The Urban Lab of Europe!

JOURNAL

PROJECT

TMaaS - Traffic Management as a Service (Closed)

Ghent, Belgium

TOPIC

Urban mobility

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TMaaS Final Journal

See on UIA website

The final version of the TMaaS project Journal

The TMaaS project Final Journal

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 data of different transport modes as well as inform the citizens about sustainable alternatives to move around the city. The project will create a traffic management system that will crowdsource information from the citizens matching 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 about 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.

TMaaS Partnership

- City of Ghent
- WAYLAY NV - software company
- Be-Mobile Tech NV - private company

- De Staatse Ruiter- private company
- Ghent University
- KU Leuven - education and research institute
- European Passenger's Federation
- TomTom Location Technology Germany GmbH - private company
- TomTom Belgium nv - private company

1. Executive Summary

During the period from January 2021 onwards, after the TMaaS project completion, the project has dealt with further communication, dissemination and knowledge sharing activities, as well as with exploring the possibilities for uptake and continuation of the project's achievements. The present final edition of the TMaaS Journal aims to provide interested readers with information concerning:

Project progress

Developments that took place after the finalization of the project, as well as currently ongoing activities and future plans of the involved entities concerning the long-term sustainability of the project's results.

Generated Knowledge

Lessons learnt by the involved entities during the and after the end of the TMaaS project, which are considered as important to be shared with other urban authorities that are interested in implementing similar innovative projects.

TMaaS Legacy

An overall and final assessment of the TMaaS project, its results and achievements.

2. Project's Progress

2.1 TMaaS activities after the project finalization

During the period after January 2021 and the finalization of the TMaaS project, the City of Ghent, as TMaaS project coordinator and main beneficiary, has implemented a wide range of communication, dissemination and knowledge sharing activities in various events and fora. In a total of 15 occasions and events that took place after January 2021, TMaaS was presented by Sophie Gillaerts as project coordinator to:

- the POLIS Annual Conference 2021
- the Trefdag Digitaal Vlaanderen 2021
- the RSA event "The impact of the Covid-19 Crisis – new behaviours, new challenge for city transport planners"
- UIA-initiated events, related to the program's achievements, EU cohesion policies and future models for UIA innovation projects
- departments of the City of Ghent related to urban mobility and innovation
- other cities in the framework of study and exchange visits at the City of Ghent
- the Flemish ITS Steering Committee
- university students in the framework of academic theses and projects

2.2 TMaaS plan for long-term sustainability

During the TMaaS project the City of Ghent started storing data in a central storage point. APIs were also developed to share this data, e.g., on the Open Data Platform of the City of Ghent. A connection was also made to Power BI, which was the start of making it possible to conduct historical analyses on the data.

The central storage point that TMaaS was using needed to be improved, in order to make it more robust and stable. Additionally, the City of Ghent also wanted to be able to use the real-time data and not only the historical data, and to develop new functionalities, such as an alerting system.

This is why the City started a new project in cooperation with their internal IT partner D09 and with a budget of 62,500 euros they developed the Big Data Platform.

With these new functionalities the City of Ghent wants to continue gathering data to generate output, such as mobility advise for road works or events, but also general traffic information for citizens, or an evaluation of a new traffic light, etc. As a test, a dashboard with real-time data about parking occupation was launched for the 5 day Light Festival that took place in Ghent in November 2021. This dashboard guided the visitors of the festival to parking places, where there were vacant spaces to park their car or bicycle. This temporary dashboard was a success with over 53,000 unique visitors spread over the 5 days. As a result, the City of Ghent decided to make this dashboard a permanent one on their website.

Another important aspect is related to the development of applications that help automating the work of the traffic managers. Up till now, an alerting system has been developed that automatically sends an alert to the traffic manager when something is wrong with the data input.

The City of Ghent will continue to gather real-time data, visualise it and develop other necessary applications, in order to be able to use all their data to reach their policy goals.

3. Generated knowledge

The main lessons learnt by TMaaS can be grouped into four main categories: Stakeholders and User aspects, Technical aspects, Governance and Business aspect and Project Management related aspects.

