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INCLUSION Project

Deliverable 6.2

Recommendations on the transferability of the proposed business models

Version: 1.0

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Abstract	D6.2 is the final result of INCLUSION WP6 on delivering new accessible and inclusive mobility solutions supported by viable business models looking not only at the economics of transport but also at the social dimension required. D6.2 is targeted to policymakers, authorities and transport operators as primary target audience. It provides the final version of the Business Models as produced by Tasks T6.1 and T6.2 and refined through the feedbacks provided by the INCLUSION Stakeholder Forum in Task T6.3. For each Business Model validated by Task T6.3, D6.2 provides a set of recommendations on their transferability in term of most promising prioritized areas for their introduction and targeted "vulnerable users". Recommendations include drivers/barriers and critical points in order to make the audience aware of the main topics and key decision points to be considered for the Business Models' introduction. The role of technological/organisational dimension and social innovation as components of each Business Model is highlighted. Some cross-comparison considerations for the promotion of inclusive mobility solutions are finally reported, with recommendations on how public, private and community users could act for a more inclusive transport system.

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Executive Summary

INCLUSION (Towards more accessible and iNCLUSIve mObility solutions for EuropeaN prioritised areas) aims to "…understand, assess and evaluate the accessibility and inclusiveness of transport solutions in European prioritised areas, to identify gaps and unmet needs, propose and experiment with a range of innovative and transferable solutions, including ICT (Information and Communication Technology)-enabled elements, ensuring accessible, inclusive and equitable conditions for all and especially vulnerable user categories."

As closing task of the project, INCLUSION aimed to develop business models to support new accessible and inclusive mobility solutions in prioritized areas and draft specific recommendations for their transferability.

In early 2020, the INCLUSION project developed an initial set of 14 Business Models based on those concepts that provide the link between policy priorities and Inclusivity goals. These Business Models were assessed according to different criteria, such as prioritised areas for implementation, synergies with the demonstration of the INCLUSION Pilot Labs, links with the 50+ case studies, feasibility of implementation in a short time, etc. This resulted in the selection of 7 BMs where the INCLUSION project highlighted concrete/specific opportunities to improve inclusive mobility for different groups/needs.

The 7 BMs selected have been validated through i) Surveys involving the INCLUSION Stakeholder Forum and INCLUSION Pilot Labs, designed to elicit opinions on the viability of the BM developed (thinking about the effectiveness, efficiency, affordability, and practicality) to solve the identified mobility challenges; and ii) An On-line workshop (held on the 15th of July 2020) with the INCLUSION Stakeholder Forum to consolidate the survey's results and to carry out a second-level analysis of the 7 BMs.

This Deliverable is the final output of this task providing the recommendations for the transferability of the Business Models validated.

The most promising BM's in relation to each type of actor primarily involved (i.e. Private sector-led, Public sector-led, Public-Private partnership, Community sector-led, and Solutions to support multi-actor delivery) have been analysed and reported in-depth; in particular, for each of the validated BMs, a set of recommendations on transferability and long-term sustainability has been developed and collected. The Deliverable includes also a specific section (Section 5) where the main recommendations for inclusive mobility are presented, which consolidate the findings from the business models development activities and the other tasks of the project.

At the end of the document, specific indications concerning how the public sector, the private sector, and the local communities could act for improving the accessibility and inclusiveness of the European transport system have been summarised.

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1 Introduction

1.1 The INCLUSON project in a nutshell

INCLUSION is a 3-year European project that aims to address a number of challenges related to the accessibility of public transport in European prioritised areas, i.e. those peripheral, urban and rural areas where, according to spatial, demographic and socio-economic characteristics, accessibility, inclusive mobility and equity challenges are greatest. In a fast-changing transport environment, where individuals' mobility requirements have become more complex and the role of new types of mobility services is increasing, public transport continues to be a key requirement for people with specific needs. In some deprived urban neighbourhoods or remote rural areas across Europe, an efficient and inclusive public transport integrated with shared mobility solutions means greater access to jobs, educational and social opportunities.

Within this framework, the mission of the INCLUSION project is to understand, assess and evaluate the accessibility and inclusiveness of transport solutions in European prioritised areas. This objective has been addressed by identifying major gaps in transport infrastructure and service provision, assessing unmet needs of vulnerable users and proposing, piloting and assessing a range of innovative and transferable solutions (including ICT-enabled elements), to ensure accessible, inclusive and equitable conditions for all and especially vulnerable user categories. Finally, the project elaborated a set of business models for inclusive mobility solutions, developing the related organisational, technological and social innovation issues for their effective use.

1.2 WP6 role and activities

INCLUSION WP6 aims to develop business models to support new accessible and inclusive mobility solutions in prioritized areas through:

- Identification of candidate business concepts for the promotion of accessible and inclusive mobility (Task T6.1)
- Based on the candidate concepts, to develop business models and map them into coherent scenarios based on the context of the institutional framework for mobility in Europe (Task T6.2)
- Once developed, to validate the business models through the involvement of the INCLUSION Stakeholder Forum and to provide a set of recommendations for their transferability (Task T6.3).

WP6 structure and timing is shown in Figure 1.

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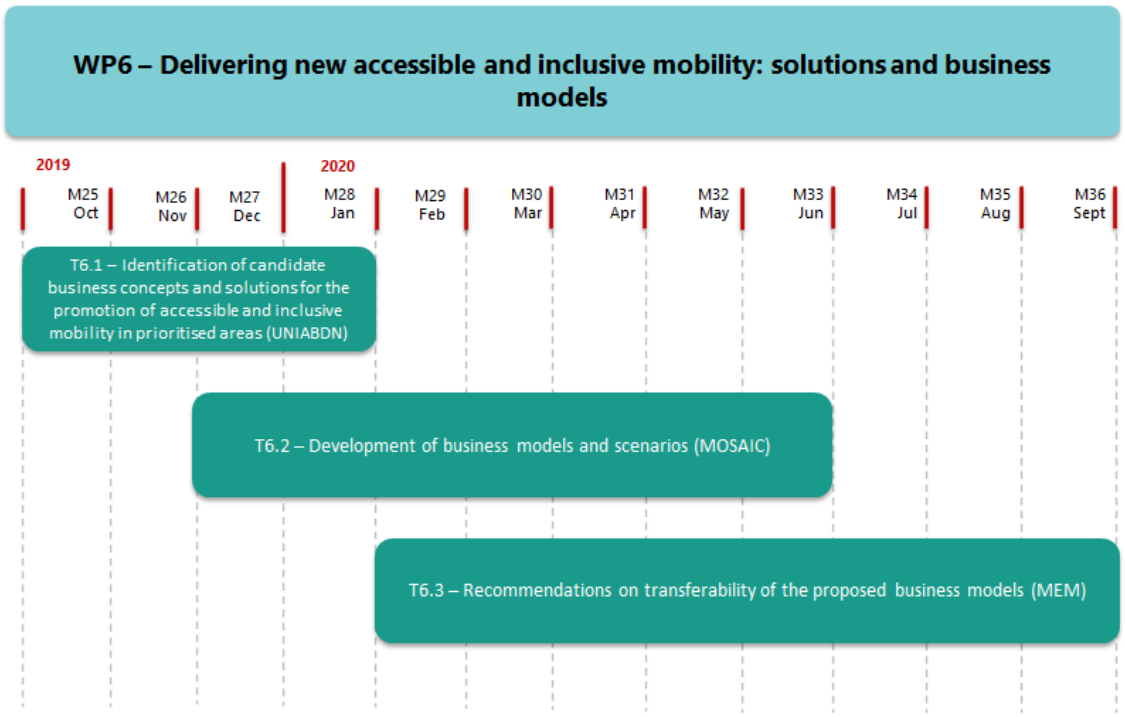

Figure 1: WP6 structure and timing

Interactions between WP6 and the other INCLUSION WPs are highlighted in Figure 2.

The work in WP6 is informed from:

- The identification of mobility gaps, prioritized areas and vulnerable user groups carried out in WP1
- The results of the review of 50 study cases carried out in WP3 in terms of good practice solutions for improving mobility accessibility analysing the relevance of each component (market research, institutional and regulatory framework, stakeholders' cooperation, ICT, funding, promotion, etc.)
- Assessment of the role ICT solutions can guarantee for the development and operation of affordable accessible mobility solutions and the identification of most promising technological applications and key functionalities carried out in WP2
- The experience of Pilot Labs (WP4) demonstrating key solutions for improving accessibility in different contexts and operational scenarios, addressing various target users and starting from different background conditions
- The evaluation of Pilot Labs actions in terms of process and impacts (WP5)

On the other hand, WP6 results flow into the WP7 dissemination and promotion activities of the project.

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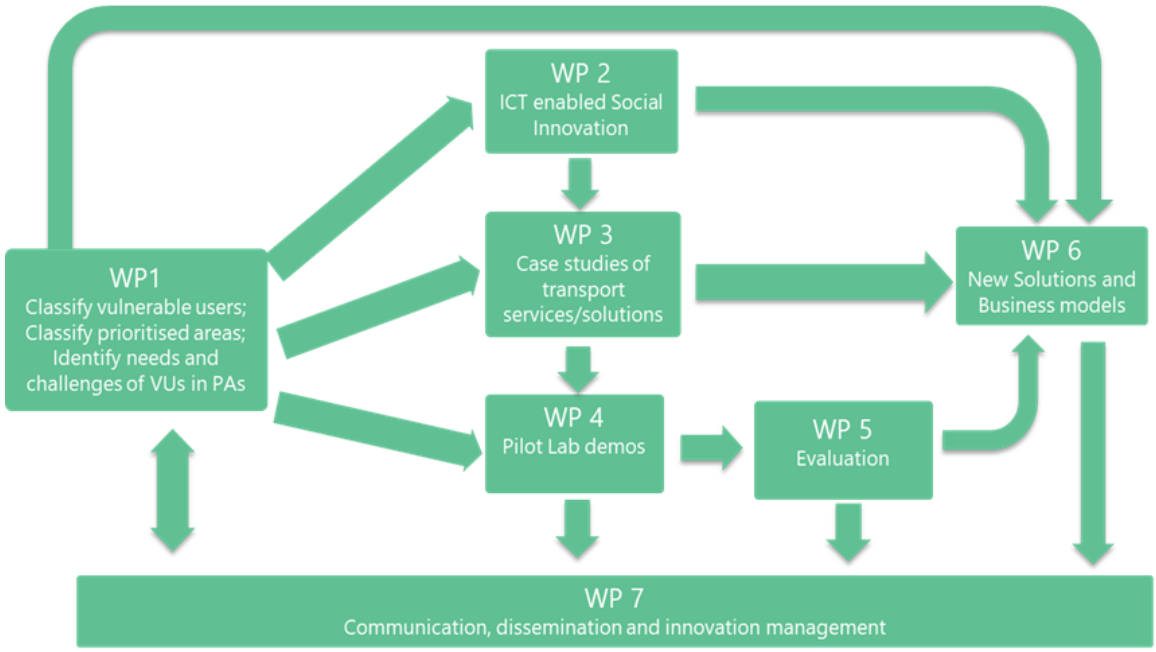

Figure 2: Interactions between WP6 and the other INCLUSION WPs

1.3 Task T6.3 role and output

In WP6, Task T6.3 has the following objectives:

- To support the validation of the Business Models developed in Task T6.2 (and reported in the Deliverable D6.1[1]) through the feedbacks provided by INCLUSION Stakeholder Forum, consolidating the final version of the Business Models
- For each validated Business Models, to assess the role of technological/organisational dimension and social innovation as building blocks of the Business Model itself and to provide a set of recommendations on their transferability in term of most promising prioritized areas for their introduction and targeted "vulnerable users".

Being the final stage of WP6 activities, Task T6.3 encompasses the previous results of INCLUSION as produced by the contributing WPs (as highlighted in Figure 3). In particular:

- Business model aspects adopted amongst the successful solutions featured in the 50 case study reviews
- WP4 provides Task T6.3 with the identification of business principles implemented in the Living Labs and the lessons learnt
- WP5 provides Task T6.3 with the assessment of the design and implementation process of the Living Lab Pilot Actions with a specific focus on business principles development and the evaluation of the impacts of the operated action.

[1] *Deliverable D6.1 Business concepts and models to support accessible and inclusive mobility (available at http://www.h2020-inclusion.eu/resources/publications/).*

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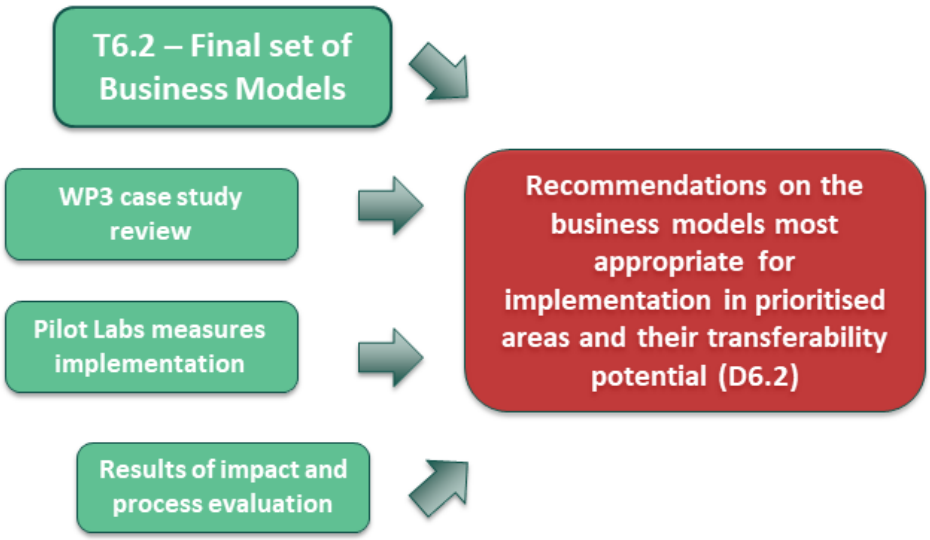

Figure 3: How Task 6.3 builds on previous INCLUSION results

This Deliverable is the final output of Task T6.3 providing the recommendations for the transferability of the Business Models validated in Task T6.3.

The target audience and the value each segment can achieve from this Deliverable is detailed in Table 1.

Table 1 Target audience of D6.2

Target Audience	Value of D6.2
Policy makers and Public Authorities	Guidance about the role of public funding (and possible allocation options) to develop innovative business models to support efficient and affordable solutions that offer accessible and inclusive mobility in prioritised areas; Lessons learnt from Pilot Labs experience and case study survey; Inputs from Stakeholder Forum
Public Transport/Mobility Operators	Recommendations on how to develop innovative business models to support efficient and affordable solutions that offer accessible and inclusive mobility in prioritised areas; Lessons learnt from Pilot Labs experience and case study survey; Inputs from Stakeholder Forum
IT companies and start-ups	Spotlighted business opportunities and most promising ICT areas to develop/commercialize innovative technological solutions to support service planning and operation; Innovative marketing approaches and channels.

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Target Audience	Value of D6.2
Consultancy companies / Academic community	Provision of updated knowledge and state of research on the topic. Lessons learnt from Pilot Labs experience and case study survey
Users association	Spotlighted role of not-for-profit associations in the delivery chain of innovative intermediate mobility/Public Transport solutions to improve accessibility in prioritized areas. Good practices from Pilot Labs experience and case study survey. Provision of key principles for long-term sustainability of the mobility services. Identification of the key stakeholder involved, responsibilities and their business needs/opportunities
General Public	Specification of key principles and scenarios for long-term sustainability of mobility services

2 Business Model generation process

The overall process for the generation of Business Models is specified in

Figure 4..

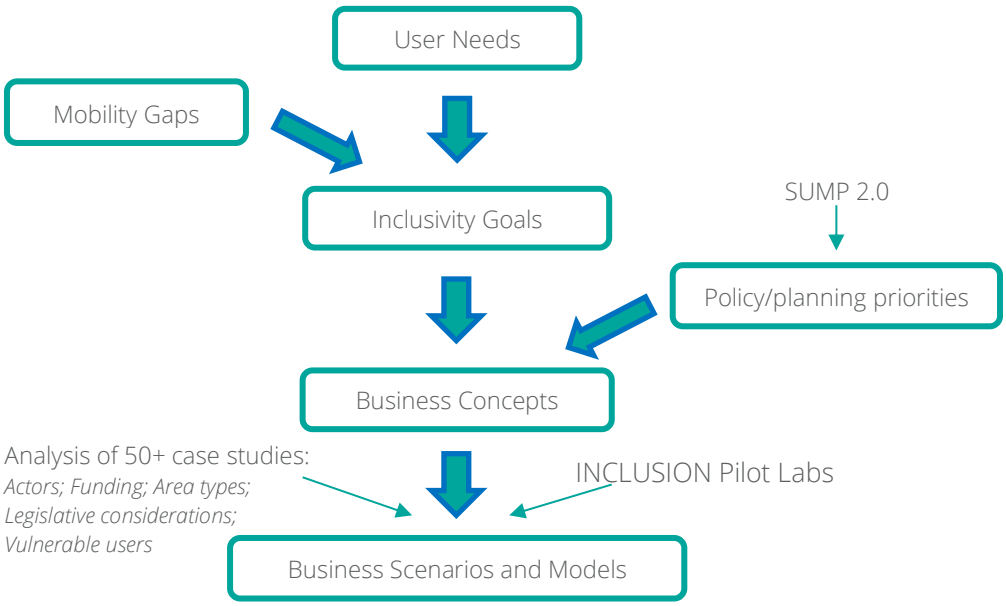

Figure 4: Generation process of Business Models

The main stages of the Business Models generation were the following:

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- Identification of the inclusivity goals based on users' needs analysis, mobility gaps assessment, survey of good practices and Living Labs actions carried out in WP1, WP3 and WP4
- Definition of the Business concepts answering to the INCLUSION Inclusivity Goals and taking into consideration the current public-sector policy and planning priorities at the EU and Member States level
- Mapping of the Business concepts in supporting scenarios based on the prioritized areas, target "vulnerable users, institutional context, etc.
- Development of Business Models based on the Business scenarios, focusing on the challenges and opportunities for each of the actors involved and the social and demographic barriers for each of the target users
- Selection of the most promising Business Models according to different criteria, such as prioritized areas for implementation, synergies with the demonstration of the INCLUSION Pilot Labs, links with the 50+ case studies, feasibility of implementation in short time, etc.

Each stage of the generation process is detailed in the following sections.

2.1 Inclusion principles and inclusivity goals

In order to identify and develop Business Models for the promotion of accessible and inclusive mobility in prioritised areas, the INCLUSION Consortium defined a set of INCLUSIVITY GOALS. In particular, seven main goals were developed with the aim of merging the results of the analysis of major user needs with the identification of gaps in service provision. The INCLUSION principles, namely the patterns emerged through the in-depth investigations of 50+ case studies which explain the success of various inclusive collective transport initiatives, were used as a starting point for this task[2].

