



# **Analysis of cooperation models among public and private parties**

30/04/2020

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 824273.

## SUMMARY SHEET

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<b>Deliverable No.</b>	2.3
<b>Project Acronym</b>	GECKO
<b>Full Title</b>	Governance principles and mEthods enabling deCision maKers to manage and regulate the changing mObility systems
<b>Grant Agreement No.</b>	824273
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<b>Peer Review</b>	Jayant Sangwan, CORTE
<b>Quality Assurance Committee Review</b>	Ping-Jen, UCL
<b>Date</b>	30/04/2020
<b>Status</b>	Final
<b>Dissemination level</b>	Public
<b>Abstract</b>	Deliverable 2.3 provides an analysis of the cooperation models among public and private parties for new mobility solutions.
<b>Version</b>	1.0
<b>Workpackage No.</b>	2
<b>Workpackage Title</b>	Regulatory and governance frameworks
<b>Programme</b>	Horizon 2020
<b>Coordinator</b>	UITP – The International Association of Public Transport
<b>Website</b>	<a href="http://www.h2020-gecko.eu">www.h2020-gecko.eu</a>
<b>Starting date</b>	December 2018
<b>Number of months</b>	30

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This report is subject to a disclaimer and copyright. This report has been carried out under a contract awarded by the European Commission, contract number: 824273. The content of this publication is the sole responsibility of the GECKO project.



## CONTRIBUTING PARTNERS

<b>Organisation</b>	<b>Country</b>	<b>Abbreviation</b>
UNION INTERNATIONALE DES TRANSPORTS PUBLICS	Belgium	UITP
POLIS - PROMOTION OF OPERATIONAL LINKS WITH INTEGRATED SERVICES, ASSOCIATION INTERNATIONALE	Belgium	POLIS
IRU PROJECTS ASBL	Belgium	IRU
CONFEDERATION OF ORGANISATIONS IN ROAD TRANSPORT ENFORCEMENT AISBL	Belgium	CORTE

## DOCUMENT HISTORY

Version	Date	Organisation	Main area of changes	Comments
0.1	23/07/2019	UITP	Table of contents	
0.2	20/09/2019	UITP	Draft chapters 3 and 4 and case study template	
0.3	11/10/2019	POLIS, IRU	Completed case studies integrated	
0.4	09/03/2020	UITP	Deliverable update	
0.5	02/04/2020	CORTE	Peer review	
1.0	20/04/2020	UITP	Final review	

## LIST OF ACRONYMS

**DRT** - Demand Responsive Transport  
**EC** - European Commission  
**IDF** - Île-de-France  
**IT** - Information Technology  
**LTA** - Land Transport Authority  
**MaaS** - Mobility as a Service  
**MoU** - Memorandum of Understanding  
**NMS** - New Mobility Services  
**OEM** - Original Equipment Manufacturer  
**SOE** - State-Owned Enterprises  
**TfL** - Transport for London  
**TNC** - Transport Network Companies  
**PPP** - Public-Private Partnership  
**PTA** - Public Transport Authority  
**PTO** - Public Transport Operators

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# 1. EXECUTIVE SUMMARY

Deliverable 2.3 provides an analysis of the cooperation models among public and private parties for new mobility solutions. The research team conducted desk research, surveys, workshops and semi-structured interviews with public authorities and private sector stakeholders. This to investigate the actors involved in public and private cooperation, the relationship, the formality of the relationship, the satisfaction with the relationship, barriers to cooperation, barriers to data sharing and solutions to improve the cooperation.

The entrance of new mobility players challenges the way public authorities regiment the relationship with service providers; namely the traditional contractual framework. Contracts based on detailed specifications, coupled with competition can constitute a rigid framework that prevents public transport services to evolve as well. Therefore instruments such as a memorandum of understanding that evolve over time can be preferred. If chosen for a more formal relationship, then contracts are shown to be Software-as-a-Service, Management contracts, Concessions and Licences. The selection of potential partners among new mobility players for public authorities should be based on the evidence of the positive impacts, hence the role of data in the process. Data can also play a role in enforcement and compliance related interactions between public and private sector entities, facilitating a smooth hassle-free experience, through smart enforcement techniques.

The case studies show that there are opportunities for providers of new mobility solutions to collaborate with public authorities in ways that contribute to more integrated and efficient urban transport systems.

The pre-workshop questionnaire for GECKO Stakeholders confirm that public authorities and industry stakeholders can have various relationships. These could include sharing information informally, a non-binding Memorandum of Understanding or signing a contract. The stakeholders however widely recognised that the formality of their relationship is currently working but they foresee a need for more clarity in the future. Solutions to facilitate cooperation between public and private parties could include: platforms that bring together public and private parties, living labs and neutrality commissions that can help break silos at a vertical level and at a horizontal level for public-private cooperation, providing legislation and regulation from public authorities and sharing anonymised data with the private sector for business development.



# 1.ABOUT GECKO

The rapid proliferation of new technologies and disruptive innovations are taking the world by storm, threatening well established players across many sectors. Regulators and decision-makers at different levels of government are overwhelmed by the challenge, acknowledging that existing frameworks may be inadequate in terms of protecting society, fostering business development and achieving integrated, sustainable mobility.

GECKO's main goal is to support authorities with tools and recommendations for new regulatory frameworks to lead the transition to the new mobility era of cooperative, inclusive, competitive, sustainable and interconnected mobility across all modes, through evidence-based research.

GECKO provides a holistic approach with innovative concepts, methodologies and forward-looking tools to enable this transition to take place, leading to new, adaptive and anticipatory regulatory schemes and balanced governance.

The project aims to build on the strong networks of its partners to ensure solutions are co-designed and validated. Several key indicators and cooperation models will help to develop the Regulatory Frameworks Dashboard (a tool being developed within the framework of GECKO), through which the maturity of given regulations can be judged with respect to emerging mobility solutions.

GECKO will outline an implementation plan including actions required up to 2040 for policy makers to devise regulatory approaches for disruptive innovations and new regulatory frameworks streamlining uptake. GECKO will advise policy makers on challenges and policies that need to be addressed to move towards integrated, accessible and sustainable mobility across modes for both passenger and freight transport.

The project will provide recommendations to policy makers to enable adaptive and anticipatory regulatory schemes and governance with novel policies that contribute to sustainable mobility goals.

## 2. INTRODUCTION

Following the analysis of regulatory responses and governance models set out in Deliverable 2.1, this deliverable focuses on the cooperation models between public and private parties. Each cooperation model has various aspects. Therefore, different cases are also introduced and discussed in order to capture the picture of cooperation between public authorities and new mobility solutions.

The following are descriptions of key terms used in the deliverable:

- The term governance is also key in this research. Governance is defined by the OECD as “**the exercise of political, economic and administrative authority necessary to manage a nation’s affairs**<sup>1</sup>.” The definition can be broadened for the purpose of this research to include European, international and regional levels and not be limited at the national level. Questions linked to the concept of governance are: who has a voice in the decision process? How are the decisions made? And who is accountable once a decision has been made? <sup>2</sup>.
- Another key notion to present is the notion of good governance, which can be characterised by “participation, transparency, accountability, rule of law, effectiveness, and equity etc. <sup>3</sup>.”
- For the purposes of this study, the PPP Knowledge Lab<sup>4</sup> defines a Public-Private Partnership (PPP) as "a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance". PPPs typically do not include service contracts or turnkey construction contracts, which are categorized as public procurement projects, or the privatization of utilities where there is a limited ongoing role for the public sector.



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<sup>1</sup> [OECD Glossary of statistical terms.](#)

<sup>2</sup> [Institute of governance, defining, governance.](#)

<sup>3</sup> [OECD Glossary of Statistical term.](#)

<sup>4</sup> <https://pppknowledgelab.org/>

## 3. GOVERNANCE

### 3.1 The problematic character of governance

The delivery of urban transport services and their management is part of broader public management reforms. It now depends on a network of actors and agencies which might have different interests and purposes and act at multiple levels of government.

In general, public interventions in the transport domain are plural, but dispersed, not necessarily coordinated or even contradictory. Transport competencies are spread over different administrations and jurisdictions. In such fragmented institutional landscape, a silo mentality dominates. Acknowledging the problematic nature of the governance of Urban Mobility Systems, many countries chose to rather rely on the market, which was deemed more agile and able to provide for changing social needs. This is why many policies aimed at not interfering with market mechanisms, favouring *laissez faire* approaches. To understand this trend, the development of paratransit in emerging economies and low income countries is insightful.

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**Box: The *laissez faire* governance approach to paratransit**

Cities in emerging economies and low income countries have already been disrupted in the past with the development of paratransit. These cities experienced the motorization era differently than Western economies. Due to economic circumstances and the lack of resources, governments did not invest in rail and mass transit infrastructures. At the same time these cities were attracting a rural population in search for jobs and opportunities. People started to concentrate in cities, often settling at the fringe of the urban territory. A phenomenon that encouraged sprawl and gave rise to informal neighbourhood, often coined slum. Planning capacities and public utilities could not follow the growth to provide basic services such as water, sanitation and transport. As people could not afford cars, communities organized to respond to the mobility needs, hence the emergence of paratransit that is small scale, unscheduled, often involves illegal services operated under for-profit entrepreneurial schemes. This phenomenon was exacerbated by series of “wrong” choices in the traditional bus sector, especially regarding fares. Many cities adopted a flat fare structure which has apparent social benefits making the service more affordable for the poor. However, the level of fare was not set sufficiently high to allow bus companies to cross-subsidize longer routes. In places where public budgets were low, this loss of revenue was not subject to public compensation putting pressure on the operation and maintenance of traditional buses. Many public bus companies went bankrupt and paratransit flourished to fill the gap. Concurrent to the lack of public capacities, the proliferation of paratransit was encouraged by *laissez-faire* policies as, at that time, paratransit meant that the market could provide for population mobility needs alone. Such a standpoint led to an extreme situation since nowadays paratransit involves low quality of services and negative externalities such as safety, congestion and pollution.

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The paratransit experience demonstrates that the long-term impacts of disruption depend on what happens in the public sector as well. This is an important point because disruption and innovation are commonly associated with the market, neglecting how public intervention and regulation shape the development of subsequent services. The question is therefore whether we can learn from the paratransit experience in order to manage the current disruption. The answer is yes, but only in retrospect. It is only now that it became possible to point out the institutional mistakes of the past.

Like paratransit, new mobility services might involve negative consequences if the institutional response is not adequate. These services also emerge in grey space, with an informal or even illegal character and they rely on the technology of our time to respond to changing social needs. However, in most US and European cities, their development clashes with and falls into existing regulatory framework and legislations. This is how the taxi regulation applied to Transport Network Companies (TNCs) in first instance, lead to a ban. Such a mechanistic response might affect cities' competitiveness in the long run as it stifles innovation and prevents Urban Mobility Systems to evolve. Yet, some cities seem to do better than others; especially those that have established a Public Transport Authority (PTA), because where there is a PTA there is a commitment to sustainability and coordinated actions to drive the Urban Mobility System on this path.

### 3.2 Public transport authorities dealing with institutional complexity

PTAs are present in all continents, but their size and competencies vary from one city to another. They are not static bodies and evolve according to complex political forces and the challenges of their time.

In Western Europe, PTAs emerged in a context of shrinking state budget as part of decentralization processes that transferred responsibilities for public services planning, management and delivery to local governments. While PTAs can only be understood in relation to State reform, there is large disparities among regions and within countries. For example, *Transport for London* (TfL) that is London's PTA has been for long time an exception within the UK. The governance model under which TfL operates and the powers that it holds enable it to have much greater control over London's transport system compared to other UK cities. Some PTAs are also dismantled as the Land Public Transport Commission (SPAD) in Kuala Lumpur, Malaysia and the Transport and Development Authority (TDA) in Cape Town, South Africa.

Looking at PTAs global trend, there is no typical pattern that can explain the way they develop. This suggests that when it comes to what led to the setting-up of PTAs, each city is unique. Still, PTAs remain a model of governance for many cities in emerging economies and low income countries. This is why the World Bank funded the settlement of the Lagos Metropolitan Area Transport Authority (LAMATA) in Lagos, Nigeria.

In general, it is observed that cities which established a PTA are likely to do better in light of the current disruption, compared to those cities which did not. This is because cities with a PTA tend to already implement consistent transport policies, creating the conditions necessary for sustainability.

For example, Consorcio Regional de Transportes de Madrid (CRTM) in Madrid, Spain increased public transport ridership with fare and ticket integration. Also, more and more PTAs are innovating for the health of citizens. In Gothenburg, Sweden, Västtrafik and politicians made different scenarios regarding the progress of technology and autonomous vehicles, as well as the risks and opportunities they involve. Among the identified opportunities is the emergence of a fleet of shared autonomous vehicles that would complement public transport. This reflects the commitment to promote car sharing with a policy package that reinforces sustainability. Such a package consists of delivering high quality public transport, penalizing individual cars, stopping privilege in congested area, and providing special parking place for pooled vehicles as well as other price incentives (See 7.1.1 Connected and Automated Vehicles).

The establishment of PTAs comes with a certain form of consolidation at the institutional level. It often starts from integrating all transport functions within a single organizational structure at the local sphere of government. It then consists in separating political, strategic and tactic decisions from operational concerns. PTAs represent an entity capable to make sense of Urban Mobility Systems as a whole and articulate strategies that include all modes but also how their configuration impacts the city. Cities are complex systems and transport should not be seen in isolation. To support this point, we can recollect the relation with land use which, in some contexts, led to extend PTAs competencies to real estate in order to foster synergies between transport and land development. In this sense, PTAs work horizontally to maximize citizen's welfare.

