GECKO

GOVERNANCE FOR NEW MOBILITY SOLUTIONS

GOVERNANCE AND NEW MOBILITY: GECKO WORKSHOP 2

REPORT ON GECKO STAKEHOLDER WORKSHOP 2
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POLIS - PROMOTION OF OPERATIONAL LINKS WITH INTEGRATED SERVICES, ASSOCIATION INTERNATIONALE	BE	POLIS
IRU PROJECTS ASBL	BE	IRU
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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

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. A number of key indicators and cooperation models will help to develop the Regulatory Frameworks Dashboard, though 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. OBJECTIVES OF THE STAKEHOLDER ENGAGEMENT PROCESS

The objectives of the stakeholder engagement work package, WP5, are to:

- start up and stimulate debate on impacts of business and operating models on regulatory schemes at EU28 and International (Japan, US, Singapore and China) debate among relevant stakeholders (WP2)
- establish and manage a bottom up consultation process, organise and facilitate effective and meaningful conversations at multi-stakeholder level in 3 thematic working groups on automation and emerging technologies; shared mobility/public transport/Mobility as a Service and digitalisation and data-driven models;
- get input on experience, lessons and practices on technological, social, economic, political drivers and barriers affecting the forthcoming deployment of innovative business models and technologies (WP1 and 2);
- report strategic outlook to set up policy recommendations and roadmap on joint and co-actions addressing societal, economic and political aspects both EU and global strategic agenda and device new regulatory framework and governance in innovative mobility (WP4)

Through WP5, GECKO organises, conducts and analyses the results of an intensive stakeholder engagement process to ensure that the vision, views, challenges, constraints, expectations and ideas of stakeholders are understood and can inform not only future regulations but – more importantly – the foundational principles of future regulation making processes.

One of the key principles in the stakeholder process is an open give and take among all participants. Stakeholders understand that their on-the-ground experience and their expertise are valuable to the GECKO project. Likewise, the project is able to a) bring new insights to stakeholders through its research, data collection and analysis and b) connect stakeholders with one another so that they can also better understand the needs of actors in other areas of new mobility.

3. OBJECTIVES OF WORKSHOP

Directly relate to the work currently being done by project partnership, workshop 2 was focussed specifically on obtaining input from new mobility stakeholders on:

- Uses of big data in new mobility
- How big data can be used to make mobility more sustainable
- How private sector new mobility actors can adapt to a “greener communities” future scenario
- Which aspects of new mobility need to be regulated and what indicators can be used to assess the effectiveness of regulations

Some of this input was gathered through a pre-workshop questionnaire, the results of which were shared with the stakeholders to feed into various focus group discussions.

As several of the required inputs were needed from private sector stakeholders, these made up roughly half of those invited to this exchange session, with the other half being a mix of public stakeholders and “other influencers”.

4. WORKSHOP PARTICIPANTS

The aim was to have roughly 30 stakeholders attend each of the three planned workshops throughout the lifetime of GECKO.

A representative group of 15 “core” stakeholders was selected at the outset to attend all three workshops. This was intended to provide a certain continuity across all workshops. This group represents the geographic areas of Europe (Northwest Europe, Central Europe/ Baltic states, Eastern Europe/ Balkan states, Southern Europe/ Mediterranean, Nordic countries) and beyond, and all three sectors of stakeholder (public – at all levels of government, private – in a range of industries, and other influencers) with a stake in the fields being examined by the project: 1) automation and emerging technologies; 2) shared mobility, public transport and Mobility as a Service and 3) digitalisation and data-driven models. A gender balance was also achieved.

The other 15 invitees were part of the “flex” group, i.e. 15 different people will be invited to each workshop. This was done so as to combine continuity with fresh perspectives at each workshop and to allow us to focus invitations on particular topics areas, backgrounds or mobility areas as dictated by the stakeholder input needed at the given stage of the project.

The initial plan to hold Workshop 2 in conjunction with the International Transport Forum in Leipzig was changed in early March based on the situation around Covid-19. Workshop invitees (the 15 “core” and 15 “flex” stakeholders) were instead invited to a series of online focus group discussions. Taking advantage of the removal of the barrier of travel costs, a larger circle of attendees was invited so that we could invite people to individual sessions based on their interest and expertise. Rather than the initially-planned 30 invitees, we were able to include 41 stakeholders (plus consortium members) in the various online sessions.

See ANNEX 3: WORKSHOP ATTENDEES**Error! Reference source not found.** for a complete list of orkshop attendees.

5. PRE-WORKSHOP QUESTIONNAIRE

A pre-workshop online questionnaire was sent out to all GECKO stakeholders several weeks in advance of the workshop. The questions were designed to gather stakeholder input which is difficult to come by otherwise and to feed and complement the discussions planned for the workshop itself.

The pre-workshop questions were developed by a group of project partners with the specific goal of gathering input needed input for the project at its current stage. The specific areas of interest in this survey were big data for new mobility, business models for sustainable mobility, indicators to assess the regulation of new mobility and needs/interests for a regulatory dashboard.

92 surveys were submitted of which 63 were complete and valid. See ANNEX 4: PRE-WORKSHOP QUESTIONNAIRE QUESTIONS for the complete list of questions.

6. WORKSHOP ACTIVITIES

The format and activities of the stakeholder dialogue were altered with the change to an online format. Activities were spread over four days and focussed invitations were made to individuals to specific 90-minute sessions based on their interests and expertise. A total of 12 sessions were held: a plenary at the beginning, another at the end, and 10 (often parallel) focus group discussions, each made up of roughly 5-8 stakeholders.

Activities were planned to provide a balance of "give" and "take" with the stakeholders, covering the topic areas as described under OBJECTIVES OF WORKSHOP. It was a challenge, in our untested online format, to determine how much of our stakeholders' time we could take, how many people would show up for the individual sessions they had signed up for and how the focus group discussions would work online. In this format, the "giving" portions of the workshop took place:

- in the opening plenary, in which participants were given concise reports on recent project outputs
- in the closing plenary in which focus group discussions and key outcomes were summarised, and
- through sharing of the results of the stakeholder surveys with all participants throughout the various focus group sessions

In exchange, the project requested of participants:

1. completion of the pre-workshop questionnaire to provide input to some of the data needs within the project
2. active participation in one or more focus group discussions, each with concrete discussion questions

6.1 Learning from GECKO (session A1)

In the opening plenary webinar (Monday, 18 May, 10:00-11:00), we shared the latest learnings from the GECKO research and set the scene for the focus group discussions that followed. The opening plenary included:

- Examples of cooperation models between public and private sector actors in new mobility
- Insights into the economic, social and political factors that influence the regulation of new mobility services
- A preview of GECKO's regulatory dashboard and how it will assess social, economic and political variables of new mobility technologies and service

In the opening session, attending stakeholders were asked to indicate where they were calling in from. The results are seen in Figure 1.

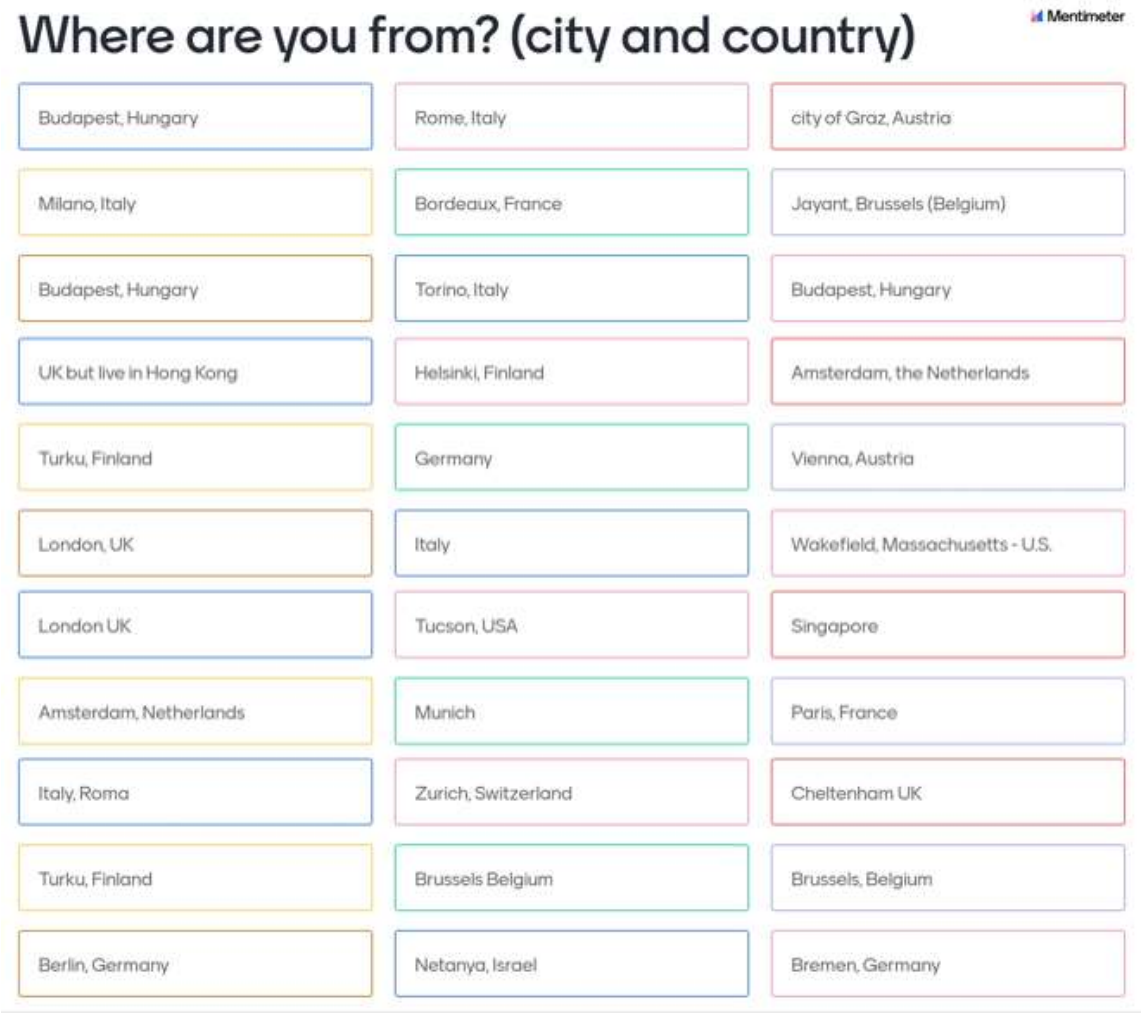

Figure 1: Where are you from? Opening session attendees

Various types of cooperation models between the public and the private sector have been identified and were explained, ranging from no information sharing to informal information sharing to memoranda of understanding or contracts. Among GECKO stakeholders, roughly 1/3 have signed contracts defining their relationship with the "other" sector (private or public) and the importance of the cooperation is rated on average as 8.8/10. The highest level of cooperation appears in the more "advanced" forms of new mobility, whereas it is lower or non-existent for forms of mobility that are not yet well established (see Figure 2).

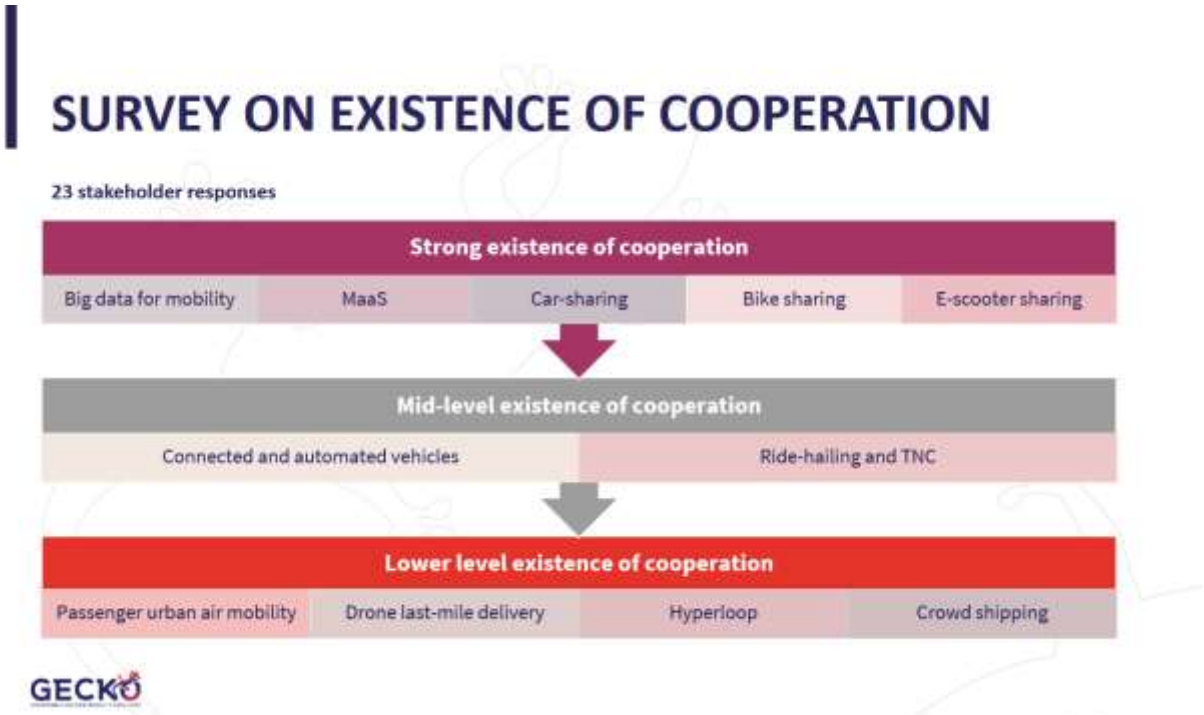

Figure 2: Levels of cooperation between new mobility providers and the public sector

Stakeholders were asked to consider what challenges they face in working together with the "other" sector, i.e. with the private sector for public sector actors and with the public sector for private sector stakeholders. The answers are displayed in the word cloud in Figure 3 and make clear that there is a range of challenges to be overcome between these different worlds.

