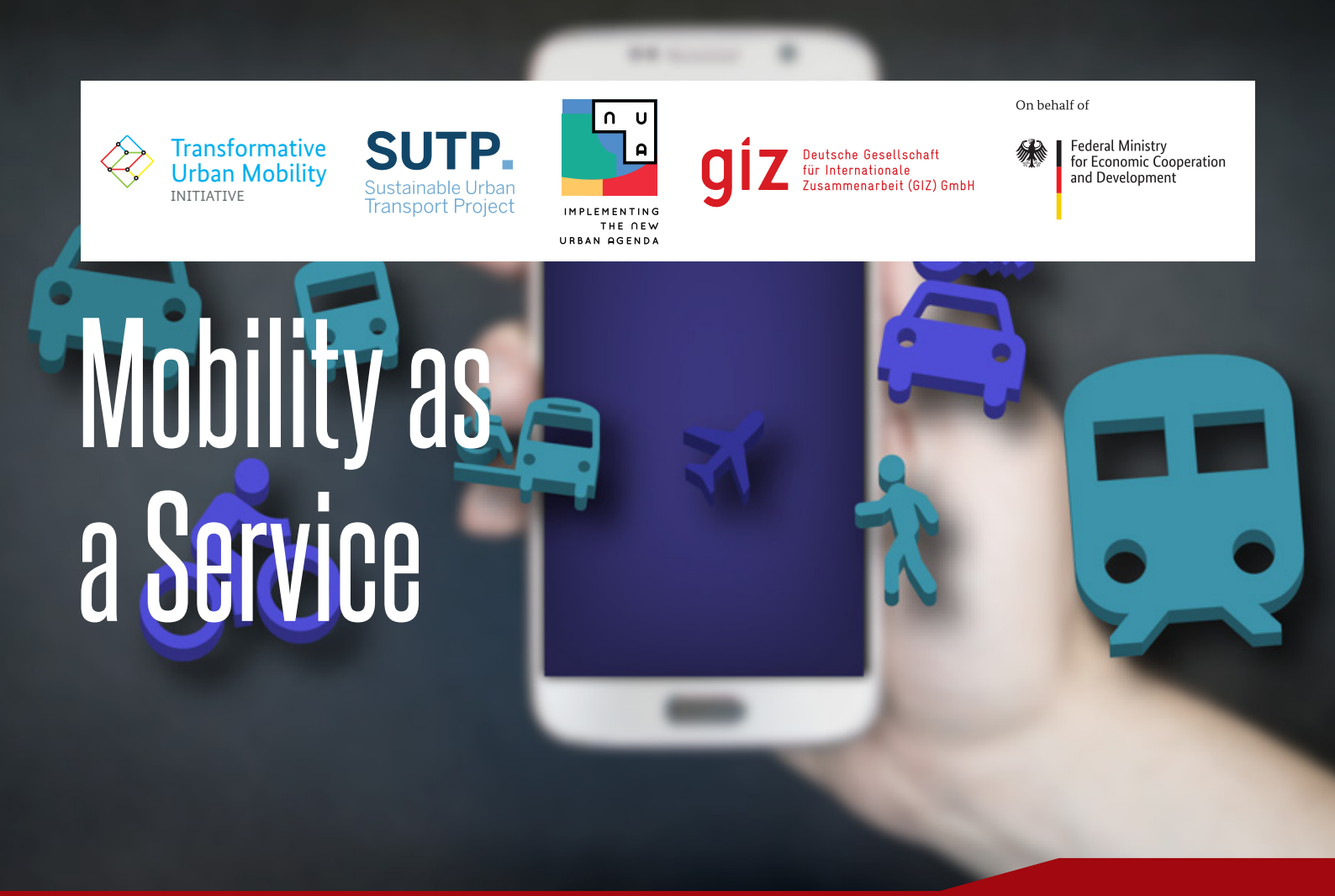
Transformative Urban Mobility INITIATIVE

SUTP. Sustainable Urban Transport Project

IMPLEMENTING THE NEW URBAN AGENDA

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

On behalf of Federal Ministry for Economic Cooperation and Development



Mobility as a Service

iNUA #7: Mobility-as-a-Service

"We will support the development of these mechanisms and frameworks, based on sustainable national urban transport and mobility policies, for sustainable, open and transparent procurement and regulation of **transport and mobility** services in urban and metropolitan areas, including new technology that enables **shared mobility services**. [...]"

