INCLUSION Project

Deliverable D5.3

Process Evaluation Results

Version: 1.0

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Abstract	This document describes the rationale, approach and concrete methods of the INCLUSION process evaluation, starting with an executive summary as Chapter 1. Chapter 2 presents an introduction and methodology of the process evaluation used for the INCLUSION pilot labs. This explains the data collection, analysis and reporting procedures. Chapter 3 begins an analysis of each individual lab, presenting initial evaluation results and findings while Chapter 4 discusses these findings and draws key overlaps and thematic analyses across all pilots. Finally, Chapter 5 conveys the deliverable's key messages and concludes on the key outcomes of the process evaluation.
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1. Executive Summary

The INCLUSION process evaluation (PE) report is catered for the general public but also for many target audiences, especially the INCLUSION consortium, pilot coordinators, managers, local evaluation staff, and pilot lab support partners. The PE has been an opportunity to critically reflect on who does what and why, and what kind of effect it has and why in order to constantly improve the overall outcomes of the projects 14 innovative pilot measures. It is thought that by understanding the exact dynamics and mechanisms of success of each measure, that they can be transferred to future replications. In this way ensuring equal, and where necessary, improved success from having learned key lessons because of PE actions. INCLUSION's PE is carried out in conjunction with an impact evaluation plan. Integrated interpretation of both evaluation elements provides the necessary understanding of the effectiveness of the INCLUSION Pilot Lab measures.

Reading the Process Evaluation

This document consists of four chapters, each of which is an output of a methodological step applied for the process evaluation. First the introduction and methodology describe the systematic analysis that has been used to conduct the process evaluation of INCLUSION's 14 pilot measures. Chapter 3 presents the first-findings of each measure's drivers and barriers (i.e. results from analysis at the measure-level), and chapter 4 fully discusses the patterns of driving and inhibitory processes across the measures (i.e. results of analysis at a cross pilot-level). The red thread of this document are 10 themes around which drivers, barriers, and lessons-learned have been identified, categorised, and discussed. The methodology chapter fully describes how these were selected. The ten themes are as follows:

- ✔ Institutional contexts
- ✔ Integration of solutions with existing networks
- ✔ Role of ICT Usage
- ✔ Stakeholder Engagement
- ✔ Cooperation among actors
- ✔ Communications & Marketing
- ✔ Trust building & active facilitation
- ✔ Understanding needs of target group
- ✔ Availability of Funding
- ✔ Access to Funding

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Summary message of Lessons learned

Of the ten themes assessed, only seven were found to have played a moderate-to-strong role in the pilots as either a driver or barrier, and in some cases even both. A few of the themes also showed to have key dependencies on one another. For example, if stakeholder engagement proved to be a barrier, more often than not, trust building and active facilitation, and understanding the users' needs fell short in a measure too. For this reason, the final chapter of *Lessons Learned* takes on a structure of the strongest drivers and barriers, and are grouped according to their dependencies. They are: 1) institutional contexts, 2) the role of ICT deployment and usage, 3) stakeholder engagement and cooperation of organisational actors, 4) Building trust, active facilitation & understanding the needs of the target group, and 5) communication & marketing.

2. Introduction and Methodology

The main objective of the INCLUSION project is to understand, assess and evaluate the accessibility and inclusiveness of transport solutions in European prioritised areas, to identify gaps and unmet needs, propose and pilot 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. To this end, six Pilot Labs (PLs) developed and implemented innovative measures that provided interventions and solutions for users vulnerable to exclusion from sustainable mobility. For more details about the Pilot Labs' activities, see D4.2-4.7, available on the INCLUSION project's publication page: http://www.h2020-inclusion.eu/resources/publications/

To assess these PLs' measures, a dedicated work package in INCLUSION (WP5) undertakes a quantitative assessment of the impacts and a qualitative process evaluation of the innovative transport solutions implemented. This report covers the qualitative process evaluation. For more details on the overall structure of WP5 and the methodology behind the impact assessment, please see D5.4 "Full evaluation: The reference scenarios".

Process evaluation (PE) involves the evaluation of the processes of preparation, implementation and operation of measures, including the roles of information, communication and participation. It aims to understand the mechanisms, barriers, drivers, actors and context conditions

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surrounding the design and implementation of each intervention and their influence on the measured impact. It will also establish if there are factors external to INCLUSION, which have had an influence on the measured impacts, or if there are any unexpected consequences/impacts generated by the INCLUSION interventions. This requires continuous engagement and consultation with key stakeholders at both pilot site level and measure/intervention level. The D5.2 'Process Evaluation Plan' provides guidance on establishing the key stakeholders, along with advice on the timings and engagement methods (e.g. online surveys, semi-structured interviews, interactive drawing exercises, focus groups) to elicit necessary process evaluation information. Findings from the process evaluation activities are key to identifying the potential transferability of measures beyond a specific PL where a particular measure has been implemented, as well as providing insight for further policy initiatives.

Commonly Used Acronyms	
ICT	Information and communication technologies
PE	Process evaluation
PL	Pilot lab
PT	Public transport
PTA	Public transport authority
PTO	Public transport operator
PWRM	People with reduced mobility

Data gathering

The process evaluation followed each Pilot Lab across their respective planning, implementation, and operational phases and for each phase gathered pertinent data regarding the way in which they were conducted, and the effects they precipitated (i.e. critical reflections were repeated

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three times over the duration of the project). The three phases roughly fell within the following periods:

- Preparation phase: project months 8 – 15 (May '18 – Dec. '18)
- Implementation phase: project months 16 – 23 (Jan. '19 – Aug. '19)
- Operational phase: project months 23 – 36 (Sept. '19 – Oct. '20)

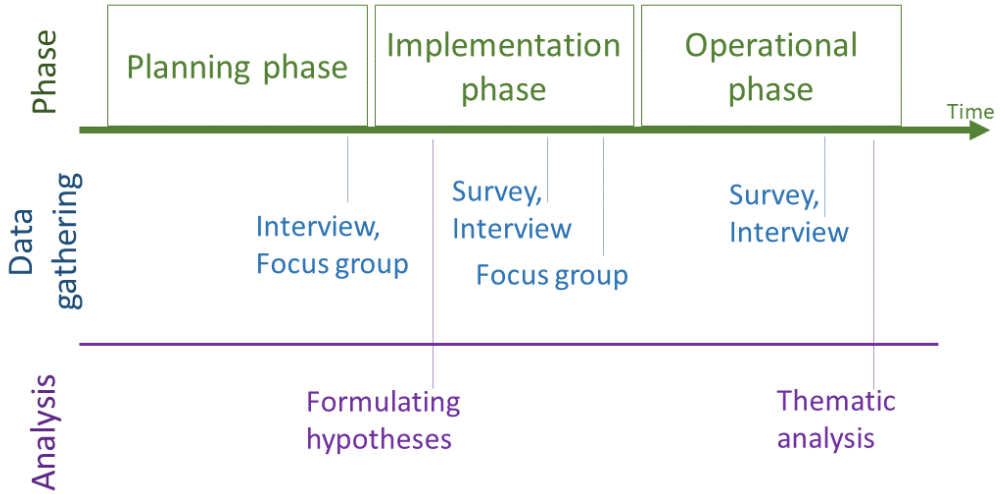

Figure 1: Timeline of the data gathering and analyses of Pilot Lab activities, per phase

Semi-structured interviews were conducted in each phase. These were most often carried out via teleconference, although when possible, the opportunity to meet face-to-face was taken (e.g. during consortium meetings). The minutes of these meetings were taken "live" in front of the interviewees (i.e. the PL coordinators) in a Word document so they could correct any misinterpretations as the interview progressed. The PE manager (Rupprecht) later sent each of the PL coordinators the recorded notes of the interview for validation. Coordinators were afforded the opportunity to take a closer look in their own time and correct and supplement the notes where necessary. In this manner, a coherent shared understanding of the PLs' process was ensured for all actors involved in the PE.

During both the implementation and operational phases, PL coordinators were asked to complete surveys (see Annex) that provided the PE manager with general context information and specified information of PL actors, objectives and structures at play that influence PL actions and timing of processes, etc. The surveys provided a first basis for comparing PE results *across* the INCLUSION pilot labs in a standardised format.

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Based on the combined results of interviews and surveys, the PE manager formulated first hypotheses about common drivers and barriers to each PL. Shortly after the implementation phase had begun for most PLs, a focus group was organised during the INCLUSION consortium meeting in Florence in March 2019, where the 10 themes were used as discussion topics and prompts. PL coordinators weighed in their insights which were later incorporated into interview and survey findings.

In this way, the surveys, interviews, and focus group were used to monitor the progression of PL activities and processes. The PE manager's understanding and analysis of each PL's processes, drivers, barriers, responses and adaptions consistently evolved and was refined over the course of the project, resulting in the identification of overarching patterns across PL's after a high-level analysis.

Analysis:

The raw data provided by interviews, surveys, and the focus group did not speak for itself but required further examination with the purpose:

- to detect patterns in the data according to similarities across Pilot Labs
- to sort similar types of information according to certain parameters,
- to find correlations and causalities within Pilot Labs,
- to check for plausibility

A thematic analysis was chosen for the above purpose, since the data was best suited for a qualitative analysis that could identify repeating and interlinked themes. A combination of tools was chosen to aid the thematic analysis:

- Coding and abstraction: The identification and tagging of repeating concepts and topics used to label the data, followed by the grouping of linked categories or "themes" in the data.

- Data matrices. Used to filter, sort, mark tags, and generally organise the data based on their coding and abstraction relationships.

- Frequency counts. Counting the number of times that identified themes and assertions could be observed in the data, and if any causal relationships could be drawn.

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- Time-series qualitative data analysis. The chronological ordering of data "i.e. before and after survey responses" to provide an account of activities and the sequences of events to identify causal relationships if they existed.

Notes that were taken during the interviews and the survey responses were compiled and summarised in several Excel sheets using these tools. This organised the qualitative data into several categories (see Annex) and aided the process evaluation *within* and *across* the PLs. The thematic analysis then required the identification of the most prominent drivers and barriers per PL, as well as the contexts and metadata surrounding it. These were cross-checked with results of the impact assessment tables (see D5.4 Full Evaluation, the Reference Scenarios), and linkages2). Linkages were made to ultimately explain the 'story behind the figures' (i.e. why certain measures had certain quantitative impacts) in this process evaluation report.

Chapter three goes on to present the first findings of the process evaluation *within* PL's (I.e. at the measure level).

3. Analysis of Pilot Lab Measures

This chapter presents a process evaluation of INCLUSION'S pilot labs *at the measure level*. I.e. the processes of each measure have been examined whose findings are presented here. They are listed according to the Pilot Lab locations and contain a brief summary of the measure activities. Each measure offers three areas of information according to the following structure:

1. Activities and objectives: main actors and their roles, mobility challenges and target groups addressed
2. Drivers and barriers: summarised and tabulated accompanied by classifications of the strength of the driver or barrier (i.e. weak, medium, strong) which describes the level of influence it had on a measure's outcomes.
3. Lesson's learned and future recommendations that should the measure be replicated by other organisers and institutions.

3.1. Flanders region Pilot Lab (Belgium)

The Flanders Pilot Lab involves two measures:

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- Olympus app: Developing a Mobility as a Service (MaaS)[1] solution tailored to (un)employed people with low income that have a migration background
- MobiTwin app: Delivering an enhanced app to older, disabled and mobility impaired users. One of the main features is to book the volunteer-run on-demand transport service, called Less Mobile Services (LMS) on short notice (i.e. less than 48 hours before the journey).

Deliverable 4.5 describes in detail the measures to be demonstrated, their design and the implementation process of the measures. It also provides a more detailed description of the characteristics of the Flanders PL. The table below provides an overview of each measure's targeted vulnerable user(s), prioritised area, and the mobility-related challenges that it aims to overcome.

Pilot Measure	Targeted vulnerable user(s)	Prioritised area	Mobility challenges overcome
Mobitwin app	• Elderly • Physically disabled • Low-income	Peri-urban	Participating in daily social life: Door-to-door service, convenience for volunteer drivers, responsiveness of service (previously calling to book a ride at least two days in advance)
Olympus app	• Jobseekers • Low-income • Migrants	Peri-urban	Access to jobs, Language, High PT costs, Lack of info about PT options

[1] Mobility as a Service (MaaS) is an approach to offering mobility options that promote a shift from personally-owned transport to mobility that is consumed as a service. It involves the integration of various forms of transport services into a single mobility service that is accessible on demand.

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3.1.1 MobiTwin app

3.1.1.1 Measure objectives and actors involved

The MobiTwin app was developed by the PL coordinator, Taxistop, for use by the members (elderly people living in Flanders) and volunteer drivers of their Less Mobile Stations (LMSs). 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 app was developed in 2017 using money provided from the Wallonian government, but adequate research wasn't conducted on users' needs at that time. Therefore, this was one of the main tasks (and challenges) of this PL measure. The LMSs provided on-demand transport for elderly persons in Flanders using volunteer drivers and their vehicles.

Overall objectives:

- Improve access to social and leisure activities for older, disabled and mobility impaired persons in Ghent and Oudenaarde
- To introduce real-time capability to Less Mobile Services/Mobitwin
- Increase the number of volunteer drivers
- Increase awareness of mobitwin for target groups

Main actors and their roles:

Type	Actor	Role(s)
Non-profit organisation	Taxistop	• Pilot Coordinator • Founder of the Less Mobile Stations
Service founded by Taxistop and provided by cities and townships across	Less Mobile Stations	• Recruit the volunteer drivers and elderly passengers from their existing members • Test the app with drivers and members

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Flanders, Brussels and Wallonia		

3.1.1.2 Drivers & barriers

Taxistop measured the success of the objectives described in the previous section in terms of the number of trips that the elderly people requested, by setting a target for the number of users (20 people) and by assessing their satisfaction with the app and their access to social and leisure activities. They also aimed to increase awareness about the app and to increase the number of volunteer drivers.

Overall, this measure did not manage to achieve its anticipated impact. This was due mainly to: resistance from the Less Mobile Services (LMSs) towards the app (who were also responsible for promoting the app to their members and volunteer drivers); the elderly target users' apprehension towards adopting a new technology to request a ride; and the pre-existing challenge of recruiting volunteer drivers.

Driver	Impact on measure	Actions taken to make use of driver	Outcome/ impact
Cooperation among actors The LMSs in Ghent and Oudenaarde were particularly eager (they already felt overworked, which the app helped alleviate)	*Medium*	Shifted focus mainly to Oudenaarde and Ghent LMSs, where it seemed that the greatest impact would be possible for promoting the use of the MobiTwin app and getting feedback from test users	Despite actions taken, still a low take-up of the app among the target users and low response rates to surveys

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Barrier	Impact on measure	Actions taken to overcome barrier	Outcome/ impact
Cooperation among actors LMSs worried that the app will reduce social interaction among the target group, that they will lose contact with them and their jobs may become obsolete	*Weak*	Taxistop discussed concerns with LMSs, explained that the app is filling a gap that was already there (before the app it was not possible to request a ride less than 48 hours in advance), and that their role at the LMS would still be needed.	Taxistop continued to maintain and build up enthusiasm. However, the app is still seen as "more work" by the LMSs.
Communication & marketing Dependent on the LMSs to promote the app to test users, although the LMSs were already critical of the app (see row above)	*Medium*	Taxistop decided to not push the app too hard towards the LMSs that were critical and focused instead on the two LMSs that were enthusiastic (Ghent and Oudenaarde).	Despite actions taken, still a low take-up of the app among the target users and low response rates to surveys
Users' culture/ behaviour with technology	*Strong*	Surveys revealed many elderly are willing to try new technology, so the LMSs continued promoting the app towards their members	Despite actions taken, still a low take-up of the app among the target users (although

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Many elderly people felt insecure and somewhat fearful about using new technology			many people downloaded the app, only 1 person was using it actively) and low response rates to surveys
Stakeholder engagement It was difficult to bring the target group together for focus groups due to lack of interest and physical disabilities that prevented them from reaching the venue. There were also only two responses to the "after" survey.	*Medium*	In future, try to have one-on-one interviews with potential test persons; involve volunteers as stakeholders/ representatives of the members	Insufficient insights and feedback received from the target group → too little to make conclusions about the impact
Volunteers and Business model Recruiting volunteers*	*Medium*	Volunteers are offered the legal minimum payment; Taxistop conducted a national media campaign including a photoshoot to recruit volunteers.	Did not succeed in attracting enough new volunteers

**It should be noted that recruiting volunteer drivers was a challenge that already existed prior to implementing the MobiTwin app: 64% of the LMSs stated that the search for drivers was their biggest challenge. It is therefore clear that the Mobitwin app had neither a positive nor a negative impact on the recruitment of volunteer drivers.*

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Overall, for this measure, the barriers unfortunately outweighed the drivers. However, many lessons were learned through this experience which will be taken up in this Pilot Lab area in the future, as is illustrated in the following subchapter.