Figure 3: Stakeholder responses to question of challenges faced in dealing with the "other" sector

The case of Lisbon was described, where the city has signed MoUs with several operators of e-scooters, all of whom are required to communicate with the city and one another on a regular basis. This system of communication and collaboration has delivered positive outcomes and created an atmosphere of tolerance and trust (Figure 4).

Figure 4: Case study of public-private cooperation in new mobility

The economic, social and political factors that influence the regulation of new mobility services were also described. These include factors that aim to *support* the development of new systems and services (business ecosystems, data management and existing governance structures) as well as those whose role is to *control* the new systems or services (environmental and social factors and customer protection and public safety). See Figure 5.

Figure 5: Factors influencing the regulation of new mobility

Several different governance models were looked at, and their pros and cons identified. For example, binding rules such as laws or directives have the advantage of providing clarity and offering security for long-term investment, but the disadvantage of being inflexible or exclusive and perhaps poorly accepted. By contrast regulatory sandboxes can foster innovation and shorten the time to market but they also come with the disadvantage of being most costly as the experimental format requires careful evaluation (see Figure 6).

The regulatory process and timing of different types of regulations in the process were also described. These ranged from defining norms and standards to experimentation to regulating technologies or services that already exist (see Figure 7). Recommendations are also provided for the approach to regulating at each stage.

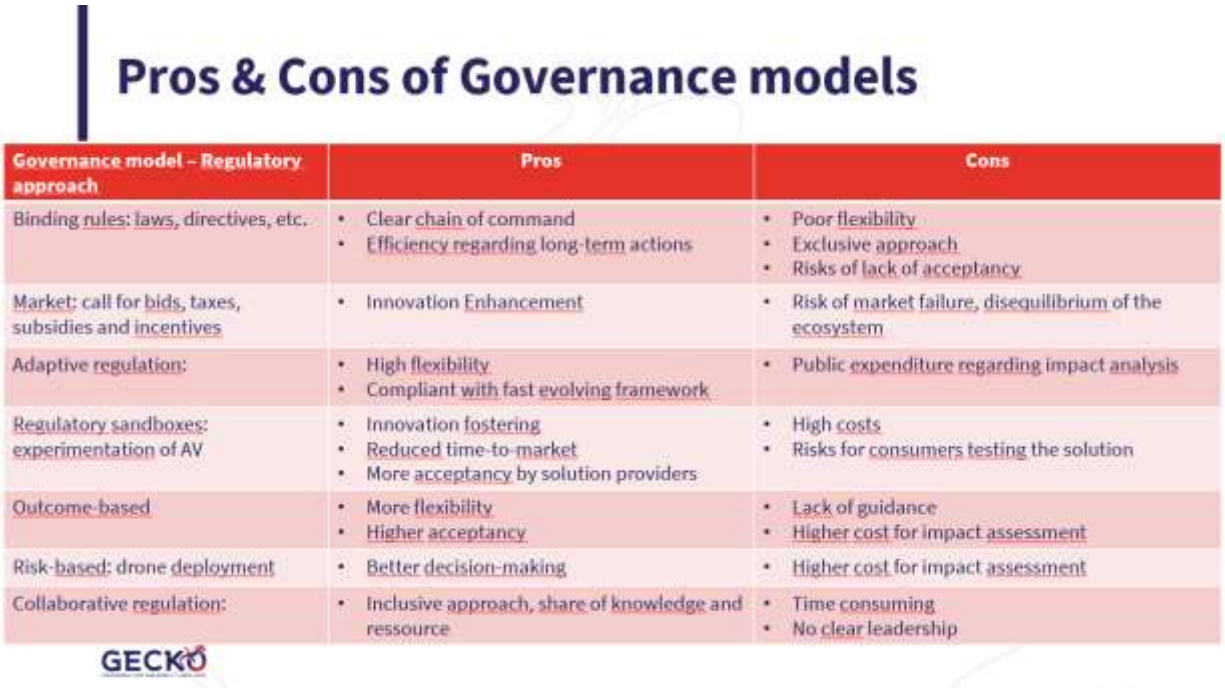

Figure 6: Overview of governance models and their pros and cons

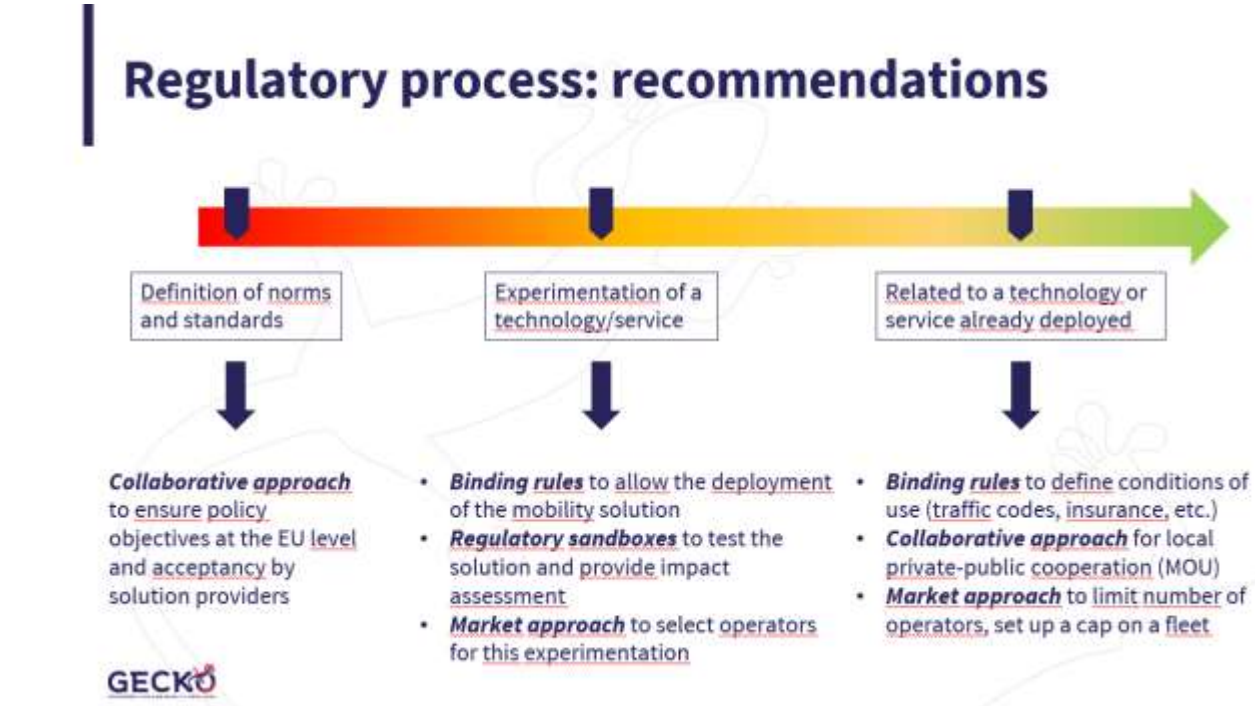

Figure 7: Recommendations for the process of regulation development

6.2 Regulating new mobility (session B1, B2, B3, C1 and C2)

This session took the form of a series of 5 parallel moderated focus group discussions, three of which were scheduled on Monday, 18 May, 15:00-16:30 (session B3 had to be cancelled because several invitees couldn't attend) and two of which followed on Tuesday, 19 May, 10:00-11:30. The groups were divided according to topic area of interest and all three stakeholder groups (public sector, private sector and other influencers) were represented. See the overview of the parallel sessions in Table 1.

Table 1: Overview of parallel sessions on regulating new mobility

Monday, 18.05.2020	**15:00-16:30 CEST**	**B1. Regulating ride-hailing, TNC, MaaS platforms, MaaS, carpooling, on-demand ride sharing**
Monday, 18.05.2020	15:00-16:30 CEST	B2. Regulating connected and automated vehicles
Monday, 18.05.2020	15:00-16:30 CEST	B3. Regulating big data for fleet management and logistics, cooperative traffic management, crowd shipping
Tuesday, 19.05.2020	10:00-11:30 CEST	C1. Regulating passenger urban air mobility, drone last-mile delivery, hyperloop
Tuesday, 19.05.2020	10:00-11:30 CEST	C2. Regulating bike sharing, e-scooter sharing, micro-mobility

Discussion was preceded by a presentation on the work GECKO has been doing in recent months to identify indicators that can assess existing *regulations* (as opposed to assessing the *mobility solutions* themselves). A comparison was shown of regulations from Madrid and Paris and how each has chosen to regulate the use of e-scooters (see Figure 8).

Examples were also shown of topic areas in which various regulations have been examined to see which indicators play a role. In the regulations examined for car sharing and carpooling, for example, "requirements to operate" appeared in most of the regulations examined. For Maas, its relationship to public transport is addressed in several regulations (see Figure 9).

Outputs of the four discussion groups in sessions B1, B2, C1 and C2 fed directly into session F1 (see Regulation performance indicator overview (session F1)**Error! Reference source not ound.**).

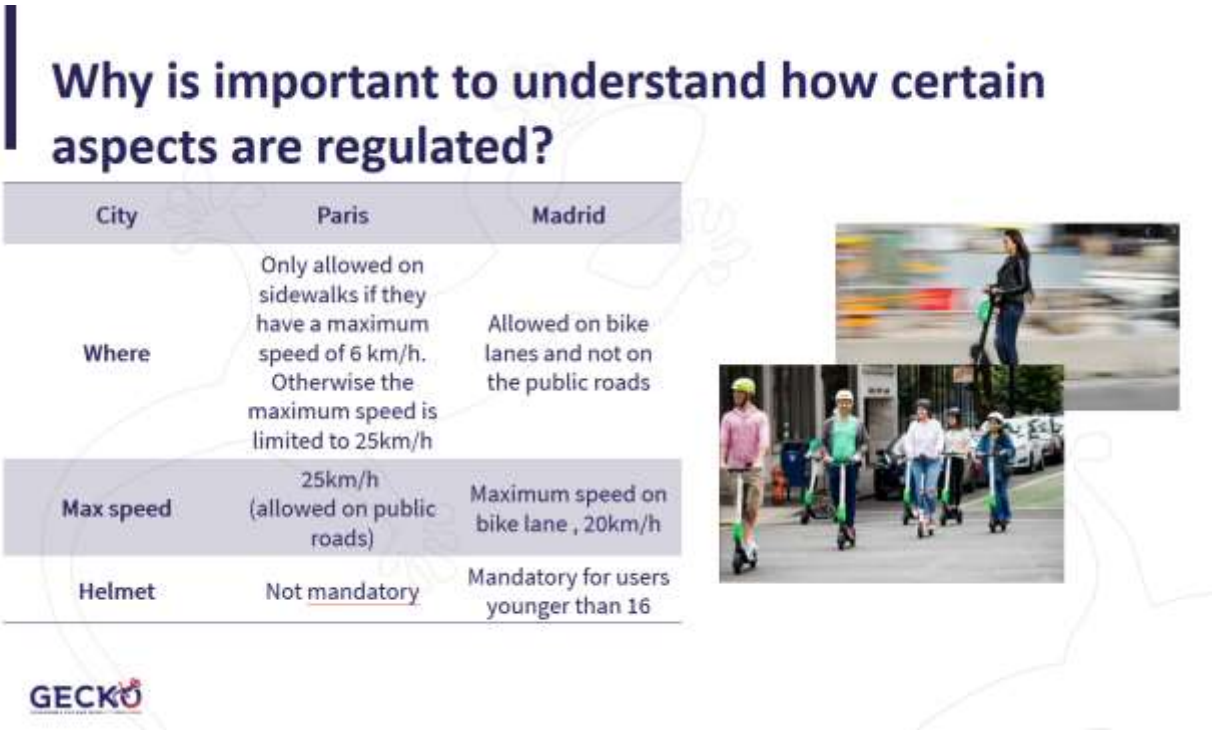

Figure 8: Comparison of the regulation of e-scooters in Paris and Madrid

Each stakeholder group focussed on its specific topic areas, addressing the following questions in their discussion:

- How well it is currently regulated?
- What's the biggest challenge in regulating it appropriately?
- What should be the key focus for its future regulation?

