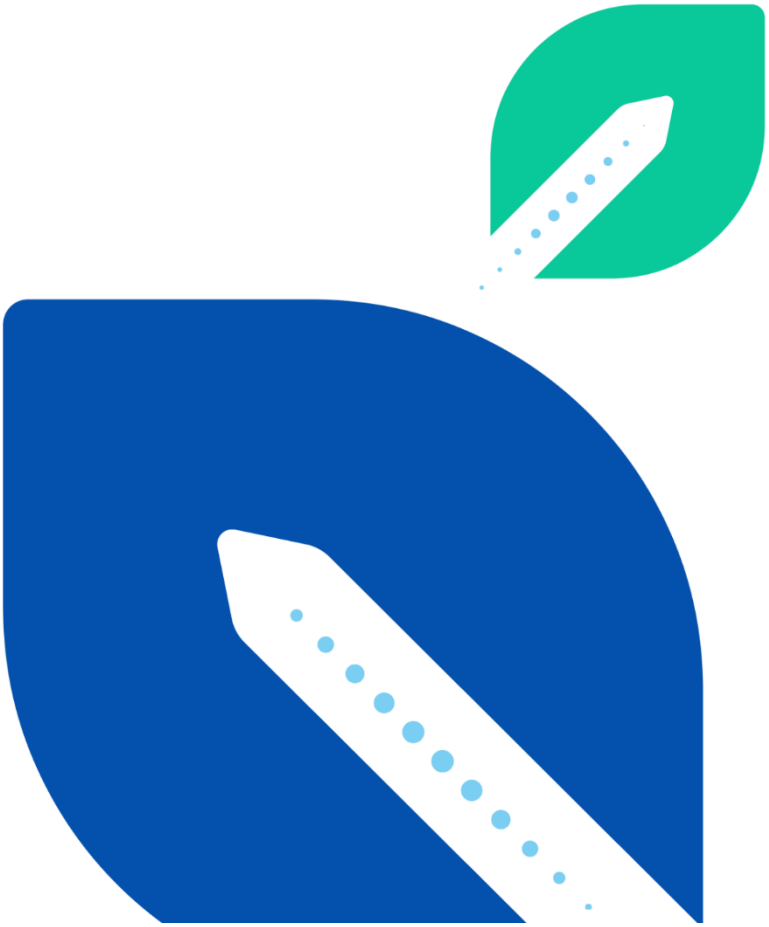
Urban space allocation for supporting and regulating shared mobility services for intermodality



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Contributing Authors

Name	Organisation
Frederic Rudolph	WI
Stefan Werland	WI
Sara Marie Tori	VUB
Dimos T. Touloumidis	CERTH
Elpida Xenou	CERTH
Afroditi Stamelou	CERTH
Georgia Ayfantopoulou	CERTH
Beatriz Royo	ZLC
Teresa de la Cruz	ZLC
Sara Marie Tori	VUB
Mark Meyer	POLIS
Daniel Herrera	POLIS

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1. Urban space allocation for supporting and regulating shared mobility services for intermodality

Urban space is a scarce resource in cities worldwide. With new emerging technologies and new habits that are developing around active mobility, the re-structuring and re-allocation of this urban space is becoming more and more critical. However, this can lead to numerous questions and difficulties: *How much space to re-allocate? How to decide whom to re-allocate it to? How to account for private actors on public land?* Additionally, over the last years, mostly privately-operated rental systems for micro-vehicles, bicycles and other vehicles have proliferated in cities around the world at an astonishing pace. Those new mobility solutions will stay, and cities must cope with them. Implemented in the right way, (shared) micro-vehicles[1] can contribute to reducing air and noise pollution, greenhouse gas emissions, congestion, and the highly inefficient use of scarce urban space.

This SPROUT policy brief, therefore, explores policy options for cities to re-allocate urban space and integrate active and shared mobility forms beneficially into the urban mobility system. Main sources to which this policy brief refers are the SPROUT pilot projects on micro-mobility points in Budapest and on the provision of secure bike parking facilities at public transport stations in Valencia.

1.1. State of the art on space reallocation to support and regulate micro-mobility

The increasing share of cyclists and the proliferation of shared micro-mobility in many European cities over the last years have fuelled the debate on the distribution of scarce urban space. On the one hand, micro-vehicles are often parked and operated on sidewalks and in pedestrian zones, which impedes pedestrians and people with reduced mobility. On the other hand, the integration of micro-mobility can contribute to more sustainable, resource-efficient urban mobility systems, especially if they close mobility gaps in the collective transport system, which remains the backbone of sustainable urban mobility. They have the potential to serve as first- and last mile connection for collective transport in intermodal trips. Primarily, (shared) micro-vehicles should facilitate access to public collective transport as a "first and last mile" solution in urban areas with low accessibility and thus offer an alternative to motorised private transport. The Hamburg ITS strategy, for instance, mentions the linking of public mobility, sharing and on-demand services, […] and the further expansion of mobility hubs as one means to reduce transport-related CO2 emissions (Free and Hanseatic City of Hamburg 2021).