3.1.1.3 Lessons learned

The use of ICT in mobility solutions that are targeted towards elderly users may be one step ahead of their needs and skills at present. Consequently, the amount of people with the ability to test the app was low. However, from the before surveys it is clear that there is a significant amount of elderly people who are willing to test new technologies.

It is likely that the future generations will experience less difficulties with this because they are already in touch with new technologies. In the meantime, a lesson learned from this scenario is that for similar solutions it would be essential to first gather more insight from the elderly users about their technological skills, preferences and any misgivings they may have about different technologies. This information would be best gathered via one-on-one interviews. Involvement of the elderly target users from the beginning, before a solution has already been designed, would allow for a more co-creative process and likely a higher uptake of the mobility solution.

To attract more volunteers, targeted micro-level communication may be more successful in the future, as it is more personal and speaks directly to the potentially interested individuals. Volunteers should also be involved in the co-creative process from the beginning, as they are key stakeholders in delivering this solution. Co-creation is key, as well as recognising that each person involved is part of something bigger: it can help to illicit participation in focus groups, interviews and surveys if the organisation coordinating the initiative sends the message "we want you in this", and facilitates a process for the target users and stakeholders to come up with the solutions that best meet their needs and preferences.

User take-up of an app like MobiTwin may also be improved if it is implemented at the same time as a mobility service for elderly people is started (in this case, the LMS). Introducing the app into an existing LMS seems to have had a bigger adverse impact (i.e. change) on the lives of the involved actors (members, volunteers, employees) than was originally anticipated.

Related to this, allocating enough time to build trust relationships with stakeholders and users is key, especially when asking them to take up a new technology. Maintain dialogue with both groups, ask for their knowledge and expertise instead of trying to sell them a solution they don't know much about. Focus groups can also be a useful format to establish and maintain such trust relationships.

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It's also important to create a solution that suits elderly people's speed of life; the mobility world is changing at a certain speed, but the world of elderly people is changing more slowly. It is key to focus on providing solutions that empower elderly people to have control over their mobility, while providing solutions that are familiar and within their comfort zone. Consider whether ICT is best used by the end-users or the provider (i.e. in order to facilitate users' mobility). In time, as more tech-comfortable generations age, solutions such as the MobiTwin app will be more likely to fit their needs.

3.1.2 Olympus app

3.1.2.1 Measure objectives and actors involved

The Olympus app was developed by Olympus Mobility (an initiative of VAB, Cambio and Taxistop[2]) for use by (un)employed people with low income who have a migrant background and no access to a private car. It focuses on making the job market more accessible, especially in areas that are difficult to reach, by offering a fixed budget to be used on transport services available through a MaaS platform including carpooling, carsharing, high capacity public transport and on-demand transport. The app was developed within the context of the STEP project[3], which focuses on making the job market more inclusive and accessible for talents who find it difficult to find a matching job.

Overall objectives:

- increase awareness and use of MaaS solutions by (un)employed migrants (with low income)
- improve access to job opportunities for migrants

Main actors and their roles:

Type	Actor	Role
Non-profit organisation	Taxistop	Pilot Coordinator
Non-profit organisation	Olympus Mobility	App provider

[2] Cambio is a carsharing company headquartered in Bremen, Germany, which operates in Belgium and Germany. VAB is a membership-based organisation that offers breakdown and travel assistance.
[3] http://www.steproject.eu/

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NGO	VZW Compaan	• Provide training for job applicants • recruit users
SME	RiseSmart	• Promoting the app (sister project of a company that helps people to access the job market • focuses on working with vulnerable groups)

The Olympus app makes it possible for users to purchase tickets for various modes of transport, including rail, bus, tram and bike share. These are provided in cooperation with NMBS (The National Railway Company Of Belgium), De Lijn (a company run by the Flemish government in Belgium to provide public transportation), MIVB (public transport provider in Brussels), Blue-Bike (a bike sharing service with stations all over Flanders), and Velo (a bike-sharing service provided by the City of Antwerp).

The VDAB, a Belgian governmental institution which helps people to find jobs, is also an emerging actor in this pilot: they have indicated their interest in working together on the Olympus app to incorporate their reduced fares into the app.

3.1.2.2 Drivers & barriers

Taxistop measured the success of this objective in terms of the amount of communication and awareness-raising efforts engaged from the partners towards the target group (job seeking migrants), as well as the number of users, downloads of the app, PT and bike trips, and the migrants' satisfaction and success rates for finding a job because of the mobility opportunities and reduced costs provided by the app.

Overall, this measure did not manage to achieve its anticipated impact. This was due in large part to the collapse of the original STEP project partnership at a key point in the measure's implementation. STEP had agreed to promote the Olympus app to their clients, collect data on their travel behaviour and attitudes, and to train them on the use of the app. Unfortunately, the partners were at first very critical of the app and thought it would be too complicated for migrants. Subsequently, in Spring 2019, the partnership disbanded. Taxistop was left trying to find other suitable migrant support organisations who could replace the STEP partners, leading

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to delays in recruiting users to test the app. This explains, in large, the low number of test users (14 people).

Other challenges encountered were related to technological limitations, such as the compatibility of the app with different smartphone operating systems and many of the users' limited mobile data.

However, this measure clearly looks promising to another key stakeholder that has the resources and ability to help the target group: as mentioned above, the VDAB, the Belgian governmental institution which helps people to find jobs, has indicated their interest in working together on the Olympus app to incorporate their reduced fares into the app. This could also reduce the waiting time for people to get reduced fares, which normally involves a waiting time of approximately two weeks.

Driver	Impact on measure	Actions taken to make use of driver	Outcome/ impact
Business model 30 Euro credit offered per person as incentive to try app and the lowest price is provided for the transport modes offered	*Medium*	30 Euro credit incentive promoted towards target group	The 30 Euro budget added value and helped to attract test users, but it was often not enough to use the train for a long distance roundtrip. (often only covered several bus trips or a short trip with the train)
Stakeholder engagement and political cooperation VDAB became aware of app when it was presented at the HackBelgium event, wants to partner with	*Strong*	Continuing conversations with VDAB to work out partnership	Long-term sustainability of Olympus app is boosted

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Driver	Impact on measure	Actions taken to make use of driver	Outcome/ impact
project to incorporate their reduced fares			
Cooperation among actors Compaan (NGO) was at first very critical of the app, but one employee is now getting very engaged	*Medium*	Engaging more one-on-one with this employee to build a relationship and keep the momentum going	Four more people were recruited to test the app

Barrier	Impact on measure	Actions taken to overcome barrier	Outcome/ impact
Cooperation among actors NGOs at first very critical of the app; thought it would be too complicated for migrants	*Medium*	Found a local champion: one employee at Compaan (NGO) who got very engaged and is getting more people to test the app	More people are being recruited to test the app

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Barrier	Impact on measure	Actions taken to overcome barrier	Outcome/ impact
Cooperation among actors Original STEP partnership disbanded in Spring 2019	*Strong*	A lot of time needed to be spent during late spring and summer 2019 to find other suitable migrant support organisations who can replace the STEP partners	Found new STEP partners, but delays experienced have meant delays to the recruitment of users for the app
Stakeholder engagement 1) It was difficult to bring the target group together for focus groups (work, children, no response) 2) Too little response to surveys due to language barriers	*Medium*	Will bring focus groups to target group rather than asking them to come to Taxistop; in-depth interviews also helped gather richer insights Looking into holding focus groups with RiseSmart to gather more feedback	Focus groups were not well-attended. Action not yet taken to overcome this barrier Action not yet taken to overcome this barrier
Users' culture/behaviour 1) a lot of test persons have a smartphone, but limited data	*Strong*	Build one-on-one relationships during focus groups to try out the app, gather feedback so adjustments can be made to suit their needs	Action will be taken as part of the planned additional focus groups

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Barrier	Impact on measure	Actions taken to overcome barrier	Outcome/ impact
2) Language barrier (app provided in Dutch, French and English, but many test users needed another language to be able to fully understand and use the app)		Employers were informed and helped the test persons to use the app	
Role of ICT usage and engagement with tech Not able to download app on all devices	*Medium*	Build one-on-one relationships during focus groups to show them how to use web-based app	Action not yet taken to overcome this barrier

In addition to the above process-related barriers, some design elements of the app itself served as barriers:

- The route planner, which made use of the Moovit app, was perceived as not clear enough
- the login process is too complicated
- need more clarity on their rights for receiving discounts within the app

Because of these barriers, most respondents to the survey also said that they would not recommend the app to a newcomer. This feedback is being taken into account as improvements continue to be made to the app.

3.1.2.3 Lessons learned

The experience gained through this PL measure highlights the importance of establishing and maintaining personal one-on-one relationships to build trust among stakeholders and the target users, especially when developing solutions for people with a migrant background. The focus group format did not work well for attracting participants from the target group. One-on-one in-

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depth interviews elicited much more meaningful insights from the participants, as well as more of a willingness of the target group to test the app.

However, the feedback that was gathered during focus groups confirms that this group tends to feel left behind by society, so the "human touch" and one-on-one relationship building is key to successfully developing mobility solutions that meet their needs and will subsequently be used. Again for this measure, co-creation was key, as well as recognising that each person involved is part of something bigger: it can help to illicit participation in focus groups, interviews and surveys if the organisation coordinating the initiative sends the message "we want you in this", and facilitates a process for the target users and stakeholders to come up with the solutions that best meet their needs and preferences.

Further factors for success include creating a feeling of progress, offering guidance and working with ambassadors to help people with a migrant background to cope with change and experiencing new things, especially when they are trying to reach a job interview or keep a new job. In this regard, showing empathy for this target group throughout the process is important, recognising that mobility is not their first priority or biggest challenge to overcome when it comes to finding or keeping a job. Also for this target group, the mobility world is changing at a certain speed, while the world of migrants trying to survive in a new country is changing much faster (in contrast to the target group of the MobiTwin app - elderly people - whose speed of life and the change happening within it is much slower). Communication should focus on the following:

- Focus on safety when it comes to shared transport options
- Link technology with the feeling of efficiency, ease-of-use, as well as being fast and cheap
- Seek to understand not only their technological skills, but also their personal/ familiar situation

Of course, in order for this to work, it is essential to build and maintain partnerships with organisations that support vulnerable groups when delivering these types of measures. The collapse of the STEP project consortium was due in large part to a lack of enthusiasm among the partners for the measure being developed. They viewed the measure as “extra work” and experienced some project fatigue while attempting to coordinate this work among several partners. This points to the need to ensure buy-in from partners who will be developing a solution for vulnerable groups and to find strategies to maintain momentum and enthusiasm so they can see the project through to completion. To this end, it is also important for the coordinating organisation to maintain close personal contact with the individuals from these

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organisations who are working on the measure, in order to build up a tight-knit team. A major driver in this respect was the NGO Compaan[4], who emerged as a champion of the app when one of their employees took the initiative to move recruitment and awareness raising efforts forward.

In terms of the measure design, it may be useful to link such features and services to an already-existing mobility solution so that it's a more convenient and comprehensive solution. This is linked with the lesson learned that technology cannot stand on its own; the human element of every mobility solution is a key success factor. Ultimately, when seeking to find the best ICT solutions to meet the needs of the target group, it is important to start from the needs and skills of the people who are part of the target group:

- What mobility options do they currently have that do not involve ICT?
- Where are the gaps in these mobility solutions (e.g. in terms of the 8 INCLUSION principles including safety and efficiency)
- If the target group tends to be technologically proficient, then it could be helpful to start with a personal consultation with a select group of people, working on building a personal relationship and guiding them through the transport system.

3.2. Rhein-Sieg region Pilot Lab (Germany)

The Rhein-Sieg Pilot Lab consisted of four measures that each aimed to improve various aspects of children's and families' mobility in the Rhein-Sieg region of Western Germany. This is a peri-urban area characterised by a high dependency on car use. The four pilot measures were developed based on the results of VRS's 'before' survey and were introduced to better include children, young people, and those without a driver's licence to the public transport network, as well as to improve the cycling and traffic safety conditions for these target groups. They are as follows:

- E-bike Rental: A small number of e-Bikes were rented to the general public to test if the region (Hennef Im Siegbogen with aim of ca. 567 participants) would benefit from a new micro-mobility offer. The aim was to reduce the region's high dependency on car use and begin shifting the mobility culture away from single person car usage. I.e. to replace car trips (especially short distance ones) with e-bike usage. This would benefit the area which

[4] Compaan works together with companies and policy makers to ensure that people with under-utilised talents are integrated into the labour market, by matching people with job opportunities.

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is not sufficiently served by PT and increase the mobility of: children; students; youth; those with low income; those without a driver's licence.

- Additional trips and lowered tariffs on Bus Line 532: Additional bus trips were made to the existing bus line "532" which connects to Hennef's City Centre. Additions to the timetable increased the availability of the bus line and improved access to the network since this route travels to the city centre where other connections could be taken thereafter. The short haul tariff price was also reduced by 20% for both adults and children to assist low-income travellers especially families.

- MobileMap: A cycling map of the was to be created using input from numerous stakeholders. The idea behind MobilMap, is that local travellers may have uncaptured knowledge that could be beneficial to the wider public. For example, unconventional cycling routes used only by children. All mobility offers were displayed on an initial map, which was distributed by the postal service to households who sent their feedback prompted by a survey format. Information and feedback were additionally collected in person at an open-street mobility event in Hennef during early 2020. Incentives for participation was a 10EUR Amazon voucher. The map will be regularly updated.

The INCLUSION Deliverable D4.2 describes in detail the measures to be demonstrated, their design and the implementation process of the measures. It also provides a more detailed description of the characteristics of the Rhein-Sieg PL. The table below provides an overview of each measure's targeted vulnerable user(s), the prioritised geographic area in which it has been implemented, and the mobility-related challenges that it aims to overcome.

Pilot Measure	Targeted Vulnerable User(s)	Prioritised area	Mobility challenges overcome
e-Bikes	All urban peripheral residents	Peri-urban	*Accessibility; convenience; empowerment of vulnerable users*
Additional trips and lowered tariffs on Bus line 532	Low income, children, families,	Peri-urban	*accessibility; service efficiency; convenience; empowerment of*

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	people without a driver's licence		*vulnerable users; building capacity to help target group*
MobilMap	Women, children, pedestrians and cyclists	Peri-urban	*Safety; accessibility; convenience; empowerment of vulnerable users; building capacity to help target group*

3.2.1 E-bikes

3.2.1.1 Measure objectives and actors involved

The Rhein-Sieg Kreis region has been interested in implementing a viable e-Bike sharing service that can be used in a network that covers neighbouring public transport authorities. Two e-bikes were hired from a private cycling company Fahrrad XXL for this measure to explore and gage the level of interest and travel needs of potential users in the region, including how far they would travel with e-bikes, for what purposes, and whether a significant modal shift from car to bike would ensue if e-bikes were available.

Overall objectives:

- Limit short distance trips made by cars.
- Introduce e-bikes to people whom had not used them before to encourage a modal shift to cycling.
- Improve access to social and leisure activities for younger people who are reliant on caregivers driving them around, as well as adults who did not possess a driver's licence, or a car.

