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The Urban Lab of Europe !

# The TMaaS project Journal N° 2

*Project led by the City of Ghent*



**URBAN  
MOBILITY**



**TMaaS**  
*Traffic Management as a Service*



European Union  
European Regional  
Development Fund



Région  
Hauts-de-France

## The TMaaS project

In order to reduce the levels of congestion and support the modal shift in the city of Ghent, the TMaaS project seeks to harmonise mobility between different transport modes as well as inform the citizens of sustainable alternatives to move around the city. The project will create a traffic management system that will crowdsource information from citizens that will match with the true needs of the urban authority. It will organise traffic management as a service using a central cloud platform without investing in expensive hardware.

The traffic management system will gather data that goes beyond information on private vehicles on the roads. It will collect, process and centralise real-time information about public transport, social media messages, weather data, traffic light status, etc. The platform will be configured to the needs of the city and local mobility practices. Personalised information will also be provided to each citizen depending on their specific user needs recommending the most sustainable and time-efficient way to travel. Citizens will be able to interact with the platform by feeding back to the management control centre as they are best placed to shape the mobility culture in their communities.

## Partnership

- City of Ghent
- WAYLAY NV- software company
- NVMB- software company
- Tom Tom Development Germy GmbH- private company
- BARCO n.v- private company
- Be-MobileTech NV- private company
- Buro Bloom- private company
- Ghent University
- KU Leuven- education and research institue
- European Passenger's Federation



DE STAATSE RUITER  
design & communication



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# 1. Executive Summary

Whilst the first six months of TMaaS partners were dedicated to laying the ground for a smooth project delivery, the second semester was marked by a significant progress in the activities, outlining a clear new phase of the project in which the first results of the work conducted started to emerge.

Accordingly, this second edition of TMaaS Journal captures and analyses the progress of the project during the last six months, from October 2018 to February 2019. In particular, the Partnership focused its efforts in delivering three core activities: user research, use cases and the open call.

User research conducted aimed at better understanding potential future users of TMaaS outputs. To that end, the activities targeted three different user groups:

- Cities - aiming at investigating how traffic data are being used by different local authorities across the world (through what the Partnership calls as “city audits”);
- Residents and regular visitors (including commuters) - looking at better understanding travel behaviour and information needs of this type of targeted end users, and to identify and prioritise the features and functionalities of the citizens-faced part of the dashboard (through ethnographic research and co-design workshops);
- Other stakeholders with specific needs such as students, people with reduced mobility (PRM), local shopkeepers, IT-professionals, transport service providers, help services, among others.

Overall, the research revealed rich insights that, in turn, informed the selection of a set of use cases to capture the requirements to be secured by the different modules of TMaaS.

Yet another big achievement of the past six months was the launch of the open call that aims at building the space to test the potential replicability of the TMaaS dashboard in three other (non-partner) cities, testing the solutions delivered in an environment that may be completely different from Ghent’s context.

Alongside the progress observed in the delivery of the activities (described with more detail in the section *Progress to date*), this journal also provides an update on the key implementation challenges previously mapped out. At this stage, the three challenges initially identified as particularly critical to the success of TMaaS (Monitoring and Evaluation, Financial Sustainability and Upscaling) remain the core ones. The table depicted in the dedicated section (*Key challenges*) presents an analysis and includes an initial taster of the approaches that are expected to produce positive outcomes in the near future, though a more detailed analysis will be conducted in future journals, once the first results of the routes of action can be extracted.

Ultimately, despite the project’s relatively young age, it is already possible to extract knowledge to build on, notably around the user research conducted by the TMaaS Partnership. An easy-to-read Q&A guide is presented in the *Experiences to build upon so far*.

All in all, the progress observed attests to the commitment of the Partnership to the TMaaS and to the momentum the project has gained despite its slow start. TMaaS is now operating at

full throttle and significant achievements are expected in the next six months, such as first prototype of the mobility management tool, to be tested during Ghent Festival.

## 2. Progress to date

The partnership has had a busy six months since the first journal was published. In particular, partners have focused their efforts in advancing three core activities:

- User research;
- Use cases;
- Open call.

### 2.1. User Research

Built-in the research work stream of TMaaS, and as part of its continual wider stakeholder engagement, partners have reached out to different stakeholder groups with the purpose of gathering insights to inform the design and development of the dashboard.

