



D4.4 – Customer Satisfaction Survey

“Gathering and processing feedback on the quality of the app”

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Public report describing the findings and implications of the Customer Satisfaction Survey assessing the satisfaction of MoTiV app users. It will cover usability, usefulness and other important issues affecting user acceptance and experience.

D.4.3 is associated to the MoTiV Task 4.4 described below.

Description of Task 4.3 “Local Data Collection Campaigns”

Task 4.4 Gathering and processing feedback on the quality of the app (TIS): the Task Leader will prepare a Customer Satisfaction Survey, to be translated (when needed) and distributed by Project partners and contributing organisations to the national participants.

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About MoTiV

The Horizon 2020 project MoTiV (Mobility and Time Value) addresses the emerging perspectives on changing Value of Travel Time (VTT). Accordingly, it explores the dynamics of individual preferences, behaviours and lifestyles that influence travel and mobility choices. In other words, what does value of travel time mean for the end users, in relation to their travel experience?

The MoTiV project addresses VTT from the perspective of a single individual with a unique combination of personality, preferences, needs and expectations, in contrast with the traditional viewpoint of the economic dimension (time and cost savings). Its approach aims at achieving a broader and more interdisciplinary conceptualisation and understanding of VTT emphasising its “behavioural” component.

The main goal of the MoTiV project is to contribute to advancing research on VTT by introducing a conceptual framework for the estimation of VTT at an individual level, based on the value proposition of mobility. The conceptual framework will be validated through data collection and evaluation in at least 8 EU countries. The mobility and behavioural dataset will be collected using a mobile application developed by the project consortium, which will combine and integrate in an innovative way features from a multi-modal “journey planner” and an “activity/mobility diary”. With this mobile app, end-users will be able to more easily track, understand, and re-evaluate travel decisions to make the most of their free time in accordance with personal preferences, lifestyle, interests, and budget. The target is to engage in the data collection process a minimum of 4.000 participants actively using the MoTiV app for at least two weeks. Besides validating the conceptual framework, the dataset will be made available to the scientific community as an Open Dataset to stimulate further research in this area.

The MoTiV project findings will produce scientific and policy outcomes, as well as potential business developments, including the development of new mobility services and the extension of existing applications, such as the ones offered by the business partners of the Consortium (i.e. *routeRANK journey planner*¹ and the *PiggyBaggy*² app for crowdsourced deliveries).

Partners



¹ <https://www.routerank.com>

² <http://piggybaggy.com>

Abbreviations and Acronyms

API	Application Programming Interface
APP	Application
BE	Belgium
CH	Switzerland
CM	Campaign Manager
CSS	Customer Satisfaction Survey
DCC	Data Collection Campaign
EU	European Union
FI	Finland
FR	France
GA	Grant Agreement
HR	Croatia
iOS	Software used by Apple
IT	Italy
NO	Norway
LPT	Local Public Transport
PT	Portugal
SK	Slovakia
SP	Spain
TAM	Technology Acceptance Model
UX	User experience design
VTT	Value of Travel Time
WP	Work Package

MoTiV Consortium Partners and Acronyms

Acronym	Full name
UNIZA	Žilinská univerzita v Žiline
CoRe	CoReorient Oy
ECF	European Cyclists' Federation ASBL
EUT	Fundació Eurecat
INESC ID	Instituto de Engenharia de Sistemas e Computadores, Investigação e Desenvolvimento em Lisboa
routeRANK	routeRANK Ltd
TIS	Consultores em Transportes Inovação e Sistemas S.A.

Executive summary

The European app economy has been thriving, as mobile apps have outgrown in the information and communication technology markets over the past years.

Studies from the European Commission have shown that transport-related apps, such as the ones related with maps/navigation/search, are the most popular across all smartphones (Vries et al. 2011), alongside Facebook and weather apps. It is therefore very likely that, in the near future, smartphones become a mainstream solution for collecting data on travel behaviour, irrespective of the business activity and goals pursued.

In MoTiV, the project team has developed Woorti, a breakthrough tool to collect a European-wide dataset and build on data-driven approaches to revise the concept of value of travel time.

During several months, Woorti has been technologically improved, whilst the data collection campaigns evolved, and stakeholders have been invited to step in and leverage the campaigns. Regardless of any good efforts in improving the quality of the app, several reports from campaign managers show that perceived usability of Woorti has proved to be a barrier for the uptake. It was therefore necessary not only to understand how the campaigns progressed but also the most salient concerns and mindsets of different set of users. This required robust attitudinal research, using a mix of qualitative and quantitative research, which is the topic of the present deliverable.

This deliverable thus plays a pivotal role amidst the technological development of the project main data collection tool, the app Woorti, and the preferences and strategies put together by the local Campaign Managers (CMs) to steer their campaigns and guarantee a good dataset.

In this study, the main focus is to analyse the perception of participants towards the usability of the app. In order to understand which factors have played a dominant role in attracting and engaging the participants of the MoTiV Data Collection Campaign (DCC), it was decided to study the participants' perception on the usability and effectiveness of the app.

The results of the survey were reassuring, showing some elements of basic satisfaction with the app, which are nonetheless site-specific (the countries which were most closely involved in the software and user-design developments are the ones who were happier with the overall quality of the app). However, the interviews and the insights on how the campaign progressed indicates that one should move cautiously given the negative feedback provided by the stakeholders. Taking into consideration that data is the fuel that drives smart cities forward, this feedback calls for the development of benchmarking exercises with other running apps similar to Woorti, so as to understand better what value MoTiV has offered to transport planners, marketers and other stakeholders interested in using powerful data collection tools. This will certainly be a powerful cornerstone for future research.

1. Introduction

1.1 Purpose and scope

MoTiV is a research project involving at its core the collection of personal data (e.g. mobility patterns and behaviours) from several European countries and metadata via the MoTiV smartphone app.

The key technological result of MoTiV is the implementation of the Woorti smartphone app, which in the MoTiV project is used to collect a European-wide dataset. The app development was led by INESC ID – Instituto de Engenharia de Sistemas e Computadores, whilst the national campaigns were managed directly by the project partners and Linked-Third Parties, under the coordination of the WP4 leader and project coordinator, University of Žilina, Slovakia.

The purpose of data collection was to collect relevant data from project participants in order to achieve research goals and to analyse value of travel time not only from its economic dimension, but also explore motivations, preferences and behaviours linked to the broader concept of individual wellbeing.

Indeed, the European Commission is striving to conduct scientific research built upon robust data-driven approaches. With that purpose in mind, it is important to analyse the quality of the data collection tool from the user's point of view. Here, users are comprised of not only the direct participants but also the stakeholders that played a key role in the national campaigns, spreading the outreach of participants even more.

This document was therefore produced in the scope of Task 4.4. of the MoTiV project, "Gathering and processing feedback on the quality of the app", whose leadership was assigned to TIS.

Customer satisfaction is defined as a measure of a customer's delight or dismay while or after the use of a product or service. "In mobile applications, user's satisfaction is determined by what users perceive about an application, product expectations, expected performance, and match between personal values and app values" (Oluwande Olubusola 2015, 8). The gist is to gather and process feedback about the quality of Woorti – the specifically-built app which tracks people's mobility routines and collects information about their travel experience – describing findings and assessing the satisfaction of MoTiV app users, whilst covering usability, usefulness and other important issues affecting user acceptance and experience. The purpose of this survey and conceptual framework is to determine the user satisfaction levels regarding the app and the potential that such an app might be established in the future.

For the purpose of this research, the users entail a broad definition, including the end-users who travel with the application turned on as well as the stakeholders that normally employ surveying techniques for-profit and not-for-profit purposes and/or are interested in gathering information related with the MoTiV project topic.

The data gathered in this task is a result of a mixed approach, entailing both quantitative and qualitative elements. In particular, quantitative data collected from the customer satisfaction survey is combined with a qualitative layer which was created in order to capture the view of the campaign managers and all involved stakeholders (corporate or individual-based) regarding the potential added-value accrued by Woorti in systematically collecting data from users. Privacy, rewards, technology accuracy and many other dimensions will be included in this analysis which will reveal the conditions under which Woorti can become a mainstream approach for data-gathering.

1.2 Planning rationale

The roadmap for the preparation of the present deliverable followed 9 different sub-tasks. The customer satisfaction survey (CSS) required for conducting the quantitative approach to collect information on the perceived quality of the Woorti app was first piloted in August, to test the presentation and functionality among TIS staff members. It became available in all languages of the partners as from 14 October, remaining online until 11 November 2019. Preparation for the interviews of relevant stakeholders have also started in August, when the guidelines and script were drafted, even if the interviews have only taken place in November.

The overall planning and breakdown of the different sub-activities required for producing the present deliverable are presented in the following detailed time plan:

Sub-Activity	Phase	August	September				October				November				December				
		4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
4.4.1.	Pilot survey and pilot interview module																		
4.4.2.	Definition of the final set of questions																		
4.4.3.	All partners send the translated questions to TIS																		
4.4.4.	Questionnaire is distributed																		
4.4.5.	CM's report 1-page on how the campaign has progressed and explain how the survey was disseminated																		
4.4.6.	CM's report insights from at least one interview																		
4.4.7.	TIS produces a first version of D.4.4. and circulates it among CM's for comments																		
4.4.8.	TIS produces a second version of D.4.4. for official peer-reviewing																		
4.4.9.	Submission of D.4.4.																		

Table 1: Time plan for T.4.4.

As part of WP4 – Data Collection and Case Studies, this research will collect evidence that will shed light on the coherence and effectiveness of the national campaigns. By doing that, it will help shaping future campaigns beyond the lifespan of MoTiV and understanding both individual citizens' and stakeholders' attitudes regarding applications which, similarly to Woorti, collect information about mobility routines and feedback from users.

1.3 Structure of the document

After this introduction, it will be explored and critically assessed the rollout of the national campaigns, identifying the emerging key barriers and drivers in the second chapter. The third chapter will concentrate on the methodology framework of the customer satisfaction survey and will discuss the findings of the online survey according to key dimensions of analysis. Chapter 4 will illustrate the app performance from the viewpoint of the stakeholders engaged in the national campaigns.

The analysis will be summarised with a set of conclusions that will be presented in chapter 5 before drawing overarching recommendations on the business potential of the app and investigating relevant market segments where the project app can be adopted.

2. The national campaigns in a nutshell

The MoTiV DCC was coordinated across countries and at the same time it was developed differently by both the project partners and the Linked-Third Parties, according to their available resources, network and experience in conducting similar campaigns. The CMs have implemented different solutions to engage with users and convince them to take part in the local DCC, following a tailored campaign strategy.

2.1 The roll-out of national campaigns

Each CM has prepared an overview of the main logistic and working arrangements that conducted the campaigns per country. Even if the campaigns generally followed common standards and requirements set by the consortium, they also incorporated significant specificities and variations. Hence, all CMs were called to outline and justify some major components that can help understand how the campaigns have evolved. CMs have also identified the changes against the proposed initial strategic plan. In parallel, they have pinpointed concrete dates and phases that corresponded to milestones of their local campaigns and illustrated the main communication channels used to reach out to citizens, identifying those who were regarded as more cost-efficient and, on the other hand, the less-efficient ones. Lastly, some reasoning behind the criteria for distributing awards was required as a key dimension that could define the success of the different campaigns.

2.1.1 Belgium

In Belgium, the campaign was postponed and did not follow the initial strategic plan, as the steering partner Fietsersbond had other big campaigns running in September and they kept waiting for the Woorti-App to function better to avoid damage to their reputation, by their stakeholders.

Fietsersbond did a pre-campaign with 1,000 citizens in July and August, targeting not only cyclists but also people that voluntarily and professionally work in the sustainable mobility field.

Participants were incentivised to test the app with Fietsersbond. However, the app was still premature at that stage. Fietsersbond emailed 903 recipients, the active volunteers of Fietsersbond, which were asked to test the App. The campaign was mentioned as a flagship topic on the regular Fietsersbond e-newsletter which was sent to 10,098 contacts in the Flanders & Brussels region.

Fietsersbond also sent an email to the members of the Netwerk Duurzame Mobiliteit. In addition, Fietsersbond promoted the campaign on their official Facebook account.

In September, Fietsersbond made an extra effort and launched the campaign to 23,000 potential users which were Bike To Work-members and Fietsersbond Facebook followers. The campaign was also disseminated through the organisation's Instagram account.

During the last weeks of the campaign, Fietsersbond tried to rebalance the share of women which was underrepresented in the overall sample, by posting Facebook advertisements targeted at woman aged

between 18-55. They also handed out flyers at events, mentioning the project campaign on Facebook and in the newsletter of Netwerk Duurzame Mobiliteit and other relevant events.

The main channels used to reach out new users are following:

- Mass-e-mailing (Mailchimp) (regarded as the most effective);
- Facebook regular posts (regarded as not so effective);
- Facebook-Ads.

The main rewards given to participants included E-readers, wireless headsets and power banks.

2.1.2 Croatia

The campaign was supposed to start with the European Mobility Week in Zagreb, in September 2018, but the app was not ready by then. The official start was May 20th, 2019. The partner Sindikat Biciklista from Zagreb started communication with stakeholders prior to the campaign launch, but interest was low due to conflicts with their schedules and other work, and the holiday season in Croatia (June-September). The actual campaign included the European Mobility Week in Zagreb, in September 2019, and ended in 15 October 2019.

The main channels citizens were reached out to included private contacts (friends, family, colleagues), newsletter (cca 2000 receivers) which was sent 3 times during the campaign. This effort was regarded as the most effective one, as well as the inclusion of Woorti as a side topic in public events. The less effective ones were Facebook posts/adds, Instagram posts/adds and specific Woorti-related public events.

The batch of rewards included 5 Bike-balls, 5 Le Poupoupidou, 10 Woorti power banks, 10 Yearly membership in Sindikat Biciklista (provides discounts in bike shops and other) and 10 Sindikat Biciklista T-shirts.

2.1.3 Finland

The DCC in Finland was based primarily on large stakeholder organisations with an interest in collecting mobility data from specific user segments. The campaign started already in May with testing by representatives of those stakeholders. This strategy did not work because of various reasons, depending on the organisation:

- The data collection was not close enough to their core activity to justify their efforts;
- Woorti had insufficient user experience for them to advertise it to their users;
- The value proposal of Woorti was not good enough to get their users interested.

The DCC in Finland also tested other various channels: personal networks, paid social media advertising, face-to-face recruitment, schools, local communities, and very large national scale Facebook groups. Of these, only the national scale Facebook groups channel was efficient in terms of getting more than a few users per channel, but the number of such groups that could be accessed was

low. Also, various rewards were tested. MoTiV power banks and movie tickets did not seem to have a decisive impact to motivate large numbers of users.

Overall the DCC was, despite of the campaign efforts, not able to reach significant numbers of users from mid-June to mid-August due to the Finnish holiday season.

Therefore, the DCC stakeholder organisations had to be changed in September. In October, the DCC eventually managed to reach out to cities and municipalities that are targeting carbon neutrality, thus having more general interests apart from collecting data from specific user segments, and could justify efforts to communicate Woorti in a better way to their general population or municipal employees. The end user value of better awareness and collection of at least some information for their own use were compatible with what Woorti DCC could provide. Separate campaigns were created for about 25 municipalities and cities who used their own social media channels or internal emails to invite users to use Woorti. Additional campaigns were made for specific college teachers to engage their students, as well as for CoReorient's own customers.

Also, the rewards were modified, first by deciding to offer a 500-euro cash prize for one of the users who reported at least 10 trips, and later another 100-euro cash prize for just one trip, to motivate the users to at least try and report their trips. A free month of CoReorient's own services was also offered among those who reported at least 10 trips.

2.1.4 France

The DCC launched in France when the app was planned to be ready (mid-April). FUB organised 2 events before June, and extensive communication on twitter and to its members.

French campaign lasted for 6 months, with 3 tactics for high visibility and communication: 1) getting the first followers, partners and perfectionate the speech 2) push 3) maintain the pressure.

French campaign was mostly digital. But the app was not very easy to use. Those who used it found it ultimately boring and some admitted that they haven't been giving accurate answers. In total, 597 people downloaded the app with the purpose to join the research but unfortunately just 316 become active users. Due to some technical problems, some users could collect points in the back-office without validating their trips. It is estimated that around 10% of potential-already-active-users were missed. High battery consumption also hindered the use of the app for at least 14 days.

The main channels used for promoting the App and engaging citizens included e-mails (to reach key organisation or councils), newsletters (one per month starting from March), letter to FUB members (one per month starting from March), Vélo-Cité, FUB's printed press, ADTC-infos (local FUB's member printed magazine in Grenoble area, personal meetings and phone calls with relevant stakeholders.

