ICT cloud-based platform and mobility services available, universal and safe for all users

D7.1.3 3rd Report on the set-up of the MoveUs Living Lab demonstrators, evaluation methodology, plan and materials

Deliverable Id :	**D7.1.3**
Deliverable Name :	**3rd Report on the set-up of the MoveUs Living Lab demonstrators, evaluation methodology, plan and materials**
Status :	**Final**
Dissemination Level :	**PU**
Due date of deliverable :	**M36**
Actual submission date :	**M36**
Work Package :	**WP7**
Organization name of lead contractor	**ATOS**
Author(s):	**Ricard Munné, Antonio Rossa, Alessandra Vindigni, Sergio Fernández, Marta Alonso, Beatriz García, Michele Masnata, Elli Kotakorpi, lilli Siikasmaa, Angelica Nieto – reviewer**
Partner(s) contributing :	**ATOS, CDG, SOF, EMT, MAD, SICE, TRE, TUT**

Abstract: This report describes the activities performed in Genoa, Madrid and Tampere for the validation and fine-tuning of the City services available from the MoveUs mobile application.

HISTORY

Version	Date	Modification reason	Modified by
0.0	29/06/2016	TOC	Ricard Munné (ATOS)
0.1	07/09/2016	Contribution by CDG to section 2.	Alessandra Vindigni (CDG)
0.2	23/09/2016	Rearrangement of ToC for the reporting of fine tune and bugs after discussion with WP6 and the pilots.	Ricard Munné (ATOS)
0.3	26/09/2016	Contribution by TRE to section 4. The subsections from the pilots for fine tune and bugs have been moved to new section 5.	Elli Kotakorpi (TRE) Ricard Munné (ATOS)
0.4	28/09/2016	Reviewed contribution by TRE to section 4.	Elli Kotakorpi (TRE)
0.5	04/10/2016	Reviewed contribution by CDG and SOF to section 2.	Alessandra Vindigni (CDG); Michele Masnata (SOF)
0.6	10/10/2016	Contribution by EMT and MAD to section 3.	Marta Alonso (MAD); Sergio Fernández (EMT)
0.7	20/10/2016	Reviewed contributions by MAD and EMT to section 3 and by TRE to section 4. Added ATOS contributions for Abstract, Executive Summary, Sections 1, 5, 6 and Annexes.	Elli Kotakorpi (TRE); Marta Alonso (MAD); Sergio Fernández (EMT Ricard Munné (ATOS)
0.8	28/10/2016	Internal review by TUT and corresponding changes by	Angelica Nieto (TUT); Ricard

		editor.	Munné (ATOS)
0.9	03/11/2016	Quality review	Ana Piñuela (ATOS)
FINAL	03/11/2016	Final version	

Contents

List of Figures

List of Tables

List of Abbreviations

<Abbreviation>	<Explanation>
App	Smartphone mobile application
CO_2	Carbon Dioxide
FAQ	Frequent Asked Questions
GPS	Global Positioning System
ICT	Information and Communication Technologies
KO	Kick-off
LL	Living Lab
MMJP	Multi Modal Journey Planner
PIN	Personal Identification Code
PoI	Point of Interest

Executive Summary

The third and last report on the Living Labs describes the activities performed in Genoa, Madrid and Tampere during the third year of the project. The activities have focused on the validation and fine-tuning of the City services available from the MoveUs mobile application. In order to do so, the three cities launched communication campaigns with the aim of involving as many end users as possible.

Genoa identified the employees of local companies, car-sharing users and Genoa residents. as potential test users Three kick-off meetings were held to ease the participation of the different user groups. Moreover, on-line support was set up to provide information to those users that could not attend the kick-off meetings. A group of 76 users participated in the test phase that lasted about 20 days from June to July 2016.

Madrid launched communication campaigns in different events and media by the end of May and at the beginning of July 2016. The kick-off event was organized at the beginning of June, and 19 users attended the event. Some in-kind rewards were offered to the end users that took part in the test phase. However, only 23 users participated in the tests phase that lasted 90 days from early June until the end of August 2016.

Tampere recruited people for the user tests trough advertisement in the local public transport website and Facebook page, citizen associations, the Technical University of Tampere and through the City of Tampere intranet. People was recruited, first, in the beginning of 2016 and secondly in the beginning of June. Two kick off events were organized on the 11th and 12th of April when the test phase started until the end of September 2016, with a duration of about 170 days. Approximately 75 users participated in the test phase with about 40 active users.

The feedback collected during the test phase in the three Living Labs was used to improve the application, correct bugs and fine-tune MoveUs with the suggestions collected from the feedback.

A total of 25 different bugs were reported for different categories. From these bugs, five were solved when the platform was migrated from the development to the production environment, five were related to GPS activation and accuracy, four related to the display of the interface, three to incentives calculation, two to login and registration, two to connectivity and four to other issues.

For the fine tuning, a total of 29 suggestions have been implemented, while 51 have been discarded, mainly because they do not require a reasonable effort, the information to fulfil the suggestion was not available or the suggestion was out of the scope of the application/service goals.

The materials prepared for the engagement meetings and activities, the online forms to collect bugs and feedback and the templates to analyse the feedback answers are provided in the annexes.

1 Introduction

This document reports the third year of activities of the Living Labs in MoveUs, when the end-users validated the MoveUs services in the three cities and the fine-tuning of the pilot applications was performed.

These activities have been developed according to the planning set up in the second year that was detailed in section 5 “Third year pilot activities plan” of MoveUs D7.1.2 deliverable [1] “2nd Report on the set-up of MoveUs” that reports the second year activities of the Living Labs. However, this initial plan with two testing iterations and a fine–tuning period in between had to be adapted. The initial plan to have this fine-tuning period between the two testing iterations was changed as the available time was shorter. The fine tuning was done in parallel with the testing activity.

The testing activities lasted from mid-April until end of September 2016, but each city had different start and end periods including the summer vacation period when the testing activities declined.

Additionally, some support was provided by WP7 to the Living Labs on the feedback collection process and the coordination of this feedback with WP5 and WP6 to proceed with the bug correction and fine-tuning of the mobile application.

The following sections describe the end-users engagement activities in the three pilot cities Genoa, Madrid and Tampere and provide a summary of the test phase for each Living Lab.

Annexes A, B, C and D contain the materials prepared for the engagement meetings and activities. These materials include templates for the invitations and the agenda for the kick-off, a template for the presentation to be used during the meeting, where the pilots should add a description of the corresponding services and the planning of activities for end-users. Materials also comprise a template for providing a end-users test guides with information about incentives, energy efficiency, the detailed steps to test the services and the process to launch the surveys to collect information from them.

Annexes E and F are a sample of the on-line forms that were used for bug and feedback collection from the end-users during the testing activities. Each pilot adapted and translated the forms to be used in the corresponding Living Lab.

Finally, a set of excel files was prepared for the analysis of the answers collected through the on-line feedback forms. This analysis was used to extract conclusions for the WP9 workshops and the reporting of activities.

2 Genoa activities

In the last stage of the Living Labs, the activities in the Genoa Pilot Site have been mostly focused on the validation and fine-tuning of the City services available from the MoveUs mobile application. The test involved several employees of companies operating in the Genoa area as well as citizens/residents that became aware of the experimentation thanks to the promotion made through the official website of the Municipality of Genoa (www.comune.genova.it).

The testers were involved in two ways:

- Personal involvement with a number of physical (face-to-face) meetings
- An “on line” test mode with remote support and feedback provision

The following section provides more details on the user engagement activities.

2.1 End-users engagement

The whole execution of the MoveUs Living Labs is largely influenced by the engagement of users. Aspects like the following, heavily affects the results of the validation:

- The number of users should be high enough to have a set of responses statistically acceptable;
- The interest in the validation has to be kept high for a reasonable period of time;
- A differentiation in terms of mobility habits, preferences, usage of modes of transport is recommendable;
- It is necessary to enable and ease the use of the whole plethora of services and functionalities to be validated.

Considering these implications, multiple directions and possibilities have been identified in terms of *candidate user groups* in Genoa. Another key factor that drove the recruitment of the user groups came from some specific objectives of the validation that in Genoa was focused on the usage and experimentation of the *MoveUs Incentive-based services*. Here it was especially interesting to find categories of users able to provide valuable and precise feedbacks derived from their specific mobility habits but the involvement of a large number of *common* citizens/residents was of course also a key requirement.