To this end, user research targeted three different user groups:

- Cities - aiming at investigating how traffic data are being used by different local authorities across the world;
- Residents and regular visitors (including commuters) - looking at better understanding travel behaviour and information needs of this type of targeted end users, and to identify and prioritise the features and functionalities of the citizens-faced part of the dashboard;
- Other stakeholders with specific needs such as students, people with reduced mobility (PRM), local shopkeepers, IT-professionals, transport service providers, help services, among others.

Overall, this qualitative research phase had the ultimate goal of uncovering user needs and preferences that would inform the features and functionalities of the dashboard, according to the profile of users of the TMaaS dashboard: professional and private, respectively.

As for the approach adopted in the user research, the Partnership conducted three campaigns:

- City audits: an interview campaign targeted at city policy makers and traffic managers from multiple cities with different maturity stages in the adoption of ITS with the purpose of investigating how traffic data are being used by different local authorities across the world.
- Ethnographic research followed by co-design workshops: a user research campaign targeted at citizens and regular visitors to gather insights on how this stakeholder group moves around in the city and the type of information needed to help them better navigate the mobility system;
- In-depth interviews: a dedicated engagement campaign with representatives of various stakeholder groups such as students, PRM, transport service providers and employers to assess their specific needs and identify opportunities and threats of the TMaaS dashboard.

Regarding the city audits, these consisted on a campaign of semi-structured interviews to policy makers and traffic managers from six different cities.

In the case of the ethnographic research, the methodology entailed a two-week diary study with snippet-based diaries with eighteen

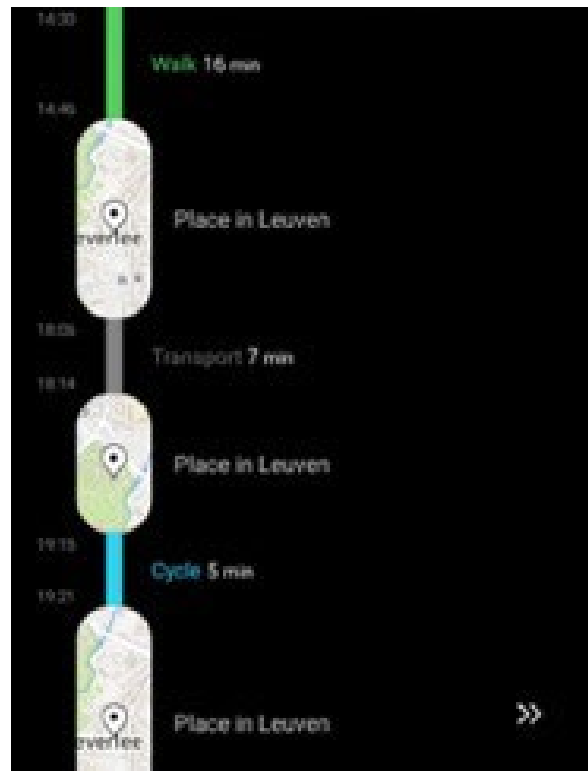
participants, along with a mobility tracker installed on the phones of the participants who agreed to it. This step was followed by one-on-one interviews to better understand the details and contextual explanations of the diaries.

Considering the scope of the TMaaS solutions, the sample comprised people living in the city of Ghent as well as people living outside of the city of Ghent who visit Ghent on a regular basis. Frequent visitors included groups such as commuters and business visitors living outside Ghent, and also people visiting for other reasons such as shopping, entertainment, visiting friends and family and medical appointments. In addition to the geographic characteristics, sampling considered also the fact that TMaaS target audiences of very different ages, occupations (student, working, not working/retired), stage in family life and their available, preferred or most used modes of transportation.

As for the in-depth interviews, these were conducted with ten representatives of the different stakeholder groups. The representatives were carefully selected based on their recognised expertise and ability to speak for their peers.

The co-design workshops, in turn, targeted a group of twenty-six people (five of which had already been involved in the diary study). Researchers developed a card-based ideation tool in which participants were randomly given three cards produced according to the insights gathered during the ethnographic work that would then serve as a basis to the design of a travel scenario. The task consisted on exploring how TMaaS could inform users in that particular travel scenario.

An illustration of the whole process can be found in the [1st TMaaS Zoom-In](#), and more detailed information on the approach will also be available in a dedicated TMaaS deliverable.



*Screenshot of the mobility tracker*



*Co-design workshop with Ghentians and regular visitors*

Overall, the research revealed some rich insights that will be available in the soon to be published deliverable.



