



URBAN AGENDA FOR THE EU
PARTNERSHIP FOR URBAN MOBILITY

EXPLORING THE DEPLOYMENT OF NEW MOBILITY SERVICES



1 Foreword

The aim of this action was to explore through case studies the policy tools used by PUM partner cities, regions and national authorities to integrate and govern new mobility services as well as how they intend to achieve their wider policy goals with the help of these. The aim is to investigate the regulatory frameworks needed for effective integration of new mobility services in the transport offer of cities and regions.

The following report is a comprehensive consolidation exploring the deployment of new mobility services, based on a review of several cases of cities/regions from a “needs and expectations” perspective to present and draw some common discussion points and recommendations.

The Partnership for Urban Mobility would like to thank the representatives of Nijmegen, Bielefeld, Karlsruhe, Ulm and Wallonia Region for answering questions.

The Finnish Ministry of Transport and Communications has supported the overall purpose of this action as an active partner of the PUM. The information about Helsinki and Finland is based on desk research.



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3 The Partnership for Urban Mobility

More and more people are living and working in cities. With the current European trend towards urbanisation, the importance of cities and urban areas is set to continue to grow. At the same time, cities are facing even greater social challenges in respect of the environment, transport and social cohesion.

The Urban Agenda aims to address those challenges. Cities are the place where European sectoral legislation comes together (in sometimes conflicting ways) and is being implemented. To fully exploit the potential of urban areas the urban dimension should be stronger embedded within EU policies. This explicitly does not mean new or more competences for the EU, but a better working method, focused on cooperation between the EU, Member States and cities.

The Urban Agenda for the EU was officially established by the Pact of Amsterdam, agreed by the EU Ministers responsible for urban matters in May 2016.

The Urban Agenda aims to promote cooperation between Member States, cities, the European Commission, European organisations and other stakeholders in order to achieve a sustainable, socially inclusive, innovative and economically powerful Europe. The Urban Agenda sets out a new way of working together to stimulate growth, liveability and innovation in the cities, gain maximum benefits from their growth potential and successfully tackle current and future challenges.

This new approach includes the creation of a range of European partnerships aimed at:

- promoting the involvement of cities in EU policy making, and the development, implementation and evaluation of more 'urban friendly' European legislation ('**Better Regulation**');
- ensuring better access to and use of European funds ('**Better Funding**');
- improving the European urban knowledge base and stimulating the sharing of best practice and cooperation between cities ('**Better Knowledge Exchange**')

The partnerships focus on 14 agreed priority themes of the Urban Agenda for the EU. One of these is the Partnership for Urban Mobility.



4 Methodology

The participants were asked general information about traffic in their city/region such as modal share, SUMP, demographics, measurements regarding congestion, average length of trips, the role of commuting, air quality and future plans for mobility. With the aim of contextualising this information, the questionnaire also asked about data protocols, the availability of services such as car-sharing, ride hailing, bike sharing and e-scooters. The questionnaire is available as an annex at the end of the document. Based on the responses and some desk research, some conclusions and discussion points were put forward. Due to limited time and information available, not all cities answered all the questions so there is a lack of uniformity in the answers.

5 The facts

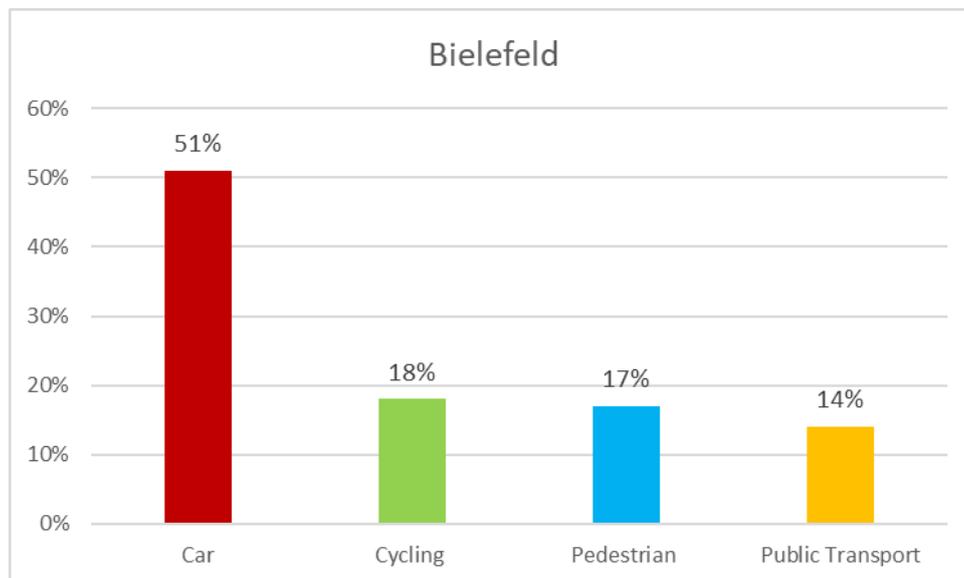
5.1 Nijmegen

Located in the east of the Netherlands in the province of Gelderland, this is one of the oldest cities in the country, with 176.000 Inhabitants amongst whom 40.000 of them are students. The population is growing steadily (and almost 11% growth is expected until 2035). Innovative companies and Universities with a moderated share of Industrial firms are present. 60% of jobs (15.000 people) commute from surrounding cities. The average trip inside the city is 10km. Bicycle share is 40% and it is increasing yearly so it will not be surprising to find out that 67% of inhabitants who also worked in Nijmegen, commuted by bike in 2015. Out of the households with a driver's license, 8% uses a shared car and during the last survey conducted by the city, a majority of the inhabitants are happy with the quality of public transport, but there are big differences between neighbourhoods. The smart use of actual and new infrastructures (i.e. the new bridge built to direct traffic away from dense urban areas) has been able to reduce congestion through the city. As to air quality, traffic emissions are not a problem with the exception of river transport, as boats are mainly diesel powered.