In turn, such a positive outcome provides solid arguments to (re)negotiate governance frameworks along their vertical dimension, aligning the numerous actors and stakeholders that populate the public and private sectors, thus providing a more consistent character to the frameworks. This process is all the more virtuous, as it is self-reinforcing. Based on the emerging evidence, it provides confidence in formulating impact-driven responses, capturing uncertainty over time. Subsequently, when it comes to the selection of potential partners for collaboration, the way PTAs operate and engage with new players matters more than the organizational boundaries and area of competency of PTAs.

In sum, governing Urban Mobility Systems at the age of disruption raises an organizational issue. Beyond the public-private divide, it requires an understanding of the way public sector and the market mutually support each other to deliver services to citizens, focussing on interdependencies and synergies. Public interventions and regulation are often conceived top-down from the State to local governments along a clear chain of command. This emphasises governance's *vertical* dimension but neglects the bottom-up process by which cities' officials engage with markets and new players to make the places where we want to live. From this perspective, the establishment of PTAs should be viewed as increased public capacities towards

the emergence of public-private collaborations and cooperation models that develop *horizontally* at the local level. The next part will explain how this manifests in practice. To do so, it relies on Governance and Network Theories (Kickert, Klijn, & Koppenjan, 1997; Rhodes, 1997; Stocker, 1998.), which constitute a useful conceptual framework to make sense of public intervention's context and how it is performed.



## 4. THE RISE OF PUBLIC-PRIVE PARTNERSHIPS

Cooperation models between the public and the private sectors, here the new players, are part of broader efforts of collaboration to enhance the delivery of transport services. As mentioned earlier the public sector is nebulous made of diverse agencies whose actions need to be coordinated. PTAs might constitute an adequate institutional setting to drive this process. Drawing on Governance and Network Theories, this part explains how cooperation models emerge and build in practice. It focuses on the rise of partnership, commonly referred to as Public-Private Partnership (PPP) in the literature.

Public-private partnerships take a wide range of forms varying in the extent of involvement of and risk taken by the private party. The terms of a PPP are typically set out in a contract or agreement to outline the responsibilities of each party and clearly allocate risk. Figure 1 below depicts the spectrum of PPP agreements<sup>5</sup>.



Figure 1: Types of Public-Private Partnership Agreements

Figure 2 indicates how different PPP structures might fit in the context of responsibility for service provision and control of assets.

<sup>5</sup> Understanding Options for Public-Private Partnerships in Infrastructure: Sorting out the forest from the trees: BOT, DBFO, DCMF, concession, leases, J.Delmon, 2010 (pdf).

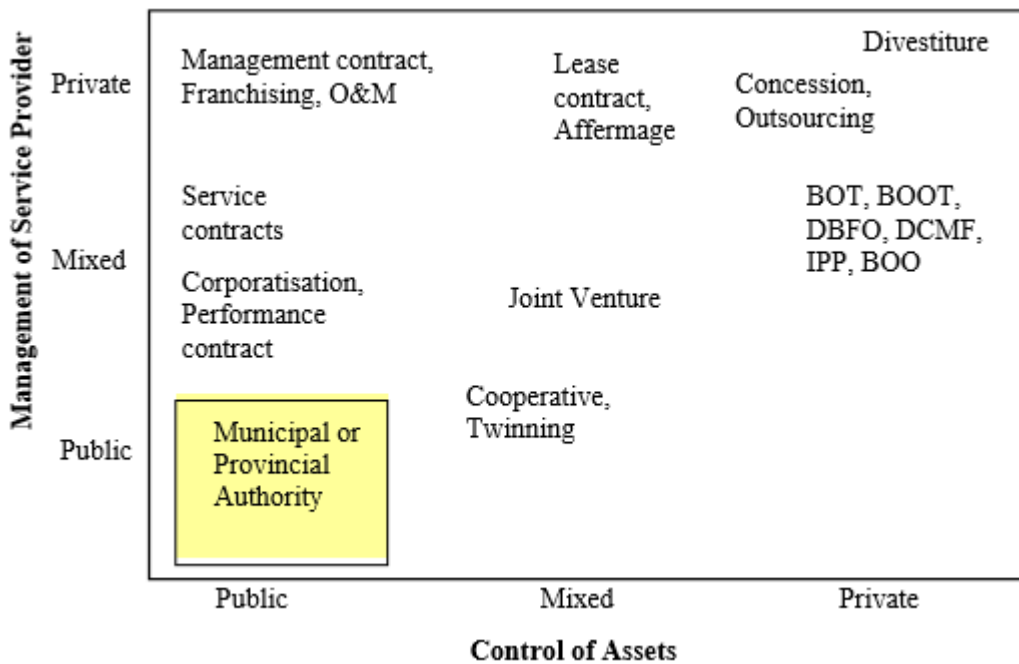


Figure 2: PPP management of service provider and control of assets

## 4.1 Public-Private Partnerships

The PPP takes place in networks and accounts for different groups of actors. These groups are not considered homogeneous entities, but instead multi-headed organisations that require different steering and management strategies (Klijn & Koppenjan, 2016). Governance suggests an environment where there is no clear chain of command and where structures and arrangements are not a sole matter of choices but involve complex institutional processes. This would apply to the emergence of constraints and enablers that go far beyond decisions by PTAs, which are also subject to global institutional phenomena (Koch & Buser, 2006).

In this regard, the PPP acknowledges that PTAs need to comply with public legislation, defined at national or supra-national levels. Yet at the micro-level, PPP emphasises the need for coordination to enable multi-parties and stakeholders to work together. The problematic aspect of the PPP subsequently does not lie in the public or private nature of the network but in partnership, the conditions for collaboration (Fabianski, 2017; Hodge & Greve, 2008; Linder, 1999; Weihe, 2006; Wettenhall, 2003). In this vein, the effectiveness of cooperation models depends on interactions (Kickert et al., 1997; Kooiman, 1993; Rhodes, 1997) whereby all actors commit to jointly develop the services.

Through these interactions, situations can be faced where there is uncertainty over the service that needs to be delivered. The partnership perspective pays less attention to an ex-ante allocation of risk and responsibilities to favour the emergence of synergies that is the trust necessary to the exchange of ideas and information. Partnership means innovation, i.e. creating something new that could not have been delivered otherwise (Klijn & Teisman, 2000; Wettenhall,



2003). Finally, it is a culture that is dynamically negotiated, and which comprises both actions/processes and structures (Fabianski, 2017; Kooiman, 2003).

PPP is a change in perspective because the governance challenge is not posed anymore as a public vs. private problem, *who should do what* but rather questions how the public sector and the market can mutually support each other to jointly construct a better future. The new model is cooperative in nature and tend to emerge at the local level and build over time. Here, time matters to understand how cooperative models are forming. In the previous part we explained that collaboration takes place within networks that emerge as the results of public reforms that occur at different period of history. Yet, such networks are not static they are endlessly constructed and reconstructed over time to address current challenges, extending collaboration to some actors while excluding others. The case of Singapore and how the Land Transport Authority (LTA) applied a “light touch” regulation to shape the conditions for collaboration with dock-less bike providers provides an example in ANNEX 1: Case study - The light touch regulation of LTA, Singapore.

## 4.2 Integrated PTAs and new mobility solutions

LTA nature is singular and exceptional at the same time because it constitutes one of the most integrated form of PTAs in the sense that all modes are under the responsibilities of the organization as well as the infrastructure and subsequent investments. The regulation of new services falls naturally under the responsibility of LTA. One other example of integrated PTA in Europe is Transport for London (TfL). Still the nature of PTAs varies across the globe. For example in Paris, *Ile de France Mobilités* needs to coordinate with other agencies in charge of bikes, road managers and the delivery of large scale rail infrastructure programs. The plurality of responsibilities and structures add another layer of complexity.

In contrast PTAs like LTA or TfL seem better equipped to create vertical alignment and ease the bottom up process whereby the identification and selection of new mobility solutions occurs. But again, there is no single one organizational model and beyond the structure this is the way the PTAs work to create consistent public interventions that promote sustainability that matters more than organizational boundaries. This implies that PTAs need to resist systematically regulating emerging solutions, as this would stifle innovation. Measures must be gradual, to drive the development of New Mobility Players’ business models. This leads to reflect on what kind of tool should regiment the relationship with entrepreneurs.

## 5. COOPERATION MODELS BETWEEN PUBLIC AUTHORITIES AND NEW MOBILITY PLAYERS

### 5.1 Memorandum of Understanding

The entrance of New Mobility Players challenges the way PTAs regiment the relationship with service providers; namely the contractual framework with traditional Public Transport Operators (PTO's). Contracts based on detailed specifications coupled with competition can constitute a rigid framework that prevents public transport services to evolve as well.

To remain relevant to the customers and respond to changing social needs PTAs need to redefine the public transport services. There is no reason to continue to deliver transport in the same way with the emergence of new mobility services. This is important because disruption is as much about entrepreneurship and new business models as the failure of traditional management practices. Industry leaders ignore the disruptive technologies that ultimately steal their market because their management practices are biased towards listening only to existing customers, investing aggressively in technologies that give those customers what they want and targeting larger markets rather than smaller ones. This attitude reinforces common ways of doing things regardless of the need for change. This gives relevance to partnership, types of contract where PTAs and PTOs and New Mobility Players, work together towards increased ridership and modal shift, co-constructing the service over the length of the contract<sup>6</sup>. Such novel mind-set will naturally encourage PTAs to consider new service concepts and strategic collaboration with new players.

This new relationship is based on flexibility and trust whereby the different parties exchange information to adjust and shape the service. This is very much an experimentation process that requires several iteration. This contrasts with traditional contracts which are imposed top-down to the providers. Under the partnership logic, instruments are rather Memorandum of Understanding (MoU) (see 7.4.4 E-scooter sharing case study in Lisbon) and sandbox regulations that are deemed to evolve over time as the uncertainty regarding the required service decreases. Monitoring and evaluation are core to this process. As new mobility services are plural so are their impacts, hence the need to monitor how they affect the city. Data should support such endeavour providing real-time information and ultimately evidence on the way new services affect Urban Mobility Systems and the city.

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<sup>6</sup> [Union Internationale des Transports Publics \(UITP\), 2017, Action Points: Governing for quality and performance](#)

## 5.2 Contractual relationships

As explained above an MoU can provide flexibility for new mobility solutions to evolve over time. However when there is greater clarity on the service to be provided, then a more rigid contract could be used. The following section describes the contractual relationships used between public authorities and new mobility players.

### 5.1.1 *Software-as-a-Service*

Software-as-a-Service (SaaS) is a software licensing model in which access to the software is provided on a subscription basis, with the software being located on external servers rather than on servers located in-house. Software-as-a-Service is typically accessed through a web browser, with users logging into the system provided by the new mobility provider using a username and password. Instead of each user having to install the software on their computer, the user is able to access the program via the internet.

### 5.1.2 *Management contracts*

The term "management contract" has been applied to cover a range of contracts from technical assistance contracts through to full-blown operation and maintenance agreements and so it is difficult to generalize about them. The main common features are that the awarding authority engages the contractor to manage a range of activities for a relatively short time period (2 to 5 years). Management contracts tend to be task specific and focus on inputs rather than outputs. Operation and maintenance agreements may have more outputs or performance requirements.

The simplest management contracts involve the private operator being paid a fixed fee by the awarding authority for performing specific tasks - the remuneration does not depend on collection of tariffs and the private operator does not typically take on the risk of asset condition. Where the management contracts become more performance-based, they may involve the operator taking on more risk, even risk of asset condition and replacement of more minor components and equipment.

### 5.1.3 *Concessions*

Concessions are types of public-private partnerships that are output focused. In these contracts a private entity finances, builds and operates a service usually delivered directly to consumers.

### 5.1.4 Licensing

Local governments typically implement regulations for sharing mobility systems by introducing an obliged license for the operation of the service. These licenses mainly target free-floating shared systems, and have the form of a Service Level Agreement (SLA)<sup>7</sup>.

These SLA's stipulate a number of requirements that a contractor must fulfil, for example:

- **Open data & data sharing:** with this requirement, data can be collected about the usage of the system. Data provide insights into the people who utilize the system, the volume of users, and when and where the system is used. It reveals the popular origin sites and destinations, an information which is useful in optimizing operations and policy-making<sup>8</sup>. The SLA can specify conditions about the data (e.g. frequency, quality, data standard, delivery format, etc.).
- **Geographical coverage:** regulations on geographical coverage can specify that vehicles must be sufficiently spread over different areas, such that an adequate service level for the user is achieved. Other regulations on geographical coverage do the opposite, and specify areas where no vehicles can be parked.
- **Maximum number & minimum use:** in order to limit the use of public space, a maximum number of vehicles per operator is generally defined. Other regulations to limit the use of public space are requirements on the minimum use of a vehicle. For example, each vehicle must be used once a day on average. This helps to match supply and demand.
- **Quality & maintenance:** the quality of the vehicle must be assured, both at the time of deployment as during operation. This regulation typically includes specifications on the obliged disposal of damaged vehicles.
- **Tracking system:** all vehicles must be equipped with a tracking system.

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<sup>7</sup> UITP (2017): Unlicensed dockless bike sharing – common position paper. UITP, ECF and PEBSS, [http://www.uitp.org/sites/default/files/cck-focus-papers-files/Dockless\\_bikesharing\\_position\\_ECF\\_UITP\\_.pdf](http://www.uitp.org/sites/default/files/cck-focus-papers-files/Dockless_bikesharing_position_ECF_UITP_.pdf)

<sup>8</sup> Crozet, Y., Santos, G., & Coldefy, J. (2019). Shared mobility and MaaS - The regulatory challenges of urban mobility. Centre on Regulation in Europe. Retrieved from <https://www.cerre.eu/publications/shared-mobility-and-maas-regulatory-challenges-urban-mobility>

## 6. DATA OWNERSHIP AND EXCHANGE

As mentioned earlier uncertainty is high. Decision makers do not know how New Mobility Services will develop and they need to make sense of emerging patterns. Digitalization and the proliferation of data should enable this reflexive attitude by providing real-time information on the evolution and impact of New Mobility Solutions. Such emerging evidence should underpin the selection of potential partners which are deemed beneficial. The partners could be nurtured to the point to lead to a public compensation. Conversely, corrective measures could be taken against those who move the system in the wrong direction.