## 2.2. Use Cases

The users' needs and preferences that stemmed from the city audits, in-depth interviews and co-design workshops, along with the outcomes of a data inventory conducted (which aimed at mapping useful data sources across various city stakeholders) enabled a better assessment of the meaningful data sources to focus on.

The importance of the data sources was prioritised through a MoSCoW<sup>1</sup> analysis, which together with the preferences of the City of Ghent informed a set of 9 use cases to capture the requirements to be secured by the different modules of TMaaS. The current use cases under development are:

- Warnings on pre-defined routes;

## 2.3. Open Call

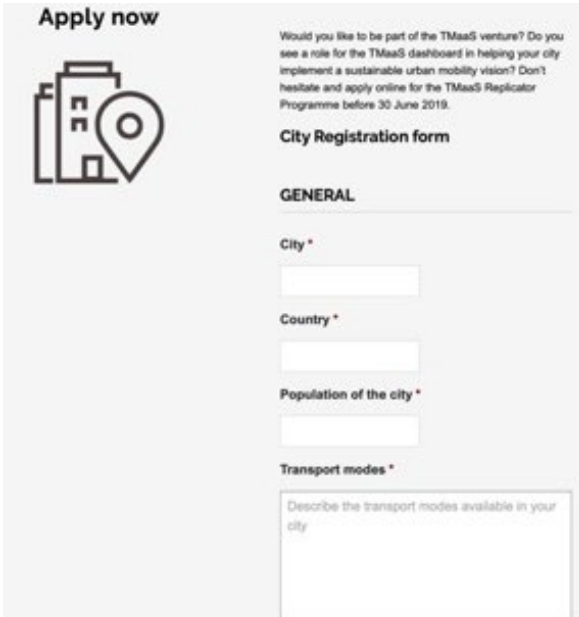
The project has a dedicated set of activities to look into the transferability of the traffic management tool in other European cities such as the [TMaaS Replicator City Programme](#), an instrument that aims to build the space to test the potential replicability of the solutions developed in TMaaS in three other cities. In this respect, the TMaaS Replicator City Programme will allow the Partnership to test the dashboard in an environment that may be completely different from Ghent's context, as well to test additional use cases based on the specific mobility challenges of the Replicator Cities.

With an extended, five-month application period, cities worldwide have been invited to apply to the TMaaS Replicator City Programme. The open call process is supported by a [Replicator City Programme information package](#) and a set of

- Dynamic vehicle positions on a map;
- Show locations of useful or interesting points on a map;
- Real-time and historical statistics of KPIs;
- Immediate insights in real-time traffic events;
- Asset monitor & Alerting on irregularities;
- Data editor;
- Two-way communication;
- City Management Panel.

These use cases have the potential to be tested in the Replicator Cities as well, and can be further expanded in case a particular Replicator City identifies that need.

webinars and other communication actions to promote the open call and clarify potential applicants' queries.



**Apply now**

Would you like to be part of the TMaaS venture? Do you see a role for the TMaaS dashboard in helping your city implement a sustainable urban mobility vision? Don't hesitate and apply online for the TMaaS Replicator Programme before 30 June 2019.

**City Registration form**

**GENERAL**

City \*

Country \*

Population of the city \*

Transport modes \*

Describe the transport modes available in your city

Online registration form ('General' section)

<sup>1</sup> MoSCoW stands for **M**ust have, **S**hould have, **C**ould have, and **W**on't have

# 3. Key challenges

In this journal we revisit the eight implementation challenges introduced in the [first journal](#) and assess progress by exploring how the approaches the Partnership is adopting are impacting these. The ultimate goal of this tracking exercise is to capture lessons learned from the tactics and methods adopted in TMaaS to better inform future projects facing similar challenges.

In the previous journal, three challenges had been identified as particularly critical to the

success of TMaaS: Monitoring and Evaluation (M&E), Financial Sustainability and Upscaling. Whilst these remain the key hotspots, the Partnership has been putting various actions in place that are expected to produce positive outcomes in the near future, in particular for the Financial Sustainability and Upscaling challenges.

The following table includes a snapshot of the current state of the challenges.