5.2 Bielefeld

Bielefeld is a large municipality of 340.000 inhabitants with expected growing population of 2% yearly in the next decade. Being the economic centre of the region, 80.000 people commute by car into the city every day. The modal share in 2017 showed the following: 51% cars, 14% public transport, 18% cycling and 17% walking. Bielefeld does not have city-wide data about congestion, but is aware about its “hot spots” and plans to introduce measures to reduce motorized traffic through its SUMP¹. Congestion hot spots are known, but there is no comprehensive overview. The average travel distance in Bielefeld is 6 km, with 50 % of all trips being shorter than 4 km. Air quality problems are detected thorough the two measuring points available, where the NOx emissions value is more than 40mg and exceeding EU limits.

Bielefeld is working towards achieving an “emission free city centre”. Through their involvement in the H2020 funded project ReVeal, the city is redesigning a street to obtain less traffic and enhance the public space available for pedestrians and cyclists. Within this project, piloting cities aim to develop and plan new designs of squares for pedestrians and learn to implement different Urban Vehicle Access Restriction² measures.



¹ Since 2016 Bielefeld is developing a SUMP. In spring 2019 the city council will decide about the main goals of SUMP. After it Bielefeld can go on working on concrete measures of the SUMP.

² <https://cordis.europa.eu/project/rcn/221854/factsheet/en>

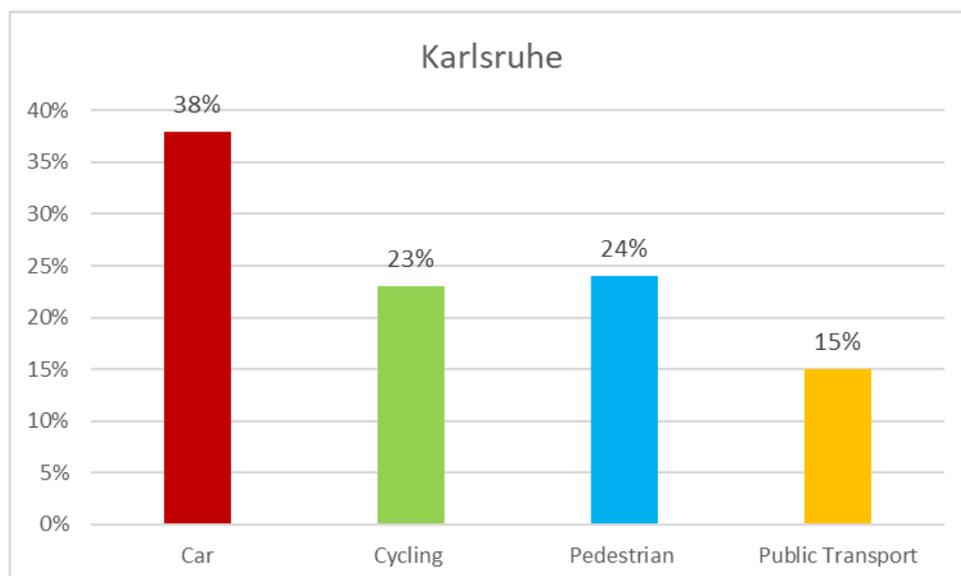


5.3 Karlsruhe

Situated on the Rhineland Plain between the Black Forest, the Vosges mountains and the Palatinate Forest, Karlsruhe is a hub of science and technology, and the home of the Federal Court of Justice. It has 310.000 inhabitants, with the population having grown by almost 7% since 2000 (when there were 290 000).

There is a relatively high commuter traffic – 101.000 commuters come into Karlsruhe, an increase of almost 15% compared to 2017 (when there were 88.000). The SUMP adopted by the city at the end of 2012 defines 120 actions to reduce car usage and the congestion caused by commuters and residents. The average lengths of trips inside the city and across all modes of transport is 13.3 km and the modal share is 38% by car, 23% pedestrian, 23% cycling and 15% public transport.

Air quality is not considered to be a problem in the city.

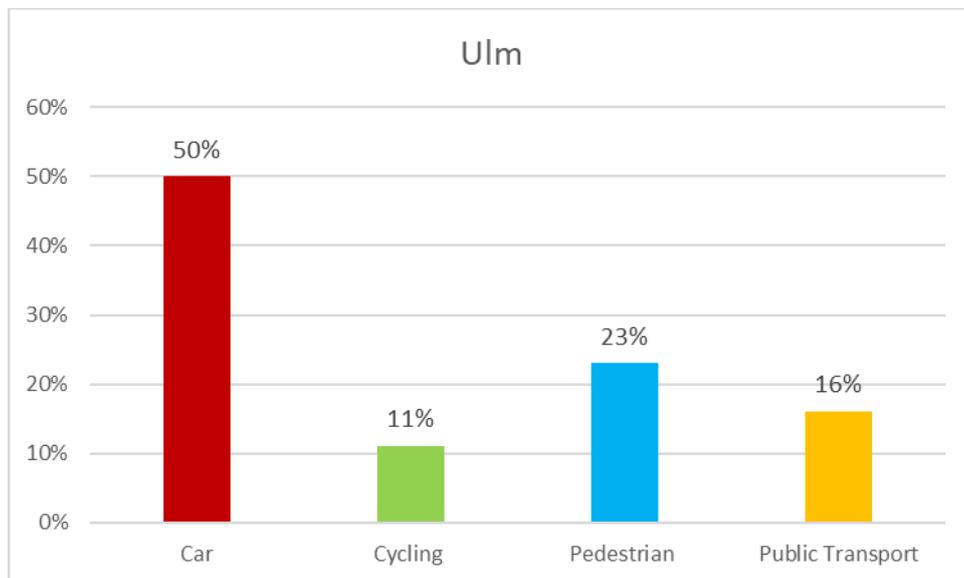


5.4 Ulm

A vibrant city of 125.000 inhabitants and growing population, belonging to the federal German state of Baden-Württemberg, and situated on the River Danube: Ulm is rich in history and traditions as a former free imperial city. Today, it is an economic centre due to its varied industries with 100.000 jobs within its city limits and a large number of students. Businesses here rely heavily on commuters, particularly one large industrial area that provides 20.000 jobs and not all of them have a reliable alternative to private transport. This partly explains the city's modal share of 50% car, 23% pedestrian, 16% public transport and 11% cycling.