Given the App quality in the beginning of DCC, FUB couldn't attract many people to the topic of the project and help the research, even by minimising the communication.

2.1.5 Italy

The campaign was initially planned for April when FIAB had the most important events. However, the campaign was postponed to July, because the app wasn't ready and stable enough. Because of this delay, FIAB missed a lot of occasions and events to launch the campaign, that would have been a great

opportunity to engage people to use the app, help them to download the app, training and make a short demonstrative trip together.

Despite these circumstances, more than 150 people downloaded the app in Italy before 16 August and some of them concluded the period of 14 days of usage. All these people were close collaborators of FIAB because the local team decided to launch the campaign just to their closest acquainted people, not to risk or harm their reputation.

During all that period, some people wrote to the local steering team to say that they will not use it anymore due to technical problems, such as trips not detected or trips detected during the night time when the phone was left on the bedside table, crashes of the app, and other relevant bugs. All these issues were identified using the beta reporting testing and during the numerous weekly calls that the project team organised (an example of a recurring error concerned the fact that bike option has never been automatically detected by Woorti on iOS devices).

As planned, in Italy, the campaign was developed mostly in two phases.

The soft campaign period and beta testing: from April to August 2019, after the Beta testing, a first soft campaign involved FIAB employees and closest supporters, partners employees, as well as their relatives and friends, involving mostly a word-of-mouth format and personal emails. The campaign thus evolved in a “controlled environment”, where all the queries and problems could be addressed personally. FIAB also decided not to risk its reputation and thus not to involve any other stakeholder or company it has a partnership with. The only stakeholder that FIAB kept talking with was ESN Alumni that disseminated the project using their contacts database.

In July, FIAB did a pre-campaign, asking internally to use the app during July and August. This internal newsletter reached 1,100 executives. In the same month, FIAB presented the project to their bike holiday participants, but unfortunately, negative feedback about the app battery consumption was received. Plus, the app was still very unstable.

The ramping up and the intensive campaign: The intensive campaign started at the end of August. It was developed mostly during the months of September and October and involved several micro activities:

Direct communication approach, including setting up a Woorti mail chimp account to send personalised emails intending to reactivate those users that stopped using the app.

The main channels of communication to reach out to potential users in Italy was email marketing using FIAB's database (national and local). Unfortunately, because of the risk of reputation, FIAB couldn't use partnership or press support. For the same reason, FIAB couldn't push too much on Facebook because people were complaining about the quality of the app and the partner couldn't risk the boomerang effect on the campaign.

The intensive campaign in Italy started on the 22 August when FIAB wrote the article on their website that was read by 1,300 persons, 180 of which liked using the thumbs up Facebook button: <http://www.fiab-onlus.it/bici/notizie/notizie-varie/news-varie/item/2204-woorti-app-mobilita.html>

On 25 August, FIAB sent a newsletter to all their national database with 45,000 contacts, talking about the project and motivating readers to help the European research. This newsletter was repeated in September and October. In the meantime, FIAB also sent the same message to their list of presidents, to engage their local member associations in the project. Several articles and Facebook pages were produced by the local associations³.

³<https://adbgenova.it/it/homepage/ciclismo-urbano/scarica-woorty-per-contribuire-ad-un-progetto-europeo-fiab>; <https://www.montesolebikegroup.it/2019/10/woorti-ecco-la-app-che-da-un-valore-ai->

The editors of FIAB magazine, BC wrote an article (<https://www.rivistabc.com/woorti-app-spostamenti-quotidiani/>) and sent it through the news to their mailing list with more than 18,000 contacts.

Besides the production of this vast array of news-items, several outreach events took place, allowing interactions with the public including short demonstrative validation trip processes. FIAB organised 2 outreach events in Milan: one in July and one in September during the European sustainability week.

Direct email to the people who downloaded the app was also sent. FIAB sent several personal emails to the people who downloaded the app to explain how to best use the app and the trip validation process, and to try to get them engaged or re-engage people who downloaded the app, but never used it.

As for the rewards, in all the outreach events, FIAB gave as a reward a pair of bike lights, a very useful gadget for cyclists and for urban intermodal travellers.



Figure 1 – Some highlights of the Italian DCC. From left to right - the internal emailing; one of many FIAB-produced news articles; outreach event in Milan; and the bike lights which were given as a reward to the campaign participants

2.1.6 Norway

In the campaign taking place in Norway, some changes against the strategy plan were implemented. At first, the steering local team wanted to offer local organisations of Rotary and Lions to hold talks on their meetings, to recruit them. Unfortunately, due to lack of available time, this plan was never realised. It was considered to get a deal to buy an e-bike with a discount, and some bags with bike equipment for second prizes, but the local steering team did not get gift cards or repair kits. At the end it was possible to get extra money that was spent on gift cards for new users.

The campaign led by Syklistene started by collecting e-mail addresses from people willing to be contacted when the app was planned to become available (November 2018).

The team from Syklistene talked about the app at relevant events around the country, including the World Bicycle Day, held in the beginning of June 2019.

The main channels of communication and promotion included Syklistene members magazine, local organisations, the partner own Facebook account (page and group), posting in relevant Facebook groups, including stakeholders' Facebook account. These stakeholders also spread the news amongst their own employees and personal connections and sent e-mail reminders as well.

[tuoi-spostamenti-quotidiani/](https://www.rivistabc.com/woorti-app-spostamenti-quotidiani/); <https://adbgenova.it/it/homepage/ciclismo-urbano/scarica-woorti-per-contribuire-ad-un-progetto-europeo-fiab>; <https://www.fiabverona.it/newsletter/2019-29/?frame=0>; <https://www.ambiente.org/blog/2019/09/05/scarica-woorti-lapp-che-da-valore-ai-tuoi-spostamenti/>

The available rewards offered to users included an e-bike as the main prize, but also 30 assorted boxes with bike equipment worth €30 as well as 10 gift cards for clothing to get more active users in the last phase.

2.1.7 Portugal

In Portugal, the campaign was developed mostly in two phases. From April to August 2019, after the Beta testing, a first soft campaign involved the two national partners employees, as well as their relatives and friends, evolving mostly in a word-of-mouth format and through announcements on WhatsApp and Facebook groups. The campaign thus evolved in a “controlled environment”, where all the queries and problems could be addressed personally. This task was fairly time consuming, but proved to deliver best value for money. During this period a news-item was produced and published at the magazine during Summer 2019. The “hard” and intensive campaign was developed mostly during the months of September and October and involved, besides many other micro activities, the following:

- *Facebook campaign* in the dedicated “Woorti Portugal” page (321 followers, as of the 21th of October), including 3 paid advertisements (100€) that allowed the announcements to be seen by 13,424 persons;
- *Direct communication approach*, including setting up a Woorti email account to send personalised emails intending to reactivate persons that stopped using the app. Three different emails were sent, one devoted to persons who had not validated any trip, a different one to those who had used the app only between 1 and 9 days but stopped using since then and another one to people that were on the brink of completing the 14 days.
- *Small outreach events* included the participation in the Almada European Mobility Week to disseminate Woorti and also the organisation of short lectures at universities (a total of 4 universities were targeted) about the value of travel time and incentives for participation in the local campaign.

During this period, the main reward was a 15€ e-voucher from Decathlon, chosen for being mode-neutral and all-ages inclusive. Plus, it could conveniently be sent by email, so it was particularly useful for long-distance commercial arrangements such as the ones triggered on Facebook.

As soon as the objective of the campaigns moved from getting users engaged in Woorti for 14 days to active users (people with at least one trip), the local campaign was steered to the new ambition, which required a redesign of the available prizes. To trigger a snow-ball effect, TIS contacted a professional marketing company and offered their staff a 5€ supermarket voucher to whoever registered and validated at least one trip. In addition to this, another 5€ supermarket voucher was given to the recruiter. The local campaign managers regarded this effort as one of the most cost-efficient effort to develop campaigns where a long engagement was not needed (people didn’t have to use the app for consecutive days). The local team seized this opportunity and only issued the vouchers to people who had also filled in the customer satisfaction questionnaire. This is regarded as a sound advantage to guarantee a high participation rate in the survey campaign, when compared to other methods.

At the end of the campaign, in the month of November, a new campaign was designed, offering a 10€ Decathlon voucher to people who completed 14 trips. This campaign was primarily focused on universities, where the local team was able to promote Woorti (ISEL, UNL and IST).

Some contacts were made to guarantee the support of institutional stakeholders, but most approaches failed due to other ongoing activities (the municipality of Lisbon was taking part in the Smart Open Lisbon project that used a similar app to track people’s mobility routines) and perceived lack of technical stability of the app.



Figure 2 – Some moments of the Portuguese DCC. Left to right - the launch of the campaign at TIS, Woorti at the European Mobility Week, one of the Facebook advertisements and an event at the senior university of one local parish, in Lisbon

2.1.8 Slovakia

The Data Collection Campaign was split in 2 phases in Slovakia. The first part of the campaign started at the beginning of May and the special focus was given to the University of Žilina and its students. The Woorti app was mainly promoted among university students in several lectures and using the posters at the University campus. Thanks to this situation the steering team was able to control the campaign, which was needed mainly because of the limited functionality of the Woorti app. All participants who validated at least 1 trip during the 14 days in the first phase of DCC were rewarded with a power bank.

For online communication with users, the following channels were established: Facebook page named “MoTiV projekt” (181 followers), Instagram channel “motiv_sk” (135 followers) and Gmail account “motivprojekt@gmail.com” which were used during the whole campaign.

The second phase of the campaign started on 1 September and took place until the end of November, while the most effort for promoting the Woorti app was spent during the September and October. During this period, UNIZA MoTiV team participated in many different outreach events in Slovakia (e.g. Researchers’ Night, Breakfast for cyclists, Conference Road to the future, Cycling conference, Transport Engineering Conference, etc.), where the MoTiV project as well as Woorti app were promoted. For the recruitment process, power banks and keychains were used as an incentive for new active users.

Special incentive was prepared for the users who used the app for at least 14 days and validated their trips. All these users were subsequently included in the draw of the e-scooters, which were given as a prize from a sponsor. Thanks to this incentive, we were able to keep almost 200 active users engaged for at least 14 days. The first prize winner was drawn in the middle of the campaign and the second one will be drawn after the campaign ends. A special promotion was also given to the university employees, who were interested in using the Woorti app and validated their trips for minimum of 14 days. Those people were rewarded with promotional materials.

The most effective channels for reaching out to the public audience were: the participation in outreach events; the advertisements in buses and trolleybuses; and a TV show – Veda a Technika (Science and Technology) on Slovak National Television.

As for stakeholder cooperation, several stakeholders participated in Slovak DCC and promoted the Woorti app. The most active was the local public transport operators in the City of Zilina, which actively promoted the app via several channels, such as publishing the article on company's websites or displaying the advertisement on LCD monitors in buses. Several other stakeholders promoted the Woorti app via sending emails to their subscribed audience or publishing the posts on social media.



Figure 3 – Some moments of Slovak DCC, left to right – advertisement in trolleybus, promoting the e-scooter as a reward, Woorti at the Road to the future conference

2.1.9 Spain

In Spain the Data Collection Campaign ran in two phases: during May and beginning of June internally among Eurecat's staff using corporate internal communication tools (e.g. internal newsletters) and from June to November externally. During the external campaign, Eurecat enrolled 8 stakeholders.

Campaign activities by Eurecat included:

- Campaign in internal communication channels (continuous promotion about MoTiV in internal newsletters sent to over 600 employees, emails to colleagues asking to download the app);
- Promotion of MoTiV featured 3 times in monthly external newsletters sent to more than 15,000 persons (eg. <https://mailchi.mp/eurecat/newsletter-435549?e=746704d0d2>);
- Promotion in EUT Social Media accounts (examples below);
 - https://twitter.com/Eurecat_news/status/1181928846976802816?s=20
 - https://twitter.com/Eurecat_news/status/1171377007571210240?s=20
 - https://twitter.com/Eurecat_news/status/1143430140552253440?s=20
- Press release published in several local and regional media outlets;
- Permanent slider published in Eurecat's home page about MoTiV during the whole external campaign;
- Creation of a specific page within Eurecat's website <https://eurecat.org/projectes/projectes-europeus/woorti-viatjoperunmotiu/>;
- Set up of a paid advertisement campaign on Facebook / Instagram running for almost 1 month;
- Promotion during the following events:
 - MoTiV Workshop "The Power of Data Analytics in assessing Value of Time for Mobility and Transport Planning: uncovering users' mobility behaviour". Distributed campaign materials and promoted the campaign during a specific session https://eurecat.org/en/services/eurecatevents/motiv_workshop/.
 - Big Data Congress <https://bigdatacongress.barcelona> (17 October) Distributed campaign materials to all attendees (500 approx.) and promoted the campaign during the Welcome speech.

- IoT Congress <https://www.iotsworldcongress.com> (29-31 October, Barcelona)

Distributed campaign materials from EUT's booth at the congress.

- Set up of an email marketing flow to retain users (sending an email between 1-2 weeks to non-active users, active users, and users that have reached a target);
- Promotional campaign to the employees of the other buildings in the Eurecat office complex (1,500 employees approx.). Posters displayed at the reception desks of the three centres. In addition, an email to all employees of those two companies was sent and Eurecat set up a stand during rush hours at the entrance and exit;
- Posters displayed in the ad boards of 4 Catalan Universities.

During the external campaign, Eurecat rewarded users with a power bank when reaching the validation of 14 trips, and with the possibility to participate in a lottery of an electric bike and 2 moto-sharing vouchers if using Woorti for 14 days. In addition, specifically for Eurecat complex employees, the company offered a free breakfast for each new active user.

8 national stakeholders supported the campaign to some extent: ATM (Social Media posts, newsletter), BACC Association (published information about the campaign on their website, social media posts, email to all their associates), RailGroup (promoted the campaign online – social media, web, distributed EUT press release, email to a database of 100 users, specific communication through newsletters), Catalunya Camina (social media posts, email to associates), Torrot & Muving (offered the lottery gifts), Caffeine Café (promoted the campaign at their café), RACC Foundation (promoted the campaign in their newsletter sent to 2,000 contacts).

2.1.10 Switzerland

Data Collection Campaign in Switzerland was conducted by routeRANK LTD, focusing the people affiliated to EPFL campus in Lausanne, Switzerland.

The campaign was running based on the plans defined in the D4.2. Overall, routeRANK had engaged 77 users, among which 52 users were active and 16 users used provided feedbacks for at least 14 days. However, it did not reach the expected results and Switzerland was withdrawn from the DCC and asked to stop all related activities.

Difficulties came from different aspects such as convincing people to install Woorti app (no feature in the app is helpful to the user, many sensible data are collected), keeping users motivated to use the Woorti app and giving feedbacks (repetitive validation, bugs in the application, etc.)

2.2 Cross-country view over key performance indicators of the DCC

As of 11 November 2019, when the CSS was finalised, a total of 5,256 users have registered in the app out of which 3,011 used it at least once corresponding to 57% of the total users. The key performance indicators of each campaign can be found in the table created below.

Overall, it is important to review the details of the individual national campaigns in order to give context and help explaining the results from the Customer Satisfaction Survey about the perceived quality of the app, which will be explored further ahead in the third chapter.

Country	N.º of users with 14 days of trips	N.º of active users (A)	N.º of persons registered in the campaigns (B)	Ratio of active users/persons registered (A/B)
BE	65	295	605	49%
HR	9	62	128	48%
FI	25	264	494	53%
FR	33	278	539	52%
IT	38	261	533	49,0
NO	82	395	652	61%
PT	69	301	525	57%
SK	191	564	858	66%
SP	117	445	654	68%
CH	16	51	75	68%
Total	652	3,011	5,256	57%

Table 2 – Cross-country key performance indicators of the DCC

In order to have a common understanding of the specific terminology used to monitor the progress of the campaign, the key terms are described here:

Active users – anyone who has registered in the app, filled in the onboarding data and reported about at least one trip.

Persons registered in the campaigns – corresponds to all the persons who have registered in Woorti, even if they have not validated any trip. This indicator also corresponds to the number of persons to whom the Customer Satisfaction Survey was sent as of 11 November 2019. The ratio of this indicator with the active users shows if the app was able to retain the users after the first contact and if they understood how to validate trips.

3. Customer Satisfaction Survey

3.1 Methodological approach

3.1.1 Sample definition

The previous chapter has provided evidence on unbalanced datasets, which were presented in Table 2, where it can be observed among others that the total number of registered users in Switzerland (75) accounted only for 9% of those in Slovakia (858). As expected, when conducting a cross-country survey, data quality and representativeness may vary (e.g. number of respondents from a particular group or to a particular question; geographical coverage of respondents etc.).