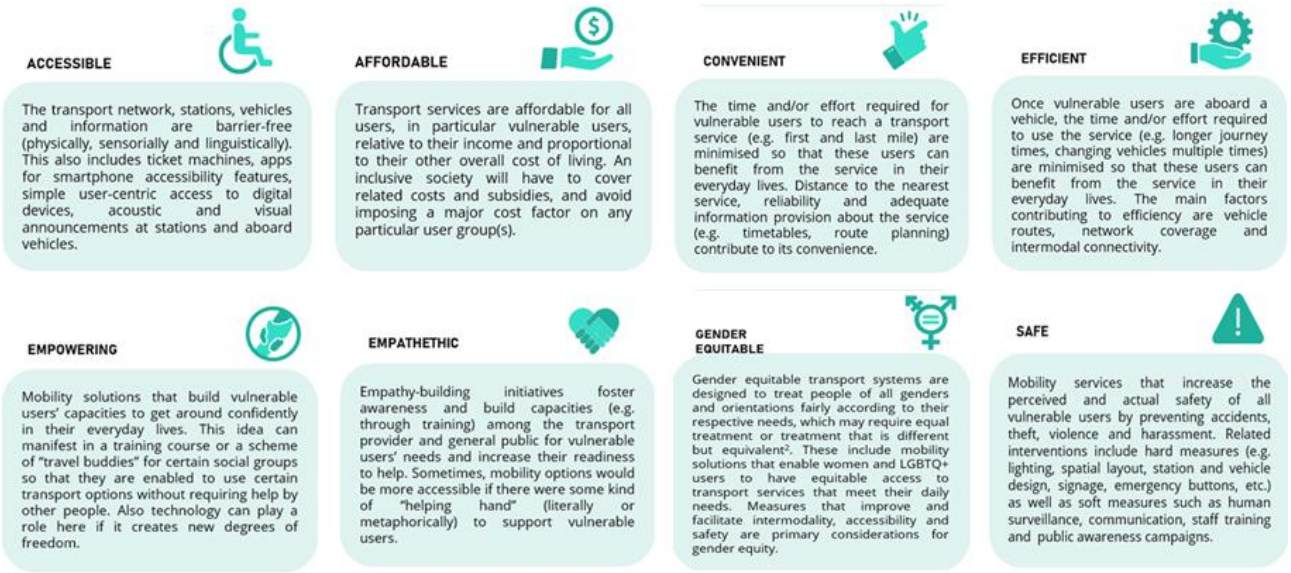

Figure 5: INCLUSION principles reflecting users' needs

[2] *For further information, see the INCLUSION Deliverable D3.4 – Typology and description of underlying principles and generalisable lessons, available at http://www.h2020-inclusion.eu/resources/publications/*

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Figure 6 INCLUSION principles and Inclusivity Goals

2.2 From Inclusivity goals to Business concepts and Models

The Inclusivity goals were developed by matching the requirements on the demand side based on vulnerable user priorities with the need on the supply side based on known mobility gaps. To be able to deliver services that address the inclusivity goals requires compatibility with the policy priorities of the cities and regions in which vulnerable users live. Considering the current public-sector policy and planning priorities at the EU and Member States level, as stipulated in SUMP2.0 guidance[3], the Consortium derived the following public sector priorities that could be linked with the major vulnerable user needs:

- Key priority n. 1: 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
- Key priority n.2: 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.
- Key priority n. 3: 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.

[3] http://www.rupprecht-consult.eu/uploads/tx_rupprecht/SUMP_Guidelines_2019_mediumres.pdf

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- Key priority n. 4: 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.

Mapping public sector priorities to inclusivity goals finally resulted in the Figure 7 below. The inner ring represents the main public-sector policy and planning priorities for the next 10 years as stipulated in SUMP2.0 guidance, while the seven inclusivity goals based on vulnerable user needs and existing gaps in mobility service are reported in the outer ring. The middle ring identifies 8 business concepts that provide the link between policy priorities and vulnerable user needs. The 'more integration' and 'more sharing' goals are most relevant to ensuring social equity and increasing economic viability from the supply side and are depicted on the right-hand side of the diagram. The 'more choice' and 'more independent travel' are most relevant to enhancing accessibility and quality of life on the demand side, depicted on the left-hand side of the diagram.

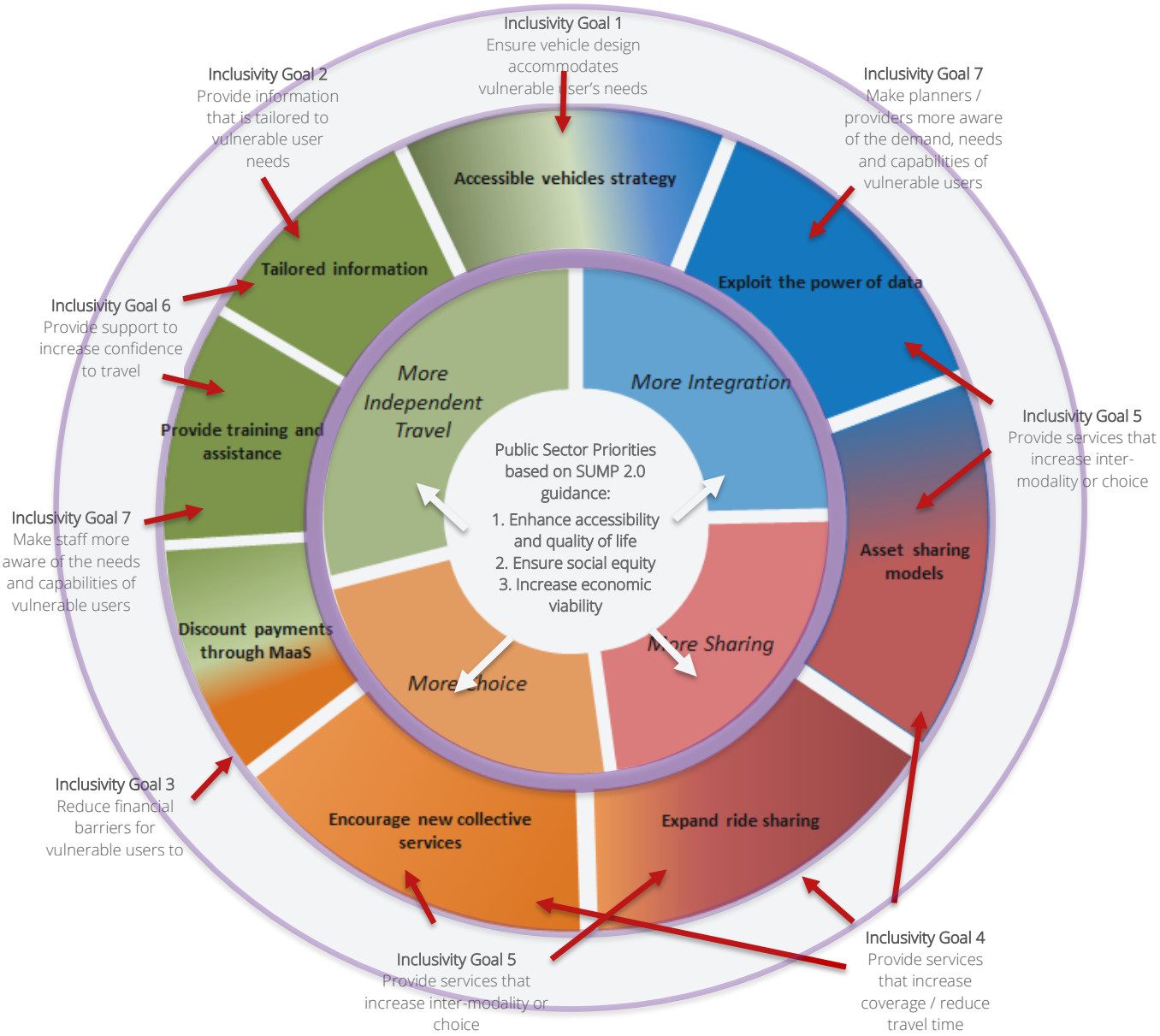

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Figure 7 Illustration of the three rings representing public sector priorities, business concepts, and inclusivity goals

Eight business concepts were identified that provide the link between policy priorities and Inclusivity goals. Business scenarios for each business concept were also identified, each providing detailed information concerning the type of vulnerable groups/areas the Business concept is applicable to (target group), the problem which is addressed, the "promoter", the added-value/benefits the Business concept provides to the "promoter", the role of the involved stakeholders, the relationship among the stakeholders in terms of "money flow", funding options, etc.

Based on the concepts and scenarios developed, 14 different Business Models (BMs) have been identified and developed, each with a detailed description of the key information concerning key market targets, value proposition, communication / engagement strategies, identification of costs and revenue, the activities required for BM setup, how resources should be allocated, etc.

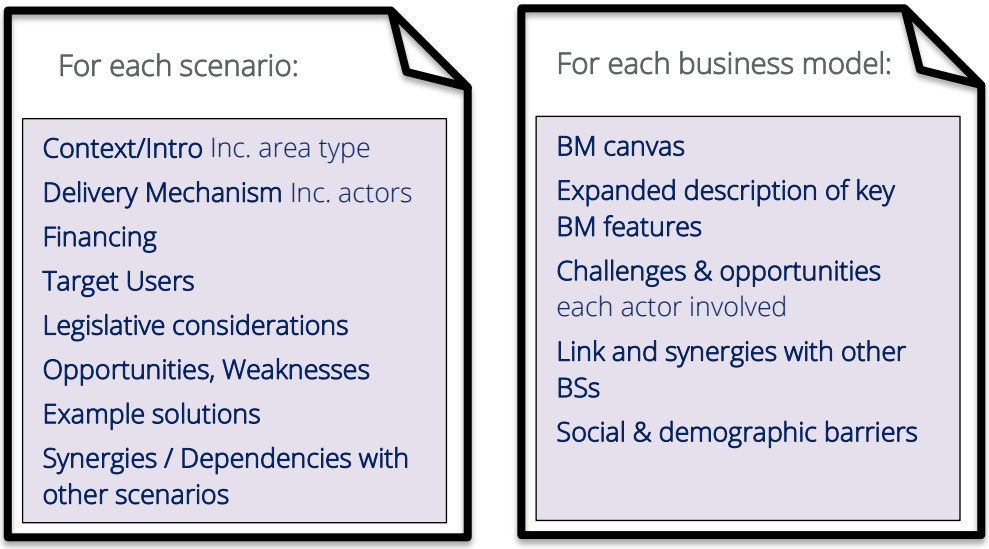

Figure 8:Topics for development of Business scenario and Business Models

For each of the Busines Models identified, the inclusive BM canvas has been defined; moreover, a deep analysis on the challenges and opportunities for each of the actors involved has been carried out, and a deep analysis on the social and demographic barriers for each of the target users have been developed. Each BM has been designed following a common template and an extensive analysis developed by the consortium.

The detailed description of the methodological approach adopted, as well as the full set of business concepts and scenarios, is available in the Deliverable D6.*1 Business concepts and models to support accessible and inclusive mobility* (available at http://www.h2020-inclusion.eu/resources/publications/).

The initial set of Business Models identified and developed in Task 6.1 and T6.2 were then assessed in Task T6.3 according to different criteria, such as prioritised areas for implementation, synergies

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with the demonstration of the INCLUSION Pilot Labs, links with the 50+ case studies, feasibility of implementation in a short time, etc. This resulted in the selection of 7 BMs where the INCLUSION project highlighted concrete/specific opportunities to improve inclusive mobility for different groups/circumstances. These 7 BMs have been grouped in two different clusters (the ones in red colour and the other in blue), as shown in Figure 9. It is these 7 BMs that have been considered in the validation phase.

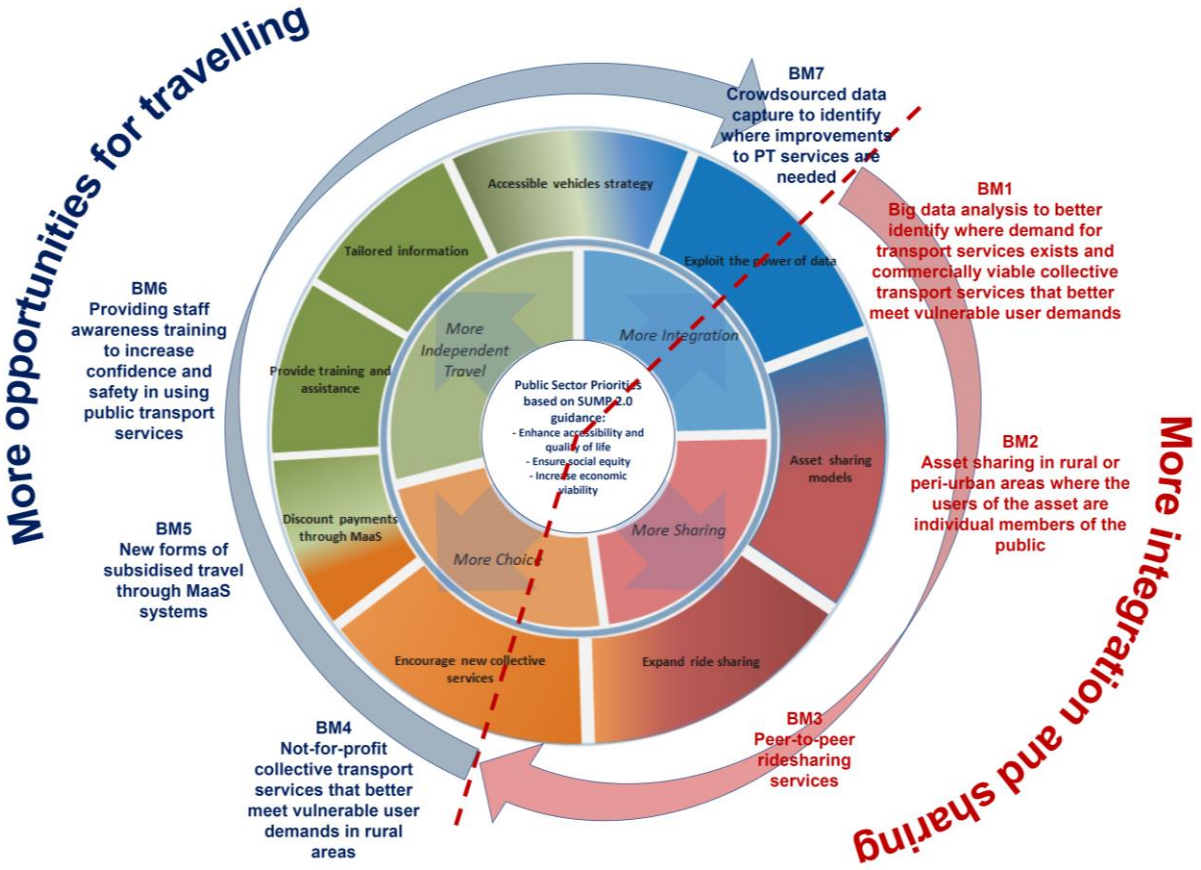

Figure 9 Clustering of the selected business models

Table 2 INCLUSION Business Models selected for validation

Business Concept	Business models	
Title	No.	Title
Exploit the Power of Data & Encourage new collective services	BM1	Big data analysis to better identify where demand for transport services exists supporting commercially viable collective transport services that better meet vulnerable user demands
Asset sharing models *Increase transport options to users in economically viable manner*	BM2	Asset sharing in rural or peri-urban areas where the users of the asset are individual members of the public
Expand Ride-Sharing *Utilise ride-sharing options to plug gaps in core service at low cost*	BM3	Peer-to-peer ridesharing services

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Business Concept	Business models	
Title	No.	Title
Encourage new collective services *Lower cost services that better meet vulnerable user demands*	BM4	Not-for-profit collective transport services that better meet vulnerable user demands in rural areas
Discount payments through MaaS *Providing financial support to users*	BM5	New forms of subsidised travel through MaaS systems
Provide Training and Assistance *Human intervention to support independent travel by vulnerable users*	BM6	Providing staff awareness training to increase user confidence and safety in using public transport services
Exploit the Power of Data *Data capture using technology to help better understand user needs leading to better, more integrated, planning decisions*	BM7	Crowdsourced data capture to identify where improvements to PT services are needed

3 Validation activities in Task T6.3

The approach followed for the validation of the INCLUSION Business Models is summarised in figure 10.

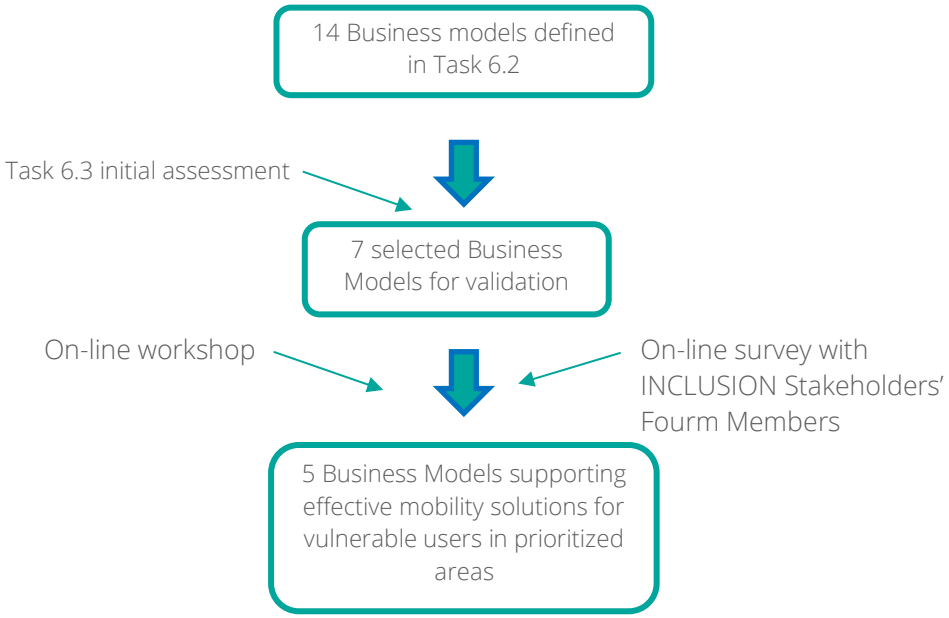

Figure 10 Approach followed for the validation of the business models

The 7 BMs selected with the process described in section 2.2 have been validated in Task T6.3 through the following steps:

- Conduction of surveys involving the INCLUSION Stakeholder Forum and INCLUSION Pilot Lab partners designed to elicit opinions on the viability of the BM developed (thinking about the effectiveness, efficiency, affordability, and practicality) to solve the identified mobility challenges;

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- Consolidation of survey results with an on-line workshop (held on the 15th of July 2020) with the INCLUSION Stakeholder Forum to consolidate the survey results and to carry out a second-level analysis of the 7 BMs.

A specific survey was designed to elicit perspectives and opinions from the Stakeholder Forum experts on topics such as:

- The role/impacts of the ICT tools as driver for the standardization of the solutions or, on the contrary, as component to be customized to specific needs in case of BM implementation
- Drivers and barriers that could increase or decrease the potential of transferability of each BM
- The variable conditions which are usually not fully under stakeholder control
- The possible modifications proposed or needed to the institutional, regulatory or financial framework
- The possible adaptation of financing procedures and subsidy criteria
- Assessment of the transferability of the BMs in terms of prioritized areas and target groups

The survey was especially designed to combine a common set of questions for all the BMs with another set of questions specifically shaped for each BMs. The structure of the survey was composed of three main parts: i) Assessment (including drivers and barriers); ii) Transferability (including recommendations); and iii) Overall evaluation.
The survey template is enclosed to this Deliverable as Annex 1.

The on-line workshop was organized with the following structure:

- Consolidation of the results of the survey by asking the participants to summarize their assessment in terms of:
    - How effective are the seven business models developed by the INCLUSION consortium for a more inclusive mobility;
    - Transferability of the proposed BMs to EU regions and identification of the conditions to be considered when specifically addressing prioritised areas such as rural, remote or deprived;
    - Potential of the BMs in terms of persuading initiators (public, private or community-led) to implement them in their own local context;
- Deeper analysis of the previous issues for each BM;
- Wrap up and conclusions.

The workshop provided a forum for open discussion and exchange around key issues; highlighting suitability, practical issues, main actor roles, barriers, drivers, opportunities, financial aspects and transferability.

At the end of the Task T6.3 validation activities, the most promising BM's in relation to each type of actor primarily involved were selected for an in-depth validation. The selected BMs and related actors are presented in the Table 3.

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Table 3 Business Model selected for in-depth analysis in relation to the different involved actors

Primary actor involved in the delivery of the BM solution	Business Models selected for an in-depth validation
Private sector led	Big data analysis to better identify where demand for transport services exists to provide commercially viable collective transport services
Public sector led	Not-for-profit collective transport services in rural and peri urban areas
Public-Private partnership	Asset sharing in rural or peri-urban areas
Community sector led	Peer-to-peer ridesharing services
Solutions to support multi-actor delivery	New forms of subsidised travel through MaaS systems

The five business models identified in Table 3 are presented in detail in the next Section.