An active program to increase Cycling to 20% by 2020 comprises adaptation of relevant infrastructures.



Air quality problems have been noticed in the city. Particulate measurements (PM10) were regularly made at a few stations (between 1 and 3 were operational at various times) with the legal limits being exceeded in 2006, 2007, 2010 and 2011. The citizen run luftdaten.info also deployed 15 DIY particle sensors which rarely score above the mandated $50 \mu\text{g}/\text{m}^3$.

NOx measurements regularly exceeded the mandated annual mean of $40 \mu\text{g}/\text{m}^3$ between 2008 and 2014 in two of the three measuring spots. One of these two measuring stations was taken out of service in 2015, while the other did show lower readings, but in 2017 it still approached the high end of the legal limit³.

5.5 Wallonia Region

Belgium's southern region accounts for 55% of Belgium's territory and a third of its population (3.624.377 inhabitants). The region envisions a strong path to work in a cooperative way between cities to adopt more integrated NMS as to gain critical mass that makes them profitable and valuable for users. Seamless interoperability between cities is one of the challenges that the region faces. Detailed statistics about air quality or modal share are not available at regional level and fall in the competency of city level administrations.

³<https://rp.baden-wuerttemberg.de/rpt/Abt5/Ref541/Luftreinhalteplaene/Seiten/Luftreinhaltung-Ulm.aspx>

5.6 Helsinki

Helsinki is the capital and most populous city of Finland. The city itself has 650.058 inhabitants and the metropolitan area (comprising of four municipalities: Helsinki, Espoo, Vantaa, and Kauniainen) has over 1.1 million inhabitants. The bus was the preferred means of travel in the country in the early 50s, but the car has taken its place in the 60s. The number of trips via public transport, versus those via a car have decreased continuously from 1966 to 2008⁴. In 2017 22% of trips in Helsinki were made by private vehicle, 34% by public transport, 35% by walking, and 9% by cycling.

6 Policies, regulations and existing NMS

6.1 Nijmegen

Currently the city is updating its 2011 SUMP, and will continue focusing on the same for themes determined in their Environment and Planning Strategy:

- Attractive city
- Sustainable city
- Economic resilient city
- Social and active city

These four themes will replace the traditional chapters such as cars, public transport etc. Better synergies between the mobility plan and the environment and planning strategy will allow for a more holistic view on the city's challenges and for the integration of mobility solutions into a multidisciplinary package that can address them.

As to specific mobility means, Dutch law does not allow e-scooters on the public roads. Cycle paths are allowed for personal mobility devices and electric cars benefit from some advantages like lower parking fees to stimulate their use.

Regarding NMS, there are several car sharing initiatives in the city: Greenwheels, MyWheels or Car2Go, including some that offer only electric cars: Buurauto and Mjnauto. These latter two are not yet deployed on a large scale.

⁴ The development of Mobility-as-a-Service in the Helsinki metropolitan area: A multi-level governance analysis.

Bike sharing schemes have been deployed, but their success was limited. In fact the most successful initiative is the OV-fiets (public transport bike), which is spread throughout the Netherlands. They are available at all bigger train stations and most smaller train stations. Membership is for free, you can rent an OV-fiets for € 3,85 a day. Its success, along with the high number of personal bicycles available in the Netherlands could partially explain the limited success of other bike sharing schemes.

But the bike situation in the Netherlands also allows for players that offer slightly different services. Swapfiets is a mobility service that leases bikes instead of sharing them. For a relatively small price (15 euros / month or 12 for students) you get a well-functioning bike which is repaired or swapped whenever it breaks.

As previously mentioned, E-scooters are not allowed on Dutch public roads yet. Normal motor scooters (mopeds) are available in bigger cities (like Den Haag) but not in Nijmegen. In fact, the city actually wants to phase them out. They run on diesel and are considered too polluting. If that proves not be possible, they want to at least ban them from the cycle paths.

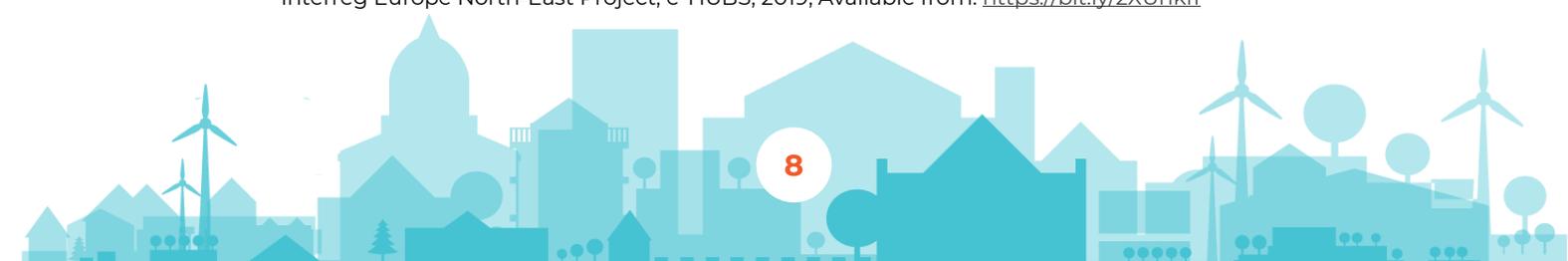
The city considers that overall, NMS could be useful to stimulate sustainable mobility and reduce car ownership. However, they are weary that free floating systems might threaten the quality of public space.