To guarantee a minimum standard and ensure that the information provided has enough representativeness, one basic and acceptable threshold was set. The Customer Satisfaction Survey (CSS) steering team led by TIS has adopted a dynamic minimum number of respondents, corresponding to 10% of all registered users, that is, individuals who have at least completed the onboarding registration.

3.1.2 CSS structure

As for the definition of the set of questions in the questionnaire, it is worth mentioning that UNIZA as the early adopter of the Woorti app, has conducted a preliminary assessment of user satisfaction concerning a first version of Woorti developed in early May. To build on top of this effort, TIS has incorporated most of the questions already addressed to some of the Slovakian campaign participants. These questions are highlighted in bold in the Annex 1 (Questionnaire structure).

The remaining questions resulted from several interactions with project partners and care was taken to ensure the survey does not get too lengthy, so to avoid fatigue and ensure high participation rates.

One of the methodologies pursued was to integrate in the survey one consolidated and long-lasting approach to user's behaviour towards mobile application usage, the Technology Acceptance Model (TAM). Such model captures some important opinions about usage context in terms of perceived usefulness, perceived ease of use and trust. The user's satisfaction survey adopted by MoTiV will then incorporate such questions, so as to determine the users' attitude regarding the app and provide in-depth assessments that can help explain the extent to which the app was successful in engaging participants and can constitute a sound tool for upscaling into a concrete planning tool for the marketing industry and for public planners.

3.1.3 CSS tool

The main tool for collecting data was the QuestionPro, a licenced professional software tool that is handled by the task manager, who took over the responsibility of concentrating all the effort in editing

the questionnaire. Indeed, all partners were asked to translate the survey to their own national languages, whilst TIS, who had direct access to the main dataset and was assigned the task of editing permissions, took care of introducing the correct translations onto the QuestionPro web-portal.

One could question why the survey module specifically developed by the app developers was not used. The answer to this question is twofold. On one side, the structure and length of this survey called for a professional tool such as QuestionPro, rather than a recently-built module of a research app. On the other side, it is also important to point out that by using a 3rd party piece of software we can better guarantee neutrality from the evaluation subjects.

3.1.4 Cross-country view over key performance indicators of the CSS

The results have allowed collecting a sample with a final dataset of 715 respondents, corresponding to 14% of all the persons registered in the campaigns. Major underperformers (achieved less than 10% of responses) were the Switzerland, where only one person responded to the survey and Belgium, where figures are very close to the minimum threshold of 10% of responses (see justification for underperformance below in section 3.1.5.).

Country	N.º of active users (A)	N.º of persons registered in the campaigns (B)	Ratio of active users/persons registered (A/B)	N.º of persons who replied to the CSS (C)	Percentage of responses (C/B)
BE	295	605	49%	51	8%
HR	62	128	48%	47	37%
FI	264	494	53%	58	12%
FR	278	539	52%	54	10%
IT	261	533	49%	53	10%
NO	395	652	61%	124	19%
PT	301	525	57%	165	31%
SK	564	858	66%	86	10%
SP	445	654	68%	76	12%
CH	51	75	68%	1	1%
Total	3,011	5,256	57%	715	14%

Table 3– Cross-country key performance indicators of the CSS

3.1.5 Techniques for distributing the CSS

The CSS questionnaire was distributed online through email sent by the DCC campaign managers to all the registered contacts. To guarantee a minimum sample size, and to be proactive, partners engaged in some additional actions to nudge and motivate people to fill in the questionnaire. The description of these processes can be found for each partner in the following table.

Belgium	In Belgium, the local team steered by Fietserbond preferred not to nudge people to fill in the customer satisfaction survey, as they received several negative reactions complaining about the usability of the app and battery draining. Consequently, the persons who filled in the survey correspond mostly to those who have been more actively involved in the project.
Croatia	E-mail requests to all registered users of Woorti.
Finland	3 different emails were sent to the users during the last week of October: one for those who had not done any trips, one for those who had less than 10 trips, and one for those who had 10 trips or more. This was associated with the reminder that they could still win the 500-euro or 100-euro cash prize (or were already eligible for that). There was no extra reward for answering the survey.
France	No available information was provided by the French campaign manager.
Italy	The survey in Italy was sent on 30 October to all people who downloaded the app in the past.
Norway	The local partner has sent out an e-mail to all registered users asking them to fill in the survey.
Portugal	An email asking participants to answer the survey was sent in two different rounds. A first email was sent in mid-October to all registered users that have not validated any trip in October. This sample comprised of 230 contacts. A reminder was sent one week later to the same group of persons who had still not filled in the survey. Then, on 30 October, a second and final round was undertaken, when the local team sent an email to all of those who had been active during that particular month. The email was sent through the Question Pro software, allowing the project team to keep track on the contacts who already answered the survey. All emails were sent using the recipient's personal name in the introduction. The response rate was high (31%), even if the Portuguese database included several registrations used for continuous testing from the developers (INESC) and app managers (TIS). It is estimated that they have created about 60 artificial emails for that particular purpose.
Slovakia	The survey was sent to all the users who downloaded the app. The online tool Mailchimp was used for preparing a template and sending the e-mails to all users. In the first step, e-mail contacts from back-office were imported into Mailchimp and two different groups of users were created. One group consisted of users who downloaded the app but did not validate any trip during the DCC (280 recipients). The group of users who validated at least 1 trip (549 recipients) formed the second segment. Later, two different e-mail templates were created and then sent to all recipients, containing a Thank-You Message, link to the survey created via Question Pro software and information about incentives.
Spain	A dedicated email asking to answer the survey has been sent to the Spanish contacts, including active and non-active users that installed Woorti up to 15 October. A second email was sent in early November to all those who used Woorti after 15 October and to those who had not opened the first email.
Switzerland	No information was provided by the Swiss campaign manager.

Table 4– overview of techniques for distributing the CSS

3.2 Findings from the CSS

The basic purpose of this chapter is to measure how a customer feels after interacting with Woorti according to a set of metrics discussed among the consortium as suitable to assess the user experience. Descriptive statistical analysis will be applied to the quantitative data collected from the consultation carried out by all concerned partners with their campaign participants.

In summary, the analysis of the user satisfaction and attitudes towards the app included the following:

- Cross tabulation of variables to check whether there were differences across different groups of respondents (e.g. between participants from a given country or age group);
- Frequencies of satisfaction, revealing trends regarding the degree to which Woorti has achieved its intended outcomes and has provided added value to the citizens.

3.2.1 Demographic characteristics of the respondents

Key demographic characteristics of respondents are illustrated in *Figure 4 and 5*. The share of men included in the overall dataset of participants in the multi-country campaign accounted for 55% of the total participants in early November, when the customer satisfaction survey was finalised. Female participants represented 41% of the sample whilst “other” accounted for 4%. The results of the participants who filled in the survey are reasonably aligned with the existing population proportion of male and females.

The table below shows that the age group of 30-39 years old corresponds to the one with the highest number of respondents (29%).

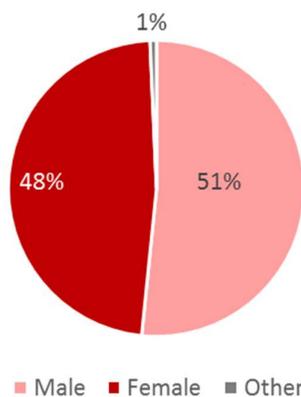


Figure 5 – Share of respondents to the CSS per gender

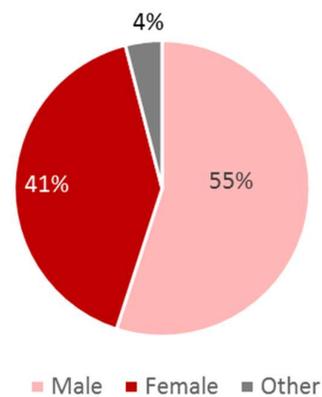


Figure 6 – Share of participants in the DCC per gender

Age group	Female	Male	Other	Total	% of each age group	% of female
16-19	12	12	0	24	3%	4%
20-24	49	46	0	95	13%	14%
25-29	42	41	1	84	12%	12%
30-39	88	113	3	204	29%	26%
40-49	83	76	1	160	22%	24%
50-64	63	64	0	127	18%	18%
65-74	4	17	0	21	3%	1%
>75	0	0	0	0	0%	0%
Total	341	369	5	715	100%	48%

Table 5 – Share of respondents to the CSS per gender and age

3.2.2 Mobile devices spread

The Woorti app was launched on 1 May 2019 and it is since then publicly available for the Android and iOS operating systems, even if the iOS development lagged slightly behind Android in terms of software development. Indeed, at a certain point, it was reported that the software development team decided to concentrate primarily on the development and fine-tuning of the Android based software, as it is clearly the one with the highest share of users.

In the following table, it is presented when exactly was the last time that the MoTiV campaign participants used Woorti and on which device they did that. Overall, iOS accounted for 26% of the total number of participants that responded to the DCC customer satisfaction campaign.

Month	Android	iOS	Total	% of iOS
May	14	10	24	42%
June	18	6	24	25%
July	27	5	32	16%
August	31	6	37	16%
September	72	28	100	28%
October	369	129	498	26%
Total	531	184	715	26%

Table 6 – Date when the users used Woorti for the last time, per device

3.2.3 The dissemination of Woorti

The local campaigns have evolved differently across countries, but local managers have used a set of mutual communication tools to spread the campaign among their citizens. In Section 2 the different communication channels campaign managers regarded the most effective to maximise the number of participants were presented. The following table outlines the communication channel that was the most effective in leading the CSS respondents to use Woorti. The matching between this perceived effectiveness of one single communication channel (identified in bold in the following table) and the results of the CSS survey are roughly the same, as can be seen below, showing that campaign managers

had a good understanding and control of the underlying communication drivers that shaped the campaign results.

Country	From a relative/friend/co-worker	Emailing	Social media, newspaper, magazine	Public event	On-bus or on-street adv.	Other	Total
BE	8	15	17		1	10	51
HR	10	4	28	3		2	47
FI	14	2	38	1		3	58
FR	10	4	25	4		11	54
IT	11	3	14	7		18	53
NO	16	3	98	4		3	124
PT	146		6	8	4	1	165
SK	31	7	25	17	5	1	86
SP	45	7	15	5		4	76
CH	1						1
Total	292	45	266	49	10	53	715
%	41%	6%	37%	7%	1%	7%	100%

Table 7 – How the participants have heard about the DCC per country

Overall, there are two main communication channels that have fulfilled their objectives. Firstly, dissemination of the campaign among relatives, friends or even among co-workers (292 responses). This was by far the most effective way to reach out to participants and assure that a decent number of respondents would be gathered. Social media, newspapers and magazines come second in the list (266 responses). This is a category that comprises several different sub-strategies, but where social media activity plays a strong role and is particularly adequate to enable campaign managers to get in contact with audiences with which they would otherwise have found difficulties to communicate and reach out to. This communication strategy also enables clustering, most notably when paid advertisements are made or when campaign managers choose to publish or share posts in dedicated groups. This feature allowed the campaign managers to rebalance the segments of users according to specific socio-demographic characteristics (gender, age, occupation, region, etc.).

There is a second group of activities that enabled reaching out to a reasonably high number of participants and that consists of cross-cutting activities, developed by nearly all campaigns. The first required attendance to public events where campaign managers had actively promoted Woorti (49 responses), and the other relied on remote emailing (45 responses), specially using professional tools such as MailChimp.

Lastly, Slovakia and Portugal made a notable effort to disseminate the campaign using professional communication background supports such as advertisements on-buses and on-street. However, their effect was relatively low, with low response in terms of number of participants. It can be argued though that this campaign was applied at the end of the national campaigns, so they took effect only at the very last stages of the campaign.

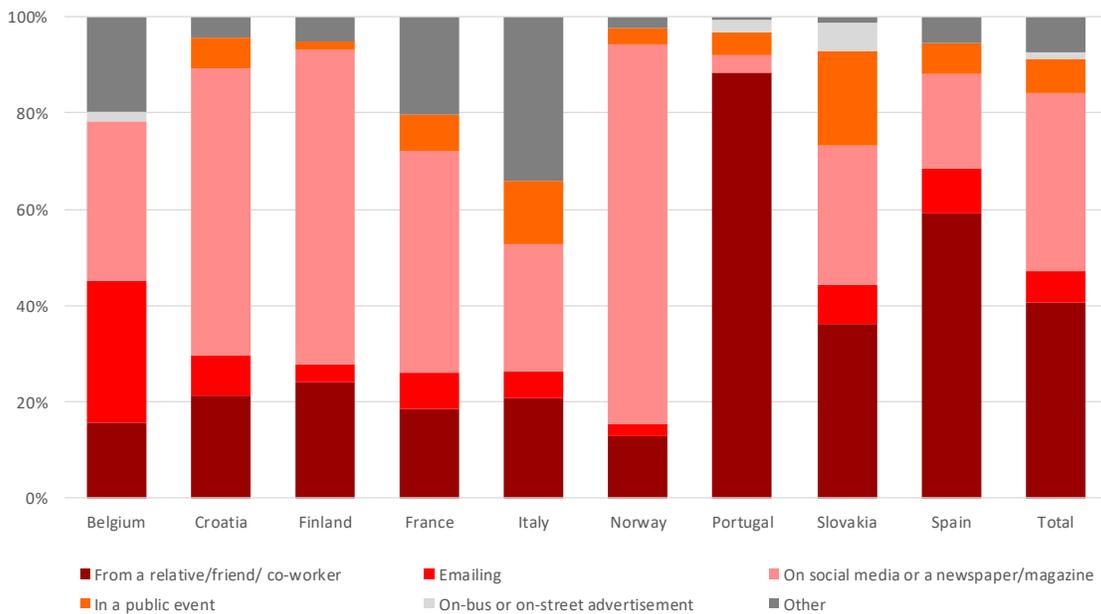


Figure 7 – How the participants have heard about the DCC campaign per country

Setting aside the category of others and the case of Switzerland, since they gathered too few respondents and their inclusion would introduce statistical bias, the above figure depicts to what extent the different communication channels successfully triggered end-users’ interest in the campaign. It can thus be regarded as a proxy indicator of the effectiveness of the different communication channels.

Some communication channels involved the mobilisation of financial resources. This is the case, for instance, of professional advertisements or paid social media advertisements, whereas in many others, such as “from a relative/friend/co-worker” or “emailing”, direct payments were not required.

Even if the categories of responses are vague and don’t allow a clear understanding of the exact communication channel, some insights and conclusions can be drawn. The linkages with the channels activated for the national campaign may explain much of the results found.

The snowball effect that word-of-mouth generated was particularly relevant in countries such as Portugal and Spain. This result is not surprising, given that Portugal had two partners which were directly responsible for the development of the app. The Spanish partner, on the other hand, was represented by a big institution with extensive members of staff (over 600) and that, as explained in Section 2, largely allowed internal communication tools to disseminate Woorti.

Emailing to a list of subscribers was one of the main success factors of the Belgium campaign which relied on the database of contacts of Fietsersbond and made use of “mailchimp” software tools to conveniently reach out to prospective campaign participants.

In the Scandinavian countries of Norway and Finland, social media was the main communication channel. While the latter invested some financial resources in paid advertisements, the first one relied mostly in posting on relevant Facebook groups and stakeholder groups. This effort seemed to have a

great effect in these countries. On the contrary, southern countries that also invested in social media advertisements, did not see a return of this investment. This was the case of Portugal, where only 4% (the lowest share among all countries, followed by their border neighbour Spain) of the total participants identified the social media as the channel that had raised awareness towards the MoTiV campaign, even if nearly 100€ were invested in paid advertisements.

Slovakia and Italy were the countries where the public events proved to generate awareness towards the project and Portugal with Slovakia were among the few who embarked on an on-street and on-board campaign, which gathered some (limited) interest among the citizens.

3.2.4 What drives someone to use Woorti?

According to the app developers, the main user value proposition of Woorti was to enable the user to obtain information and reflect on its mobility choices with regard to the use and value of the time spent while travelling (Deliverable 3.4). It has become clear, however, that Woorti has not been up to expectations and has not attracted many users wishing to learn more about their travel time.

Indeed, to help a friend which was related to the project or that participated as a member of the project team, was one of the most common situations that motivated people to use Woorti and consequently to participate in the project. To attract external users, the partners mostly relied on a package of awards. Some of these awards were more attractive than others and the criteria for assigning them also differed across countries. Overall, the rewards accounted for nearly one third of the main motivations to participate in the project.