4 Business Models supporting effective mobility solutions for vulnerable users in prioritised areas

This section provides the consolidated definition of the BMs selected and further refined following the validation process, providing:

- Introduction to Business Model concept
- Overview of the Business Model
- Challenges/opportunities and financial relationship between the stakeholders in the BM
- Reference to INCLUSION Living Lab (if any)
- CANVAS Model developed
- Transferability potential in terms of prioritized areas and type of "vulnerable users"
- Drivers and barriers for the development of the Business Model. In particular, this section clarifies the role of i) supporting technologies; ii) organisational and operational aspects; iii) Social acceptance and usability; iv) regulatory and legislative frameworks in this context
- Recommendations for ensuring long-term sustainability (lessons learnt from INCLUSION PLs and WP3 Case Studies and feedbacks from Stakeholder Forum)
- Impacts of the POST COVID-19 pandemic scenario (and any possible second wave) on the BM.

The analysis of the Business Models validated by INCLUSION project within WP6 must be accompanied by some "side" considerations. Indeed, in the transport sector, business model solutions are usually seen from the perspective of the financial profit for the solution initiator, with the aim of understanding whether an off the shell product or an innovative mobility solution can enter into the market of transport, and how can it match with the standard public transport and

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the other means. Within the INCLUSION project, the approach has been quite different since the PROs and CONs of the mobility solutions have been analysed from the perspective of the overall stakeholders interested in the delivery of the solution, and not just by a single-actor. Moreover, the solutions have been developed and assessed considering the monetary and non-monetary "values", including, for example, the social value, that is particularly important for vulnerable users. Finally, due the specific environment (i.e. the prioritised areas) where the solutions have to be implemented, the participation of social entrepreneurs and their integration in the service delivery has also been considered as a key factor for the successful implementation of the BM.

A more detailed explanation of this guideline is reported in Figure 10. These considerations allow a clearer understanding of the Business Models in the right perspective.

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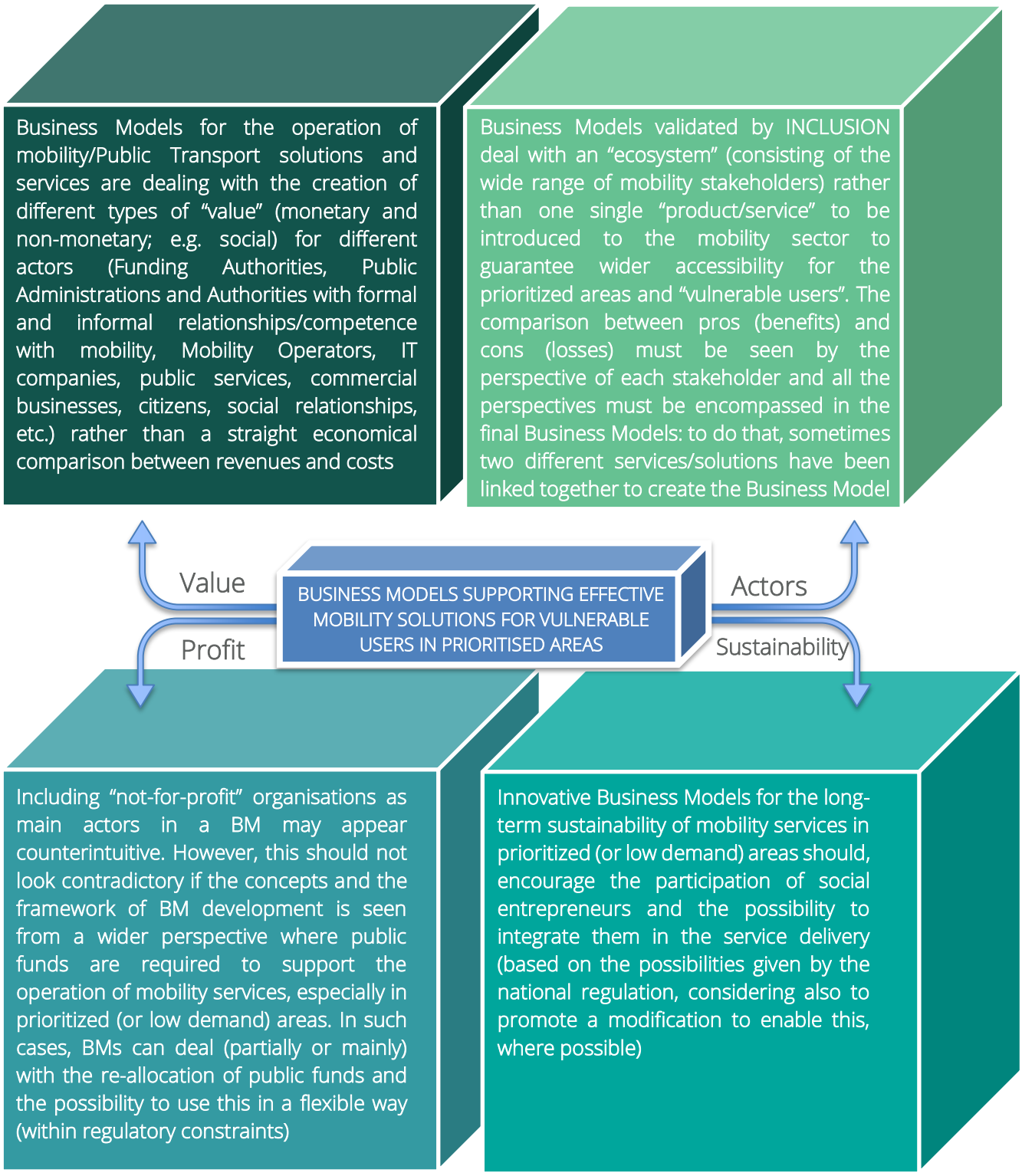

Figure 11 Indications for a correct comprehension of the INCLUSION Business Models

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4.1 BM1: Big data analysis combined with commercially viable collective transport services that better meet vulnerable user demands

Related Business Concept: Lower cost services that better meet vulnerable user demands & data capture using technology to help better understand user needs leading to better, more integrated, planning decisions

4.1.1 Introduction to the business concept

This scenario involves possibilities where digital solutions, based on analysing large quantities of readily available data from digital social media, play a part in the process of identifying the potential demand for designing commercially viable collective transport services. Information mining from Social Networks on travel desires and needs can provide a better comprehension of the demand and can radically improve the uptake of bus ride-sharing services, through better design and aggregation of demand offering more tailored services for vulnerable groups. This solution is especially suited to identification and aggregation of demand to large scale events, particularly those attended by younger people – because they are most active on social media.

The application of data analysis in the planning of commercially profitable collective transport services allows private sector providers to bring these services out of urban areas context, where they mainly serve commuter demand. There are other commercially viable examples of these services operating to serve a specific niche market where demand is high and/or where high fares can be charged (e.g. airport shuttle services). However, this demand is sometimes hard to detect and few of these commercially viable examples have been developed with vulnerable users in mind. For instance, rural and peri-urban areas show many examples with demand that is hard to detect and with strong vulnerable users' presence, which brings the need of performing information mining to detect such demand and to take into account vulnerable users' needs.

4.1.2 Overview of the business model

Private sector technology companies develop social media data analysis models for demand prediction that allow private or public sector bus operators to gather a better understanding of the latent mobility demand to specific events (in terms of geographical location) prior to event ticket purchase. This information is then used to provide more informed design and delivery of tailored collective transport services that better meet the demand and increase the overall transport accessibility.

An approach for increasing the demand for new collective services from vulnerable users is to better identify where the demand exists and to design the new collective service according to the users' needs. This maximises passenger numbers and hence revenue generation. If revenue generation from vulnerable users is not sufficient to adapt services to vulnerable users' needs, then enabling vulnerable users to pay more for a service may give private sector providers sufficient incentive to stimulate new or enhanced service provision that better meets their needs.

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4.1.3 Pilot reference: Barcelona Pilot Lab

The goal of this work is to develop ICT tools that allow BusUp (a PT service provider) and the event organizer (Canet Rock) to gather a better understanding of the existing mobility demand to the event (in terms of geographical location) so as to be able to offer better tailored bus routes and increase the overall transport accessibility.

Mosaic Factor is specialised in Big Data and Artificial Intelligence for mobility and logistics. Within the INCLUSION project, Barcelona Pilot Lab has focused on identifying potential users' demand that want to attend to a socio-cultural event through social networks analysis. Another measure to be implemented is to identify potential geographical areas to propose the most suitable bus-stops locations for the unmet demand.

This particular Business Model has been designed based on BusUp and Mosaic Factor's expertise. Within the INCLUSION project, this pre-planned on-demand bus service provided young people with access to the Canet Rock music festival. As peri-urban and rural areas have limited PT options to attend this event, the target user groups are used to either taking their own car (if possible), or not going to the festival. BusUp service's added value is to provide a faster and easier transport alternative, compared to other public transport alternatives, and a cheaper, safer and more sustainable alternative than car to attend the event.

BM1: Commercially viable collective transport services that better meet vulnerable user demands

BM Canvas Table

1- Market & Customer Segments

Multi-sided market: The users identified for this BM share the need to use transport services to attend an event, but where location of specific user demand is uncertain and dispersed. Tailored collective bus services offer a means of serving this demand in a viable way. Digital data analysis techniques to estimated user demand is crucial for this to be feasible. This analysis can have a focus on or give more weight to vulnerable users. On the other hand, it also needs bus/coach providers to contract the work to.

User needs:

- Users with poor PT connection to attend events and with no car option have the need for more **convenient** and **empowering** transport options.
- Women that feel uncomfortable by travelling in other transport modes that may make them feel unsafe or that are not driven by professional drivers have the need for more gender equitable options.

2- Vulnerable Users & Prioritised Areas

Vulnerable users:

- Vulnerable users that are looking for safer and more convenient collective transport options and are prepared to pay premium fares (women travelling at night)
- Vulnerable users that are willing to travel to common destinations with affordable prices (young people accessing concerts/large events)
- Users with disabilities (cognitive and sensory)

Prioritised areas:

In peri-urban areas (where there is more potential demand but it is not sufficiently concentrated or regular to justify fixed route services).

3- Social Demographic Barriers

Rural areas have more difficulties to be commercially viable for private operators

4- Value proposition

Direct on-demand bus routes to leisure and/or cultural events and attractions.

Added value: Save time (versus PT) and costs (versus car) and have access to a safer and more sustainable mode of transport

5- Mobility Gaps Addressed

- Limited access to PT
- Direct routes to the event
- Official and safe mode of transport

Affordable

6- Communication & engagement

Communication:

Personal assistance for vulnerable users that have specific needs

Communities and organisations that engage with the vulnerable user groups and can promote the service

Event organisers to raise awareness and promote the bus service amongst potential attendees

Attraction managers to promote the bus service

Channels:

Mobile Apps
Websites
Social Networks

9- Key Resources

- Technical: Booking platform &
- Demand Aggregation Algorithms
- Physical: Fleet Availability
- Human: Drivers

10- Key Activities

- Communication
- Customer Care
- Operations

11- Key Partners

- Client (event organiser)
- Bus operator
- Tech company

7- Organisational & Operational context

Digital data mining (from social media activity or mobile phones activity) can highlight pockets of demand from certain user groups to access particular locations. This is used to establish collective bus service routes that suggest there is sufficient demand to be commercially viable. Private sector providers offer new on-demand collective bus services on these routes.
Bookings are made online via bus company web-site or app.
Routes are only confirmed, when booking reach a minimum of 70% of bus capacity.

12- Cost Structure

Between 60-80% of the costs are subcontracting of bus operators
Marketing
Technology development

8- Revenue Streams

Ticket sales to passengers

15- Social Innovation

Better transport organisation, more efficient service provision, more tailored end-user services (crowdsouced routes)

13- Inclusion Principles/Goals

Convenient, Empowering, Gender equality

14- Technology

Identification of potential demand of the service through social media and data mining

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4.1.4 Potential for transferability

Target area

	Very low	Low	Medium	High	Very high
Rural/remote areas	☐	☐	☒	☐	☐
Rural town served by PT	☐	☒	☐	☐	☐
Peri-urban and suburban areas	☐	☐	☐	☐	☒
Urban areas	☐	☐	☐	☒	☐

Peri-urban and suburban areas appear the most promising target areas as the population must be sufficiently large and not too thinly distributed to make a service viable. Vice versa, in high-density urban settings, there is usually a better PT provision and affinity to use it, so there is less (actual and perceived) need for extra/special services. Rural/remote areas can be an "in between" situation depending on the specific local context: an event could be sufficiently popular in a really rural area to make the service viable even there, especially in case a direct service can be organized with few origin points the people come from (i.e. the train station). Urban areas, despite having good urban public transport services' offering, are also in high demand of direct bus routes to/from peri-urban areas with limited PT connection, specially at odd hours.

Vulnerable users

In this BM, vulnerable users are represented by "people living in areas which are poorly served". Extending the scope of INCLUSION Barcelona Living Lab, it could be transferable to different segments of users such as a future aiding in safety of vulnerable lone women, or in aiding elderly to attend cultural/public events to reduce social isolation. Being based on the use of data collected on social media, younger people appear the primary target segment.

Challenges and opportunities

Actor	Challenges	Opportunities
On-demand PT Operator	Provide commercially viable services where there is low demand, or the total demand is partially unknown. Expand the market segment on the service by offering the service for different events.	Provide services that meet vulnerable users' needs that can be identified using social media or mobile phone data analysis technology. Promote more sustainable transport services for attending events
Technology providers	Need for understanding mobility problems and trends in order to have a bigger impact in the model development. Digitalise all the processes involved in the service	Enlarge the market segment of social media data analysis techniques by their application in transportation studies. Routes optimisation based on confirmed bus stops.

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Event organisers	Give enough information about all the different transport modes to attend the event and emphasise the most sustainable ones.	Provide accessible transport services to vulnerable users that otherwise would not have an option to attend the event.
Users	Switch from traditional transportation modes to others more innovative and sustainable. Uncertainty if booked trip is cancelled due to insufficient passengers	Affordable and reliable transport option to attend an event that otherwise would be difficult to reach. Safer travel option tailored to vulnerable user needs

Financial relationships in the Business Model

Actor	Income/Funding access	Costs/Funding contribution
On-demand PT Operator	Bus tickets sales to attend the event	Subcontracting of bus operators (60-80% of the cost) Promotion and marketing of the service to potential users
Technology providers	Contract with the operator to develop the model to: (i) Find potential areas to put the bus stops and (i) find the potential demand who wants to attend the event	Data collection from social media and other sources Development of the model for demand prediction
Event organisers	Additional tickets sold thanks to the operation of the on-demand service. Savings in public parking lots rental fees and in security staff to control traffic access and parking lots	
Users	Savings compared to car use	Bus ticket to travel to the event

Drivers and barriers

Drivers

- ICT tools as technological enabler of new mobility solutions. In particular this BM exploits the opportunities provided by data mining tools to support optimized planning of the Public Transport services according to the real needs of users
- Wider use of social media by the citizens in particular related to the participation to social public event (search/sharing of information, looking for/buying tickets, etc.)
- People desiring "customized" niche services with higher quality standards than the conventional Public Transport (in particular for trips related to special events or needs)

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- Presence of niche market segments in mobility/Public Transport which cannot be so large for economical profitability and long-term sustainability for large/medium Public Transport Operators but enough for small Operators

Barriers

- The data used for mining processes need to guarantee a sufficient quality to allow effective results from data mining. This need could limit the data used. Secondly some of the datasets could not be complete (i.e. Twitter data cannot indicate when and where); however, even this can be worked around merging with other datasets
- The use of crowdsourced data can generate contradicting needs among users, but this situation can be addressed by the knowledge based "smart" data mining rules adopted
- Users will expect the service to be very high quality. This can generate high expectations (i.e. service to be affordable compared to other transport options such as a taxi but in the price range of conventional Public Transport). High expectations could be hard to be guaranteed in a sustainable way and even could bring to "failures" when the service is used.
- Regulatory and legislative framework conditions can be barriers at national level depending to what extent the boundaries between the provision/operation of a "package tour" and "transport service" can be flexible. There may be practical issues requiring some formalised solution, such as access to venues, stations and stops, and type of consumer protection to be applied.
- Regulatory and legislative framework conditions at local level can vary a lot depending on the municipality. For instance, if a municipality is obliging the buses to stop at 1 km from the destination, use of the service might be discouraged. However, this is unlikely, since local municipalities are usually interested in motivating the use of PT to the detriment of private vehicles
- Privacy rules (GDPR 2016/679) must be taken into account for data accessing
- In case of integration of data from different sources, the BM could change if the data will be free-available or not.

	Strong barrier	Weak barrier	Neither barrier nor driver	Weak driver	Strong driver
Implementation of technological enablers	☐	☐	☐	☐	☒
Acceptance or usability of ICT tools	☐	☐	☐	☐	☒
Regulatory and legislative framework conditions	☐	☒	☐	☐	☐
Organisational and operational aspects	☐	☒	☐	☐	☐
Social Innovation	☐	☐	☒	☐	☐

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4.1.5 Post-COVID 19 and second wave impacts

The table below aims to summarise some key considerations regarding the possible impacts/opportunities of the COVID-19 pandemic related to the success of the business models. These have to be read with some precautions due the status of uncertainty which characterise the mobility sector at this stage.

COVID-19 negative impacts	COVID-19 indirect positive effects
Entity: strong negative impact Description: Main negative impact is the temporary restrictions or cancellations of major large socio-cultural events, which radically decreases the demand for this type of services, while the restrictions are implemented. Users may be less willing to share vehicles with other people, thus an increase in the use of private car to go to cultural/social events may be possible; however, it has to be noticed that some cultural destinations such as theatres are not accessible (or hardly accessible) by private car, thus the increase in the use of private car may be softened. The sanitisation procedures of the vehicles may compromise the business model of the service, due to the additional costs needed for cleaning. The reduced capacity of the vehicles may result in a more difficult management and operation of the service, and will impact on profitability.	Entity: weak positive effect Description: While public perception has shown that private car use is perceived by the public opinion as a safer option compared to PT, it has also shown that private buses, with limited capacity (coaches) and stricter disinfection protocols, are perceived as safe as private cars and much safer than PT.