The content of the discussions in the four groups are summarised in Table 2, Table 3, Table 4 and Table 5.

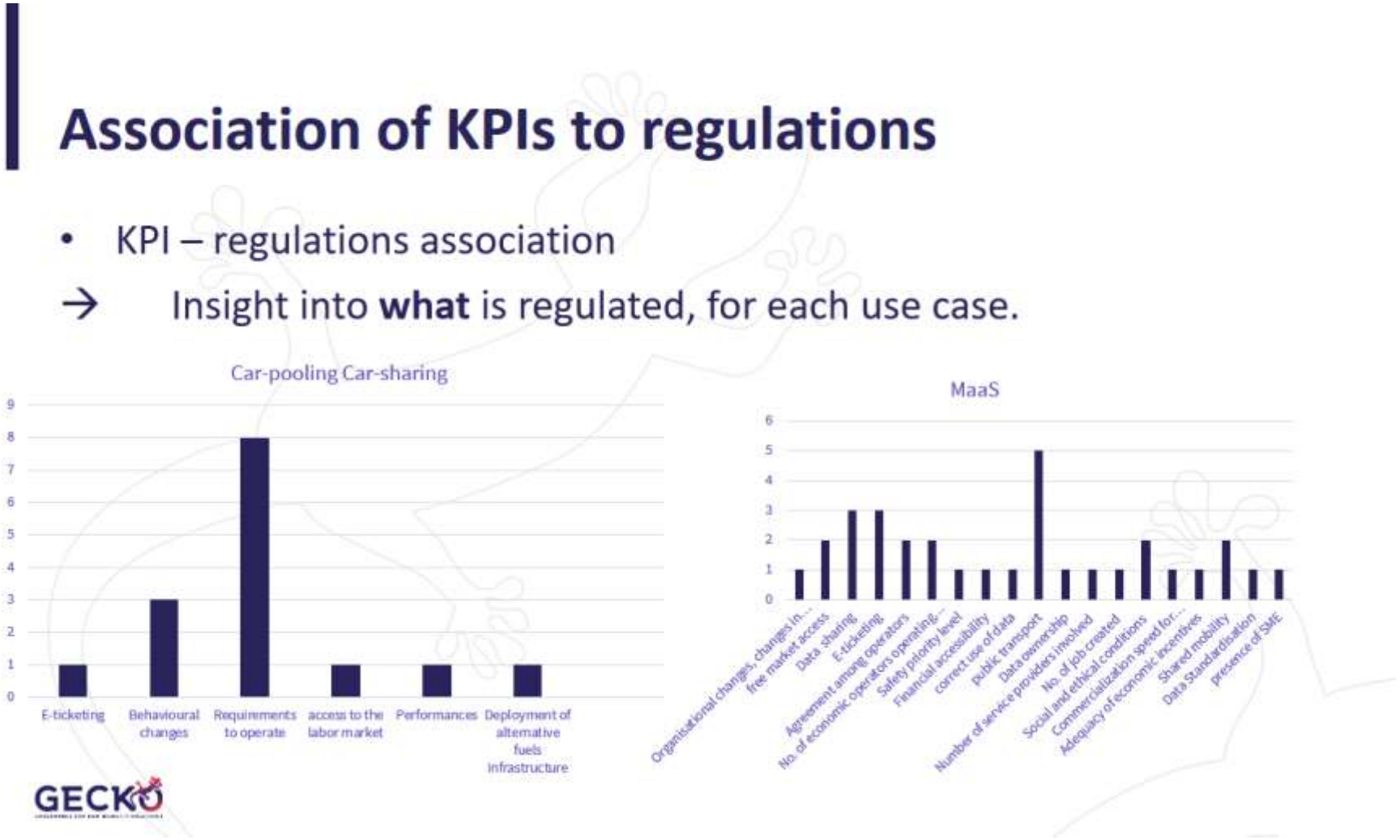

Figure 9: Associating indicators with the regulations they describe in different areas of new mobility

Table 2: B1summary: Regulating ride-hailing, TNC, MaaS platforms, MaaS, carpooling, on-demand ride sharing

	How well is it currently regulated?	What's the biggest challenge in regulating it appropriately?	What should be the key focus for its future regulation?
Contracts	Ride-hailing, TNC: European market, not well regulated. The current move is for authorities to ban them due to the mistakes that took place in the past. Ride-hailing, TNC: US market, PTA are supporting Ride-hailing TNC companies. Carpooling: contracts not seen for the moment. In Paris carpooling organisation have access to a platform provided by Ile de France Mobilité that integrates carpooling. See carpooling case study in cooperation model deliverable. MaaS: US market, little contracts as it is a quite new service. However, there are mostly in the case of ride-hailing services supporting PT authorities.	Ride-hailing, TNC: Newness of the service leads to a contractual grey zone.	New forms of contracts can be needed for flexible mobility services such as on-demand ride sharing.
Insurance and liability	Liability of MaaS: US market, not well regulated.	Liability of MaaS: the MaaS provider should not be liable for what happens by the operator (i.e., you shouldn't hold someone responsible for something they have no control over). If something doesn't work by the operating companies in the MaaS offer, this should does not be regulated.	Making sure insurance and liability is considered in the offer by the operator to the authority. Looking at the passenger perspective (how to include the aspect linked to "quality" in contracts?): Whom do they turn to if the service doesn't work as it was supposed to?

		The conflicts among MaaS providers, transport operators and users would create barriers for regulation in terms of insurance and liability	
Equity and accessibility	Accessibility: regulation already taking place for PT for persons with disabilities in the US. Strong regulation through the Persons with Disabilities Act Equity: not yet regulated but there is quite a bit of attention on that in recent months/years (particularly in the US)	Equity: ensuring different categories [one of the challenges is to clarify the groups of people who need more consideration of "equity"] of persons have access to mobility Accessibility: the services are currently being located in the dense/affluent urban city centres while underserving the rural areas. Geographical restrictions for the use shared mobility services within different parts of urban areas are also a challenge.	Accessibility: regulate to keep a cap on the service in the city centre and making sure it reaches outside the centre. Public authorities need to question if they subsidies services outside the city centre to reduce the need for private vehicles. Incentives can be used to address this. Graz car sharing is an example of expanding their service to outside the city centre. Question of how public of a good mobility is: should cities subsidise privately offered services?
Data Integration and interoperability	At EU level this is regulated. Local level not yet regulated. US market is not well regulated.	Understanding what can actually be done with the data. See recent example in Los Angeles where Uber has sued the LADOT about data. What data should be forced to be open? In the B2B market, the use of open API is a challenge as it relates to the competitions in the market.	Making sure the systems that follow the data can be built/ executed.
General safety	Well-regulated for the vehicles – for the drivers this is less the case.	Driver skills: it is difficult to evaluate driver skills. To ensure that all drivers who provide relevant services have high quality skills is important for general safety...however, this grey area becomes a challenge for an appropriate regulation.	Not general safety but a participant stressed social issues should be included, such as the driver conditions. "to what extent is safety (physical and social) part of the business models of providers of innovative mobility services?" linked to the pressure to drive (or deliver) as much as possible

General comments	These new mobility operators are not profitable, and the market is flooded with venture capital. Will these services continue to exist? The consideration of business models of new mobility services and technologies should also be a key focus in future regulations though it is not mentioned in KPIs

Table 3: B2 summary: Regulating connected and automated vehicles

	How well is it currently regulated?	**What's the biggest challenge in regulating it appropriately?**	**What should be the key focus for its future regulation?**
Data security and protection standards	Depending on vehicle's type (I.e. level of automation, private vs public cars etc.). Most of the regulations are very specific for different applications (there is an 'adaptive development' over time), it's a process of learning and regulating.	Lack of understanding from public authority regarding the technology – educate them both technology and impacts. 5G, QI are some examples vs multi-layer issue	Liability Demonstrate that an autonomous is safe – without the driver and the supervisor Cyberattacks aspect How society is/will adapt, difficult to do a forecast for 2040
Impact on vulnerable road users	Currently not well regulated (i.e. if we had a general speed limit on all roads). When on the road it should be safe for all road users, at the present this predictability from AI is not there yet.	Different speed level is a problem Reliability is the main challenge here regarding AI predictability.	General low speed limit for everything which is also a way to limit segregation (easy to operate also technically).
Data Integration and interoperability	No big regulation is needed; enough standards for public transport are there. For private cars it's something to explore yet. For private vehicles: ex. Of police stopping an autonomous vehicle with no driver. For the	Make sure that shared and autonomous vehicles should be independent from infrastructure	Provide guidance to cities to make sure they are well integrated with existing PT services.

	time being given the number of vehicles we don't have this concern. Ex. ISA will be in place in two years for any new vehicle (the equipment is mandatory but not the use). In these conditions for instance, people with no driving license could not be transported		
Insurance and liability	Experimental regulation should allow for different cases (for instance, a crash on a Tesla car, the responsible should be Tesla not the driver). Liability also from infrastructure operator Big challenge: impact of mobility Liability is a multi-layer issue	Definition of liability	Liability How society is/will adapt, difficult to do a forecast for 2040
General safety	Speed limit is a critical aspect and important for the business case too.	Perception of safety (as transversal point).	Demonstrate that an autonomous is safe – without the driver and the supervisor
Environmental aspects and financial sustainability			Impact of mobility on the environmental and on financial stability have to be considered.

Table 4: C1 summary: Regulating passenger urban air mobility, drone last-mile delivery, hyperloop

	How well is it currently regulated?	What's the biggest challenge in regulating it appropriately?	What should be the key focus for its future regulation?
General safety	Hyperloop is a very new system: test tracks, validation ongoing, but there is not a public concept of hyperloop yet. Working on regulations that are missing today since 2018 with EC, different regulatory bodies (European Space Agencies, ERA, EASA…). Definition of the specifications of the systems. 6 companies are working on the system in the world that present different technologies (pressure difference – space level or aviation level => safety of the cabin issues in case of evacuation) UAM: today there is not a regulatory framework. There are helicopters that exist today, but it is not compliant with the new technologies today which are totally different (not only one rotor but different propellers, etc.). Two engines are required in urban environment for helicopters (which are not used at scale).	UAM: first challenge: definition at the vehicle level what are the requirements in terms of design => EASA. How do we regulate the safety? Aviation is particular in terms of **certification standards**, compulsory rules, very expensive process. This is a high-level of requirements that are not the same as cars. Multi-propellers => More than 200 different designs around the world! (Vertical electric propellers). Viability of the design => Definition of the regulatory framework In aviation, mobility regulatory framework is missing (level of noise, etc.). Fly over populated areas and flying at scale are main challenges	Hyperloops: The evacuation procedures, safety must be considered. Aviation safety standards are higher than railways. => Objective to have the safest system in the world. Level of failure not accepted
Data sharing and ownership	Same as other mobility solutions		Similar to railways. Ownership depending a lot of the public/private transport operator. To offer a good environment to passengers who travels hundreds of

			km (500 – 1500 km inland transportation)
Data security and protection standards	UAM has the same issues with other mobility solutions. The only difference is the impact of the cyberattack. Hyperloop => Reduce any possibility of cyberattacks as the speed is very high. Advantage to be in a controlled environment.	Investment from the nations or EU to define standards. It is important to point out that hyperloop can't derail, whether aircrafts and autonomous can, due to cyberattacks.	Major priority in the future due to the big impacts.
Checks of mobility devices	Hyperloop => Infrastructure = railways, vehicle = aircraft. Checking standards from both sectors to identify the gaps and provide guidance. To get real data from prototypes. Investigation of background to define more specifications.	To find new ways to regulate these standards. Regulations need to be defined in parallel with the validation of prototypes. Challenging mix from railway and aeronautics sectors.	Ensuring that the public administration approves the solution whose standards have to be defined at the worldwide level. This should not be defined at the country level!
Insurance and liability	UAM: standards defined by agencies (long-time process). Basis for insurance as minimum requirements. Difference with cargo. People at the ground are in danger. Higher requirements with passengers in flying vehicles.	Flying over populated areas and flying at scale are main challenges	Hyperloop: To decide the level of automation for the vehicles. Fully autonomous vehicles, controlled direction, etc. Level of insurance in each case. UAM: Level of automation is also key. Financial aspects that require fully automated vehicles. But higher requirements in terms of liability: e.g.