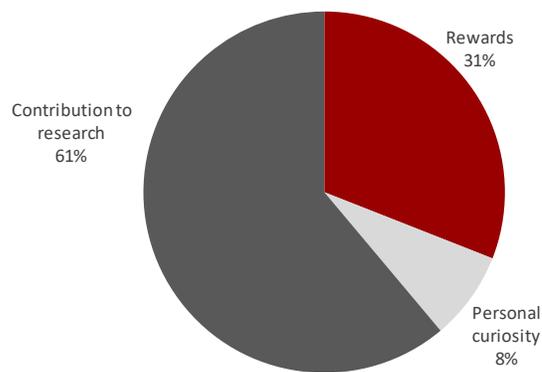


Figure 8 – Motivation to participate in the DCC campaign

The nature of the motivation that triggered peoples' interest in using the app is not homogeneous and can vary among different socio-demographic variables. To shed some light over the distinctive and unique motivations, they were broken down according to three key dimensions; country, age and gender.

		Rewards	Personal curiosity	Contribution to research
Country	Belgium	20%	2%	78%
	Croatia	8%	3%	89%
	Finland	27%	0%	73%
	France	2%	2%	96%
	Italy	2%	2%	96%
	Norway	42%	6%	52%
	Portugal	44%	14%	42%
	Slovakia	38%	12%	50%
	Spain	15%	6%	79%
Age	16-19	46%	20%	34%
	20-24	46%	13%	41%
	25-29	30%	9%	61%
	30-39	31%	7%	63%
	40-49	25%	6%	68%
	50-64	22%	4%	74%
	65-74	26%	4%	70%
Gender	Female	32%	8%	60%
	Male	30%	8%	62%
	Other	20%	0%	80%

Table 8 – Motivation to participate in the DCC campaign according to different socio-demographic variables

It has become clear, from the previous table, that Portugal and Norway were the only two countries whose participants were more driven by the reward itself. This opportunistic-like trigger was found also particularly popular among the younger generations, most notably among those who are less than 25 years old. The older participants, on the other hand, were mostly attracted by the chance to give their own contribution to research on the value of travel time topic and the opportunity to draw better transport-related policies.

Lastly, it is important to point out that there are not major gender differences regarding the motivations to participate in the DCC campaign.

3.2.5 Reasons for dropping out

The number of respondents who stopped using the app immediately after completing the onboarding data is not high. Only 41 respondents belong to this category, out of the 715 who filled in the survey. This number represents a 6% ratio. However, as shown above in Section 2, the ratio of participants that have registered in the app and have not reported any trip is 47%. Taking into consideration this gap between the sample size and the DCC participants, it is reasonable to assume that most people who had a very negative experience that led them stop using the app would not have felt much obliged to fill in a customer satisfaction survey, particularly since it was launched some time afterwards.

Regardless of the reasons that justify the low number of respondents in this situation, the results clearly demonstrate the main reason that led respondents to leave the campaign, which was the lack of understanding of what was required from the user.

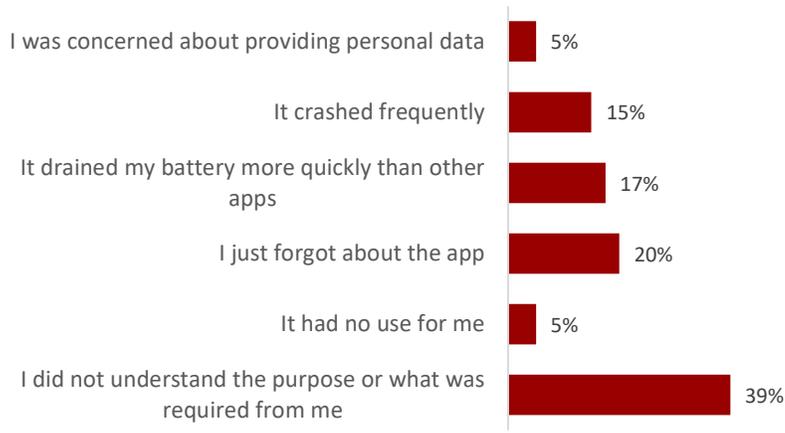


Figure 9 – Reasons for not validating any trip

3.2.6 Levels of confidence in Woorti

Data privacy policies is a pressing topic in EU projects and initiatives and Woorti, as a data recording tool for research purposes, is particularly sensible to these matters, as it is also affected by data protection and privacy rules. In Woorti, app users had to give consent for processing the personal data retrieved by the app. The consent was given in “opt-in” manner, in which a participant who took initiative to participate must tick the specific box.

Even if they had not read their rights before participating in the data collection campaign, the privacy policy translated and adapted by each campaign manager was available to the participants at all times in the mobile application and on the MoTiV and Woorti websites.

However, the results of the customer satisfaction survey pointed out that 50% of the users never read privacy policies and that 72% have not read this one in particular. Considering that most of the participants have been engaged in the campaign to leverage the research on the value of travel time and were introduced by fellow partners, it can be assumed that the sample of Woorti users consisted mostly of people with a connection to universities and to the business field, with high educational background. One hypothesis is that since most participants were, at some point, related with the project team or were incentivised to participate by an organisation they know and trust, their confidence in the privacy policy might have raised and, consequently, attention devoted to data protection issues diminished.

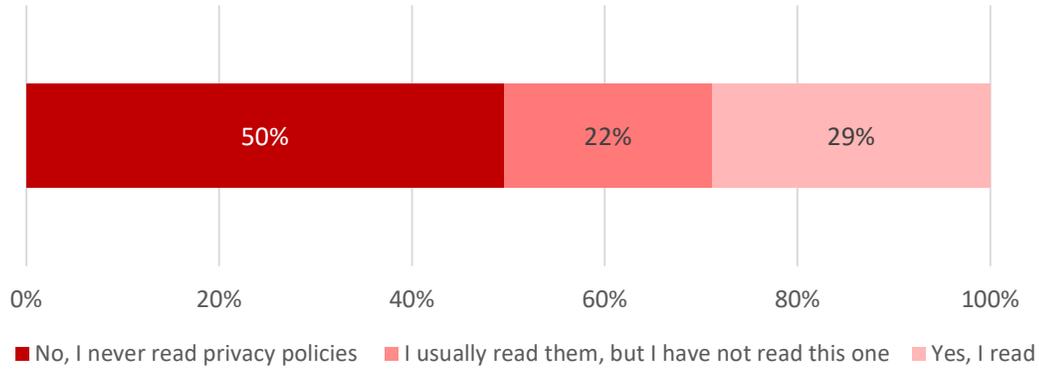


Figure 10 – Awareness of Woorti privacy policy

This issue is strongly related with the confidence in handling personal data and at this point is sensible to compare the question on whether the respondent “has read the privacy policies of Woorti” with the TAM question “Woorti will take good care of my personal data”. In addition to this, it was explored if there were age differences between the population who read and those who did not read the privacy policies.

The differences found are not significant. Nevertheless, it is worth pointing out that, in general, those who are older are more likely to read privacy policies than those who are younger. Also, those who agreed that Woorti will take good care of their personal data⁴ tended to also be the ones who actually read the privacy policies. This result led to the conclusion that the dissemination of the privacy policies can minimise, to some extent, the distrust in an app which collects and tracks mobility routines.

	Under 30	30 or older	Disagree that Woorti will take good care of personal data	Agree that Woorti will take good care of personal data
No, I never read privacy policies	54%	48%	41%	43%
I usually read them, but I have not read this one	24%	21%	29%	23%
Yes, I read	22%	31%	30%	34%

Table 9 – Awareness of Woorti privacy policies according to age groups and trust in Woorti

⁴ Meaning, those who agreed and fully agreed (4 and 5 on a 1 to 5 scale) that Woorti is trustworthy when it comes to personal data management.

3.2.7 Woorti a travel buddy?

The app design had the ambition of enabling the engagement of users, creating features that could attract users for a reasonable amount of time, at least 14 days, making it a real travel companion.

Section 2.2 demonstrated that the level of engagement has not been as high as anticipated, and the number of persons who completed the 14 days (652) corresponded to only 12,4% of the total number of persons that have gone through the onboarding data and registered in the app.

Yet, almost half of the persons who answered the questionnaire completed two weeks using Woorti, so they have a good understanding of the functionalities that the app has to offer. Almost two thirds used the app for at least one week and only 4% of the respondents never actually reported a trip.

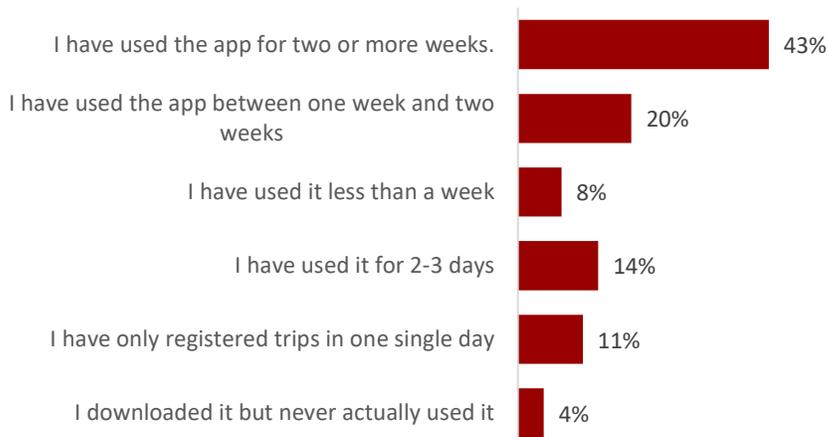


Figure 11 – Duration of app use

The three main reasons for participating in the campaign described previously can roughly be described as “opportunistic”, “personal knowledge”, and “professional-driven”.

One could argue that these categories can reflect the resilience of the participants and period that they used the application on their mobile phone. The table below points out three major insights: i) that rewards were particularly motivating those who only made one trip and those who completed a set of 14 days with validated trips; ii) personal curiosity in the topic of value of travel time tends to fade over time, being more present among those who used the app for no longer than 3 days; iii) those who wished to offer contributions to research tend to stop after using Woorti for the first time.

Again, these results seem to stream out from the strategy defined for developing the campaigns. As it was presented in the campaign description, criteria for distributing the awards have been different amongst countries but seem concentrated to those who either validated trips for one day or for two full weeks. Indeed, some CM’s gave a reward to anyone registering in the app (case of Italy), others to those who completed one trip during outreach events (the case of Slovakia) and others only when completing 14 days using the app (the case of Portugal and Spain). There are also other countries who distributed awards randomly and did not give them directly to every single user (the case of Finland, for instance).

	Rewards	Personal curiosity	Contribution to research
I have only registered trips in one single day	37%	21%	41%
I have used it for 2-3 days	24%	22%	54%
I have used it less than a week	25%	13%	62%
I have used the app between one week and two weeks	23%	19%	58%
I have used the app for two or more weeks.	29%	16%	55%

Table 10 – Duration of app use per motivation for participating in the DCC campaign

3.2.8 Perceived usability and ease-of-use

Usability can broadly be referred to as the degree to which software can be used to meet peoples' needs. Even though an internationally recognised method which could help to benchmark the app against others was not implemented, it seems evident that Woorti does not score too high on this parameter.

The functionalities of Woorti that participants in the MoTiV campaign liked most included the possibility to check their previous journeys performed. This tracked record was considered as the most positive feature of Woorti, being mentioned by 40% of the questionnaire respondents.

The mobility coach was the feature that participants enjoyed using less (10%) and that more participants reported as enjoying less or being superfluous (45% have reported so). This functionality was initially envisaged to offer Woorti users advices tailored to their preferences and mobility habits. Along the development lifecycle, however, this ambition was downsized, and the mobility coach actually only allowed the user to get notifications for reading new stories every day. Hence, it is therefore not regarded as a key value proposition feature and eventually contributed to decrease the satisfaction level with the app, lowering the user engagement and increasing fatigue with the app.

As for the results section, this feature was the second-best functionality of Woorti according to its users. It was built to offer mobility behaviour statistics, in terms of aggregated information regarding personal travel behaviour (e.g. travel time, travel distance, overall trip worthwhileness, most common activities, calories burned, carbon footprint) and comparison of the statistics of users belonging to the same community⁵.

⁵ It is important to point out that this feature has only been introduced since version 2.0 which was made available roughly in June. It can be said that a rather short share of participants might have potentially seen it.

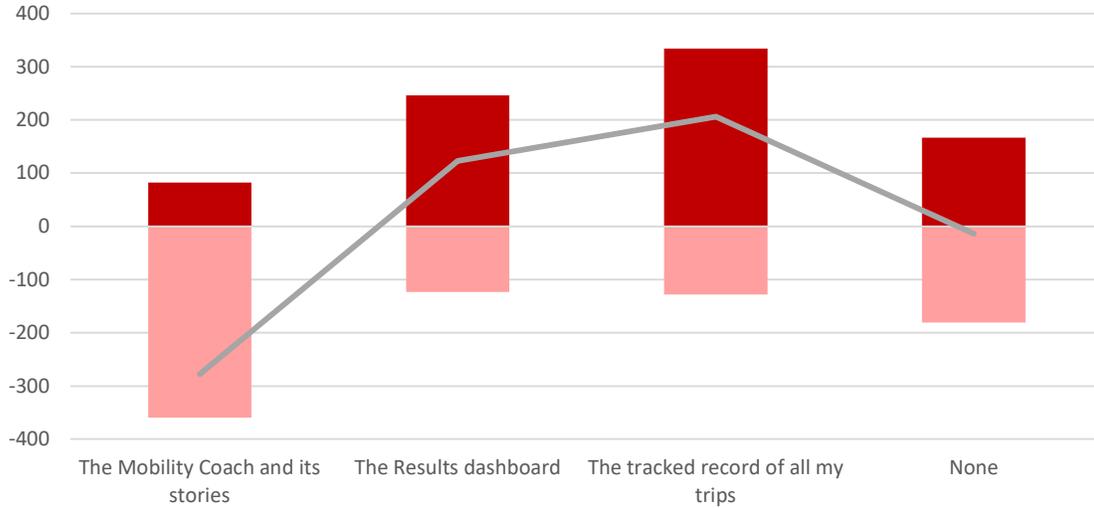


Figure 12 – Level of enjoyment regarding existing functionalities

Of paramount importance to access the usability and user experience of the app, was the question asking directly the participants how they judged their own personal experience with the app on a 1 to 4 scale, where 4 stands for very good and 1 for a very harsh and painful experience.

The following Figure provides an overview about this feeling across all demo regions participating in the MoTiV campaign (last column on the right representing total average).

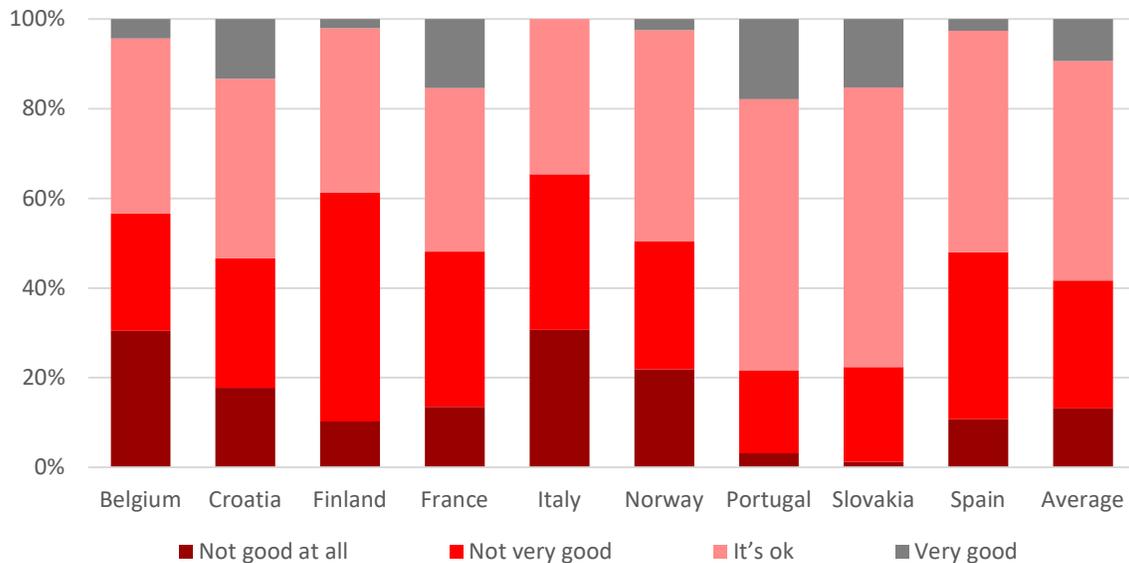


Figure 13 – Overall assessment about usability and experience using Woorti per country

It is shown that there are mixed feelings about the app, but the general impression is hardly positive. In fact, 58% of the participants stated that the app offered them at least an acceptable experience. From the previous plot, it looks like this feeling is fairly influenced by the country where the campaign took place. Indeed, it can be argued that the User Experience (UX) development had not successfully

embedded the leading factors that contribute to a good experience in other EU territories. Arguably, the countries that scored lower on overall user experience were Italy (were 65% of participants complained that the experience was negative) followed by Finland and Belgium (61% and 55%, respectively). To this respect, it is interesting that Italy, in particular, was the only country where no one regarded the app as very good.