Main Actors and their roles

Type	Actor	Role(s)
Public Organisation	1. City tourist information offices	• Pick up point for bikes, main point of contact to users, collected heuristic feedback from friendly users.

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Local Government PT Authority	2. *Department of PT, City of Hennef* 3. *Verkehrsverbund Rhein-Sieg GmbH*	• Funded the measure • VRS coordinated the implementation, monitoring and evaluation of the measure.
Private company	4. Fahrrad XXL	• Technology provider. I.e. third party who owned the e-bikes and rented them to the Verkehrsverbund Rein-Sieg for the measure.

3.2.1.2 Drivers & barriers

The introduction of the e-bikes pilot saw a reduction of car use by more than 80 trips for its participants. It was found that there is somewhat an interest for on-demand e-bikes in the region. It is difficult to extrapolate what the level of interest is since there were too few e-bikes used in the pilot. In general, users were largely satisfied and attracted by the business model which was more than affordable for the region. A follow-up household survey was distrusted to the entire region to also enquire what their e-bike usage would be like whether or not they had participated in the pilot.

The broad success of the measure can be attributed to: the novelty and attractiveness of e-bike technology; the existing cycling network and infrastructure; the multiple sources of funding for the measure that kept the fees required from the end users quite low; marketing efforts and advertising the trial; getting to know what users needed, and catering to these needs .

The potential set-backs for this measure was very low given that it was low-cost; very localised; and small-scaled, and so the barriers it faced were slight and created only mild limitations to its impacts. These were a reduced ability to engage directly with stakeholders and/ or end users in a way that was easy for them but would yield in-depth understanding of travel behaviour for the organisers. All-in-all the measure was able to deliver the following INCLUSION principles to its

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target group to a very high degree: *accessibility; building supportive capacity of staff/ general public; convenience; empowerment.*

Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Outcome/ impact
Institutional context Public reception of e-Bike option is attractive for the entire PT network jurisdiction.	*Weak*	Since the region has many scenic and tourist cyclists, introducing an e-bike mode to the PT network made the already attractive idea additionally a functional one. By adding e-bikes to the PT network, people were enabled to travel longer distances since the bike could be returned anywhere in the PT network.	Early feedback shows positive reception by users
Integration of solutions with existing networks Rhein-Sieg region has some Infrastructure already for cyclists in place given that the region attracts adventure cyclists.	*Medium*	No actions taken specifically.	The availability of existing cycling routes allowed first time e-bike users to feel comfortable and accepting of the technology since routes and paths were well established and trusted.
Funding Multiple sources	*Medium*	Sourced both by the City of Hennef and the INCLUSION project	Secure financial backing and thus flexibility to shape the measure to suit the

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Outcome/ impact
			target group's needs without financial constraints.
Communications and Marketing rental info was made available at local tourist information office where bikes were rented from; a special brochure was sent to all households in the pilot lab area	*Strong*	Leaflets were delivered to residents via post, informing them of the new trial that would begin.	Many participants engaged with the pilot and up to 80 car trips were replaced with e-bike trips.
Understanding the needs of the target group and providing a sound Business model Cheap rental with extended rental period.	*Strong*	To encourage uptake of the e-bikes, an innovative longer rental period and pricing scheme was created. Traditionally, on demand e-bikes are rented per hour and/or by the distance travelled. However, the e-bikes here were available to rent up to 4 full weeks for a very low price of 5EUR per week.	A longer rental period allowed users to adapt their travel behaviour since they were able to keep the bikes for a longer time. This afforded them greater flexibility to determine how and when they would use their bikes, without the psychological

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Outcome/ impact
			pressure of being charged by the minute, which may have limited either the number of trips they made, and/or the journey length.

Barrier	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ Outcomes
The role of ITS Date gathered from on-board GPS and trip calculator	*Weak*	Rudimentary data collected about number of trips made and distance travelled, to determine the number of car trips replaced, and CO_2 savings.	Data used to quantitatively assess impacts of measure*.
Stakeholder engagement/ Cooperation Lack of engagement with end users of the measure.	*Low*	1) Brief face-to-face encounters during bike renting and pick up from tourist information offices 2) household survey will be conducted	Heuristic qualitative feedback received at point of sales/rental Impacts assessment will be reliant on data

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			received from the household survey

* Too few e-bikes used in the pilot to conclusively say how the mobility landscape was impacted and altered by the additional mode. Qualitative evidence was collected via household surveys to determine the extent to which user's behaviour was impacted at least at the individual level.

3.2.1.3 Lessons Learned

The small-scale of the pilot contributed to its success as it was simple and cost effective to manage, but the pilot could have benefitted from a larger scale of implementation as well as being further developed (i.e. already introducing and trialling the renting app or ICT feature that will be used when it is implemented at a city wide scale after the project's close.) Drawing conclusions about its impacts and future success is difficult given such a small sample size.

The nature of the pilot revolved around the changing travel behaviour of users. It is recommended for these types of measures that highly interactive stakeholder feedback is planned. Monitoring changes in travel behaviour should not be relied on from quantitative data only. Participants may be keen to give their feedback, but in a low-effort format for them. Written surveys (employed by this measure) required much time, and further incentivisation. In future it could be replaced, or complemented with, informal in-person interviews directly after returning the e-bikes from their place of hire.

Generally, supplementing quantitative data with qualitative data reduces the risk of relying purely on quantitative data that may be statistically insignificant if sample sizes are not big enough. In this PL, it was the case that a very small number of e-bikes was used, and drawing conclusions about travel behaviour changes would have been open to heuristic bias. If qualitative data was not also gathered for this measure, the impacts would have been difficult to weigh.

3.2.2 Additional trips and lowered tariffs on bus line 532

3.2.2.1 Measure objectives and actors involved

This measure sought to implement the increase in the frequency of trips available via train and bus modes to the city centre, particularly to improve the accessibility of low-income and family

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travellers to activities, services, and job opportunities. To further assist low-income families and complement the increased service provision, the tariff was switched from the VRS-City tariff to the lower short-haul tariff (i.e. 4 stops and less) for both adults and children. However, these measures could only be implemented for Bus line 532 and not trains.

Overall objectives:

- Improve access to public transport in Hennef Im Siegbogen for families with children and for the children's own mobility
- Improve access to public transport in Hennef Im Siegbogen for non-PT- or rare-PT-users
- Determine if increased frequency on key routes would greatly benefit target users' travel and lifestyle needs.
- Determine the role of the availability and/possibly or the affordability of PT that reduces their accessibility to opportunities in the city centre.

Main actors and their roles:

Type	Actor	Role(s)
PT Authority	*Verkehrsverbund Rhein-Sieg GmbH*	• Co-ordinator and instigator of the pilot, contact for the project and to local partners. Responsible for planning, implementing, monitoring and evaluating the measure.
Local Government	*Rhein-Sieg-Verkehrsgesellschaft*	• Local partner for public transport in the pilot area; funded the measure

3.2.2.2 Drivers & barriers

It was well understood that low-income users (especially children and youth) in peri-urban areas are particularly vulnerable to exclusion from the PT network because of the scarcity of services, as well as the affordability of it. Therefore, two measures were implemented to individually address these seemingly separate needs: 1) increase the number of trips and thus the availability of services and 2) lower the tariffs for both children and adults to make services more affordable. Interestingly, by engaging with stakeholders, such as primary users and key actors, it was learned that unaffordable ticket fares also influenced the number of times that the target group could

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use services, whether or not they were available. Stakeholder engagement and cooperation amongst actors was consequently a strong driver of understanding the user's needs. Had organisers not learned that improving affordability was an important driver for increasing the access to services, the addition of new bus lines may have not benefited the target group at all.

However, the lack of co-operation amongst particular actors was also a strong barrier to implementing the full measure. Institutional norms inhibited one party from being able to fully engage and trial the pilot's activities. The reason for little trust, and perhaps stakes in the measure's outcomes, may be that the institution was not involved from the very beginning of the pilot lab's planning process and possibly does not see itself as an agent of change given that it is a large and well-established firm with rigid corporate culture. The consequences of which, led to minor delays in the launch of the additional bus lines and reduced fares, but more significantly, prohibited the additional trips from being applied to rail transportation (initially conceptualised for bus and trains modes). This negatively impacted the measure's ability to determine if an improvement in accessibility to the city centre across the PT network could better cater for the travel needs, and thus livelihoods, of the target groups. Very generally, it can be said that except for a few individuals, public administrators were not enthusiastic to generate or implement disruptive innovations outside of their institution's norms and existing operations. Changes that were implemented came about with a slight dynamic of strong arming one entity with authority in a top-down fashion.

In-spite of the nuanced interrelations between actors, the measure largely achieved its objective to improve the following INCLUSION principles for its target users*: affordability; accessibility; efficiency; convenience; empowerment; building supportive capacity of staff/ general public*.

Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Outcome/ impact
Role of ICT Usage Used for data gathering on buses	*Low*	ICT used to collect data about ridership. Including age distribution of passengers, trip lengths, types of tickets bought, alighting and onboarding locations.	High level of data gathered as input for determining how much target groups

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Outcome/ impact
			benefitted from the measure.
Funding … and implications of necessary business model	*Medium*	The RSVG was concerned about generating less revenue. This was allayed by the hope of gaining additional passengers. The 50c reduction in tariff for adults, and 30c reduction for children was an attractive pricing scheme for low-income users.	Lowered fares are thought to encourage increased ridership, ideally by the target groups. This will be verified as soon a ticketing data becomes available.
Stakeholder Engagement/ Co-operation Engagement and cooperation between local actors and target stakeholders	*Medium*	• Cooperation amongst local actors enabled coordinators to better understand the travel need of the target group and how different needs influenced each other i.e. the role of accessibility, affordability, and frequency of travel capabilities for low-incomes users. • Internal co-operation amongst inclusion partners led to a co-learning environment at project meetings and workshops. In this case between VRS greatly	Reduced risk to activities since prior lessons of partners experiences were applied during implementation.

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Outcome/ impact
		benefitted from the lessons of Taxi-Stop.	

Barrier	Impact on measure	Actions taken to overcome barrier	Outcome/ impact
Institutional Cooperation Integration of solutions with existing networks Lack of trust building and active facilitation between some actors	Strong	After initially receiving a verbal confirmation of being able to implement a measure activity, the activity was halted by the implementing institution. The large and well-established company was seemingly unable to either dismantle their company's protocol of ticket pricing schemes, or makes changes to train schedules. A decision to not include trains for the fare reduction and increased trips measure was taken so that the measure could still be implemented for part of the PT network.	Accessibility to the city centre by bus only was improved. As there are more bus trips to the city centre, an overall increase in accessibility was achieved. However, this mode is used most by the target group. It could not be observed if the target group would have switched to using trains if it were more affordable.
Institutional Cooperation PT authority is reliant on bus	*Weak*	Employing patience and a light touch of cooperation is being used instead of perpetuating the strong-arming dynamic that exists within the measure already.	Not available in time for the process evaluation.

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operators (who are reluctant) to hand over data regarding their ticket sales to determine the impact of the measure.			

3.2.3.3 Lessons Learned

The greatest take away message revealed by the process evaluation of this measure, is that potential partners, local actors and stakeholders should be included in planning procedures as early as possible.

Not having taken this approach, disabled all parties involved from having a stake in the success of the measure.

When entities are involved early on, they assume more responsibility and ownership in the measure. They are likely to be more motivated to find and employ workable solutions. This is in stark contrast to involving parties only during the implementation phase. In this scenario, parties were less encouraged to initiate activities required of them since they were "handed" tasks. Had they been involved during planning phases, they could have created these tasks for themselves, and taken more responsibility to fulfil them.

Such ownership of activities may have also eased the relations between coordinating actors and improved cooperation which was a barrier in this measure. Furthermore, if there is a strong sense of ownership and responsibility, actors may then take on a role as an agent of change when institutional norms and rigid corporate cultures are encountered and disrupt fixed existing operations.

These assumptions are drawn from the very positive demonstration in this measure that it only takes a few passionate individuals to generate and implement new innovations to existing operations.

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3.2.3 MobilMap

This measure sought to create of new, more efficient and safer cycle routes by identifying desired cross-connections and implementing select designated cycle lanes. This includes shortened connections between for example schools, leisure facilities and public transport stops. The routes were then included in the "Mobil-in-Hennef" map, or *MobilMap* and communicated via a special distributing service to all households in the PL area. Feedback about this measure was collected in the 'after' survey.

3.2.3.1 Measure objectives and actors involved

Overall objectives:

- Improve usage of bikes (and e-bikes) in Hennef Im Siegbogen
- Determine if infrastructure issues contribute to why it's easier and more convenient to use cars, than bikes or PT. Included safety-check for cycle paths for younger riders, bike parking/ storage availability; forgotten paths or hidden shortcuts; assessment of cycle lane and path surfaces.

Main actors and their roles:

Type	Actor	Role
PT operator	Verkehrsverbund Rhein-Sieg GmbH	· Co-ordinator of the pilot · contact for project and local partners · surveyor of cycling infrastructure
Citizens	Schools and youth General public	· Stakeholder engagement on MobilMap · Stakeholder engagement on MobilMap

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3.2.3.2 Drivers & barriers

The GIS-based MobilMap was generated after a self-survey of cycle paths was conducted. In this self-survey one dedicated cycling enthusiast and local champion of the measure, assessed an area of 10km radius surrounding the centre of City of Hennef.

Mobilmap, in part, sought to address the independent mobility needs of children and families, who are primarily walking and cycling. It proved relatively difficult to include them in the measure's activities and processes due to barriers of reduced manpower, poor access to children via unmotivated schools, and the stakeholder engagement format that was selected. Although this was not necessarily a very strong barrier to the overall success of the measure, it did not align with the project's inclusive approach of its key target groups. However, several drivers of the measure ensured that the following principles were met to a high degree: affordability; safety; efficiency; convenience; empowerment.

These principles were driven by Local championing of actors within the coordinating institutions and organisations; enhancing capacities of existing cycling network and infrastructure; funding that allowed end users to access the map freely; and gaining first-hand experience of using the cycling network to thoroughly understand the needs of the target group.

Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Outcome/ impact
Institutional Context Local championing by actors within the coordinating institutions and organisations	*Medium*	Local champion took it upon themself to survey the entire cycling network within a 10km radius of the centre of City of Hennef.	First-hand experience of using the existing cycling infrastructure was gathered.

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Outcome/ impact
Integration of solutions with existing networks This measure did not require much new installation of cycling infrastructure	*Medium*	An emphasis was placed on surveying existing cycling infrastructure to be able to make particular routes more efficient, safe, and accessible for target groups. I.e. an approach was taken to make minor improvements that led to major increases in satisfaction and encouragement of modal shift.	Existing network and infrastructure were boosted for users with relatively low efforts.
Funding Only sourced by Inclusion		Without the INCLUSION project it is highly *unlikely* that this measure would have been implemented and its outcomes achieved.	MobilMaps were made available freely to all households via post and can accessed online and at tourism offices.
Role of ICT Usage GIS based map production	*Strong*	Used free *OpenStreetMap* data which was then edited, filtered and supplemented with information created together with cycling representatives of Hennef, and local inhabitants.	Map was compiled and graphically presented in an easy to read manner for cyclists.

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Outcome/ impact
Understanding needs of the target group Gaining first-hand experience of using the cycling network.	*Strong*	Self-testing the existing network of cycling paths and infrastructure to gain first-hand knowledge of what the day-to-day user faces. Additional inputs from various stakeholders.	Good level of understanding gained about quality of cycle lanes, sidewalks, pathways; available routes and navigation options; experiences such as hidden shortcuts and intersection crossings; areas where personal security and/or infrastructure safety is jeopardized.