**Table 1: Key challenges tracker for TMaaS (as of Feb. 19)**

Challenge	Status	Notes
<b>Leadership for implementation</b>	Low	<p>Following the 2018 local elections in Belgium, which led to a new Mayor taking post in Ghent, not much has changed in terms of how the TMaaS project is seen internally and the commitment of the city to delivering the project.</p> <p>The main aspect concerning this challenge relates to the somewhat sense of containment by the city administration, which currently is mostly due to the inherent uncertainties of an innovative project. It expected a louder political support once the project reaches a more mature stage.</p> <p>Nonetheless, the Traffic Management Centre personnel remains strongly active in the project – there is a manifested recognition of how this team’s work could be dramatically improved by TMaaS dashboard, and the benefits of a more autonomous system in managing traffic in the city.</p>
<b>Public procurement</b>	Low	<p>Public procurement does not pose a challenge to TMaaS aside from potential delays linked to the typical time-consuming processes. The nature of the project does not offer the space for innovative ways of conducting public procurement as most items to be procured are rather standardised products and services and the main innovative elements in TMaaS will be delivered by its partners. Accordingly, public procurement is not considered an important domain to keep track of as no changes have been observed or are expected to occur in this challenge.</p>
<b>Integrated cross-departmental work</b>	Medium	<p>In an effort to tackle this challenge in TMaaS, one of the city council’s representatives has been acting as liaison with other municipal structures, facilitating the relationship with the multiple city council’s departments. In the past six months, progress has been made as other internal interested parties have manifested their interest in the tool and are exploring ways on how to work together with the TMaaS team.</p>

Challenge	Status	Notes
<b>Participative approach</b>	<b>Low</b>	<p>TMaaS is very strong when it comes to reaching out to wider groups of stakeholders, and the past six months have been particularly important in this domain.</p> <p>Regarding external outreach, multiple activities have been conducted to collect insights in two fronts: from Ghentians, one of the groups of users of the dashboard, and other cities worldwide, potential users of the traffic management component of the dashboard. A second round of external engagement promoted the co-design of the tool with Ghentians and another wider engagement action is planned during the Replicator City Programme, linked to the upscaling challenge.</p> <p>From the internal perspective, the level of collaboration among all TMaaS partners remains quite strong as industrial partners are committed to deliver a tool that is developed in a collaborative manner. The experiences related to the user research have been captured in greater detail in the running text (in <i>Experiences to build upon so far</i>).</p>
<b>M&amp;E</b>	<b>High</b>	<p>Monitoring and Evaluation remains one of the critical challenges in TMaaS.</p> <p>On one hand, it is undeniable the successful development of TMaaS will be a step change in the way the city manages traffic, and the citizens' dashboard has also potential in facilitating the way people move by providing more accurate and reliable information to users and by offering alternative routes or travel modes through the notifications. However, it is yet unclear how the Partnership will be able to demonstrate the value added by the solutions without establishing a framework able to assess the changes in the local situation and demonstrate the added value of the outputs, a critical element in order to build a robust case for future investment, both locally for a scale-up scenario and for transferability purposes.</p>
<b>Financial sustainability</b>	<b>High</b>	<p>As mentioned in the first journal, financial sustainability of the outputs is underpinned by the success of the business model and TMaaS is rather well placed to address this challenge with a complementary team that represents the entire value chain.</p> <p>In this regard, the partnership has initiated its business model work stream, having adopted a Service-Dominant Business Model Radar approach to understand the offering that TMaaS can represent to others.</p> <p>As one of the first activities, the Techno-Economics unit of IDLab (a research group within Ghent University and Imec), has lined-up a workshop with the participation of all project partners to gather inputs on how the different stakeholders understand the value proposition, and explore in a collaborative manner the business potential of the TMaaS end-result as an offering towards mid-sized cities once the project and funding has ended. Rich learnings are expected from this approach, which is why particular attention will be given to it in the next few months.</p>