	Business ecosystem will be significantly impacted by incidents that could happen. Food delivery in Iceland and blood in Switzerland are already there.		the decision-making process (like for autonomous cars). Airlines have insurance for passengers. => Part of regulatory framework for the operators. Insurance for people on the ground?
Genearl notes	Roadmap => Cargo first, then passengers that involve higher requirements Infrastructure => High investment to set-up hyperloop railways network Environmental effect: compensation of emissions due to manufacturing and setting up the infrastructure at the long-term. => People will move from aviation to high speed rails for mid-distance airlines (Barcelona- Paris). Cruise speed can be achieved faster with no emission for the operators. Comparison between the two lifecycle approaches between electric plane and hyperloop. Electric planes in 2035 in Norway for domestic flights (short distances). Other KPIs: Multimodality – Complementary of the mobility solutions. Governance of the whole system to find an optimum (Bordeaux/Paris airline not allowed) => Recommendations to the EC with a strong statement related to the fact that the power of lobbying must be reduced Social aspects: social acceptance of this system (UAM, hyperloop) => inclusivity, affordability. Noise and visual pollution have to be taken into account too. What trade-off does society have to made to avoid annoyance? Impact on citizens		

Table 5: C2 summary: Regulating bike sharing, e-scooter sharing, micro-mobility

	How well is it currently regulated?	What's the biggest challenge in regulating it appropriately?	What should be the key focus for its future regulation?
Insurance and liability	In Austria vehicles are regulated through accreditation rules and having an insurance is necessary to get accreditation. In UK as well having insurance is mandated for the operator, in the MoUs and contracts with the city.	Liability usually rests with company and sometimes additional insurance is required to cover the customers, but it is quite expensive. Generally, liability issues are difficult to regulate in terms of bikes (not only shared). If there's an accident involving a bike and a car, the bike rider is usually not held liable for damages (example of the Netherlands)	At the city level a single approach should be applied, and different zones/areas should not adopt different approaches. A general law setting the definition of these types of vehicle, by using broad rules on speed limits and weights and power, could be helpful. Then general regulations could be applied to all such vehicles and services that fall in the scope of the definition. The measures above would also benefit the people using these vehicles. Standardization could also be helpful, where umbrella categories and terms are defined at the national level and do not fluctuate with regions and cities. There is usually a lack of clarity on who is responsible for these topics in local authorities and departments. Many times, MoUs and contracts with cities lack a mandated contact point with whom
Checks of mobility devices	An accreditation system is usually used to ensure safety and security (this may also apply to the safety and security features of the device)		
General safety	In UK, CoMoUK provides accreditation on safety, for bike sharing and micro mobility services. TfL by law also relies on this entity. However, operators pay for accreditation. In other countries Service Level Agreements (SLAs) and contracts are used for regulating safety. Initially safety of the vehicle was the main aspect that was regulated. Now aspects such	Regarding the replacement of vehicles/fleet, it usually depends on the level of risks operators are sharing with the city, which in turn depends on the contract with the authorities. Operator can be responsible for replacing vehicles/fleet, when aspects are not clearly addressed in the contracts.	

	as pedestrian access, where the bikes are left after use etc. are also regulated. Practices that promote and reward good social behaviour are used by operators to protect the vehicles.	General safety aspect not checked well, as implementation of these measures is challenging.	operators can deal with. Establishing clear contact points would be helpful. The use of public space by bikes/e-scooters needs to be controlled
Data security and protection standards	In UK, CoMoUK accreditations include clauses on data security.	In UK, there is lack of clarity on certain aspects. The roles assigned to the operators in terms of either being 'data controller', 'data processor' etc. are not clear. There is ambiguity on whether data collected can be shared or not. It is not clear if continuous tracking is allowed or not. There are differences in countries on how different data related aspects are regulated. Also, formats differ. Standards used for data are different in countries and across domains. There is also confusion what different cities would like to know, from the data collected by operators.	

		There are only few regulations on data, but they are generic and not specific to bike sharing, e-scooter and micro mobility sector. Local variation: Some cities want to control the data related to mobility, while others don't	
Contracts	Cities have the right to designate their transport authorities for bike sharing operations, so legally speaking these services can sometimes fall within the framework of 'public service'. In Austria Local authorities can regulate certain matters. Art. 118 para. 6 B VG grants constitutional legitimation, by suggesting that some matters fall with local authorities' own sphere. Also, if vehicles disturb or impact community life they can be blocked by local authorities or their use can be regulated. Vienna opted for this option and in June 2019 provided some regulations for e-scooters and bike sharing. But other cities are using contractual provisions to regulate it. In UK, cities don't have the authority to allow or not allow services. London is trying to come up with bylaws whereby different boroughs	Considering there is a lot of confusion in terms of who can regulate what, and sometimes different approaches are used (e.g. in some cases laws, while in others contracts/MoUs), managing or determining jurisdictions of different authorities can be difficult for operators.	

	will be allowed to regulate these types of services. This is also true for Hungary, where different local authorities may have different approaches and it is further complicated at regional and national level.		
General Comments	The specific topics (i.e. bike sharing, e-scooter sharing, micro-mobility) as such are not specifically mentioned in regulations and maybe covered by generic regulations. In Austria typologies are sometimes defined by speed limits, anything under 25 km is categorized as bikes. All national regulations are then applied accordingly. It was used as an emergency solution to address the topic.	Private Operators are taxed more as compared to public transport. This complicates the playing field to the detriment of small private operators. The responsibility that operators have and the risks they share, should be factored in for determining subsidies, taxes etc. to level the playing field. The situation is further complicated by larger players, which are backed by venture capitalism and which can sometimes be treated differently or more favourably due to their size and resources, thus impacting smaller operators.	

6.3 Big data and sustainable business model innovation (session D1)

Session D focussed on big data, which was defined as large volumes of data, either structured or unstructured, that can be analysed computationally to reveal patterns, trends, and associations. Invited participants were mainly from the private sector. Results from the stakeholder survey described the ways that businesses currently use big data for mobility (see Figure 10). During the discussion that followed, stakeholders were asked to describe *opportunities that big data offers* mobility companies that would otherwise be unavailable to them and then to *identify the main challenges* to these uses of big data. The results are summarised below in Table 6.

Figure 10: The uses of big data of GECKO private sector stakeholders

A follow up question addressed the challenges transport/mobility companies face in making their business more environmentally sustainable and how big data could enable a transport business to develop greener products or services. The responses to these questions are summarised in Table 7.

Table 6: D1 summary: The potential of big data

What opportunities does big data offer mobility/transport companies that wouldn't otherwise be possible?	What are the main challenges to this use of big data?
Support public authorities to define regulations that are fit for purposes to the mobility/transport companies (i.e., data-driven regulations/policies). This is due to an exchange of data between public and private parties. See GECKO cooperation model report.	Access to data is a challenge. What types of data is needed?
Support public authorities to plan and redesign cities that fit mobility/transport companies (e.g. mobility hubs, bike lanes and direction of road).	The costs of what to do with the data for small and medium sized cities following once it is collected.
Communication between mobility/transport companies when there are issues with a service. This would provide a mobility guarantee to the users.	The correct guidance is needed from authorities to private sector to steer the use of the data
Delivery bots that using sidewalks can be better regulated using big data. Routes with wider sidewalks can be used for the bots.	Closing gaps between different data standards and users
Passenger urban air mobility not as linked to big data in urban mobility. The focus will be on the data of the customer, such as land mobility.	Closing gaps between users of data.
The status of freight vehicles (land or air) will be shared via a data platform to know if the vehicle is full or empty. This will optimise the use of the vehicle.	Lack of capacity for cities and PTOs to use the data.
Mobility dashboards	Data standardisation
Deployment of open data standards	Access to the customer data/ who owns the customer data. Owners of the customer data do not want to lose the relationship with the customer. (private firms are reluctant to share their customer data)
Define low emission zone based on big data because you know what devices are used.	There is a need for new data mining tools to analyse the data.
Provide B2C services (parking meters---real-time management with parking space) with the use of big data.	
Utilization of (empty) freight vehicles.	
Better competitor analysis to know whether their competitors doing well or not in order to develop better competitive strategy.	
Opportunities to optimize customer experience.	

Table 7: D1 summary: Big data and sustainable business models

What challenges do transport/mobility companies face in making their business more environmentally sustainable?	How could these uses of big data enable a transport business to develop greener products or services?
Data that aids the implementation of LEZ. Such as if the vehicles are diesel, electric, clean fuel, etc.	Better integration of business model with PT, walking and cycling.
Lack of regulation support to make their business more environmentally sustainable. If one business makes costs to become more environmentally sustainable but it is not mandatory by regulation it can be a risk.	Use of big data to optimize air routes for passenger urban air mobility. This would include the entire air mobility system.
Competition between competitors make firms difficult to transform into sustainable business models.	Collected data (services) can be used for city planning.
Lack of urgency and capacity to for firms to transform their business into sustainable one.	In addition to the development of greener products/services, big data can help the whole business models/systems.
Long term clarity of regulations.	
Lack of urgency and capacity from the public authorities that make the regulation.	
Unclear cost/ benefit analysis (Cost and benefit dilemma) about making their business more environmentally sustainable. Especially during COVID-19, authorities will lack of fund.	
Use of different mobility dashboards	
Lack of data sharing	

6.4 Business model of new mobility services and technologies, future scenarios and regulatory responses (session E1, E2 and E3)

The E sessions were three parallel groups addressing the same set of questions, but the members of each group had a particular interest or experience in one of three topic area: Maas, connected, cooperative and automated mobility or shared mobility. Most participants were from the private sector with one or two representatives of cities or other influencers in each group.

Prior to the small group discussion, the participants were presented with the responses gathered from the stakeholder survey. In the survey, private sector stakeholders were asked if they would need to make *significant*, *minor* or *no changes* in various aspects of their business model in order to be prepared for a Greener Communities scenario. They were asked for a brief description of the types of changes they would expect to need to make. The results for key activities and key resources can be found in Figure 11. For all areas, a majority of respondents stated that they would need to make at least some degree of change in order to be prepared for the greener future scenario.

The discussion was based on the assumption of the Greener Communities scenario for 2040 (see ANNEX 6: GREENER COMMUNITIES SCENARIO), which was referenced in the pre-workshop questionnaire and was also provided to the E-session participants in a preparatory package.

The questions asked in this session were a follow-up step to those asked in the pre-workshop survey, asking participants *what regulatory changes would be needed* in different aspects of the business model to enable transport businesses to succeed in a Greener Communities scenario. A follow-up question addressed the *challenges/concerns about such regulatory change*. The results are summarised in Table 8, Table 9 and Table 10

The final question asked what changes stakeholders foresee making in their business models to make them “pandemic-proof” for the future and how such changes will affect a transition to a Greener Communities scenario. Results are summarised in Table 11.

Figure 11: Changes in business model needed to adapt to a Greener Communities scenario

Table 8: E1 summary: Making change toward a Greener Communities future scenario (MaaS)

	What regulatory changes would be needed to enable transport businesses to succeed in a Greener Communities scenario?	**Challenges/concerns about such regulatory change?**
Customer segments that you create value to	In terms of customer interaction for MaaS there will be 2 main groups B2G and final users of services: B2G delicate aspect; regulatory approach able to customize mobility packages and services. B2C End users	Good quality customized services (important to have someone checking the quality of service and demand needs in order to cover all the demands groups)
Value (including products/services) that you propose and deliver to customers	Assessment of the environmental footprint and monitoring performance indicators could be an additional value propositions; also performance indicators Need to provide energy related services Communication with end-users showing them how their choices are impacting the environment will also be important as this can also nudge them to adopt modes, which may have better impact on the environment, but are perceived as less comfortable	Need to “charge” the environmental impact? Cooperation between public authorities and operators Need to “test” performances of services for a limited time
Distribution channels that you deliver products/services to customer segments	Digital channels, integrated services (services clustered in one platform) B2G platform for exchanging data Electronic system for payment Data policies, since MaaS will be collecting data from citizens and provide them (aggregated or not?) to Administrations	

Types of **business relationships** that you establish with customers	B2G partnership agreement (quality contract); With B2C traditional one for MaaS (fees or subscriptions; no major changes needed);	Top down approach (not distributed responsibility; how to deal with this?) Find right regulatory framework able to allow competition in the market; need to share API; strong integration between service providers and MaaS; strong regulatory framework on data needed
Mechanisms you generate revenues (e.g., selling products & services, renting, subscription fee etc.)	Fees on environment related tax collection and fees on charging/energy bills Supported by public authorities	
Key resources supporting your value, channels, business relationships and revenue stream	Data	allow third parties to collect data for the government
Key activities supporting your value, channels, business relationships and revenue streams	analysis of environmental footprint (aggregated)	
General notes	For the green scenario, MaaS will become a unique access point for many services. However, the governance and regulations in green scenario is going to be top down, which can make things challenging for the service operators/businesses as they are going to have to deal with a lot of regulations from a lot of different authorities and entities – environment, public administration etc. Strong integration between regulatory frameworks is required, to foster ease of operability.	