Barrier	Impact on measure	Actions taken to overcome barrier	Outcome/ impact
Institutional Context of Funding City of Hennef has an inflexible budget that is fixed at the	*Medium*	In previous years this was not the case but a new approach to budget flows was implemented. The measure tried to keep the required cost of new infrastructure as low as possible to ease cash flow between the fixed budget allocations.	Despite a request for only 5000EUR to install new bike parking racks, the fixed budget scheme could not allow for new budget expenses

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beginning of each year.		VRS also explored the option of involving private actors to support the installation of new bike rack on their property.	at the time that the measure required it.
Stakeholder Engagement/ Cooperation Lacking manpower to support measure activities of engaging with stakeholders.	*Medium*	Since the target group could not be sufficiently engaged with due to lack of capacity, a self-survey of cycling infrastructure was conducted by the PTA and the MobilMap created with these results. Feedback on the map was collected later using household surveys sent in the mail. Participation in the feedback survey was heavily incentivised. Key inputs for the updates to the MobilMap were originally planned to be sourced from survey results as well as face-to-face interviews at an open-street event in Hennef; however, due to the COVID-19-Pandemic the open street event planned at the end of March was cancelled and postponed to end of June. It is unclear if the event will take place.	Lack of sufficient representation of target groups in the stakeholder feedback. I.e. especially from children who were largely actually left out because of this engagement format.

3.2.3.3 Lessons Learned

Overarchingly, this measure needed a stronger risk assessment during the planning phase. While it coped well with several delays and barriers, the quality of its outputs was limited due to unforeseen lack of personnel resources, and not as much engagement with stakeholders as planned.

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Lessons learned for engaging with stakeholders may include approaching them directly and not only incentivising volunteers and cycling enthusiasts passively en-mass, as was done with household surveys sent in the post, in this measure. Had a larger stakeholder group been reached then they may have also eased with the labour demand to conduct the self-survey of all cycling routes in the region. Stakeholders held a vast amount of route knowledge that remains relatively untapped.

Another lesson related to not accessing stakeholder, is to identify structures during the planning phase that exclude target groups from involvement in the measure (be it hearing their needs or pre-empting impacts their travel behaviour) or at worst, structures that exclude them from the measure entirely. Involve the identified structures and powers early in the planning process so that the target group can be accessed during the implementation phases too. This comes from the inability to engage with children who were largely left out of the measure. Creating a "stakeholder committee", and in this case a "children's committee" is recommended for future replications, especially for difficult to reach target groups. This will ensure their voices are at the forefront of decision-making processes. In this case, were there more manpower, collaborating better with schools to organise focus groups with pupils could've given planners access to children's views and opinions on their travel behaviour.

3.3. Budapest Pilot Lab (Hungary)

This PL's measures are both centred on improving the travel needs of people with reduced mobility (PWRM). It focused on improving the competences and capacities of PTO staff to assist people with disabilities and injuries, by broadening their comprehension of mobility and travel needs. The public transport authority of Budapest BKK coordinated the following two measures that provide a more equitable transit environment:

- Staff training: A new training programme for bus, metro and tram staff was developed to further their knowledge about enabling travel for people with reduced mobility (PWRM; visually impairments; physically disabled; temporarily injured; large luggage; child-strollers; tourists speaking different languages). The training focused on increasing staff competences for catering to the travel needs of people with reduced mobility. A positive change to staff behaviour after trainings helped create a more aware and inclusive environment.

- Awareness Raising Campaign: An online, public platform was programmed and launched to allow travellers to share their travel experiences and highlight specific issues/problems

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they face with the PT system. This was particular to the travel issues of people with disabilities, although anyone could anonymously submit reports.

The INCLUSION Deliverable D4.7 describes in detail the measures to be demonstrated, their design and the implementation process of the measures. It also provides a more detailed description of the characteristics of the Budapest PL. The table below provides an overview of each measure's targeted vulnerable user(s), prioritised area, and the mobility-related challenges that it aims to overcome.

Pilot Measure	Targeted Vulnerable User(s)	Prioritised area	Mobility challenges overcome
Staff Training	People with reduced mobility	Urban	*Accessibility; safety; convenience; empowerment of vulnerable users; building capacity to help target group; service efficiency*
Awareness Raising Campaign	People with reduced mobility	Urban	*Accessibility; safety; convenience; empowerment of vulnerable users; building capacity to help target group; service efficiency*

3.3.1 Staff Training

The measure involved four phases: 1) a workshop was held with representative and associations of the target groups to better understand their respective and varied mobility needs, 2) a reflection process and needs assessment that led to the production of a training guide, 3) conducting the training with staff in participation with volunteers (I.e. people with reduced mobility from disability associations that assisted to demonstrate their needs, and teach the staff how to enable them, 4) evaluation of the impacts on the staff and volunteers.

3.3.1.1 Measure objectives and actors involved

Overall objectives:

- Increase the sensitivity of staff to the needs of people with reduced mobility to become more aware of structures or behaviours that limit the target groups mobility options.

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- Increase the confidence of staff to assist people with reduced mobility when needed.
- Provide competent behaviour from public transport staff towards people with reduced mobility

Main actors and their roles:

Type	Actor	Role(s)
PT Authority	*BKK* *BKK Staff*	Coordinator and major beneficiary of measure *Participants of training*

3.3.1.2 Drivers and Barriers

Despite the extensive time-consuming processes of organising stakeholders and their engagement processes, cooperative efforts of stakeholders, target groups, and participating trainees was the key driver of this measure.

Without the facilitation of trust building, an open co-learning environment would not have been created. A forum consisting of associations representing different disabilities was vital to understanding user's needs which this measure leaned on for its success. The feedback from participants was largely positive especially because trainings had a real-world feel… teachings could be directly applied and tested with the volunteers. A great sense of trust and comfort was built for both staff and volunteers through the engagement process, and has led to the improvement in the following INCLUSION principles for the target groups: accessibility; efficiency; convenience; building supportive capacity of staff/ general public; empowerment.

Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ outcome
Institutional Context A national level mandate has been given to public entities to improve accessibility for the	*Weak*	Improving accessibility is steered from the local level, and not necessarily in a top-down fashion as a mandate would suggest.	Did not strongly impact the measure, but there is high probability in future that the measure will continue given the current socio-political approach toward

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cityscape as a whole.			people with reduced mobility
Funding Availability and access only from INCLUSION	*Medium*	Without the INCLUSION project this measure is unlikely to have been implemented in this the time period it did. Stronger influence and funding would have had to be provided and directed from the national/city level.	A successful measure that will be funded by the project partner after the closure of the project
Role of ICT Usage New training guidelines generated from stakeholder engagement	*Weak*	The guidance materials used for the trainings were generated from stakeholder engagement with target groups and representatives from disability associations. These were published for stakeholders online including recommendations for holding your own trainings.	The trainings can be held by other PT authorities and operators. The materials are available in local languages.
Stakeholder engagement Understanding needs of target group Trust building and facilitation efforts	*Strong*	Stakeholder engagement was the driving force behind the entire measure. A co-learning environment was created by all parties involved because of trust building exercises and workshops that were facilitated by the coordinators which allowed direct interaction of training staff with their target audience. In doing so, both parties were empowered.	Great sense of trust developed between actors, that can be relied on for future trainings. i.e. strong development of business relationship with volunteers who are likely to join for future training sessions again.
Business model	*Medium*	Large interest from staff to participate in the training.	Trainings will be routinely repeated using materials

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Training was free for everyone involved, volunteers, staff etc.			created from this trial.

Barrier	Impact on measure	Actions taken to overcome barrier and subsequent outcomes	Impacts/Outcomes
Institutional context Finding and tendering an educational training company.	*Weak*	The development of the educational training programme was handled by a subcontracted third party. The tendering and negotiation process took more time than anticipated.	A strong contract was created that enabled the non-profit organisation to create a programme exactly suited to BKK's employee and ridership needs.
Institutional context Monitoring and evaluating the results are difficult.	*Weak*	It is difficult to conduct a city-wide scale impact assessment for people with reduced mobility to determine how they have directly befitted from this training, especially since impacts may be delayed.	Possibility of a time lag time between training and the benefits for target groups.
Stakeholder engagement Unexpected amount of time and effort to organize	*Medium*	Several efforts were needed in the planning period to reach out, collect and negotiate participation of relevant stakeholders in workshops and trainings. Much time more time	The investment of time payed off with very collaborative and engaged training sessions. There are now strong partnerships forged

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workshops, volunteers, training events, etc.		was invested in these preparations beyond the original allocations.	which will continue to be carried into future trainings.

3.3.1.3 Lessons Learned

Co-learning and co-creation processes with stakeholders take much time and pre-planning to ensure smooth and fruitful co-operative engagement. But when enacted carefully can have very productive and meaningful outcomes for each of the actors involved. In this scenario, trust was built for both the organisers (i.e. BKK staff being trained) and the target group (PWRM volunteers). Stakeholder engagement with PWRM is usually met with openness from their side despite that this target group exposes their vulnerability in dealing with people who are unaware of their needs, which has a risk of being emotionally triggering for them. However, as happened in this measure, there is a great potential created for them to develop a sense of trust with the organisers and not just the other way around. This bond developed between actors, that can now be relied on for future trainings. I.e. there was a strong business relationship developed with volunteers who are likely to join for future training sessions again.

For the trainees, building trust and confidence in themselves was a key learning component for increasing their capabilities and knowledge of disability needs. Gaining this confidence came from directly interacting with the target group, and consequently led to directly understanding the travel needs of people with reduced mobility.

Target group stakeholders were highly involved in the development and enactment of the training programme. Their high-level of interest and stake in the measure's success, comes not only from their direct benefit of the training program, but also because the target users were included at the start of the planning phase. They were empowered and included in all decision-making processes and gave coordinators a comprehensive understanding of their needs before measure implementations were carried out, thus pre-empting any unmet needs well in advance of the measure's implementation that could be taken care of.

3.3.2 Awareness Raising Campaign

An online, public platform was programmed and launched to allow travellers to share their travel experiences and highlight specific issues/problems they face with the PT system. The

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implementation and operational processes involved four phases: 1) contractual negotiation and agreement with NGO *Járókelő*[5] to develop a reporting portal; identification of mobility related problems and unmet needs of target groups, 2) programming of sub-page on *Járókelő* website; development of a public campaign to encourage the general public to submit reports, 3) Launch of reporting portal and public campaign, 4) Attending to reports and evaluating measure's activities.

3.3.2.1.Measure objectives and actors involved

Overall objectives:

- Create welcoming and trusting environment for PT users to report barriers for people with reduced mobility,
- Respond quickly to ALL incoming reported issues
- Improve public transport usability for people with reduced mobility by addressing and amending easy to fix issues.
- Note and collect common issues that require more long-term planning to be properly addressed.

Main actors and their roles:

Type	Actor	Role(s)
PT Authority	BKK BKK Communication's Dept	• Co-ordinator of campaign • collect reported issues from the public and address them according to the urgency
NGO	Jáaróakelőo	• Online reporting portal on the management of public space issues. They take responsibility of relaying the reported issues to relevant entities where the issues are faced. In this case BKK. This service is provided for by volunteers.

[5] Járókelő is a volunteer-run NGO that operates the website jarokelo.hu, which offers any member of the public to report problems related to public space. Járókelő then sends the reports to the responsible authorities and so they can be fixed. The entire process - from problem submission to resolution - is tracked publicly on the website.

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3.3.2.1 Drivers and Barriers

The definitive success of this measure was chiefly driven by two key inputs: a joint partnership with Jáaróokelőo NGO and the willingness of the public to crowd-source information about limitations to accessing PT.

Jarokelo.hu is a well-known public announcement site. This measure has ensured *convenience*, *efficiency*, and *transparency* (since everyone can monitor the progress of a reported issue) to its target groups by engaging with this particular stakeholder to further the accessibility of PT in the region. The existing network is broadly trusted by the public and they provided the space for target users to elaborately describe their needs.

Marketing the new offer was central to making people aware of this option since the measure's success relied on incoming reports. Additionally, communication of how reports were handled were equally as important. People with reduced mobility were *empowered* by this measure in the sense that they were given a legitimate and public space to express unmet needs and their voices were heard and quickly responded to. Not all reported issues can be solved, especially physical barriers that require longer-term solutions and planning (e.g. installation of elevators, using free-step access to PT vehicles, etc.), but all issues, irrespective of scale, were quickly acknowledged and explained whether it could be addressed or not. Where issues couldn't be easily resolved, detailed answers were given and alternative routes of travel were offered.

BKK's previous protocol for dealing with accessibility issues was outdated and slow, but the perception of accessibility-issues not being prioritized was overcome. Other minor barriers that were overcome include the initially slow uptake and engagement with the online portal by certain users, especially elderly, people with special needs, low-income, non-native language speakers.

Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ outcomes
Institutional / Regulatory Context:	*Medium*	Measure was championed by PL team to find local championing stakeholders from the target groups. Because these passionate organisers	• Greater awareness of target groups' needs across the institution and at

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ outcomes
1) Local champions within the coordinating team 2) New CEO for BKK and mayor for Budapest		wanted to go beyond simply improving the current reporting process (I.e. just sending BKK an email which usually doesn't get responded to), they were able to create an innovative and complementary tool that works with the training program. BKK is willing to do something good to improve the situation for target groups. The new leadership brought a fresh wind to the organisation, especially with a push for mobility measures that cater to people with reduced mobility. This messaging was also reiterated by a new mayor for the city both leaders are passionate about connecting the city together.	the general public level which overcomes previous approaches of public and local authorities that prioritized other issues over accessibility issues. ● Strong connections made between the institution (BKK) and stakeholders that would have not been without local championing on either side.
Stakeholder Engagement/ Cooperation: 1) New (potentially long term) relationship between PTA and online-portal managers.	*Strong*	Despite a time-consuming process to internally approve a new partnership agreement at BKK, the web-developers will continue to manage the reporting portal for the foreseeable future, i.e. beyond the INCLUSION project lifespan	● Continuation of measure beyond INCLUSION from strong partnership bonding.
Understanding User's needs and Role of ICT Usage	*Strong*	● Reports received via the online portal helped the PTA better understand the user's needs	● Time constraints removed for the

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ outcomes
Single collection point online for all reports received, with a high level of detail described of reported issues.		because users were prompted for additional metadata regarding their reports and/or complaints. For example, what barriers they faced, what disabilities (if any) they had, for how long have they experienced an issue etc. ● They are provided the space to explicitly explain what they need and (if they already have any) recommendations. Users can take as long as the need to construct the report of the issue, which was not always the case when reports were given over the telephone.	user when reporting issues. ● High level of understanding users' needs in detail that enable tailored solutions to be developed.
Communication and Marketing; Trust building & active facilitation: 1) Marketing the campaign 2) Communication between stakeholders and BKK created much value from the	*Strong*	PTA has experienced challenges when marketing new and existing offers to public. But marketing a new reporting service via an external, already existing, and trusted NGO whose aim is to act in the public's interest, strongly drove the public to engage with the new service. Additionally, vulnerable users' associations used their social media platforms to support the campaign Reports were collected by BKK's communication department and	Positive reinforcement and continued bond of trust between the public, vulnerable users, and the PTA. Snowballing effect of users reporting issues, once their first experiences with the process was a good one.

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ outcomes
voluntary openness of users with reduced mobility in both measures.		responded to within a strict deadline. This ensured a *strong continuation of trust for the user* from using the portal to create the report, to quickly receiving thanks, acknowledgment, and potential solutions. I.e. reported issues were not lost in an email inbox somewhere.	

Barrier	Impact on measure	Actions taken to overcome barrier	Impacts/ Outcomes
Role of ICT usage: Slow take-up of ICT elements by all user groups (esp. elderly, people with special needs, low-income, non-native language speakers)	*Weak*	An easier to access mobile-friendly interface for the target groups to use was developed.	No complaints received about not being able to report issues via the portal. I.e. usually reports can also be received via telephone or email.
Integration of solutions with existing networks: Using PTA's existing communication channels	*Weak*	This measure would not have benefitted from using existing communication channels. A new source had to be used for the public could to overcome their perception that public institutions do not prioritise accessibility issues as was the case in the past.	Trustworthy alternative network used to report issues as opposed to BKK's existing email option that was used in the past for receiving issues.

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Funding: At first it was not clear how the measure would be funded	*MediumWeak*	It was possible to secure a combination of public and private funds for the NGO and the PTA involved in the measure since regulatory and socio-cultural pressures to cater to the needs of the target groups provided motivation for various investors.