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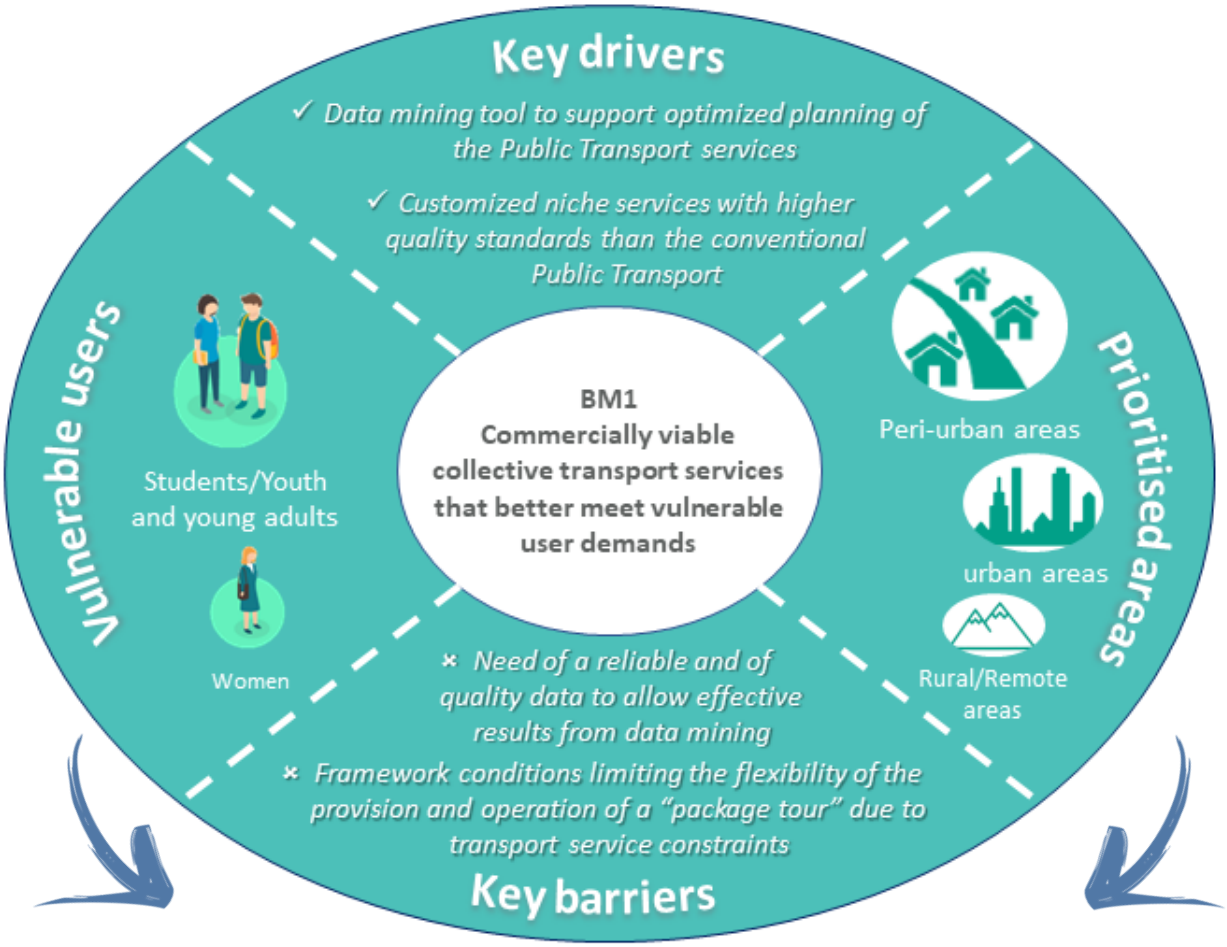
4.1.6 Summary and key recommendations for long-term sustainability



Key recommendations for long-term sustainability

Strong promotional activities are required to make the target user segments aware of it. This service must be marketed in places where users normally look for information. This could bring some difficulties as it is not always easy to build collaborative relationships with "destinations" and the organizers of the events

The activities required to run the BM (i.e. setup of data mining process, interfacing/integration of the data sources, market research, promotion, etc.) are resource-intensive in relation to the small nature of the service (same problem as with all planning tasks). The BM (and the application of data mining processes supporting the planning of the services) should be enlarged to the optimization of different/all service in order to share the costs of the tools

Special attention should be kept to the transferability of this BM: it is not at all likely that findings from market research in one place/for one occasion is valid also in another place/occasion

Identifying pockets of demand in the low demand areas could be the winning card for the development of dedicated flexible transport services

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4.2 BM2: Asset sharing in rural or peri-urban areas where the users of the asset are individual members of the public

Related Business Concept: Asset sharing models - Increase transport options to users in an economically viable manner

4.2.1 Introduction to the business concept

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.

4.2.2 Overview of the business model

Unlike in urban areas, where these schemes are predominantly operated by private sector providers on a commercial basis, in peri-urban and rural areas the demand from individuals for collective asset sharing services is not sufficient for commercially viable operation from private sector providers. As a result, financial support is required in some form or other to establish collective asset sharing services. This financial support offers the leverage to ensure asset sharing services are designed and delivered with certain vulnerable user needs in mind.

4.2.3 Pilot reference: Cairngorms National Park Pilot Lab

The specific Business Model related to this concept has been designed based on the delivery of an e-bike sharing scheme in the INCLUSION Pilot Lab in the Cairngorms National Park (CNP), a large, hilly and diverse area that presents numerous public transport challenges: i) Low density and dispersed population results in sparse PT service coverage, ii) Infrequent services and longer journeys, iii) An aging resident population in the area and iv) A large number of tourists in the summer and in the short ski season.

To increase transport options in the area for both tourists and local residents an e-bike share scheme has been established at three towns in the area. Through an innovative public private partnership between HITRANS, the regional transport authority, and local bike shops that already existed in these towns, an affordable delivery mechanism has been established. The public sector partner (HITRANS) provided the financial support to purchase the e-bikes and then partnered with local bike shops that own suitable premises and employ office/admin/maintenance staff who can host and operate the service at significantly reduced cost compared to the public sector providing the service on its own. The private sector bike shop subsumes the operating cost of the bike hire within their existing premises and staff costs and only receive public sector payments to cover bike/vehicle maintenance costs. Their motivation is to increase the number of people cycling, who may then go on to purchase their own bike from the shop. The users of the hire service may also purchase cycle accessories from the shop.

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E-bike sharing schemes are often considered suitable only for physically able users, however, e-bikes have begun to become very popular among the active old population. In the pilot trial 15% of resident users were over 65 and 20% were 56-65 years old. The local bike shops have established arrangements with local health practitioners who refer patients that would benefit from use of the e-bike (e.g. those with hip, knee and respiratory conditions). In addition, the transport authority is working to extend the e-bike scheme to less able older users through introduction of e-trikes, in partnership with both the local bike shops and local care homes. However, for some disabilities, bikes or e-bikes will not provide a suitable option and in such cases other asset sharing schemes such as car clubs with adapted vehicles (e.g. hand control driving devices) may provide a better solution.

BM2: Asset sharing in rural or peri-urban areas where the users of the asset are individual members of the public – E-BIKESHARING

BM Canvas Table

1- Market & Customer Segments

Mass Market: Since this BM is addressed to the whole population of rural and peri-urban areas, the customer segments are focused on one large group of customers with broadly similar needs and problems (that are related to convenient and accessible transport modes).

User needs:

- Target customers for this BM find some trips infeasible if they do not have access to conventional transport modes, creating the need of improving their **accessibility** to certain places.
- Therefore, with the implementation of asset sharing schemes, their need for **convenient** transport modes can be fulfilled for some trips.
- The lack of transport options for the users to perform certain trips creates the need to improve their **empowerment**.

2- Vulnerable Users & Prioritised Areas

Young people, students and tourists who need a short-term hire for a certain activity

Active elderly for social and leisure/fitness purposes (in the case of e-bikes)

Residents suffering from fuel poverty due to high rural fuel costs.

Unemployed who need long term hire to access job opportunities or training.

3- Social Demographic Barriers

Complexity of travel options.
High car ownership and low public transport use.
Population variation and isolation.

4- Value proposition

Short term hire: Provide alternative travel around rural areas, more affordable & accessible by offering a shared mobility service.

- To improve the experience of more sustainable travel options that may not be considered.
- To provide a profit-making service to tourists in order to cross subside use by locals

Long term hire: Offers the possibility to have a flexible transport mode for a temporary period.

- To access specific training, or to help unemployed locals access job opportunities with the ultimateaim they purchase their own transport once they can afford it.
- To provide active transport to aid recuperation from injury or illness (in case of e-bikes).

5- Mobility Gaps Addressed

Improvement of accessibility
More active travel options

6- Communication & engagement

Advertising to let vulnerable users know about existence of these services.

TV advertising
Radio advertising
Newspaper advertising
Local community centres and hubs

Marketing to visitors / tourists where applicable.

Utilise promotion at public transport interchanges

Build partnerships with local businesses to promote the use of the shared asset amongst their staff / clients.

9- Key Resources

Fleet of shared vehicles (e.g. e-bikes, mopeds, cars)

Premises to offer vehicle hire services

Local businesses that can provide in-house maintenance.

10- Key Activities

Maintenance and management of services (e.g. through partnership with local businesses).

Partnership building for local referrals

Identify where the infrastructure allows to implement these services

11- Key Partners

Public authorities

Private sector partners or community organisations / transport providers

Social enterprise companies.

7- Organisational & Operational context

Delivery through Public-Private Partnership arrangement: Public sector to purchase assets; private partner with premises and employ existing office/admin to host and operate the service. This form of partnership is effective where staff input is limited to managing the service and no driver costs are incurred. Private sector partner is a local business, preferably with in house maintenance capability, and has strong presence in the local community and can act as the 'local champion' for the service. This could also be done by social enterprise companies in place of private sector partner in some circumstances.
Both public and private sector partners work with employment, health and social care sectors to identify vulnerable users who would benefit most from a longer-term hire (particularly in non-tourist season).

12- Cost Structure

Asset purchase (from public sector)
Operating costs (from user revenues)
Maintenance and management (from user revenues and possibly partnership funding)
Marketing

8- Revenue Streams

Revenue from users' payments (premium charges for tourist use)
Private sector partners receive maintenance and management revenue from the public entity and indirect sales of merchandise to e-bike scheme users.
Sponsorships from local businesses

15- Social Innovation

Referrals from local community businesses and service providers (e.g. health services) for staff/client use of shared asset.

13- Inclusion Principles/Goals

Accessible, Convenient, Empowering

14- Technology

Booking technology for hiring asset. Some partnerships allow shop booking without technology.

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4.2.4 Potential for transferability

Target area

	Very low	Low	Medium	High	Very high
Rural/remote areas	☐	☐	☐	☒	☐
Rural town served by PT	☐	☐	☒	☐	☐
Peri-urban and suburban areas	☐	☐	☐	☐	☒
Urban areas	☐	☐	☒	☐	☐

The BM suggests a wide transferability with regard to the area type. In urban area the users can prefer the e-bikes for medium and short distance but, for longer distance, Public Transport could be a competitor. Also there may be issues with competition law in urban areas where several bike shops compete against each other. Alternative delivery mechanisms will likely be more suitable in urban areas. Peri-urban and suburban areas might be perfect for this service as a first mile solution since the area is quite isolated, but close enough to an urban area. The demand in rural/remote areas might be high in these areas but the accessibility of the service depends on the nearest local (bike) shop that provides this service. The transferability over different areas seems more limited by cultural questions (i.e. use of bike as travel model, awareness of using sustainable transport modes, etc.) rather than the type of area. Nevertheless, the features of the area can influence too: i.e. the maintenance status of the road, the measures adopted to improve safety conditions for bikers.

Vulnerable users

Elderly in good health status but not able to ride pedal cycles over long distances, but e-bikes increases their range and confidence to cycle significantly. People without other travel options or suitable alternatives. Longer term hire of several weeks is required for accessing work and can help young people or unemployed access job or training opportunities for the duration of a course or until they can afford to purchase their own form of transport. In urban areas, low income households do not always have a secure bicycle parking and bikes might get stolen or vandalized and so rental options can look attractive. Anyway, it must be underlined that this is not a solution for "all": the inability to ride a cycle means that certain physically impaired people and the frail elderly can-not be users of this service. However, the transport authority is working to extend the e-bike scheme to less able older users through introduction of e-trikes using volunteer riders, in partnership with both the local bike shops and local care homes.

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Challenges and opportunities

Actor	Challenges	Opportunities
Public Authorities	Choose correctly which types of asset to purchase that meet the needs from each area. Difficulty of deploying such a service in rural areas without a commercial environment.	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.
Private sector service providers	Adaptation of facilities to provide maintenance and management of the services. Carry out operation of the service (i.e. booking, asset control).	Increase in the number and type of people using bikes, and therefore buying merchandise. Many people who try e-bikes through shared hire scheme go on to purchase an e-bike.
Users	Change of behaviour by adapting to new mobility schemes that give less weight to private car and enhance collective and sustainable transport options. Confidence in ability to use bike or e-bike (especially on road) for older persons or those with some physical disability.	More transport options that empower vulnerable users when traveling in rural and peri-urban areas. Sustainable transport options that help boosting active lifestyles. Health related benefits (for bike + e-bike services).

Financial relationships in the Business Model

Actor	Income/Funding access	Costs/Funding contribution
Public Sector		Purchase of shared asset. Contract with bike shop for maintenance costs
Private sector bike shop	Not for profit operation: User hire charges cover hosting and operating costs incurred by shop. (more expensive hire to tourists used to cross subsidise longer term hire for locals) Payments from public sector to cover maintenance costs	Hosting and operating costs largely subsumed in existing bike shop premises and staff costs. Bike shops motivated to market product in the community. More users = more potential customers for merchandise etc.

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	Users of e-bike hire go on to purchase merchandise and e-bikes from the bike shop.	
Local businesses		Sponsorship – to pay for marketing and possibly additional e-bikes or reduce hire charges for certain users
End users		Revenue from users' payments (premium charges for tourist use)

Drivers and barriers

Drivers

- Local community business-based provision of the service could change cost level and offer additional synergies, making service easier to provide economically (i.e. maintenance covered by the bike shops). This could represent the key strength point in overcoming the barriers faced by "commercial" asset sharing initiatives which have been demonstrated to be hardly sustainable outside metropolitan and larger urban areas
- Hosting hire service via bike shops reduces the technology requirements and keeps booking simple for older users.
- Increasing penetration/adoption of bike use as transport mode due to the higher awareness of the use of sustainable mode (related to environmental-friendly behaviour and health preservation) and the impacts of post COVID pandemic

Barriers

- Conflict of demand between locals and tourists if small numbers of bikes are available or when the residents want to use the bikes regularly as "personal bike". On the other side, it could become economically challenging to guarantee a widespread availability of e-bikes, considering also the lack of "local businesses" (i.e. bike shops) in rural areas.
- Hosting hire service via bike shops restricts out-of-hours hiring although arrangements can be made for late returns. This does not affect longer term hires.
- Pre-requisites should be defined to use the e-bikes thus setting a certain level of restrictions in the users' target. Furthermore, the level of social acceptance among the users (i.e. older people, use with bad weather conditions, acceptance of "shared mobility" schemes, etc.) could restrict the market also.

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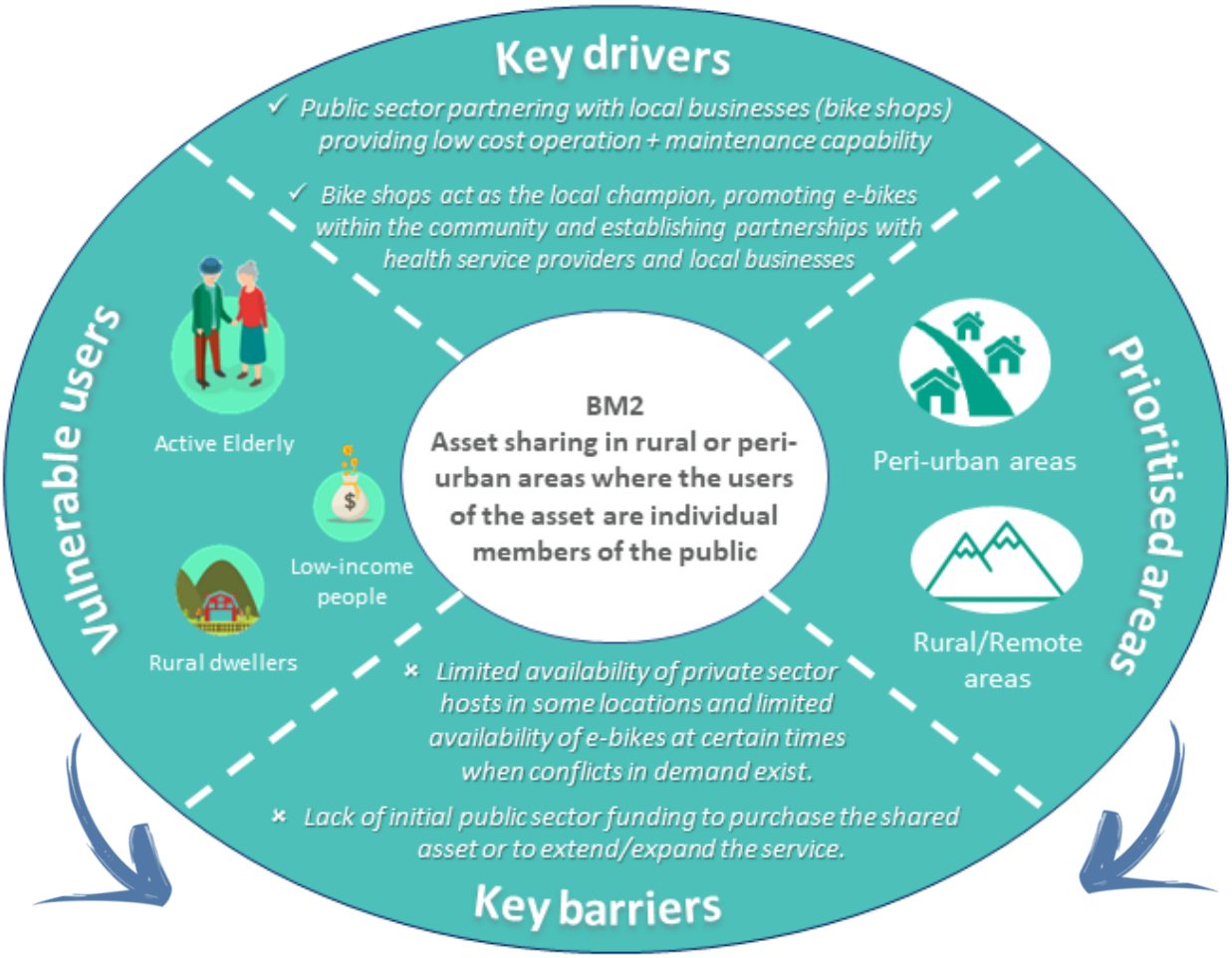
	Strong barrier	Weak barrier	Neither barrier nor driver	Weak driver	Strong driver
Implementation of technological enablers	☐	☐	☐	☒	☐
Acceptance or usability of ICT tools	☐	☐	☐	☒	☐
Regulatory and legislative framework conditions	☐	☐	☒	☐	☐
Organisational and operational aspects	☐	☒	☐	☐	☐
Social Innovation	☐	☐	☒	☐	☐

4.2.5 Post-COVID 19 and second wave impacts

COVID-19 negative impacts	COVID-19 indirect positive effects
Entity: weak negative impact Description: The sanitisation procedures of the bikes may compromise the business model of the service, due to the additional costs needed for cleaning. As all bikes are returned to the staffed bike shop, main contact points requiring disinfecting are handlebars and seats, and as the turnover of users is relatively infrequent (each hire lasting several hours minimum) the cleaning demands can be easily managed.	Entity: strong positive effect Description: Bike as individual transport mode are seen as "safer" transport mode compared to collective ones (i.e. Public Transport, ridesharing, etc.)

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

4.2.6 Summary and key recommendations for long-term sustainability



Key recommendations for long-term sustainability

Public sector stakeholders should take the leadership of local actors in order to coordinate the establishment of public-private partnership. Transparency and equality (fair conditions) issues need to be considered in the involvement of private organizations (shops) in this partnership. Transparent tendering of the required services by the public side is required and conditions for participating in the tendering process should be defined allowing all interested parties to participate

Responsibilities allocated to public and private organisations need to be specified in detail to avoid gaps and to facilitate the interactions between the two sides. Asset maintenance is an important, but often overlooked, aspect in the partnership

The pricing system can be set up in a way that regular use (for locals) is cheaper than short-term/one off use by non-frequent users but care needs to be taken to ensure this does not generate the perception of unfair conditions

Special attention should be focused on creating awareness on the existence of the service through communication and establishing partnerships in the community to receive referrals from local organisations. In case of e-bike/mopeds, a training courses could be required before accessing the service

This BM is presented as general asset sharing, so including cars as possible option. A "winning" Business Model for car sharing in small/medium urban and rural areas has not been explored yet. Heavy subsidy from Public Authorities should be envisaged and cars will serve only small groups of "vulnerable users" thus failing in addressing a market scale appropriate for long-term sustainability

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4.3 BM3: Peer-to-peer ridesharing services

Related Business Concept: Expand Ride-Sharing - *Utilise volunteer ride-sharing options to plug gaps in core service at low cost*

4.3.1 Introduction to the business concept

Peer-to-peer ridesharing services include 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 for non-essential trips at a low cost and also increase integration to the core transport network.

4.3.2 Overview of the business model

In rural areas, peer-to-peer volunteer lift giving services where individuals use their own private vehicle have the potential to fill some of the gaps in the public transport network, delivering non-essential transport for social, shopping and leisure purposes. This expands 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 in management and coordination of rides and in attracting and retaining volunteers. Usually, larger scale schemes are managed by community transport groups using a paid manager supported by volunteer staff.