The final choice was operated by looking at the following categories:

- Employee of local companies
- Car-sharing users
- Resident people

The engagement of **employees from local companies and organizations** was possible through the involvement of the respective mobility managers. A mobility manager can operate for a company, an organization or as a coordinator at local/regional level to take care of the various aspects, problems and opportunities existing in the domain of mobility and transport at the level of his/her pertinence. Thanks to their broad vision of the local context, local Mobility managers played a very useful role in the Genoa Living Labs and allowed identifying specific groups of users specifically interested in the MoveUs services and principles.

Car-sharing users, are another interesting category of testers. The willingness of switching from private cars to shared modes of transport reveals an interest in accepting and using new transport schemes which could be combined to the usage of incentives. The expected feedbacks therefore are very interesting.

Finally, **citizens/residents** were involved thanks to a recruitment campaign made through announcements on the official website of the municipality of Genoa. The involvement of resident people is important to have the feedback of people living in everyday traffic and mobility situations and to check the impact of the MoveUs initiative in this context, which is certainly the most common one.

Figure 1 Announce of the recruitment in the official web site of the Genoa Municipality

All test users have been contacted and invited to the workshops via e-mail and/or phone calls.

To ease the participation of the different user groups and meet the needs of the single groups of persons, the physical meetings have been organized in more than one single stage:

- The Kick-off meeting of the Genoa Living Lab took place on the 7th of June 2016 and it involved about 20 people,
- a second meeting took place on the 22th of June 2016 with the involvement of another group of 10 people
- a third meeting took place on the 23th of June 2016 with the involvement of another 10 people.

Figure 2 1st meeting with the test users in Genoa

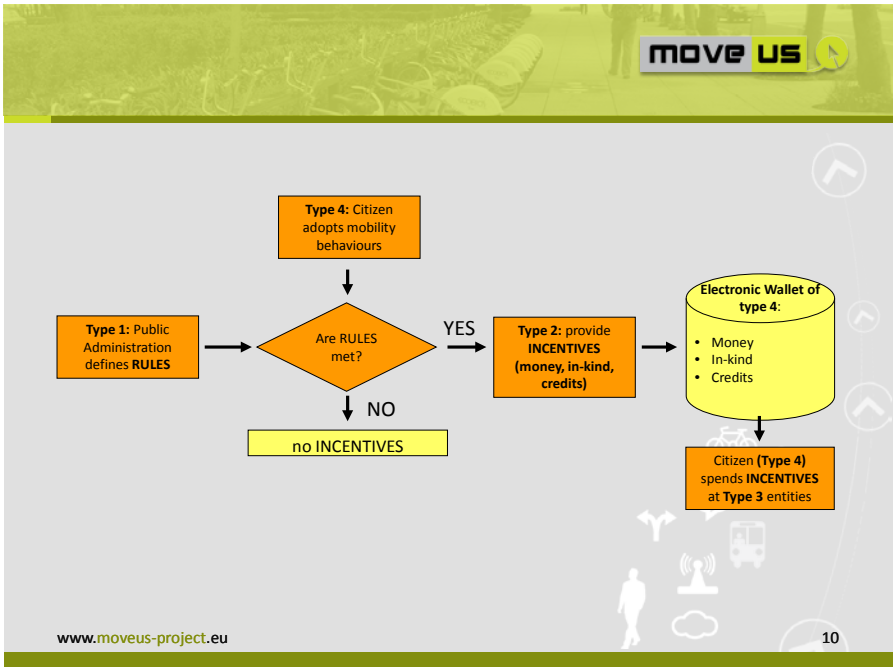


Figure 3 Incentives scheme

During the meetings the following activities were held:

- A general presentation of the project highlighting the objectives, approach and innovations
- A presentation on the new incentive schemes as trigger for a mobility change
- A presentation of the Genoa City Services with focus on the single functionalities.
- After the presentations, a few time was always reserved for giving instructions and help in installing and using the app right during the workshop.

In addition to the testers participating in the workshops, other users that could not attend the meetings due to personal reasons, took part in the validation through an "on-line test mode" which consisted in receiving instructions and providing feedback via mail. The number of users participating in on-line mode was approximately 30.

In order to facilitate the end-users in the registration phase the partners from Genoa prepared a short video with instructions in Italian. The video is available on the following link: https://youtu.be/izTX-gUaWV0.

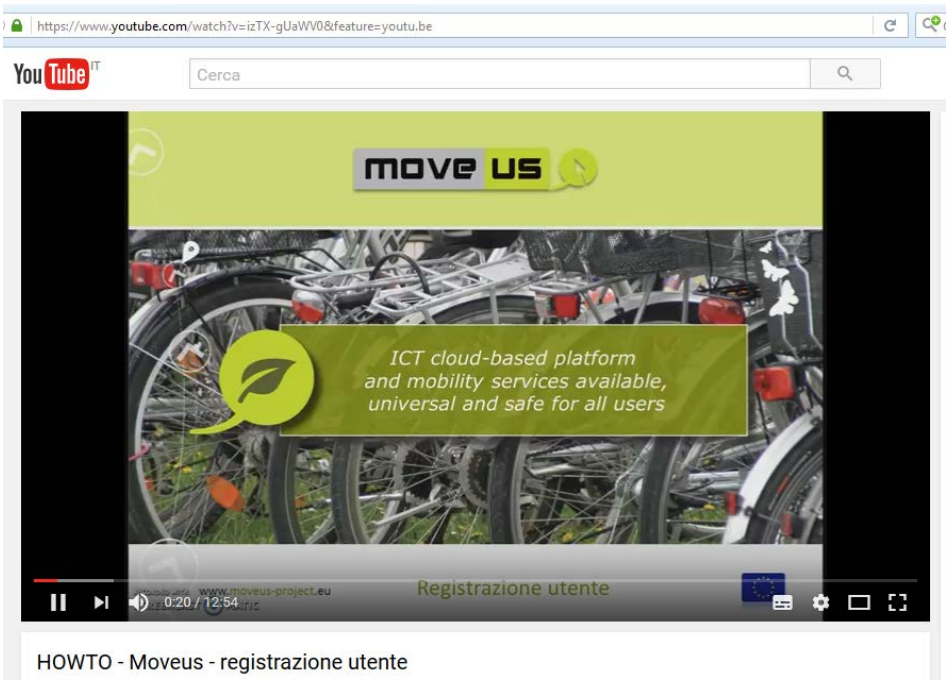


Figure 4 Video tutorial to registration phase

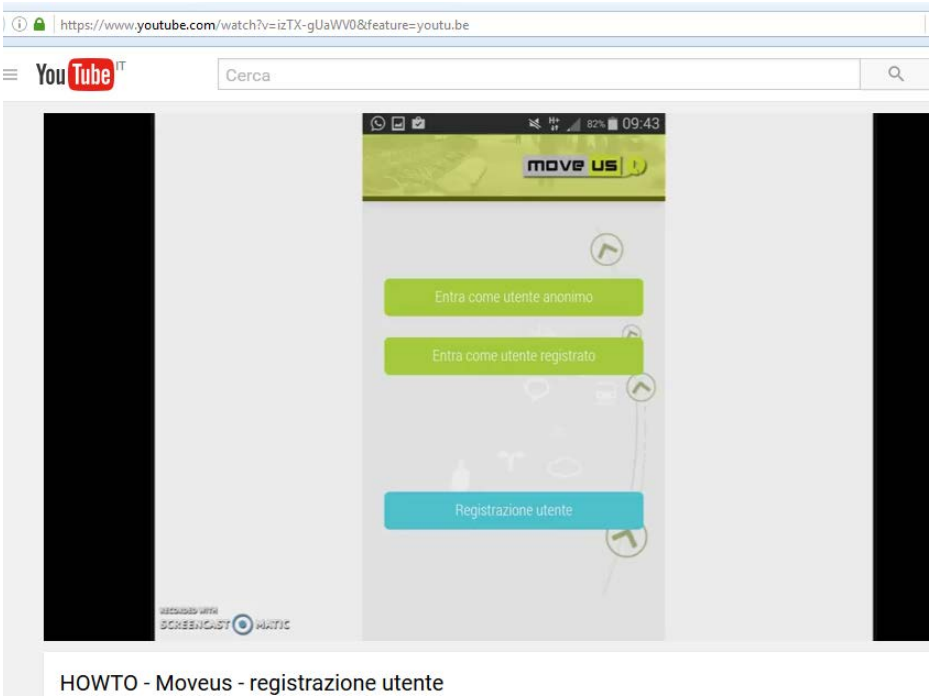


Figure 5 Video tutorial to registration phase

Figure 6 Video tutorial to registration phase

2.2 Test phase summary

A group of 76 users in total have been engaged. The test phase lasted about 20 days from the involvement phase. A final meeting to collect comments and

suggestions was held on the 13th July 2016 and another one was held on the 4th of October 2016.