Nijmegen is now involved in an Interreg-project called 'e-hubs', together with Manchester, Amsterdam (lead partner), Arnhem (sub-partner of Nijmegen), Leuven, Dreux and Kempen. E-hubs are physical clusters of shared electric modes of transport. They are designed to enable and promote multimodal transport on a local level and can be tailored for different neighbourhoods and connections to mass-transit options of public transport. E-hubs can vary in size and service level depending on the user needs: from 2 e-bikes at every corner street to a combination of e-(cargo) bikes, light electric vehicles (such as e-scooters and a-cargo bikes) to electric car sharing, public transport hub, delivery wall boxes, within a 10-minutes' distance⁵. The pilot has the potential to provide promising results and a template for future mobility developments.

6.2 Bielefeld

The city is in the process of developing a SUMP since 2016. It is planned that this will include measures to reduce motorized traffic and the implementation of an "emission free city centre" project which will include a redesign of squares to better suit pedestrians. Among the potential challenges they see is the lack of coordination between services, especially as new technologies will start appearing in the city. Car sharing is viewed here as an important issue for future mobility and the passing of

⁵ Interreg Europe North-East Project, e-HUBS, 2019, Available from: <https://bit.ly/2XUhkfl>



federal laws that facilitates their integration into the city (for example a law allowing car sharing companies to use public space) are viewed positively.

There are lot more reservations however when it comes to ride hailing (like Uber). This is seen as promoting individual mobility and can become a competitor to public transport in the long run. The city views bike sharing as a potentially important piece of the mobility puzzle. It takes a broader view of this service, considering now e-bicycles and e-cargo bikes in addition to standard ones. They also aim to work out what is the best balance between free floating and station bound services. Sensible urban design should be considered when deploying these solutions and the city acknowledges that the companies offering these services have different interests than cities.

E-scooters are currently tested in a pilot by the public transport provider but there is no data yet on the results and future potential. The city also views e-scooters as alternatives to e-bicycles and thinks about treating them in a similar fashion.

Another area where the city would wants to look into is the cooperation with navigation services. This could potentially ease traffic or even guide drivers to transfer points where the can switch to a more sustainable mode of transport.

Attention should also be payed to autonomous vehicles entering the city next year, if handled properly they could provide an excellent complementary mobility element to the system.

6.3 Karlsruhe

The Karlsruhe SUMP was adopted in the end of 2012. In its core, it consists of scenarios and an integrated action plan. It contains a total of 120 push and pull measures with the aim of reducing car usage. The three pillars are: change of infrastructure, campaigns and vehicles.

New mobility services are only briefly treated so far, and mainly focus on the further development of station based car sharing, bike sharing and mobility information. There is however interest in how NMS will start affecting other cities. There is an overall "Sustainability strategy that permits a flexible framework. In general, NMS are examined using a 3-step approach: whether is the NMS able to:

- 1) avoid motorized traffic,
- 2) shift mobility to sustainable modes,
- 3) make the necessary traffic more compatible.

Ride hailing services like Uber are not active in Karlsruhe due to national regulation. The Passenger Transport Act (*Personenbeförderungsgesetz*) mandates special training for commercial drivers. Thus, Uber is currently limited to certain cities where taxi and limousine services also offer their fleet via the Uber app and the drivers have a passenger transport licence. The German Federal Minister of

Transport has recently announced that they could make amendments to the law by 2021 to ease the provision of these kinds of services. However, transport authorities are concerned that these services substitute rather than complement public transport and increase motorized traffic in cities. They do see however a potential benefit in connecting rural areas, but emphasizing that it should not drive people away from public transport.

The city is a lot more positive about car and bike sharing initiatives. They are expanding infrastructure for sustainable modes of transport, offer combined ticketing, tenant tickets, competitions, free bicycles for students with primary residence in Karlsruhe, expansion of Park & Ride, etc. The city has common intermodal planning and booking platform “regiomove” (integrating public transport, car sharing, bike sharing with a common design and ticketing system for the city and the region) following a clear and strict regulatory framework (limiting the operators, vehicles must be part of the national road code, safety issues, time of use, distribution of vehicles etc). They also plan to disincentives car usage with car-free housing areas, parking space management, pedestrian zones cycle routes and speed limits.

Car sharing is very popular and Karlsruhe is considered as car sharing capital of Germany. There are several providers available, including “Stadtmobil” which is a private initiative, but supported by the city where possible (e.g. designation of parking areas, discounted prices for public transport users). The service has 14.700 users and 225 stations.

Bike sharing also works well. It is often used for the first/last mile and complements the public transport offer as well as by students or tourists to get around. Next bike has 340 bikes in the city and is connected to the public transport company KVV. The city centre is defined as a flex-zone (free floating area), while the neighbouring outer districts have fixed terminals where users can borrow and return the bikes. An expansion of bike sharing is planned in the region in order to connect people to the regional public tram network. The initiative is very promising.

The city doesn't have experience with e-scooters, but they are thinking of integrating them into the Regiomove platform. With regards to mopeds, they see no benefit in them. Furthermore, they are slightly worried about the potential street clutter that can result from these services.

There is no local policy on navigation services (such as the Waze app), but they do cooperate with a service provider to get accurate real-time data on the traffic situation in the city and the region.