3.3.2.2 Lessons Learned

- Be sure that the measure being implemented to benefit the target groups, can actually be used by the target group. The measure ultimately aimed to improve access for people with reduced mobility to the PT network, by producing an online reporting system that itself was nearly inaccessible for the target group. Jáaróakelőo's website has limited accessibility functionalities. However, a contingency was made early enough to ensure that the reporting system could also be used via mobile devices with enhanced accessibility functionalities.
- This measure relied heavily on crowd-sourced data. It took much time and effort to advertise the new reporting system. In future replications a communication strategy should be developed for any measure that particularly requires a high-level of input from the public. In this way, alternative communication channels can be identified that are specifically suited to each target group and a marketing campaign can be catered to them respectively.
- The public found using modern web-based tools and ICT solutions more convenient for reporting PT-related issues than old fashioned ones. Having the online portal also seemed to legitimize the belief that the PTA is now more concerned with addressing issues since they are designating space to hear the issues.

3.4. Florence metropolitan area Pilot Lab (Italy)

The Florence metropolitan area Pilot Lab focuses on two distinct areas within the metropolitan region of Florence: a deprived suburban area north of Florence that has a large population of people with a migrant background, and the rural area of San Piero a Sieve, from which many people commute into Florence for work and school. In total, seven measures were implemented, clustered into three thematic areas:

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I. **Reorganisation of bus lines for migrants and rural commuters:** Reorganisation of bus line 30 for migrants; Reorganisation of bus routes and transport hub in rural area of San Piero a Sieve.
II. **Improvement of user information infrastructure:** On-board monitors for passenger information on lines 30 & 35 for migrants; Smart pole for rural area of San Piero a Sieve.
III. **Introducing new functionalities in ATAF 2.0 app:** Getting users' feedback on lines 30 & 35 for migrants; Getting users' feedback in rural area of San Piero a Sieve for rural commuters; Improving multimodal user information in San Piero a Sieve.

The INCLUSION Deliverable 4.3 describes in detail the measures to be demonstrated, their design and the implementation process of the measures. It also provides a more detailed description of the characteristics of the Florence PL.

Pilot Measure	Targeted vulnerable user(s)	Prioritised area	Mobility challenges overcome
I. Reorganisation of bus routes and transport hub:			
Reorganisation of bus line 30 for migrants	People with a migrant background; people with a low income	Peri-urban	Inaccessibility of the bus line
Reorganisation of bus routes and transport hub in rural area of San Piero a Sieve	Commuters, Students	Rural	Fragmented demand; high dependency on private car use
II. Improvement of user information infrastructure (on-board monitors on bus lines 30 & 35; smart pole in S.Piero):			

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Pilot Measure	Targeted vulnerable user(s)	Prioritised area	Mobility challenges overcome
On-board monitors for passenger information on lines 30 & 35 for migrants	People with a migrant background; people with a low income	Peri-urban	Lack of transport information; language barriers
Smart pole for rural area of San Piero a Sieve	Commuters, Students	Rural	Lack of transport information
III. Introducing new functionalities in ATAF 2.0 app (feedback and multimodal information):			
Getting users' feedback via ATAF 2.0 app on lines 30 & 35 for migrants	People with a migrant background; people with a low income	Peri-urban	Lack of accessible transport information; Public transport authority's understanding of migrants' needs
Getting users' feedback via ATAF 2.0 app in rural area of San Piero a Sieve for rural commuters	Commuters, Students	Rural	Public transport authority's understanding of commuters' needs

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Pilot Measure	Targeted vulnerable user(s)	Prioritised area	Mobility challenges overcome
Introduction of new functionalities in ATAF 2.0 app to improve multimodal user information in San Piero a Sieve	Commuters, Students	Rural	Lack of information; difficulty making intermodal connections

3.4.1 Reorganisation of bus routes and transport hub

3.4.1.1 Measure objectives and actors involved

Selected bus lines that serve the two PL areas were rerouted to better serve the target users' needs. The route for bus line 30 was reorganised with a new timetable and two additional stops so that the walking distance from the nearest bus stop to the tramway stop was reduced from 700 meters to 270 meters. In San Piero a Sieve, the transport hub was redesigned to ensure better connection to and between bus stops and the railway station, while the bus routes were also reorganised in this area. A smart pole with real-time transit information was also installed, but this is described in more detail in the following subchapter.

These relatively straightforward measures were carried out solely through cooperation between Busitalia - Sita Nord (the public transport authority for the Florence metropolitan area) and ATAF Gestioni (the public transport company controlled by Busitalia). The target users were not directly consulted as part of this process.

Overall objectives:

- Reorganisation of bus line 30 for migrants:
  - Improve access to PT in the area close to line 30 for migrants.
  - Improve satisfaction with bus line 30 for migrants.
- Reorganisation of bus routes and transport hub in rural area of San Piero a Sieve.
  - Improve the connectivity between different bus lines and the intermodality between bus and rail service for rural commuters.
  - Improve satisfaction with the PT service in S. Piero Area for rural commuters.

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Main actors and their roles:

Type	Actor	Role(s)
Public transport authority for the Florence metropolitan area	Busitalia - Sita Nord	Coordinating the pilot lab activities together with Ataf
Public transport company controlled by Busitalia	ATAF Gestioni	Coordinating the pilot lab activities together with Busitalia

Metropolitan Florence Authority ("Città Metropolitana") and especially the Tuscany Region also influenced the implementation of these measures, as they had the power to approve or deny their implementation. Nothing could have been done in this pilot measure without the approval of the Tuscany Region.

3.4.1.2 Drivers & barriers

For the measure "Reorganisation of bus line 30 for migrants", BusItalia measured the success of its objectives in terms of an increase in the number of trips by migrants, the proportion of migrants who are making bus to tram connections, satisfaction of the PT offer, the implementation of two additional bus stops, and increased ease of access to associations, services or workplaces.

For the measure "Reorganisation of bus routes and transport hub in rural area of San Piero a Sieve", BusItalia measured the success of its objectives in terms of improved connectivity between different bus lines and the inter-modality between bus and rail service for rural commuters and improved satisfaction with the PT service.

Overall, these measures successfully achieved their anticipated impacts. Ridership on line 30 nearly doubled during peak hours after the line was reorganised, and a 78% increase in the bus trips made by migrants was noted. The target users were also highly satisfied with the service. Likewise for the San Piero a Sieve measure, the number of daily users of the PT service in the S.Piero area increased by nearly 8%, as did the number of trips involving transport connections to train service due to the redesign of the bus routes. This indicates that Busitalia and ATAF have worked well together to reorganise the routes so that they optimally serve the mobility patterns of the vulnerable target users.

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ outcome
Business model; Cooperation among actors: Local and regional authorities convinced due to their main intention to increase ridership (costs main concern)	*Strong*	Promoted the business cases for these measures towards the decision-making authorities	The measures were approved and funding was granted

Barrier	Impact on measure	Actions taken to overcome barrier	Impacts/ Outcomes
Organisational/ institutional; Funding: Approval required from Tuscany region to do anything and to receive funding; bureaucratic process	*Weak*	Promoted the business cases for these measures towards the decision-making authorities	Funding and approval were possible but time-consuming to secure

3.4.1.3 Lessons learned

These two measures were relatively easy to implement once the local and regional authorities gave their approval. These decision-making bodies were mainly convinced due to this measure's

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alignment with their goal to increase ridership, thereby increasing fare revenue. It is therefore likely that similar measures implemented in other rural and deprived urban areas that benefit vulnerable user groups could boost their chances of receiving funding and approval from local and regional authorities by promoting their business case (i.e. better service attracts more riders and therefore increased fare revenue) towards these decision making bodies.

3.4.2 Improvement of user information infrastructure (on-board monitors on bus lines 30 & 35; smart pole for rural area of San Piero a Sieve)

3.4.2.1 Measure objectives and actors involved

The two measures implemented in this category aimed to simplify and improve the quality of transit information. In San Piero a Sieve, a smart pole which displays real-time transit information was installed for the benefit of rural commuters. For the measure related to bus lines 30 & 35, which targets people with a migrant background, on-board monitors were installed on the buses which display passenger information in different languages that is tailored to the users' needs, including real-time information, next stop and information about how to use the bus (e.g. which door to exit from). This was mainly achieved by reducing text and using more symbols and pictures that are universally understood.

These measures are the direct outcome of a co-design participatory process that was conducted together with Sociolab Scarl, a social cooperative, and Cenacolo, a volunteer association, and held with stakeholders and people with a migrant background. Participants were mainly from Iran, Ethiopia, Eritrea and Somalia. Busitalia also consulted some volunteer associations which manage projects of the Protection System for Asylum Seekers and Refugees and Extraordinary Reception Centres (CAS) on the territories of the province of Florence. Focus groups were held at the bus stop and on the bus. This was more of a validation exercise because Busitalia had already decided to install the on-board monitors. The participatory process involved:

- A mapping activity and observation of target users
- A focus group with target stakeholders and users' representatives
- Co-participatory laboratories at the "physical" touch point of the service (at the bus stop and on board the bus)

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Busitalia also did some field research, observing the difficulties that migrants have while traveling by public transport. At the end of these processes, a final meeting was organised to present the main outcomes to Busitalia technicians, the communication division and members of the Board.

Overall objectives:

- On-board monitors on bus lines 30 & 35:
  - Improve the quality of the user information of the service in the urban lines 30 and 35 for migrants
  - Get a better understand of migrants' needs
  - Enhance the involvement of migrants
  - Improve satisfaction with the bus service on lines 30 & 35
- Smart pole for rural area of San Piero a Sieve
  - Improve the quality of the user information of the bus and rail services in the rural area of S. Piero to rural commuters
  - Improve satisfaction with the PT service in S. Piero Area for rural commuters

Main actors and their roles:

Type	Actor	Role(s)
Public transport authority for the Florence metropolitan area	Busitalia - Sita Nord	Coordinating the pilot lab activities together with ATAF
Public transport company controlled by Busitalia	ATAF Gestioni	Coordinating the pilot lab activities together with Busitalia
Social cooperative	Sociolab Scarl	Supported Busitalia in organising the co-design process with vulnerable users
Research-oriented SME	Softeco Sismat	Software provider of ATAF App 2.0; upgraded the app with new functionalities
Volunteer association	Cenacolo	Worked with BUSIT to carry out the focus groups [Bus lines 30 & 35 only]

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Metropolitan Florence Authority ("Città Metropolitana") and especially the Tuscany Region also influenced the implementation of these measures, as they had the power to approve or deny their implementation. Nothing could have been done in this pilot without the approval of the Tuscany Region.

3.4.2.2 Drivers & barriers

For the measure "On-board monitors on bus lines 30 & 35", BusItalia measured the success of its objectives in terms of the target users' satisfaction with the quality of PT information on lines 30 & 35, as well as the installation of new on-board monitors on the buses that run on this line.

Overall, this measure successfully achieved its anticipated impacts. Four new panels were installed on two buses on lines 30 and 35. According to the "after" survey, the majority of all users are quite satisfied with the quality of the information transmitted on board because it is in real-time and easy to understand. They also appreciate that the next bus stop is indicated on the monitors. However, they suggested possibilities for additional information, e.g. how to validate the ticket, options for purchasing tickets and clear information about the fine for invalid or missing tickets. It was not possible to differentiate responses from people with a migrant background from those who are not part of this target user group.

For the measure "Smart pole for rural area of San Piero a Sieve", BusItalia measured the success of its objectives in terms of the level of users' satisfaction with the quality of information about the bus and rail services and improved satisfaction with the PT service.

Overall, it is not yet possible to assess whether this measure achieved its anticipated impacts. At present, it is not possible to assess users' level of satisfaction with the quality of information or the bus and rail services in this area, as these indicators are dependent on the implementation of the measure "Introduction of new functionalities in ATAF 2.0 app to improve multimodal user information in San Piero a Sieve", which was delayed by four months (see the following subchapter). It will be possible to conduct a specific survey to assess these impacts after the new features have been operational for one month, so that enough time has passed for people to make use of them and for users to provide their feedback via the app.

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ outcome
Business model; Cooperation among actors: Local and regional authorities convinced due to their main intention to increase ridership (costs main concern)	*Strong*	Promoted the business cases for these measures towards the decision-making authorities.	The measures were approved and funding was granted.
Cooperation among actors; Trust-building: Sociolab's and Cenacolo's networks and social contacts	*Strong*	Established contacts with local ambassadors for the people with a migrant background.	Trust was built among the people with a migrant background, which facilitated successful and insightful focus groups.
Business model; Stakeholder engagement: Incentive offered for people to participate in focus groups (10 free PT tickets)	*Medium*	Incentive was promoted towards the target users.	Good attendance rate of target users during focus groups.

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Barrier	Impact on measure	Actions taken to overcome barrier	Impacts/ Outcomes
Organisational/ institutional; Funding: approval required from Tuscany region to do anything and to receive funding; bureaucratic process	*Weak*	Promoted the business cases for these measures towards the decision-making authorities.	Funding and approval were possible but time-consuming to secure.
Technological: Difficulties encountered connecting the smart poles to the electrical grid	*Medium*	Considered solar powered smart poles, but decided against it because of the maintenance costs. Decided to use batteries that last 2-3 years.	Smart poles successfully installed.

One further aspect - which was neither a driver nor a barrier but may have an impact on the long-term sustainability of this measure - was that during implementation of the measure, there was a new public service tender for public buses covering the regional territory. The consortium that BUSIT was part of unfortunately lost the tender. This also played a role in the delay to the ATAF 2.0 app launch. Subsequently, all buses were bought by a new company. All measures implemented in INCLUSION can continue, but there is a risk that these features could be actively removed. However, it is not clear in which direction it will go: they could also continue to expand this solution within the wider bus network.

3.4.2.3 Lessons learned

The co-design process that led up to the implementation of the on-board monitors (and the improvements to the ATAF 2.0 app) was critical for the success of these measures - in particular the measures benefitting people with a migrant background. However, enough time should be allocated for this process to be effective. It may be necessary to go through several feedback

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and revision loops, so the actors involved in facilitating this process should be patient and prepared to conduct this.

It was also essential to involve a volunteer association to facilitate the relationships with the migrant community. The cooperation with stakeholders who work for improving the integration and inclusion of people with a migrant background has been essential. A specific workshop was organised in one of their facilities and helped the engagement of vulnerable users. However, the gender and age balance could be improved, as young men were overrepresented in the focus groups.

Cultural considerations should also be taken into account during the participatory process with people with a migrant background, in particular safety as an overarching issue both at the bus stop and onboard. People with a migrant background tend to feel marginalised by their fellow passengers and also by the drivers. Also, because people with a migrant background may not be so confident in the written local language, it was found in this PL that it is more helpful to give them a check-list with predefined sentences.

Regarding the public bus tendering process explained in the previous subchapter, a recommendation coming out of this experience is that when public authorities develop tenders, they should be very careful with the wording so that improvements to the system - such as those developed in this measure - aren't potentially lost when a new operator takes over.

Finally, these measures that improve user information infrastructure via on-board monitors and a smart pole can also benefit tourists and could be promoted towards them as well. It is therefore easily transferable to other such tourist areas.

3.4.3 Introducing new functionalities in ATAF 2.0 app (feedback and multimodal information)

3.4.3.1 Measure objectives and actors involved

The three measures implemented in this category aimed to improve the ATAF app, which provides route planning services and transit information for the public transport services in the Florence metropolitan area. The participatory process described in the previous cluster of measures also provided input for the features to be added or improved in the new version of this app. These features include a simplified interface, use of more widely understood symbols (e.g. using emoticons to express preferences rather than using a star-based rating system), as well as adding real time transit information for the bus and train services. For the benefit of

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people with a migrant background, the questionnaires in the app were re-written in simple Italian. The app is not translated into any other languages.