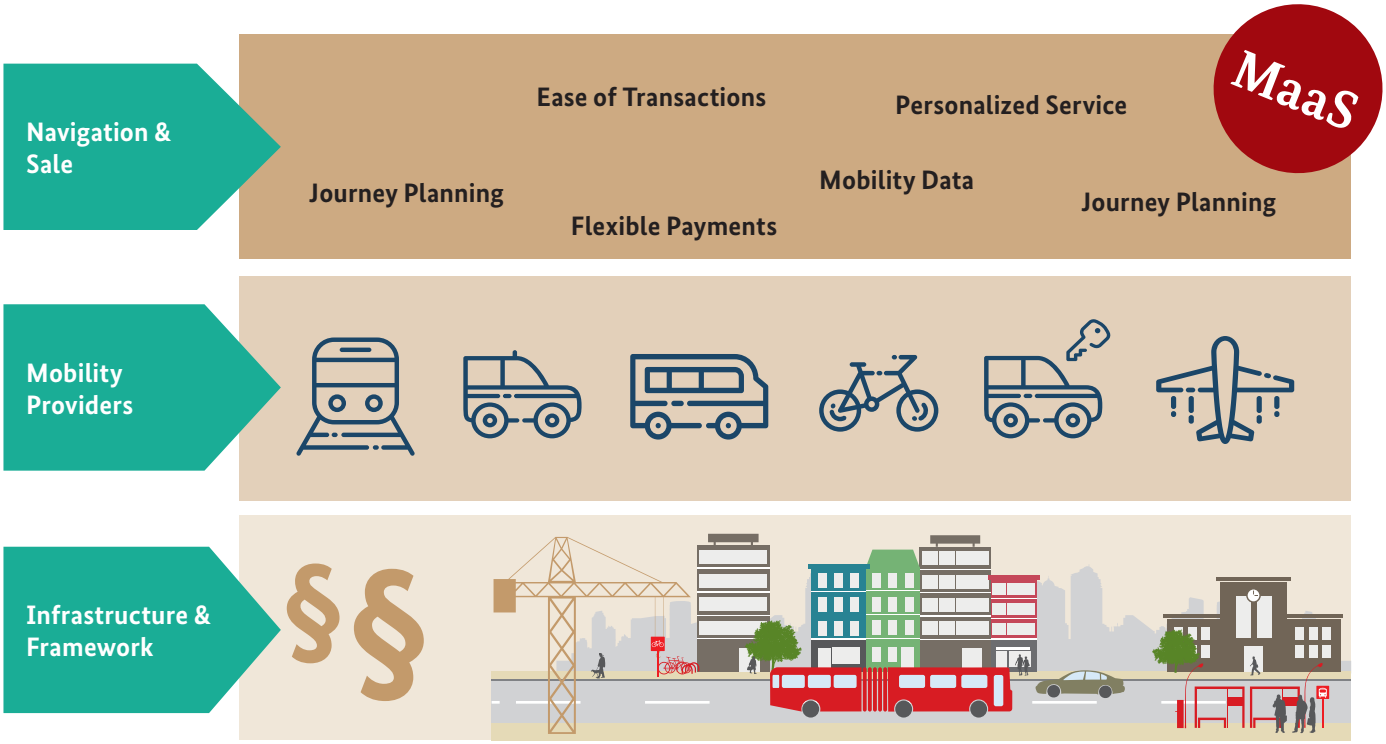
New Urban Agenda #116

New mobility solutions such as car-, bike- and ridesharing are becoming more and more important in the context of ever-growing cities. This increases traffic congestion and pressure on the transport networks. The approach of offering services for multimodal transport (trips involving different modes of transport) and shared transportation services is already gaining widespread acceptance. By adopting new technology, urban planning and business models, developing cities get the chance to leapfrog the car oriented transportation paradigm that industrialized countries experienced during the 1960s. New forms of mobility, as well as the conventional (private or public) forms, often remain isolated in cities. The smartest way is to bundle them all and create a platform that guarantees accessible and affordable mobility for everyone.