Table 9: E2 summary: Making change toward a Greener Communities future scenario (CCAM)

	What regulatory changes would be needed to enable transport businesses to succeed in a Greener Communities scenario?	**Challenges/concerns about such regulatory change?**
Customer segments that you create value to	Education of people regarding alternative modes	Incentivizing people to move towards more sustainable modes (see value)

Value (including products/services) that you propose and deliver to customers	You can create value if it's attractive for customer, I.e. incentives for public parking to attract new customers makes it easier to attract them Stationary carsharing (not free floating) There are counterproductive regulations such as urban planners must provide parking facilities. It's also a question of language, I.e. 'alternative modes' is based on a car-centric mobility culture > educate the customers, more accessible public parking, de-incentives	Market based business case – as long as fossil fuels are cheaper than it's harder to make the change Political challenge - I.e. tax more who pollutes more Stop the 'parking Leninism' (stop the free parking) Not leave rural areas alone – automated vehicles? Ride-sharing, app-based initiatives, on demand services, citizens buses
Distribution channels that you deliver products/services to customer segments	Change into more flexible taxi services MaaS - key is that the data protocols that should be shared between different cities/countries. Ex. Whim platform > focus on the core, public transport and active mobility Look at physical recognition of these services in the build environment – they should be very visible and recognisable.	Challenge with housing development, I.e. provision of parking 'by default' - it's key to the integration of new mobility services in the built environment rather than just focus on the digital and the app
Types of **business relationships** that you establish with customers	Regulation Vulnerable people a city that has good facilities for walking is also a city for vulnerable people, I.e. the elderlies • Ticketing and information in PT with visual impairments • A city friendly for the elderlies is a city friendly for all	Service level agreements between private/public - who has the liability to provide the coverage in remote areas for instance.

	Regulation business to government – finance aspect between short- long distance buses: assess efficiency	
Mechanisms you generate revenues (e.g., selling products & services, renting, subscription fee etc.)	Strong partnership public-private – the city needs to make sure that project is sustainable vs profitable	Define a protocol to make sure that the service is profitable, good quality
Key resources supporting your value, channels, business relationships and revenue stream	Look at the wider picture rather just focus on subsidies – consider the societal context and create marked-based condition for the services to flourish, don't focus only at the single mobility service Talk to companies to incentivize sustainable modes of transport	Change in the taxation and purchasing cars
Key partnerships you need to create with in the future	When you want to innovate you to change the model – focusing on new innovative public/private partnerships	The public/private dialogue is region-specific, it's a city to city approach. There should be standard for this collaboration
Main costs in your business model	Focus on the service quality – is it a good and feasible service?	How to keep high level of service and make it affordable > consider bike sharing as PT, cooperate with public companies, this brings more people to cycle

Table 10: E3 summary: Making change toward a Greener Communities future scenario (shared economy)

	What regulatory changes would be needed to enable transport businesses to succeed in a Greener Communities scenario?	**Challenges/concerns about such regulatory change?**
Customer segments that you create value to	Changes in taxation could help car-sharing companies to reach more customers: the taxation system (e.g. in France) in regards to work travel compensation, company cars, etc. motivates people and companies to buy cars. If it changes, companies will be more inclined towards e.g. mobility budgets for employees instead of work-subsidised cars.	Feedback from public sector: it is necessary to understand the differences between communities (metropolitan vs periphery), and adjust mobility solutions accordingly. Regulators can be seen as the customers representing whole communities, but the value created for them is different compared to individual customers.
Value (including products/services) that you propose and deliver to customers	Since many interconnected solutions and business models are introduced, there is a need for the discussion on how value can be created and shared in light of shared economy.	
Mechanisms you generate revenues (e.g., selling products & services, renting, subscription fee etc.)	Subsidies for peripheral transportation, subsidising the first mile to motivate public to use public transport like trains.	Alternatively, instead of direct subsidising, the approach taken by municipalities would be to increase accessibility to public transport stations, improve ease of use etc.
Key resources supporting your value, channels, business relationships and revenue stream	Urban space is a key resource: parking spaces, biking lanes, pedestrian sidewalks. Municipalities can promote one mode over another through granting the access to public space. Off-street parking is a way to promote green scenarios, but in case of street parking, shared cars should be prioritized over private cars.	The balance between e.g. parking and more traffic lanes needs to be maintained and planned, and the plan should be communicated to private sector in order for them to be able to make business decisions. Why would municipalities provide spaces for business that make money? The private sector needs to prove the benefit for the municipality e.g. by promising certain reduction in traffic due to the use of shared cars. Such proof is also required to justify decisions on public space use to the public
GENERAL comments	Private sector would like to see more transparent guidelines, communication and sharing from the public side in terms of	Mobility market and regulatory environment is very fragmented. Different standards, regulations in different

	expected mobility system. What is private sector allowed and encouraged to do? The requirements can be rather harsh. Similarly, a clear direction for mobility services, scenarios for future are sought after. Policy-makers/governors need to become the champions for future mobility vision. Clear guidelines on data sharing are needed too.	countries make it difficult for mobility solution providers to scale up. Feedback from public sector: new players and innovators need to prove the contribution to the city objectives, benefits for the local community in order to receive support, possible subsidies, access to public spaces, data, etc. Also, private sector needs to explain how this support will help them achieve those expected benefits.

Table 11: E1, E2, E3 summary: Pandemic-proofing your business

What changes do you foresee making (or are you already making) in your business model to make it "pandemic-proof" for the future?	How will such changes affect a transition to a Greener Communities scenario?
Travel with public transport only if necessary; enhance bike sharing (increasing biking lanes, allowing people to register directly online for bike sharing, without the need to going to a physical office, free parking introduced by the national government to reduce congestion);need to limit the "shift" toward cars. planning to ask businesses for changed working hours to avoid peaks and increase working from home.	With the upgraded offer, a share of users could keep using bike sharing
Diversify services in my portfolio (the more services you have in your offer the better you can deal with different temporary regulations to face pandemic or other crisis - different providers, aggregated in my platform, also providers competing with each other), because maybe temporary regulations exclude some of the services, or drive some provides out of competition; MaaS providers are maybe less "focused" on core services but try to diversify Include strategic partnerships with videoconferencing platforms Creating "crisis-packages" when usage gets under a certain share Social distancing features in the app, information of how crowded services and nodes are	
Big losses from PT all over the cities at the moment, 50% lower ridership expected in Bremen > set the right priorities	
Reduced commuting means reduced demand for mobility services. Thus, pricing might need to change in order to reflect lower demand and imposed limitations. Example: fewer people in e.g. autonomous vans due to safety requirements might require higher prices per person for transportation.	The pandemic in general will enable the transition towards a Greener Communities scenario because people will find alternative ways of working, shopping and commuting.
There is a need to ensure that people feel safe using shared vehicles.	

Companies need to be ready that certain changes are permanent and imagine 2-3 scenarios assuming that e.g. 10% or 20% of time people will be working remotely, and make these scenarios part of our life.	
General comments	
Allocation of space in the cities, prioritizing space will be affected by the pandemic, which will have implications for mobility businesses.	It is unclear if current situation is the new future or just a temporary setback. This uncertainty affects the measures taken at company level.
Lifestyle shifts.	SARS experience showed that there were no major changes in operations management, regulation, and even demand for mobility returned to pre-pandemic levels. Now there is a clear change. We need to look closely at data to see what will be the effect of Covid-19 and mobility and which behavioural changes will occur.
Online shopping share increases.	
Air traffic will be affected drastically.	
Possibility for the second wave of pandemic.	

6.5 Regulation performance indicator overview (session F1)

This session was made up of one or two representatives of sessions B1, B2, C1 and C2. The aim was to bring together those from different interest areas to see if there were any recurring themes across all of the groups. The questions asked of this group were developed based on the outcome of the four parallel sessions. They were:

1. What would happen if we regulated by purpose or function rather than by vehicle type? (e.g. e-scooters in Austria) Would this avoid the need to re-write regulations with each innovation?
2. (How) can we regulate multimodality when transport competencies are spread over different administrations and jurisdictions?

The results of the discussion are summarised in Table 12.

Table 12: F1 summary: Regulation overview

What would happen if we regulated by purpose or function rather than by vehicle type? (e.g. e-scooters in Austria) Would this avoid the need to re-write regulations with each innovation?	**(How) can we regulate multimodality when transport competencies are spread over different administrations and jurisdictions?**
Reconsider "purpose" terminology of example. Does an e-scooter fulfil the same purpose of a bike? Is making an e-scooter the same as a bicycle in terms of regulation an effective way to regulate? How do we categorize?	Passenger experience of a multimodal trip varies substantially per mode.
Relates to the hierarchy of vehicles and space allotted to them.	Integrated approach to evaluate which combination/type of multimodality is most sustainable?
Would this put ride-hailing and taxis in the same category? Looking only at the technology/vehicle is not enough.	Overarching governance body is needed.
Example of procurement that focuses on capability. If the purpose and social impact can be combined, the result is a new framework that can cope with new forms of mobility. E.g. e-bike or bike with a combustion engine (same purpose, different social impacts, therefore different categories).	Integrate operators into one platform/app, while still allowing the city to prioritise/display or not display certain modes. From a MaaS perspective, it is questionable whether allowing a city to do this would be a good idea. Regulation fostering the use of more environmentally and socially friendly modes should use other regulatory leverages, not hiding information for users. We should at least ensure that MaaS operators are not simply steering users to the modes that creates their largest profit margin.
Consider a matrix that captures all externalities (e.g. active/not active, lifecycle, etc.) and avoid getting bogged down in these details	Insurance: What entity would take on this burden? Would private businesses give such guarantees, when they do not have control over the overall system? How much would customers be willing to pay for this insurance themselves?
	Ticketing: E.g. integrate bike-share trip into ticket prices (but no guarantee of availability). If it isn't there, this is not an integrated and flexible offer.

6.6 Summary and lessons (session G1)

In the final plenary, the B, C, D, E and F focus group discussions were summarised and shared with the stakeholders so that they could learn from the sessions that they were not involved in.

From session D, some of the opportunities suggested for the use of big data were presented (see Figure 12).