Overall objectives:

- Getting users' feedback via ATAF 2.0 app on lines 30 & 35 for migrants:
  - Get a better understand of migrants' needs
  - Enhance the involvement of migrants
  - Improve satisfaction with the bus service on lines 30 & 35 for migrants
- Getting users' feedback via ATAF 2.0 app in rural area of San Piero a Sieve for rural commuters:
  - Get a better understanding of rural commuters' needs
  - Improve satisfaction with the PT service in S. Piero Area for rural commuters
- Introduction of new functionalities in ATAF 2.0 app to improve multimodal user information in San Piero a Sieve:
  - Improve the quality of the user information of the bus and rail services in the rural area of S. Piero to rural commuters

Main actors and their roles:

Type	Actor	Role(s)
Public transport authority for the Florence metropolitan area	Busitalia - Sita Nord	Coordinating the pilot lab activities together with Ataf
Public transport company controlled by Busitalia	ATAF Gestioni	Coordinating the pilot lab activities together with Busitalia
Research-oriented SME	Softeco Sismat	Software provider of ATAF App 2.0; upgraded the app with new functionalities
Social cooperative*	Sociolab Scarl	Supported Busitalia in organising the co-design process with vulnerable users

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Volunteer association*	Cenacolo	worked with BUSIT to carry out the focus groups [Bus lines 30 & 35 only]

*These actors were involved in the participatory co-design process, the drivers and barriers of which are described in more detail in the previous subchapter for the measure cluster "Improvement of user information infrastructure (on-board monitors on bus lines 30 & 35; smart pole for rural area of San Piero a Sieve)".

Metropolitan Florence Authority ("Città Metropolitana") and especially the Tuscany Region also influenced the implementation of these measures, as they had the power to approve or deny their implementation. Nothing could have been done in this pilot without the approval of the Tuscany Region.

3.4.3.2 Drivers & barriers

For the measure "Getting users' feedback via ATAF 2.0 app on lines 30 & 35 for migrants", Busitalia measured the success of its objectives in terms of the number of queries received from the users, the end-users' participation in validating the existing service and in proposing new ideas and solutions and users' level of satisfaction with the bus service.

For the measure "Getting users' feedback via ATAF 2.0 app in rural area of San Piero a Sieve for rural commuters", Busitalia measured the success of its objectives in terms of the number of queries received from the users and users' level of satisfaction about the PT service in the area.

For the measure "Introduction of new functionalities in ATAF 2.0 app to improve multimodal user information in San Piero a Sieve", Busitalia measured the success of its objectives in terms of the number of trips involving transport connections to train service and users' level of satisfaction with the quality of information about the bus and rail services.

Overall, it is not yet possible to assess whether these measures achieved their anticipated impacts. The launch of the ATAF 2.0 app was delayed by four months due to the following:

- Busitalia's Department of Communication needed to approve the launch of the app
- Adjustments needed to be made to the app based on the outcomes of the focus group (easy-to-use interface and user-friendly graphics)
- Further approval was needed internally at Busitalia to implement the requested adjustments to the app. Confirmation arrived only in February 2020.

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ outcome
Business model; Cooperation among actors: Local and regional authorities convinced due to their main intention to increase ridership (costs main concern)	*Strong*	Promoted the business cases for these measures towards the decision-making authorities	The measures were approved and funding was granted
Cooperation among actors; Trust-building: Sociolab's and Cenacolo's networks and social contacts	*Medium*	Established contacts with local ambassadors for the people with a migrant background	Trust was built among the people with a migrant background, which facilitated successful and insightful focus groups

Barrier	Impact on measure	Actions taken to overcome barrier	Impacts/ Outcomes
Political: It is more difficult politically to conduct a project targeted to people with a migrant	*Medium*	Cooperating with volunteer associations helped to bridge the gap and build up a trusting relationship with	It was possible to implement such measures, but it required extra effort

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Barrier	Impact on measure	Actions taken to overcome barrier	Impacts/ Outcomes
background because of the socio-political tensions around this issue at the moment		the people with a migrant background	
Organisational/ institutional factors: Bureaucratic approval process to launch the app, in the midst of which further adjustments needed to be made based on the outcomes of the focus groups, which then required further approval internally at Busitalia to implement	*Medium*	No mitigation actions were possible during this administrative process	The launch of the app, and consequently the "after" surveys, were delayed by 4.5 months

3.4.3.3 Lessons learned

Because the ATAF app already existed before this PL measure began, the participatory process that was conducted to gain input from the target users was more of a validation exercise rather than a pure co-creative process from the start. It would have been good to involve the target groups in the design of the app from the beginning. In the long-term, a new app will need to be co-developed with users so that it is better tailored to their needs. This echoes a lesson learned from the Flanders PL Olympus app measure: it seems to be significantly more challenging to retrofit an app to benefit a target group that was not taken into account in any way in the original design of the app.

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In terms of communication and design of the app for the benefit of people with a migrant background, the following lessons were learned through the focus groups:

- It is important to thoroughly understand the language proficiencies and preferences of people with a migrant background. This includes whether they prefer their native language, simplified local language or English, as well as their reading and writing proficiency in the local language.
- The people with a migrant background in the Florence PL preferred simpler words and sentence structures in Italian, so that it was not necessary to translate the app or questionnaires into different languages
- Less text and more usage of universally understood symbols and pictures were also preferred

The people with a migrant background and the commuters emphasised the importance of having real time, integrated transit information for train and bus in order to facilitate intermodal connections.

For further lessons learned regarding the participatory process that also played a role in the development and implementation of these measures, please see the "Lessons learned" subchapter in the cluster of measures entitled "Improvement of user information infrastructure (on-board monitors on bus lines 30 & 35; smart pole for rural area of San Piero a Sieve)".

3.5. Barcelona peri-urban area Pilot Lab (Spain)

3.5.1 Bus-Up

The Barcelona Pilot Lab produced a pseudo on-demand bus service called *BusUp* to provide transportation for attendees to the music festival *Canet Rock 2019*.

The private venture sought to reduce territorial accessibility barriers that inhibited people from attending *Canet Rock* and other cultural events that are often located in the peri-urban outskirts of Barcelona's Metropolitan Region.

The INCLUSION Deliverable D4.6 describes in detail the measures to be demonstrated, their design and the implementation process of the measures. It also provides a more detailed description of the characteristics of the Barcelona PL. The table below provides an overview of

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the measure's targeted vulnerable user(s), the prioritised geographic area in which it has been implemented, and the mobility-related challenges that it aims to overcome.

Pilot Measure	Targeted Vulnerable User(s)	Prioritised area	Mobility challenges overcome
BusUp	Low-income, Young people, Students, People without a driver's license	Peri-urban	*Accessibility; safety; convenience; empowerment of vulnerable users; building capacity to help target group; service efficiency*

3.5.1.1 Measure Objectives and actors involved

Peri-urban areas are currently inaccessible for those without a car due to scarce and inflexible public-transport offers, but the region is used to host various cultural events given its lower density population and thus availability of space. There are a range of travel needs that are dependent on the cultural event. The target group of *Canet Rock 2019* were young people. Correspondingly, the target group of *BusUp* were young travellers, either that moved individually, or in small groups.

Objectives:

- Improve access by public transport, from each on-demand area to Canet Rock festival
- Quantify the improvement & the identification of potential demand (Comparison between CanetRock'19 prediction and reality)
- Improve safety and satisfaction levels of target groups from each area that use BusUp to attend Canet Rock festival, compared to those who don't use BusUp

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Main actors and their roles:

Type	Actor	Role(s)
Private firm	1. *Mosaic*	Technology provider, data gathering and mining regarding transport demand and social network; Modelling and simulation; publicity and marketing
Start-Up Company	2. *BusUp*	Service provider; data gathering; pilot validation and testing; user validation; publicity and marketing.
Private firm	3. *ITAInnova*	Technology provider: Develops the data analytics tools necessary for the processing of social network data
Festival organisers	4. *CanetRock*	Providing residential data of attendees from previous and current years; communicate with users
PT Operator	5. *Bus Operators*	Bus operators validate routes planned by BusUp and run the service
Other	6. *General public*	Attendees that provide the input of the crowd-source residential data for where the bus route would need to cover.
	7. *Business community*	Investments and funding of Bus-Up
	8. *Volunteers*	Distributing surveys

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3.5.1.2 Drivers and Barriers

BusUp's innovative efforts demonstrated the powerful potential of responsible data mining over social media for the benefit of sustainable mobility. It turned several barriers into drivers of success by employing simple yet pragmatic solutions but most significantly, by collaborating with each of its stakeholders in an efficient and meaningful way. BusUp's process evaluation of drivers and barriers clearly demonstrates that it brought out the individual strengths, expertise, and potential role of each of its stakeholders. They were able to capitalize exponentially from the combined (relatively lower) efforts of their collaborators and users by involving the different actors in meaningful ways. For example, festival organisers sold tickets on their behalf, and through this association, strongly endorsed the venture's legitimization causing a good sense of trust for users. Secondly, by having the local authority simply prohibit cars from parking close to the festival entrance, BusUp was prioritized, further legitimized, and made far more attractive to users, since it would be more convenient than cars. Finally, and most obviously, the on-demand geolocation data itself was crowd-sourced. It is the approach of capitalising on low-efforts to stimulate large positive impacts that enabled the achievement of this measure's aims. The INCLUSION principles achieved for users had overwhelming improvements of

- *convenience*– far more convenient and reliable than PT; also more bus stops and more direct routes were added for BusUP
- *empowerment*– many young people would have not been able to attend the events with a car, and more bus stops afforded them more transportation options and thus the freedom to choose);
- *gender equity*– over 80% of BusUp passengers were female while just over 60% of festival attendees were female.

Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ Outcomes
Institutional Context Supportive local politicians	*Medium*	Acted as enablers of this measure by using their power to authorize only BusUp vehicles to access the event, and to cut off access for cars from the highway, making it difficult for cars to park near the event.	Disincentivised car use and made BusUp more attractive.

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ Outcomes
Integration of solutions with existing networks Bus operators verified BusUp routes based on existing PT network routing.	*Medium*	Route plans generated by BusUp based on their users demand in various locations, required validation. This was done by using bus operators' knowledge and understanding of route efficiency across existing bus line networks.	Viable and cost-effective routes for BusUp's navigation.
Funding Availability Sourced by the EU	*Medium*	This PL did not have funding from private investors, but only provisions from INCLUSION.	Without the INCLUSION project this measure would have not been implemented.
Role of ITS usage On-demand aspect created almost entirely from mining online data.	*Strong*	Regional demand for where BusUp needed to service was determined using geolocation data of tweets. Algorithmic searching for relevant tweets was created and then geolocation from these tweets extracted. Routes were then planned according to geotags. Data was supplemented by CanetRock, with residential area data of previous years' attendees.	Sophisticated process and algorithms for searching and mining tweets; a large dataset of geolocations to plan routes that satisfied a minimum of 70% of users' demand.

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ Outcomes
Stakeholder Engagement/ Cooperation Receiving information from target users about their needs was not actively facilitate	*Medium*	I.e. geographical coverage of where they would need BusUp would to operate was rather passively attained via social media mining and then later validated during satisfaction feedback surveys. Volunteers distributed surveys on the bus during the trip as well as at the entrance of the festival. Responsiveness to surveys were good.	An overwhelmingly satisfied customer base! 96.7% satisfaction rating.
Communication and marketing: Difficult to directly communicate with the users during the route planning phase of the measure, since there were no established platforms for two-way communication to occur.	*Strong*	The main communication channel was thus chosen to be through the music festival itself. Only when tickets were purchased, were users given the option to purchase tickets for the BusUp service.	This gave BusUp a strong legitimacy and installed a greater sense of trust in users since there appeared to be strong supportive collaboration between the festival organisers and BusUp organisers.

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ Outcomes
Business model: A minimum number of users must be reached in order for the route to operate	*Medium*	Since attendees want to travel together, they encourage each other to use BusUp services rather than driving so that the minimum threshold is reached.	Users encourage others to sign up

Barrier	Impact on measure	Actions taken to overcome barrier	Impacts/ Outcomes
Integration with existing networks BusUp could not use the infrastructure of PT bus stops	*Weak*	BusUp bus stops were located near to PT bus stops. Temporary signs employing BusUP branding were installed and used to indicate stops specially designated for BusUp. Users were also given coordinates and location descriptions to further corroborate the bus stop positions in relation to PT bus stops.	BusUp bus-stops independent of PT network infrastructure but still easy to find for users.
Role of ICT Usage Dramatic reduction in availability of social media data	*Medium*	Search term dictionaries were created to aid the identification process of tweets that could then be scraped for geolocation data.	Enough data to plan viable routes that could then be validated by bus operators.

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Barrier	Impact on measure	Actions taken to overcome barrier	Impacts/ Outcomes
because Facebook and Instagram yielded very low geolocation information on posts.		Secondary data was collected using information that was gathered by analysing followers' relationships with the festival organizer's social media accounts.	
Communication and marketing Difficult to directly communicate with the users during the route planning phase of the measure, since there were no established platforms for two-way communication to occur.	*Strong*	The main communication channel was thus chosen to be through the music festival itself. Only when tickets were purchased, were users given the option to purchase tickets for the BusUp service.	This gave BusUp a strong legitimacy and installed a greater sense of trust in users since there appeared to be strong supportive collaboration between the festival organisers and BusUp organisers.

3.5.1.3 Lessons learned

- Several aspects of the model used to mine twitter data could be further developed in future replications to improve the quality of data that is mined. Furthermore, the dictionaries that were used for data scraping would greatly benefit from A.I. assistance.

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- It is essential to increase the quantity and variability of the data regarding tickets, demographic data, transport connectivity, etc. The model performance and evaluation process rely on completeness of data, which often offer a partial, or deprecated picture, requiring a prior methodology for reconstruction, extrapolation or update, i.e. a data manipulation phase. The dictionaries that were used for data scraping would greatly benefit from Artificial Intelligence assistance.
- There is a variable amount of uncertainty regarding the transparency, accessibility, and availability of personal data from social media platforms. In general, more localised festivals and events generate less activity online than international ones. This is a risk that not enough data can be mined from too few tweets. Additionally, the topic of data privacy continues to be explored and debated. Already there is a slowly growing trend to deny social media apps geolocation trackability.
- Whenever the next CanetRock may happen, there is a wish for service improvements to the communication channels of BusUp. More direct communication (and possibly marketing) opportunities will be investigated.

3.6. Cairngorms National Park Pilot Lab (UK)

The Cairngorms National Park Pilot Lab involves three measures:

- E-bike hire
- Integrating a lift sharing scheme and car club with public transport (MaaS)
- Improving multimodal travel information services

The INCLUSION Deliverable D4.4 describes in detail the measures to be demonstrated, their design and the implementation process of the measures. It also provides a more detailed description of the characteristics of the Cairngorms PL. The table below provides an overview of each measure's targeted vulnerable user(s), prioritised area, and the mobility-related challenges that it aims to overcome.

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Pilot Measure	Targeted vulnerable user(s)	Prioritised area	Mobility challenges overcome
E-bike hire	Elderly people, Persons of reduced mobility, Young adults, Teenagers, Local residents who suffer from fuel poverty due to high rural fuel costs, Tourists	Rural	Reliance on private cars due to lack of other mobility options; Safety; Fears associated with cycling and health
Integrating a lift sharing scheme and car club with public transport (promoting Mobility as a Service)	Elderly people, Persons of reduced mobility, Young adults, Teenagers, Local residents who suffer from fuel poverty due to high rural fuel costs, Tourists	Rural	Reliance on private cars due to lack of other mobility options
Improving multimodal travel information services	Elderly people, Persons of reduced mobility, Young adults, Teenagers, Local residents who suffer from fuel poverty due to high rural fuel costs, Tourists	Rural	Fragmented travel information

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3.6.1 E-bike hire

3.6.1.1 Measure objectives and actors involved

HITRANS developed this measure to improve accessibility to and within the Cairngorms National Park (CNP) for elderly people, persons of reduced mobility, young people, local residents suffering from fuel poverty and tourists. It involved setting up two small-scale e-bike hubs in the key gateway towns in the CNP: Aviemore and Grantown on Spey. Six e-bikes were offered and hosted by the two local bike shops.