1. What is MaaS and why do cities need it?

"Mobility as a Service (MaaS) is the integration of various forms of transport services into a single mobility service accessible on demand" (MaaS Alliance 2017).

In municipalities, MaaS creates a wide range of services for users and thus offer an alternative to the own car. The model contains and integrates components of concepts that already exist such as integration, interconnectivity and optimization of transport services as well as smart and seamless mobility. New concepts that have emerged through the Internet of Things and the sharing economy, such as the term "as a service" and personal modification of travel are also added. The diverse means of transport options in the locally offered MaaS can be a variation of e.g. public transport, ride- car- or bike-sharing, taxi, car rental or lease. By providing a single payment channel instead of numerous ticket and payment operations, this comprehensive approach makes it possible to transform an existing inflexible transport system into a more versatile structure. Ultimately, MaaS is a digital platform for end-to-end route planning, booking, electronic ticketing and payment services involving all means of transport regardless of whether public or private. The concept is based on a user-centric model that puts the demand first.



MaaS as Over-the-Top Service

People get the possibility to travel from A to B in a cheaper and in an equally convenient and faster way without having to own a car. Therefore, different criteria such as the greenest, fastest or cheapest route can be selected. In addition, MaaS creates benefits in many more ways and thereby affects several actors:

Benefits for different actors

- **Consumers:** tailored mobility depending on the specific situation for the users' needs
- **Traffic and other operators:** increased profit
- **Municipalities:** better service-level for citizens, mobility data on travel behaviour, budget savings, better air quality, decrease of congestion, etc.
- **Other companies:** platform to integrate services

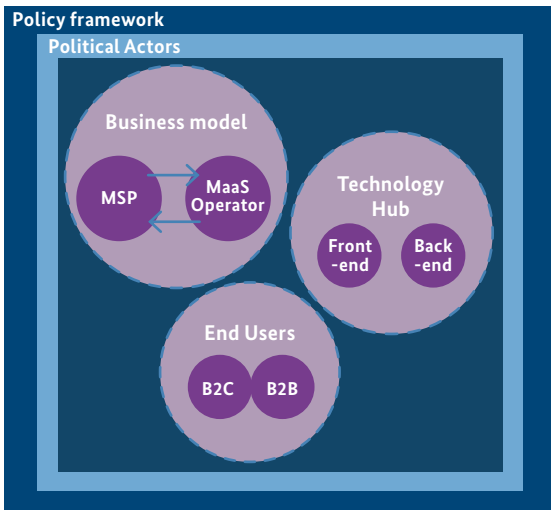
In developing countries, there are often many unregulated informal mobility services. MaaS would offer a good chance to regulate and combine them with public transport. As a result, cities will be given the opportunity to take a pioneering role in an extremely important context. They will be able to take a best practice position not only nationally but also globally by fostering innovation. Thus cities become more interesting for start-ups working on new mobility solutions. This chain of effects can make a city highly attractive.

2. The MaaS ecosystem

What separates a MaaS model from other demand-driven models is the collaboration and communication between the involved parties. The objective is to create a dynamic and open market involving all partners. This would offer a seamless door-to-door mobility, enabling smooth travel without the use of fragmented services. In a figurative sense, the mobile phone or application itself is the key to personalized mobility, facilitating payment and ticket handling.

The ecosystem addresses various elements. In order for the system to function, these areas need to be closely connected.

The **business model** includes tasks such as financing, legal and most importantly the organisational structures that bring together public and private actors. The Mobility Service Providers (MSP) represent this domain and offer concrete modes of transport. They do not communicate with end users but with the **MaaS operator**, who constitutes the unique selling point of the MaaS approach and therefore distinguishes itself from other approaches. The operator is responsible for managing the complex structures and can be carried out by either a private provider or the local transport authority. Choosing the local transport authority would secure the inclusion of all modes of public transport. In addition, municipal administrations can have the authorization of private providers and thus gain even more influence on the MaaS system. By being more closely involved in traffic regulation itself, it would save time to set up the system. On the contrary, private companies can also take on this role and promise a faster development of the market. The **technology element** is the centre that connects the front-end and back-end technologies. These provide the interface that bundles the services planning, booking, ticketing and payment functions. As we have already established, the **end user** plays a major role in this concept and the aim should be to provide the best possible experience. The framing component is the **policy domain** where political actors set the regulatory foundations to enable the MaaS model and make it successful.