Challenge	Status	Notes
<b>Communication</b>	<b>Medium</b>	<p>Being a crosscutting challenge that touches on several other implementation challenges, the partnership has been developing considerable efforts to achieve more clarity around the messages communicated.</p> <p>The biggest progress observed during the past six months has been the preparatory work developed for the open call for the Replicator City Programme, for which a robust communication campaign has been planned out. The key challenge in this particular domain lays in identifying the value replicating cities can derive from participating in the programme at their own risk, by investing their own resources (as the open call will only contribute with a symbolic amount of €10.000 to cover for expenses incurred during the six months of testing).</p> <p>In addition, a few processes have been put in place to better align the various communication materials with the project identity. In particular, all documentation produced in the scope of user research and co-design activities is previously reviewed by the communication team in order to ensure consistency in the messaging.</p>
<b>Upscaling</b>	<b>High</b>	<p>There are two key factors to consider in this challenge: the risk of vendor lock-in and interoperability. At the present, the Partnership is looking at how to ensure the solution developed is an open one so that its future sustainability is not dependent on any of the three private companies involved.</p> <p>In addition, one of the approaches the Partnership has adopted to maximise the fit TMaaS with users' needs and preferences is the set-up of use cases to inform the different modules of the solution (this topic will be further explored in the next journal).</p> <p>Transferability is also being addressed through the Replicating City Programme, which is well underway. Another worth noting activity the Partnership has planned if a follow-up action to the city audits, in which experiences will be documented during the programme to validate and review initially identified requirements with the objective of enhance the dashboard's transferability potential.</p>

## 4. Experiences to build upon so far

The intention of the present section is to capture key learnings from TMaaS that have potential value to other urban authorities looking at implementing projects of similar nature. With this in mind, the content was structured in a Q&A guide based on frequently asked questions directed at non-domain-expert practitioners.

Considering wider stakeholder engagement is critical to the successful development of TMaaS, in particular when it comes to ensuring transferability of the outputs, the key take-aways of this journal highlight the work developed in the user research work stream.

### With such small samples, were partners able to derive meaningful conclusions from the research?

Yes. It is critical to note the purpose of the qualitative user research conducted was not to obtain an accurate picture of Ghentians' mobility behaviour or a study on market potential. Instead, the purpose was to explore the multiplicity of views and map out the various possible user needs and preferences of the two different user groups of the dashboard.

As for the ethnographic research, as long as researchers keep in mind this type of approaches help understand the underlying behaviours, attitudes and needs of citizens towards a problem but do not intend to be a statistically significant portrait of the target group, qualitative user research can be an extremely valuable tool to get to know your users.

Nonetheless, processes can always be improved. For instance, upon reflection, researchers concluded that had they reached-out to cities already using tools similar to TMaaS, the interviews would have likely led to richer results, and in particular would have better enabled the mapping of market opportunities for the solution under development instead of being restricted to understanding user needs.

Lastly, a key lesson learnt from this process has been the fact that as important as the sampling criteria, so is the research question (which in its turn influences the sample). A clear understanding of what one wants to investigate right from the beginning is critical to the success of any user research campaign. Not only it will help shape the approach, it will also inform the sample one should select.

### How was the reaction of the users to this engagement?

Overall it was quite positive. The different interviewees reported strong appreciation for having been consulted early in the process. They

were quite willing to cooperate in the future and to spread the word about TMaaS across their network and through their own channels.

### Did the researchers find anything surprising?

Indeed, that is one of the great benefits of user research: you end up discovering things you were not even considering a possibility. In addition,

user research enables the collection of evidence to inform and support decisions that otherwise would likely be made on the basis of suppositions.

## 5. What to expect next

TMaaS is expected to register significant progress during the next six months, namely:

- May 2019: kick-off research regarding the **user interfaces**;
- May 2019: **technical webinar** targeted at city representatives around the world covering the technical details involved in preparing and implementing the TMaaS framework in Ghent – the aim is to raise awareness towards the value of data-driven mobility management and help potential Replicator City Programme applicants to prepare their application;
- June 2019: Closing of the **open call** for the TMaaS Replicator City Programme and appraisal of expressions of interest from other cities around the world;
- July 2019: **First testing phase** of TMaaS prototype by the Mobility Company of the City of Ghent (e.g. professional users only) during Ghent Festival, an event that attracts a significant number of visitors and puts high pressure on the city's mobility system, in particular the local road network.

Urban Innovative Actions (UIA) is an Initiative of the European Union that provides urban areas throughout Europe with resources to test new and unproven solutions to address urban challenges. Based on article 8 of ERDF, the Initiative has a total ERDF budget of EUR 372 million for 2014-2020.

UIA projects will produce a wealth of knowledge stemming from the implementation of the innovative solutions for sustainable urban development that are of interest for city practitioners and stakeholders across the EU. This journal is a paper written by a UIA Expert that captures and disseminates the lessons learnt from the project implementation and the good practices identified. The journals will be structured around the main challenges of implementation identified and faced at local level by UIA projects. They will be published on a regular basis on the UIA website.



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