The countries that rank higher in terms of UX were Portugal, where 18% of the participants considered the app as great and Slovakia, where 78% of users consider the app as being at least positive (aggregated figures entailing “ok” and “very good” answers).

It is thus evident that the country where the app was developed (Portugal) and the country where the project coordinator is located were the happiest with the app. It can be questioned whether or not the UX developed features were all-encompassing and were effectively incorporating all the needs and requirements of the different project partners.

3.2.9 Technology acceptance model

A Google research in 2014 reported that although an average smartphone user has around 36 apps, “only 1 in 4 of those apps are used daily, while 1 in 4 apps are never used” (Google 2015, 2). With this finding, then, one wonders how people decide whether or not to continue using apps they have downloaded. In particular, considering the current research focus, the question concerning the factors influencing the decision to continue using a mobility-related app merits attention.

One validated view on user’s behaviour towards mobile application usage is through the Technology Acceptance Model (TAM), which captures some important opinions about information systems’ usage in terms of perceived usefulness, trust and perceived ease of use. Its initiator, the scholar Davis, introduced the TAM as a method to determine a user’s intention of use and attitude towards IT systems (Davis 1989).

The model has been used for decades and has been subject to extensive research and several upgrades, being nowadays one of the most widely cited models in the field of technology take-up, helping to understand how users come to accept and use a technology or a service. The model suggests that when users are presented with a new technology, a number of factors play considerable influence on their decision about how and when they will use it, specifically:

- Perceived usefulness (PU), the degree to which a person believes that using a particular solution would enhance his or her situation;
- Perceived ease-of-use (E) defined as the degree to which a person believes that using a particular solution would be free from effort.

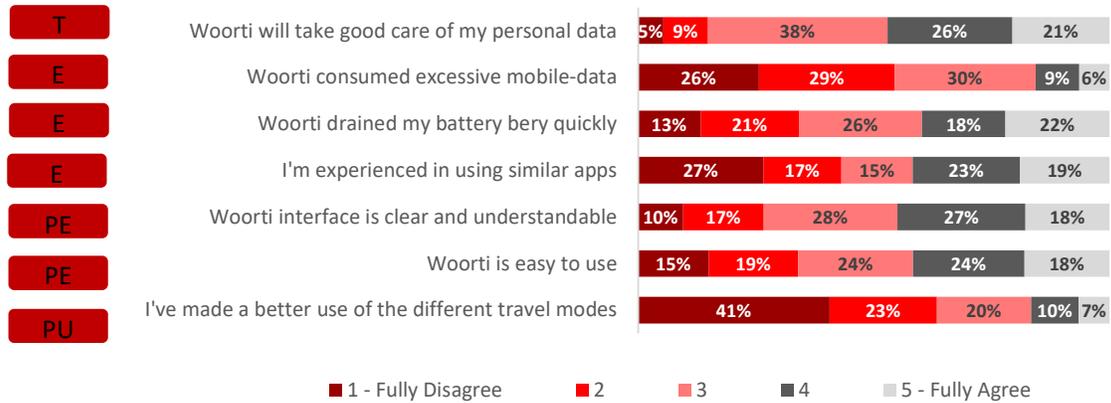


Figure 14 – TAM assessment of Woorti

The different set of questions were broke down according to some of the TAM dimensions. One question addressed the dimension of Trust (T), three the dimension of Experience (E), two the dimension of Perceived Ease-of-use (PE) and one allowed the assessment of the Perceived-Usefulness (PU).

Results are consistent with the general appraisal of the app experience explored before, which showed that 58% of the respondents who validated at least one trip found the app to be at least reasonable.

The question regarding Trust reported the lowest share of disagreement, but the highest with the intermediate category which can be interpreted as being representative of people having doubts about this dimension. Interestingly enough, it was the dimension which has registered by far not applicable choices, which can be interpreted in the same direction and support the previous argument. Furthermore, Trust does not directly influence app usage continuation intention, although it significantly predicts perception of the app’s usefulness, which is partly affected by beliefs in the ease of using the app.

As for the user experience, it has become clear that the majority of users don’t think that Woorti consumes excessive mobile-data. Even though mobile data plans are becoming more and more competitive, their exhaustion by mobile apps may impact negatively the app usage experience. This problem has not been critical in Woorti though, which make users more likely to adopt the app. Contributing to this result is the functionality that developers have introduced to alleviate the use of mobile data and to allow recording trips only once the user has access to Wi-Fi.

On the other hand, the battery life was a major drawback reported by citizens using Woorti. This issue is typically a major concern for app designers and an important predictor of user (dis)satisfaction. Thus, it is important not to neglect nor ignore that 40% of the Woorti users found the app to be inadequate to this respect.

The third question impacting on experience focused on the track record of experimenting similar apps. A major divide has occurred, having a good balance between those who had used something similar in the past and those who hadn’t. This issue again should not be ignored. User satisfaction highly depends on the expectations that people hold about a certain product. It is likely that people who have experienced using a similar app to have different expectations about how Woorti should function.

Indeed, as shown in the following figure, the satisfaction with the usability and experience handling Woorti is increased when the user does not have previous experience using similar apps. Those who were not familiar with similar apps may had no expectations about a product such as Woorti until they actually get to use it.

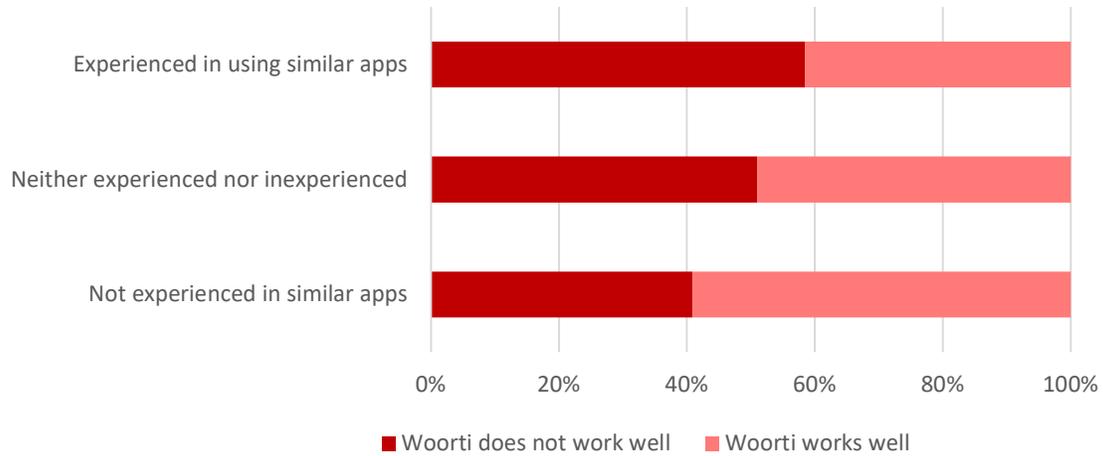


Figure 15 – Overall assessment about usability and experience using Woorti according to user experience in using similar apps

In mobile apps, perceived ease-of-use determines user’s satisfaction as people prefer to use an application that will require minimum effort to grasp and don’t pose significant difficulties to the user. As far as this indicator is concerned, 27% of the users disagree that the app interface is clear and understandable while 34% disagree that Woorti is easy to use. It is important to note that the respondents are among those who have validated trips, so they must have understood what the main purpose of the app was. Also, due to the high number of people that was targeted among fellow colleagues and institutional referrals, it was expected that most respondents would not argue that the app was difficult to use.

At the figure below it is shown the different types of persons who feature the typical characteristics corresponding to the average CSS respondent.

	Trust	I have doubts about how Woorti will take care of my personal data, but I'm confident that it will be well taken care of.
	Experience	I'm not that experienced in using similar apps. Also, I'm not very happy about how Woorti used my battery, even though recognise that Woorti has efficiently used few megabytes of my mobile-data.
	Perceived Ease-of-Use	Woorti is generally easy to use and its interface is ok and straightforward.
	Perceived-usefulness	Woorti does not offer me a solution for my everyday commuting. This is a major shortcoming.

Figure 16 – Major TAM components as seen by the average app user

In MoTiV, social influence is a key predictor of technology adoption. This implicit social norm argument is well grounded on the “Theory of Reasoned Action’s (TRA)” thesis referred in Beldad and Sabrina research (Beldad and Sabrina 2017, 883), which demonstrates that the likelihood of a specific behavioural intention depends on social pressure of important referents. This can justify the fact that most users have used the app due to references from their fellow colleagues or from the institution they belong to, which is in line with the findings from those authors: the researchers have found that “people use fitness apps not only to meet their health-related goals but also to engage in exchanges with other app users” (Beldad and Sabrina 2017, 889).

3.2.10 App stability

A first level assessment of the app stability investigates how often the Woorti crashed in mobile devices. This is a major and crucial bug, that was continuously addressed by the development team and that, if recurrent, would create severe bottlenecks to the data collection campaign.

It is important to point out that people who responded to the survey were disproportionate to those who had successfully managed to use the app for a significant amount of time. Hence, it is possible that this factor has caused, to some extent, less reporting of app crashes.

Nonetheless, the results from the survey show that, in most devices, the app never crashed. Critical cases consist of persons reporting that Woorti “often or always” crash. Such problem was reported by 14% of the sample (sum of the respondents who pointed out that the app crashed “all the time” and “often”), but these figures improved over time, as 23% of the participants who last used the app in July reported severe problems with the app crashing on their device, a value that decreased to 10% among those who used the app in October. Indeed, Woorti had obviously been subject to several iterations and developments, which is why it was important to identify which version were users referring to (by asking when was the last time they used Woorti).

It was equally important to see how this key indicator varies between the iOS and Android versions. Indeed, as it was envisaged from the feedback received by the campaign managers, it was confirmed that iOS users had much more problems compared to Android users as 22% reported frequent software crashes against only 11% among the later users.

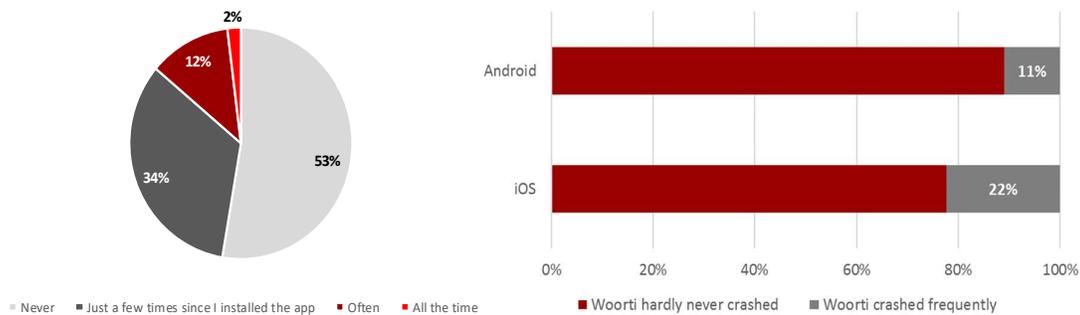


Figure 17 – Responses to the question “how often did Woorti crashed?”

One of the functionalities that makes tracking mobility devices interesting and relevant for transport planners lies in the automatic detection of the trip. To this respect, a technical effort was made to reduce the burden to users of activating the starting and ending trip themselves. In fact, according to the software developers, “Woorti monitors the acceleration of the users’ devices in order to detect when they started and finished a trip, so that it can avoid having the GPS always on with high-precision, in order to save battery. However, if the accelerations reported by the device are very subtle, a starting trip may still go undetected”.

In reality, this feature was unpredictable in the vast majority of cases. However, it is interesting to notice that about 1/3 of users mentioned that trip detection was perfect. This insight offers some potential for taking up initiatives based on the technological software specificities of Woorti. It would be helpful to compare these figures with the Backoffice log register to see any discrepancies between the perceived functionality of the app and the concrete performance. Likewise, it would also be important to benchmark this figure with other similar apps to see to what extent Woorti performed against its competitors.

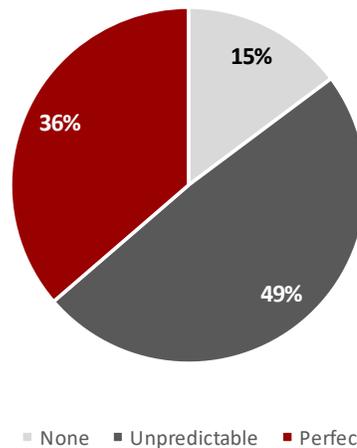


Figure 18 – Responses to the question “Has the start and end of your trips function in the background worked properly in your device?”

Trip detection performed effectively in most cases. Indeed, respondents pointed out that the majority of trips had been correctly detected. Only about 7% of the app users consistently reported problems with trip detection (category “none”), while 24% reported difficulties in most journeys. The software developers allowed users to validate their trips but definitely, a seamless trip recognition greatly impacts the immediate user satisfaction.

It is important to note, however, that trip detection was dependent on certain pre-conditions that, when met, would enhance this functionality. Among others, active GPS, allowing Woorti to run on the Backoffice would increase chances that the trip would be automatically detected.

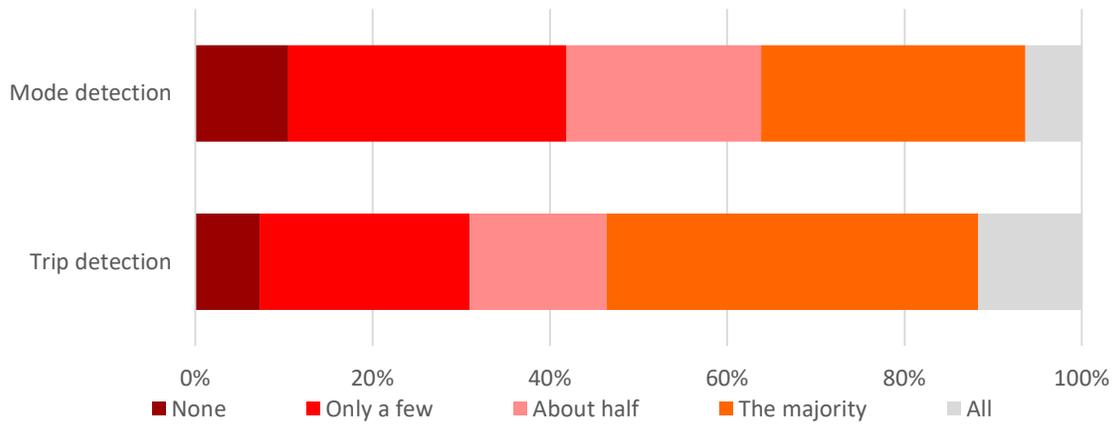


Figure 19 – Responses to the question “How many of your trips and modes of transport were correctly detected by Woorti?”

Important to both alleviate the burden to the users of validating trips and for transport planners in terms of using the app for research and commercial purposes, it was questioned to what extent Woorti had correctly detected the concrete transport mode. Overall, it is noteworthy that trip detection worked out much better than mode detection. In more than half of the cases (52%) the trips were correctly and automatically detected, whilst only in about two thirds of cases the mode of transport recognized by the app was found accurately. Some campaign managers made direct reference to this problem, one of which was the Italian local steering team that raised the issue of bicycles being hardly ever identified as mode of transport in the iOS devices, a bottleneck which is consistent with the perceived accuracy of the mode of transport, when split by the type of mobile device the users actually held (as shown in the following figure). This limitation provides software developers food for thought in view of future development work using improved algorithms and in-sensor processing.



Figure 20 – Responses to the question “How many of your modes of transport were correctly detected by Woorti” per type of device”

3.2.11 New functionalities and future work

Regarding future research, it is important to note that one of the most important functionalities that were envisaged by the project team and that have not been developed was the journey planner tool. It was planned to offer multi-modal planning advice based not only on the existing transit options but also on the user preferences and perceived utility of each mode. Considering that this functionality was not developed and that it was perceived as the single most important feature that the app development team envisaged as having a real impact in terms of perceived user satisfaction and importance, making the app really competitive against its equals, the campaign participants were questioned to understand whether this option could make a difference in terms of user experience.