3. What can Mayors do?

In the process of implementing a MaaS ecosystem, the municipalities are seen as enablers. To ensure a wide and diverse choice of mobility providers to the customers the transport and municipal authorities in general play a major role. Therefore, they need to step in during the three stages of implementing a MaaS with different intensity of involvement. Policymakers should consider some key issues as they determine how to best integrate new mobility services with municipal transportation systems.

a. Current State of Transportation

The first step is operating and preparation in the current state of transport delivery. In this stage, municipalities often show a disjointed system of journey planning and ticketing without sharing data. This results in a low multimodal behaviour and leaves transport authorities to make the first steps.

- First of all acknowledging that **stakeholder collaboration is key**! This goes for municipal government as well as for private companies. By forming a Public-Private-Partnership, both parties will be able to support each other. Public authorities can benefit from the capital and innovation capabilities that the private sector can provide.
- **Gaining an overview** about all private companies as a starting point! By knowing which companies operate in a city the local government gains information on how people are able to move around. Furthermore, it's important to create a strategic plan on how to establish partnerships and with whom.
- **Public Transport** is one of the most important assets of mobility options as it builds the base of all modes of transport. Therefore, it's crucial to invest in infrastructure and assets beforehand to sustain and provide a good basis for people to get around the city.

b. Building a MaaS ecosystem

In the next phase the municipal government needs to get further into the implementing process and has the highest involvement. While entering deeper into matter, cooperation between transport authorities, government transport operators and private businesses gains importance. This phase is expressed by the shift towards enablement that paves the way for the development of a MaaS system.

- **Customer contract and travel data** - The aim is to configure a single interface with provision of services from all partners. The platform operator will have access to the customer's travel data, which is important in order to be able to respond to the customer's requirements and provide a flexible system. One of the biggest security issues is data protection. Therefore, it's important for municipalities to set ground rules and regulations that address the equal access of all providers to travel data.
- **Technical Infrastructure** - The Information and Communication Technology (ICT) is the backbone of the whole MaaS system. By creating an open technology architecture municipalities provide access to a dynamic mobility system. In this way, private partners can integrate into the system easily and new members can be added later on as well. For the municipal authorities, this entails the establishment of regulations. It's necessary to authorize standardized technical infrastructure to ensure that sub-systems like parking management can be implemented easily as well.
- **Ensure a diverse MaaS service operator field** – Implementing a MaaS system includes the requirement of precise coordination (fare integration, minimum service standards and service area coordination of demand responsive transport services).

  In order to avoid privatisation of operation taking over the system, it is important to find a balance between public and private companies. Decision makers are therefore obliged to make all necessary adjustments to the existing and future services in order to achieve economic and ecological success (e.g. exclusive market access vs. allowance of competition).
- In this phase, the role of the **MaaS operator** should be determined, who sets everything in place and handles further communication between all parties.

c. Operate a MaaS system

In the final phase the MaaS system is in place and needs to be operated on a constant level. Public authorities and government can now lessen control of public transport and let commercial partners take over more control. These enterprises often have widespread knowledge and understanding about user needs and travel behaviour. However, transport authorities need to retain a market overview and provide operational support for the involved parties.

It should not necessarily be the objective to create a MaaS ecosystem from scratch. Often a city does not yet have sufficient infrastructure or private mobility operators to create a system that offers a wide range of options. But an important step forward can be taken by enabling companies to settle down and prepare the necessary infrastructure. That way it becomes easy to take the final steps towards a dynamic and reliable MaaS model.

4. Where to learn from?

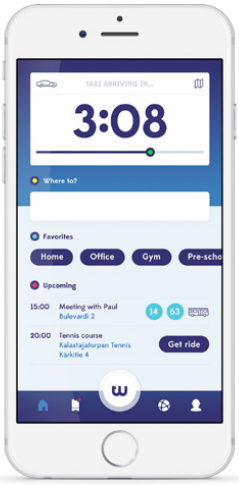
To understand the possibilities MaaS could provide a municipality with, it is beneficial to have a look at good examples of cities that have implemented such an ecosystem. Although most of the examples to date can be found in Europe, the topic is growing worldwide immensely. Intelligent mobility solutions are also becoming increasingly important at a global level and thus in emerging economies. In this sense, it can be seen as a stepping stone to a well-functioning city.