6.4 Ulm

The city's SUMP has a lot of environmental actions defined; local, regional and national level is interwoven:

- Strengthening regional public transit
- Strengthening of metropolitan public transit
- Promoting pedestrian traffic
- Promoting bicycle traffic (Goal: 20% in 2020)
- City planning and mobility
- Restructuring of the city's road network
- Strategic development of traffic management solutions

Adopting the goals set by the state ministry of transport within their climate protection goals 2030:

- Doubling of passenger kilometres in public transit
- 1/3 less inner city car travel
- Every second trip shall be on foot or by bike
- Every third car shall be electric drive

Goals set for the broader region:

- All actions aim towards strengthening the "Umweltverbund" (Transit, bicycling, pedestrian traffic) in a significant way
- Dependency on private car use shall be reduced for trips between the city and the surrounding rural areas
- Facilitating intermodal mobility for the region; e.g., through creating the necessary infrastructure

There are no measurements on congestion and the average length of trips. Moreover, the city doesn't have any legislation in place for integrating new mobility services. However, Ulm is aware of the need of sharing relevant data to help the city understanding mobility patterns and building an effective integration of all mobility possibilities into the city mobility framework. Some specific clauses had been introduced into the tender for inner-city public transit as to provide real time information published in an open standard format.

Ulm is specifically looking into the City of Los Angeles' Mobility Data Specification (MDS)⁶. The MDS requires operators active within the city's jurisdiction to share availability and usage data through a specified data format. This is aimed towards:

1. gaining insight into mobility patterns
2. integrating such services into a larger mobility framework within a city.

They are currently working towards longstanding policies that can be passed by the city council. Due to elections having just taken place, this will not materialize before fall. Ulm did introduce a one-off clause into the tender for inner-city public transit that passed last fall asking that

- All static schedule data must be released as Open Data (at least GTFS) under a CC-0 public domain dedication.
- Static GTFS schedule data should be updated on a daily basis if necessary.
- Service disruption information must be published in an open standard format (e.g. GTFS-RT) under a CC-0 public domain dedication.
- Real-Time information must (if technically feasible) be published in an open standard format (e.g. GTFS-RT) under a CC-0 public domain dedication, with at least the following data fields: Vehicle ID, coordinate, odometry information, vehicle occupancy.
- Detours or delays must be published in an open standard format (e.g. GTFS-RT Trip Updates and Service Alerts) under a CC-0 public domain dedication
- All information that is to be published as Open Data must adhere to the Open Definition.

A bill legislating e-scooters passed the Bundesrat in May and will take effect in June 2019. As there are yet no scooters available that meet the legal criteria, the city expects vendors to stock shelves in or around July 2019. Sharing operators have been in contact with the city and presented their cases during spring. The city expects operators to start in the larger cities in Germany between July and August 2019, with Ulm probably following in September this year⁷.

The city plans, according to the Minimum Viable Policy model, to start a 6-month evaluation period with scooter operators willing to work within the city. It wants the operators to adhere to the MDS model proposed by Los Angeles Department for Transport, where:

⁶ <https://github.com/CityOfLosAngeles/mobility-data-specification>

⁷ <https://radforschung.org/log/rollersharing-was-staedte-lernen-koennen/>

- the city provides operators with exclusion zones and preferred parking areas in a machine-readable format specified in the MDS through automated processes
- the operators provide public-facing data fit for integration into multi-modal trip planners in standardized GBFS format, allowing for meta-portals showing and routing all modes of transport within the city
- the operators provide the city with statistical data according to the MDS.

Within this period, without entering formal agreements or contracts with operators, the city will evaluate the impact, problems and opportunities of this new mode of transport. If necessary, insights from this first period may serve as a basis for future regulation.

As previously mentioned, ride sharing is quite strictly regulated in Germany and Ulm is fairly cautious regarding these types of services as some try to circumvent labour and social security regulations. They fear the potential they have to create disenfranchised workers and actually increase traffic (e.g., deadheading).

Unlike the other German cities, car sharing didn't really take off in Ulm due to its small size. It was the first city where Car2Go was deployed, but the project was eventually scrapped. Another, smaller contestant based in the region still operates, but with a station-based approach. The city still sees potential in car sharing, if it replaces private owned cars and doesn't lure people away from public transport. They don't seem to work as a first/last mile to/from public transport for Ulm.

There are also no bike sharing services in Ulm in 2019. Topography is an issue confronting vendors as bikes face the hilly (180m height difference) configuration of the city. As e-scooters would be regulated in Germany at the time of writing, the city believes that along with free floating bike sharing they can make a valuable contribution towards intermodal mobility. They are also a potential solution for the city's steep hills. Like other cities though, Ulm is aware of the potential street clutter that they could add and worries it will take away pedestrian, bike and public transport trips.

6.5 Wallonia

The region includes 262 municipalities. The SUMP is organized on two levels:

- At municipal level: PCM "Plan Communal de Mobilité" ;180 wallonian municipalities have already deployed it. It should be noted though that most of them are too old to take into account the concept of "new mobility systems".

- At the urban region level: the PUM “Plan Urbain de Mobilité”. Only the urban region of Liege (625.000 inhabitants and 24 municipalities) has it. Unlike the PCM, this is quite new, having been adopted by the region in May 2019. The concept of MaaS appears in several places, but things in the region have not matured enough for this to lead to concrete actions. In order to implement the PUM, a (small) team needs to be created, but this has been delayed until a new regional government will be installed. It is foreseen that in that team there will be a role for implementing actions to change behaviors, and these will include NMS.

The region wants to avoid the development of local MaaS projects in favor of a region wide initiative, so that crucial the interaction between different levels of mobility in the region is maintained (for example making sure that railways will be integrated).

There are several car sharing services active in multiple Walloon cities (including Car2Go, Zip Car, Drive Now and Cambio). Their success has varied, with (for example) Cambio having a big presence but Car2Go and ZipCar retreating from the market. This mixed success is partly due to tax breaks on company cars, which incentivizes employers to pay for a car and fuel rather than a salary raise or other benefits. To help curb this problem, the Belgian federal government took two initiatives:

1. the mobility allowance (effective since March 2018)
2. the mobility budget (since 1 Jan 2019).