Over time this should lead to the emergence of sustainable business models. Still, at the moment, the way data are owned and shared is unclear. The regulatory framework to regiment the flow of information – i.e. what should be disclosed and what should not – is convoluted. The problem could be outlined as follows: Data are source of competitive advantage, while at the same time they are essential to shape Urban Mobility System, the question is therefore *How to balance the need for transparency and trust with traditional competitive pressures?*

In 2014 and 2017, UITP published two Action Points' papers: 'The Benefits of Open Data' and 'Stakeholder Cooperation on Data in Public Transport', respectively. Both papers acknowledge the increasing pressure for public transport companies to provide Open Data, and encourage urban mobility stakeholders to respond positively. It puts forward a preference for Open Data to be provided as machine-readable and with no or very limited restrictions in terms of costs, copyrights, patents or other controls. 'The Benefits of Open Data' paper looked at the scope of data related to dynamic real-time service information, locations of stations and stops (including planned schedules), fare products and price structure. In the 'Stakeholder Cooperation on Data in Public Transport' paper, the scope of data, in the context of data sharing, expanded beyond data necessary to create journey planner applications. UITP reinstated its position on benefits of Open Data and encouraged public stakeholders to work together in data sharing.

In 2018, UITP recognised the challenges faced by many public transport organisations on sharing data. Hence UITP published an Action Points paper to encourage public transport sector to consider 'The Value of Data for Public Transport Sector'. This paper recommends a list of actions for public transport stakeholders to recognise that data has value and review the regulation of data to foster the growth of data-enabled or data-driven business.

The three papers press the urgency of public transport sector to review the practice in data sharing. Cities and regions have great diversity and a wide spectrum of public transport systems' maturity levels. Some developing countries such as Myanmar and Lao PDR are facing the issue of fundamental IT infrastructure before they can consider sharing data, whilst other developed countries such as Japan, Singapore and Australia have started opening data to third parties.

At the moment the framework for data sharing is unclear. Still data are essential to shape the Urban Mobility System of the future, forging collaboration with New Mobility Players and encouraging the emergence of new mobility solutions. The whole parties – PTAs, PTO and New Players need to adopt a cooperative attitude, favouring trust and transparency to adjust their respective services towards an integrated Urban Mobility System. This is particularly relevant in the context of Mobility as a Service (MaaS), which to some extent could be seen as a communication issue where parties share information and data to provide a seamless journey to customers.

The recent communication from the European Commission outlining a European strategy for data<sup>9</sup> also places an emphasis on the flow and access to data. The communication acknowledges that transport and mobility are at the forefront of data sharing debate and that digitalisation and data are to be a key component of the forthcoming ‘Smart and Sustainable Transport Strategy’. The Commission, accordingly, is considering several steps to ensure accessibility of data as well as its reuse, availability and interoperability.

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<sup>9</sup> <https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy>

## 7. CASE STUDIES

### 7.1 Connected, cooperative and automated mobility

#### 7.1.1 Connected and Automated Vehicles

##### Introduction

The S3 **Shared Shuttle Services** Project is part of the Swedish Government's Innovation Program Campus Johanneberg in Gothenburg. The service started operations in 2018 at Chalmers University Campus Johanneberg and ran between three stops adjacent to Chalmersplatsen, Johanneberg Science Park and the library – See Figure 3. Since 2019 the service has moved to the “Lindholmen Next Generation Travel and Transport” area and runs between Polstjärnegatan and Lindholmen Science Park. It is partly financed by Vinnova through Drive Sweden. [Autonomous Mobility](#) is the operator of the service, and the project is led by the research institute [RISE Viktoria](#). The first test/service has already been carried out at Chalmers area. The tests are approved by the Swedish Transport Agency. Approval falls under the national regulation for testing of autonomous vehicles.

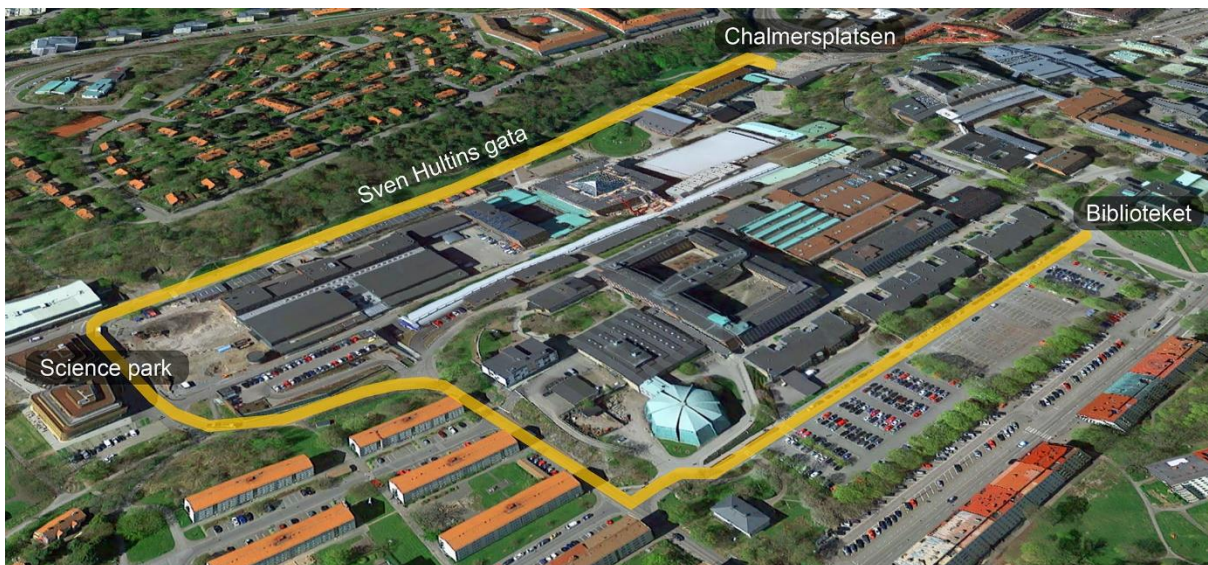


Figure 3: Chalmers Campus Route, Johanneberg



Figure 4: Lindholmen route

**Actors**

The service provider is the Danish operator HOLO, previously Autonomous Mobility. The public agencies interacting with the service provider is the city of Gothenburg and the Swedish Transport Agency. The actors can implement actions and measures such as pro-active advice, physical countermeasures, accurate road and roadside maintenance.

**Attitude of the public**

The use case for Chalmers was to integrate the campus with the public transport stop located at one end of the campus area. For Lindholmen the use-case is to link a remote car park with central office buildings. Studies have been conducted that show a positive public attitude and there is public and political will to see the service develop. S3 will “continue” in a follow-up project where higher speeds will be tested. Also, at the moment the regional authority VGR is considering to implement similar services at Sahlgrenska University hospital.

**Cooperation**

The project was initiated among members of the Drive Sweden platform. All involved actors had their own objectives for the cooperation that came out well together. The cooperation was initiated and coordinated by the research institute RISE Viktoria. The public actors and the new players interact in a good climate and share data.

**Outcome**

A collaboration between the new mobility service operator and public officials has emerged. However the cost/benefit of the service is not yet competitive. More information: <https://s3project.se/en/start-2/>



### 7.1.2 Passenger urban air mobility

No cooperation model for service can be determined.

### 7.1.3 Drones last mile delivery

No cooperation model for service can be determined.

## 7.2 Infrastructure, network and traffic management

### 7.2.1 Big data for mobility

Introduction
<p><b>Kepler51</b> is a US public benefit corporation based in Texas that emerged in 2006. The company has been using advanced predictive analytics technologies to build a real-time logistics tool to increase the efficiency of delivery vehicles. Their big data solutions - <b>the LiveRoad Geospatial Analytics Platform</b> - allows for the real-time monitoring and forecasting of risks and delays based on a range of factors (such as weather, temperature, road conditions, departure time, historical analysis, etc.), in order to dynamically route or schedule vehicles for efficient movements. It essentially relies on open data for its functioning. In the US there are no federal laws on privacy, but there are State level privacy laws that the company has to comply with.</p>
Actors
<p>The data flow in Kepler51 Data Centre involves the use of following services – Google Buffers, Cassandra Database and Spark Realtime Processing Network. Kepler51 interacts with the US Government Services that provide Open Datasets. Some of them include – CS America, the US Department of Transportation, highway administration and the Commercial Vehicle Safety Alliance (CVSA).</p> <p>Kepler51 is heavily dependent on open data. The datasets they use typically stem from the US government and other public bodies. Overall, they have little difficulty in obtaining this data from the US public sector. However, one barrier that was identified is the fact that different US states may open up different types of datasets, leading to the fact that Kepler51 is able to access a certain type of data for a number of states, but not for all states. While overall, many datasets have been opened up; there is still some difficulty to obtain access where datasets remain closed for now. Having access to high quality data is crucial for the quality of the output, but Kepler51 is able to generate its product with the open datasets.</p>
Attitude of the public

<p>Kepler51 is a US public benefit corporation, so its services, while having a diverse application, are ultimately produced for the benefit of the public and enhance road safety.</p> <p>Demand for information technology (IT) services in the logistics industry has increased in recent years as more and more companies begin to deploy IT resources in their logistics/supply chain operations. The implementation of big data can lead to safer supply chains globally, with small to midsize importers and exporters being able to gain the most from new technology, since they do not have the resources to create a safe supply chain, but will be able to rely on freight companies that provide big data capabilities to customers.</p> <p>Big Data Predictive Analytics Solutions applied to road and transport aims to forecast risks and delays.</p>
<p><b>Cooperation</b></p>
<p>Kepler51 and public actors interact to share information data so Kepler51 can gain open datasets. The cooperation was initiated by Kepler51. Overall, the cooperation has little difficulty, but there is a lack of homogeneity in terms of availability of datasets across all states in the US.</p>
<p><b>Outcome</b></p>
<p>Kepler51 has observed many Smart City initiatives and a closer cooperation with municipalities and departments of transportation. Kepler51 is looking to become part of this process. However access to data is one of the key barrier or limitation. Getting more real-time data especially from the Original Equipment Manufacturers (OEMs) could benefit their development. Kepler51 has observed a certain level of encouragement from the State towards OEMs sharing more data in the context of the Smart Cities. Companies like Kepler51 could profit from this. All in all, it takes the collaboration of the public and private industry partners and with traffic and weather now becoming so critical, with high-definition mapping, they can see a closer relationship between data providers and big data analytics solutions providers.</p>

### 7.2.2 Hyperloop

<p><b>Introduction</b></p>
<p>A Hyperloop can be defined as an ultra-high-speed ground transportation system. It was proposed in 2013 by Elon Musk, cofounder of PayPal, Tesla Motors and founder of space transport company SpaceX. Hyperloop is a new mean of ground transportation that is meant to carry passenger and cargo at speeds over 1000 km/h inside low-pressure tubes<sup>10</sup>. The Hyperloop emerged on August 12, 2013 with a report from Elon Musk<sup>11</sup>. Hyperloop technology</p>

<sup>10</sup> <https://zeleros.com/hyperloop/>

<sup>11</sup> [https://www.spacex.com/sites/spacex/files/hyperloop\\_alpha.pdf](https://www.spacex.com/sites/spacex/files/hyperloop_alpha.pdf)

<p>is still in development at the moment, the earliest any Hyperloop is likely to be up and running is in 2021<sup>12</sup>. Interoperability is one of the key element for the technology to be used and to work. Poland, Canada, Netherlands and Spain with Zeleros are working together since July 2018. An agreement was signed to cooperate on a common standardized approach. The four countries started talking with the European Commission (EC) to work together on harmonization and interoperability of the infrastructure. Difficulty to obtain permission to develop test tack, in Spain for example, the region of Valencia has provided authorisation for a 2km test track to be built in 2019. From a regulatory perspective, this test rack is classed as a research facility.</p>
<p><b>Actors</b></p>
<p>Private company are the main service providers involved in the development of the Hyperloop. Currently, there are six companies in the world working on the technology of the Hyperloop including for example: Hyperloop Transportation Technologies (HTT), Virgin Hyperloop one<sup>13</sup>, TransPod<sup>14</sup>, Zeleros. In China and Korea, the Hyperloop is developed at national level by public entities. The private companies developing Hyperloop collaborate with the European Commission and more precisely with DGs MOVE, GROW and RESEARCH. In some countries the private company developing the Hyperloop collaborates with the Ministry of Science and Infrastructure, this is the case in Spain with the Zeleros company for example. Zeleros in Spain also receives support from the public authorities at the regional level and at the city level.</p>
<p><b>Attitude of the public</b></p>
<p>Hyperloop aim at changing our perception of distances and as a consequence to lead to less density in cities, making current suburbs or suburban area more attractive living spaces. The goal of Hyperloop is to solve so called housing crisis happening in many big cities in the world. The impact of Hyperloop is expected to be more important for people living in large cities. The development of Hyperloop also risks to potentially increase inequalities between urban and rural areas<sup>15</sup>. As the Hyperloop is being developed at the national level in China and Korea and supported by the European Commission when developed by private companies, we can conclude that there is a political will to see the service developed.</p>
<p><b>Cooperation</b></p>
<p>Public actors and the new players interact in the development of the Hyperloop. In the case of Zeleros, in Spain, initially this cooperation was established in order to develop the most suitable regulatory framework especially to obtain authorization for testing. In countries where the Hyperloop is developed by private companies the cooperation seem to have been initiated by the private companies. This cooperation does not seem difficult in itself.</p>
<p><b>Outcome</b></p>

<sup>12</sup> <https://www.zdnet.com/article/what-is-hyperloop-everything-you-need-to-know-about-the-future-of-transport/>

<sup>13</sup> <https://hyperloop-one.com/our-story#hyperloop-technologies>

<sup>14</sup> <https://transpod.com/en/company/about-transpod/>

<sup>15</sup> <https://hyperloopconnected.org/2018/04/societal-impact-of-the-hyperloop/>

The Hyperloop is still being developed as a research project. We could say that, where the Hyperloop is being developed by private companies, public authorities are willing to adjust the regulatory framework. It is possible to consider that a certain form of early collaboration with public officials has emerged however there are no services in place to have an MoU or contract.