Results and suggestions

The municipality of Genoa anyway operated to keep the interest high with e-mail invitations to the various meeting to provide feedbacks and to provide further feedbacks on line.

During the Genoa workshop with end-users we collected opinions and suggestions also provided as recommendations.

The incentives functions could be used only by registered users but the registration procedure revealed to be complex and tricky for many users who finally decided not to register, unregistered users were unable to answer too many answers of questionnaire and this resulted in lacks in data collection.

The needs of the users have been always considered as very important for the development of the app and for the success of the project. Therefore, every effort has been done to implement and realize the suggested modifications and improvements that emerged from the user's feedbacks.

The tools for collecting traffic feedbacks have been perceived as very important by the end-users. However, they would have liked to observe something to "return back" following their contribution: in fact, in the envisaged working schema for a "production" environment, following the feedback provision (e.g. a notification of a traffic event), the information on traffic, provided by local traffic infomobility services, should somehow change accordingly. These operations were not actually performed because of the experimental context.

An important development achieved during the fine-tuning activities was the implementation of the functionality that provides map-based and text-based information on:

- Parking Points
- Bike-sharing stations

The user can look for the existing Points of interest of the above types and gets detailed information on them.
This is especially useful for commuters who uses the public transport in combination with the car (Park and ride) and the bike.

Figure 7 – The POI Service in Genoa

General comments on the Living Labs

The following general aspects emerged during the Genoa Living Labs. More information and details are also provided as recommendations for the aspects of Co-Creation of the living labs in the deliverable D7.3 (section 5) [2].

1) The incentives functions, key aspects of the Living Labs, could be used only by registered users but the registration procedure revealed to be complex and tricky for many users who finally decided not to register despite their willingness to do so. Consequently, the incentive functions have not been validated as expected.
2) Related to the previous point, many of the questions of the questionnaire were formulated against the functionalities (incentives management) that required a registration. Unregistered users were unable to answer them and this resulted in lacks in data collection.
3) The developing phases should follow the work done by the testers to continuously update the system through the needs and demands of users to achieve the aim of satisfaction request so that it can disseminate the use of the

app even after the end of the project. Needs of users are very important for the app's development but also for the success of the project objectives.

4) In MoveUs, effective automatic tools for collecting the feedbacks have been set up but in Genoa only a part of the people involved actually used these. Instead, many users preferred to write email or make phone calls with the Municipality to ask questions or expose the problems which made difficult the automatic data collection.
5) After the initial interest, the commitment to using and evaluating the services has decreased as expected. The municipality of Genoa anyway operated to keep the interest high with:
   a) Email invitations to go to the offices to provide a feedback
   b) Email invitations to provide further feedbacks on line
   c) Invitation to the final event.
6) Finally, the contacts with the users have been established also to inform them that their feedback was actually taken into consideration during the fine-tuning phase with the release of new versions of the app that included the modification requested by them (where applicable). This is another element important to keep the interest and motivation high and to aim to involve more people at using the application.

3 Madrid activities

Last phase of the Living Lab activities in Madrid Pilot Site have focused on the end-user engagement in order to validate and make the fine-tuning of MoveUs mobile application and its functionalities. In order to do so, both Madrid City Council and EMT Madrid launched a communication campaign with the aim of involving as many end users as possible.

The following section provides the description of those end user engagement activities.

3.1 End-users engagement

During the last period, in order to get feedback from end users that where involved in the test phase of MoveUs functionalities, Madrid City Council (MAD) and the Madrid Public Transportation Company (EMT) organized a set of events to engage end-users for the evaluation of services and application.

End users were contacted after an extensive communication campaign including direct mailing to all the associations that were involved at the SUMP[1] participatory process, including neighbor associations, universities, commerce association, driver associations, cycling associations, pedestrian associations, people with reduced mobility associations as well as other stakeholders, such as the Mobility Observatory of Madrid City.

The test phase was also widely announced using the social media and internet, including the EMT website, the EMT blog, twitter and Facebook, among others. The first round of communications was launched by the end of May, including the announcement in the CIVINET[2] Spain and Portugal network event called “Working with the media”. This event took place in Madrid on May 26th, under the CIVITAS CAPITAL initiative to address issues such as marketing, advertising or social networks in Sustainable Urban Mobility. There was a second wave of communications at the beginning of July by publishing MoveUs information and instructions for the use of the app in both the Madrid municipal website (www.madrid.es) accessible for all the citizens and in the Intranet site of Madrid City Council accessible by near 27.000 Madrid public servants. These two calls for collaboration were showed till September 22nd.

[1] Sustainable Urban Mobility Plan

[2] CIVINET is a group of city networks that promote the CIVITAS approach at a local level, overcoming language and contextual barriers for local authorities and organisations interested in urban sustainable mobility. Members exchange information in their own language working together to engage with the European Union and national governments, about transport policy issues, legislation, regulations, and funding. To learn more visit http://www.civitas.eu/civinet/civinet-espa%C3%B1a-y-portugal

Figure 8 Screenshot of the EMT blog announcing the KoM for the test phase in May 26th, 2016

The Kick-off event for test phase with end-users was organized on 3rd of June in Madrid, at EMT premises (Auditorium). During the meeting, MoveUs Project was presented and the app was demonstrated to attendants.

Figure 9 Sergio Fernández presenting MoveUs functionalities at the Test Phase Kick-off event 3rd June, 2016

The session included a general presentation of the MoveUs project, as well as a detailed presentation about the smart crossing and bus priority functionalities. Finally, the session included a detailed video on how to use MoveUs app and Q&A. A total number of 19 end users attended the event, which is without any doubt a low number considering the communications efforts.

During the kick-off event, end users were also asked to fill in a transport habit survey during one week.

To all those end users that took part in the test phase both Madrid City Council and EMT offered some in-kind rewards, consisting in:

- Discount voucher in the online EMT shop
- Guided visit to the EMT museum
- Guided visit to the Traffic Control Centre of Madrid City Council

3.2 Test phase summary

The test phase officially lasted until the end of August, that is, for 13 weeks. However, some additional input was received until late September. Despite the low number of end users attending both workshops, Madrid demo site finally got the active participation of:

- 23 users
- Getting 19 "bug reports"
- 37 "feedback reports"

... and multiple emails with suggestions and proposals for improvement, for fine adjustment of the app (fine tuning).

All the received information was very helpful to improve MoveUs application, although most of the feedback was received directly via email, and not through the feedback survey included on the app itself.

As a summary of the main problems found by end users, we would like to point out the following:

- App registration process is extremely complex and cumbersome, and therefore many users that showed interest at the beginning finally withdraw from using and testing the app.
- Some missing transport modes (metro, train).
- Imprecision in the routes offered, as well as the area where the service is offered, as it did not cover the metropolitan area, something that is key for commuters.

Another comments received so far:

- The app should contain more options to choose the trip option (faster, with or without monthly transport pass, etc.).
- Incentives should be comprehensive, and integrated with other mobility options (free parking before entering the city, safe routes for cyclists, etc.). Some additional explanations should be provided about the advantages of using the app.
- The FAQs tab failed in several occasions.

4 Tampere activities

In the last stage of the Living Labs the activities in the Tampere Pilot Site have been mostly focused on the validation and fine-tuning of the Moveus services for Tampere. The following section provides the description of the user engagement activities.

4.1 End-users engagement

Test users were recruited in two rounds: the first group of test users was recruited in the beginning of 2016 and the second in the beginning of June. People were informed about the possibility to join the test group through different channels: local public transport website (news feed) and Facebook page, citizen associations (Vuores & Hervanta), Technical University of Tampere and City of Tampere (intranet). By 8th of April 158 people were interested in testing the application. Approximately 75 users have participated in the test group, of which 40 have been active users.

Figure 10 Announcement about Moveus-testing in Tampere public transport web page

Kick-off events for the end-users were organized on the 11th and 12th of April in Tampere, which was also the starting point for the testing phase. Before starting to use the Moveus-app, the users were asked to fill in a transport habit survey during one week. The testing of the app will last until the end of September 2016.

During the testing phase, the City of Tampere representatives communicated actively with the test users, informing them about new versions of the app, new features and replying to their questions.

Figure 11 Facilitator Elli Kotakorpi at the Kick-off event 12th April

Figure 12 Participants of the Kick-off event 12th April

4.2 Test phase summary

Approximately 75 users have participated in the test group, of which 40 have been active users. The user group is homogenous with people from different backgrounds and age groups.