The former is (also known as “Cash for car”) is a monthly low taxed cash amount paid by the employer to the employee, as a compensation for the full trade-in of the company car (passenger cars only). The mobility budget is a sum that can be spent on 3 types of expenses: an environmentally friendly company car (max CO2 emissions of 95 grams per km), alternative and sustainable modes of transport (bicycles, electric motorcycles, shared solutions like carpooling etc.) or a cash balance to be paid at the end of the year (no income tax but there is a social security tax of 38,07%)⁸. Employees of private companies are eligible and up to 14% of them have benefited so far.

The Region is striving to better coordinate decisions and initiatives taken by cities about mobility and to implement good practices that could lead to a more seamless mobility experience. Currently the region of Wallonia is building up a network of “referring teachers on mobility and road safety” (EMSR) and a network

⁸<http://www.renta.be/en/belgian-%E2%80%9Cmobility-budget%E2%80%9D-and-%E2%80%9Cmobility-allowance%E2%80%9D-explained>

of mobility managers in companies to help spread best practices in mobility management.

With regards to incentives, disincentives and regulations for integrating NMS, these are largely left to the municipal decision makers.

6.6 Helsinki

Helsinki benefits from a reliable public transport network, well connected with multiple modes. The city piloted and deployed the first commercial mobility as a service model in Europe and has pushed innovation not only into the technology, but also into the governance, regulations, policies and roles played by public authorities and other stakeholders.

Maas Global is pushing for better mobility options through the Whim App. It has more than 50.000 users in the metropolitan area of Helsinki, with three different formulas: pay per trip, season ticket or unlimited month ticket. They combine different transportation means and package them as an extremely good service for users. Their aim is to change behaviours, by providing a more reliable and sustainable mobility experience that can be a solid alternative to car ownership. An article by Maxime Audouin and Matthias Finger describes in detail the evolution of Mobility-as-a-Service (MaaS) in the Helsinki Metropolitan Area. In their analysis, they highlight the policy initiatives and the actions of the local and national government that wanted Finland to be a world-leader in MaaS. Their efforts ultimately led to the opening up of all data from transport providers (both private and public) and make them available in a computer readable format. This allowed for the interoperability of ticketing system, by requiring all public transport providers to open their single tickets APIs⁹ and thus made MaaS workable from a business point of view.

We can identify several stages that helped lead to the outcome:

In 2009 the first national ITS strategy was set to “encourage citizens to use more sustainable modes of travel and make more responsible choices” and “to challenge passenger cars as the mode of choice for everyday travel in large urban areas by increasing and improving the service level of public transport, cycling and walking and the associated services” (LVM, 2009: 19).

2011 saw the publication of the Transport Revolution report by the LVM, which

⁹ The development of Mobility-as-a-Service in the Helsinki metropolitan area: A multi-level governance analysis



stated the need to define new models for the organization of the transport sector due to the changing roles of the private and public sector in the provision of transport services (LVM, 2011).

The National Energy and Climate Strategy was released in 2013, proposing the implementation of the ITS strategy in order to improve the performance of the Finnish transportation system.

In the same year, the second Finnish ITS Strategy insisted on the need to develop seamless ICT-facilitated door-to-door trip chains to have a transportation system that achieves a “level of flexibility and functionality similar to that of private car use, but without the responsibilities and costs associated with private car ownership” (LVM, 2013: 30).

The last important policy designed at the national level, that come into force in 2018, is the first phase of the new Finnish Act on Transport Services (*Laki liikenteen palveluista*). It can be considered a real push towards MaaS for three reasons: It enables the size growth of the for-hire vehicles fleet by removing the existing quota for taxi licenses in Finland. For-hire services are relevant as they might bring a solution to the last-mile problem. It forces all transport services providers to open essential data such as routes, timetables, stops, and fares in a computer-readable format. Finally, it lays down provisions for the interoperability of ticketing systems, by requiring all public transport providers to open their single tickets APIs (LVM, 2017a).

7 Guiding conclusions and views of NMS

In **Nijmegen** the administration is seeking a “Change of habits”. They are building a fully integrated mobility system with real time information that allows people to choose their preferred transport mode. Ideally, the bike would be the option for up to 7.5km, and an e-bike for distances of 15-20 km.

In their view NMS should complement public transport which is the ideal mode for the main corridors. There is however ample room for improvement; for example, ensuring solutions for the last mile or providing a shared car service (ideally electric) when a car is truly needed. Synergies like this would help NMS to be seen in a positive light; but already there are hopes that they will help bring habitual change and promote good habits if the correct incentives/disincentives are defined and if usability is optimal (for example having the ability to book and pay for them in a single app such as in Helsinki).

Active mobility and health are also taken into consideration by the city and they do see a risk in people using electric vehicles and getting less exercise. They want NMS to help reduce car ownership but they do highlight that biking is the best option.

Data is the key. Private operators should share all relevant data with the city mobility system in order to have a complete picture the different transport modes and be able to offer better mobility offering. According to them, city size is becoming less of a problem for NMS providers. Mid-size cities are proving to be interesting business wise, and Nijmegen is keen on attracting them.

The fast-growing **Bielefeld** is facing the challenges that come with demographic growth like increased commuting and problematic air quality. Hence, they are working to provide solutions and anticipate events. Some measures in the SUMP aim to produce an “emission free city centre” and promote pedestrian traffic in the area. They also envisage that car and bike sharing will be part of the solution for improving traffic flows. These would form part of a well-balanced and coordinated system that promotes sustainable transport modes. Ideally this would also be supported by navigation services which can help guide users take the most sustainable route (which should include a transfer point). Finally, the city is also aware that measures will be needed in anticipation of vehicle automation and its challenges and opportunities.

As previously mentioned **Karlsruhe's** SUMP has 120 measures to reduce car usage and also briefly deals with NMS. Among the incentives considered are: the expansion of infrastructure for sustainable modes of transport combined ticketing, tenant tickets, competitions, free bicycles for students with primary residence in Karlsruhe or the expansion of Park & Ride facilities. Disincentives include: car-free housing areas, parking space management, pedestrian zones, cycle routes without cars, speed reductions. The city also strives to check the agreed performance of the mobility providers and ensure high quality services (e.g. how many shared bikes are ready for use, are the bikes returned to the location at night, etc.).

