of the project	The strong cooperation has alive between BKK and the Járókelő NGO for the 'Without Barriers' campaign. It will continue after the end of the project.
Market analysis and Strategy:	<p>BKK, in cooperation with the Járókelő NGO, has developed a transparent online announcer platform for people with reduced mobility. Organizing negotiations among stakeholders and Járókelő was the first step of the pilot action. This online platform is useful not just for people on reduced mobility but also for BKK because the mobility manager is able to face and understand the needs of people and the company can use these reports on future public space development.</p> <p>But also useful for BKK, the mobility manager is able to familiar with mobility related problems of people on reduced mobility. The company will use this information to future developments.</p>
Economic analysis	The development of the online platform does not require significant IT investment. The main gain of the platform is to link reported problems with responsibility companies. Resolving larger accessibility notifications requires significant financial outlay in the longer term. Reports is good for public space operators because they are able to solve faults quicker way.
Communication and commercial strategy	Communication and commercial strategy is very important in the case of public campaign. The online announcement platform ('without barriers' campaign) can supported with a Facebook campaigns as well as attention-grabbing short films.

## The INCLUSION consortium



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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 770115