- **Whim**: In Helsinki, Finland's capital, an efficient and diverse public transport system already existed when the MaaS concept was intended to be integrated into the city. The city offers a wide range of alternatives to get from one place to another. MaaS Global, a start-up company founded in 2015, wanted to use MaaS to reduce the importance of owning a car by 2025 even more.

  The concept of Whim is a single integrated mobility app that can access different means of transport by purchasing a subscription and can also handle ticketing if needed. As with the ownership of a car, users obtain the spontaneity to be able to travel easily. The overall effect of this concept is changing the way people move.

  Within the app users can choose between three options. The first option is free of charge and single rides can be paid for in advance. The second choice is an offer including an unlimited public transport ticket and several rides on a car-sharing vehicle or a taxi. The last alternative provides an unlimited use of all vehicles. Those include public transport, taxi, car sharing and shared bikes.

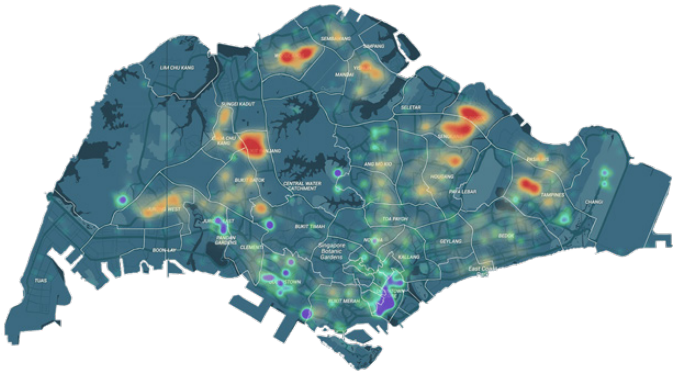
  The company made its breakthrough when the local transport authority provided its open data as interface



Interface of the Whim App, Author: MaaS Global

services and data packages. This case shows that an openly shared API (Application Programming Interface) is an important success factor to initiate the process in a city. Another big success driver that MaaS Global benefitted from is the cooperation between private and public companies. Combining these facts Whim is constantly growing and gaining acceptance.

- Beeline: In 2015 Singapore's Government Technology Agency (GovTech) and the Land Transport Authority (LTA) came together and created the transport app Beeline. The application supplies a demand driven approach where users can pre-book bus routes and track the buses to provide door-to-door mobility. Although it is not a complete MaaS system (currently officially considered a vision), there are certain things to take into account when trying to build one. The bus network is crowdsourced with the chance for users to suggest further routes. The collaboration between the governmental institutions and academia has led to anonymous and aggregated public transport data as well as user demands being the basis for a clear map of demand. In this way new bus operators are encouraged to settle and provide new bus routes that has not yet been covered.



Heatmap of crowdsourced routes, Author: Beeline

In the end by forming Public-Private-Partnerships and providing open data the government was able to create sufficient incentives for private companies to settle. As a result, the city has gained new forms of mobility and became interesting for start-ups and other mobility providers.

Involved parties:

- Government agencies
- Infocomm Development Authority of Singapore
- Authority and Land Transport Authority
- Transportation operators
- Academia
- Private sector

There are already a few resources available to help cities by implementing a MaaS ecosystem:

MaaS Alliance: White Paper
Guidelines & Recommendations to create the foundation for a thriving MaaS ecosystem
www.maas-alliance.eu

Deloitte Review: The rise of mobility as a service, Issue 20
Reshaping how urbanities get around
www.deloitte.com
Watch a video on "Ben's journey" here!

MaaS Lab
The research team is part of the Urban Transport and Energy Group at University College London. They publish news and publications on MaaS and developed the MaaS Maturity Index.
www.maaslab.org

WRI: Connected Urban Growth: Public-Private Collaborations for Transforming Urban Mobility
The working paper holds recommendations for decision makers.
www.wri.org

UITP: Public transport at the heart of the integrated urban mobility solution
A policy brief on new mobility solutions and public transport.
www.uitp.org

Published by:
Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Registered offices
Bonn and Eschborn, Germany

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Eschborn 2018

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