4.3.3 Pilot reference: The Flanders Pilot Lab

Within the INCLUSION project the Flanders Pilot Lab involved providing enhancements to an established ridesharing service. The Flanders area of Belgium provides a mixture of urban, peri-urban and rural geographies, but public transport does not offer any door-to-door solution creating difficulties for many older persons to access the network. To overcome this gap in provision, TAXISTOP, a social enterprise company (and INCLUSION project partner), offers a door-to-door ridesharing service for 35,000 elderly persons in Flanders through their Less Mobile Stations (LMS) provision using volunteer drivers. In 80% of the Flemish municipalities, there is a partnership between the municipality and Taxistop to organise this service. Taxistop offers training, insurance and software, whilst the municipalities conduct the recruitment and acceptance of members and volunteers, and the local dispatching. The journeys are offered using 2,500 voluntary drivers in their private cars. Around 400,000 rides are provided per year. The business model that follows is developed by TAXISTOP based on their knowledge and experience delivering the LMS services.

BM3: Peer-to-peer volunteer ridesharing services

BM Canvas Table

1- Market & Customer Segments

Segmented customers: Peer-to-peer ridesharing services are targeted to serve users that have slightly different needs and capabilities, sharing the fact that they cannot use conventional public transport services, either because they are not door to door or because they simply do not exist!

Users:

- Target users for this service need door-to-door services in order to travel to certain destinations.
- Transport services for vulnerable users need to be **affordable** and **convenient** compared to expensive private door-to-door transport services.
- The lack of public transport options creates the need for more community led **empathetic** and **empowering** transport schemes.

2- Vulnerable Users & Prioritised Areas

Different categories of vulnerable user (rural dwellers, elderly, physically disabled, sensorially disabled, low income, people without car license, women) in rural and peri-urban areas with limited conventional PT service provision and lack of commercial service providers.

3- Social Demographic Barriers

- Women using the service to be able to choose women drivers.
- Peer-to-peer services often exclude physically disabled and those require an accessible vehicle
- Volunteers may not feel comfortable transporting users with additional needs that they are not familiar with or do not understand.
- Social exclusion

4- Value proposition

Users get affordable transport in places where no alternative exists and companionship

Freedom to go to a certain activity or to visit family and friends

Volunteers get feeling of satisfaction, pride and identity

5- Mobility Gaps Addressed

Plugs gaps in public transport for those without access to own car. Not suited for essential trips as services cannot be guaranteed.

6- Communication & engagement

Promote the service among places with people in need of this service (nursing homes, hospitals, local communities etc.), as well as local businesses.

Encourage volunteer participation by organising social events

9- Key Resources

Volunteers

Management and coordination team for large volunteer schemes

10- Key Activities

Awareness training on vulnerable users' needs for volunteer drivers

Trained volunteers to have access to a pool of accessible vehicles

Community driven activities

11- Key Partners

Community organisations

Local charity

Social enterprise company

Volunteer staff

7- Organisational & Operational context

Volunteer schemes run by community sector with role in management, coordination and attracting & retaining volunteers. Public sector grant funding to be provided to community sector to provide volunteer training and to meet management costs. Larger schemes coordinated by social enterprise companies with paid staff.

These services are most useful for non-essential transport such as social, shopping and leisure purposes in rural and peri-urban areas.

12- Cost Structure

Management and marketing
Volunteer driver scheme payments to drivers to cover petrol and wear and tear.
Staff time to recruit volunteers

8- Revenue Streams

Volunteer driver ridesharing: Revenues from users' payments. Users typically pay a low reimbursement per km to drivers to use these services. Contributions to volunteer drivers is limited by legislation to ensure that private car insurance policies remain valid.
If shortfall in operating costs, this can be funded (or part funded) through public sector grants, if there is no competition
Sponsorship or donations from local businesses.

15- Social Innovation

Providing an affordable option for non-essential trips to ~~all~~ vulnerable users | Use of volunteers on such schemes | Boosting the community feeling between elderly people and volunteers

13- Inclusion Principles/Goals

Accessibility, Affordability, Empowerment, Empathy, Convenience

14- Technology

Technology to match those offering lifts to those seeking lifts

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4.3.4 Potential for transferability

Target area

	Very low	Low	Medium	High	Very high
Rural/remote areas	☐	☐	☐	☒	☐
Rural town served by PT	☐	☐	☐	☒	☐
Peri-urban and suburban areas	☐	☐	☐	☒	☐
Urban areas	☐	☐	☒	☐	☐

The BM is widely transferable among the different types of prioritized areas, in particular those poorly served by Public Transport. In any case, being largely addressed to cope with the needs of specific categories of "vulnerable users" (who are not duly served by conventional Public Transport), this BM can deal also with urban and suburban areas.

Vulnerable users

The target segments of this BM are elderly, people with special needs (e.g. Physically impaired, sensorially impaired, low income, people without driving license, etc.), non-car owners.

Challenges and opportunities

Actor	Challenges	Opportunities
Community transport organisations	Management and coordination of rides. Attracting, retaining and coordinating volunteers, ensuring a rigorous vetting and training.	To provide a door-to-door transport service that meet vulnerable users' demands and are affordable for them. No capital spending on vehicles needed.
Volunteers	Being empathetic and understanding of vulnerable users' needs and capabilities. Ensuring safety and trust when providing ridesharing services. Lack of accessible vehicles that some vulnerable users need. Encouraging volunteers to widen the range of users they are willing to help.	Ensuring inclusive mobility for all. Allow volunteer drivers access to a shared accessible vehicle pool Strengthened social cohesion Incentives can be used to encourage volunteers to agree to transport different types of user or at times of day most demanded.
Users	Reliability (availability when needed) of services which rely on volunteer drivers.	Ability to reach more destinations using ridesharing services instead of more expensive door-to-door transport services. Social companionship with volunteers

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Financial relationships in the Business Model

Actor	Income/Funding access	Costs/Funding contribution
Public sector		Funding provided to cover volunteer recruitment, vetting and training Funding provided to cover management costs for larger scale schemes Funding to cover shortfall in operating costs incurred.
Community / not for profit organisations	Funding received from public sector grants for volunteer recruitment, vetting, training Management staff costs funded by public sector grants for large scale schemes. Shortfall between revenues received from passengers and payments paid to drivers comes from public sector grants or sponsorship money/donations	Volunteer staff provided for most day to day activities
Volunteer drivers	Compensation payments received to cover fuel and vehicle wear and tear costs (maximum amount capped by national regulation)	Provide time and private vehicle free of charge
End users / passengers		Payments to drivers (via scheme managers) to cover fuel and wear and tear costs (maximum amount capped by national regulation).
Local business sponsorship / donations		Sponsorship money used for marketing and to cover shortfall in operating costs between revenues received from passengers and compensation payments made to drivers

Drivers and barriers

Drivers

- Low cost solution requiring little to no capital funding for vehicles and incurring minimal operating costs.
- Volunteers want to transport the elderly to help them. The social motivation, in the end, is essential. The familiarity that builds among passengers and drivers is usually one of the greatest benefits of the service
- Peer-to-peer service schemes can also be combined with accessible vehicles owned by a local authority/public institute

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Barriers

- Recruitment, vetting, training of suitable volunteers
- Services not suited for essential trips since availability of volunteers cannot always be guaranteed.
- A main issue is the question of whether this can be expanded to other market segments other than elderly or disabled people, in particular the need to enlarge the service to young drivers and users
- As in BM4, the transferability of this BM depends country by country on the compatibility of the regulation: in particular, some small adaptation could be required (i.e. the possibility to give monetary incentives to the drivers participating to the scheme)
- Insurance issues are a major source of uncertainty for volunteers, even if they have less relevance in practice. The insurance industry itself could be more helpful to cope with this need offering discounts or incentives
- Transport of disabled/impaired should require special equipment (out of the standards for commercial cars) thus limiting the wider transferability potential of the BM

	Strong barrier	Weak barrier	Neither barrier nor driver	Weak driver	Strong driver
Implementation of technological enablers	☐	☐	☒	☐	☐
Acceptance or usability of ICT tools	☐	☐	☒	☐	☐
Regulatory and legislative framework conditions	☐	☐	☒	☐	☐
Organisational and operational aspects	☐	☐	☒	☐	☐
Social Innovation	☐	☐	☐	☒	☐

4.3.5 Post-COVID 19 and second wave impacts

COVID-19 negative impacts	COVID-19 indirect positive effects
Entity: strong negative impact Description: People, especially elderly, will be reluctant to share the vehicle with some else, even if they are friends. More strict sanitation of the vehicle will be required. Volunteers may be less inclined to offer their services to transport passengers.	Entity: strong positive effect Description: COVID scenario can offer the opportunity to extend/adapt the service from a lift giving scheme to (at least partially) delivering shopping and medicines.

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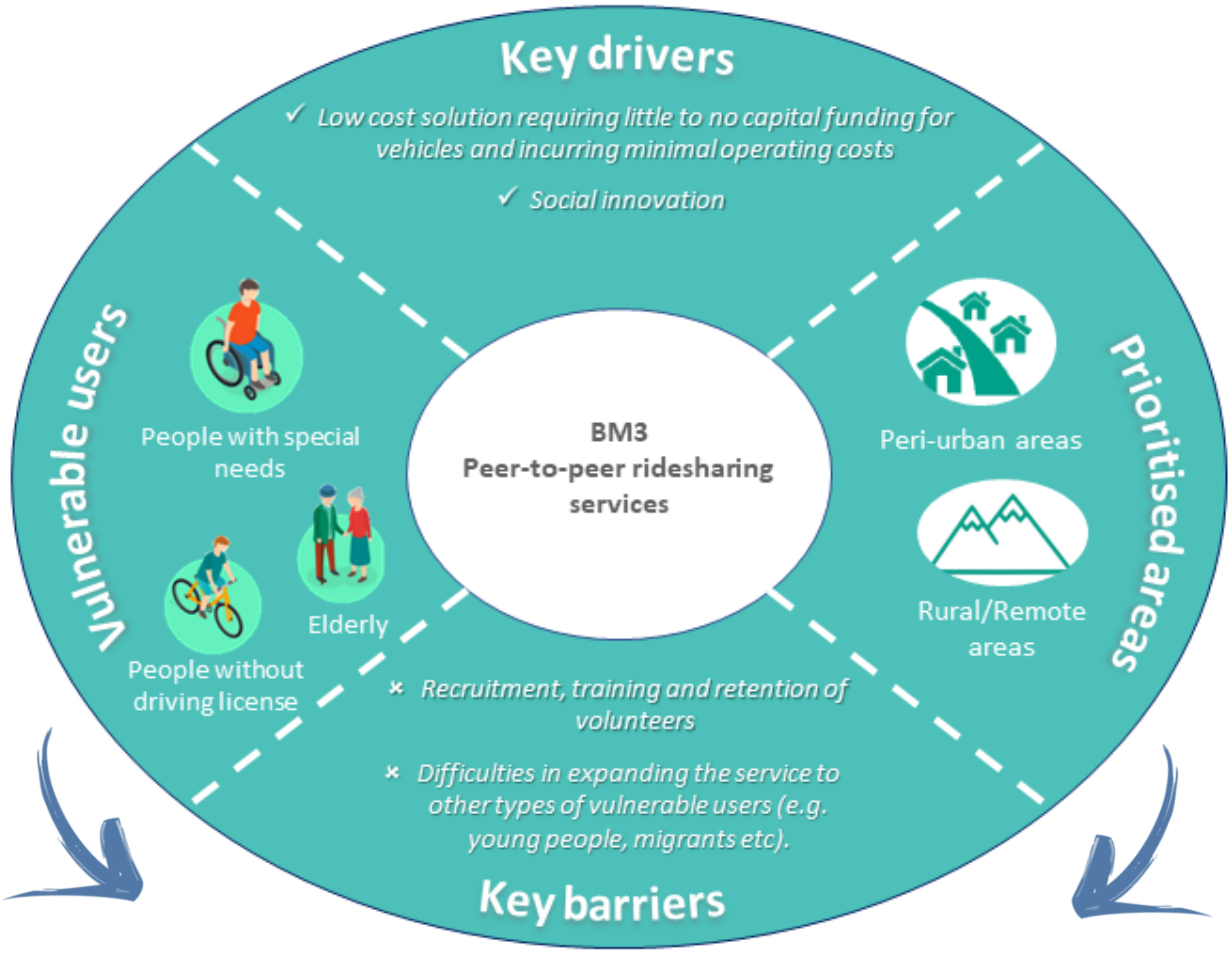
4.3.6 Summary and key recommendations for long-term sustainability



Key recommendations for long-term sustainability

The technology is not so crucial for operating the BM. In Europe (i.e. in Germany) there are local initiatives that work smoothly and are very low-tech. Booking operation can be carried out by phone, in particular when the number of requests is low enough and the network not too complex. On the users' side, INCLUSION Pilot Lab experience in Flanders Region demonstrates that the introduction of ICT enabled booking procedure (APP) could not produce positive effects when the users are already well familiar with other traditional options and "on-demand" requests is not perceived as a primary need

The engagement of local sponsors / ambassadors / VIPs to support the scheme are all key actions to maximize the effects of the promotion activities, the impacts on target market and the long-term sustainability

A stakeholder is needed to act as "leader" of the other involved actors, bringing all together

The transformation into a regular public organisation/funding construction (instead of vulnerable and unsure pragmatic arrangements with volunteers, etc.) could be a future challenge for this BM

Driver training could be very important not only for providing high quality level of service but even more to unlock public sector discount (i.e. UK DBS)

Reward and discount (i.e. car washing) are useful incentives to attract drivers (in particular those more difficult to get involved: i.e. youngers)

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4.4 BM4: Not-for-profit collective transport services that better meet vulnerable user demands in rural areas

Related Business Concept: Encourage new collective services - *Lower cost services that better meet vulnerable user demands*

4.4.1 Introduction to the business concept

The majority of collective services provided in peri-urban or rural areas are to replace poorly used conventional public transport services, to provide a service in rural areas where no other public transport exists or to complement existing public transport service with further lines or trips. Commonly these collective services form a disjointed array of demand responsive bus services. These are sometimes provided under service contract by private sector providers but are more often provided at lower cost by not-for-profit community sector providers to serve specific purposes where a gap in the conventional network is evident. Vehicles can vary in size according to the demand being served but typically are small minibuses or large people carriers.

4.4.2 Overview of the business model

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. The funding could be through public-community partnerships where public-sector grant funding should be used to purchase or lease a 'pool' of standardised fully-accessible vehicles, of suitable size for the areas they serve, allowing their use on a core network of flexible public bus services driven by professional drivers (or by trained volunteers on small bus). The community organisation supplies the driver and operation of the service, the funding for driver training and the salary (in case the service is operated by professional drivers).

If public-sector finances accessible vehicles for the collective transport service then, due to 'state aid' rules, those vehicles can only operate on non-commercial services and where there is no other competition in the area to provide the service to the target users. This limits their use to community sector, charities and social enterprise organisations, operating on a non-commercial basis. This approach helps rural areas to meet equality legislation requiring all bus, rail and taxi vehicles to be accessible to disabled persons with a range of impairments by 2020. Fare revenues typically only cover a fraction of the operating costs in rural areas (usually less than 25%) when paid drivers are used. Public sector funding is required for the shortfall, although this requirement could be reduced through sponsorship from local businesses that may benefit from the existence of the new service. Volunteers can be used also for undertaking other part of the services (e.g. management of bookings, funding research, relation with the authorities, etc.).

With a partnership arrangement, the public sector can specify minimum operating times and areas covered by the service while keeping flexibility in terms of specific stops and pick-ups. Including schools or hospitals in the areas served can reduce the need for dedicated services for education or health clients and pull in financing from these other public-sector partners to help fund the service.

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4.4.3 Pilot reference

Despite any INCLUSION Pilot Labs specifically focused on this Business Model, the overview of 50+ case studies of inclusive and accessible mobility solutions revealed several examples of this transport service. To name a few:

- De Bij Bus: The service runs within the Wassenaar village of the Netherlands and is a demand-responsive, door-to-door bus service that fills transport gaps for elderly and lightly handicapped people who cannot use PT. The service is used for visits to family dentist, physiotherapist, health centre, hospital, hairdresser, etc. All buses are designed for easier access, with low steps and convenient handles, and one bus is wheelchair accessible. The drivers, most of whom are volunteers, are ready to help any passenger to get in and out of the vehicle and help them from door to door.
- Bürgerbuses in NRW: This service consists on 8-passenger voluntarily driven vans that operate in the same way as traditional bus services. They run on a fixed route in rural and semi-rural areas of North Rhine-Westphalia with a set timetable and designated stops, filling the gaps in the PT network by providing first and/or last mile connection to larger cities. The passenger capacity is limited to 8 seats because volunteer drivers do not have bus driver licenses.
- Wensbus ("Wish bus") Limburg: Additional on-demand volunteer transport service supported by the Province of Limburg, NL. The service is run by a volunteer non-profit organisation, supplementary to PT and transport targets and make offers that are accessible and cost effective. The service uses cars or minibuses that transport between 4 and 8 people and operates in 21 small core regions that are underserved or not served at all by PT due to budget cuts. This service helps older people living in the countryside of Limburg at risk of being socially excluded, particularly those who can no longer drive on their own

inclusion

BM4: Not-for-profit collective transport services that better meet vulnerable user demands in rural areas

BM Canvas Table

1- Market & Customer Segments

Segmented customers: Not-for-profit collective transport services can enhance the level of service provision in the cases conventional PT is not economically convenient

User needs:

- Customers addressed in this BM have the need for an **affordable** and **convenient** transport option that allow them to avoid the use of expensive door-to-door transport services.
- The gap in conventional PT services for vulnerable users in rural and remote areas requires more **accessible** and **empowering** transport scheme

2- Vulnerable Users & Prioritised Areas

The service can be started for addressing the needs of people at risk of isolation and social exclusion in remote and rural areas. Afterwards, the target user groups can be expanded to include people in rural areas without car and vulnerable users such as elderly or people with reduced mobility who need periodic access to social activities or daycare facilities.

3- Social Demographic Barriers

Especially for services grouping different rural areas/counties, it is important (but not always easy) to have a number of voluntary sector representatives from each area and target group. This aspect is important due that each volunteer can highlight the specific mobility and social needs of target rural people.

4- Value proposition

Reduction of social exclusion in rural areas by improving access to and from sparse and remote villages.
Fill the gap in the service provision which is usually made of few transport services operated based on the resources available.
The participation of volunteers is determinant for 1) having an in-depth understanding of the actual needs of rural population and 2) reducing the operational costs.
Cost reduction compared to conventional or door-to-door service

5- Mobility Gaps Addressed

Mobility needs of people living in rural and remote areas where the mobility choices/options are limited and/or there is low provision of public transport services

6- Communication & engagement

Vulnerable users can be made aware about the service via the development of focus groups and local promotional campaign.
The competent authority, such as transport agency or county council, has to set up an open dialogue among stakeholders in order to avoid competition or confrontation between the non-profit organisation and the local bus operators and at the same time for improving the integrations between different services.
Communication with the local communities / no-profit organizations (in particular the ones acting as local initiatives coordinator), or local LEADER groups, if any, for raising awareness about the service and getting national and local government to give higher priority and support.

9- Key Resources

Driver trainers. Selected drivers. Local Ambassadors for the recruitment of the drivers and the promotion of the service. Staff of Transport Operator working on Service Control for service planning, integration and monitoring

10- Key Activities

Service planning (co-creation design with target segment can help). Definition of service level agreement and performance indicators. Set of monitoring procedures. Service promotion

11- Key Partners

Public sector for the provision of part of the resources.
Local Communities and working group for getting national and local government to give higher priority and support to developing rural mobility services.