The testing of the app lasted from the 11th of April until the end of September 2016. The tasks for the users included using the app as a part of their everyday mobility, filling in the transport habit survey, feedback survey and bug reports. Some of them also participated in the focus group interview on the 3rd of August.

The users were collecting green points based on their mobility choices. Based on the green points, users were able to get two different incentives: a 20 % reduction voucher in a local bike store and a voucher to claim a key for the local city bike system for free.

People have been interested in the MoveUs-app and recruiting test users was quite easy. End-users were also interested in the incentive system, even though the monetary value of incentives was quite small. Active communication/interaction with the test users is important (Answering peoples feedback, giving them the sense that we involve them in the developing process)

Bug reporting

During the whole test phase, users were able to report bugs and problems that they came across using the MoveUs-app. Bug reporting could be done by filling in a Google form survey, either accessing the form in the app or filling it in the browser.

One of the biggest problems that the users came across was concerning the points given for completing a journey. The users had problems in receiving the right amount of points per trip, but sometimes the journey planner failed to give any points at all. This problem was partly explained with the fact that sometimes the journey planner mixed up different transport modes that had similar average speed. This happened e.g. when a user was travelling by bus, but the app interpreted that the vehicle was a car and gave the user 0 points for the trip.

> *"I walked from home to work and from work to home as an unplanned trip. I walked exactly the same route but of course in different directions. From home to work I got 0.35 points but for the other trip I got 0.00 points."*

The previous problem was also connected to the difficulty to save the trip made. This applied to both the planned and unplanned trips. Sometimes the user wasn't able to end the trip. Sometimes the app also shut down during the trip by itself.

> *"Opened the journey planner normally and started the trip. At the destination, I tried to stop the trip, but stop-button didn't work. App informed that the GPS didn't work, although the trip was shown on the map."*

These problems were partly due to the session expiration time. If you were not using the application during 30 minutes, the session would expire. If the GPS-tracking was on the application would send information to the server in the background even though you were not using the application. The GPS-tracking should keep the application running during the 30 minutes break. Sometimes this didn't function as expected and the session could be interrupted. This could have also been due to problems in Internet-connection.

Also numerous smaller bugs were reported and fixed during the testing period.

Feedback survey

In addition to the bug reporting, the test users had the opportunity to give some feedback based on their experiences in using the app. Similar to the bug reporting form, the feedback survey could be filled in either the application or in browser. During the test phase, 39 feedback forms were received from the test users. Participants who answered the feedback form were awarded with two cinema tickets each.

Getting feedback from the users has been a major input in the development of the Moveus-app. Based on the comments and suggestions, the application has been modified and developed further. The feedback was reviewed and it was sorted into different groups according to their similarities. This way six bigger themes of feedback could be distinguished:

- Functioning journey planner
- Fluent log in
- Better performance and appearance
- Informative energy consumption calculations
- Encouraging incentives
- Easy-to-read map

Most of the feedback received concerned the journey planner. The biggest concern among the users was the operational problems in the journey planner (number of answers: 9).

> *"Many of the basic functions for journey planners are still missing. First and foremost, the app should concentrate on being a journey planner. When this works better than rest of the other apps in Play-store, other functionalities can be added (logging in and collecting points)."*

The usability of the journey planner was also reduced by its slowness (number of answers: 8).

> *"At this moment the usage is time consuming and difficult. Nowadays people are so busy that it is only a matter of seconds that the user has already picked another competing app."*

> *"Slowness in responses is a major failure. Login, finding routes, switching states etc. should be lightning fast. You need to have plenty of time before departure to enter address, date and time. And then wait for the app to search the route."*

The developing team also recognized this issue. By enhancing the journey planner the user experience would be better, e.g. by making sure that all the mobility mode options are shown in the itineraries (currently, not all bus lines are shown).

Users were also hoping that the journey planner would remember frequently used addresses and suggest them to the user when searching for an itinerary (number of answers: 7). This feature was later included in the journey planner.

> *"It would be good if the app could remember frequently used addresses and suggest them or you would be able to save them. There could be a drop-down menu for favourite places to choose from. Or you could write down the places in beforehand."*

Real-time data was considered as a valuable addition to the journey planner (number of answers: 4). This would help the user to plan the trip knowing the current location of the bus and to know about some changes in traffic that could affect the journey. This was thought to be a nice feature, but it would require a lot of specific work done and more time to add this functionality.

> *"Real-time bus tracking would be good, so that you wouldn't need to use two different apps to see the bus schedule and the tracking of the bus. This way you could follow the arrival of your bus (you can see if the bus is far away or already around the corner)."*

The log in and registration processes were also considered too difficult and slow (number of answers: 4).

> *"Logging in with PIN-code is unnecessary and annoying, especially when you have to quickly search for the next bus. The phones are already protected and usually the phone has only one user, so the user is already known. It is enough to have the options to log in as an anonymous user and a registered user."*

5 Results from fine-tuning

A summary of the bugs and the fine-tuning suggestions collected during the end-users test is provided in this section.

Bugs reported

A total of 25 different bugs were reported during the fine-tuning period in the three Living Labs, with a total of 48 requests, as some bugs were reported more than once by different users. The type of bugs reported can be classified under the following categories:

- Maps & Visualization. 2 bugs reported:
  - One related to GPS precision (depends on the smartphone terminal).
  - One related to the display of the maps (solved when the cloud platform was migrated and the performance improved).
- Log-In / Registration, 5 bugs reported:
  - Two bugs related to the Log-In or Registration process.
  - Two other bugs related to connectivity problems (some Wi-Fi networks should be avoided because of limited coverage).
  - One bug solved when the cloud platform was migrated.
- Functioning journey planner, 9 bugs reported:
  - Three bugs reported were solved when the cloud platform was migrated to the production instance, as they were caused by performance issues.
  - One bug related to the detection of pace (walking, cycling).
  - One bug related to some feature not available.
  - One bug related to the Tampere journey planner.
  - One bug related to incentives collection.
  - One bug related to device GPS.
  - One bug related to background execution.
- Better performance and appearance, 6 bugs reported:
  - Here three bugs were reported about the GPS accuracy and activation. These issues are related to each device (smartphone) specifications. Other bugs were about interface Tampere's App interface, and the proper display of privacy policy and FAQ.
- Encouraging incentives - themes, to group similar type on feedback, 3 bugs reported:
  - The bugs are related to the points calculation for some trips, that could be related to a minimum distance to obtain points.

Summarizing,

- Five bugs were solved when the platform was migrated to the production cloud platform that performs better than the development platform.
- Five bugs were related to GPS activation and accuracy. This issue has a strong dependence on how the device implements the GPS, so they are difficult to solve for all models of smartphones.

- Four bugs were related to the display of the interface for certain features and could be solved.
- Three bugs were related to the incentives calculation, some could be solved, but others were related to the length of the trips, that required a minimum distance.
- Two bugs related to the Log-In and registration process, but they were certainly not bugs, basically the users that did not follow the instructions to complete the process.
- Two bugs were related to connectivity issues, they were due to use Wi-Fi networks with limited coverage.
- Other four bugs were related to the implementation in the city app of the journey planner, or the background execution during trips.

Fine tune feedback and improvements

80 different suggestions and improvements were reported during the fine-tuning period in the three Living Labs. A total of 165 requests were received but some suggestions were reported more than once by different users. All the suggestions were evaluated and those that were feasible (significant improvement, reasonable effort to be devoted, viability in the scope of the project) were implemented while the others were discarded. The suggestions collected correspond to the categories shown below. A summary of those implemented and discarded is provided below.

- Maps & Visualization. 13 suggestions in total.
  - Implemented suggestions, 7:
    - ✓ Improving the readability and usability of maps.
    - ✓ Adding journey options.
    - ✓ Adding significant PoI's in some of the pilots.
    - ✓ Adjustment of the bounds of the city area to be considered in some of the pilots.
  - Discarded suggestions, 6:
    - ✓ Display in landscape mode.
    - ✓ Display current position (already working if user inside the bounds).
    - ✓ Display bus stops and bike stations for Tampere.
    - ✓ Improvement of proposed routes for bike and car driving.
- Log-In / Registration, 10 suggestions in total.
  - Implemented suggestions, 5:
    - ✓ Show a numeric keypad to enter PIN code to ease the process.
    - ✓ Improvements for the usability of the registration, log-in and forgotten passwords.
  - Discarded suggestions, 5:
    - ✓ Remove PIN request.
    - ✓ Simplify registration process.
    - ✓ Availability for older versions of Android an iOS.
- Functioning journey planner, 29 suggestions in total.
  - Implemented suggestions, 11:

- ✓ Alert for session expiration.
- ✓ Various improvements in search of origin/destination of journeys.
- ✓ General improvements in journey planner.
- ✓ Improve Selection of mode of transport.
- ✓ Added additional services like parking places and bike sharing stations in Genoa.