## 7.3 MaaS and MaaS Platform

### 7.3.1 MaaS Platform

Introduction
<p>The MaaS Platform(s) is the IT structure that is used by the MaaS Operator(s) to provide the final service of mobility to the end-users. The MaaS Platform is split into two elements: the front-end and the back-end, all of which are made up of components developed by the IT Providers<sup>16</sup>. This platform manages all the data and functionalities needed for MaaS operators to offer services<sup>17</sup>. MaaS platforms emerged around 2014. UbiGo<sup>18</sup> for example, was developed and tested in 2014 in Gothenburg. MaaS Platforms can potentially clash with the General Data Protection Privacy- regulation 2016/679: on the protection of natural persons with regard to processing of personal data and on free movement of such data. It was approved in April 2016. It also falls into the business to platform directive: the proposal for an EU regulation was put forward in April 2018 by the EC to promote fairness and transparency for business users of online intermediation services. MaaS platform falls also into all the regulation mentioned under the MaaS case study.</p>
Actors
<p>The MaaS platforms can be developed by MaaS operators or IT providers. MaaS platforms can collaborate with a wide range of public authorities. UbiGo for example which was developed and tested in Sweden, as part of the two-year project GoSmart. Project partners included several public agencies: the City of Gothenburg, Lindholmen Science Park, the Swedish Transport Administration, and the Swedish Innovation Agency.</p>
Attitude of the public
<p>The notion of MaaS has emerged as a result of the growing transportation needs, the increasing population and the growing demand of citizens for integrated services. Further to that, the rapid urbanization, the rise of disruptive technologies and big data, the growing concern for the environment and sociocultural shift and habits of millennials add to the need for a new</p>

<sup>16</sup> [MaaS Dictionary](#)

<sup>17</sup> Mobility as a Service (MaaS) and Sustainable Urban Mobility Planning (SUMP)

<sup>18</sup> <https://www.ubigo.se/>

<p>model that is flexible, personalised, communicative and responsive<sup>19</sup>. In the specific case of UbiGo households and travellers who choose to use MaaS through UbiGo keep track of transport-related spending, they transfer unused travel time for later and they are rewarded with points to validate with UbiGo partners for CO2 emissions that they save through their transport mode selection<sup>20</sup>. In the case of Sweden, as there are several MaaS platform services being developed in parallel, we can conclude that there is a political will to see this service being developed.</p>
<p>Cooperation</p>
<p>Public actors and the new players interact together. In the case of UbiGo in Sweden for example, the service include public and private companies providing the modes of transport. The cooperation was established to include public transport services. Between UbiGo and the Public Transport Authorities of Sweden this cooperation was initiated by the Public Transport Authority following the success of the GoSmart project which introduced UbiGo<sup>21</sup>. This cooperation does not seem to be difficult. In Sweden, Swedish public transport actors are planning to expand the EU directive for open transport data into open ticketing<sup>22</sup>.</p>
<p>Outcome</p>
<p>It is possible to consider that the services provided by MaaS platform is flourishing because there are more and more MaaS platform companies such as Whim App in Finland, SMILE in Austria and HannoverMobile in Germany. With UbiGo in Sweden we can also consider it as flourishing as the app started in Gothenburg and was launched in Stockholm recently.</p>

### 7.3.2 MaaS

<p>Introduction</p>
<p>Mobility-as-a-Service (Maas) is a user-centric, intelligent mobility management and distribution system, in which an integrator brings together offerings of multiple mobility service providers, and provides end-users access to them through a digital interface, allowing them to seamlessly plan and pay for mobility<sup>23</sup>. The first vision of a MaaS type concept had been introduced to the world in 1996 at the ENTER Conference in Innsbruck, Austria by Nico Tschanz and Hans-Dieter Zimmermann, who envisioned an “intelligent information assistant” to be used as a platform for transportation providers and customers<sup>24</sup>.</p>

<sup>19</sup> [MyCorridor D1.1 Use Case](#)

<sup>20</sup> [MyCorridor D1.1 Use Case](#)

<sup>21</sup> <https://www.tandfonline.com/doi/full/10.1080/14719037.2018.1462399>

<sup>22</sup> <https://newcities.org/the-big-picture-maas-is-about-sharing-customers-not-just-data/>

<sup>23</sup> [https://docs.wixstatic.com/ugd/a2135d\\_d6ffa2fee2834782b4ec9a75c1957f55.pdf](https://docs.wixstatic.com/ugd/a2135d_d6ffa2fee2834782b4ec9a75c1957f55.pdf)

<sup>24</sup> <https://whimapp.com/history-of-maas-global/>

Relevant legislation for MaaS:

- ITS Directive (Directive 2010/40/EU) and ITS Action Plan;
- Public Sector Information (PSI) Directive, Directive 2003/98/EC;
- The INSPIRE Directive 2007/2/EC;
- Connected Continent legislative package;
- General Data Protection Regulation
- The Data Protection Directive
- The EU's Payment Services Directive 2 ("PSD2») - EU Directive 2015/2366/EU ;
- Action Plan Urban Mobility 2009;
- EasyWay Deployment Guidelines.

Actors

Service providers involved:

- Public transport operators (all modes)
- Vehicle (car/bike/...) sharing/pooling/rental service provider (public or private)
- Parking operators
- Road operators (tolls)
- Taxi operators
- Coach buses operators
- Traffic Management operator

Public agencies these providers interacting with:

- Ministry of transportation;
- Transport agency;
- Road administration;
- Transport safety agency/authority Regional/local transport agency;
- The city and city planning department;
- Tourist agency or department.

Government/Authorities	<ul style="list-style-type: none"> <li>• Legislator;</li> <li>• Enable testing and pilots through legislation;</li> <li>• Finance infrastructure investments;</li> <li>• Implement transport policies, strategy and investments;</li> <li>• Create (long-term) plans and guidelines for national development of transport services;</li> <li>• Management of national transport infrastructure;</li> <li>• Issue permits; regulations; prepares legal rules regarding the transport sector.</li> </ul>
Cities/ Regions	<ul style="list-style-type: none"> <li>• Plan, organise and manage public transport;</li> <li>• Provide locations of stations and stops;</li> <li>• Strategic urban and city planning;</li> <li>• Transportation and traffic planning;</li> <li>• Representing the local infrastructure;</li> <li>• Traffic management;</li> </ul>

<p>Transportation Service Provider/Operator</p>	<ul style="list-style-type: none"> <li>• Operation of systems.</li> <li>• Transport operator providing schedules, fares as covered by Ticketing, offer fares and real time information, vehicle information, booking information, availability, locations (e.g. bikes and docking stations).</li> <li>• Multi modal or road management.</li> <li>• Running ITS applications for management, control and passenger information purposes.</li> <li>• Could provide also transport content (i.e. drivers and rides database).</li> </ul>
<p>Source: MyCorridor D1.1 Use Case</p>	
<p><b>Attitude of the public</b></p>	
<p>The service is deemed beneficial for the public, for example for daily commuters, for tourists, for businesses, or for spontaneous users etc. For example Whim in Finland aims to be a more affordable alternative to car ownership without all the hassles<sup>25</sup>. There seems also to be a public/political will to see the service develop, for example it can be seen with the Transport White Paper from the European Commission<sup>2627</sup>.</p>	
<p><b>Cooperation</b></p>	
<p>The public actors and the new players interact and work together in the frame of MaaS, for example Whim in Helsinki collaborates with local and national authorities. In the case of Helsinki in Finland this collaboration was established to improve the mobility in the city and to support the use of public mode of transportation against individual cars. In Finland the close collaboration between the government and Whim does not seem to be difficult. Also, the Finnish Transport Infrastructure Agency's aim is to share the data it collects openly to everyone<sup>28</sup>.</p>	
<p><b>Outcome</b></p>	
<p>It is possible to consider that generally MaaS is flourishing and in the case of Helsinki as well. MaaS is being developed in more and more European city and so is Whim. Public body seem to be willing to adjust the regulatory framework, for example if we continue with the example of Whim in Helsinki, in Finland the legislation related to transport was modified. In 2018, The Act on Transport Services in Finland brought together legislation on transport markets. The aim of the legislative reform is to provide the users with better transport services and to increase freedom of choice in the transport market<sup>29</sup>. It could be considered that a certain form of collaboration with public officials has emerged in the case of Whim in Helsinki.</p>	

<sup>25</sup> [MyCorridor D1.1 Use Case](#)

<sup>26</sup> European Commission. (2011) Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system.

<sup>27</sup> [MyCorridor D1.1 Use Case](#)

<sup>28</sup> <https://vayla.fi/web/en/open-data#.XYx6nIUzZ9M>

<sup>29</sup> D2.1 GECKO Analysis of regulatory responses and governance models

## 7.4 Shared on demand mobility

### 7.4.1 Car-sharing

Introduction
<p>Car-sharing is a membership-based service that provides car access without ownership. Car-sharing is mobility on demand, where members pay only for the time and/or distance they drive<sup>30</sup>. Car sharing is not a new concept. In fact, car sharing began in 1948 with a cooperative in Zurich, Switzerland known as “Sefage” (Selbstfahrgemeinschaft). The idea was simple: if you can’t afford to purchase a car, share one. The first wave of car sharing programs all survived for only a short period of time. The second wave of car sharing emerged in the late 1980s and early 1990s<sup>31</sup>. DriveNow is one of the existing car sharing company, which was funded in Germany in 2011.</p> <p>Relevant regulatory texts:</p> <ul style="list-style-type: none"> <li>• The General Data Protection Privacy- regulation 2016/679: on the protection of natural persons with regard to processing of personal data and on free movement of such data<sup>32</sup>;</li> <li>• The Data Protection Directive<sup>33</sup>;</li> <li>• The Business to Platform directive<sup>34</sup>.</li> </ul> <p>It also interesting to mentioned that all DriveNow cars are complying with the latest Euro 6 emission norms according to Christian Lamber, Managing Director of DriveNow Belgium<sup>35</sup>.</p>
Actors
<p>Many car-sharing services require privileged access to on-street parking space, which is typically managed by municipalities. This can be a critical vulnerability, as in certain cases the inability to attain the required access to on-street space can effectively prevent a car-sharing service from operating. The intermediation of local government between supplier and end user is a novel concept for the automotive industry, which is accustomed to interacting primarily with national and Europe-wide public sector bodies<sup>36</sup>.</p>
Attitude of the public
<p>Car-sharing is primarily designed for shorter time and shorter distance trips as an extension of the transportation network, providing a public service designed to enhance mobility options. Longer trips may be available to further discourage car ownership. Car-sharing operators help members save money over the cost of individual car ownership by encouraging members to</p>

<sup>30</sup><https://carsharing.org/about/>

<sup>31</sup> <https://tiffanydstone.com/2013/08/23/lessons-learned-from-the-history-of-car-sharing/>

<sup>32</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0679&from=FR>

<sup>33</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31995L0046&from=FR>

<sup>34</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018PC0238&from=EN>

<sup>35</sup> <https://brussels-express.eu/drivenow-is-shifting-the-mobility-attitude-in-brussels/>

<sup>36</sup> [https://www.acea.be/uploads/publications/SAG\\_Report\\_-\\_Car\\_Sharing.pdf](https://www.acea.be/uploads/publications/SAG_Report_-_Car_Sharing.pdf)



<p>drive less often, plan trips more, use other modes of transportation more, and share fuel efficient vehicles when a car is needed<sup>37</sup>. Car-sharing is designed for local users in support of community transit and environmental goals<sup>38</sup>. There is a public/political will to see the service develop considering the number of service providing this service in Brussels and also considering the growth of Poppy in Brussels for example.</p>
<p>Cooperation</p>
<p>The public actors and the new players interact, for example with municipalities as previously mentioned. The cooperation was established, to allow the car sharing companies to operate, by granting them access to public space for example. The cooperation was initiated by the car-sharing operators. The asymmetry between local government and car-sharing organisations is structural and larger than any one individual car-sharing operators<sup>39</sup>.</p>
<p>Outcome</p>
<p>The latest development regarding car-pooling in general and regarding DriveNow in particular is the recent merger of two largest market players, car2go and DriveNow, owned by Daimler AG and BMW Group. It seems that the public body is willing to adjust the regulatory framework if it is judged inadequate or obsolete.</p>

### 7.4.2 Car-pooling

<p>Introduction</p>
<p>Starting from October 1st 2017, Île-de-France (IDF) Mobilités has integrated carpooling services into the IDF regional mobility information system, with the objective of encouraging such practice, by increasing the density of the mobility offer available to the public. The itinerary search engine of Île-de-France, ViaNavigo, includes the services of carpooling operators in its mobility offer composed by public transport, personal and self-service bikes, taxi services, and carsharing. Additionally, from October 1st to December 31st 2017, Île-de-France Mobilités subsidized each carpool company to a ceiling of 50.000 € (2 € x carpool trip, up to 25.000 trips), with the aim of encouraging carpooling by increasing driver compensation and reducing passenger price. This measure falls into the initiative M2I, Mobilités Integree pour Île-de-France, which aims to foster modal shift towards softer modes through a set of high-level traveller information services.</p>
<p>Actors</p>
<p>The carpooling providers, whose services have been integrated in the IDF travel planner, range from providers of traditional carpooling services (IDVRoom, Roulez Malin, Wayzup, Clem, Karos), local carpooling (Coivoiturage 77), community base carpooling services (Hopways, Proxiigen), and ride hailing 2.0 (Ouiio, Rezo Pouce, Covoit'ici). The inclusion of these services</p>