Stakeholders and Users

- Clearly identify actual problem(s) that the solution/innovation aims to solve

- Clearly define the innovation and differentiate from existing practices

- Clearly define and involve the end users of the developed solution/innovation throughout all stages of development

- Clearly identify user needs, especially in cases of multiple and heterogenous end users

- Keep end users actively engaged throughout the entire project duration

- Definition of typical user stories reflecting the actual use of the solution/innovation by all involved stakeholders assists in achieving a common understanding about the final technology that will be developed early on in the project

- Definition of strictly case-specific requirements may result into the development of solutions/innovations that are difficult to be replicated elsewhere

- Depending on the level of technical maturity of the city, expectations should balance between realistic but not too low ones and ambitious but not over-ambitious ones

- Involvement of all necessary backgrounds and skills (technical and non-technical) required for the development of the solution/innovation is necessary

- Involvement of intra- and inter-departmental representatives, in order to capture various organizational and administrative levels needed for a successful deployment of the final solution/innovation

- Involve as project partners those that are needed to successfully execute the entire project

- Allocate concrete roles and responsibilities to each project partner to achieve intermediate and final milestones and objectives. Be prepared to get external expertise and assistance in case of unclear or uncertain milestones

- In case of (traveller) information services provided to the general public, information should be the minimum required, provided in the most understandable possible way

Technical aspects

- Assistance by domain experts is needed by cities, to overcome difficulties in novel and not widely known domains, e.g., multi-source traffic and travel data exploitation for traveller information and traffic management purposes

- Data requirements need to be carefully defined, in order to allow flawless operations of the final solution/innovation

- The final solution/innovation needs to be designed and developed taking into account the actual available/accessible data and the actual quality thereof.

- Data ownership, licensing and access/use rights need to be clearly defined and known

- Data quality and update frequency should be carefully assessed, also for varying types and requirements of data use by the developed solution/innovation

- Efficient and reliable data integration mechanisms need to be established at back-end systems level of the developed solution/integration, especially for cases of multiple data sources from multiple data providers being fused for operational, real-time traffic management purposes

- Technical system architectures need to be flexible enough to account for different non-technical contexts, in order to support replication capabilities in other cities and ecosystems

- Emerging trends in the mobility domain, e.g., e-scooters, need to be accounted for, in order to reflect the actual mobility patterns of citizens

- Emerging developments in the technology domain need also to be accounted for, in order to develop a long-lasting and valid solution/innovation

- Existing datasets are mostly focused on private vehicle traffic. Multimodal traffic and travel data from public transport operators, pedestrians and soft modes of transport are not yet widely available.

Governance and business

- Open communication among project partners allow to better cope with varying expectations and limitations

- Engagement of “neutral” organizations, e.g., universities, can assist in overcoming hesitations or limitations of private companies involved in the project

- Costs for the development of novel yet complex traveller information and traffic management solutions/innovations can be difficultly sustained by a small or medium sized city

Project Management

- Innovation projects like TMaaS require a right balance between research/innovation, which is open-ended, and result oriented approaches

- Project management needs to be able to adopt to the multi-faceted challenges and difficulties met during the execution of an innovation project

- Project planning should set the guiding principles, roles and responsibilities. Yet, it needs to allow for flexibility and course corrections, whenever needed.

General remarks

Despite the challenges met during the execution of the TMaaS project, the City of Ghent has enjoyed its participation and gained valuable knowledge and experiences. Its wish and objective is to be able to communicate those to any other interested city.

The public-private cooperation between the City of Ghent and private sector companies has been a win-win situation. On the one hand, the city itself has paved the way for innovation being taken up by the public sector, e.g., promotion of open data and of the data sharing paradigm. On the other hand, private partners have been able to receive continuous feedback from the end users of the technologies they developed. Open and continuous communication between partners is key to achieve the above.

Finally, local policy goals and citizens needs shall always be reflected within the activities of the innovation project.

4. Conclusions - the TMaaS Legacy

TMaaS has been a highly successful project, irrespective of the challenging period during which it was implemented and the various challenges (technical and non-technical) faced by the consortium partners.

The primary achievement worth mentioning is the visibility of the project at European and global level, which has been very high. For sure this is a best practice that needs to be adopted by other similar projects in the future. Along these lines, the TMaaS Replicator City Program has significantly boosted the outreach and the extroversion of the project.

Furthermore, the project has made significant contributions at technical level, by developing a novel traveller information and traffic management as a service platform that efficiently utilizes multi-source data. The collaboration between city authorities and private companies has proven as necessary, to identify and overcome barriers related to the exchange and utilization.

At non-technical level, TMaaS has highlighted the importance of public-private collaboration that is necessary for the successful delivery of innovation projects of that kind and complexity. Also, TMaaS has shown that open and collaborative approaches engaging all needed stakeholders contributes to the successful delivery of results that are beneficial and viable for all.

Further utilization and integration of results of currently ongoing initiatives that take place at European level, such as the National Access Points and the Mobility Data Space can further contribute to the pathway that TMaaS has initiated, in the domains of traffic and travel data utilization for traveller information and traffic management services.