- Discarded suggestions, 18:
  - ✓ Real-time bus tracking in Tampere and Madrid.
  - ✓ Query on past journeys.
  - ✓ Voice instructions.
  - ✓ Offline operation.
  - ✓ Unplanned trips, automatic of end of trip detection.
  - ✓ Preview of duration and incentive points earned for each mode of transport proposed.
  - ✓ Real-time based routes.
  - ✓ Text itineraries for Tampere.
  - ✓ Other means of transport besides EMT (busses) to be provided in Madrid (bike sharing, metro, train).
  - ✓ Optimal route according user profile.

- Better performance and appearance, 18 suggestions in total.
  - Implemented suggestions, 6:
    - ✓ Increase speed of app.
    - ✓ Polished interface.
    - ✓ App navigation improvements.
    - ✓ Save common trips.
  - Discarded suggestions, 12:
    - ✓ High consumption of battery.
    - ✓ Android navigation buttons behaviour.
    - ✓ Remove informative messages.
    - ✓ Save favourite places.
    - ✓ Automatic detection of start and end of trip.
- Informative energy consumption calculations, 7 suggestions in total.
  - Implemented suggestions, 1:
    - ✓ Calories tracking summary.
  - Discarded suggestions, 6:
    - ✓ Configure CO2 parameters for own user vehicle.
    - ✓ Extend the energy/emission calculator to additional modes of transport (electric cars, electric bicycles, diesel, etc.).
    - ✓ Increase the detail of the users' information by differentiating between modes of transport used in the energy consumption service.
    - ✓ Consider steep hills in biking.
- Encouraging incentives - themes, to group similar type on feedback, 3 suggestions in total
  - Discarded suggestions, 3:
    - ✓ Not rewarding the use of the car.
    - ✓ Short trips do not provide incentive rewards.
    - ✓ Offer incentives which are desirable by users in Madrid.

Summarizing,

A total of 30 suggestions have been implemented, while 50 have been discarded, mainly because they could not be implemented with a reasonable effort, the information to fulfil the suggestion was not available or the suggestion was out of the scope of the application/service goals.

Many suggestions submitted during fine tuning, asked for similar features as in commercial multimodal planners for public transport or as in commercial car navigation applications, as both types of applications are quite mature nowadays.

Lessons learnt and conclusions

The MoveUs application implements very specific services for urban mobility. However, as the basis of the app is a journey planned and traffic navigator which are well-known applications –users tend to ask for similar features that can be found in commercial apps.

Several of the fine tuning requests for a pilot were already implemented in the rest of the pilots. A better knowledge transfer could be set to implement the best features in all pilots at the same time.

The security process is implemented in a cumbersome way, many reports from users address this issue. Maybe a simpler process could be set up even keeping the same security functionalities.

6 Conclusions

The three pilots participating in the project performed several engagement activities in order to get a significant number of end-users for the test phase. The success in this engagement was diverse. Table 1 shows the participation in the engagement activities and the end users that finally participated in the tests pilot workshops. It is worth mentioning that even Tampere attracted the double of people during the engagement, the number of users participating in the tests was similar as in Genoa. Another different case is Madrid were, even the efforts made to disseminate this activity were very high, very few people did finally participate in the engagement and tests. However, a few more users were enrolled in the testing activities than the ones that attended the kick-off event.

City	End-users contacted during engagement and kick-off	Active end-users participating in test phase
Genoa	70	76
Madrid	19	23
Tampere	158	75
TOTAL	247	174

Table 1 Summary of participation in Living Lab test phase

The users tested the application in each Living Lab. As each city had different summer vacation periods, the test period were different. Besides, as the initial plan to have a fining tune period between two test iteration was changed as the available time was shorter, the fine tuning was done in parallel with the testing activity.

Genoa had a test period of 20 days between 22nd June and the 13th of July. The main vacation period in Genoa is between July and August.

Test period in Madrid lasted for about 90 days, from early June until the end of August. The main vacation period in Madrid is similar to Genoa.

Tampere had the longest test period of 170 days from mid-April until end of September. It was the Living Lab that started earlier with a pre-tests phase, during April with some selected users. The main vacation period in Tampere is during June.

Due to the different test periods, Tampere collected a lot more bugs and suggestions than the other Living Labs. Many bugs were detected and improvements were made in the period from April to end of May, as in the

beginning of June Madrid started the test phase. Additionally the migration from the development service platform to the production service platform solved many issues due to the slowness and limited resources in the development environment, and this happened on the 23rd of June, just when the Genoa Living Lab started the test period.

Another source of issues was the diversity of devices, for example, not all Android smartphones have the same GPS accuracy, the same screen size and resolution, etc.

Additionally, as the services in the three pilots were not identical, but some of them quite similar, and the fact that each pilot developed their services over the same application, this made that some issues found in one pilot, were not found in another for a similar feature. During the fine-tuning process, many of these issues were solved by implementing the same solution as in the pilot applications where it works well.

7 Annex A. Template for invitation to K.O. meetings with end-users

Dear Sir / Madam,

MoveUs project and [Name of your institution] would like to invite you to participate in the **introductory session for end users' participation.** This session is addressed to end users that will help to test the MoveUs application in a real life environment and therefore become part of our Living Lab.

The main goal of the MoveUs project is to design, implement, pilot, evaluate, disseminate and exploit a number of novel ICT tools for smart mobility in the context of smart cities, directly addressing real users' needs while promoting a habit-change in their daily lives.

The aim of this session is to provide you enough information so you will know better the purpose of the project, the goal of the real life tests and the feedback we are asking to you.

If you commute in the area of [pilot city name], we would highly appreciate your participation in the MoveUs introductory session to the end users tests, and kindly ask you to confirm your participation by [day, month,] 2016 by e-mail at [contact person email] or by phone at [contact person phone].

MoveUs is a Collaborative project supported by the European Commission launched in October 2013. The consortium includes 10 institutions from three countries (Spain, Italy and Finland) that aim to radically change the European users' mobility habits by offering intelligent and personalized travel information services, helping people to decide the best transport choice and providing meaningful feedback on the energy efficiency savings obtained as a result. Recommendations supported by incentives will be provided to foster 'soft' mobility modes and the use of shared and public transport modes.

For further information about the MoveUs project, please visit the MoveUs website at http://www.moveus-project.eu.

Yours sincerely,

[Name of contact person]

[Position of contact person]

[Email of contact person]

[Phone number of contact person]

8 Annex B. Template for agenda for K.O. meetings with end-users

INTRODUCTORY SESSION FOR END USERS' PARTICIPATION

DATE:

[Day and date in dd.mm.yyyy format]

PARTICIPATION FEE: FREE OF CHARGE

VENUE:

[Name of your institution]

[Address and details of your institution]

CONTACT PERSON:

[Name of contact person]

[Position of contact person]

[Email of contact person]

[Phone number of contact person]

Scope of the Introductory Session

This session is addressed to end users that will help to test the MoveUs application in a real life environment and therefore become part of our Living Lab.

The aim of this introductory session is to provide you enough information so you will know better the purpose of the project, the goal of the real life tests and the feedback we are asking to you.

MoveUs is a Collaborative project supported by the European Commission launched in October 20013. The consortium includes 10 institutions from three countries (Spain, Italy and Finland) that aim to radically change the European users' mobility habits by offering intelligent and personalized travel information services, helping people to decide the best transport choice and providing meaningful feedback on the energy efficiency savings obtained as a result. Recommendations supported by incentives will be provided to foster 'soft' mobility modes and the use of shared and public transport modes (buses).

INTRODUCTORY SESSION FOR END USERS' PARTICIPATION

Time	Description
10:00 – 10:10	**Welcome**
10:10 – 11:10	**Introduction to end users participation**
11:10 – 11:25	**Q&A**
11:25 – 11:30	**Wrap up – Closing**

This session is organized with the support of the MoveUs project. This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 608885.

9 Annex C. Template presentation for K.O. meetings with end-users

First two slides from the template are shown below, from a total 26, the cover slide and the table of contents of the template.