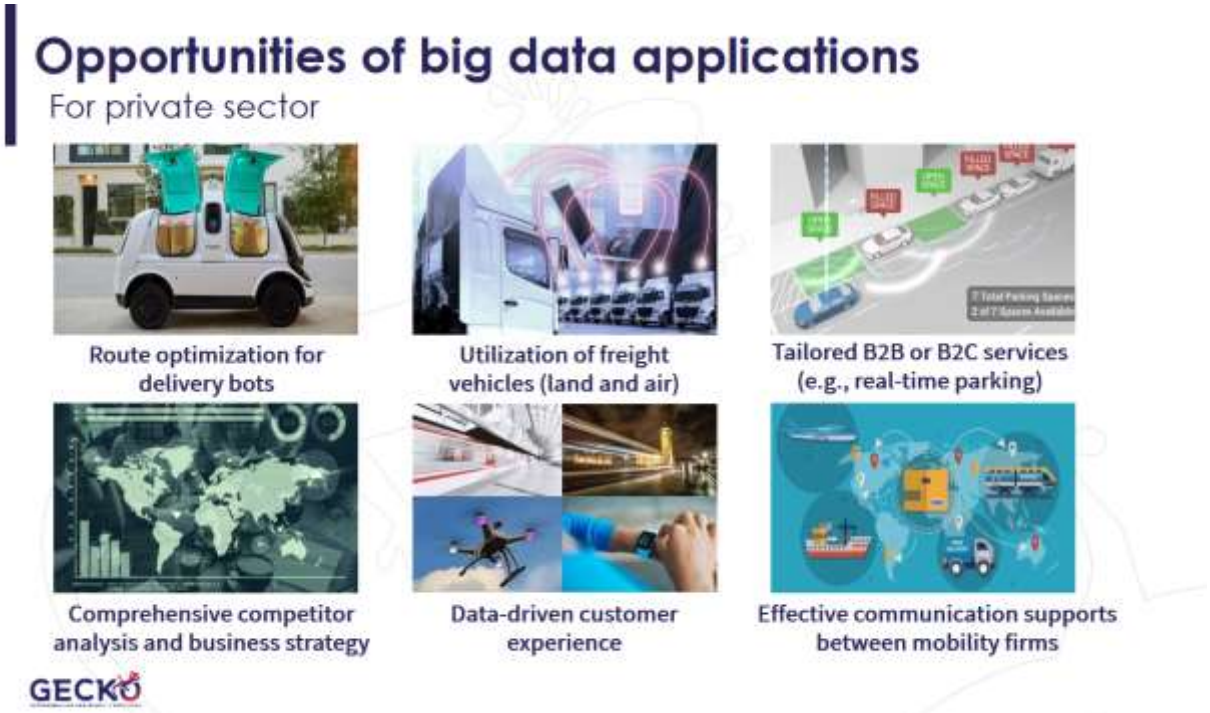

Figure 12: Suggested uses for big data in mobility

Participants of the closing session were asked to rate the value of the suggested uses of big data identified in session D (described in Table 7: D1 summary: Big data and sustainable business models and pictured in Figure 12) on a scale of 1 to 5. Their views are summarised in Figure 13.

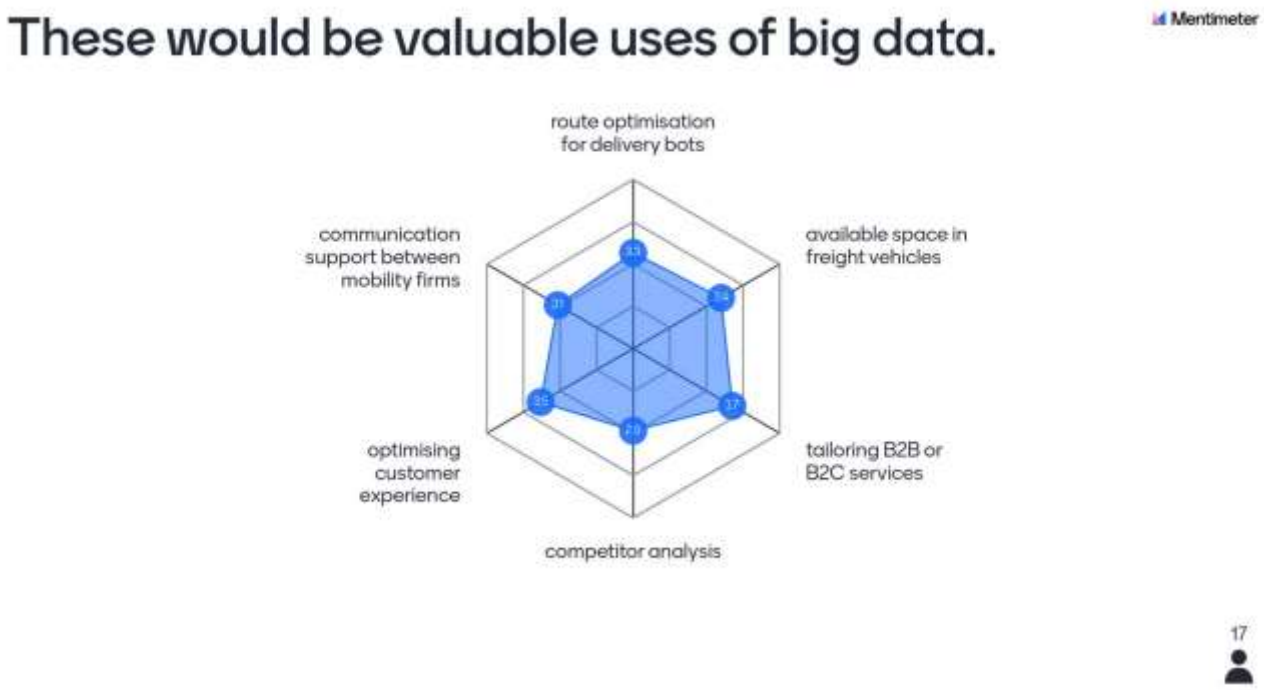

Figure 13: Stakeholder input on valuable uses for big data

From the E sessions, the regulatory changes – and support needed by private sector operators and service providers – were presented, as well as the challenges to implementing those changes. Samples of these are presented in Figure 14.

Figure 14: Regulatory changes needed to encourage new mobility

In session F (which fed out of sessions B and C), stakeholders discussed the possibility and the implications of regulating by purpose or function as opposed to by vehicle type, following the example of Austria, where e-scooters were classified in 2019 as "bicycles" (based on speed, weight and power). Another important topic was how to regulate an entire journey as opposed to a single leg of the journey, recognising that with multimodality, transport competencies are potentially spread over a range of jurisdictions – both public and private (see Figure 15).

What would happen if we regulated by purpose/function rather than by vehicle type? (e.g. e-scooters in Austria)	(How) can we regulate multimodality when transport competencies are spread over different administrations and jurisdictions?

• Ensure that the purpose really is the same for different modes
  • Does an e-scooter really serve the same purpose as a bike?
  • Would this put ride-hailing and taxis in the same category?
• Combine purpose with impacts: A matrix could capture the externalities to avoid getting caught in details
	• Passenger experience of a multi-modal trip varies by mode
	• Integrated approach to evaluate which combination is most sustainable
	• Integrate operators into one platform/ app, while allowing a city to prioritise certain modes.
	• Who would insure this?!?

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Figure 15: Session F discussion summary

Finally, coming out of session F was the idea of how cities can prioritise the new mobility options they would like to encourage. Following on this was the discussion of how this priority could be operationalised using the resources available to the public sector: the use of public space and the potential for public subsidies to encourage the kind of mobility they would like to see. See Figure 16.

Figure 16: Summary of the discussion about how cities can set - and operationalise - their new mobility priorities

Referring to the challenges identified by stakeholders in the opening session (see Figure 3), stakeholders were asked how these challenges to cooperation between the public and the private sector could be overcome. Suggestions are identified in Figure 17.

Figure 17: Stakeholder suggestions for overcoming differences between the public and the private sector

An online evaluation followed the final plenary session. Comments from stakeholders on what they found most valuable include:

- “most interesting have been the culturally different approaches to tackle the same issues”
- “About the different expectation Levels - what could be achieved with regulations, what is already there and also About the hopes, expectations and beliefs when Talking About 'new mobility'.”
- “I learned much more about the various types of regulatory considerations for a variety of mobility services”
- “Very interesting to have stakeholders from different backgrounds and places. I think data standardization and homogenization (in collecting and using the data) were one of the top priorities underlined in the session I attended and I think it will definitely support a lot of other regulations.”

All workshop and focus group presentation slides, as well as the recordings of the opening and closing plenaries (sessions A and G) can be found on the GECKO website (http://h2020-gecko.eu/).

ANNEX 1: STAKEHOLDER DIALOGUE AGENDA

Date	Time	Session title	Description
Monday, 18.05.2020	10:00-11:00 CEST	A1. Learning from GECKO	This webinar will share the latest learnings from the GECKO research and set the scene for the focus group discussions that follow. We'll share: • Examples of cooperation models between public and private sector actors in new mobility • Insights into the economic, social and political factors that influence the regulation of new mobility services • A preview of GECKO's regulatory dashboard and how it will assess social, economic and political variables of new mobility technologies and services
Monday, 18.05.2020	15:00-16:30 CEST	B1. Regulating ride-hailing, TNC, MaaS platforms, MaaS, carpooling, on-demand ride sharing	In this session, we'll consider the factors that need to be addressed to create the ideal regulatory framework for on-demand and shared mobility. We'll share what we've learned about existing regulatory frameworks and ask for your input on what's still needed.
Monday, 18.05.2020	15:00-16:30 CEST	B2. Regulating connected and automated vehicles	In this session, we'll consider the factors that need to be addressed to create the ideal regulatory framework for connected and automated vehicles. We'll share what we've learned about existing regulatory frameworks and ask for your input on what's still needed.
Monday, 18.05.2020	15:00-16:30 CEST	B3. Regulating big data for fleet management and logistics, cooperative traffic	In this session, we'll consider the factors that need to be addressed to create the ideal regulatory framework for regulating big data for its various uses. We'll share what we've learned about existing regulatory frameworks and ask for your input on what's still needed.

		management, crowd shipping	
Tuesday, 19.05.2020	10:00-11:30 CEST	C1. Regulating passenger urban air mobility, drone last-mile delivery, hyperloop	In this session, we'll consider the factors that need to be addressed to create the ideal regulatory framework for these more "futuristic" services. We'll share what we've learned about existing regulatory frameworks and ask for your input on what's still needed.
Tuesday, 19.05.2020	10:00-11:30 CEST	C2. Regulating bike sharing, e-scooter sharing, micro-mobility	In this session, we'll consider the factors that need to be addressed to create the ideal regulatory framework for shared micro-mobility. We'll share what we've learned about existing regulatory frameworks and ask for your input on what's still needed.
Tuesday, 19.05.2020	15:00-16:30 CEST	D1. Big data and circular business model innovation 1	This session will look at the role of big data in the development of business models that organise, create, offer, and deliver value to a broad range of stakeholders while minimising ecological and social costs.
Tuesday, 19.05.2020	15:00-16:30 CEST	D2. Big data and circular business model innovation 2	This session will look at the role of big data in the development of business models that organise, create, offer, and deliver value to a broad range of stakeholders while minimising ecological and social costs.
Wednesday, 20.05.2020	10:00-11:30 CEST	E1. business model of new mobility services and technologies, future scenarios and regulatory responses 1	This session will share some insights into existing business models that have been applied to new mobility technologies and services and discuss how these may need to change to be future-ready.
Wednesday, 20.05.2020	10:00-11:30 CEST	E1. business model of new mobility services and technologies, future scenarios	This session will share some insights into existing business models that have been applied to new mobility technologies and services and discuss how these may need to change to be future-ready.

		and regulatory responses 2	
Wednesday, 20.05.2020	10:00-11:30 CEST	E3. business model of new mobility services and technologies, future scenarios and regulatory responses 3	This session will share some insights into existing business models that have been applied to new mobility technologies and services and discuss how these may need to change to be future-ready.
Wednesday, 20.05.2020	15:00-16:00 CEST	F1. regulation performance indicator overview	In this session, we'll bring together representatives of some of the earlier focus group sessions looking at various regulatory frameworks. We'll share what came out of the individual group discussions and try to identify any overlaps or inconsistencies across the different fields being regulated.
Monday, 25.05.2020	15:00-16:00	G1. Summary and lessons	This webinar is not mandatory but is open to all stakeholders who participated in any of the focus group sessions. It's a chance for us to share with you a first look at the results of the various discussions around ideal regulatory frameworks and business models for new mobility.