<sup>37</sup> <https://carsharing.org/what-is-car-sharing/>

<sup>38</sup> <https://carsharing.org/what-is-car-sharing/>

<sup>39</sup> [https://www.acea.be/uploads/publications/SAG\\_Report\\_-\\_Car\\_Sharing.pdf](https://www.acea.be/uploads/publications/SAG_Report_-_Car_Sharing.pdf)

<p>follows the approach of being open to all carpooling operators in Île-de-France that aims to get involved. Furthermore, the tool is at disposal of other cities and regions, according to a strategy based on open source development. The initiative is coordinated from the public side from Île-de-France Mobilités, the region's transport authority, in cooperation with TransDev, operator and integrator of mobility, and its subsidiary Cityway.</p>
<b>Attitude of the public</b>
<p>This initiative was initiated by the Île-de-France Mobilités as a way to respond to the need of installing carpooling into the daily travel habits of the inhabitants of the region. The public has so far responded positively, with carpooling trips in Île-de-France multiplied by 4 from the start of the initiative in 2017, going from 10 000 to 35 000 on average per month. 360 000 trips were realised by the operators included into ViaNavigo since the beginning of the project.</p>
<b>Cooperation</b>
<p>The cooperation between Île-de-France Mobilités and carpooling providers, through the integration of their services into ViaNavigo and the subsidies programme, was established in order to increase people's interest to test carpooling and to promote complementarity between public transport and carpooling in two ways: on the one hand, by reducing the cost for travellers and increasing driver's gain; on the other hand, by providing a single-entry point which aggregates the offer of different carpooling services. Such initiative relies on the building of comprehensive data sets, composed by real-time and predictive data collected from connected individual cars, car-pooling vehicles and public transport modes. This integration will support Île-de-France Mobilités to evaluate the flow of travel within its territory and to know the trending mobility behaviours, and by consequence to develop its mobility strategy.</p>
<b>Outcome</b>
<p>It is possible to assess that this example of public-private partnership contributed to a significant increase of carpooling trips in the region. The support of public officials is clear: Valerie Pecresse, president of the Region Île-de-France, has explicitly made carpooling a priority objective. This is proved by the integration of other measures that favour carpooling, such as the objective of installing 10 000 more carpooling hubs in the region by 2020 and the announcement of full reimbursement of carpooling for the users of ViaNavigo in faces of public transport strikes in Île-de-France in March 2018.</p>

### 7.4.3 Bike sharing

<b>Introduction</b>
<p>Self-service bikes allow users to access a means of travel for short trips (mostly urban) that is faster than using public transport and greener than using a car. It is a collaborative mobility practice because the bikes are used by several users. They belong either to private operators or to public operators. Free floating bike sharing or dockless bike share, does not require a docking station. With dockless systems, bicycles can be parked within a defined district at a bike rack or along the sidewalk. Dockless bikes can be located and unlocked using a</p>

smartphone app<sup>40</sup>. Bike sharing emerged in 1965 already in Amsterdam. Free floating or dockless bike sharing emerged in 2014<sup>41</sup>. The chosen example here is Billy Bike in Brussels, a free floating electric bike service in Brussels.

Legal framework varies from a country to another but legally speaking the affected areas are:

Traffic rules; traffic safety regulations; use of public space or pedestrian areas (including for bicycle parking; including for for-profit services); on-street parking; liability insurance (in the case of such services); consumer rights protection; integration with traditional public transport services and other public/private shared mobility services; financial incentives for public/shared mobility<sup>42</sup>.

At European level regulation regarding data protection will also be relevant:

- The General Data Protection Privacy- regulation 2016/679: on the protection of natural persons with regard to processing of personal data and on free movement of such data<sup>43</sup>;
- The Data Protection Directive<sup>44</sup>.

#### Actors

Public authority at the level of the city are involved along with the private company providing the service of bike sharing. The public agencies with which these providers interact with are changing from a city to another.

The actions and measures that the actors can implement :

- Registration / Licensing / Regulations – Public Authorities;
- Orderly streets – Public Authorities & Private service providers;
- Ensuring quality of bikes - Private service providers;
- Re-balancing the quantity of bikes per areas in the city according to needs - Private Service providers.

#### Attitude of the public

This service gives the greatest number of people access to a bike to get around town at a reduced price and encourages exercise. Electric assistance can further increase the number of users by allowing a larger amount of people to opt for cycling (especially for hilly roads). The improvement of this service could lead to an almost exclusive use of bikes in cities, with both social (accessibility, health) and environmental benefits (however we would still need to pay attention to pollution and the recycling of abandoned bikes). There is a public will to see the

<sup>40</sup> <https://altaplanning.com/dockless-bike-share/>

<sup>41</sup> <https://www.itdp.org/2018/01/04/dockless-bikeshare-know-so-far/>

<sup>42</sup> <http://sump->

[network.eu/fileadmin/user\\_upload/downloads/innovation\\_briefs/PROSPERITY Innovation Brief Regulating dockless bike-sharing schemes 140918 web EN.pdf](http://sump-network.eu/fileadmin/user_upload/downloads/innovation_briefs/PROSPERITY_Innovation_Brief_Regulating_dockless_bike-sharing_schemes_140918_web_EN.pdf)

<sup>43</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0679&from=FR>

<sup>44</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31995L0046&from=FR>

service framed well legally. However, in the case of Billy Bike in Brussels it seems that there is a will of the public authority to see the service developed as it is advertised on the city website<sup>45</sup>.

#### Cooperation

The public actors and the new players do interact together. However, the cooperation is different in every city. The cooperation started with difficulty but seems to be improving over time.

In Brussels, for the private operators to obtain the license allowing them to operate in the city during the year, each quarter, they will report to the administration the following information:

- The routes taken by the users;
- The places where the cross-country vehicles are being removed and dropped off;
- The number of users;
- The routes travelled and the vehicles on an hourly, daily, weekly and monthly basis<sup>46</sup>.

#### Outcome

Generally speaking, a number of companies have filed for insolvency (oBike for example). But in the case of Billy bike in Brussels the service seems to be flourishing. In many cases the extremely quick expansion did not prove financially sustainable<sup>47</sup>. In the case of billy bike they aim at being in more areas in Brussels<sup>48</sup>.

In Brussels the regulatory framework is being adjust by the public authority. As of the 1st of February 2019, the rental services of at least 50 bicycles, scooters and other two-wheeled vehicles in Brussels will require a license. Operators already active in Brussels will have until 1 September 2019 to apply for the license. Also, on a technical level, the proposed vehicles will have to be equipped with mudguards, be able to support a load of 100 kg (120 for the bicycles); and be usable for people between 1m50 and 2m10. The operator will have to provide in real time the number of bike-sharing vehicles that will be made available to users in the Region. <sup>49</sup>.

### 7.4.4 E-scooter sharing

#### Introduction

<sup>45</sup> <https://www.bruxelles.be/velo>

<sup>46</sup> <https://brussels-express.eu/companies-wanting-to-offer-rental-services-of-bikes-and-scooters-in-brussels-will-need-a-license/>

<sup>47</sup> [http://sump-network.eu/fileadmin/user\\_upload/downloads/innovation\\_briefs/PROSPERITY\\_Innovation\\_Brief\\_Regulating\\_dockless\\_bike-sharing\\_schemes\\_140918\\_web\\_EN.pdf](http://sump-network.eu/fileadmin/user_upload/downloads/innovation_briefs/PROSPERITY_Innovation_Brief_Regulating_dockless_bike-sharing_schemes_140918_web_EN.pdf)

<sup>48</sup> <https://www.billy.bike/en/>

<sup>49</sup> <https://brussels-express.eu/companies-wanting-to-offer-rental-services-of-bikes-and-scooters-in-brussels-will-need-a-license/>

The variety of new sharing services operating in Lisbon are covered by this case study. That includes car, motorbike, bike and scooter sharing services. Some services are station based but most are free-floating.

Lisbon was early in showing interest in having sharing services in the city. In 2008 the city launched a first bike-sharing tender, without success. In the same year, the local bus company started a small car sharing station-based service named Mob Carsharing, an operation that lasted 6 years.

Meanwhile, in 2012, the city started discussions with private New Mobility Service (NMS) operators in the area of car sharing. Conditions were in place for a first small private free-floating service, CityDrive, to be launched in 2014, but this was also suspended later. In the same year, the city started planning what would become its municipal, docked-based public bike sharing scheme, GIRA, launched in 2017, but before that, in 2016, the motorbike sharing company eCooltra launched a successful service in the city.

In September 2017, DriveNow introduced a larger car sharing operation, followed by EMOV in early 2018, both on-going. About this time, some interest in deploying services in Lisbon was shown by eScooter companies. Following negotiations, the first eScooter operation was launched by LIME in October 2018, followed by further eight in the following 6 months. Meanwhile, the first free-floating eBike sharing service, JUMP, started operations in February 2019 and two new shared motorbike companies arrived in June 2019.

Dynamic as this NMS market is, in the last months, three eScooter companies suspended their services in the city.

The city of Lisbon has gained good insights to the legal aspects of NMS operations. There are two national laws governing this sector:

- The national road regulation, which dictates where road vehicles can ride and park. eScooters fall into the same category as eBikes. The road code specifies that such vehicles can only be used on cycling infrastructure or on the road, with sidewalk riding reserved for kids aged 10 years or below.
- The sharing and rented services law, which stipulates the requirements that operators of such services must meet, including the need for insurance, customer support (such as a hotline) or a sticker on the vehicle, among others. These laws also define what is the difference between a shared and a rented service. A sharing service must need exceed 12h or 100km. Above this, the service is considered as renting and falls under the rent-a-car general law.

In addition to the national law, the city of Lisbon has developed a Memorandum of Understanding that all micromobility NMS providers must agree too. This defines some rules and covers among others:

- Public safety protection, e.g., no riding on the pavement/sidewalk (as per the national road regulation)
- Service deployment only in defined bike parking areas

- Vehicle reallocation by operators when users park illegally
- Public space usage, e.g., areas where vehicles cannot be parked (known as ‘red zones’ and mainly in the historic centre where streets are narrow)
- Customer interface must display red zones
- Real-time data must be shared with the city in a standardised format (MDS)

**Actors**

In September 2019, there were 14 different operators of new mobility services in the city of Lisbon: 3 car sharing operators, 2 bike sharing companies (including one free-floating), 3 free-floating eMotorbike operators and 6 eScooter operators. Their combined capacity amounts to: 400+ car-sharing vehicles, 1100 eMotorbikes, 2000 bikes and between 4000 and 6000 eScooters. The NMS operators are directly interacting with the City of Lisbon and indirectly with a whole range of other public agencies and NGOs that Lisbon invites to support the city in monitoring and managing the ecosystem, such as the national institutes that regulate mobility and transport, the national and municipal police forces, environmental NGOs, blind and handicap people associations, the equipment compliance enforcement institution or the consumer association.

The actions and measures that the City of Lisbon can implement are:

- Expand the riding and parking infrastructure for sharing services
- Require a service provider to adopt an MoU in return for agreement to operate
- Promote a sense of community amongst operators
- Promote events and campaigns to be organised commonly with all operators
- Guarantee enforcement of riding and parking and remove vehicles where they are improperly parked.
- Designate areas where the vehicles are not allowed to be parked
- Reserve parking space for such NMS vehicles to encourage a more responsible and safer behaviour
- Use real-time data to better plan infrastructure and monitor operations
- Facilitate integration of shared services with other services in the city
- Facilitate cooperation and cohesion among a diverse and competitive group of new mobility service providers
- Become more demanding in terms of the operating rules and conditions as knowledge on the NMS grows, if the size of the service scales up to excess numbers or trust is forged between the city council and the operators.

**Attitude of the public**

The city of Lisbon decided many years ago to facilitate the take up of NMS as a complement to traditional public transport because it held the view that these two types of services can be complementary and that NMS could appeal to those people who do not use public transport or could be used for trips that cannot be satisfied by public transport. Ultimately, the intention is to provide an alternative to car use.

During negotiations, the city makes clear to the operators that, for equity reasons, the service should cover the whole of the city, which in theory means that those areas less served by public transport should have more mobility options available to them. The long-term goal of the city

is to provide a complete set of mobility services, with public transport as the backbone and NMS complementing them, to encourage people to give up their private car.

The demand for NMS by the general public has been high. The city's own bike sharing scheme has an average of 5 to 10 rides per day which is well above the average of many other cities. However, there have been complaints about free-floating services, in particular vehicles littering sidewalks and irresponsible riding and parking of vehicles.

Political support from the City of Lisbon to enable these types of services to take off has been instrumental, with the direct involvement of the Mayor and Deputy Mayor in charge of transport.

The city has adopted a management style, a tolerant approach to innovation and a proactive line in terms of finding solutions to boost the operations and tackle the adverse effects of these services.

#### Cooperation

The City of Lisbon has set up a 'sharing community' with all operators, which meets monthly to facilitate discussion and assure the resolution of issues of concern for the city and issues of concern for the operators.

The community cooperation was established by the City of Lisbon as a mean to engage constructively with all players on a multi-lateral basis rather than bilaterally. Given the proliferation of new players entering the market, the city of Lisbon found it increasingly difficult to manage relations with all players. The city felt it would be more effective and time-efficient to meet all players together and on a regular basis, while at the same time encouraging the creation of bonds between operators. The feeling of a mobility sharing community generated continuous cooperation amongst them to attract new users from private car use rather than compete for the same clients.