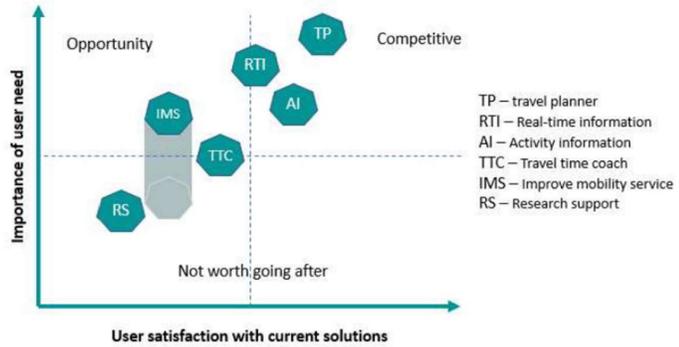
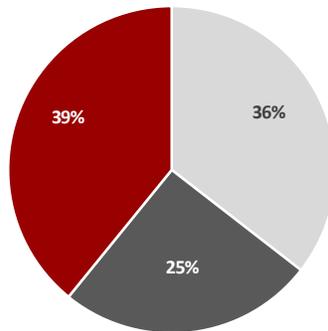


Figure 21 – Woorti value proposition

It seems that, a journey planner is something that most users never thought about or had an idea of whether it would be positive or not. Nonetheless, it is worth noting that the share of respondents that consider this app as potentially useful is higher than the ones who think it would be pointless and redundant and therefore would not impact on their overall satisfaction.

The result of this question is not adequate to draw a conclusion about the importance of this functionality development, though, but this topic can be explored further in the future after analysing the findings from the interviews.



- Yes, that would allow me to plan my trips according to my worthwhileness preferences
- No, it would be pointless
- Don't know, never thought about it

Figure 22 – Perceived value proposition of the travel planner tool

4. Interviews with stakeholders

4.1 Rationale

This deliverable is connected with Deliverable 3.1. Market Analysis and App Engagement Strategy which included consultation of stakeholders that could be interested in the MoTiV results and support the realization of the data collection campaigns. In the present research, the ambition was set higher in the sense that the aim is to understand to what extent Woorti has been successful in delivering its promises and has offered a valuable tool for the various stakeholders' business activities.

In this path, this deliverable also serves as a tool to ensure that Woorti delivered its promises to stakeholders. To evaluate this dimension, individual targeted interviews were conducted to a sample of stakeholders which extracted their feedback on whether the app has or might play a meaningful role in their organisations and businesses.

4.2 Methodology

To cope with the qualitative assessment, which provides a comprehensive view over the institutional commitment in the DCC and satisfaction with regard to the app, the task manager TIS required at least one interview from each country, having prepared a dedicated template (see Annex 3) and an interview guide (see Annex 2).

Partners were asked to provide a report with up to two interviews per campaign, targeting relevant stakeholders (either a municipality technician, a marketing practitioner, a public transport representative or any other representative from an organisation identified as a relevant stakeholder in the national campaign strategy laid down in Deliverable 4.2 "National Sampling Reports"). These interviews could be done remotely (by e-mail for example), even if in-person interviews could become more effective in sharing profound believes of the interviewees.

A total of 9 interviews were conducted (see details of the interviewees in the following table), a value that lied below the initial ambition. Although some partners have not provided any interview, they provided a comprehensive reason which aimed to justify this event. The core underlying reason concerned the quality of the app which was regarded as unsatisfactory.

It is important to bear in mind that some interviews were conducted with stakeholders who did not directly support the campaign with their corporate/institutional means. They have, nonetheless, used the app and are thus well familiarised with it. To undertake interviews with such stakeholders, that used the app as single individuals, some adaptations to the interview guide were introduced.

Country	Type of expert	Justification for contact	Interview date
BE	Association	Stakeholder promoting the app,	6/11/2019
HR	Association	Stakeholder promoting the app, Sindikat biciklista is a member of this Civinet network	19/11/2019
FI	Municipality	Stakeholder with DCC, user of another mobility app	06/11/2019
FR	<i>No available information was provided by the French campaign manager</i>		
IT	Association	ESN Alumni is a FIAB partner for campaign	05/11/2019
NO	Municipality	She works at the municipalities project for bicycles, which was a stakeholder promoting the app	12/11/2019

PT (1)	Municipality	TIS has contacted the Municipality of Torres Vedras and tried to convince them to promote the app. However, they never formally got involved (even though Mrs. Adélia participated individually)	07/11/2019
PT (2)	Researcher	Professor at IST and coordinator of the research center CESUR - Center for Urban and Regional Systems - she has large experience in the transport field and is passionate about big data application fields	07/11/2019
SK	LPT operator	Stakeholder promoting the app	11/11/2019
SP	Association	Stakeholder promoting the app	28/10/2019
CH	<i>No available information was provided by the Swiss campaign manager</i>		

Table 11 – List of stakeholder’s interviews conducted

4.3 Ex-ante framework

Interviews were conducted with stakeholders to understand if Woorti had fulfilled its intended purpose. In the early stages of the MoTiV project, mostly during the design phase of the app, a consultation was made with a wide range of stakeholders. In Deliverable 3.1. “Market Analysis and App Engagement Strategy”, the MoTiV team conducted a market “discovery” research that included findings from interviews carried out with several different stakeholders. Results of this work are summarised in the following bullet points, which show that Mobility Operators are in a particularly advantageous position to explore Woorti.

Universities / research centers

- Explore the Value of Travel Time concept;
- Provide an accurate model for trip and route choice – that goes beyond state-of-the-art models and takes user mind sets, preferences, contexts, skills, habits and so on into account.

Local Public Transport (LPT) Operators & “New Mobility” companies

- The opportunity to establish a client profile and a deeper knowledge about travel behaviour;
- Study and understand the qualitative aspects of transport demand at regional and local level too;
- Create new mobility services.

Municipalities / Public Authorities

- The MoTiV app provides an alternative to mobility surveys. Collected data can be used in the context of Sustainability Mobility plans.

Other institutions

- Know how people value their walking time compared with other modes and what features influence the perception of value of travel time while walking.

This second round of interviews was expected to help understand if Woorti has been up to the envisaged expectations and challenges and if it delivered value to the stakeholders who can make use of the app functionalities and data-gathered. Hence, this section can be regarded as a second level of impact assessment of the tool.

4.4 Woorti through the stakeholders' view

Stakeholder involved	Dimension	LPT Operator	Municipality	University researchers	Transport networks
	<i>App added-value</i>	No immediate added-value neither for the company nor for the user is envisaged		To understand better the mobility behaviour	- No added value for the app holder nor to its professional associates. - Due to thematic affinity, it is relevant to see how and why people choose their mode of transport and how satisfied they are with their choice
	<i>Most appreciated features</i>		The personal mobility reports (personal feeling, as no feedback was given from end-users)	Satisfaction and dissatisfaction as to road infrastructure and service provided by transport companies.	The count of CO2 spent/saved
	<i>Additional features or supportive actions</i>	Give added value to the user, by allowing them to buy tickets, see online information about LPT delays and improving the algorithm of automatic detection of trip	Possibilities for the users to offset their CO2 emissions or give them rewards (e.g. a cup of coffee) if they have travelled ecologically.	- To use it in association with information about traffic and public service. - Woorti needs to give value back to the users and offer them a good experience	Increasing the simplicity of the app and user-friendliness
	<i>Effectiveness of communication and incentives</i>	Railgrup (ES) received a positive feedback from their associates regarding the App because for railway companies it's very important to get a customer centric approach about railway mobility	Several channels were activated (Facebook, municipal website). Supporting communications materials from the project were appreciated. Targeted communications to specific individuals were conducted but no reply was received	Discussions about the app during the stakeholder on-route tours throughout Italy were carried out, but no positive feedback was given.	Email, newsletters and Facebook were the main channel to reach out
	<i>Level of adherence and feedback</i>	Negative feedback was received from the Spanish stakeholder and positive from the Slovakian stakeholder	Adherence was really low	- The delay in launching the app limited the outreach in Italy because students were not at universities over Summer. - The main problems were the compatibility of the app with older mobile devices.	- Low adherence which is unsurprisingly due to the quality of the app. - The incentives are not enough to convince people to use it.
	<i>Privacy issues</i>				
	<i>Future plans</i>	Railgroup (ES) stated that they would be interested in organizing a workshop based on Woorti results to get to shape and design specific services in the railway industry and discuss about the implementation of Mobility as a Service Schemes	The app could work as an information channel about sustainable travelling.	ESN said that they would continue to invite people to take and send data.	To promote sustainable transport, it would be nice to see the statistics of kilometres and the distribution of the modes of transport, which includes the satisfactory elements

	Dimension	LPT Operator	Municipality	University researchers	Transport networks
Stakeholder not involved	<i>Value of the app functionalities</i>		Some functions were not self-explanatory	IST showed reluctance in analysing the data as some questions seemed redundant, others are not well-structured making information collected incoherence	
	<i>Relevance of new features</i>			<ul style="list-style-type: none"> - It is not possible to launch a non-commercial app, which is purely research-driven, to end-users, because it is necessary to give them a fairly good user experience. - New features are not recommended because they would add complexity. Satisfaction factors should be reduced and streamlined 	
	<i>Future institutional involvement</i>		The sole reason for the lack of institutional involvement relied on the lack of time and availability of the existing workforce to prepare and launch the strategy using the municipal communication channels.		
	<i>Relevance of information collected</i>			Doubts about the value of the information collected, considering the current design and the fact that the app is too intrusive	

Table 12 – Some elements extracted from the stakeholder’s interview

4.5 A consolidation of stakeholders' view

While preparing the workplan of this activity, the activity steering team challenged the campaign managers to involve new stakeholders in this round of interviews, targeting novel mobility providers (e.g. car hailing companies), marketing experts and other stakeholders who could benefit from the development of tools to support planning and foster business opportunities⁶. The final list of interviewees, however, included only LPT operators, Municipalities, University researchers and members of transport-related networks. These segments don't differ much from those who were involved in the first round of consultations, during the design phase of Woorti.

The main conclusions regarding the quality of the app and the extent to which the implementation has been successful to achieve the objectives pursued by the app development, through the lens of the concerned stakeholders, are outlined below:

Added-value of Woorti

Regarding the added-value of the app, all the stakeholders maintain interest in conducting research about the value of travel time and to track people's routines. Even if this interest remains intact, they don't regard Woorti as the ideal toolbox to fulfil this gap.

Most appreciated features

It seems that the condition of the roads is the most important indicator for the interviewed associations, which doesn't come as a surprise considering that they are mostly cycling-related and wish to exploit the app in order to endorse new cycling-friendly mobility policies. This is one of the very few examples mentioned by the stakeholders concerning valuable inputs extracted from Woorti.

Additional features and supportive actions

The LPT Operators involved in the campaign provided mixed feelings about this topic, which resulted from extracting feedback gathered. It is important to stress, however, that the operator who received negative feedback had a more active involvement in the campaign. Indeed, the most direct institutional involvement from a service provider came from the public transport operator in Slovakia, that had disseminated the app on their website and through on-board advertisements. After the promotion some users reported negative feedback while other users evaluated the app in a more positive way. However, for the future use of the app, public transport authorities and operators required additional features to make the Woorti app more friendly for the users, such as payment and real-time information about public transport. They basically suggested an one-stop shop app where all information is gathered in a single app that offers holistic services to users (e.g. booking, planning and payment functionalities).

⁶ Currently smartphone-based mobility surveys are not so common and, when carried out, they involve expensive fees to specialised companies. The possibility to enable stakeholders to run customised smartphone-based mobility surveys at a competitive cost seemed to be an asset for the transport/mobility market.

Feedback from end-users

Some countries, such as Norway, were not able to get in touch with stakeholders to arrange an interview. This has not happened due to lack of availability but rather due to distrusts about the app and its added-value. It should be noted that these problems affected the overall appraisal of the app quality. Another country with similar involvement to stakeholders was Finland, where the representative of one municipality stressed that the stakes were high. They envisaged in the MoTiV campaign a way to communicate with the users using the resources of the project. Nevertheless, it turned out that the campaign was actually low-profile and not much feedback was provided as a consequence.

Only one major stakeholder received positive feedback about Woorti (Railgroup, ES). All others didn't explore much the perceived-impact of their campaigns which can mean that they were not effective.

Privacy issues

It is surprising that stakeholders did not raise any concerns on how the personal information was gathered, used, shared and also how control was managed over the available information. The fact that stakeholders have not encountered any issue might be a result of lack of enforcement, showing that institutional commitment in the campaign was kept low.

Future plans

Most stakeholders, with the exception of the Municipalities that were targeting carbon neutrality and, in alignment with this interest, promised to include Woorti in the pipeline of future activities, didn't express any interest in using Woorti in the future, but most of them seemed to have curiosity about grasping general KPI's.

Related to these matters, the Portuguese stakeholder discussed expected management and explained that research-driven apps should stick to testing only among closed-environments. It can be said that if new functionalities such as the travel planner were developed to engage with the app users, the effect could be the opposite creating additional burden to an app which is already perceived as being complex (and dealing with a fairly complicated issue which is the value of travel time). So even if relevant, this update would fail to be effective.

Following this analysis based on the feedback of stakeholders who have direct knowledge of Woorti, the main conclusions compared to the expectations set by the stakeholders engaged during the software design phase are summarised below. Such analysis allows to easily grasp if the app has been up to expectations or not.

Target	Rating
<ul style="list-style-type: none"> Explore the Value of Travel Time concept 	⊕
<ul style="list-style-type: none"> Provide an accurate model for trip and route choice – that goes beyond state-of-the-art models and takes user mind sets, preferences, contexts, skills, habits and so on into account 	○
<ul style="list-style-type: none"> The opportunity to establish a client profile and a deeper knowledge about travel behaviour 	○
<ul style="list-style-type: none"> Study and understand the qualitative aspects of transport demand at regional and local level too 	○
<ul style="list-style-type: none"> Create new mobility services 	NA

<ul style="list-style-type: none"> Provide an alternative to mobility surveys. Collected data can be used in the context of Sustainability Mobility plans 	
<ul style="list-style-type: none"> Know how people value their walking time compared with other modes and what features influence the preceptor of travel time while walking 	
<p>NA = Not Achieved nor likely to be achieved O = Not Achieved but likely to be achieved  = Substantially achieved (at least 50%)   = Achieved in full</p>	

Table 13 – Contribution or potential contribution of Woorti to the stakeholders

5. Overall conclusions about perceived satisfaction and added-value of Woorti

Distinctive attitudes can lead to fundamental conclusions over the perceived satisfaction and added-value of Woorti, which are going to be summarised in this chapter.

Woorti is one of the three main outcomes of the MoTiV project, as described in Deliverable 6.1 "Dissemination and Communication Plan". Considering the approach for data-gathering through a mobile app, it was of paramount importance to ensure usability and satisfaction in this mobile application. With this in mind, the reasons were sought behind users feeling satisfied or dissatisfied after experiencing the app themselves. Furthermore, similar concerns were explored among the stakeholders that have an interest in promoting the app.

Since the sample used for the study came from a cross-country campaign, where the larger number of people enrolled and registered in the app due to their direct or indirect commitment in the project, the research results must be interpreted with caution, especially when taking into account the role of social and professional influence on the level of usage of the app.

5.1 The participants' perspective (results from surveys)

The majority of participants regarded Woorti as good or reasonable

In current versions of the app, the basic technical requirement for the app to run smoothly worked well. This technical requirement doesn't suffice the profound needs of users but help to guarantee a good user experience. The app usage seems not to be excessively complicated and difficult to use. However, this result represents only the view of those who used it for a long time. Indeed, according to the majority of the respondents, which are well familiar with the app as almost half of them used the app for two full weeks, the app did not crash frequently. Trip detection performed effectively in most cases but yet the identification of the mode failed to be satisfactory and needed to be more machine learning oriented. Avoidance of battery draining was found to be one of the most unfavourable parameters of the App and should also be minimised in future software developments.

Increase discussion about UX

The majority of participants consider the app as good or reasonable. This result is however site specific. It might be the case that the UX development has not incorporated all the site-specific characteristics. More integration and cooperation are therefore required.