Overall the Karlsruhe administration is optimistic about the ability of certain NMS to reduce car ownership. Bike sharing and car sharing are promoted and there is an effective regional intermodal planning and booking platform. E-bikes and e-scooters will soon be integrated as well. The city sees car sharing replacing a number of private cars, encouraging more rational car use and offering users vehicles that fit their varied needs and more economical and fuel efficient. Looking at what has been accomplished so far, bike sharing is considered as a good last mile connector and they want to expand the model outside city border, to the regional level as well.

Ride-hailing could provide benefits to peri-urban areas but should it should not pull out users from public transport. The city cooperates with a service provider to have real-time data on the traffic situation in the city and the region. But they also think that the public sector should have more information regarding how people chose to get from A to B. They would want to harness and integrate this data in order to enable an overall mobility service offer that supports the SUMP's liveability goals and modal shift targets.

For **Ulm**, a surge of services launching at the same time on the market should not be an obstacle if the city defines a clear regulation from the start which is applicable to all operators. Governance is paramount in managing new service providers. One option they suggest would be to deploy short-term concessions in order to get a feel for how the services integrate together. The city warns against the disruptive business models (such as the wave of free-floating bike share systems - that launched with little oversight in cities across Europe in 2017 and 2018) with services that didn't last long on the market and can do more harm than support. Solid business models are key.

Ulm representatives believe that "NMS are not possible without requiring operators to play fairly and share their relevant data". What is needed is to share at least the data specified within the MDS if they want to operate within their jurisdiction. The data must be provided according to the Open Definition (<http://opendefinition.org/>)

For Ulm it is important that operators allow for third-party ticketing, e.g., a third-party service offering seamless multimodal travel through several regions and transport modes “buys” tickets/usage rights from the operator and integrates it into the journey sold to the customer.

The **Walloon region** is also acutely aware of the need to connect and aggregate the public transport operators' offers available. Concerning data protocols, a first step is the decision of the four public transport Belgian operators (SNCB- Federal Railways, De Lijn – Flemish regional public transport operator, STIB - Brussels regional public transport operator, TEC – Walloon regional operator) to open up their real-time traffic information in formats that will facilitate integration of services. This will eventually include bike sharing companies (in cities where they are active). The aim is to encourage developers to work with these data and offer to the public integrated real time information and more reliable public transport connections. The region is enforcing the interoperability of the platforms to avoid the multiplication of apps, and to contribute to the development of an open multiservice aggregator. Working in a cooperative way between cities in a region may help not only with integration but with market size for new NMS players.

The Finnish Act on Transport Services is exemplary in being instrumental for building a fertile environment for digital transport business. Crucially, the new legislation has obliged all service providers to open certain essential data to all and to open ticketing and payments APIs for single trip/ticket to third parties. These data provisions have pushed the transport sector to go digital, to build an open and interoperable mobility ecosystem, and to hasten the development of user-centric services. At the same time it gives the public sector a completely different set of tools to monitor, react and adapt on the transport system level.

8 Final discussion points

As clean and efficient mobility services will become one of the pillars to provide liveable and attractive cities in the years to come, cities are taking the leadership of sustainable, accessible and integrated urban mobility: enforcing stronger cooperation, shared responsibilities, and new roles among all stakeholders, placing soft modes of transport at the centre. With the help of SUMP, data and a clear vision of urbanism, cities are positive about a vast range of mobility services. However, due to fragmented governance, some attributions for allowing new services to operate lie at regional or national level jurisdiction. In the meantime, cities are following closely larger cities' experiences and are keen to put innovation to the benefit of their citizens.

8.1 Governance

The cases show that inter-institutional cooperation, trust and flexibility of future frameworks will be needed for integrating new mobility services. Regulations and policies should be deployed in a coherent manner from national to regional and local level to allow interoperability and continuity.

To help cities transition their SUMP, new guidelines for integration of shared mobility approaches in sustainable urban mobility planning were recently published by European Commission's European Platform on Sustainable Urban Mobility Plans (1). Special guidelines have also been developed for safety to raise awareness of challenges that new services can bring up – such as potential rise in injuries due to e-scooter use.

The paper (2) on this topic shows that the in the development of MaaS in the Helsinki Metropolitan Area both Type II (horizontal development of a MaaS network, unfolding of several MaaS initiatives in parallel, informal lobbying from local government) and Type I (strong visions from public authorities, development of a dedicated legislation) governance mechanisms were complementary.

8.2 Public transport

With a growing population and densification, cities in Europe cannot afford not to continue investments in reliable and affordable public transport. Public transport is the backbone of an accessible and sustainable urban mobility system. In the case of regional, inter-urban and peri urban travel, better integration, user friendly services, inter-changes and overall improvement of the level of service is still needed. As a first step, good cooperation between public transport operators needs to be achieved as well as a better understanding of user needs. Eventually, building on a successful public transport backbone, integration of new services should be sought to support last mile and offer an attractive package to commuters, employers, families and car owners alike. This essential structure is complemented and enriched with NMS that provide:

- Seamless transitions from/to peri-urban and inter-urban areas
- Concurrence of alternative services to complement the journey
- First/last mile on demand
- Emphasize healthy mobility with cycling and walking integrated as a key part of the structure

8.3 Urbanism and infrastructure

The success of new mobility services lies also in the conditions that are found in the city it operates. For example, micromobility services such as bikes and e-scooters can take off quicker in cities where there is good cycling infrastructure, where traffic is alleviated and calmed and where parking zones are limited, and areas are designated for mobility hubs.