Given the very different characteristics of the different mobility services and the modal/service specific nature of some of the issues raised, Lisbon took the decision to hold two additional monthly meetings, one with carsharing and eMotorbike operators and another with eScooter and bike sharing operators. There are now three regular monthly meetings between the operators and the city, and other specific meetings happen when needed.

Cooperation has improved greatly over time. The city of Lisbon has encouraged the operators to work together as a community rather than see themselves as competitors. This is happening and has delivered tangible results. The operators have jointly:

- Launched several campaigns to raise awareness about safety and how to correctly use the service
- Created a brand for their community - #PartilhaLisboa - which they use for advertising;
- Created a website providing information about the principles of sharing, advantages of sharing, how to access an app, where to find a service and key figures about the services (<https://www.partilhalisboa.pt>)

- Initiated discussions about jointly empowering the vehicle redistribution service, with the help of external companies

Data sharing is required in the MoU, whose adoption is a condition of operation in the city. However, Lisbon City Council agrees not to share any data about service performance without the permission of the operator(s) concerned. Only aggregated values are made available to the public.

Real-time data about the location of a vehicle is shared with the city. Currently, the data has to be supplied in MDS (Mobility Data Specification) format. A municipal team has built an aggregator showing the vehicle location in real-time.

#### Outcome

The number of operators and size of the fleets prove that the services are flourishing. Micromobility accounted in 2017 for 0,6% of trips in Lisbon, a number that has grown to around 1,7% in less than 2 years.

The City of Lisbon’s open approach to innovation, willingness to collaborate with the private sector and tolerant attitude has created many positive outcomes including:

- Creating a spirit of trust and cooperation for B2G and B2B relationships
- The resolution of problems through co-creation and consensus rather than immediate sanctions
- A community of operators that works together on common issues (campaigning, procurement, information provision, etc.)
- A community of operators that works together to support the city in reaching its goals of reducing private car use and is more accepting of city decisions to act where necessary.

Nevertheless, there is still a long road to go, as the main problems of micromobility, especially safety, pedestrian public space abuse and environmental sustainability of operations, are progressing at a lower speed than the city can accept.

As the market grows and as trust and collaboration become stronger, the city of Lisbon itself can become more demanding regarding NMS operations. For instance, to discourage eScooters from being parked anywhere, the city may insist on mandatory check-out in designated parking areas and could enforce this through geo-fencing, a solution already being tested in Lisbon. Operators are not in favour as this goes against the principle of free-floating; they therefore are proposing alternative solutions and are requesting a time-window to allow them to implement their own measures to address this issue and to prove it can be done without mandatory check-out.

A very positive and constructive form of collaboration has emerged which is highly beneficial to both parties and more importantly it enhances the transport offer to citizens and visitors to Lisbon, whilst acknowledging and addressing some of the adverse effects of these services.



### 7.4.5 Ride-hailing and TNC

Introduction
<p>The on-demand transport service is offered by Innisfil Transit, an entity set up by the Canadian municipality of Innisfil to oversee the provision of the service. Innisfil Transit has entered into a partnership with the ride-hailing company Uber, the operator of the service.</p> <p>The on-demand transport service was launched in May 2017 and constituted the first ever local transport service. This service was selected following a transit feasibility study in 2015 and extensive reflection within the administration about what would be the most useful, usable and socially inclusive transport service in an area of low population density. The Council determined that a fixed-route bus would be too costly for the limited level of service that it would provide and that a more cost-effective, demand-based transit solution could provide a greater level of coverage and accessibility across the entire town. Prior to its launch, there was no local bus service within this municipality of 263 square km with a population density of 139 persons per square km.</p>
Actors
<p>There are two main players in this service: Innisfil Transit (belonging to the municipality of Innisfil) and the ride-hailing company Uber. The municipality can implement the following actions:</p> <ul style="list-style-type: none"> <li>• Subside on-demand transport/Uber fares and set the level of subsidy.</li> <li>• Use the subsidy level to discourage short trips that could otherwise be made in an active manner (walking or cycling)</li> <li>• Set the fare level depending on the origin and destination of the trip. Trips to or from key community points (town hall, public services, food bank, train station and bus stops, among others) enjoy a flat rate (\$4-6) whereas other types of trips are subsidized to the tune of \$4 (down from the initial \$5).</li> <li>• Offer discounts to particular groups, such as the elderly, students or low-income households.</li> <li>• Provide alternative ways of service payment for those without a credit card or without a bank account, e.g., using gift cards.</li> <li>• Cap the number of trips to ensure the service is not being abused by individuals and to ensure it remains affordable for the municipality.</li> <li>• Request some trip data from Uber</li> </ul>
Attitude of the public
<p>The service has opened up the possibility of travelling to all residents across the municipality and not just those living close to a bus stop (had a fixed bus route been implemented instead).</p> <p>Prior to the launch of this on-demand service, there was no local bus service. Most residents used their car and those without access to a car (elderly, young, people without a driver's licence) had to rely on a taxi. The service is available throughout the municipality, which comprises rural areas as well as eight settlements. The fixed rate applied to key destinations</p>

remains the same no matter the length of the trip. Therefore, those who live in rural areas or at a longer distance to a key destination point are not financially penalised. Transport equity and social inclusion are core to this transport offer. To accommodate those people who are not digital savvy and/or who are not banked, various other booking and payment options have been created, including a call-in service, payment by PayPal or Uber giftcards sold by the municipality. Seventy residents are currently registered for the call-in service. In order to receive the Innisfil Transit subsidy, users are also required to share trips in order to reduce emissions and to enable social interaction. This functionality is offered by the Uber Pool platform. Over 30% of trips are shared and this number is increasing (described as ‘matched rate’ in table displayed in outcomes section). Some of the 2000+ Uber drivers operating in the area are local residents who are supplementing their income or pension.

The service idea was conceived by municipal staff; the Mayor and wider council have been very supportive of it since the outset. Initially some eyebrows were raised by members of the public about the municipality subsidising a ride-hailing company. However, the alternative fixed route bus would be an equivalent cost (if not more) but be far less accessible to residents living far away from a bus stop and consequently far less used.

Cooperation

Innisfil Transit has regular communication with Uber through phone calls with the Toronto office (one hour to the south) as well as with the headquarters in San Francisco. Uber issues a monthly bill to Innisfil Transit for the amount of fare that was not paid by the rider. Each bill is accompanied by information about trips, such as a heat map of all pickups and drop-offs as well as the total number of trips, average trip cost and length. As needed, Uber also assists with any specific information requests that Innisfil Transite may have, particularly when it comes to budget estimates and assessing the impact of any changes being considered.

Outcome

- The service has evolved considerably since its launch in May 2017. Some results:
- The number of trips has grown from approximately 3000 per month in the summer of 2017 to nearly 9000 per month from January to April 2019. This figure appears to be stabilising as monthly average from April to September 2019 was about 8300 trips.
  - Nearly 6000 people used the service in 2018, out of a population of close to 40000, representing about 1 in 7 residents.
  - Waiting times have come down from 9:10 minutes in 2017 to 6:10 minutes in 2018 and less than 5 minutes during the last 3 months of 2018.
  - A community feedback survey undertaken in 2017 and 2018 showed a majority (66%) of the 171 respondents were strongly satisfied or satisfied with the service.
  - The most popular trip destination is the station, meaning that the service is operating as a first-last-mile-service for commuters.

- The average trip length is about 10km.

	2017 (May 15-Dec)	2018 (Jan-Dec)
<b>Trips</b>	26,688	85,943
<b>Subsidy</b>	\$150K	\$640K
<b>Riders</b>	3,493	5,749
<b>Drivers</b>	1,393	2,203
<b>Match Rate</b>	17%	31%
<b>Wait Time</b>	9:10 mins	6:10 mins
<b>Completion Rate</b>	71%	87%

Source: Innisfil staff report n°: DSR-038-19, 13/3/19

The growth in demand for the service has led to a

corresponding growth in the municipal budget needed to subsidise the service. The municipality is conscious that this cannot grow forever – albeit ridership numbers are stabilising – and is exploring ways to address this. It has already introduced some measures, including capping the number of trips per month to 50, while still providing exemptions to certain users when they apply, and a reduction in the trip subsidy from \$5 to \$4. It is also considering introducing flexible forms of fixed routes in high demand areas as well as micro-mobility (eScooters and bike).

Despite the increase in budget, the average level of subsidy per trip of an on-demand service (currently at \$7.44) is still far lower than the projected average cost of a trip in a fixed bus (\$33).

The three traditional taxi companies operating in the area prior to the launch of Innisfil Transit are still in business and continuing to offer a door-to-door service for residents who do not wish to share a trip.

Innisfil Transit is quite open in admitting that it is learning by doing and can adapt the service as it evolves. This has already happened recently through the implementation of certain measures to manage the increased demand.

### 7.5.6 On-demand ridesharing

#### 1.1.Introduction

SSB Stuttgarter Straßenbahnen AG, the public transport operator of Stuttgart, initiated its new service SSB Flex on June 1st, 2018. SSB Flex pools similar journey requests in three areas of Stuttgart (Bad Cannstatt, Degerloch and the center) to provide additional, more flexible journey options in high-traffic areas or at specific times, in order to supplement the existing transportation services offered. SSB Flex gives customers a flexible, on-demand and tailored way to book journeys using the SSB Flex app. SSB has received a permit from the Stuttgart Regional Council that allows and enables them to operate SSB Flex under passenger transport regulations, which also apply to regular bus services. This permit is the first of its kind for this

<p>type of transport. This makes SSB the first provider of on-demand, ridesharing, and pooling services in Germany with a permit for passenger transportation in accordance with the German Passenger Transportation Act. SSB deployed a fleet of 10 Mercedes-Benz V-Class sedans with five seats in the rear and 2 Mercedes-Benz B-Class vehicles with electric drive and three seats in the rear. All of the vehicles are clearly labelled with the SSB Flex logo, and driven by either specially trained Flex drivers or SSB bus drivers who have received additional training.</p>
<p><b>Actors</b></p>
<p>The new service is based on the collaboration of two mobility specialists from Stuttgart: the Moovel group (currently REACH NOW) – which makes part of the mobility joint venture between BMW Group and Daimler AG – and Stuttgarter Straßenbahnen AG. The SSB Flex app is based on the Moovel on-demand platform’s algorithm, which intelligently pools journey requests to enable ridesharing, while the point of contact for SSB Flex passengers and drivers is the Stuttgarter Straßenbahnen AG control centre.</p>
<p><b>Attitude of the public</b></p>
<p>The Moovel Group’s Flex Pilot has served as the preparation for the launch of the on-demand service offered by Stuttgarter Straßenbahnen AG. The test has run on Thursdays, Fridays, and Saturdays from December 14, 2017 to May 26, 2018. More than 20,000 passengers have used the mobility service for free during the test phase. Flex Pilot proved to be a particularly attractive transportation option late at night when the buses, trains, and trams run less frequently. In the successive phase from June 2018 to June 2019, SSB Flex vehicles have been in operation for around 10,000 bookings, which is about 800 bookings per month.</p>
<p><b>Cooperation</b></p>
<p>The cooperation between SSB and Moovel is based on the complementarity of different core businesses. On the one hand, SSB, which aims at continuing to be a sustainable and reliable mobility provider for public transport in Stuttgart: its assets are regulatory approval, control centres, drivers, fleet management and customer service. On the other hand, the digital and networked services provided by Moovel: among them, platform and routing, fleet control (software), B2C and Driver App, ticketing and payment. In this manner, public transport knowledge coupled with an established brand meets technology know-how and an agile approach, with ultimate aim of achieving service and customer benefit. From the strategic point of view of SSB, the ownership of the platform is not essential, but customer master data and the role as a customer contract partner are important.</p>
<p><b>Outcome</b></p>
<p>Since 1 August 2019, SSB Flex has extended its offer spatially and temporally: it now serves daily the entire Stuttgart city area and it is now available Sundays through Thursdays from 6pm to 2am and Fridays to Saturdays from 6pm to 4pm. Young customers under the age of 18 can now use the service more easily via a prepaid credit card. Prebooking is possible in certain time windows from August 2019 on. Until August 2019 the SSB Flex app has been downloaded about 42,000 times, nearly 24,000 users have been registered so far, and around 700 people register each month. In the daytime served districts of Bad Cannstatt and Degerloch only seven to ten percent of total demand arose, the offer is therefore currently discontinued.</p>

### *7.5.7 Crowd shipping*

No cooperation model for service can be determined.



## 8. KEY FINDINGS

### 8.1 Stakeholder input

On 24-25 October 2019, GECKO held its first Stakeholder Workshop in London. A pre-workshop online questionnaire was sent out to all workshop attendees (and indeed to all stakeholders) several weeks in advance of the workshop in order to gain as much insight as possible. The questions were designed to gather key stakeholder input, which is difficult to come by otherwise, and to complement the discussions planned for the workshop itself. Within the pre-workshop online questionnaire seven questions were dedicated to the subject of this deliverable. During the workshop there was active participation in several rounds of group work with concrete discussion questions directly related to the work being done also on cooperation models among public and private parties in new mobility.

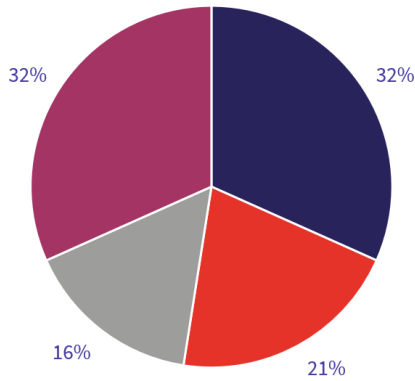
#### *8.1.1. Online questionnaire*

The stakeholders were asked in the pre-workshop questionnaire about the formality of their relationships with the “other” sector and how satisfied they were with these relationships. Results are shown in Figure 5: Stakeholder input - formality of relationships. While there was some difference in perception of the formality of relationships, the satisfaction levels were remarkably uniform (see Figure 6: Stakeholder input - satisfaction with relationships) – with a good number expressing satisfaction but recognising the need for more clarity and formality in future. The stakeholders were also asked about the importance of their cooperation with each other and the average scores out of 10 came to be 8,78 from the public sector and 8.81 from the private sector.