7- Organisational & Operational context

The services have to be carried out by organisation with a license emanated by the national regulation. Then, the service could be operated under the umbrella of a Transport Company of which the community organizations should as “sub-contractor”. Call centre has to be provided for registration and booking. Services can be operated with mini-bus fully accessible vehicles, and drivers can be trained for helping passengers drop on/off operations. To the extent possible, services are scheduled to connect with other scheduled bus routes.

12- Cost Structure

Major costs are due to the purchase of the vehicles and the costs for the operation of the service (mainly cost of the drivers where paid drivers are used, fuel and maintenance). Other costs are due to the purchase and/or maintenance of the ITS software (if implemented, see 14).

8- Revenue Streams

Passenger fare revenues
Public financial support (State level, transport sector and Health sector)
Local contributions (advertainments, sponsorships)

15- Social Innovation

Not-for-profit organisation integrating the service provision as transport provider

13- Inclusion Principles/Goals

Affordable, accessible, empowering, convenient

14- Technology

Low costs AVL solution for service monitoring, management and service reporting. Booking management sw (including APP for end-user) as a plus.

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4.4.4 Potential for transferability

Target area

	Very low	Low	Medium	High	Very high
Rural/remote areas	☐	☐	☐	☐	☒
Rural town served by PT	☐	☐	☒	☐	☐
Peri-urban and suburban areas	☐	☐	☐	☒	☐
Urban areas	☐	☒	☐	☐	☐

The most promising prioritized areas for BM transferability are rural/remote areas where collective services targeted for special needs are hardly to be sustainable due to the low density of the population and the longer travelling time. Peri-urban and suburban areas follow in the second position as well as rural areas already served by Public Transport (assuming this guarantees to transport people with special needs). In the urban areas, more competitive services can be found (i.e. volunteers associations, health services, etc.) even they could be more expensive.

Vulnerable users

The BM is targeted for people who live in "poorly-served" areas, including people without driving license and non-car owners.

Challenges and opportunities

Actor	Challenges	Opportunities
Public Authorities	Study the potential demand for this service to purchase an adequate fleet of vehicles. Specifying minimum operating times and areas covered by the service while keeping flexibility in terms of specific stops and pick-ups. Financing accessible vehicle purchase.	Providing an 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. Provides connections to conventional PT network. Opportunity to encourage and finance local networks (for elderly, for young people, etc.) as a possible coordinator of the solution
Community sector	Adaptations to deliver flexible collective services that do not follow traditional PT	Providing a service that better meets and adapts to vulnerable users' demands.

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transport providers	schemes (e.g. flexible specific stops and pick-ups) Attracting volunteer drivers. Paid drivers can improve reliability and stability of the service but incurs significant cost.	Local champions for the service well placed to raise awareness and promote it to difficult to reach groups in the community.
Other public-sector partners (e.g. health, social, education)	Reallocation of client transport budgets to help finance the collective transport service.	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. .
Users	Adaptation to new forms of flexible collective transport services (e.g. booking, flexible stops etc.).	Reduction the need for car ownership by having this accessible, affordable and flexible option. Greater independence and freedom for vulnerable and isolated citizens.

Financial relationships in the Business Model

Actor	Income/Funding access	Costs/Funding contribution
Public Sector (Government department, Transport Authorities, Municipalities)		Grant funding to purchase or lease a 'pool' of standardised fully-accessible vehicles; contribution in the funding for the operation of the service
Other public-sector partners (e.g. health, social, education)		Contribution in funding and sustaining the service
Community sector providers (no profit organisations, charities and social enterprise organisations, operating on a non-commercial basis)	Income by passenger revenues; advertisement and sponsorship fees	Funding for driver training and the salary
Local enterprises and businesses		Contribution to the expenses by sponsorship fees

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Drivers and barriers

Drivers

- The transportation of people with special needs in rural and remote areas is still a "uncovered" market segment as the public services (i.e. health) are able to answer only to specific needs (and can be expensive for the others) and collective transport is not yet able to provide "full accessibility for all" in such a context; this hybrid solution can suit well into this niche market.
- Cross-sector synergies to provide door-to-door services removing the need for separate expensive dedicated client transport often using taxis

Barriers

- The operational implementation of the BM should change based on regulation in the country (as per BM3): community-based services are not a general scheme applicable everywhere in the same manner. Cooperation between formal Public Transport Operators and community-based service has not been yet explored in some countries as well as the possibility to fund it with public resources (directly or under a public-community partnership)
- Collaboration between Public Authorities, Public Transport Operators and community organizations are not so easy to establish as "siloed thinking" approach (reflected into the regulation) must be overcome
- Costs of the equipment for special needs assistance should impact on the launch of the service as these costs should be entirely sustained by public sector (assuming that donors or sponsorship can play just a minor role)

	Strong barrier	Weak barrier	Neither barrier nor driver	Weak driver	Strong driver
Implementation of technological enablers	☐	☐	☒	☐	☐
Acceptance or usability of ICT tools	☐	☐	☒	☐	☐
Regulatory and legislative framework conditions	☒	☐	☐	☐	☐
Organisational and operational aspects	☐	☐	☒	☐	☐
Social Innovation	☐	☐	☐	☒	☐

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4.4.5 Post-COVID 19 and second wave impacts

COVID-19 negative impacts	COVID-19 indirect positive effects
Entity: weak negative impact Description: Compared to BM3, this BM is less effected as the vehicles are not the private one (owned by the volunteer) but dedicated to the service (as the traditional collective transport). Post COVID restrictions related to restrictions to vehicles' capacity do not affect the BM (as it allows transportation of few people by its own). A slight increase of operational costs will be required for the sanitation of the vehicles.	

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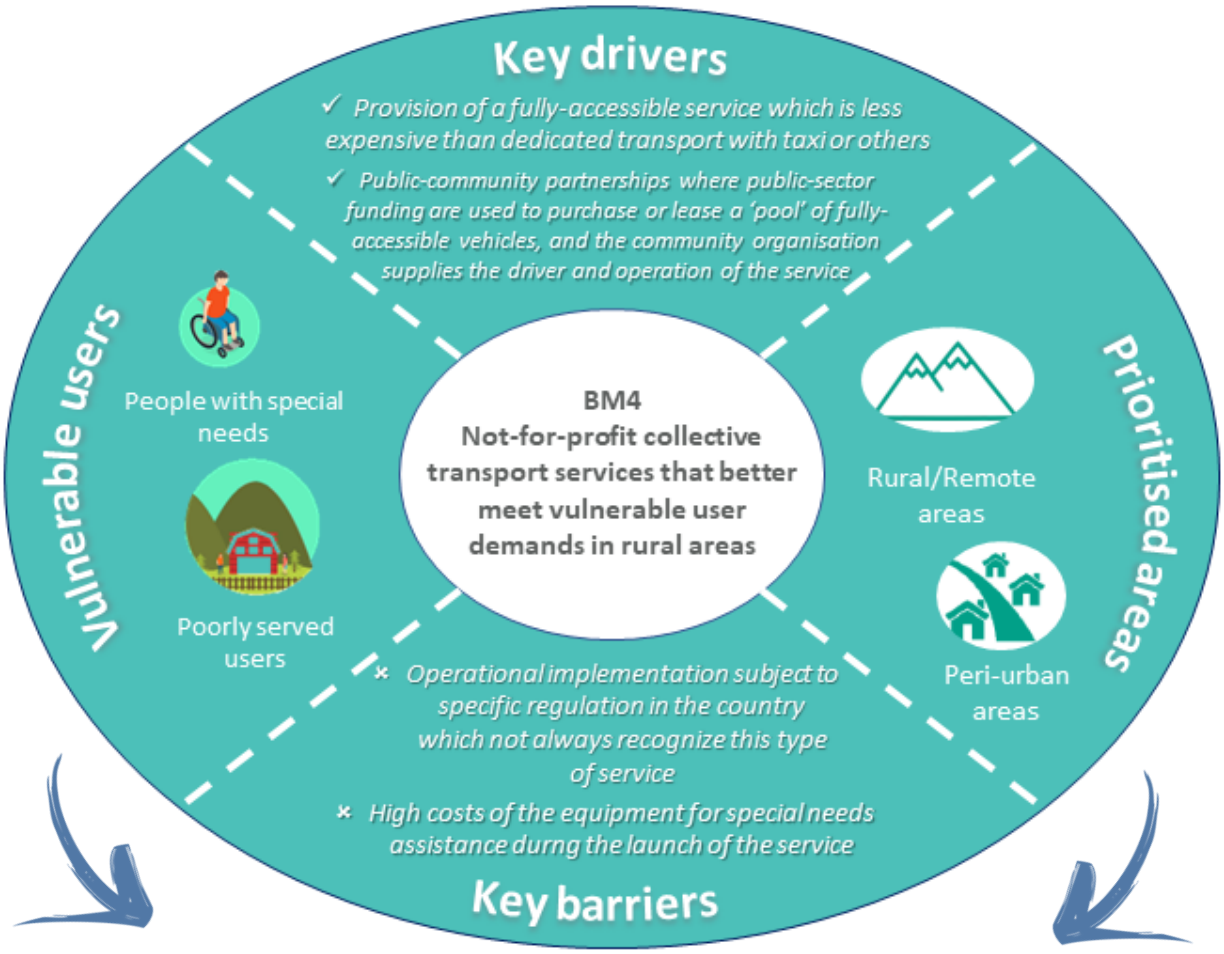
4.4.6 Summary and key recommendations for long-term sustainability



Key recommendations for long-term sustainability

This BM is more a framework concept which can be implemented in different ways in the practice. From one hand this means that the BM is highly flexible and transferable, from the other, its introduction to local context should require adaptation of the elements of the framework concept

Service reporting procedures should be kept simple and documentation requirements be limited to what is strictly necessary in order to avoid demanding workflow on the community organizations related to the service operation.

Donors and sponsor can reduce the costs for purchasing the equipment for assistance of special travel needs and contribute to service operation

Professionalising the service and using standardised fully accessible vehicles enables the possibility for other public-sector clients to be transported on these vehicles. This is especially beneficial where hospital or health centres and social care establishments are within the service area of the collective transport service

"Mouth by mouth" promotion convince other people living in the area to use the system/delivering

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4.5 BM5: New forms of subsidised travel through MaaS systems

Related Business Concept: Discount payments through MaaS - *Providing financial support to users*

4.5.1 Introduction to the business concept

The concept expands the idea of offering free or discounted travel to eligible users to reduce financial barriers for travel. In this schema, the transport provider is reimbursed to compensate the reduced fare revenues; the actors involved in this process can be the transport authority, public and private service providers depending on the commercial environment (regulated or deregulated) and discount schema. Other public-sector partners may also be involved (e.g. social care who reimburse free travel for their clients). In peri-urban and rural areas, however, the choice of discounted services may be limited and not inclusive of emerging solutions like 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.

A MaaS-type system can offer a subscription payment model for all transports in the area and has then the potential to provide more affordable choices to vulnerable users supporting more independent travel. A MaaS technology platform offers a mechanism by which different sectors and organizations can provide funding for discounted travel by their vulnerable client groups. All this can motivate commercial mobility providers to cater for vulnerable users.

4.5.2 Overview of the business model

An ideal MaaS systems for this business model require a technology platform that integrates data on availability, timings, routes and cost of use for all transport services. To maximise choice, these need to not only include the conventional public transport services and taxis, but also flexible collective public bus services, shared taxi services, volunteer car service and possibly the peer-to-peer lift sharing offers.

The MaaS system would also need to contain tailored information on types of vehicles and driver profiles to allow vulnerable users to find options that match their specific needs. In addition, other asset sharing services not involving drivers, such as car share, bikeshare, e-bike hire and moped hire services, should also be integrated in the available options. Thanks to a subscription payment individuals would be able to pre-select a mixture of transport services, with a monthly km-allowance for each service to form a package; The alternative to this is a pay-as-you go approach, whereby users select their mode of travel as and when needed, based on what is available at the time, and pay the km-rate for the selected mode.

Users can have a pre-paid package with discounted rates or a monthly personal mobility budget to spend on their travel needs as they choose. This is sometimes referred to as a 'person centred' funding approach, where the funding authority grants a personal mobility budget to qualifying vulnerable users. In this case there is no control over how the funding is allocated to service providers and it is the vulnerable users themselves who choose and pay for the services out of a mobility budget they receive.

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4.5.3 Pilot reference: the Flanders pilot Lab

The concept of mobility budget provided through MaaS App has been deployed in INCLUSION Pilot Lab in Flanders, where the MaaS Olympus App has been developed for migrant job seekers with the mobility budget included.

BM5: New forms of subsidised travel through MaaS systems

BM Canvas Table

1- Market & Customer Segments

Multi-sided platform: The implementation of subsidised travel through MaaS systems serves two interdependent Customer Segments. Concretely, this BM needs a large base of vulnerable users that receive their personalised mobility budget through this App and also a large base of transport services that want to be available in the MaaS App.

User needs:

- Customers that receive public funding for travelling need a more **empowering** system that allow them to choose the transport services freely.
- There is also a need for **accessible** and **affordable** services to be at hand.

2- Vulnerable Users & Prioritised Areas

Any vulnerable person with a statutory entitlement to transport provision could be a candidate to receive personalised mobility budgets in place of a dedicated service: e.g. for certain trips some elderly, disabled, children.

Others may receive personal mobility budgets funded via employers: e.g. Job seekers, Migrants, Low-income users.

3- Social Demographic Barriers

Digitally excluded users not being confident or not being able to use these technologies.
Issues around affordability of services for those not eligible for travel budgets.

4- Value proposition

Vulnerable users are free to individually choose the transport service that better meets their needs anywhere and at any time. Each eligible user has a personalised mobility budget to spend in the MaaS platform.

Provides motivation for wider range of mobility providers to receive bookings for 'client' transport – increased competition

5- Mobility Gaps Addressed

Increased affordability and choice for eligible users.
Improvement of network accessible and connectivity and enhancement of intermodal options

6- Communication & engagement

Communication
Advertise the App around associations and entities that help vulnerable users to encourage them to use the App.

Engagement
Provide App tutorials and trainings for vulnerable users that have difficulties understanding this technology.

Incentive for transport providers to offer services which better cater for vulnerable user needs

9- Key Resources

MaaS system that integrates data on availability, timings, routes and cost of use for all transport services.

10- Key Activities

MaaS App development and API integration with all the transport services

11- Key Partners

Private sector tech companies
Transport service providers
Public sector entities
Employers

7- Organisational & Operational context

MaaS platform development could attract venture capital investment and be developed by private sector tech companies. Delivery could also be commercially viable with the private sector organisation receiving a cut of the monthly subscription payments. However, in areas where demand is not high enough (e.g. rural areas) it is likely that deployment would require additional investment from public sector to develop the platform but also to ensure a choice of transport provision in the area since the MaaS concept requires all transport options be integrated in a single MaaS platform. → Public-private partnership funding and agreements.
The MaaS system provides a mechanism for other public-sector partners to subsidise transport for their clients to access services that meet their objectives (e.g. education authorities, employment agencies). Qualifying users are credited with their personalised mobility budget by their public-sector provider and can top up their budgets using their own income.

12- Cost Structure

MaaS Platform development and maintenance.
Additional investment in transport supply options in low density areas where commercial providers are absent.
Finance from public sector for personal mobility budgets.

8- Revenue Streams

Venture capital investment for platform development
Cut of the monthly subscription payments for use of MaaS platform
Public sector investment (for non-commercial scenarios)

15- Social Innovation

Technology inclusive for vulnerable users that gives them freedom of choice

13- Inclusion Principles/Goals

Empowerment, Accessibility, Affordability

14- Technology

MaaS platform technology

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4.5.4 Potential for transferability

Target area

	Very low	Low	Medium	High	Very high
Rural/remote areas	☐	☒	☐	☐	☐
Rural town served by PT	☐	☒	☐	☐	☐
Peri-urban and suburban areas	☐	☐	☐	☒	☐
Urban areas	☐	☐	☐	☒	☐

The most promising target areas are urban and suburban/periurban. MaaS experience on rural areas is less mature as well as the corresponding service is either not available at all or only in a very rudimentary.

Vulnerable users

The BM addresses elderly, disabled, children, Job seekers, migrants and low-income users.

Challenges and opportunities

Actor	Challenges	Opportunities
Technology providers	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.	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
PT service providers	Transition from traditional discount travel schemes to innovative subsidised payments through a MaaS App. Loss of service-based funding (service contracts) to be replaced by payments per trip (made by eligible users). Uncertainty of revenue.	Provide better PT connections through the MaaS App and the integration of other transport services. Use multimodal data collection from the App to improve the PT services taking into account the information from the users.

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Private transport service providers	Adapt the service offering to the user from traditional schemes to integration in a MaaS App. The integration in a MaaS App leads to share the platform with potential transport service competitors.	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. More opportunities for service providers not traditionally funded through service contracts. 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.
Users	Digitally excluded unable to use the service or receive the personalised budget in this platform. Users may spend their allocated budget too quickly or may not make best value choices. Some vulnerable users may have lack of trust and difficulties when using the App	Have all the transport services easily available in one App anytime and everywhere. Freedom of choice of transport mode thanks to the personalised mobility budget. Some vulnerable users will be unable to manage their personal budgets and make informed choices. This offers an opportunity for community sector organisations to act as a broker between vulnerable users and providers.

Financial relationships in the Business Model

Actor	Income/Funding access	Costs/Funding contribution
Public Sector (Government department, Transport Authorities, Municipalities)		Funding provided to transport providers supposing that the subsidy schema is in form of discounted travels for the end users. Contribution to the Public/private transport service providers for the promotion of the subsidy initiative and for operating the MaaS system. Contribution to the MaaS ICT solution provider/developer for the development/operation of the MaaS ICT tools.
Public or private transport service providers (operating following the MaaS schema)	Reimbursement for income losses due to travel subsidies provided to the end users by the public sector. Contribution from public sector for the promotion of the MaaS system and the subsidy schema.	Financial contribution to the MaaS ICT solution provider/developer for the development of MaaS ICT tools. Costs for promotion of the subsidy initiative and the MaaS system

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MaaS ICT solution developers (technology providers)	Contribution from Transport service providers for the development of the MaaS system. Depending on the financial agreements, the contribution can be shared between the Public Sector and the transport service providers.	Costs for development of MaaS system.
Final users, travellers	Funding/subsidies received in form of pay-as-you-go or km allowance. The funding is received from the public sector. It is supposed that the funding is not in form of monetary allowance provided to the user but rather in form of discounts on allowed travels.	

Drivers and barriers

Drivers

- MaaS type subscription service for vulnerable users has the potential for better tailored packages being offered to each particular client, in other words a more useful kind of assistance
- Assess which MaaS packages make sense from the customers' (market) and commercial side (sustainability of discounted prices)
- API services and "cloud" architecture to allow integration of data/services from different Operators in the covered area
- Co-creation as a key factor for making the technology as accessible as possible for the users

Barriers

- Acceptance or usability of ICT tools can be a barrier for specific target segment (i.e. elderly, migrants). High accessibility for visually impaired people should be guaranteed
- Commercial agreements between stakeholders. As these packages are expected to differ from normal MaaS products mainly in terms of prices, so there is a question on service providers as to how much discount they are prepared to give and to political decision makers as to how much subsidy they are willing to give
- Liability in case of service failure

	Strong barrier	Weak barrier	Neither barrier nor driver	Weak driver	Strong driver
Implementation of technological enablers	☐	☐	☐	☐	☒
Acceptance or usability of ICT tools	☐	☒	☐	☐	☐
Regulatory and legislative framework conditions	☐	☐	☒	☐	☐
Organisational and operational aspects	☒	☐	☐	☐	☐
Social Innovation	☐	☐	☒	☐	☐

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4.5.5 Post-COVID 19 and second wave impacts

COVID-19 negative impacts	COVID-19 indirect positive effects
Entity: Description:	Entity: weak positive effect Description: The possibility provided by MaaS to package multiple travel options (including both the standard Public Transport and other individual services such as bike sharing) to the users and related greater flexibility in choosing the means of transport trip by trip, day by day, could discourage the users in abandoning sustainable transportation due to feeling of unsafety in sharing trips with others.