Implementing sharing systems requires providing and designating public spaces – for example for a free-floating car sharing system, new parking decisions need to be taken to allow that cars have a place once they arrive in certain dense areas (airports, shopping centres, city centres).

8.4 The data dimension

Public Administration needs data from the transport services it operates and capacity to manage new mobility services in order to achieve its goals and avoid disruption. It helps them to manage and communicate their deployment but also understand the impact new mobility services can have on travel behaviour or traffic. In most cases, data from e-scooter companies, ride-hailing and car sharing

will be unprecedented data that can inform local authorities and transport managers. An open data platform can also support third parties to build integrated mobility offers that respond to the real user needs.

8.5 Importance of business models and financial awareness

Solid business models should back the deployment of any NMS in order to provide a satisfactory experience and avoid messy implementation that might finally not succeed, creating administrative burdens locally and disengage the users. A "cash for car" system like the one Belgium introduced in 2019 can nudge drivers towards a car-free mobility behaviour, gaining awareness of the costs of car ownership and the sustainable alternatives that could be at hand when that budget is better used.

References:

(1) Draft Guidance Document - Integration of shared mobility approaches in sustainable urban mobility planning, 2019, European Platform on Sustainable Urban Mobility Plans

(2) The development of Mobility-as-a-Service in the Helsinki metropolitan area: A multi-level governance analysis. Maxime Audouin, Matthias Finger. Research in Transportation Business & Management 27 (2018) 24–35

9 Annex

New mobility services and Innovation – Template for case studies –

Action No. 8: Exploring the deployment of New Mobility Services

This template is tailored to gather some information and get to know your cities/regions from a needs and expectations perspective of New Mobility Services in order to present and draw some common discussion points and recommendations. If there are questions missing, please address these at the end. Participating PUM partners: Bielefeld, Nijmegen, Wallonia, ULM, Helsinki.

1. Can you share some information about your city (if available) regarding ...?

- Modal share
- Sustainable Urban Mobility Planning
- Demographics (ex: population growth/decrease in active population?)
- Congestion – do you measure this and have you taken any measures to reduce this?
- Average length of trips
- Role of commuting
- Air quality
- Future plans and strategy such as SUMP milestones? Or new pedestrianisations

2. What is your opinion of the services below (or others) in terms of added value? Are there any new mobility services active in your city?

- Ride hailing (UBERx – UBERpool)
- Car sharing (Car2Go, ZIP car, DriveNow, Cambio)
- Free floating bike sharing (such as Donkey Republic, Next Bike, etc)
- E-scooters (trotinettes such as Lime, Bird etc)
- Motor scooter (mopeds: electric or diesel)

3. How could mobility in your city benefit from them?

- Ride hailing (UBERx – UBERpool)
- Car sharing (Car2Go, ZIP car, DriveNow, Cambio)
- Free floating bike sharing (such as Donkey Republic, Next Bike, etc.)
- E-scooters (trotinettes such as Lime, Bird etc.)
- Motor scooter (mopeds: electric or diesel)

4. Do you have specific local and national regulations in place for integrating new mobility services in the transport offer – depending on service, urban space allocation, time of day and use, safety precautions, incentives and disincentives? Can you give an example? (For ex: electric car sharing operators in Madrid have benefits and easier access to the market OR in Germany a law was passed allowing for public space to be given to car share)

5. What barriers do you see appear?

- a) Too many services
- b) Too few services
- c) Services not coordinated
- d) Street clutter
- e) Others:

6. What data protocols would you envisage? For example: what information should the private operator be ready and willing to share with you as the local/regional authority for optimisation of services/use and vice-versa?

7. Do you have a policy on navigation services? (For example what do you think of Waze?) How do you cooperate with map providers to announce pedestrianisations or change of access in the city?

Ongoing projects and initiatives

EIP- SCC New Mobility Services

A project from the European Innovation Partnership on Smart Cities and Communities, focusing on accelerating the deployment and market uptake of New Mobility Services (NMS) within cities to contribute to wealthy, healthy, clean, spacious, liveable and accessible cities. The NMS initiative will focus on deployment opportunities for NMS, including identification of deployment barriers and exploring solutions for these barriers. NMS includes solutions such as automated driving (CCAM), Mobility as a Service (MaaS), shared mobility concepts and smart bicycle solutions. For more information, please visit: <https://eu-smartcities.eu/initiatives/838/description>.

GECKO

GECKO aims to support authorities in developing the most appropriate regulatory framework and governance model, through guidance, recommendations and case studies, for the transition to a new mobility era of cooperative, inclusive, competitive, sustainable and interconnected mobility across all modes, through evidence-based research. The recommendations for new regulatory approaches provided by GECKO aim to enable effective deployment of emerging technologies, business and operating models for all transport modes. For more information, please visit: <http://h2020-gecko.eu/about/>.

MOMENTUM

The goal of MOMENTUM is to develop a set of new data analysis methods, transport models and planning support tools to capture the impact of new transport options on the urban mobility ecosystem, such as MaaS and automated vehicles. This will help to support cities in the task of designing the right policy mix to exploit the full potential of these emerging mobility solutions. For more information, please visit: <https://h2020-momentum.eu/>.

SPROUT

SPROUT provides a new city-led innovative and data driven policy response to address the impacts of the emerging mobility patterns, digitally enabled operating & business models, and transport users' needs. SPROUT involves six cities - Budapest, Kalisz, Ningbo, Tel Aviv, Valencia, and Padua - with real-life policy challenges carrying out pilot projects. For more information, please visit: <https://sprout-civitas.eu/>.

PUBLISHED ON
BEHALF OF THE
PARTNERSHIP FOR
URBAN MOBILITY

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ACKNOWLEDGEMENTS

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For further information on the Urban Agenda for the EU,
the Partnership for Urban Mobility and the final deliverables please visit:

www.ec.europa.eu/futurium/en/urban-agenda

www.ec.europa.eu/futurium/en/urban-mobility



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