ANNEX 2: WORKSHOP DATES, TIMING AND CONTENT

	Workshop 1	**Workshop 2**	**Workshop 3**	**Final conference**
Dates	Oct 2019 (M11)	May 2020 (M18)	November 2020 (M24)	May 2021 (M30)
Related event	Project consortium meeting	The planned related event, the International Transport Forum did not take place. Instead, the stakeholder dialogue took place online. The GECKO mid-term stakeholder event, also planned for ITF, has been postponed. Due to Covid uncertainties, a new date has yet to be set.	TBD	
Location	London	online	*Brussels (if possible)*	Brussels
Project information and knowledge for stakeholders	D1.1 New mobility services and technologies, knowledge bank (M6) D2.1 Regulatory responses and governance models (M6)	D1.2 Business models for new mobility services (M10) D1.3 End users' perspectives and mobility needs (M12) D2.2 Main economic, political and social variables (M12)	D1.4 New mobility services and business models (M26) D2.5 Regulatory responses and governance models (M26) D3.2 GECKO impact assessment (M20)	D4.1 Guidelines for new governance models (M30) D4.2 Adaptive Roadmap 2040 (M30) D4.3 Joint Position Paper (M30)

		D2.3 Cooperation models among public and private parties (M12) D2.4 Regulatory approaches and governance models for disruptive innovation (M15) D3.1 GECKO frameworks dashboard (M14)	D3.3 GECKO compliance map and future requirements (M24)
Input requested of stakeholders	D1.2 Business models for new mobility services (M10) D2.2 Main economic, political and social variables (M12) D2.3 Cooperation models among public and private parties (M12) D2.4 Regulatory approaches and governance models for disruptive innovation (M15) D3.1 GECKO frameworks dashboard (M14)	D3.2 Impact assessment (M20) D3.3 GECKO compliance map and future requirements (M24)	D4.1 Guidelines for new governance models (M30) D4.2 Adaptive Roadmap 2040 (M30) D4.3 Joint Position Paper (M30)

ANNEX 3: WORKSHOP ATTENDEES

	GECKO stakeholder workshop attendees, 18-25 May 2020, online			
	Name		**Organisation**	**Participated in**
1	Vassilis	Agouridas	AIRBUS	A1, C1, D1, F1, G1
2	Christophe	Arnaud	Blue Systems	A1, D1, G1
3	Juan Vincen	Balaguer	Zeleros	C1
4	Helmut	Berends	Berends Consult	A1, G1
5	Yannick	Bousse	UITP (GECKO consortium)	
6	Caroline	Busquet	Capital High Tech (GECKO consortium)	
7	Pasquale	Cancellara	Polis (GECKO consortium)	
8	Lewis	Chen	Car Club	A1, E3, G1
9	Gennaro	Cicarelli	TTS Italia	A1, G1
10	Harel	Damti	Israel Ministry of Transport and Road Safety	A1, B2, D1, E3, G1
11	Laura	Eiro	ITS Finland	A1
12	Bonnie	Fenton	Rupprecht Consult (GECKO consortium)	
13	Lukasz	Franek	ZTP Krakow	A1, B1
14	Nicolas	Frasie	Communauto	A1, E3, G1
15	Thomas	Geier	EMTA	A1, B1, F1
16	Antal	Gertheis	Mobilissimus	A1, C2
17	Michael	Glotz-Richter	City of Bremen	A1, E2, G1
18	Gabriele	Grea	Redmint	A1, B1, E1, F1
19	Gerhard	Gruber	AustriaTech	C2, G1
20	Tamás	Halmos	BKK Centre for Budapest Transport	A1, E1, G1

21	Christian	Heimgartner	Roland Müller Küsnacht AG	A1
22	Stephan	Herbst	Toyota Europe	A1, E3, G1
23	Carlos	Holguin	AutoKAB	A1
24	Moritz	Kammerlander	Grazer Energie Agentur	A1, C2, F1, G1
25	Ping-Jen	Kao	University College London (GECKO consortium)	
26	Balasz	Kozak	Mobilissimus	A1, C2
27	Ignat	Kulkov	Åbo Akademi University (GECKO consortium)	
28	Reidun	Kvitberg Eckhof	Kollektiv Trafikk	A1, E2
29	Valerio	Lubello	Bocconi University (GECKO consortium)	
30	Patrizia	Marani	Comune Parma	A1, G1
31	Marisa	Meta	FIT Consulting (GECKO consortium)	
32	Alan	O'Kelly	FREE NOW group	A1
33	Gregor	Petri	Fluidtime Data Services GmbH	A1, E3, G1
34	Pietro	Peyron	Nextbike	A1, E2, G1
35	Andrew	Pickford	TTC Global	A1, E3
36	Sophie	Punte	Smart Freight Centre	A1
37	Johanna	Renat	Wiener Linien	E2
38	Sonia	Romano	Poste Italiane	A1
39	Jayant	Sangwan	Corte (GECKO consortium)	
40	Carol	Schweiger	Tech4Transit	A1, B1, G1
41	Anja	Seyfert	Redmint	A1, B1, E1, F1
42	Krysia	Solheim	Nextbike	A1, C2, F1, G1
43	Jakob	Spranger	Toyota Motors Europe	A1, E2, G1
44	Bronwen	Thornton	Walk 21	A1, E3
45	Anastasia	Tsvetkova	Åbo Akademi University (GECKO consortium)	
46	Piero	Valmassoi	Polis (GECKO consortium)	

47	Antoine	Verhulst	Blabla Car	B1
48	Jaap	Vreeswijk	MAP Traffic Management	A1, G1
49	Egon	Warkinton	Continental Corporation	A1, G1
50	Doris	Wiederwald	Austria Tech	D1, E2, F1, G1
51	Julia	Zientek	Stadt Graz	B1

ANNEX 4: PRE-WORKSHOP QUESTIONNAIRE QUESTIONS

1. Your name
2. Your organisation
3. Are you:
    a. a public policy maker
    b. someone from the private sector who creates or offers new mobility services or technologies
    c. a researcher, NGO representative or other with a (non-business) interest in new mobility technologies, issues or solutions

4. *(only shown to private sector stakeholders)* In which of the following activities does your company apply big data (i.e. large volumes of data, either structured or unstructured, that can be analysed computationally to reveal patterns, trends, and associations)?

(select as many as apply)

☐ Product/service design
☐ Customer experience improvement
☐ Customer needs identification
☐ Setting prices of products and services
☐ Business decision making
☐ Prediction of future trends
☐ Avoiding unexpected events
☐ Coordination of different business activities
☐ Improving operational efficiency
☐ Delivery/travel route optimisation
☐ Mitigating pollution
☐ Others (please explain): _____

Future Scenario 2040: Greener Communities

The future scenario described here is based on reports from the UK government office for science, The Economist and other credible sources. Please answer the question below with reference to this scenario.

In 2040, society is less materialistic and prioritises the social and environmental aspects of mobility over new technology and individual choice. All forms of transport are faster, more efficient, and seamlessly integrated, both physically and digitally. Concretely:

- Mobility-as-a-Service (MaaS) has been successfully rolled out and adopted across demographic groups.
- Active travel has significantly grown, improving air quality and providing health benefits.
- Transport sharing is widespread, as private car ownership falls and use of private automated vehicles is only for minority groups.
- Road charging has increased transport sharing, leading to reduced congestion on the roads.
- Data sharing and new technologies are limited to uses with clear societal and environmental benefit
- Transport is largely decarbonised, with electrification of rail and widespread uptake of electric vehicles
- High energy prices and demanding environmental regulations slow growth in European productivity

5. *(only shown to private sector stakeholders)* With reference to the Greener Communities scenario, to what degree would you need to change the following aspects of your business model to be successful in this scenario?
   Please also add a sentence saying what you would need to change (e.g. customer segment from B2C to B2G).

		Significant change needed	minor adjustments needed	no change needed
1	Your customer segment(s)			
2	The value propositions you propose to your customers			
3	The products and/or services you offer			
4	Your distribution channels for your product(s) or service(s)			
5	The type(s) of relationships that you have with your customers			
6	Your mechanisms for generating revenues (e.g., selling products or services, renting, subscription fee, licensing etc.)			
7	Key human resources			
8	Key financial resources			
9	Key physical resources			
10	Key intellectual resources			

11	The key activities of carrying out your business			
12	Strategic alliances with non-competitors			
13	Strategic alliances with competitors			
14	Joint venture			
15	Buyer-supplier relationships			
16	Main costs incurred to operate your business model			

BUILDING A SEARCHABLE REGULATION DATABASE

Thanks to GECKO stakeholders, the project has been able to develop a database of 135+ regulations from around the world. Regulations have been analysed by addressing questions such as: Does the regulation **define standards**, **regulate experimentation** with a service or technology or **prevent negative impacts** caused by a solution already deployed?

The GECKO project is now creating a "regulatory dashboard" to display existing regulatory responses to disruptive mobility solutions and highlight new approaches. The dashboard will also offer an assessment of the impacts related to the implementation of these regulations.

We are now working on an interface that allows users to filter their search of the GECKO regulation database and we would like your input on what would make the dashboard tool most useful to you.

6. *(shown to all stakeholders)* The regulatory dashboard will use filters to identify regulatory responses. Please rank your top five criteria to filter by (1 is the top, 2 is the second, etc.):
    - Mobility solution (e.g., e-scooter, connected and automated vehicles, hyperloop, etc.)
    - Policy instrument (laws, licensing, taxes, etc.)
    - Governance model (binding rules, collaborative regulation, etc.)
    - Geographic jurisdiction (city or country where applicable)
    - Authority level (local, regional, national, international)
    - Challenges that the regulation addresses (e.g. ethics issues around autonomous mobility, maintaining equitable access to public transport, fair competition between taxis and TNCs)
    - Barriers created by the regulation (e.g., Vienna Convention that doesn't permit driverless vehicles)
    - Unintended impacts created by a regulation (e.g., TNCs creating added congestion)
    - Performance indicators

- Other?

7. *(shown to all stakeholders)* Are you aware of anyone else working on a tool to analyse the regulation of new mobility (perhaps in your local language)? If so, can you please provide us with contact information or a website?

8. *(shown to all stakeholders)* In addition to displaying existing regulatory responses to disruptive mobility solutions, what other functionalities would you find useful in such a tool?

9. *(shown to all stakeholders)* With whom could you imagine sharing such a tool if it seems to be useful?
   - Colleagues in my workplace
   - Other cities in my region
   - The local authority in the city where my company is active
   - Research institutions
   - New mobility providers interested in starting up in my jurisdiction
   - Other (please specify)

IDENTIFYING AREAS THAT NEED TO BE REGULATED

In GECKO, we've looked extensively at what aspects of new mobility are currently being regulated, but that doesn't always reflect everything that should be in **an ideal regulatory framework**.

We have identified a set of 38 indicators that are of interest and we have 13 topic areas. Your task here is to decide how important it is that each indicator be included **in a regulatory package** for each topic area in question. You may do as many topic areas as you like, but if you start one, please complete it (i.e. please don't do the first ten indicators for 5 different topic areas).

We realise the list of indicators is extensive but we hope you'll take the time to review the areas that you're familiar with.

The topic areas will appear in the order shown below. After each one, you'll be offered the option to review the topic or to skip to the next one.

1. Big data for transport
2. Cooperative traffic management
3. Crowd shipping
4. Passenger urban air mobility
5. Car sharing and carpooling
6. Ride hailing/TNC
7. MaaS
8. On-demand ride sharing
9. Drone last-mile delivery
10. Hyperloop

11. Connected and automated vehicles
12. Bike sharing
13. E-scooter sharing and micro-mobility

BIG DATA FOR TRANSPORT

10. Please indicate how important it would be to include each of the aspects listed below in a regulatory framework around **big data for transport**.

		Should definitely be regulated	Should probably be regulated	Should probably NOT be regulated	Should definitely NOT be regulated	Not sure/no opinion
1	**Contracts**: subcontractors and outsourcing; good standing; end of contract; requirements to operate; performance; time-limited permits; license duration; competitive tendering					
2	**Insurance and liability**: allocation of responsibility; insurance requirements; wilful provision of false data; ability to track (e.g. through a black box)					
3	**Decision-making for autonomous vehicles**					
4	**Jurisdictional level of implementation of regulation (voluntary or mandatory)**					
5	**Competition**: Free market access; limits to number of operators or vehicles; allowance for international operators or for SMEs; exclusivity for public operators; antitrust control					
6	**Cooperation**: Number of legal entities (transport providers, ITS companies, research entities and other service providers) involved in planning, operating, monitoring					
7	**Geographic continuity** (i.e. consistent regulations in neighbouring jurisdictions)					
8	**Investments received**: allocation of infrastructure investments that enable a service to be developed					
9	**Operating subsidy**: Public subsidies for public transport; public subsidies for private services					
10	**Control of pricing and taxation:** Price policy for special groups of users (financial accessibility)					
11	**Economic incentives**					
12	**Equity and accessibility**: e.g., for persons with disabilities; accessibility in suburban or rural areas					
13	**Awareness campaigns or events; behaviour change** (e.g., codes of conduct)					
14	**Protection of operators from vandalism of mobility devices** (e.g. through controls, sanctions or insurance)					
15	**Employment**: access to labour market; number of jobs created; organisational changes, changes in responsibilities; staff transfer in case of new operator; staff turnover; protection of new professional figures					
16	**Social and ethical requirements in contracts award**					

17	**Emphasising the benefits of services or innovations to end-users**					
18	**Affordability of transport offer**					
19	**General safety**: Safety requirements, reduction of accidents					
20	**Impact on vulnerable road users**					
21	**Checks of mobility devices**: Maintenance checks; certification/registration system for mobility devices					
22	**Data security and protection standards**: correct use of data; limits on data collection; limits on data retention; integrity and confidentiality					
23	**Environmental effect**: demonstration of sustainability; GHG emissions; congestion; awareness raising of the impact of customer choices					
24	**Accounting for rebound effects and externalities in assessing impacts** (e.g., reduction of gains from efficient transport through, e.g., increased travel)					
25	**Requirement of platform transparency** (to prevent unfair practices)					
26	**Data Integration and interoperability**: requirements in terms of data standardisation					
27	**Technological neutrality** (i.e., regulators should not use regulations to push the market toward a structure to suit the regulator)					
28	**Data sharing and ownership**					
29	**Quality standards in data collection (e.g. ISO 8000)**					
30	**Mobile apps and e-ticketing**					
31	**Km of road network equipped with connectivity system V2X**					
32	**Standardisation of new infrastructure**					
33	**Areas used for parking vehicles**					
34	**Deployment of alternative fuels infrastructure**					
35	**Mobile network dimensioning**: Adequacy of scale of mobile network to address connectivity needs of new mobility services					
36	**Maintenance of infrastructure for mobility services**					
37	**Modal shift**: i.e., regulatory schemes to encourage or disincentivise given modes of transport					
38	**Controlling the number of different services offered**					

(the above table is repeated for each topic area below)

1.1.1.1. Cooperative traffic management

Please indicate how important it would be to include each of the aspects listed below in a regulatory framework around **cooperative traffic management**.