### How formal is your relationship with private sector actors?

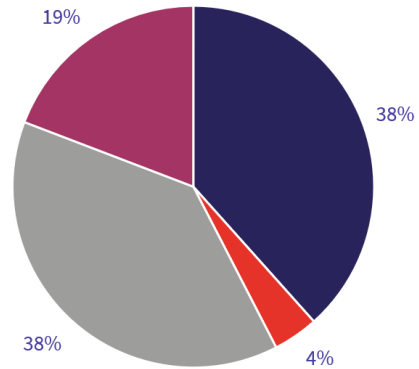
respondents: 19



- We have signed contracts defining our relationship.
- We have a signed memorandum of understanding.
- We share information informally.
- Other: all of the above/ case by case

### How formal is your relationship with public sector actors?

respondents: 26



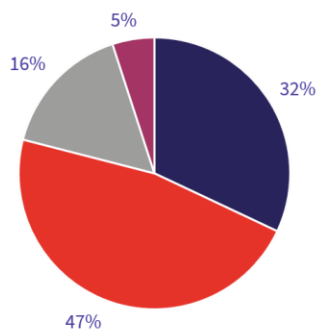
- We have signed contracts defining our relationship.
- We have a signed memorandum of understanding.
- We share information informally.
- Other - please describe.

Figure 5: Stakeholder input - formality of relationships

### How satisfied are you with the level of formality of this relationship?

#### PUBLIC PARTIES

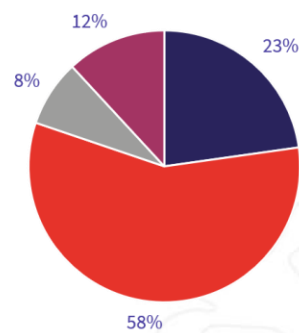
respondents: 19



- We are satisfied. It's working well.
- It's working for now but we foresee the need to be clearer/more concrete in the future.
- We need to be much clearer/provide more guidance to the private sector.
- We currently don't have any relationships as described above with private sector actors.

#### PRIVATE PARTIES

respondents: 26



- We are satisfied. It's working well.
- It's working for now but we foresee the need for more clarity/concreteness in the future.
- We need much more/clearer guidance from the public sector.
- We currently don't have any relationships as described above with public sector actors.

Figure 6: Stakeholder input - satisfaction with relationships

Stakeholders were also asked to indicate the type of cooperation model existing between public and private parties for the relevant new mobility solution. Within Table 1 a total of 23 stakeholders responded to the question. It can be seen that 39% of stakeholders indicated that there is no cooperation. 18% indicated that informal data sharing takes place. 25% indicated that there is some form of contract, being either Software-as-a-Service, Management Contract, Concessions or a Licence. 10% indicated that there is a MoU.

When looking within the transport innovations, some can be found where there is no cooperation: passenger urban air, drone last-mile delivery, hyperloop and crowd shipping. This could be as the technologies are not yet being implemented or the service is not as successful. Transport innovations such as big data, MaaS, bike sharing and e-scooter sharing rely strongly on cooperation between public and private parties. The differences between transport innovations within the categories makes it difficult to draw conclusions at this level.





Category	Transport Innovation	No cooperation	Informal information sharing	Memorandum of Understanding	Software-as-a-Service	Management Contract	Concessions	Licence	Other
Cooperative, connected and automated mobility	Connected and Automated Vehicles	6	7	6	2	1	1	0	4
	Passenger urban air mobility	12	3	1	1	0	0	0	0
	Drones last mile delivery	12	1	2	0	0	0	0	0
Infrastructure, network, and traffic management	Big data	3	6	2	7	2	1	3	1
	Hyperloop	14	2	0	0	0	0	0	0
MaaS and MaaS platform	MaaS Platform	4	4	6	1	5	3	0	2
	MaaS	4	4	5	1	4	3	1	1
Shared and on-demand mobility	Car-sharing	5	6	4	2	2	0	3	1
	Car-pooling	10	3	2	0	1	1	0	0
	Bike sharing	6	3	4	3	6	5	2	2
	E-scooter sharing	6	6	2	1	1	2	2	1
	Ride-hailing and TNC	9	4	2	0	0	1	0	1
	Crowd shipping	15	0	0	0	0	0	0	0
	<b>TOTAL</b>	<b>106</b>	<b>49</b>	<b>36</b>	<b>18</b>	<b>22</b>	<b>17</b>	<b>11</b>	<b>13</b>

Table 1: Cooperation models per new mobility innovation surveyed by GECKO stakeholders



## 8.1.2. Workshop

In this discussion round, stakeholders were divided into sector groups (industry, public, other influencers) to discuss the main barriers and challenges they perceived to cooperation between public and private stakeholders. The groups were thus divided so that the perspectives could be compared across the different groups. The following sections and ANNEX 3: Workshop discussions were completed by the groups through the course of these discussions.

### 8.1.2.1 Barriers and challenges in cooperation between public and private parties

For the industry stakeholders the main barriers and challenges in cooperation between public and private parties were seen to be:

- Procurement
- Relationships procedures with the transport systems
- A lack of governance
- Legitimate expectations for regulations
- Transparency
- Ownership of new regulations
- Lack of technical competences and understanding of the public sector
- Lack of agility from public sector
- Different goals between public and private sector
- A wall against innovation in the public sector

For the public sector stakeholder the main barriers and challenges in cooperation between public and private parties were seen to be:

- Open or hidden commercial interests of private sector that leads to a limited trust
- Different culture and language between the sectors
- Long duration of public procurement procedures
- Political consequences and legislative process
- Lack of platforms or forums to engage in collaboration, even between two public parties
- False expectations. E.g. politicians can sometimes suggest that technology will be used to solve a problem, which may sound good but may be difficult to achieve practically. Similarly hype about certain technologies can also create false expectations
- Lack of clarity. E.g. it is not clear which public department to cooperate with, as there is fragmentation of authority in public sector. Also, sometimes there is a lack of clarity on policy objectives to be achieved by public sector
- Conflicting interests

- Who is responsible if things don't work properly? E.g. bike sharing wave in different cities? In London the public entity had to clean up, but the costs were recovered from the private entity
- Traditional favouritism/preference/support toward certain infrastructure or modes. E.g. road infrastructure is built in a manner to support cars and not to support other mobility options such as bikes, e-scooters etc.

For the other influencer the main barriers and challenges in cooperation between public and private parties were seen to be:

- Different goals
- Questions about the impacts (environment, congestion)
- Competition between providers
- Business model vs. public service
- Letting the market decide vs. enabling the market to develop
- Strong competition can be a false objective
- Rapid upscaling
- Different regulations in different public sector jurisdictions
- The aim of the business model isn't necessarily "mode shift"
- National vs. local vs. regional government

### 8.1.2.2 Barriers to sharing data between public and private actors

For the industry stakeholders the main barriers to sharing data between public and private actors were seen to be:

- Finding a standard
- Data security
- Liability
- Privacy and geolocation
- Incentives for sharing data
- Trust
- Algorithm sharing

For the public sector stakeholder the main barriers to sharing data between public and private actors were seen to be:

- Lack of willingness to share data by the private sector
- Business interest of the private sector vs. privacy obligation of the public sector
- Data monopoly, which currently lies with some private sector entities such as Google, who are not willing to share it with other private sector entities or only with some specific entities based on their commercial interests.
- Data often not available with Public Sector entities.

For the other influencer the main barriers to sharing data between public and private actors were seen to be:

- Data sharing is the biggest barrier

- Different system and format to collect data
- GDPR (privacy issues)
- Need to inform users about use of their data
- Use of data with business sensitivity
- Public sector capacity

### 8.1.2.3 Other actors to be involved

For the industry stakeholders the other actors to involve in the cooperation were seen to be:

- Alternative entities
- Third party authority
- User groups
- Non-users

For the public sector stakeholder the other actors to involve in the cooperation were seen to be:

- External bodies to consult and help (NGOs, user councils, representatives of groups with special needs)

For the other influencer the other actors to involve in the cooperation were seen to be:

- Researchers
- End users
- Communities
- Car owners
- Households
- Associations (industry and government)
- Young generation

### 8.1.2.4 Solutions

For the industry stakeholders to solutions to improving cooperation between public and private parties were seen to be:

- Bottom-up platform
- More public than private
- Regulation
- Regulatory sandbox
- Independent intermediary
- Clear goals from the city
- Rule of law for cooperation

For the public sector stakeholders to solutions to improving cooperation between public and private parties were seen to be:



- Legislation and regulation (e.g. e-scooters in UK vs. Germany) + local level framework
- Data could be collected in public sector and the capacity of public sector could be built to be able to deal with this data.
- Sharing anonymised data with the private sector can help address privacy concerns for the public sector and provide more data to private sector for business development.
- Focus more on infrastructure
- User fees for road use (autonomous transport)
- Traditional mobility solutions such as cycling, not taken seriously and could be promoted to achieve environmental policy objectives of the public sector.
- Public sector can adopt different approaches to regulate new mobility services, one approach can be to regulate fast, another can be to reflect before regulating.
- Better public-public cooperation (i.e. cooperation between different public sector entities), at a vertical level and at a horizontal level, can help break silos and can also be helpful for public-private cooperation
- National standard for e-ticketing could be introduced;
- Technical standards for data sharing could be introduced.

For the public other influencers to solutions to improving cooperation between public and private parties were seen to be:

- Living labs
- Personalised travel data
- Neutrality commission to bring all players to the table
- Guidance or support from EU and national level

## 8.2 Cooperation in transport innovations

Within the case studies described in CASE STUDIES we can find a positive attitude from the public towards the service. There is therefore also political will to see the services developed. In many case studies it was observed that the cooperation had to be initiated by the private sector, however, in several cases (like Lisbon and Innisfil) the public authorities have themselves taken the initiative to engage with new mobility service providers and this has resulted in fruitful cooperation benefiting both sides. The public body also seem willing to adjust the regulatory framework to facilitate the operation of the service and technology.

<b>Transport innovation</b>	<b>Cooperation</b>
Connected and Automated Vehicles	Mid-level of cooperation models used for the service.
Passenger urban air mobility	No cooperation model for service can be determined.
Drones last mile delivery	No cooperation model for service can be determined.

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Big data for mobility	Data sharing is a critical factor for cooperation in this transport innovation. Cooperation between public and private parties can facilitate private parties gaining access to open datasets. For services there are various cooperation models available.
Hyperloop	No cooperation model for service can be determined.
MaaS Platform	Due to the need for data sharing between public and private parties to develop the service it can be seen there is a high level of cooperation. MaaS platforms collaborate with a wide range of public authorities. There is a public and political will to see the service develop. For services there are various cooperation models available.
MaaS	Due to the need for data sharing between public and private parties to develop the service it can be seen there is a high level of cooperation. MaaS operators collaborate with a wide range of public authorities. There is a public and political will to see the service develop. For services there are various cooperation models available.
Car-sharing	A critical aspect to the cooperation is access to public space. Many car-sharing services require privileged access to on-street parking space, which is typically managed by municipalities. For services there are various cooperation models available.
Car-pooling	Support from public officials can contribute to a significant increase of carpooling trips. Once there is a cooperation established the public can responded positively to the service. There are less cooperation models used for the service.
Bike sharing	There is cooperation between public and private parties however the cooperation varies is most cities. For services there are various cooperation models available, such as licences and management contracts.
E-scooter sharing	For services there are various cooperation models available, such as Memorandum of Understandings. A sharing community set up by the authority can help encourage operators to work together as a community rather than see themselves as competitors.
Ride-hailing and TNC	Mid-level of cooperation models used for the service.
On-demand ridesharing	N/a
Crowd shipping	No cooperation model for service can be determined.

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## 9. CONCLUSIONS

The findings suggest that the cooperation model between public and private parties can be a MoU, contract (such as Software-as-a-Service, management contract, concession or a licence) or they can share information informally. A MoU can provide freedom from the rigid framework that prevent new mobility solutions to evolve over time. From those surveyed 21% of public sector and 4% of private sector parties had signed an MoU. However it is also seen that both public and private parties see a need for more clarity and concreteness in the future. In this case they could sign a contract such as Software-as-a-Service, management contract, concession or a licence. From those surveyed it is seen that 32% of public sector and 38% of private sector parties have signed a contract.

From those surveyed it was also seen that 47% of public sector and 58% of private sector parties find that their relations is working well for now but foresee the need to be more clear and concrete in the future. Public and private parties also rated the importance of their cooperation remarkably similar at an average of 8.8/10.

When looking within the transport innovations, some can be found where there is no cooperation determined for the service: passenger urban air, drone last-mile delivery, hyperloop and crowd shipping. This could be as the technology has not yet been implemented or the service is not as successful. Transport innovations such as big data for mobility, MaaS, car-sharing bike sharing and e-scooter sharing rely strongly on cooperation between public and private parties.

The barriers to cooperation were seen to be: the difference of goals/objectives between the public and private sector; a lack of technical competences and understanding on part of the public sector; hidden commercial interests of private sector that lead to a limited trust; false expectations related to the technology created through a lack of understanding or hype; and a lack of platforms or forums to engage in collaboration.

Data is found to be a key factor to assess new mobility solutions, however the main barriers to sharing data between public and private actors include: the lack of standards; the lack of willingness to share data by the private sector due to business interest; and privacy issues.

Other actors that should also be involved in the cooperation process include: third party authorities; end users; households and non-users; associations and researchers.