Woorti has a low value proposition for the end-user

The design of the Woorti app took into account the potential to recruit and specifically to retain participants along the DCC campaign. Engagement strategies, such as the "mobility coach" and the "results sections" were developed to "allow users discovering what value of travel time means for them in relation to their expected quality and characteristics of travel experience", but apparently failed to be effective. Indeed, the main user value proposition chosen was to "make travel time worthwhile". This means that Woorti should "enable the user to obtain information and reflect on

his/her mobility choices with regard to the use and value of the time spent in his/her travels” as stated in Deliverable 3.4 “MoTiV App”. According to the app developers, the chance to support new transport policies, by providing data and feedback about their journeys would only be a secondary value proposition. However, most people were convinced because they were acquainted with the project team and/or were motivated by specific awards⁷. The fact is that, although several communication channels were exploited, a targeted number of participants was involved because of direct referrals from the project team. The rewards also played a significant role in using the app, but personal curiosity was not a key motivation factor. It can be said that the app has not been able to give value to the users. It is also important to point out that there was a large number of people who had registered in Woorti but had not used it. The main reason for this was the lack of understanding about what was expected from the user, as no concrete benefit was perceived.

Since most installed apps are rarely used, users need an attractive value proposition to start and continue using an app. Also, it is noted that the main reason for downloading the app and stop using it without validating trips, was the fact that participants did not understand what it was about and what was required from them. Bearing in mind this conclusion, it can be argued that by creating the journey planner, the stimulus could have been higher and the number of persons reporting information about their mobility trips could have eventually decrease as a result.

The app overall satisfaction is consistent from both product and personal expectations

Even though the overall experience is positive (58% of the participants stated that the app offered them at least an acceptable experience) this result is rather site specific. Better user experience was reported in countries that led the development of the app. TAM is consistent and also endorses this view. However, TAM has several practical limitations in predicting the take up of an IT system. It ignores, for example, the social influence on adoption of technology. In this topic of research, social influence seems to have played a major role in influencing people using the app and in retaining users over time, which was made clear thanks to the number of persons who had participated in the campaign as referrals of the MoTiV research team.

Overall, it has become clear that, in line with the research conducted by Olubusola, “in mobile applications, user’s satisfaction is determined by what users perceive about an application, product expectations, expected performance and match between personal values and app values” (Oluwande Olubusola 2015, 8).

Privacy policies in a nutshell

Privacy policies were not a key research topic in the evaluation questionnaire. However, some remarks and reflections can be reported. The publication of data policies has a purpose to serve. It can help to minimise distrust in apps that collect sensitive information. However, the younger segments seem to read them less often. Considering that the recent EU GDPR has made these policies mainstream, it would be crucial to make privacy policies more distinguishable and more sharp, suitable to non-technical readers, in order to increase the audience.

⁷ It is yet to be investigated if the nature of the awards and of the stakeholders involved in the campaign have determined the modal share of the campaign participants and thus the available information.

Comprehensive assessment of the evaluation methodology

It would be important to explore other variables related with software development, such as responsiveness to screen size or the required memory to run Woorti for example, but also from the perspective of the users, asking a set of questions that could help explain their fundamental set of values and see to what extent they are in alignment with those from the app. Such analysis would help better understand the Olubusola approach for investigating usability based on two major dimensions: the product oriented dimension (related, for example, to the appearance of a certain interface) and the human-centered dimension, which impacts a lot the perceived satisfaction and is dependent on peoples perspectives on how a product should function, based on their past experience.

5.2 The stakeholder's perspective (results from interviews)

The idea of the interviews was to offer a comprehensive assessment of the conditions under which Woorti could become a mainstream approach for data-gathering thus providing meaningful value back to its sponsor, the stakeholder.

It was quite interesting getting back to some of the stakeholders from both the public and private sectors now that the app has been implemented and that the campaigns have ended and trying to understand if the app has successfully helped them achieve the envisaged objectives. However, this research was limited due to the overall dissatisfaction of the stakeholders regarding the app that led most stakeholders not to provide any feedback. The most interesting insights gathered from the study's interviews can be found below.

Woorti failed to live up to the standard and expectation of stakeholders

The survey showed that users who had no experience in using apps in the past found the usability of the app higher than those who actually had a record of similar app experience. The same may have happened with stakeholders, whose risk of reputational damage could made them hesitant in choosing and promoting an app with their brand on. Even though diverse attitudes exist among stakeholders, most of them have high expectations about Woorti. They expect that the app behaves as any other professional tool. The reality is that it doesn't yet, because it was developed from scratch and it is research oriented, using a novel data collection tool that has not received professional proof testing before⁸. That was one of the main reasons for the DCC's to rely so heavily on external rewards to nudge people to use the app, to offset the fact that it failed giving concrete value to the app holder.

The majority of people have only a few apps on their smartphones with which they are satisfied regarding their usability and functionality. Therefore, if users do not enjoy a high quality of an app, then uninstalling that app can take less than a minute. Since the majority of the people participated in DCC were friends or colleagues of the MoTiV research team, then the risk of dissatisfaction and uninstalling the Woorti app was mitigated.

⁸ Similar smartphone apps are likely to have been improved across several years and through the investment of significant resources before reaching 'commercial-like' levels of performance, usability and engagement.

Focus on one key value-proposition

Some stakeholders, most notably transport service providers, would like to make Woorti an one-stop app, offering booking, planning or payment functionalities. However, if the objective is clearly to collect data from users and a bunch of rewards can be mobilised to that end, then it is recommended to drop out some functionalities designed to get users engagement, as they were regarded as key dissatisfaction factors by most users. It would also be important not to rely much on stakeholders in this respect and pilot the app among the research community and through snowball techniques, since this way most of the queries and problems can be addressed personally.

It is important, however, to mention that the app was built on a bulk of API's. Some of these "modular programming buildings" could eventually be reused by existing apps in the market, mostly the ones used by transport authorities and public transport operators.

Increase capacity-building regarding the value of data

In endeavouring the establishment of smart cities, it should be taken into consideration that the fuel driving these cities is data and here Woorti plays a key role. It is up to the project partners, at a first glance, to enhance and nurture the value of the dataset collected using Woorti. Indeed, the subject of MoTiV is much richer than the value of travel time itself. It can help designing a vast array of new mobility policies. It becomes clear from the interviews that the project has not yet been successful in highlighting this potential, especially because stakeholders feel that the volume and speed at which data today is generated, processed and stored is unprecedented and they don't know exactly what to do with that. Additional work is required to reveal all the potential of Woorti dataset and turn data into intelligence, especially considering that some stakeholders, mostly municipalities, still maintain interest in the topic of the value of travel time. To this respect, it is important to develop effective data visualisations, modelling, data mining and other tools that help "quickly communicate key aspects of data analysis and reveal new patterns to decision makers and the public" (OECD/ITF 2015, 6). One way for further development could rely on curing data and making it available in a fully customised dashboards, with the indicators chosen by each stakeholder.

6. Final recommendations

From the different conclusions presented previously, it is realised that this immersive experience enabled a deep understanding of the perceived quality of the app from the perspective of real users and stakeholders. The spectrum of indicators and feedback gathered (and not gathered, which also matters and can be equally of heuristic importance), indicates that Woorti is still a prototype and not yet a final product itself. This conclusion opens new routes for further fine-tuning.

Taking into consideration the expectations of the stakeholders, it seems that Woorti didn't fulfil its promises. However, the discovery phase has not finished yet neither with the UX design nor with the DCC's itself. In general, the most successful apps are products of continuous exploration and improvement. The consortium should integrate the thoughts and learnings from the present deliverable and create meaningful products out of it, as the curiosity and ambition in learning more about the value of travel time remains intact. One of the things to improve is to avoid decision fatigue, to automatise data through machine learning algorithms and machine learning, in order to reduce user input. Another important recommendation, would be to set up a dedicated workplan to exploit capacity-building regarding the value of data collected by Woorti, targeting several different stakeholders.

The stakeholder assessment carried out in the present deliverable helps addressing the market value of Woorti. However, this is not adequate for a deep and comprehensive analysis. It would be helpful to grasp what is the market value of the diversity of API's developed specifically for Woorti and to what extent they could be embedded in other running and commercial apps, such as the ones that municipalities and operators manage.

The ubiquity of smartphones turns smartphone-based approach, such as the one adopted in the MoTiV project, much more likely to be adopted in the future, for any relevant topic. Indeed, "Smartphones are increasingly used for collecting data on travel behaviour", irrespective of the business activity and the goals pursued.

If many other tools already track down people's mobility routines, the subjective dimension inputted by the travellers on those routines is still relatively under-researched. Indeed, "the exploration of worthwhile travel time may represent just a first step of" a wider process of digital governance through mobile apps, that require feedback from citizens through smartphone apps.

One major future development to close the knowledge gap about Woorti performance, requires the development of business models to compare the app performance against similar apps, in order to lay out a benchmarking and steer future research on data collection about mobility-related topics. This activity would help to understand better if Woorti delivers value for money when put into comparative perspective.

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Annex 1: Woorti customer satisfaction survey (in English)

In **bold** are highlighted those questions regarding user experience that had previously been asked by the Slovak partner UNIZA in May.

Introduction

Hello!

Thanks for your participation in the Woorti Data Collection Campaign, you are now invited to participate in our Woorti App Evaluation Survey.

It is very important for us to learn your opinion and it will take less than 5 minutes to complete the questionnaire.

Your responses to the survey will be strictly confidential.

If you have any questions, you can read our privacy policies at www.woorti.com.

Thank you very much for your time and support.

Please start the survey now by clicking on the Next button below.

Q.1. How did you first hear about Woorti?

- I heard about it on social media or a newspaper/magazine
- In a public event
- A relative/friend told me about it
- Other, please specify _____

Q.2. On which operating system were you using Woorti?

- Android
- iOS

Q.3. Do you remember when was the last time you used Woorti?

- May
- June
- July
- August
- September
- October

User level

Q.4. How long have you used Woorti?

- I downloaded it but never actually used it

- I have only registered trips in one single day (skips next question)
- I have used it for 2-3 days (skips next question)
- I have used it for less than a week (skips next question)
- I have use it between one week and two weeks (skips next question)
- I have use it for more than two weeks (skips next question)

User level

Q.5. Why didn't you use it? (multiple answers allowed)

- I did not understand the purpose or what was required from me
- It had no use for me
- I just forgot about the app
- It drained my battery more quickly than other apps
- It crashed frequently
- I was concerned about providing personal data

Move to App future developments and then questionnaire ends

(please state to what extent you agree with the statement, on a 1 to 5 scale, where 1 - disagree and 5 - fully agree)

App perceive usefulness

Q.6. Woorti has enabled me to make better use of the modes of travel that I have chosen

App ease-of-use (related with App design)

Q.7. Woorti is easy to use

Q.8. Woorti interface is clear and understandable

Experience

Q.9. I'm experienced in using similar apps

Q.10. Woorti drained my battery very quickly

Q.11. Woorti consumed excessive mobile-data

Trust

Q.12. Woorti will take good care of my personal data

App stability

Q.13. Woorti should automatically record the start and end of your trips in the background. Has this feature worked properly in your device?

- Not at all
- Quite unpredictable: sometimes it works, sometimes it doesn't and had to push "start/end trip" to identify my trips
- Yes, it worked properly

Q.14. How many of your trips were correctly detected by Woorti?

- None
- Only a few
- About half
- The majority

- All
- I don't remember

Q.15. How often did Woorti correctly detect your transport mode?

- None of my trips
- Only few of my trips
- About half of my trips
- The majority of my trips
- All my trips
- I don't remember

Q.16. How often did Woorti crash?

- All the time
- Often
- Just a few times since I installed the app
- Never
- I don't remember

App future developments

Q.17. If a journey planner was installed, would you find this useful?

- Yes, that would allow me to plan my trips according to my worthwhileness preferences
- No, it would be pointless
- Don't know, never thought about it

App overall assessment

Q.18. What has motivated you to use Woorti? (multiple answers allowed)

- The rewards
- Curiosity in understanding how I spend my time while travelling
- Contribution to research and better transport policies
- Other. Please specify _____

Q.19. Which features did you like most? (multiple answers allowed)

- The Mobility Coach and its stories
- The Results dashboard
- The tracked record of all my trips
- None

Q.20. Which features did you like less or did not made use of? (multiple answers allowed)

- The Mobility Coach and its stories
- The Results dashboard
- The tracked record of all my trips
- Didn't like any

Q.21. How do you judge the overall usability and experience of Woorti?

- Not good at all
- Not very good
- It's ok
- Very good

Q.22. Have you read the privacy policies of Woorti?

- No, I never read privacy policies

- I usually read them, but I have not read this one
- Yes I read

User characterization

Q.23. Age

- 16-19
- 20-24
- 25-29
- 30-39
- 40-49
- 50-64
- 65-74
- 75+

Q.24. Gender

- Female
- Male
- Other

Q.25. Country

- Belgium
- Croatia
- Finland
- France
- Italy
- Norway
- Portugal
- Slovakia
- Spain
- Switzerland

Annex 2: Interview guide

Participating stakeholders

Characterization

Q1. Interviewee company

Q2. Interviewee name

Q3. Interviewee role in the company

Q.4. Which added-value can an app such as Woorti deliver to your company?

(what does the app deliver that you have not yet successfully been able to get from other tools that you are aware of?)

Q.5. Which features of the app did you value most?

Q.6. What additional features or supportive actions (e.g. suggest a dashboard if nothing comes to mind) could be developed to take the most out of Woorti?

Q.7. Which communication channels did you use to reach out to customers (and which ones you regard as more effective)?

Q.8. Was the level of adherence in line with your expectations?

Q.9. Did you get any feedback from the users?

(If yes, which type of feedback, positive, negative...)

Q.10. If applicable, which incentives did you use, and which do you regard as more effective to retain users?

Q.11. Did you come across any privacy issues while the campaign was in progress?

Q.12. What are your future plans for Woorti and/or for the data already gathered?

Non-participating stakeholders

Q.4. Which features of the app did you value most?

Q.5. Which features of the app should be added?

Q.6. What prevented you from leveraging the Woorti campaign in your country?

Q.7. What could convince you to promote Woorti in the future, are there any future plans for using Woorti in your institution/organisation?

Q.8. Which information you would like to extract from the Woorti campaign, and in which format would you like to have access to it?

Annex 3: Template of the interviews

STAKEHOLDERS INTERVIEW - CONTEXTUAL INFORMATION

Involvement in the project (participating stakeholder or non-participating stakeholder⁹)

Name of the interviewee

Organization and position

Date and place of interview

Name of the interviewer

SUMMARY AND REMARKS (in bullets)

- Lorem Ipsum

Narrative of the interview

Information collected from the interviewee point of view, following the interview guide

Relevant quotes from the interviewees

- Quote 1
- Quote 2

⁹ If participating only as an individual, the interviewee should be framed under the non-participating stakeholder umbrella.

Annex 4: Interview report

1. Belgium

STAKEHOLDERS INTERVIEW - CONTEXTUAL INFORMATION

<i>Involvement in the project</i>	<i>participating stakeholder</i>
<i>Name of the interviewee</i>	Wim Degroof
<i>Organization and position</i>	Project Manager, Bike To Work <i>coordinator</i>
<i>Date and place of interview</i>	6/11/2019
<i>Name of the interviewer</i>	Fenna Bouve

SUMMARY AND REMARKS (in bullets)

- User found Woorti a terrible App.

Narrative of the interview

Q.4. Which added-value can an app such as Woorti deliver to your company?

No added value for me, this is by far the worst mobility app I ever tested, and I tested a lot of them. For me it's a punishment to use this app for two weeks. I don't think anyone will really keep using this app for two weeks.

The tracked trips don't add up: most of the times it's a line between two points and not the real trajectory followed.

One time my trip is automatically tracked, the other time it all of a sudden starts tracking in the middle of a journey.

So it's very unclear for the user: do I have to 'start trip' or not?

It's a real suffer to have to answer to SO many questions for ALL of your legs & trips; and the user interface is not user friendly at all.

Also there's very strange questions: like, what's an 'urban train'?

Q.5. Which features of the app did you value most?

None really.

Q.6. What additional features or supportive actions (e.g. suggest a dashboard if nothing comes to mind) could be developed to take the most out of Woorti?

Q.7. Which communication channels did you use to reach out to customers (and which ones you regard as more effective)?

E-mail.

Q.8. Was the level of adherence in line with your expectations?

No.

Q.9. Did you get any feedback from the users?
Other users struggled too.

Q.10. If applicable, which incentives did you use, and which do you regard as more effective to retain users?

No, I didn't, as I was testing the app from the beginning. I don't think an incentive would help.

Q.11. Did you come across any privacy issues while the campaign was in progress?

Not really.

Q.12. What are your future plans for Woorti and/or for the data already gathered?

No plans, I will most definitely not use Woorti anymore after the campaign.

Relevant quotes from the interviewees

- This is by far the worst mobility app I ever tested, and I tested a lot of them.