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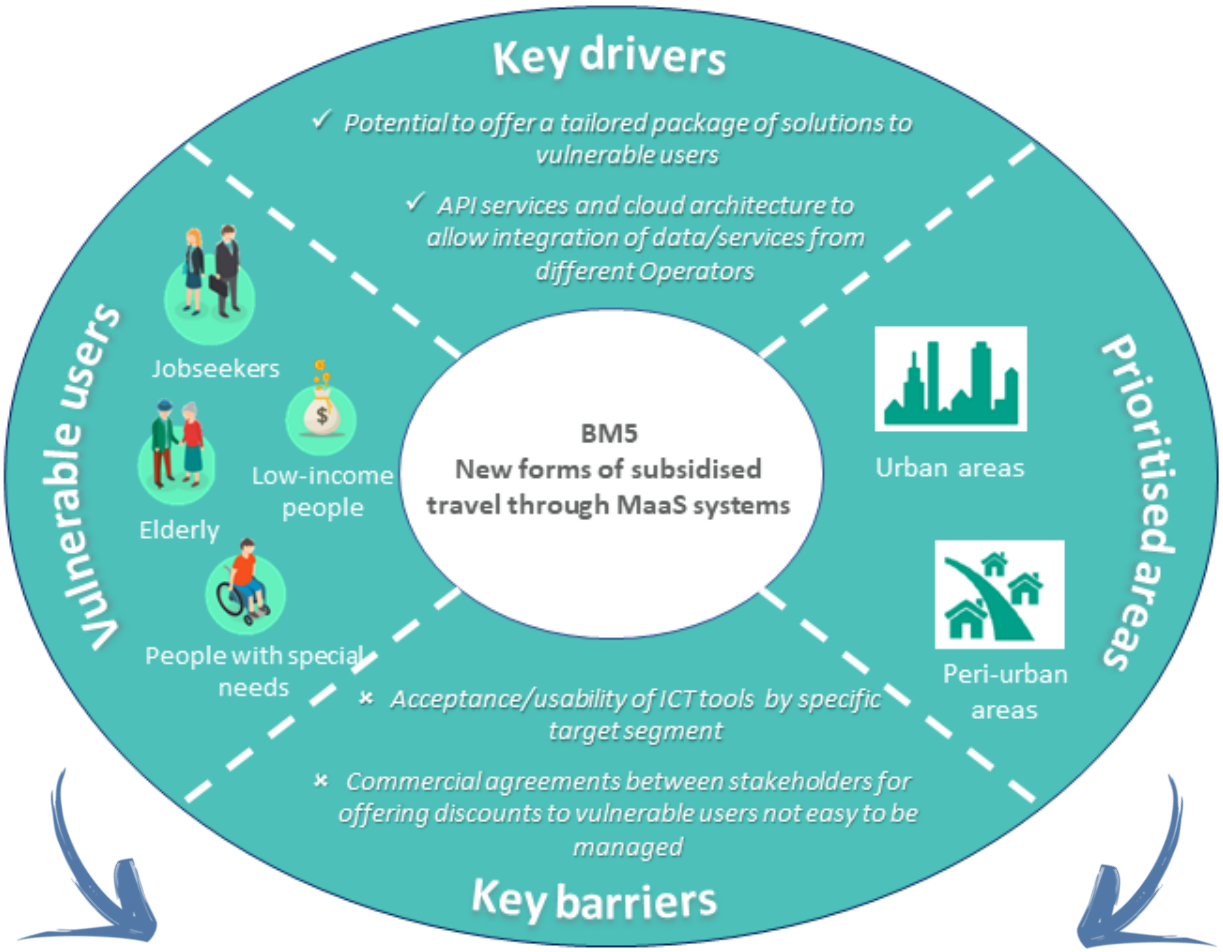
4.5.6 Summary and key recommendations for long-term sustainability



Key recommendations for long-term sustainability

MaaS market presents a wide range of private commercial actors. Public Authorities/Mobility Operators must keep attention that the service contract for the use of the platform will not affect the long-term sustainability with extra-costs (i.e. addition of future services in the future, software maintenance, etc.)

Public Authorities and Mobility Operators must keep more attention on the proper definition of commercial agreement and operational aspects rather than the "fashion" of technology purchasing

Donors and sponsor can reduce the costs for purchasing the equipment for assistance of special travel needs and contribute to service operation

It is recommended to develop appropriate technological conditions (i.e. data access through webservices, etc.) to be able to provide MaaS packages over different platforms

The high quality of data (reliability, coverage, etc.) must be guaranteed as precondition for BM development

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5 Transport for all: the direction forward

This final section aims to summarise the main recommendations for inclusive mobility. It brings together the main findings from earlier work (mainly the case study and pilot lab outcomes) alongside the business modelling conclusions to deliver a number of recommendations related to the most critical aspects of exploiting the business models and delivering successful solutions. These are not aimed to solve all the issues which prevent the current transport system to be accessible for all, but rather to present some guidance for which INCLUSION has a proven experience thanks to the activities developed within the project.

Taking into account the business models developed through the WP6 work, along with the main findings from the WP3 case study and pilot lab demonstration work, the following four recommendations for the development of inclusive mobility solutions are proposed:

- Address user requirements through better engagement: co-participation and co-design workshops, focus groups and interviews, trainings, strong promotional activities. Equally, re-design of new and existing business models with the vulnerable users' needs in mind

- Realise cross-sector societal benefits through partnership planning with other sectors and multi-sector coordinated funding

- Efficient & effective delivery of solutions (including ICT services) through Public-Private Partnership delivery of services

- Expand range of services and assist users through community-based delivery of services

Figure 12 below summarises these recommendations. Each business recommendation is expanded on below.

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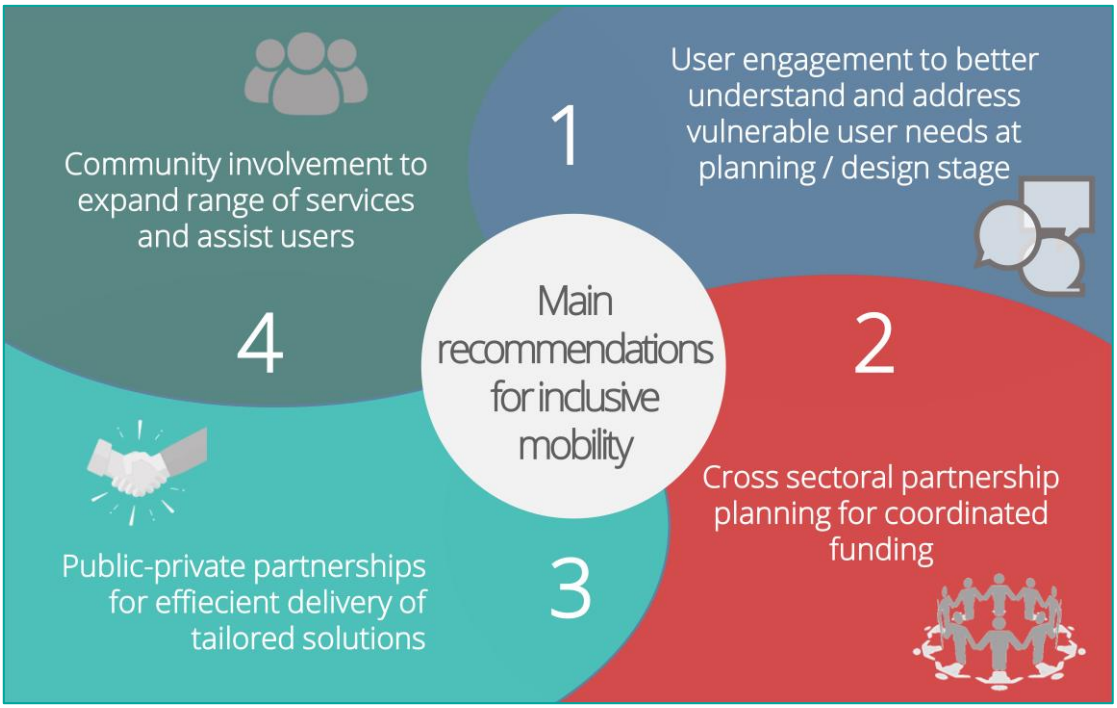
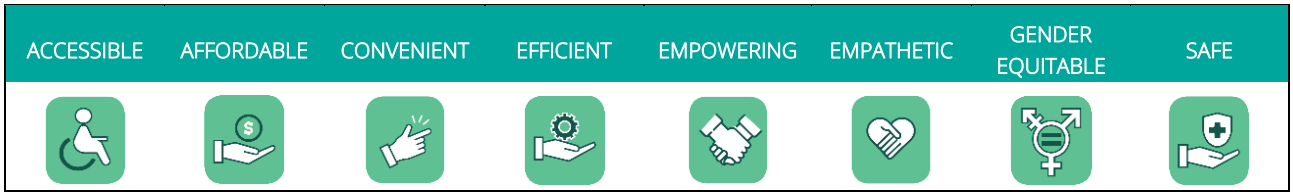


Figure 12 Main recommendations for inclusive mobility

5.1 Address user needs through better engagement with users

It is only through an improved and direct engagement with vulnerable users that their needs can be understood, and solutions developed to accommodate them.

The 8 general user principles provide a framework for understanding the most important needs of different types of vulnerable users in different prioritised areas.



The following approaches to user engagement can help to better understand and address vulnerable users' specific needs through improved service planning and design related to the 8 user principles:

- Co-participation workshops involving public sector transport planners and funders, private sector transport providers, community organisations involved in mobility services, transport technology developers and most importantly vulnerable users and user representative organisations. The purpose is for public sector planners and private and community sector providers of services to gain a better understanding of the needs and types of problems faced by different vulnerable users in different prioritised areas when using transport services, the main unmet needs and the most important barriers to an effective use of mobility services. This will help to identify the types of services and/or service improvements which need to be delivered and to establish the most suitable funding mechanism/approach for achieving this given the local circumstances.

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- Co-design workshops focused on specific solutions are necessary for both the provision of new transport services as well as the development of new technologies for supporting travel. Even in this case, it is important that these events involve the developers, providers and users of the intended service, so that the services and related travel information technologies can be tailored to vulnerable users' needs and capabilities.
- Providing vulnerable users with a means to share with planners and operators their specific needs and difficulties through Crowdsourcing Apps. Such Apps allow to collect crowdsourced information, aggregated where relevant, and analysed by the transport service provider in order to find possible strategies to improve the service. With the use of this functionality, a new social connection evolves between the target groups and the service providers and operators, who will gain a better knowledge of the requirements and problems that users may experience while using a particular transport service;
- Gain knowledge of user demands through Data Mining. This process enables to gather a better understanding of the latent vulnerable mobility demand (in terms of geographical distribution) and the identification of the unsatisfied demand. Moreover, this technology can help optimising costs by replacing inefficient services to others that better meet user demands, especially vulnerable users' needs and increase the number and quality of collective transportation services in areas where there is limited PT. Data mining of social network complemented with other data sources compatible with the topic will be needed to enrich and make a robust base (such as demography, transport connectivity, local relevance, etc.) ensuring that the possible data acquisition setback, obstacles or barriers can be overcome in an appropriate manner.

To increase uptake, there is a need to address confidence and information barriers through human dimension solutions. The user principles related to the human dimension identified in WP3 included the need for service provision to be empowering, empathetic, gender equitable, and safe. Solutions which address these needs involve ensuring 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 have 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 solutions this 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, tailoring information provision to inform users with complex needs on what services are available to them, and one-on-one travel support or accompanying services offered by providers using staff or volunteers. Solutions related to this include:

- Staff training to ensure staff know how to interact with users who have complex needs;
- Tailored information provided/available to users with complex needs in advance and during travel;
- One-on-one assistance to build confidence, know-how and trust.

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INCLUSION Pilot Lab Florence Metropolitan area

In the peripheral area of Campi Bisenzio, a co-participatory and iterative process with the direct involvement of stakeholders' representatives and selected vulnerable users' category (i.e. people with a migrant background and low-income) has shown to be a meaningful way to get a deeper understanding of the users' needs, habits, difficulties, and problems in using the PT service. One of the main results consisted of the development of a new version of the existing Ataf app, with an easy-to-use interface, user-friendly graphics, and a new "crowdsourcing" functionality to assess and rate the quality of the operated service on the bus lines 30 and 35.

Images source: Busitalia

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INCLUSION Pilot Lab Budapest

The public transport company of Budapest, BKK, created a complementary package of measures that engage users in service improvement and design, as well as in the delivery of the public transport services.

- And online crowdsourcing data platform was launched together with the local NGO Járókelő to allow travellers to share their travel experiences and highlight specific problems they face with the PT system. Transparent, two-way communication is maintained between the users and the PT operator, as the current status of efforts to resolve the issues is made publicly available.
- People with reduced mobility were directly involved in the development and delivery of staff awareness training for metro, tram and bus staff, ticket inspectors, and customer service employees.

Both measures have fostered a new social connection and trust between the target groups and the service providers and operators: people with reduced mobility feel more empowered and better supported when using public transport services, while the PT staff have a deeper understand of - and responsiveness to - their mobility needs.

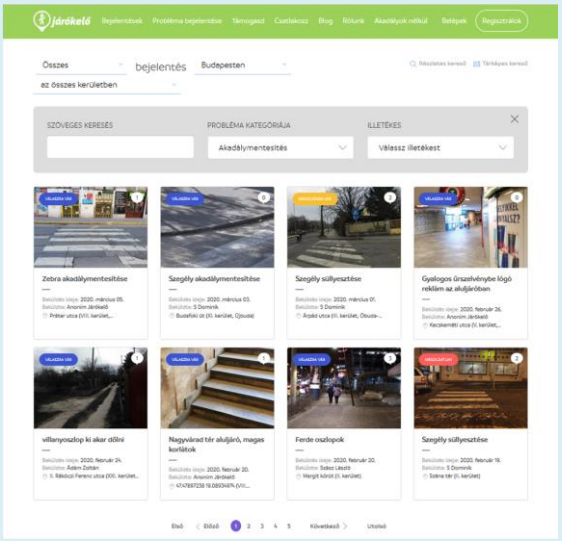

Image source: BKK Budapesti Közlekedési Központ

5.2 Realise cross-sector societal benefits through Partnership planning with other sectors

Partnerships within the public sector encourage coordinated planning to attract funding from other sectors to increase the public sector budget available for providing transport services that better respond to the needs of those sectors and their clients (often vulnerable user groups).

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Stronger use of partnerships is relevant to integrating the organisation, procurement and delivery of transport across various sectors. In the organisation and procurement, these partnerships can be between transport authorities, health authorities, education authorities, employment sector. Mutual benefits can accrue when transport services are planned in a coordinated fashion taking account of the societal benefits in other sectors which well-designed transport can generate. These include improved wellbeing and mental health, increased physical activity, early intervention health benefits through improved access to GP, improved access to education, training and employment and delivering cross sectoral cost savings (e.g. reducing missed hospital appointments; reduction in benefits claims/increase in tax through improved access to employment). These benefits are amplified when delivered to vulnerable user groups.

Moreover, important savings can be achieved by merging special services with other forms of transportation. For example, dedicated transport for healthcare services can be developed in partnership with the transport sector. The standard PT provision can therefore be designed for answering these vulnerable users' needs with on-demand services or with fully accessible vehicles (with an onboard assistant, if required) on standard lines. This is particularly important when intermediate and flexible service models (often supported by public-private cooperation or contributed by "not-for-profit" organizations or social entrepreneurs) have demonstrated to play a key role answering to the mobility needs of prioritized areas. Unfortunately, in many European countries the transport regulation has not developed yet appropriate prescription to make the operation of this kind of services duly flexible and sustainable. This is something that still needs to be properly addressed. Consultations on adapting legislation related to this have been started in the UK, where the process for the development of different legislations for urban and rural areas, especially for flexible and door to door transport services, is under consideration.

Partnership planning within the public-sector can result in:

- more integrated service provision resulting in more connected transport system and a reduction in duplicate services;
- opportunities for providing shared vehicle assets, following a universal design philosophy, that are compatible across public sector departments and suitable for use by all vulnerable users;
- breaking down silo mentality within the public sector leading to more efficient service planning and delivery.

Finally, it has to be noticed that multi-sector funding schemes are of particular relevance for rural areas, where due to austerity measures the resources allocated to the transport sector have been decreased over the last years. These are the areas where relevant benefits could be achieved thanks to coordinated funding and planning instruments dedicated to improve the accessibility of rural territories.

5.3 Efficient & effective delivery of solutions through Public-Private Partnership delivery of services

Partnerships between public sector and private sector can result in provision of services which cannot be initiated by the private sector alone or that can be implemented with higher costs (thus are usually not feasible or sustainable in the long term). This form of multi-actor delivery can lead

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to the provision of transport services and solutions at a lower cost thanks to the private sector involvement.

Public Private Partnerships offer a mechanism to involve the private sector in mutually beneficial initiatives which is less rigid than other funding mechanisms such as service contracts or block grants. Usually the purpose is to provide services with lower investments using private sector involvement.

Examples include public sector providing infrastructure or vehicles of a certain specification (but retaining ownership) with private sector providing hosting, service delivery and maintenance. This approach makes it possible for a wider range of private sector or community organisations to compete to provide the service while retaining the flexibility to switch provider where needed.

These forms of partnership can be especially important in peri-urban and rural areas where user demand is insufficient to support fully commercial service provision.

They can also be used as a mechanism to ensure private providers adequately provide for particular vulnerable user needs when specific legislation is lacking. The public sector funding provides the leverage to ensure vulnerable user needs are catered for and can benefit from the schemes.

The engagement of local businesses for the operation and maintenance of the service can lead to an "indirect" promotion and dissemination of the new service. This is particularly important in rural areas where the community experience can smooth the delivery of the service.

Finally, the setup of private-public cooperation models to operate the mobility/Public Transport services can be the key drivers to guarantee long-term sustainability. The mobility stakeholders can further explore this opportunity looking at the different benefits each side of the cooperation can achieve, from one side to reduce the operational costs thanks to community engagement, from the other to avoid high amortisation costs for the purchase of the vehicles or means of transport.

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INCLUSION Pilot Lab Cairngorm National Park

In the Cairngorm National Park in rural Scotland, public-private partnership with local bike shops was shown to provide a successful and cost-effective mechanism for delivering an e-bike sharing scheme. It involved setting up three small-scale e-bike hubs in the key gateway towns for the CNG: Aviemore, Grantown on Spey and Fort William. Six e-bikes are offered at each station, which is hosted by local bike shops. The regional transport authority and PL coordinator, HITRANS, also partnered with the Cairngorm Business Partnership to hold workshops during development of the measure. Having bike shops host the e-bike share has the the benefit of saving costs that would have otherwise been spent on on-street infrastructure

Image source: Mikes Bikes Shop, Aviemore

5.4 Expand range of services and assist users through Community delivery of services

Community Organisations can play a vital role for the provision of inclusive mobility options. In many cases they fill those gaps that are left when commercial provision is not viable and where the financial capacity of the public sector to contract private sector providers reaches its limits.

Community organisations are often charities with a non-profit ethos. Typically, they operate with very low costs and revolve around the commitment of volunteers as drivers, information providers, carers and mobilisers, although there is often a core of paid staff who manage the operations. This results in low cost services where passenger fares, donations and sponsorship can cover much of the service delivery costs. However, the overhead costs associated with management/ administration staff, upkeep of premises, maintenance and replacement of vehicles requires additional funding. Public sector grant funding is essential to retain and build capacity in the community sector.

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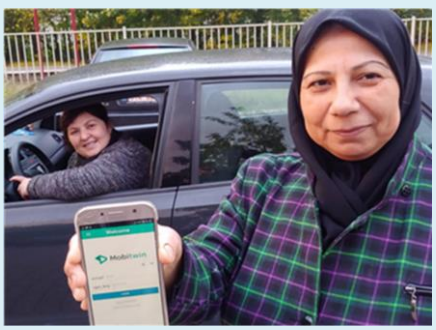
Community organisations are ideally placed to provide labour intensive one-to-one engagement with vulnerable users through use of volunteers. However, the recruitment and training of a sufficient number of volunteers will incur additional costs which need to be met through public-sector funding. In cases where vulnerable users' needs are especially complex adequately trained paid staff may be required.