Overall objective:

- Integrate e-bike schemes with public transport in the Cairngorms National Park

Main actors and their roles:

Type	Actor	Role(s)
Regional transport authority	HITRANS	Pilot Lab coordinator
Local business association	Cairngorm Business Partnership	Key stakeholder involved in workshops etc.
National transport agency for Scotland	Transport Scotland	Granted funding for MaaS pilot project (including the e-bikes and hubs)
National funding sources	Smarter Choices Smarter Places / Energy Saving Trust	Part-funding of the e-bike equipment (after several attempts) and marketing of the service – two different applications

3.6.1.2 Drivers & barriers

HITRANS measured the success of this objective in terms of the number of elderly people, persons of reduced mobility, young people, local residents suffering from fuel poverty and tourists using an e-bike; the number of trips taken by these same target groups; the number of respondents selecting 'very satisfied' or 'satisfied' with active travel offerings in the Cairngorms National Park; and change in the level of satisfaction with access to public transport in Aviemore/ Grantown-on-Spey.

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It has not yet been possible to fully assess whether this measure achieved its anticipated impacts due to delays in getting the project established; timing of when the project was first set up during the winter months; and then the onset of Covid-19 just at the start of the busy bike hiring season. However, the limited numbers of completed questionnaires that have been returned are currently being analysed and case studies have been prepared following interviews with the bike shop owners. Information will also come in from Key Workers (who have been loaned the e-bikes during Covid-19) and all of this will result in some worthwhile statistical analysis of this measure.

A significant causal factor in the initial delays experienced by HITRANS was in the securing of funding. The public funding body, Transport Scotland, (which is more accustomed to working with cities) does not seem to be aware of the amount of tourist traffic (1.92 million people per year to Cairngorms National Park), despite the small resident population of 3,600 inhabitants in Aviemore. Even when additional funding was secured from other sources, the funders were very unwilling to allow partnerships with local bike shops. Significant lobbying and advocacy was undertaken to rectify this, which took time and led to a significant delay in the implementation of this measure.

Since the measure was implemented in January 2020, any impact evaluation possible for the shared e-bike measure will not reflect the true potential of this service due to the more limited use of e-bikes expected during dark and cold winter months.

In terms of cooperation with local stakeholders, conflict of interest with local businesses was an issue and continues to be an issue: HITRANS received a complaint from another bike hire company that was interested in partnering with them in this scheme. HITRANS has said they will consider taking them on board in the future if the current scheme is successful. Feedback from the case studies would suggest that the bike shop owners believe the scheme to be very successful, with the potential to deliver an even wider set of benefits, particularly associated with wellbeing, health and with stronger links to the business community.

Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ Outcomes
Political:	*Medium*	Support for such measures from the national level adds to their legitimacy and most	The e-bike sharing scheme was successfully implemented

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ Outcomes
National prioritisation of MaaS, e-bikes, accessible travel and car clubs enabled local level implementation		likely aided HITRANS secure the funding (albeit not from the national level)	
Funding; Communication: Once funding was obtained, it covered ads in a local magazine and a public launch event	*Medium*	The e-bike sharing scheme was promoted widely to the target groups during Christmas and New Year 2019/20	Will be able to determine full impact based on the survey results currently being analysed. The initial publicity targeted a limited audience during the winter months and as such drew a limited response. A second round of publicity was planned prior to Easter but this did not go ahead due to the onset of Covid-19. It is ready to go again post Covid-19.
Business model: Incentives offered over winter to get people to try the bikes	*Medium*	Incentives offered widely to the target groups, including come and try, free trials, and other launch events	Will be able to determine full impact based on the survey results currently being analysed. . Several other activities were planned prior to Easter, most notably with the Badenoch &

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ Outcomes
			Strathspey Community Transport Company; local Care Homes; and GP practices. This is now planned post Covid-19

Barrier	Impact on measure	Actions taken to overcome barrier	Impacts/ Outcomes
Funding inaccessible; Political: Difficult to obtain national funding for e-bike schemes; disjointed funding foci; fear of interventions in free market	*Medium*	A significant amount of time was spent unsuccessfully bidding for funds. HITRANS needed to instead discuss with providers and try to collaborate with other groups to deliver outcomes.	Funding was secured to implement this measure. Continued funding of projects or expansion via further bid funds will be needed.
Business model: Even when additional funding was secured, funders were unwilling to allow partnerships with local bike shops.	*Strong*	Significant lobbying and advocacy undertaken	Significant delay in terms of the delivery of e-bike hire project

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Barrier	Impact on measure	Actions taken to overcome barrier	Impacts/ Outcomes
Organisational/ Institutional factors: Delay in recruitment of project management resource	*Medium*	Recruited short-term project manager	Delayed delivery of key measures identified. Short-term contractor cover established in Feb 2020.

3.6.1.3 Lessons learned

The experiences gained through this measure exposed two main concerns with regard to national funding for e-bike hire schemes and also the actual timing of the launch of this project during the winter months

1. Disjointed funding foci at the national level:
    a. Some funders / funding programmes only support capital infrastructure (e.g. docking stations) and others support only non-infrastructure costs (e.g. e-Bikes). However, an e-Bike scheme requires both.
    b. Silo thinking despite the fact that the money is coming from the same Government fund
2. Funders' fear of interventions in the free play of market forces:
    a. Many funders feared that if the e-bikes have to be checked out from a local retailer, this would give an unfair advantage to this business
    b. However, the e-bike handling service is certainly no cash-cow for these shops (clearly articulated by the shop owners during the case study interviews with them)
3. Recognition that the project would have been better launched in the spring to ensure maximum use of the e-bikes; maximum publicity of the scheme; and maximum benefits to the target groups.

Having bike shops host the e-bike share has the benefit of saving costs that would have otherwise been spent on on-street infrastructure. However, this comes with a potential point of

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tension: conflict of interest regarding the (perceived or actual) "preferential treatment" given to the private bike shops for hosting this public service.

Therefore, the lesson learned is that when using public funding to set up an e-bike sharing scheme hosted by bike shops in a rural area, it is often necessary to continue to prove - both to the funding body and also to any other competing bike shops - that the hosting bike shops do not make a profit of the e-bike sharing scheme. This also points to the need for greater awareness of community wealth building via such e-bike sharing projects.

Generally, there needs to be better alignment of the national-level priorities and processes for receiving funding for measures that support those priorities. In other words, national level funding needs to be made more accessible to rural areas by being better tailored to also apply to rural/ touristic areas' local context conditions.

3.6.2 Integrating a lift sharing scheme and car club with public transport & experiment with Mobility as a Service

3.6.2.1 Measure objectives and actors involved

HITRANS developed the lift sharing & car club measures for use by elderly people, persons of reduced mobility, local residents suffering from fuel poverty and tourists. A car club was set up in Aviemore using hybrid electric cars and run by Enterprise Car Club. The cars are available to rent by anyone over the age of 18. One complementary measure was undertaken: promotion of the HItravel Lift Share (a ridesharing portal that is hosted on liftshare.com).

HITRANS applied to Transport Scotland's MaaS Investment Fund in August 2019, and in December 2019 was notified of being one of two successful applicants awarded funding in Scotland. The MaaS pilot is now in development, due to launch Summer 2020 (depending on Covid-19 impacts).

Overall objectives:

- Integrate a lift sharing scheme and/or car club with public transport
- Experiment with some Mobility as a Service (MaaS) use case scenarios dealing with integration of payment between different transport services

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Main actors and their roles:

Type	Actor	Role(s)
Regional transport authority	HITRANS	Pilot Lab coordinator
Advertising agency	AdNozzle	Supplied ad space on gas pump nozzles for HItravel Lift Share
App platform provider	Mobilleo	Primary platform provider (already have API feeds in place with rail operators and Stagecoach/Citylink and other regional transport providers)
App platform provider	SkedGo	Secondary platform provider (TripGo API, API link to Ticketer, which opens MaaS solution to independent regional bus operators), leading on demand responsive transport integration and management and support for the inclusion of community transport and social enterprise providers in the system
Electronic ticket machine provider	Ticketer	Provides existing API links with regional bus operators
Architectural services company	IBI Group	Add trip planning expertise and multi-modal routing platform with OpenTripPlanner
A school within the Environment Faculty of The University of Leeds	Institute for Transport Studies (ITS) Leeds	Leads on monitoring and evaluation of travel behaviour and behaviour change
Global design and engineering consultancy	Arcadis	Provides consultancy expertise to the Partnership
Rental car agency	Enterprise	Amending their services to open access to the Highland Council vehicles to the public in the

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		evening and at weekends. 10 additional virtual vehicles will also be introduced in several locations to enable wider access to Car Club vehicles for residents and visitors
National transport agency for Scotland	Transport Scotland	Granted funding for the MaaS pilot project
Interreg North Sea Region-funded project	STRONGER COMBINED project	Providing funding for the MaaS pilot project

3.6.2.2 Drivers & barriers

HITRANS will measure the success in terms of numbers of users from each of the target groups. It is not yet possible to assess whether this measure achieved its anticipated impacts because the data has not yet been collected and analysed.

A notable barrier for this measure was the hesitance of car club operators to take the financial risks and uncertainties associated with expanding their services in a deep rural area and allowing younger people to use their cars. For example, HITRANS tried to engage with the social enterprise Moray Car Club, but they were reluctant for exactly these reasons. They didn't think their insurance covered drivers aged 17-21 years and believed this would increase their costs, so they hadn't included this group in marketing or considered them as key users. However, after inspecting their insurance policy they found it did cover these drivers after all but they were still reluctant to target this user group, and the risks of expansion into a rural area were still present.

As with the other measures in the Cairngorms PL, access to funding was also a major barrier which resulted in delays to the implementation of the measures. Eventually, HITRANS won public funding for a MaaS platform for the Highlands through the MaaS Investment Fund, which aims to encourage people out of cars and onto sustainable forms of transport. This includes 10 new car club locations, one of which will be a location in Aviemore. This has been the most notable driver so far, as it enables HITRANS to implement this measure.

The MaaS funding available is for an initial 6-month live pilot project but it is hoped that through a successful deployment and with additional support from our INTERREG North Sea Region

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project Stronger Combined it will be possible to extend the pilot period and develop a viable commercial product.

Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ Outcomes
Political context; funding: National prioritisation of MaaS, e-bikes, accessible travel and car clubs helps local level to implement	*Strong*	In December 2019, HITRANS won public funding for a MaaS platform for the Highlands through the MaaS Investment Fund (which aims to encourage people out of cars and onto sustainable forms of transport) - This includes 10 new car club locations, which includes the location in Aviemore	The car club location in Aviemore was successfully funded and implemented, however the MaaS Platform will go live in August 2020 (too late in INCLUSION to assess the impact of this part of the measure)
Communication: AdNozzle supplied ad space on gas pump nozzles	*Medium*	HItravel Lift Share widely promoted to the target users at gas stations	Notable increase in website traffic, number of members and journeys made using the scheme
Cooperation among actors: Existing agreements and structures in place to facilitate implementation (data privacy	*Not yet known*	Partnership agreement has been made and will make use of these structures in the pilot project	Too early to assess the impact of this driver

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Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ Outcomes
agreement with tech company; Mobilleo already have API feeds in place with rail operators and Stagecoach/Citylink)			
Funding; Cooperation among actors: Partnering with STRONGER COMBINED project (Interreg North Sea Region) to pool funding	*Not yet known*	Using funding from this project to support the implementation of the MaaS pilot project	Too early to assess the impact of this driver

Barrier	Impact on measure	Actions taken to overcome barrier	Impacts/ Outcomes
Political Context; Business model: There used to be various demand-responsive services at end of 20th century, but couldn't	*Weak*	Got a larger car club (Enterprise) on board who was willing to take these risks	The measure will be implemented

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Barrier	Impact on measure	Actions taken to overcome barrier	Impacts/ Outcomes
run without public subsidy; social car club expected to fill gaps, but unable to take risks			
Funding inaccessible; Political: Difficult to obtain national funding	*Medium*	Possible but time-consuming to obtain public funds	Funding was successfully won, after significant time and effort was spent
Cooperation among actors; Business model: Reluctance of car clubs to expand into deep rural areas & insurance concerns for young drivers	*Weak*	Convinced a larger car club (Enterprise) who was willing to take these risks	The measure will be implemented

3.6.2.3 Lessons learned

It is clear that public subsidy is essential for the success of (shared) mobility solutions in rural areas. In the case of car clubs, a large car club is often needed which can take on the financial risks of starting up service in a rural area (in this case, Enterprise). Therefore, the keys to getting this car club scheme running was the public funding that HITRANS won, and a large car club operator (Enterprise) who is willing to take the risk to expand into a deep rural area.

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However, there is a bigger political issue at play with regard to public subsidy for demand-responsive services: there used to be various demand-responsive services in the Cairngorms PL area at the turn of the last century. But because they cannot run without public subsidies, they were discontinued. Now, many rural areas are in times of declining real term public sector budgets. Therefore, charities are expected to provide certain public services (including transport) typically through volunteers and other third sector solutions. The challenge is to find the right balance between public-private-community/grassroots partnerships to implement shared mobility solutions that can benefit vulnerable users in rural areas over the long-term.

While it is too early to assess the lessons learned from implementing the MaaS measure, some lessons have been learned in terms of the accessibility of funding and political support for such measures. The prioritisation of MaaS at the national level has enabled the local level to drive these measures forward by making funding available. However, the bureaucracy involved to secure this funding has been a major barrier and has resulted in a significant delay to the implementation of this measure. This again points to the need for better alignment of the national-level priorities and processes for receiving funding for measures that support those priorities. National level funding needs to be made more accessible to rural areas by being better tailored to also apply to rural/ touristic areas' local context conditions.

3.6.3 Improving multimodal travel information services

3.6.3.1 Measure objectives and actors involved

HITRANS developed this measure to deliver an improvement of multimodal travel information. This solution will deliver a regional, multi-modal information system using real-time data. The procurement notice was issued in October 2019 and the contract awarded in January 2020, with the new system going live shortly after. One complementary measure has been undertaken: promotion of the Thistle Assistance Card and app, which aims to help elderly people and people with disabilities or illness to use public transport.

For the Thistle Assistance Card, a Scotpulse survey has been commissioned as part of the Thistle Assistance card advertising campaign. The results of the survey showed that there is currently little awareness of the Thistle Assistance card, in comparison to other similar services that benefit the target group (e.g. the National Entitlement Card, Young Scot National Entitlement card). To increase awareness for this card and the associated app, a television ad was run from November 2019 until end of January 2020.

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Overall objective:

- Deliver an improvement of multimodal travel information services

Main actors and their roles:

Type	Actor	Role(s)
Regional transport authority	HITRANS	Pilot lab coordinator
Local Authority	The Highland Council	Procurement support for RTPI contract
Advertising	STV	Platform for advertising the Thistle Assistance Card campaign
National funding sources	Smarter Choices Smarter Places	Part-funders for advertising campaign

3.6.3.2 Drivers & barriers

As with many of our measures, lack of direct funding to HITRANS from central government means significant time is spent bidding for funds. The improvements to real time passenger information required collaboration with several stakeholders to deliver outcomes. For the Thistle Assistance Card, results show that there is little awareness of the card in comparison to other similar services that benefit the target group. A key barrier for this would again be funding limitations to market the scheme.

Driver	Impact on measure	Actions taken to implement/ make use of an existing driver	Impact/ Outcomes
Political; funding: Improvement of real time multimodal travel information	*Strong*	This solution delivers a regional, multi-modal information system using real-time data. The procurement notice was issued in October 2019 and the contract awarded in January 2020, with the new system going live shortly after.	Improved real time multimodal travel information across region

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Communication: STV campaign on Thistle Assistance Card	*Medium*	Thistle Assistance Card already exists, but funding was obtained to market more widely & better understand current knowledge of scheme	Knowledge that scheme is not widely known about and more needed to be done to increase awareness – STV campaign was launched

Barrier	Impact on measure	Actions taken to overcome barrier	Impacts/ Outcomes
Funding accessibility; Political Context: Difficult to obtain national funding	*Medium*	Possible but time-consuming to obtain public funds	External funding obtained for RTPI improvements External funds obtained to help market Thistle Assistance Card
Organisational/ Institutional factors: Delay in recruitment of project management resource	*Weak*	Recruited short-term project manager	Delayed delivery of key measures identified. Short-term contractor cover established in Feb 2020.