Some of the solutions to improving cooperation among public and private parties were seen to be: platforms that bring together public and private parties; living labs and neutrality commissions that can help break silos at a vertical level and at a horizontal level for public-private cooperation; providing legislation and regulation from public authorities; and sharing anonymised data with the private sector for business development.

Finally, the balance of influence between public authorities and new mobility solution providers is important for setting the most suitable regulation, i.e. ensuring the regulatory solution is the correct tool in reaching the policy goals of the public authority. Regulation can be fluid in this process. Public authorities monitor and evaluate new mobility business models by use of data. The regulatory framework can then be adjusted depending on the success (or lack of success) of the new mobility solution.





## ANNEX 1: Case study - The light touch regulation of LTA, Singapore

LTA, Singapore's PTA's overarching objective is to ensure that  $\frac{3}{4}$  of peak hour journey will be made by traditional public transport in 2030 and that 90% of journeys will be made by Walk, Active and Shared modes by 2040. To reach this objective LTA decided to launch a tender for a public docked bike sharing scheme. This plan was challenged by the arrival of New Players who proposed a dock-less scheme which did not require any public compensation. The value proposition of dock-bike sharing scheme was more cost effective and provided greater convenience to commuters. New Players introduced a new business model which allowed for better asset utilization and was highly scalable. It therefore provided greater coverage and availability to users. Without owning a bike, it enables people to bike to bus or rail stations without worrying about bicycle availability. The dock-less bike sharing scheme was clearly identified as an opportunity and LTA wanted to help them develop in a sustainable manner. Subsequently, LTA initiated a collaboration with the New Players which started with a non-binding Memorandum of Understanding (MoU) and increased parking capacities before implementing a licencing framework. LTA adopted 5 steps. First, it established a non-binding MoU requirements such as geo-fencing, co-funding of public education, anonymized trip data and provision of insurance. Second, it increased parking capacities with demarcated non capital intensive parking space – yellow boxes. Third, relevant amendments had to be made to the laws to enable sufficient powers to enforce against errant behaviours of riders and operators. Fourth, it ensured that operators incentivize people to adopt good users' behaviour to finally educate and guide. Going further, as the market matured and to allow sustainable growth, LTA has now introduced a licensing framework to manage the size of each operator's fleet with stronger regulatory levers over operators, including setting standards and conditions to address indiscriminate parking. Ultimately it will enable LTA to direct operators to collectively ban recalcitrant users who repeatedly park indiscriminately.

Despite public education and enforcement, indiscriminate parking remained rampant and operators continued to increase the number of bicycles deployed in Singapore, without proper regard of the availability of parking spaces in Singapore. A situation that led LTA to take stronger regulatory action via legislative amendments. A bill was passed in Parliament in March 2018 to allow LTA to license dock-less active mobility sharing devices. The arrangement comprises full license and sandbox licenses. Sandbox licenses encourage innovation and reduce barriers to entry for new operators, operators with little or no operating experience. It comprises smaller fleet size: Max 1,000, shorter license: 9 months instead of 2 years, lower license fees: \$12 per bicycle per year instead of \$30 per bicycle per year. The aim is to manage the size of the fleet. Licensees cannot deploy more bicycles than the approved fleet size. The approved fleet size took into account that current utilization rate of the approximate 100,000 shared bicycles in Singapore

is low and operators will be given opportunities to apply for increases in fleet sizes. Other measures deal with indiscriminate parking. Users of dock-less bicycle sharing services must scan a unique QR-code at the bicycle parking location before the trip is indicated as 'ended'. Failure to do so will result in an additional \$5 charge by operators. Users who park indiscriminately 3 times within a calendar year will be temporarily banned from using all dock-less bicycle sharing services. Operators will need to provide data on the location and trips made by each bicycle and to timely remove indiscriminately parked devices.

The relationship between LTA and the dock-less bike providers provides a good example on how cooperative and sustainable business models emerge over time. The key lesson here is that such arrangements do not rely on the market or the public sector alone. It is the result of a learning process whereby parties adjust over time to maximise the benefits of the collaboration. For LTA, this implied to rethink the traditional way to deliver services to the citizen. The arrival of New Players was perceived as an opportunity to provide a service that better fit market needs at lower cost than traditional dock bike scheme, hence a disruptive character that forced the PTA to reconsider the way it produces mobility services. Dock-less bike sharing schemes were viewed as an innovation that deserved to be nurtured, hence an attitude that consisted in embracing and cultivating innovation before nudging the new players towards sustainability. This how the new regulatory framework emerged. This contrasts with the *laissez-faire* approach that characterised the development of paratransit in emerging economies and low income countries. The most difficult for LTA was to make the most of the innovation while preventing negative externalities to arise. The business model was shaped from the bottom-up in a sustainable manner. This is why time matters; the emergence of the cooperative model is a dynamic process of co-construction between the PTA and the New Players. The PTA needs to steer and guide the New Players in a beneficial way. Again part of the governance challenge being the uncertainty, decision-makers cannot know in detail how new services will develop, how they respond to policies and what will be their impacts. In such a complex and dynamic operating environment, the right attitude consists in experimenting to see if measures move the urban mobility system in the right direction, making-sense of emerging patterns and aligning the interests of the PTA and the New Players in time.

The case of Singapore and LTA intervention has implications when it comes to the model of governance and the integrated character of the PTA as well as how the relationship between parties is structured.

## ANNEX 2: Case study - Demand Responsive Transport in Germany, Australia and Singapore

DRT also refers to on-demand ridesharing such as micro transit, ride-pooling, app-based on-demand buses/shuttles/minibuses, mini-bus taxis, etc. It is an IT-based shared transport service operated by a company with professional drivers with no fixed schedule, not necessarily fixed stops and dynamic routing. Vehicles can range from cars to large SUVs to vans to shuttle buses. DRT serves multiple passengers independent from each other using dynamically generated routes, and may expect passengers to go to common pick-up or drop-off points. DRT is either run as a complementary service to public transport or in competition with existing public transport lines by private companies. Private actors and entrepreneurs can take the initiative to deliver the service. Still, a promising practice is when public actors, that is a Municipality, a Public Transport Authority or even a traditional Public Transport Operator work in partnership with entrepreneurs to define new mobility options for the citizen, contributing to the car-lite city vision.

In Germany, DRT schemes are developed in several cities across the country such as Berlin, Hamburg, Hannover, Frankfurt or Stuttgart with the overarching goal to complement public transport. This consists in dealing with new business models. At the moment there is no homogeneous legal framework for DRT which is subject to approval for concession either for car rental services or for public transport.

In Stuttgart DRT is reckoned as regular public transport service which operates 76% downtown and 24 % outside the city with 9.749 passengers in average. The public transport operator is responsible for regulatory approval, control, drivers, branding and marketing, demand data, fleet management, customer services and ticketing while the private entrepreneur cares about the platform and the routing, the fleet control, the label and the app, the technical aspects of ticketing etc. The project started in June 2018 as an experimentation before being optimized in summer 2019 with unified service area and expansion of service times in the evening to the whole week. From December 2019 the service is expected to be 24/7 overall the whole Stuttgart. Cooperation with other strategic partners should build as well as the electrification of the vehicles.

In Australia, DRT pilots are implemented in Sydney. The objectives of the pilots are to identify and test new service delivery models, identify technology requirements, improve customer outcomes and achieve better value for money. There is currently 11 pilots in Sydney which include operators, software and vehicles providers. The pilot of Sydney's Northern Beaches commenced in November 2017 and consist of a feeder service that brings passenger to bus lines. The Moree Pilot comprises 3 route services that have been replaced by DRT. Patronage has increased more than 1000%. It provides access to isolated communities. Overall customers are more satisfied than when compared with bus, drivers are more helpful and friendly. Areas of improvement should be the integration with the traditional public transport's fare and ticketing system.

Singapore's Public Transport Authority, LTA, is developing DRT services. The expected benefits are 1) efficiency: Dynamic routing could enable the buses to travel on a shorter route based on commuter demand, hence optimizing waiting & total journey time. 2) Convenience: DRT can obviate the need for commuters to seek transfer onto connecting bus services as it is not restricted by fixed routes and 3) affordability: efficient deployment of resources can bring about cost savings to sustain improved public transport service quality for commuters in terms of implementation, LTA called a tender in Aug 2017 to seek proposals from industry to trial on-demand, dynamic routing bus services. In Feb 2018, LTA awarded first phase of contract for algorithm development and simulations to Via Transportation, Inc. and Ministry of Movement Pte. Ltd. LTA awarded the second phase of contract for prototype development and operational trial in 3Q 2018 and operational trial has commenced in 4Q 2018.



## ANNEX 3: Workshop discussions

Table 2: Industry stakeholder input - barriers and challenges to private-public collaboration

<b>What are the main barriers/ challenges in cooperation between public and private parties?</b>	<b>What are the barriers to sharing data between public and private actors?</b>	Others to involve	Solutions?
Procurement	Find a standard?	Alternative entities	Bottom-up platform
Relationships procedures with the transport systems	Data security	Third party authority	More public than private
Lack of governance	Liability	User groups	Regulation
Legitimate expectations for regulations	Privacy and geolocation	Non-users	Regulatory sandbox
Transparency	Incentives for sharing data		Independent intermediary
Ownership of new regulations	Trust		Clear goals from the city
<b>Lack of technical competences and understanding of the public sector</b>	Algorithm sharing		Rule of law for cooperation
Lack of agility from public sector			
Different goals between public and private sector?)			
Wall against innovation in the public sector			

Table 3: Public sector stakeholder input – barriers and challenges to private-public collaboration

Public sector stakeholders			
<b>What are the main barriers/ challenges in cooperation between public and private parties?</b>	<b>What are the barriers to sharing data between public and private actors?</b>	Others to involve	Solutions?

<p>Open or hidden commercial interests of private sector = limited trust</p>	<p>Lack of willingness to share data</p>	<p>External bodies to consult and help (NGOs, user councils, representatives of groups with special needs)</p>	<ul style="list-style-type: none"> <li>• Legislation and regulation (e.g. e-scooters in UK vs. Germany) + local level framework</li> <li>• Data could be collected in public sector and the capacity of public sector could be built to be able to deal with this data.</li> <li>• Sharing anonymised data with the private sector can help address privacy concerns for the public sector and provide more data to private sector for business development.</li> <li>• Focus more on infrastructure</li> <li>• User fees for road use (autonomous transport)</li> <li>• Traditional mobility solutions such as cycling, not taken seriously and could be promoted to achieve environmental policy objectives of the public sector.</li> <li>• Public sector can adopt different approaches to regulate new mobility services, one approach can be to regulate fast, another can be to reflect before regulating.</li> <li>• Better public-public cooperation (i.e. cooperation between different public sector entities), at a vertical level and at a horizontal level, can help break silos and can also be</li> </ul>
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			<p>helpful for public-private cooperation</p> <ul style="list-style-type: none"> <li>• National standard for e-ticketing could be introduced;</li> <li>• Technical standards for data sharing could be introduced.</li> </ul>
Different cultures, different languages that the public and private sector speak	Business interest of the private sector vs. privacy obligation of the public sector		<ul style="list-style-type: none"> <li>• Data collected in public sector</li> <li>• Capacity building in public sector to be able to deal with it</li> </ul>
Long duration of public procurement procedures;	Data monopoly, which currently lies with some private sector entities such as Google, who are not willing to share it with other private sector entities or only with some specific entities based on their commercial interests.		Share anonymised data
Political consequences, legislative process	Data often not available with Public Sector entities.		Focus more on infrastructure
Lack of platforms or forums to engage in collaboration, even between two public parties			User fees for road use (autonomous transport)
<p>False expectations (e.g. politicians can sometimes suggest that technology will be used to solve a problem, which may sound good but may be difficult to achieve practically. Similarly hype about certain technologies can also create false expectations)</p> <p>Lack of clarity (e.g. it is not clear which public department to cooperate with, as there is fragmentation of authority in public sector.</p>			Faster? Or more reactive?



Also, sometimes there is a lack of clarity on policy objectives to be achieved by public sector)			
Conflicting interests			Good “old” solutions not taken seriously, e.g. cycling
Who cleans up the mess that might be left behind when things don’t work properly (e.g. bike sharing wave in different cities? In London the public entity had to clean up, but the costs were recovered from the private entity)?			Better public cooperation – vertically and horizontally – away from silos
Traditional favouritism/preference/support toward certain infrastructure or modes (e.g. road infrastructure is built in a manner to support cars and not to support other mobility options such as bikes, e-scooters etc.)			

Table 4: "Other influencer" stakeholder input - barriers and challenges to private-public collaboration

Research, NGOs, Associations, etc.			
What are the main barriers/ challenges in cooperation between public and private parties?	What are the barriers to sharing data between public and private actors?	Others to involve	Solutions?
Different goals	Data sharing is the biggest barrier	Researchers	Living labs
Questions about the impacts (environment, congestion)	Different system and format to collect data	End users	Personalised travel data
Competition between providers	GDPR (privacy issues) <ul style="list-style-type: none"> <li>• Need to inform users about use of their data</li> </ul>	Communities	Neutrality commission to bring all players to the table <ul style="list-style-type: none"> <li>• EU?</li> </ul>





			• National?
Business model vs. public service	Use of data with business sensitivity	Car owners	Guidance or support from EU and national level
Letting the market decide vs. enabling the market to develop	Public sector capacity	Households	Hackathons
Strong competition can be a false objective		Associations (industry and government)	
Rapid upscaling		Young generation	
Different regulations in different public sector jurisdictions			
The aim of the business model isn't necessarily "mode shift"			
National vs. local vs. regional government			



## GECKO CONSORTIUM

The consortium of GECKO consists of 10 partners with multidisciplinary and complementary competencies. This includes leading universities, networks and industry sector specialists.



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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 824273.

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