10 Annex D. Template for end user's test guide, to be adapted by each pilot

END USER'S TEST GUIDE FOR SERVICES AT <CITY NAME>

INTRODUCTION

<Introduction to tests for the users participating, thanking them their participation and:

- Indicating the services available in the city.
- Introducing the incentives concept.
- Introducing the energy savings concept.
- How long will last the test phases.
- Introducing their participation to answer the surveys as an important milestone for the tests.

Example text:

"Dear participant in the MoveUs tests. Thanks a lot for you commitment and willingnes to use this app during your commuting time. In <<city name>> we have provided N services to help people to have a better mobility experience, **ServicenName1**, **ServceName2**, and **ServiceNameN**.

These services provide an incentive plan based on the usage to incentivate cleaner and sustaib¡nable modes of transport. Besides, if you are worried about the most efficient and cleaned choice for your mobility, the services provide an indication of the energy savings.

The testing period will last for a total of three months divided in two phases. In between we will improve the app based on the feedback received from you and other testers.

We kindly ask you to complete the feedback survey at the end of each test phase. This will be like gold or us, helping to improve and learn from your experience. Beside you have a feedback form to report problems or bugs you may find during usage period of theis app."

INCENTIVES

<Description on which type of incentives are available at the city, of how the users can gain incentives using the services, and which use they can do of those gained incentives.>

ENERGY EFFICIENCY

<Description on how the energy efficiency is measured through the services and which information is provided to the users in this regard.>

TEST OF SERVICES

<Describe the main steps to test the services:

- Where the app can be downloaded from
- Dates for the testing phase
- When to perform the feddback collection surveys
- How to report bugs/problems (option in the app)>

SERVICE: <NAME OF SERVICE #1>

<Description on how to test the service:

- Brief description of the service.
- Description of steps to test the service, including actions to test the incentives and the energy savings.>

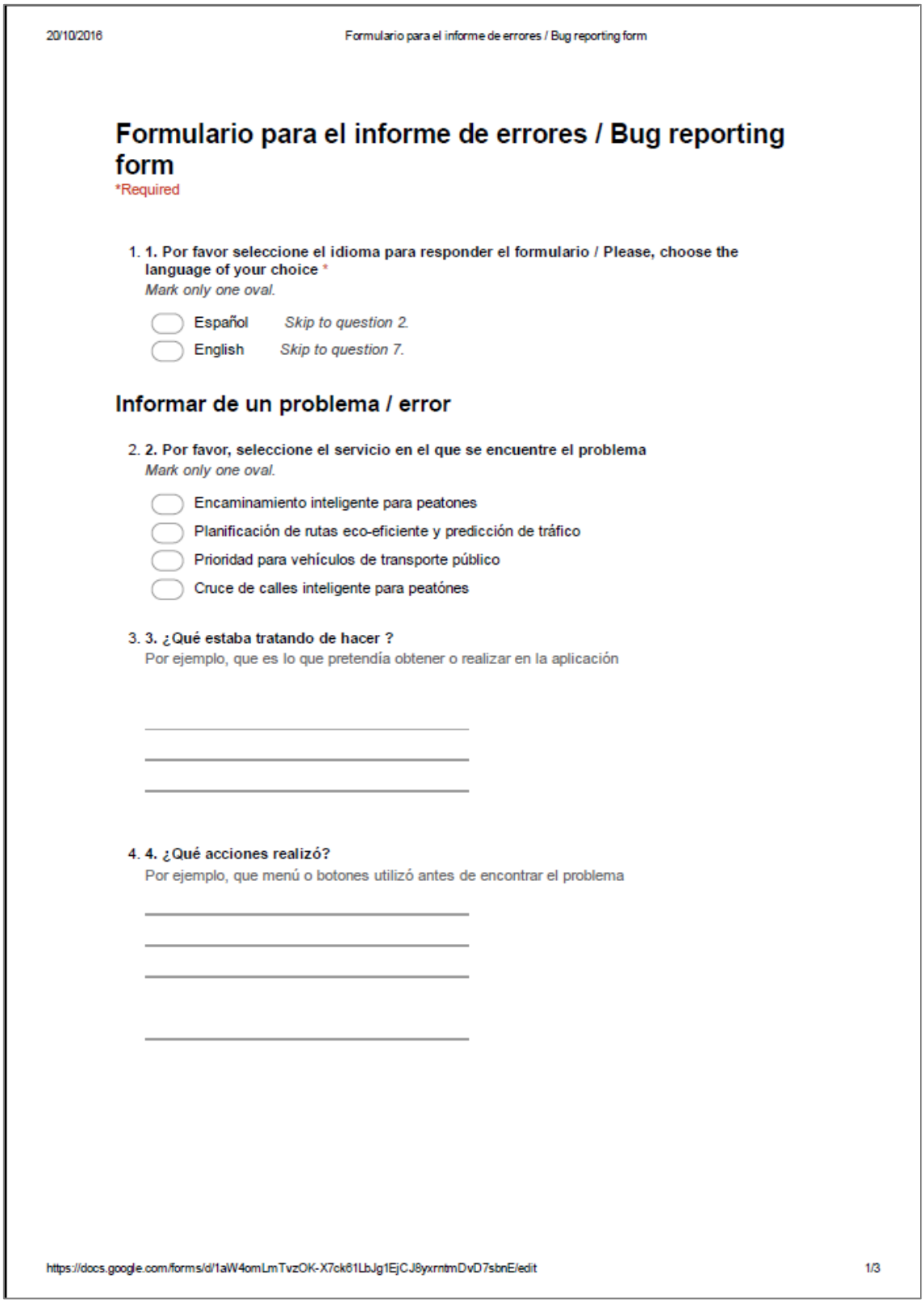
SERVICE: <NAME OF SERVICE #N>

<…>

SURVEYS TO COLLECT YOUR FEEDBACK

<Describe the process the users should do to perform the surveys and which type of surveys they will be asked to participate and when.>

11 Annex E. On-line form template to collect bug reports



20/10/2016 Formulario para el informe de errores / Bug reporting form

Formulario para el informe de errores / Bug reporting form

*Required

1. **1. Por favor seleccione el idioma para responder el formulario / Please, choose the language of your choice** *
   Mark only one oval.
   - ◯ Español *Skip to question 2.*
   - ◯ English *Skip to question 7.*

Informar de un problema / error

2. **2. Por favor, seleccione el servicio en el que se encuentre el problema**
   Mark only one oval.
   - ◯ Encaminamiento inteligente para peatones
   - ◯ Planificación de rutas eco-eficiente y predicción de tráfico
   - ◯ Prioridad para vehículos de transporte público
   - ◯ Cruce de calles inteligente para peatónes

3. **3. ¿Qué estaba tratando de hacer ?**
   Por ejemplo, que es lo que pretendía obtener o realizar en la aplicación

4. **4. ¿Qué acciones realizó?**
   Por ejemplo, que menú o botones utilizó antes de encontrar el problema

https://docs.google.com/forms/d/1aW4omLmTvzOK-X7ck61LbJg1EjCJ8yxrntmDvD7sbnE/edit 1/3

5. **5. ¿Qué es exactamente lo que vió?**
   Por ejemplo, el texto de los mensajes de error, si los hay

6. **6. Si repite los pasos, vuelve a ocurrir el problema?**
   Mark only one oval.
   - ◯ Nunca
   - ◯ Siempre
   - ◯ A veces
   - ◯ Other: _____