2. Croatia

STAKEHOLDERS INTERVIEW - CONTEXTUAL INFORMATION

<i>Involvement in the project</i>	<i>participating stakeholder</i>
<i>Name of the interviewee</i>	Ksenija Vorberger
<i>Organization and position</i>	Head of communications, Civinet Croatia-Slovenia-Southeastern Europe
<i>Date and place of interview</i>	19/11/2019
<i>Name of the interviewer</i>	Tena Šarić

Q.4. Which added-value can an app such as Woorti deliver to your company?

(what does the app deliver that you have not yet successfully been able to get from other tools that you are aware of?)

Since the project of Civinet deals with the sustainable mobility in urban areas, it will be relevant to see how and why people choose their mode of transport and how satisfied they are with their choice.

Q.5. Which features of the app did you value most?

The count of CO2 spent/saved.

Q.6. What additional features or supportive actions (e.g. suggest a dashboard if nothing comes to mind) could be developed to take the most out of Woorti?

Maybe only work on increasing the simplicity of the app and user-friendliness. Also, a feature to only turn on the app when you want a trip to be recorded, instead of recording all trips and draining the phone battery.

Q.7. Which communication channels did you use to reach out to customers (and which ones you regard as more effective)?

We used Facebook posts, web articles and newsletter. We consider Facebook posts most effective.



<https://civinet-slohr.eu/sudjelujete-u-zanimljivom-istrazivanju-koje-provodi-sindikata-biciklista-za-podrucje-hrvatske/>

Q.8. Was the level of adherence in line with your expectations?

As Sindikat biciklista is one of our members, we published and invited users to use Woorti as a part of our reporting on members activities. Sindikat biciklista reported that, after our posts and newsletter, the nr of users got up.

Q.9. Did you get any feedback from the users?

(If yes, which type of feedback, positive, negative...)

We did not get feedback from users.

Q.10. If applicable, which incentives did you use, and which do you regard as more effective to retain users?

We only advertised the incentives provided by Sindikat biciklista.

Q.11. Did you come across any privacy issues while the campaign was in progress?

No privacy issues arose.

Q.12. What are your future plans for Woorti and/or for the data already gathered?

It would be nice to see the statistics of kilometers passed and the distribution of the modes of transport, which includes the satisfactory elements. Maybe we will be able to use it to promote sustainable transport.

3. Finland

STAKEHOLDERS INTERVIEW - CONTEXTUAL INFORMATION

<i>Involvement in the project</i>	<i>participating stakeholder</i>
<i>Name of the interviewee</i>	Ulla Lehtinen
<i>Organization and position</i>	Municipality of Hollola, Finland Environmental Inspector
<i>Date and place of interview</i>	Phone 06/11/2019
<i>Name of the interviewer</i>	Heikki Waris

SUMMARY AND REMARKS

- Woorti was an opportunity to engage citizens and employees in the municipality with zero cost and limited effort.
- Because of this there were no high expectations or plans for the future, but these may develop over time.
- **The nearby city of Lahti is operating a mobility detection and carbon trading app, and this could be added.**

Narrative of the interview

Information collected from the interviewee point of view, following the interview guide

Q.4. Which added-value can an app such as Woorti deliver to your company?

The app could work as an information channel about sustainable travelling.

Q.5. Which features of the app did you value most?

The personal mobility reports.

Q.6. What additional features or supportive actions (e.g. suggest a dashboard if nothing comes to mind) could be developed to take the most out of Woorti?

Possibilities for the users to offset their CO₂ emissions or give them rewards (e.g. a cup of coffee) if they have travelled ecologically.

Q.7. Which communication channels did you use to reach out to customers

Facebook, Internet (municipal website), email. Supporting communications materials from the project were appreciated. Targeted communications to specific individuals are considered.

Q.8. Was the level of adherence in line with your expectations?

Not yet.

Q.9. Did you get any feedback from the users?

Q.10. If applicable, which incentives did you use, and which do you regard as more effective to retain users?

The municipality did not use its own incentives but utilized cash prizes offered by the project.

Q.11. Did you come across any privacy issues while the campaign was in progress?

No.

Q.12. What are your future plans for Woorti and/or for the data already gathered?

No plans at the moment.

Relevant quotes from the interviewees

- I liked the app myself, it worked quite nicely.

4. Italy

STAKEHOLDERS INTERVIEW - CONTEXTUAL INFORMATION

<i>Involvement in the project</i>	<i>participating stakeholder</i>
<i>Name of the interviewee</i>	Marco Scanu
<i>Organization and position</i>	President of the Erasmus Student Network (ESN) is a non-profit international student organisation
<i>Date and place of interview</i>	06/11/2019
<i>Name of the interviewer</i>	Alberica Carpegna

Q.4. Which added-value can an app such as Woorti deliver to your company? (what does the app deliver that you have not yet successfully been able to get from other tools that you are aware of?)

To know better our way of living and our behaviour regarding mobility.

Q.5. Which features of the app did you value most?

The road and the questions concerning the service.

Q.6. What additional features or supportive actions (e.g. suggest a dashboard if nothing comes to mind) could be developed to take the most out of Woorti?

To use it in association with information about traffic and fast public service.

Q.7. Which communication channels did you use to reach out to customers (and which ones you regard as more effective)?

We talked about the app during ESN Italy National Meetings in Bergamo, Milan and Senigallia. We presented the App to the students of Politecnico delle Marche University, Sassari University and

Teramo University. We wrote some news in our Facebook page (ESN Alumni italia) and we sent an e-mail to our mailing list.

Q.8. Was the level adherence in line with your expectations?

More or less yes. The delay of the app was a problem because students were not at the universities for some months.

Q.9. Did you get any feedback from the users? (If yes, which type of feedback, positive, negative...)

Yes, some positive and three negative (the app's compatibility with old mobiles)

Q.10. If applicable, which incentives did you use, and which do you regard as more effective to retain users?

Partnership and friendship

Q.11. Did you come across privacy issues while the campaign was in progress any?

No, but people asked about their registration.

Q.12. What are your future plans for Woorti and/or for the data already gathered?

We will continue to invite people to take and send data.

5. Norway

It was not possible to conduct the interview because the involved stakeholders didn't have a view over the interview guideline.

6. Portugal

STAKEHOLDERS INTERVIEW - CONTEXTUAL INFORMATION

<i>Involvement in the project</i>	<i>non-participating stakeholder</i> ¹⁰
<i>Name of the interviewee</i>	Adélia Simões
<i>Organization and position</i>	Head of the strategy department
<i>Date and place of interview</i>	07/11/2019, performed by Skype
<i>Name of the interviewer</i>	Fátima Santos and André Freitas

SUMMARY AND REMARKS

- The interviewee argued that some options available for answering should be reduced and streamlined. She also missed some options related with the purpose of the trip that are typical from countries from the south of Europe, whilst found others awkward and pointless. This is specially striking in cases where

¹⁰ If participating only as an individual, the interviewee should be framed under the non-participating stakeholder umbrella.

the trip routines and very repetitive. She didn't understand well the function that compares the track performance of the user with the average one from the community.

- She enjoyed the automatic tracking which worked well, even if her routines were fairly constant over time and specially the stories which she liked reading.
- To what new functionalities is concerned, the interviewee doesn't endorse any new feature, because, she argues, that would make the app even more complex and difficult to use. This is an interesting point, that moderates the will to develop new functions. Even if they are developed to engage with the app users, the effect can be the opposite and create extra burden to an app which is already perceived as being complex (and dealing with a fairly complicated issue which is the value of time).
- Even if Mrs. Adélia used the app, the municipality of Torres Vedras didn't involve actively in the dissemination of the local campaign. The sole reason for the lack of institutional involvement relied on the lack of time and availability of the existing workforce to prepare and launch the strategy using the municipal communication channels.
- The interviewee does not reason about how she would like to have access to data. But considering the reduced workforce available in the municipal offices, one can assume that data from Woorti would need to be largely digested and presented in a very light and easy to read format. The value of such data is unquestionable either for her services to design better mobility strategies but also for the public transport operator alike.

Narrative of the interview

I completed 14 days using the app, as it was required to qualify for the award. However, some functionalities were not crystal clear to me. I performed most journeys by car and as a driver, picking up and driving my son around. In these cases, I think that the options should be reduced. It is nonsense to ask for lockers, for example, for someone with my mobility habits. I activated the simplicity of the trip option in most of my journeys.

On the other way around, some options were missing. The app captured all my trips and I had to introduce the purpose of each one of them. At lunch time, I usually leave the office and go home to lunch. This is something usual in Portuguese cities. But that option didn't exist in Woorti so I immediately understood that it was designed by someone from the north side of Europe.

In my case, what I normally do while driving is to listen to music. And never thought that that could be considered as valuable time because in fact it is a way to relax a bit from the bustle of the work.

My trips are really constant over time, so it is nonsense to give always the same feedback and I had to do that in order to validate the trip.

What I enjoyed more in the app was really the stories. I felt excited every time I received a notification informing me that a new story was published. I'm also happy with the fact that the app captured automatically the mode of transport I normally used, which was car as a driver. That was quite interesting indeed, worked well and saved time to introduce the remaining information.

I would not add anything else because it is really complex as it is.

As for the institutional involvement, it didn't go forward only due to lack of time of the municipal staff members. Arguably, we have a small team and some of us even retired last month. This has not contributed and ease our response to all the queries that reached our desk and that become overwhelming in the past months. The app was reasonable and the subject important. If we had had enough human resources, I don't have a doubt that the campaign would take place in Torres Vedras.

The app collects quite a huge set of information. I have no doubt that it would be relevant for our strategic municipal services to extract such information. We need to be objective and consider that, even if the main purpose lies in the research of the value of travel time, we can derive valuable information about the modal choices and people's mobility options. This information would also be very relevant to our public transport operator, to understand if people onboard value and make good use of the *free wifi* offered on their buses.

We certainly would like to exploit data from Woorti in the future.

Relevant quotes from the interviewees

- Quote 1: *At lunch time, I leave the office and go home to lunch. This is something usual in Portuguese cities. But that option didn't exist in Woorti so I immediately understood that it was designed by someone from the north side of Europe.*
- Quote 2: *The app was reasonable and the subject important. If we had had enough human resources, I don't have a doubt that the campaign would take place in Torres Vedras.*

STAKEHOLDERS INTERVIEW - CONTEXTUAL INFORMATION

<i>Involvement in the project</i>	<i>non-participating stakeholder</i> ¹¹
<i>Name of the interviewee</i>	Rosário Macário
<i>Organization and position</i>	Head of the CESUR research center
<i>Date and place of interview</i>	08/11/2019, performed face-to-face at TIS premises
<i>Name of the interviewer</i>	Fátima Santos and André Freitas

Narrative of the interview

Useful

In my opinion, I think that the app was too intrusive. The project team made too evident that they were chasing my data through the app and I become astonished by the fact that the app offered no added value to me in turn.

Indeed, it was striking that the app was too data-focused. It is not surprisingly that you have not gathered more users than the ones you did due to this reason. In fact, it sounds to whoever it uses that "I'm here to extract data from you and I will not give you anything in turn."¹²

New features

New functionalities that would give added-value to the user should be introduced, obviously. But the first thing is to alleviate the number of questions and burden from the user point of view. The system needs to understand that if I go everyday by train, I don't expect the app to assume that I go by car, for instance. It should learn from our routines. On other occasions, the app navigates around while the app. stands still. This annoys any user.

What prevented you from leveraging the Woorti campaign in your country

The questions put forward need a strong revision. Some obviously seem redundant. They invite the respondents to drop out and immediately stop using the app. If I point out to the app that my personal preferences are X it is nonsense that it goes around and ask always the same question to understand if at some point, I prefer Y instead of X. That becomes really annoying.

All in all, we cannot put one institution behind this app. It is too bad, I'm afraid. You can tell me that the app is not commercial, that is research-driven, but the fact is that you are targeting end-users so you need to give them a fairly good user experience. Otherwise you should stick to closed-environments within you research academia.

¹¹ If participating only as an individual, the interviewee should be framed under the non-participating stakeholder umbrella.

¹² The local team has explained to the interviewee that several functionalities were specifically built to cope with this barrier and to offer the user a better experience and the chance to actually learn something about their personal cost of travel time (most notably the stories and results sections).

What could convince you to promote Woorti in the future?

Which information you would like to extract from Woorti?

I doubt if the information is valuable enough for research. I don't think it is so I would not use it. Not only the quality of the questions is bad, but also the order of the questions. One example is that we should never ask directly how worthwhile someone's trip is. This is something that we should derive from other questions, rather than asking it directly. The last question of the questionnaire is an example of something that is not understandable for an user, when you ask how the person would like to use their time. I was dumbfounded with that question in particular and didn't understand the point. Nonetheless, I can only evaluate the value of the database when I'm able to have concrete access to the data, that is for sure.

Relevant quotes from the interviewees

- Quote 1: *the app is too intrusive*
- Quote 2: *You can tell me that the app is not commercial, that is research-driven, but the fact is that you are targeting end-users, so you need to give them a fairly good user experience*

7. Slovakia

STAKEHOLDERS INTERVIEW – CONTEXTUAL INFORMATION

<i>Involvement in the project</i>	participating stakeholder
<i>Name of the interviewee</i>	Andrea Baránková
<i>Organization and position</i>	Dopravný podnik mesta Žiliny s.r.o./ Consultant, public transport operator
<i>Date and place of interview</i>	Žilina, 05/11/2019
<i>Name of the interviewer</i>	Martin Hudák

SUMMARY AND REMARKS (in bullets)

- Dopravný podnik mesta Žiliny s.r.o. as a participating stakeholder actively promoted Woorti app via following channels:
- Publishing the article about Woorti app and the DCC on company's website (www.dpmz.sk) and Facebook page;
- Promoting the Woorti app on LCD monitors in busses and trolleybuses.

Narrative of the interview

1. Which added-value can an app such as Woorti deliver to your company?
Not able to answer now, see the question 9.

2. Which features of the app did you value most?
Not able to answer now, see the question 9.

Dashboard.

The stats displaying the total time spent by travelling as well as the distance and time spent in different transport modes.

3. What additional features or supportive actions (e.g. suggest a dashboard if nothing comes to mind) could be developed to take the most out of Woorti?

Such functionality as Journey Planner which would allow to plan the trip, see the schedules of public transport, ideally with the possibility of buying the tickets.

Moreover, it would be useful if such planner could provide an online information about the public transport delays, like the Google maps are providing.

The algorithm for automatic detection of trips should be also improved, as it did not detect all trips. In some cases there was a problem to record the trip even after clicking on the button Start trip, this should not happen in the future.

4. Which communication channels did you use to reach out to

Several communication channels were used, such as publishing the article on company's website (www.dpmz.sk) or displaying the advertisement on LCD monitors in busses and trolleybuses. The advertisement in busses looks much more efficient than the one on the website.

5. Was the level of adherence in line with your expectations?

The expectations were a little bit different from the current status of the Woorti app.

6. Did you get any feedback from the users?

Negative feedback was received from several Woorti users.

7. If applicable, which incentives did you use, and which do you regard as more effective to retain users?

No incentives from stakeholder were used.

8. Did you come across any privacy issues while the campaign was in progress?

No.

9. What are your future plans for Woorti and/or for the data already gathered?

The future plans are dependent on the management of the company and are not clear at the moment. However, we expect some useful analyses based on the gathered data during the data collection campaign.

8. Spain

STAKEHOLDERS INTERVIEW - CONTEXTUAL INFORMATION

<i>Involvement in the project</i>	<i>PARTICIPATING STAKEHOLDER</i>
<i>Name of the interviewee</i>	<i>IGNASI GÓMEZ-BELINCHÓN</i>
<i>Organization and position</i>	<i>RAILGRUP https://railgrup.net/en – Cluster Manager Director</i>
<i>Date and place of interview</i>	<i>EMAIL – 28/10/2019</i>
<i>Name of the interviewer</i>	<i>MARINA PRESAS</i>

SUMMARY AND REMARKS

- Railgrup contributed to the campaign spreading the word with the following actions: mails to more than 100 members, publication of an article about the campaign on their website, specific communication through newsletters, social media (Linkedin proving to be the more effective channel).
- Railgroup stated that they would be interested in organising a workshop based on Woorti results to get to shape and design specific services in the railway industry and discuss about the implementation of Mobility as a Service Schemes (Railgrup is the railway Catalan cluster).
- Railgrup wishes to use Woorti data to classify different types of users of mobility to ascertain service patterns to be offered.
- Railgrup received a positive feedback from their associates regarding the App because for railway companies it's very important to get a customer centric approach about railway mobility.

Relevant quotes from the interviewees

- *We found Woorti easy to use and close to the final user, in general we had a positive feedback of an initiative as such*