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3.6.3.3 Lessons learned

Available funding is still at the core of this measure, and complexities in joining up multiple transport modes into one real time travel information service. Also, even if schemes do exist to assist those in need when using public transport (Thistle Assistance Card), our research showed there is limited awareness of these schemes. Additional funding was then required to further market the Thistle Assistance Card, but this highlights again that limited marketing budgets for authorities will result in under-utilised schemes with limited ability to promote the availability and use of such schemes.

4. Overarching Patterns and Lessons Learned

This chapter fully discusses the repeating patterns observed of driving and inhibitory processes across INCLUSION's 14 pilot measures. It is the product of a pilot-level analysis of 10 themes that have strong influences on pilot activities. Of the ten themes examined, only seven (marked below with) were found to have played a moderate-to-strong role in the pilots as either a driver or barrier, or even both in some cases. The themes are:

- ✔ *Institutional contexts*
- ✔ *Role of ICT Usage*
- ✔ *Stakeholder Engagement*
- ✔ *Cooperation among actors*
- ✔ *Communications & Marketing*
- ✔ *Trust building & active facilitation*
- ✔ *Understanding needs of target group*
- ✖ Availability of Funding
- ✖ Access to Funding
- ✖ *Integration of solutions with existing networks*

A few of the themes also showed to have key dependencies on one another. For example, if stakeholder engagement proved to be a barrier, more often than not, trust building and active facilitation, and understanding the users' needs fell short in a measure too. For this reason, this chapter presents and discusses the most prevalent drivers, barriers, and lessons learned, grouped according to their interdependencies, fully acknowledging that they cannot be clearly separated. It weighs the underlying principles, commonly-faced problems and mitigating actions, and generalisable lessons in light of the cause and effect each had. Ultimately, this chapter provides guidance for the facilitation of upscaling and transferring INCLUSION pilot measures.

4.1. Institutional context

For example: the speed at which decisions are made, complexity of the administrative processes necessary to complete the PL activities, degree to which inclusive mobility measures are supported in your wider organisation.

Institutional contexts are the functioning environments in which measures were developed and carried out. They proved to be a strong determinant of successful pilots. Unlike other categories which had the potential to take on neutral roles in PL activities (i.e. causing neither positive or negative impacts) institutional contexts usually demonstrated a dynamic as a driver or a barrier. This could be expected since they provide the building blocks for pilot activities. The hypothesis of institutional contexts playing a significant role in the PL outcomes was found to be overwhelmingly true. A stimulated and well-resourced environment was able to provide, with smooth interactions, the necessary requirements for half of INCLUSION's PLs. Conversely, under-resourced, overly-structured, and poorly-functioning institutional contexts impeded the actions of the other half… causing delays, frustrated co-operation amongst actors, and unfulfilled measures where barriers could not be overcome. The following lessons were learned when working in both types of contexts:

- Timing: Get involved with institutions that influence activities or funding as early as possible. This affords them more time to prepare and grapple with PL actions. For the more successful PL's, gaining verbal confirmation of partnerships and agreements of roles, even prior to the planning phase, ensured that institutions (particularly public and regularity institutions) had enough time to deal with bureaucratic protocols. For PL's where this was not the case, overcoming "institutional contexts as a barrier" was driven by convincing decision-making bodies of the alignment of a measure's goals and theirs. In general, it can be said that promoting one's business case to institutions boosted chances of receiving approvals/ funding/ manpower/ and marketing support *if it was executed in good time.*

- When public authorities develop tenders, they should employ a high level of scrutiny with their wording so that new offers or improvements to transport systems aren't potentially lost when a new operator takes over.

- Generally, there needs to be better alignment of national-level priorities and processes for local-level measures in rural areas to receive funding for measures that support those priorities. In other words, the national level can be more supportive of local initiatives,

not only in terms of funding, but with labour, marketing, authorization and legitimising activities.

- Identify structures during the planning phase that could exclude target groups from involvement in a measure (be it during stakeholder engagement and hearing their needs, or pre-empting impacts on their travel behaviour) or at worst, structures that exclude them from the measure entirely. An example of this would be the tendency for elderly people to be excluded from digital solutions – especially app-based solutions.

- All PLs could have benefited from stronger risk assessments regarding their institutional contexts. It is tempting to overlook the structure that the coordinators sit in, or of trusted partners where existing relations are established, since they are both well-known and familiar. However, future planners should reflect on their (and partnering) institutional norms and corporate cultures during planning phases to pre-empt institutional delays, sidestep uncooperative individuals or partners, and avoid "minds from changing". There may of course always be unforeseen institutional-related hiccups, but these can be dealt with when institutional norms and cultures are mindful of one another. Corporate and individual identities can have much influence on PL activities, either positively when seen as a "innovative agents of change" or negatively when seen as a "disruptive rule-breakers". Bare this in mind for introducing novel measures to institutions that require adjustments of their existing operations for the measure's possibility.

4.2. The Role of ICT Usage

Degree to which ICT contributed to the success of the PL activities

ICT played a role in five of the six INCLUSION Pilot Labs (Barcelona, Budapest, Cairngorms, Flanders and Florence), and took the form of apps for integrated route planning, ride hailing, MaaS and gathering feedback; data scraping and modelling tools to plan bus routes; and an interactive online platform for reporting issues with public transport services. Most of the ICT-based solutions were used by the vulnerable users themselves. In these cases, the main lessons learned across the pilots is that when seeking to find the best ICT solutions to meet the needs of the target group, it is important to start from the needs and skills of the people who are part of the targeted vulnerable user group:

- What mobility options do they currently have that do not involve ICT?
- Where are the gaps in these mobility solutions (e.g. in terms of the 8 INCLUSION principles: accessibility, affordability, efficiency, convenience, empowerment, empathy, safety and gender equity).

- Where could ICT be well-placed to fill these gaps?
- What is the target group's technological proficiency with regard to the possible ICT-based solutions?
- If the target group tends to be technologically proficient, then it could be helpful to start with a personal consultation with a select group of people, working on building a personal relationship and co-designing a solution together with them.

Generally, it has worked well in the INCLUSION PLs to develop ICT solutions that enhance and are integrated with the existing PT network, but this only works well to a point. Vulnerable users should be involved in co-designing the tool from the start, as the experience from the INCLUSION PLs shows that it can be significantly more challenging to, for example, retrofit an app to benefit a target group that was not taken into account in any way in the original design of the app. This was particularly true for the Florence and Flanders PL measures that were targeted to people with a migrant background. The need for universal design in apps is essential, particularly for this target group, which prefers more symbols, less or simpler text, and easy-to-access information on how to navigate the transport system. Furthermore, the use of ICT in mobility solutions that are targeted towards elderly users may be one step ahead of their needs and skills at present. For such groups, it could be more helpful to develop an ICT solution that is used to support the back-end operations of a mobility solution, e.g. coordinating ride requests and volunteer drivers' availability.

Interactive online and app-based platforms for users to report problems, gaps and barriers in the transport system have also proven successful at continuously monitoring and improving the transport system for vulnerable users. They are perceived as more useful both for the users and for the transport authority than traditional reporting channels (e.g. via telephone or email). Additionally, vulnerable users felt that concerns from transport authorities/ operators were more legitimate, given that there was a designated space to listen and hear their issues. In this way, vulnerable users are given more of a voice on an ongoing basis to voice their needs directly to the authority that can implement improvements.

With regard to the technical capabilities of ICT to address vulnerable users' mobility needs, the following lessons have been learned:

- Keep in mind the compatibility of apps with different smartphone operating systems.
- Minimise the data consumption of apps, as many of the vulnerable users have limited mobile data.
- Keep in mind that if your target group is a disability group, that online platforms need to be accessible-friendly to them too.
- When using ICT to mine data from social media, the topic of data privacy continues to be explored and debated. Already there is a slowly growing trend to deny online services

geolocation trackability where not necessary to its functionalities. This could further limit the available data sources for such solutions, and alternatives will need to be sought out.

Ultimately, it is clear that ICT should not entirely replace the human element of delivering mobility solutions. This is especially critical for solutions that benefit vulnerable user groups, as one of the main aims is to reduce social isolation. At the most ICT should be there to streamline and supplement the human touch, thereby making it *more convenient* for the target group in question.

4.3. Stakeholder engagement and Co-operation between actors:

Interactions between relevant stakeholders (including if applicable the local authority, user associations, residents, target groups) and overall co-operation between organising actors in PLs.

Each of INCLUSIONs successful measures were pushed by local champions usually in a coordinating role. What ensures local champions to make a marked difference using the implementation of mobility measures, is their ability to inspire others around them and bring together people with necessary expertise and skills to support the measure and the local champion. The more successful measures were all centred around meaningful engagement with their target groups, as well as with their local partners. It is arguable to say that stakeholder engagement and co-operation between actors together were the most important drivers of successful PLs. However, not all measures with enthusiastic championing individuals were as successful as the others. The reason for which lies in how much support they received. In cases where the successfulness of a measure relied *entirely* on a local champion because resources were scare (i.e. lack of manpower and suitable regulatory contexts, or inaccessibility to stakeholders) individuals were overburdened with workload and quality of measures were limited. As such, the following lessons can be used to strike a balance of cooperative organising powers, engaged stakeholders, and motivated leaders:

- Involve target users early during planning procedures. It empowers them in the decision-making processes and gives coordinators a broader scope and understanding of their needs *before* a measure's implementations are carried out. Thus, reducing the risk of carrying out a measure that may not fully meet the needs of the target in question. Facilitating a space to listen, guide, but also learn from users has been a definitive driver of INCLUSIONs measures.

- Allocate enough time for co-creative processes - It may be necessary to go through several feedback and revision loops, so the actors involved in facilitating this process

should be patient and prepared to conduct this. In general, co-learning and co-creative processes with stakeholders has proved to take much more time-consuming than anticipated. However, ensuring smooth and fruitful co-operative engagement has led to immeasurable usefulness and direct benefit of measure outcomes and outputs for the target users involved.

- Co-creation is key, and to foster it rather plan for *interactive* stakeholder formats, especially when it comes to encouraging and monitoring travel behaviour. Participants may be keen to give their feedback, but in a low-effort format. Written surveys may require too much time, or incentives, and could be replaced or complemented with, informal in-person interviews directly after engaging with the measure.

- Encouraging stakeholder contributions and cooperation amongst actors requires recognising and making each person involved feel that they are part of wider change. It can help to illicit participation in focus groups, interviews and surveys if the organisation coordinating the initiative sends the message "we value your input, we want and need your support"

- When it comes to introducing disruptive innovations, it was broadly found (with the exception for a few individuals) that city administrators did not always have the power they would have needed to implement a novel offer that required them to change their existing operations. For this reason, many individuals lacked motivation and interest to fully support a measure and its activities. It is advised that timing in one's approach is critical. Again, the earlier the better. Afford people time to find alternative approaches if they need them, or risk having to strong-arm entities in a top-down approach.

- It is essential to build and maintain partnerships with organisations that support vulnerable groups when delivering measures that seek to achieve long term impacts. To do this, ensure buy-in from partners developing a solution for vulnerable groups and find strategies to maintain momentum and enthusiasm so they can see the project through to completion.

- To this end, it is also important for the coordinating organisation to maintain close personal contact with the individuals from these organisations who are working on the measure, in order to build up a tight-knit team that is accountable to each other. Additionally, partnering with vulnerable-user-group associations, and using their networks to establish contact with other local ambassadors can also help to build trusting relationships with the target users directly.

4.4. Building trust, active facilitation & understanding the needs of the target group

Efforts for bringing stakeholders together (resolving conflicts, mobilising enthusiasm) and
receiving information from target users about their needs (e.g. responsiveness to engagement actions)

Building up a trust-based relationship with vulnerable users is a **key driver for reaching often hard-to-reach groups** for participatory processes. Therefore, trust building is the first step that needs to be taken in the quest to understand vulnerable users' needs and consequently develop effective mobility solutions. **Building trust and confidence in one's self is also key learning component for increasing capabilities to better deal with travel needs of vulnerable users** such as people with reduced mobility. Trust can be built up with the target group(s) by doing the following:

- **Make use of user associations that represent the vulnerable user groups, as well as local ambassadors from your target group(s).** These actors can also act as mediators during focus groups.
- **Involve the vulnerable users from the beginning**, before a solution has already been designed. This encourages a co-creative process and ultimately a higher uptake of the mobility solution.
- **Establish personal one-on-one relationships** to build trust among stakeholders and the target users.
- Maintain dialogue with the target groups throughout the design and implementation phases and **ask for their knowledge and expertise instead of trying to sell them a solution** they did not ask for and do not know much about.
- **Allocate enough time** to build trust relationships with stakeholders and users, especially when developing a solution that requires them to take up a new technology.

In particular, people with a migrant background tend to feel left behind by society, so the "human touch" and one-on-one relationship building is key to successfully developing mobility solutions that meet their needs and will subsequently be used. Safety should also be a main focus when developing solutions for these vulnerable users.

All INCLUSION PLs made use of surveys to understand the target users' needs and perceptions about the transport services before the PL measures were implemented. However, richer insights were gathered by the PLs that also made use of focus groups and one-on-one interviews with their target groups. However, it was often difficult to attract enough respondents and

participants overall, as well as ensuring age and gender balance within the focus groups. Based on their experience, here are some tips for boosting response rates and participation:

- Offer incentives for participation (e.g. a gift card, some free PT tickets, a travel budget, or simply by providing food or childcare during the workshop)
- Bring the focus groups to the target users (e.g. in their neighbourhoods, at their community centres, or at other places that they frequently visit), rather than asking them to come to you.
- Make use of the above-mentioned user associations and local ambassadors to recruit participants, test users, etc.
- Speak their language: Thoroughly understand the language proficiencies and preferences of people with a migrant background. This includes whether they prefer their native language, simplified local language or English, as well as their reading and writing proficiency in the local language.
    - For example, people with a migrant background in the Florence PL preferred simpler words and sentence structures in Italian, so that it was not necessary to translate the app or questionnaires into different languages. Less text and more usage of universally understood symbols and pictures were also preferred.

- It's also important to create a solution that suits elderly people's speed of life; the mobility world is changing at a certain speed, but the world of elderly people is changing more slowly. It is key to focus on providing solutions that empower elderly people to have control over their mobility, while providing solutions that are familiar and within their comfort zone. Consider whether ICT is best used by the end-users or the provider (i.e. in order to facilitate users' mobility). In time, as more tech-comfortable generations age, solutions such as the MobiTwin app will be more likely to fit their needs.

4.5. Communication & Marketing:

For example, of existing and new offers for target groups

- To attract volunteers, targeted micro-level communication may be more successful than a general en-masse call, as it is personal and speaks directly to the potentially interested individuals. In general, volunteers should also be involved in the co-creative process from the beginning, as they are key stakeholders in delivering this solution.

- Incentives work well to attract participants for focus groups and completing surveys, from vulnerable user groups during a planning phase to the general public after implementing a

new offer. Interestingly, incentives are just as successful to promote the use of new services too.

- Direct communication with target users and marketing opportunities initiated during planning phases tend to have a great impact in terms of reach than broad-scale marketing later during implementation phases of a measure.

5. Concluding remarks

It is clear from the evidence provided in this process evaluation, that the successfulness of novel inclusive transport measures can be attributed to several key themes and the times at which they are administered. They have been deduced and isolated, giving a strong reason to believe that they can also be transferred to future replications to ensure equal, if not more, success. Even if the PE is not used for transferability, its intermittent critical reflections have been vitally important. The critical reflection exercises of surveys, focus groups, and interviews with coordinators have helped to optimize implementation and operational processes, reducing risks and ultimately delivering higher quality innovative measures.

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