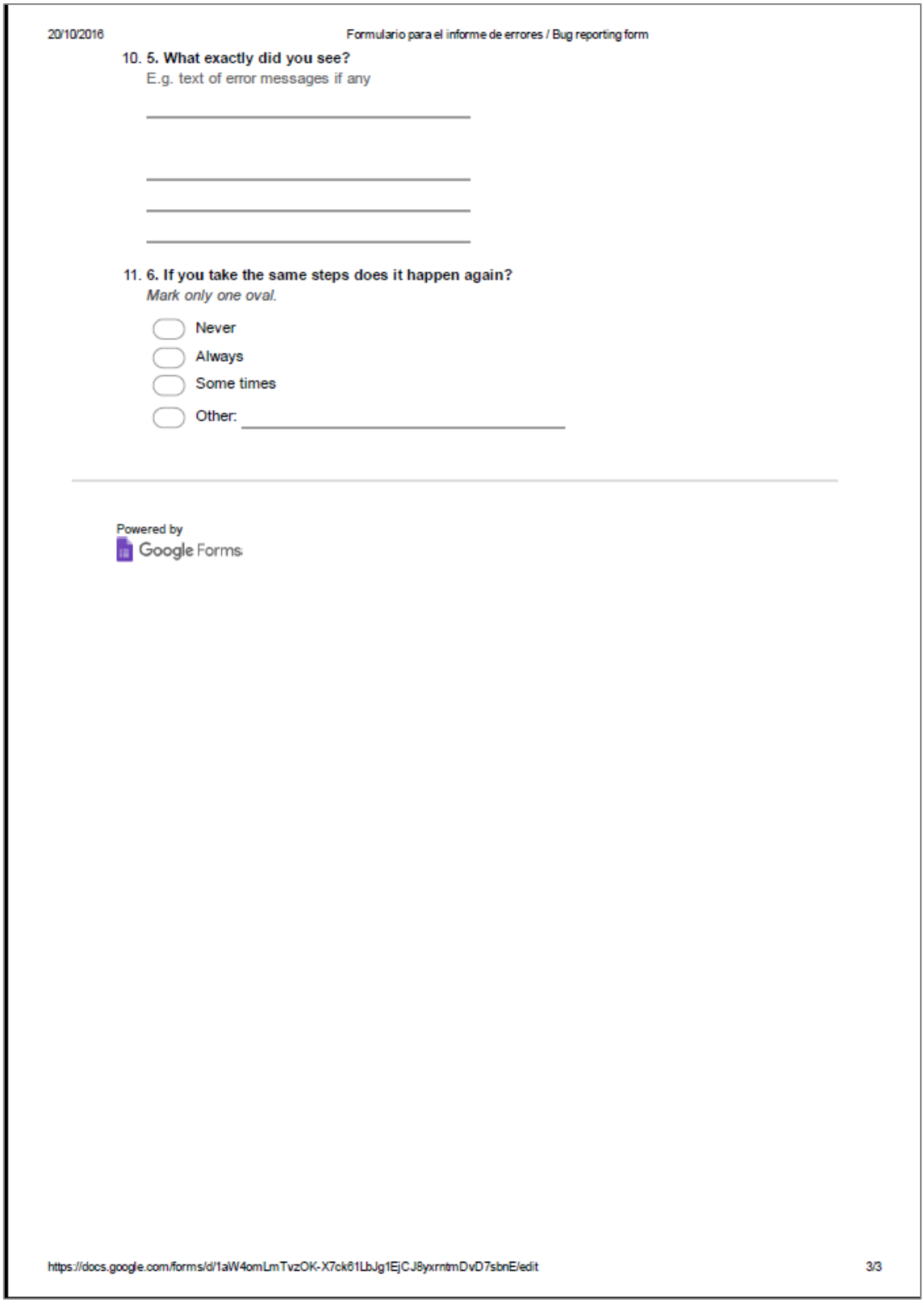
Stop filling out this form.

Reporting problem / bug

7. **2. Please, choose in which service you found the problem**
   Mark only one oval.
   - ◯ Smart Routing for pedestrian
   - ◯ Eco-efficient route planning and traffic prediction
   - ◯ Priority for Public Transport vehicles
   - ◯ Smart crossing for pedestrian

8. **3. What were you trying to perform?**
   E.g. what were you triying to obtain or make in the application

9. **4. What did you do?**
   E.g. what menu or buttons did you use before finding the problem



20/10/2016 Formulario para el informe de errores / Bug reporting form

10. **5. What exactly did you see?**
E.g. text of error messages if any

_____

_____

_____

_____

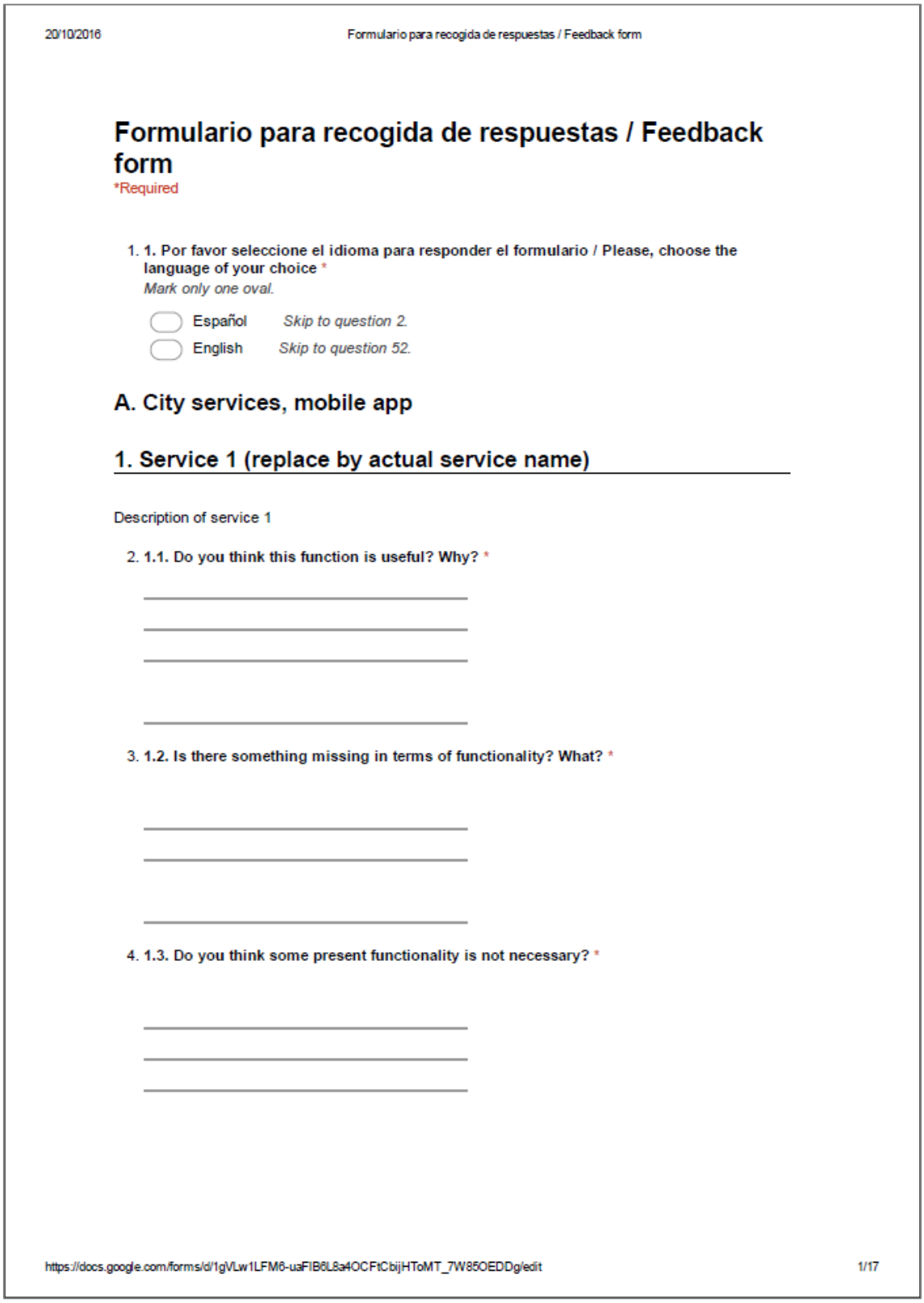
11. **6. If you take the same steps does it happen again?**
Mark only one oval.

- ◯ Never
- ◯ Always
- ◯ Some times
- ◯ Other: _____

Powered by Google Forms

https://docs.google.com/forms/d/1aW4omLmTvzOK-X7ck61LbJg1EjCJ8yxrntmDvD7sbnE/edit 3/3

12 Annex F. On-line form template to collect feedback



20/10/2016 Formulario para recogida de respuestas / Feedback form

Formulario para recogida de respuestas / Feedback form

*Required

1. **1. Por favor seleccione el idioma para responder el formulario / Please, choose the language of your choice** *
   Mark only one oval.
   - ◯ Español *Skip to question 2.*
   - ◯ English *Skip to question 52.*

A. City services, mobile app

1. Service 1 (replace by actual service name)

Description of service 1

2. **1.1. Do you think this function is useful? Why?** *

3. **1.2. Is there something missing in terms of functionality? What?** *

4. **1.3. Do you think some present functionality is not necessary?** *

https://docs.google.com/forms/d/1gVLw1LFM6-uaFIB6L8a4OCFtCbijHToMT_7W85OEDDg/edit 1/17

5. **1.4. Do you think some functionality should be improved? Why? How?** *

N. Service n (replace by actual service name)

Description of service N

6. **N.1. Do you think this function is useful? Why?** *

7. **N.2. Is there something missing in terms of functionality? What?** *

8. **N.3. Do you think some present functionality is not necessary?** *

9. **N.4. Do you think some functionality should be improved? Why? How?** *

B. Evaluation of incentives

10. **1. When you did a trip choice, did you pay attention to the availability of incentives and credits (green-points)?** *
Mark only one oval.