The types of community services that expand the range of transport provision include volunteer ridesharing, demand responsive community buses and vehicle brokerage. All of these can contribute to fill the gaps in the limited transport provision, especially in rural and peri-urban areas. When community organisations are involved in inclusive mobility initiatives special attention has to be given to questions about reliability, long term commitment, organisation capacity, funding and insurance.

Issues faced by vulnerable users often relate to inability to benefit from the services due to unsuitable vehicles and lack of reliability of services provided by volunteers. Where partnership planning within the public sector has led to the purchase of buses with universal design, these can be operated by community organisations as a shared asset. If volunteer drivers are utilised this can provide adequate provision for non-essential social, shopping and leisure trips. If essential client service trips are required, then the use of paid drivers should be introduced to ensure availability and professional levels of training and behaviour.

INCLUSION Pilot Lab Flanders

The Mobitwin app supports the mobility of elderly people living in the Flemish cities and peripheral areas of Oudenaarde and Ghent. It was developed by the PL coordinator, Taxistop, and several local Less Mobile Stations (LMSs), all of which are Flanders-based non-profit organisations. The aim is to make booking volunteer car service trips more convenient and responsive for elderly and disabled users. The LMSs played a key role in promoting the real-time demand-responsive service towards their members, as well as recruiting volunteer drivers from the local community and testing the app with drivers and members. A key lesson learned was that the LMSs have a key role to play in building trust relationships with users, which can support the co-design of new services and technologies and boost their take-up in the local community.



Images source: Taxistop vzw

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5.5 Indications for further research: incentive funding

In addition to the above, future directions for inclusive mobility have been considered through provision of incentive funding for more targeted solutions.

A more radical change to funding transport services involves the provision of payments (incentives) to any operator that provides particular types of trips or transports particular types of user, rather than subsidising a specific service.

It has been suggested that this can stimulate the market by placing more motivation for providing services which cater to the needs of vulnerable users into the hands of private sector providers. This in turn encourages more entrepreneurial thinking and, when successful, can have the effect that more vulnerable users have more choice in the services available to them.

In some cases, the funding can be directly given to vulnerable users through a 'person centred' funding approach incorporated and managed through a MaaS platform. In this model the authority has no control over how the funding is allocated to service providers and the users choose and pay for the services out of a mobility budget they receive based on their special needs. Service providers are motivated to design or adjust their services (including vehicles) to meet the needs of these vulnerable users in order to attract their business and the mobility payments associated with this.

The potential benefits from this type of funding approach include:

- Public sector decision makers to directly target funding towards the users and trip purposes which provide most benefits to society or save most costs in other public-sector areas (this effectively produces many of the benefits associated with public-private partnership funding model but delivers it within the framework of a free market competitive environment – thereby stimulating more entrepreneurial solutions).
- Reduction of the need for existing public-sector service provision by providing extra motivation to private sector and community organisations to better cater for needs of vulnerable users.
- Enable more vulnerable users to use the service. This leads to increased revenues which motivates private sector to take the initiative to offer services which better cater for vulnerable user needs
- Less need for separate public-sector grant funding awarded to private sector and community organisations for vehicles and technology and training. In particular, the need to attract more vulnerable users to increase revenue can provide: i) the motivation for private sector and community providers to invest in fully accessible vehicles which vulnerable groups of passengers can use; and ii) the motivation for private sector to develop technology to better understand the demands from and needs of vulnerable users in order to provide services attractive to these users. Moreover, the need to attract more vulnerable users provides demand from private sector (and community organisations) for more training on understanding vulnerable user needs - community organisations should capitalise on this by developing suitable training courses delivered at a cost to private sector - helping to offset fixed overhead costs and build community organisation capacity.

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- Motivation for private sector and community service providers to offer more integrated services for vulnerable users removing the onus for this from public sector.

Although certain aspects of the incentive funding idea have been piloted in a constrained and specific environment (i.e. in the Flanders Pilot Lab), there is insufficient evidence at this stage that the market (i.e. private sector or community transport providers) would react in a way that adequately and safely meets the needs of all vulnerable users. There is a risk that private sector providers would 'cherry-pick' the trips and/or users that are easiest to provide for, while neglecting those that required more fundamental changes in operations. Careful long-term planning and development of legislation is required to avoid this possibility. There would then be a need for public sector staff to focus on monitoring / managing funding, preparing guidelines for transport providers and planning/design of infrastructure. This provides the basis for recommendations related to further research and innovation in providing inclusive mobility solutions for vulnerable users in prioritised areas.

6 Conclusion

This deliverable presents the results of the INCLUSION WP6 activities that aimed to identify the most promising business models and their potential for implementation in prioritised areas. Starting from a number of business concepts and scenarios, 14 different Business Models have been defined in accordance with the user needs, the characteristics of the prioritised areas and the SUMP2.0 guidelines. The Business Models have been carefully selected and validated both internally and through a participatory approach with an open dialogue with the members of the INCLUSION Stakeholders' Forum.

Key specific recommendations for transferability have been proposed for each Business Model, considering the key aspects of prioritised areas for implementation, measures for vulnerable users, main drivers and barriers. The following points summarizes very synthetically the recommendations formulated in detail in this report:

- Address user requirements through better engagement: co-participation and co-design workshops, focus groups and interviews, trainings, strong promotional activities. Equally, re-design of new and existing business models with the vulnerable users' needs in mind

- Realise cross-sector societal benefits through partnership planning with other sectors and multi-sector coordinated funding

- Efficient & effective delivery of solutions (including ICT services) through Public-Private Partnership delivery of services

- Expand range of services and assist users through community-based delivery of services

Trying to consolidate and summarise the key findings from the BM activities, it is worth highlighting the main opportunities that each "actor" in the mobility and transport sector could explore for improving the accessibility and inclusivity of the transport system. Three main actors have been considered including: PUBLIC SECTOR, PRIVATE SECTOR (including technology providers) and COMMUNITIES & USERS. Some considerations related to innovative forms of public-private partnership are reported too.

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Public Sector

The public sector has a crucial role to play for the improvement of the accessibility and inclusiveness of the transport system in Europe. Relevant opportunities and benefits could be achieved in a short time by facilitating and empowering vulnerable users to increase their possibilities of independent travel and mobility. Some efforts and resources have inevitably to be spent, but this should not be considered a major issue as most of the resources can be taken/saved from other current expenditures which are avoided as a result of the proposed measures.

Opportunities

- Fill-in the mobility gaps in rural and peri-urban areas, where the transport provision is usually poor or limited, by supporting the development of asset sharing services in cooperation with the local businesses.
- Promote and enable sustainable and active transport modes to rural and peri-urban dwellers, reducing car ownership and carbon dependency
- Encourage the development of ridesharing and community-based services by supporting and sponsoring local initiatives
- Providing an alternative collective transport to fill the mobility gaps created by the limited conventional PT services. This would also replace inflexible and infrequent fixed route bus services with low passenger numbers with services that better meet user demands.
- Adapting the regulatory and legislative frameworks for the development of these solutions.

- Purchase of assets (whether Scooters/bikes/e-bikes/mopeds/cars)
- Management of contracts with local businesses (such as bike shops and mechanical workshops for maintenance costs)
- Funding provided to cover volunteer recruitment and training, management cost and shortfalls in operating costs in volunteer lift giving schemes.
- Grant funding to purchase or lease a 'pool' of standardised fully-accessible vehicles; contribution in the funding for the operation of the service
- With Maas applications, funding provided to transport providers supposing that the subsidy schema is in form of discounted travels for the end users.
- Contribution to the Public/private transport service providers for the promotion of the subsidy initiative and for operating the MaaS system

Efforts

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Private sector, including technology providers

The private sector should not consider the improvement of accessibility of the PT system as a responsibility of the public sector, but rather be actively engaged in promoting inclusive mobility solutions. The current transport services, where existing, may have relevant gaps, both in the services themselves and the supporting travel information systems. With joint efforts by commercial operators, technology providers, and the public sector, these gaps can be limited or removed, allowing improved participation of the end-users in transport. Moreover, some business model solutions highlighted consistent revenues that could trigger private stakeholders' appetite to operate in prioritized areas, including rural and remote, where they currently don't due to the perceived low level of remuneration.

On demand and private service providers	Technology providers	Public Transport service providers
Exploit the use of social media/mobile phone data analysis technology to provide services that meet vulnerable users' needs. This could be relevant also for promoting more sustainable transport services for attending events in rural and peri-urban areas	Enlarge the market segment of social media data analysis techniques by their application in transportation studies (e.g. by routes optimisation based on confirmed bus stops). Contract with public/private transport operator to develop the model to: (i) Find potential areas to put stops and (i) find the potential demand	Provide better connections through MaaS Applications and the integration of other transport services;
Enlarge the market share by the integration of the service with potential competitors through MaaS platforms	Offer special discounts, thus attracting a new market of (vulnerable) users and the share of subscriptions/ booking payments	Use multimodal data collection from the App to improve the PT services, taking into account the information from the users, and thus increasing ridership and revenues
Collaboration with other transport services by sharing users' data to have a deeper user understanding and developing solutions more tailored to their needs	Use the data collected to continuously improve the service and provide mobility-related information to public sector	

Use of public private partnerships to engage private sector organisations in delivering solutions in a more cost-efficient way than can be achieved by the public sector alone

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Big data analysis combined with commercially viable collective transport services that better meet vulnerable user demands is a good example of a business model involving private transport operators and technology providers:

1. This solution is led by the private sector and allows private operators to provide collective bus services in peripheral or rural areas where population density is low but identified travel demands are sufficient for commercially viable bus services.

2. Social media data analysis is used for identifying the latent mobility demand in low density areas for travel to specific destinations.

3. It has a good potential to be transferred in peri-urban and suburban context for providing improved and inclusive access to specific events/locations.

4. Based on the experience of the Barcelona Pilot Lab, targeted to young people going to a music festival, it could be transferable to different segments of users in the future such as aiding in safety of vulnerable lone women, or in aiding elderly to attend cultural/public events to reduce social isolation. Being based on the use of data collected on social media, younger people appear to be the most suited primary target segment.

5. The IT tools used to run the BM (i.e. setup of data mining process, interfacing/integration of the data sources, market research, promotion, etc.) require initial costs that could be resource-intensive when applied into small scale transport services. The more services they are applied to, the more economies of scale can be achieved.

Among the analysed business models, the provision of new forms of subsidised travel through MaaS has proven to be another opportunity for private operators to enter in the transport market by offering effective complementary measures for inclusive transport:

1. The concept expands the idea of offering free or discounted travel to eligible users to reduce financial barriers for travel.

2. In this schema, the transport provider is reimbursed to compensate the reduced fare revenues or for additional costs incurred in meeting vulnerable user needs; the actors involved in this process can be the transport authority, public and private service providers depending on the commercial environment (regulated or deregulated) and discount schema. Other public-sector partners may also be involved (e.g. social care who reimburse free travel for their clients).

3. A MaaS type subscription service for vulnerable users has the potential for better tailored packages being offered to each particular client.

4. The high quality of data (reliability, coverage, etc.) must be guaranteed as precondition for BM development

5. Public Authorities and Mobility Operators should pay attention to understand not only the complexity of the MaaS implementation but also the related organizational and operational aspects (e.g. commercial agreements, integrated fare structures, management procedures, data reporting, etc.)

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Communities and users

Local communities have a huge potential to reverse the trend in declining mobility offers and options in some European prioritised areas, especially rural and remote. Although the difficulties in achieving a balance/integration between standard public transport and local initiatives can be an obstacle, the public sector should focus more effort in engaging local communities and users themselves in the design and delivery of transport service provision. Local stakeholders and businesses could be involved in the provision of sponsorship budget for covering some costs (e.g. marketing and shortfall in operating costs) and for some operational task.

Not for profit organisations involved in the management and coordination of door-to-door community-based transport services and in attracting, retaining and coordinating volunteers

Community / not for profit sector (and volunteers) providing assistance (training or escorting) to vulnerable users on how to use technologies and services.

Communities

Local activities and businesses to host asset sharing services reduces operating costs, provides in-house maintenance and increases promotion and engagement

Local communities enabled and encouraged to develop ridesharing services, thus increasing mobility opportunities for vulnerable users and strengthening social cohesion and community building

More transport options that empower vulnerable users when travelling in rural and peri-urban areas. Greater independence and freedom

Reduction the need for car ownership by having more accessible, affordable and flexible options available.

People

Ability to reach more destinations using ridesharing services instead of more expensive door-to-door transport services such as taxis or reliance on dedicated client service solutions.

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The Peer-to-peer ridesharing services Business model is a good example of an effective Business Model for communities:

1. The solution includes both 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) and volunteer lift giving schemes (where drivers, usually with their own vehicle, offer lifts to certain users for free or for a small reimbursement).

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

3. The BM is widely transferable among the different types of prioritized areas, in particular those poorly served by Public Transport

4. The social motivation is a fundamental piece of the puzzle. The familiarity that builds among passengers and drivers is usually one of the greatest benefits of the service

5. Peer-to-peer service schemes can also be combined with accessible vehicles owned by a local authority/public institute for enabling the transport of people with reduced mobility

Partnerships

One of the main findings from the validation of the results obtained by the INCLUSION experimental activities in the six pilot sites was that 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.

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.

The Business Model design activities have put the different types of partnerships in the focus, having a lot of potential for cost reduction and improved financial viability.

The asset sharing in rural or peri-urban areas where the users of the asset are individual members of the public has proven to be an effective measure where public-private partnerships reveals their potentials:

1. This solution deals with asset sharing. 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.

2. It has relevant potential to be implemented in peri-urban and rural areas where the demand from individuals for collective asset sharing services is not sufficient for commercially viable operation from private sector providers.

3. Public-private partnership, where the public sector purchases the asset and the private sector (i.e. local businesses) provides low-cost operation and maintenance can be the winning card.

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4. Transparency and equality (fair conditions) considerations are important when involving private sector organizations (shops) in the private-public partnership. Transparent tendering of the required services by the public side is required and conditions for participating in the tendering process should be defined allowing all interested parties to chance to participate

5. The pricing system can be set up in a way that regular use (for locals) is cheaper than short-term/one off use by non-frequent users such as tourists, although care should be taken to avoid the perception of unfair conditions

Also, the not-for-profit collective transport services that better meet vulnerable user demands in rural areas provides very good opportunities for an integrated transport service, complementing the existing offer, where cooperation between actors gives strategical advantages:

1. The solution aims to replace poorly used conventional public transport services, to provide a service in rural areas where no other public transport exists or to complement existing public transport service with further lines or trips.

2. Can be operated at lower cost by not-for-profit community sector providers to serve specific purposes where a gap in the conventional network is evident.

3. The most promising prioritized areas for BM transferability are rural/remote areas for replacing dedicated services targeted for people with special needs, which are usually hardly to be sustainable due to the low density of the population and the high operational costs

4. The operational implementation of the BM should change based on regulation in the country: community-based services are not a general scheme applicable everywhere in the same manner.

5. Donors and sponsors can contribute to the costs for purchasing vehicles and equipment, and for training volunteers to assist travellers with special needs and contribute to service operation.

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The INCLUSION consortium

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Annex 1: Validation survey template

Note: this template refers to Business Model 1

Assessment

How would you rate the influence of following factors in delivery/success of the BM:

	Strong barrier	Weak barrier	Neither barrier nor driver	Weak driver	Strong driver	Don't know
Implementation of technological enablers	☐	☐	☐	☐	☐	☐
Acceptance or usability of ICT tools	☐	☐	☐	☐	☐	☐
Social acceptance and usability	☐	☐	☐	☐	☐	☐
Regulatory and legislative framework conditions	☐	☐	☐	☐	☐	☐
Social Innovation	☐	☐	☐	☐	☐	☐
Capacity of promotor or initiator to deliver the solution	☐	☐	☐	☐	☐	☐
Cooperation between stakeholders	☐	☐	☐	☐	☐	☐
Financial viability	☐	☐	☐	☐	☐	☐
other organisational and operational aspects	☐	☐	☐	☐	☐	☐

What do you consider to be the most important driver in this BM in terms of delivering the BM solution? What the most important barrier?

*LoremipsumLoremipsumLoremipsumL

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Do you see any obstacle in terms of the existing regulatory or legislative framework for the implementation and operation of this BM solution?

*LoremipsumLoremipsumLoremipsumL

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What do you see as necessary conditions for transferability potential to other vulnerable users?

*LoremipsumLoremipsumLoremipsumL

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Annex 2: Short summary descriptions for the INCLUSION Pilot Labs measures.

Note for the reader: *this annex aims to provide the reader with a one-page description of the measures that have been developed in each of the INCLUSION Pilot Labs. For a deeper analysis, it is suggested to read the deliverables D4.2..D4.7, available on the INCLUSION website*.

INCLUSION project pilot lab measures – short summaries

In Budapest, staff awareness training for metro, tram and bus staff, ticket inspectors, and customer service employees has been developed and piloted. This improved attitudes towards vulnerable users and helps remove confidence barriers that prevent vulnerable users from utilising conventional PT services. Better trained staff can also lead to improved safety and feelings of security while travelling, which is of particular relevance to women and elderly passengers. Staff competency in recognising and assisting vulnerable users increased by just under 20%.

Also in Budapest, the Járókelő online crowdsourcing data platform empowered vulnerable users by giving them a legitimate and public space to express unmet needs where their voices were heard and quickly responded to. The demonstration showed that almost half of the reported issues can be quick and relatively cheap to solve or respond to. This resulted in a 24% increase in the target group (blind and visually impaired, disabled and those with buggies or luggage) who are satisfied or very satisfied with their experience of PT.

In Barcelona pilot improved access to social and cultural events for groups vulnerable to exclusion (particularly young adults/teenagers and women) due to a lack of available and safe transport options. Knowledge gained from analysis of Social Media (Twitter) data has enabled planners to identify locations in less densely populated areas where there is still sufficient demand to deliver commercially viable collective bus services to the CanetRock music festival. 11 new commercially viable collective bus routes from peri-urban and rural areas were established providing improved access to around 450 new users.

In the Cairngorm National Park in rural Scotland, public-private partnership with local bike shops was shown to provide a successful and cost-effective mechanism for delivering an e-bike sharing scheme. The e-bike share service has empowered: more able old persons to enjoy active travel for health and leisure purposes (15% of resident users were over 65 and 20% were 56-65 years old); persons with certain mobility impairments or health conditions to aid recovery/maintain fitness; and younger persons and those suffering from transport poverty to access work by providing an affordable travel option that fosters independence.

In Florence, the focus was on redesigning local bus lines to improve connections with the tram and train services for rural commuters and migrants in deprived areas. This was complemented by enhanced information provision tailored to vulnerable user's needs. For migrants there was an 84% increase in bus trips and a 75% increase in satisfaction. Co-design workshops and focus groups involving all stakeholders involved in the solution were viewed as an essential component of the success of this measure.

Flanders explored the potential of new app-based technologies for two distinct vulnerable user groups. The Mobitwin app was developed for elderly and disabled users to make booking their volunteer car service trips more convenient and responsive. The Olympus app was enhanced for use by migrant job seekers, providing a personal mobility budget and tailoring the information content to be more understandable by non-native language speakers. Both cases revealed that extra one-to-one support, training and encouragement to become confident to use the technology was necessary and that co-creation at the design stage was essential.

The Rhein-Sieg district in Germany is a partly rural and partly peri-urban district 30km to the South-East of Cologne and 15km to the East of Bonn. It is an attractive region for families with young children. However, the transport options are largely designed for commuter trips and not families. Increasing afternoon bus frequencies (for school and after school trips) and reducing single bus fares. This resulted in a 16% increases in regular accompanied trips by bus, especially to primary school (the proportion accompanying their children by car to primary school decreased from 35% to 21%). Unaccompanied children travelling by bus at least once a week also increased by 40% increase.