1.1.1.2. Crowd shipping

Please indicate how important it would be to include each of the aspects listed below in a regulatory framework around **crowd shipping**.

1.1.1.3. Passenger urban air mobility

Please indicate how important it would be to include each of the aspects listed below in a regulatory framework around **passenger urban air mobility**.

1.1.1.4. Car sharing and carpooling

Please indicate how important it would be to include each of the aspects listed below in a regulatory framework around **car sharing and carpooling**.

1.1.1.5. Ride hailing/TNC

Please indicate how important it would be to include each of the aspects listed below in a regulatory framework around **ride hailing/TNC**.

1.1.1.6. MaaS

Please indicate how important it would be to include each of the aspects listed below in a regulatory framework around **MaaS**.

1.1.1.7. On-demand ride sharing

Please indicate how important it would be to include each of the aspects listed below in a regulatory framework around **on-demand ride sharing**.

1.1.1.8. Drone last-mile delivery

Please indicate how important it would be to include each of the aspects listed below in a regulatory framework around **drone last-mile delivery**.

1.1.1.9. Hyperloop

Please indicate how important it would be to include each of the aspects listed below in a regulatory framework around **hyperloop**.

1.1.1.10. Connected and automated vehicles

Please indicate how important it would be to include each of the aspects listed below in a regulatory framework around **connected and automated vehicles**.

1.1.1.11. Bike sharing

Please indicate how important it would be to include each of the aspects listed below in a regulatory framework around **bike sharing**.

1.1.1.12. E-scooter sharing and micro-mobility

Please indicate how important it would be to include each of the aspects listed below in a regulatory framework around **e-scooter sharing and micro-mobility**.

ANNEX 5: AREAS TO BE REGULATED

Hand-out provided to stakeholders in advance of focus group B1.

Session B1. Regulating ride-hailing, TNC, MaaS platforms, MaaS, carpooling, on-demand ride sharing

Contracts	*subcontractors and outsourcing*	extent to which the law enable the use of subcontractors and the outsourcing of service (rather than internal operators)
	Social and ethical conditions	Extent to which the law imposes social and ethical requirements in contracts award
	good standing	extent to which the laws requires operators to remain in good standing (in compliance with the payment of all fees, fines, and adhering to all data reporting and other requirements) throughout the duration of the permit.
	end of the contract	extent to which the city can revoke the license to operate at any time, for due cause, including causes not specified in the regulatory agreement, and require the operator to remove their entire fleet of vehicles from city streets
	requirements to operate	Extent to which the law prohibits specific companies from operating in the public right-of-way based on conduct or prior conduct (e.g. if a company deploys equipment prior to applying for a permit, license, or contract, or fails to comply with permit, contract, or license terms).
	performance	extent to which the law requires performance measures in order to fully assess operator performance and compliance. These include: • Compliance with restricted access/prohibited areas • Parking, distribution & rebalancing requirements • Maintenance/equipment standards • Customer service levels outreach • Data integrity • Fleet size
	pilots and time-limited permits	Extent to which the laws requires short term pilots and time-limited permits before the full implementation of the service
	duration of licenses	Extent to which the laws limits the duration of licenses
	competitive tendering	extent to which the law promotes the use of competitive tendering (rather than direct awards)
Insurance issues and liability	*allocation of responsibility*	clarity of the law in establishing different responsibilities (platform, manufacturer, consumer etc.)
	provision of false data	clarity of the law in establishing liability and sanctions in case of wrong data provision
	detection of legally relevant events	extent to which the law requires the installation of a tracking device (e.g. black box)
Equity and accessibility	*persons with disabilities*	extent to which the law promotes the accessibility for persons with disabilities
	accessibility in rural areas	extent to which the law enables accessibility to the transport service in areas with low demand levels
Data integration and interoperability	*data standardisation*	reference to a supranational and mandatory standard

General safety	*safety*	priority level attributed to safety in regulation
		Frequency of maintenance checks required by the law in order to allow the implementation and maintenance of the service
	accidents	Reduction of accidents

Hand-out provided to stakeholders in advance of focus group B2.

Session B2. Regulating connected and automated vehicles

Data security and protection standards	*correct use of data*	extent to which the law ensures that any subsequent processing is not incompatible with the purposes of data collection
	data minimization	extent to which the data are adequate, relevant and limited to what is necessary with respect to the purposes of the processing
	limitation of data retention	extent to which the data is stored for a time not exceeding that required with respect to the purposes for which the treatment was carried out
	integrity and confidentiality	extent to which adequate security of personal data subject to processing is guaranteed
Impact on vulnerable road users	*impact on vulnerable road users*	effectiveness of prevention and protection systems for vulnerable users
Data integration and interoperability	*data standardisation*	reference to a supranational and mandatory standard
Insurance issues and liability	*allocation of responsibility*	clarity of the law in establishing different responsibilities (platform, manufacturer, consumer etc.)
	provision of false data	clarity of the law in establishing liability and sanctions in case of wrong data provision
	detection of legally relevant events	extent to which the law requires the installation of a tracking device (e.g. black box)
General safety	*safety*	priority level attributed to safety in regulation
		Frequency of maintenance checks required by the law in order to allow the implementation and maintenance of the service
	accidents	Reduction of accidents

Hand-out provided to stakeholders in advance of focus group B3.

Session B3. Regulating big data for fleet management and logistics, cooperative traffic management, crowd shipping

Equity and accessibility	*persons with disabilities*	extent to which the law promotes the accessibility for persons with disabilities
	accessibility in rural areas	extent to which the law enables accessibility to the transport service in areas with low demand levels
Data security and protection standards	*correct use of data*	extent to which the law ensures that any subsequent processing is not incompatible with the purposes of data collection
	data minimization	extent to which the data are adequate, relevant and limited to what is necessary with respect to the purposes of the processing
	limitation of data retention	extent to which the data is stored for a time not exceeding that required with respect to the purposes for which the treatment was carried out
	integrity and confidentiality	extent to which adequate security of personal data subject to processing is guaranteed
Insurance issues and liability	*allocation of responsibility*	clarity of the law in establishing different responsibilities (platform, manufacturer, consumer etc.)
	provision of false data	clarity of the law in establishing liability and sanctions in case of wrong data provision
	detection of legally relevant events	extent to which the law requires the installation of a tracking device (e.g. black box)
Data management	*data sharing*	extent to which transport operators are required to share mobility data with public authorities
	data ownership	clarity with which the law establishes to whom the mobility data belongs
Data quality	*data quality*	extent to which the law requires to follow a quality standard in the data collection (e.g. ISO 8000)

Hand-out provided to stakeholders in advance of focus group C1.

Session C1. Regulating passenger urban air mobility, drone last-mile delivery, hyperloop

General safety	*safety*	priority level attributed to safety in regulation
		Frequency of maintenance checks required by the law in order to allow the implementation and maintenance of the service
	accidents	Reduction of accidents
Data management	*data sharing*	extent to which transport operators are required to share mobility data with public authorities
	data ownership	clarity with which the law establishes to whom the mobility data belongs
Data security and protection standards	*correct use of data*	extent to which the law ensures that any subsequent processing is not incompatible with the purposes of data collection
	data minimization	extent to which the data are adequate, relevant and limited to what is necessary with respect to the purposes of the processing
	" limitation of data retention"	extent to which the data is stored for a time not exceeding that required with respect to the purposes for which the treatment was carried out
	integrity and confidentiality	extent to which adequate security of personal data subject to processing is guaranteed
Checks of mobility devices	*certification / registration system for mobility devices to verify their security requirements*	level of effectiveness of safety certification systems for mobility devices
Insurance issues and liability	*allocation of responsibility*	clarity of the law in establishing different responsibilities (platform, manufacturer, consumer etc.)
	provision of false data	clarity of the law in establishing liability and sanctions in case of wrong data provision
	detection of legally relevant events	extent to which the law requires the installation of a tracking device (e.g. black box)

Hand-out provided to stakeholders in advance of focus group C2.

Session C2. Regulating bike sharing, e-scooter sharing, micro-mobility

Insurance issues and liability	*allocation of responsibility*	clarity of the law in establishing different responsibilities (platform, manufacturer, consumer etc.)
	provision of false data	clarity of the law in establishing liability and sanctions in case of wrong data provision
	detection of legally relevant events	extent to which the law requires the installation of a tracking device (e.g. black box)
Checks of mobility devices	*certification / registration system for mobility devices to verify their security requirements*	level of effectiveness of safety certification systems for mobility devices
General safety	*safety*	priority level attributed to safety in regulation
		Frequency of maintenance checks required by the law in order to allow the implementation and maintenance of the service
	accidents	Reduction of accidents
Data security and protection standards	*correct use of data*	extent to which the law ensures that any subsequent processing is not incompatible with the purposes of data collection
	data minimization	extent to which the data are adequate, relevant and limited to what is necessary with respect to the purposes of the processing
	limitation of data retention	extent to which the data is stored for a time not exceeding that required with respect to the purposes for which the treatment was carried out
	integrity and confidentiality	extent to which adequate security of personal data subject to processing is guaranteed
Contracts	*subcontractors and outsourcing*	extent to which the law enable the use of subcontractors and the outsourcing of service (rather than internal operators)
	Social and ethical conditions	Extent to which the law imposes social and ethical requirements in contracts award
	good standing	extent to which the laws requires operators to remain in good standing (in compliance with the payment of all fees, fines, and adhering to all data reporting and other requirements) throughout the duration of the permit.
	end of the contract	extent to which the city can revoke the license to operate at any time, for due cause, including causes not specified in the regulatory agreement, and require the operator to remove their entire fleet of vehicles from city streets

Contracts	*requirements to operate*	Extent to which the law prohibits specific companies from operating in the public right-of-way based on conduct or prior conduct (e.g. if a company deploys equipment prior to applying for a permit, license, or contract, or fails to comply with permit, contract, or license terms).
	performance	extent to which the law requires performance measures to fully assess operator performance and compliance. These include: • Compliance with restricted access/prohibited areas • Parking, distribution & rebalancing requirements • Maintenance/equipment standards • Customer service levels • Data integrity • Fleet size
	pilots and time-limited permits	Extent to which the laws requires short term pilots and time-limited permits before the full implementation of the service
	duration of licenses	Extent to which the laws limits the duration of licenses
	competitive tendering	extent to which the law promotes the use of competitive tendering (rather than direct awards)

ANNEX 6: GREENER COMMUNITIES SCENARIO

Hand-out provided to stakeholders in advance of focus groups E1, E2 and E3.

Future Scenario 2040: Greener Communities[1]

In 2040, society becomes less materialistic and prioritises the social and environmental aspects of mobility over new technology and individual choice. All forms of transport will be faster, more efficient, and seamlessly integrated, both physically and digitally. Below are some key features of the future scenario.

- Mobility-as-a-Service (MaaS) has been successfully rolled out and adopted across demographic groups.
- Active travel has significantly grown, improving air quality and providing health benefits.
- Transport sharing is widespread, as private car ownership falls and use of private AVs only for minority groups.
- Road charging has increased transport sharing, leading to reduced congestion on the roads
- Data sharing and new technologies are constrained to uses with clear social and environmental benefit
- Transport largely decarbonised, with electrification of rail and widespread uptake of EVs
- High energy prices and demanding environmental regulations slow growth in European productivity

[1] This projected future scenario is based on reports from the UK government Office for Science, *The Economist* and other credible sources. The discussion of business models will focus around this future scenario.

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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For further information please visit **www.H2020-gecko.eu**

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