- ◯ Yes
- ◯ No

11. **2. Did the availability of incentives and credits (green-points) make you change your usual mobility behaviour, for example choosing a less energy consuming trip?** *
Mark only one oval.

- ◯ Yes
- ◯ No

3. What is a fair monetary incentive not to use the private car in the city for regular trips?

12. **a. The equivalent of one bus ticket per working day** *
Mark only one oval.

	1	2	3	4	5	
Not effective	◯	◯	◯	◯	◯	Very effective

13. **b. Between 1 and 3 euro/day** *
Mark only one oval.

	1	2	3	4	5	
Not effective	◯	◯	◯	◯	◯	Very effective

14. **c. Between 4 and 7 euro/day** *
Mark only one oval.

	1	2	3	4	5	
Not effective	◯	◯	◯	◯	◯	Very effective

15. **d. More than 7 euro/day** *
Mark only one oval.

	1	2	3	4	5	
Not effective	◯	◯	◯	◯	◯	Very effective

4. Which indirect incentives could motivate you not to use the private car in the city for regular trips?

16. **a. The public transport system is timely** *
Mark only one oval.

	1	2	3	4	5	
Not effective	◯	◯	◯	◯	◯	Very effective

17. **b. Sale of bus passes/car-sharing booking through my personal device** *
Mark only one oval.

	1	2	3	4	5	
Not effective	◯	◯	◯	◯	◯	Very effective

18. **c. Secure and safe paths for walking/cycling** *
Mark only one oval.

	1	2	3	4	5	
Not effective	◯	◯	◯	◯	◯	Very effective

19. **d. Convenience of car-sharing parking spots (proximity of parking facilities to home, etc.)** *
Mark only one oval.

	1	2	3	4	5	
Not effective	◯	◯	◯	◯	◯	Very effective

20. **e. Effective car-pooling tools/services** *
Mark only one oval.

	1	2	3	4	5	
Not effective	◯	◯	◯	◯	◯	Very effective

21. **f. Guaranteed Ride Home in case of emergency** *
Mark only one oval.

	1	2	3	4	5	
Not effective	◯	◯	◯	◯	◯	Very effective

22. **g. Other:**
Please specify

_____

_____

_____

_____

5. Only for bikers: what is a fair non-monetary incentive to choose the bike in the city for regular trips?

23. **a. Secure, convenient bicycle parking racks**
Mark only one oval.

	1	2	3	4	5	
Not effective	◯	◯	◯	◯	◯	Very effective

24. **b. Secure and safe paths for cycling**
Mark only one oval.

	1	2	3	4	5	
Not effective	◯	◯	◯	◯	◯	Very effective

25. **c. Workplace shower, storage, secure bike parking**
Mark only one oval.

	1	2	3	4	5	
Not effective	◯	◯	◯	◯	◯	Very effective

26. **d. Work schedule flexibility**
Mark only one oval.

	1	2	3	4	5	
Not effective	◯	◯	◯	◯	◯	Very effective

27. **e. Cycling time counts as working time**
Mark only one oval.

	1	2	3	4	5	
Not effective	◯	◯	◯	◯	◯	Very effective

28. **f. Company's bike sharing availability**
Mark only one oval.

	1	2	3	4	5	
Not effective	◯	◯	◯	◯	◯	Very effective

C. Transport habit change

This section is overlooked in the 4th iteration, as previous section jumps to section 5 (D. System Usability evaluation).
Change this for the 5th iteration where previous section should jump to "Continue to next section".

29. **1. Did the service(s) help to find better transport modes?** *
Mark only one oval.

- ◯ Yes
- ◯ No

30. **2. Did you finally follow the transport suggestions made by the app?** *
Mark only one oval.

- ◯ Yes
- ◯ No

31. **3. Which are the reasons why you followed or not the suggestions?** *
Please specify. Possible answers in terms of pollution, energy consumption, health, speed, comfort and others.

_____

_____

_____

_____

D. System Usability evaluation

32. **1. I think that I would like to use this app frequently** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

33. **2. I found the app unnecessarily complex** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

34. **3. I thought the app was easy to use** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

35. **4. I think that I would need the support of a technical person to be able to use this app** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

36. **5. I found the various functions in this app were well integrated** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

37. **6. I thought there was too much inconsistency in this app** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

38. **7. I would imagine that most people would learn to use this app very quickly** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

39. **8. I found the app very weighty to use** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

40. **9. I felt very confident using the app** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

41. **10. I needed to learn a lot of things before I could get going with this app** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

E. User satisfaction evaluation

42. **1. The app provides the precise information I need** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

43. **2. The information content meets my needs** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

44. **3. The MoveUs app provides sufficient information** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

45. **4. The MoveUs app is accurate** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

46. **5. I am satisfied with the accuracy of the MoveUs app** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

47. **6. The output is presented in a useful format** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

48. **7. The information is clear** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

49. **8. I get the information I need in time** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

50. **9. The MoveUs app provides up-to-date information** *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

F. Final free text question

51. **Do you want to add anything else?**

Stop filling out this form.

A. City services, mobile app

1. Service 1 (replace by actual service name)

Description of service 1

52. **1.1. Do you think this function is useful? Why?** *

53. **1.2. Is there something missing in terms of functionality? What?** *

54. **1.3. Do you think some present functionality is not necessary?** *

13 Annex G. Materials for Analysis of feedback received

A set of excel files to help the pilots in the analysis of the feedback collected though the Feedback form was provided, either to be later presented in the final workshops or in the final reports.

It is a set of 6 excel files, one per each section A to F, of the Google feedback form.

- MoveUs_Feedback evaluation - SECT.A.xls
- MoveUs_Feedback evaluation - SECT.B.xls
- MoveUs_Feedback evaluation - SECT.C.xls
- MoveUs_Feedback evaluation - SECT.D.xls
- MoveUs_Feedback evaluation - SECT.E.xls
- MoveUs_Feedback evaluation - SECT.F.xls

The usage depends on the type of questions under each section.

Free text questions. The procedure is similar as for the answers from the focus group workshops in previous iterations of the Living Labs. All the answers should be listed and classified in different categories. Further instructions are provided in the files. There are such type of questions in sections A, B, C and F. Tampere has specific questions and sheets in two sections, A and B that are clearly identified for them. The other pilots do not need to make anything with those sheets/questions.

- Pilots should use as many Section A excels as services they have in this section of the feedback form:
  - 2 for Genoa: 1. Multimodal Journey Planner and 2. Feedback provision
  - 3 for Madrid: 1. Multimodal Journey Planner, 2. Unplanned Trip and 3. Smart Crossing
  - 1 for Tampere: 1. Journey planner application

Likert questions (Strongly agree - Strongly disagree / Very effective – Not effective / Yes – No. The number of answers for each category has to be filled in each question. Filling only the light red cells as the others are protected. The spreadsheet calculates the mean and builds automatically the graphics. Graphic provided can be customised. There are such type of questions in sections B, C and E.

System Usability Scale. This is specific for the answers from section D. The answers (a number between 1 to 5) have to be filled for each user, one per row, under the corresponding statement (1 to 10). Should be used as many rows as users have answered, making sure that the average calculation is considering all the “SU Scores” from the answers. The final number is not a percentage. It must be interpreted according historical data from previous usability evaluations. The mean for such historical results is considered to be around 70,5 points, and form there are some grades or ratings. This is not an exact science as it is quite

subjective, but provides a guide on what is and what is not a good usability for a system from the user's point of view.

14 References

[1] R. Munné, B. García, C. Beltrán, S. Campos, S. Fernández, M. G. De Rose, A. Nordio, A. Rossa, M. Troglia, M. Masnata, A. Nieto, E. Kotakorpi, L. Siikasmaa y K. Viertola, «D7.1.2. - 2nd Report on the Set-up of MoveUs Living Labs demonstrators, evaluation methodology, plans and materials,» MoveUs project, 2016.

[2] R. Munné, S. Campos, A. Rossa, A. Vindigni, M. Troglia, M. Masnata y S. Fernández Balaguer, «D7.3 Future recommendations on the development of Living Lab methodologies for EU smart cities and mobility,» MoveUs project, 2016.