On the other hand, current operation areas of shared mobility solutions are mainly limited to the inner cities, where a high supply of public transport has already been achieved. Moreover,

[1] Micro-mobility is here defined as (shared) light, low-speed, individual transport modes used for short distances (McKenzie, 2019). This includes (shared) e-scooters and (shared) bikes.

privately operated sharing systems often are largely unregulated, including the number of vehicles, the operation area, or regarding parking of shared scooters and bikes. This results in increased competition for scarce urban space with pedestrians and cyclists.

Consequently, urban administrations are in a double role, both as a facilitator and as a regulator of new, privately operated mobility solutions. Building on findings from the SPROUT city pilots and experiences from other European cities, this policy brief assesses potential policy responses for local governments to beneficially integrate those new options into the sustainable urban mobility system and to avoid the negative impacts of shared mobility solutions. Urban space is one main resource of cities. This policy brief compiles a space-based approach for cities to support and to regulate the use of micro-vehicles and bikes to facilitate intermodal travel.

This policy brief is arranged along a stocktake of the conditions under which (shared) micro-vehicles can contribute to a more sustainable urban mobility system. Based on this assessment, policy options for cities are derived and substantiated through case examples.

1.2. Legal environment for cities

The ability of cities to manage the use and operation of (shared) micro-vehicles in urban areas depends to a large extent on their legal competencies; especially on the question of whether the provision of shared vehicles in public space requires a permit from the city and whether municipalities are allowed to tie such concessions to certain requirements.[2]

In the early stages most cities did not regulate the operation of shared micro-vehicles systems, or tried to influence their deployment and use through voluntary agreements with the private operators (such as Memorandums of Understanding). In the meantime, more and more cities are moving towards regulating private shared mobility offers. This development is reflected in the findings of the SPROUT action tracker[3]: While ca. 37% of SPROUT cities still rely on non-binding agreements with private operators or did not regulate parking, almost half of the surveyed cities (46%) have implemented some kind of binding parking regulations for shared vehicles, and half of those (23 %) also provided parking spaces for shared vehicles at the expense of car parking.

[2] Relevant provision can be set at the national level, at the regional or the city level, or (still) missing.
[3] Due to the limited number of 14 cities surveyed, the findings are not representative. Still, the extracted numbers may give an indication on the state of parking regulations for shared bicycles and micro-vehicles.

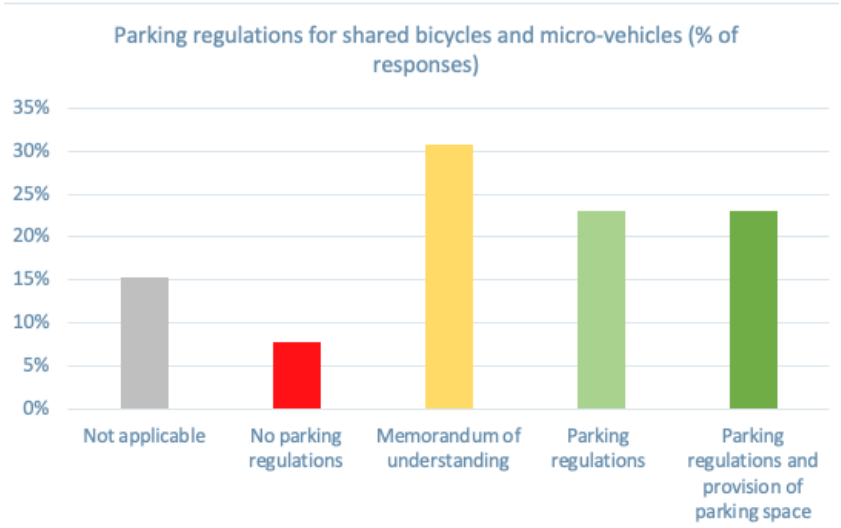


Figure 1: Parking regulations for shared micro-vehicles in SPROUT cities (% of responses). Source: SPROUT D6.2.

The operation and use of micro-vehicles can be influenced by the national level and local regulations, for example on maximum speed, maximum occupancy, or parking can be issued. Depending on the legal environment, cities can also select a limited number of operators through public tenders. Licenses that allow the operation of a sharing system can be awarded to the best-performing applicants, based on environmental and social criteria. Issuing such concessions that may be revoked in the case of non-compliance with stated requirements puts cities into a stronger position vis-a-vis their counterparts.

Good practice example Paris

The city of Paris regulated the operation of e-scooters in 2020, following an increasing number of complaints about their usage and improper parking in the city. Based on a competitive licensing process, three providers were selected on the criteria such as environmental responsibility (40% weighting), sound business practices (30% weighting), and safety (30% weighting), as stated in the tender documents (City of Paris 2019). The concessions to operate an e-scooter-sharing system are limited to three years, with the option to renounce the license in case of non-compliance with the attached regulations. The maximum number of vehicles was cut down from over 20,000 to 15,000 shared e-scooters, i.e., to 5000 vehicles per operator. In parallel, the city provided 2500 parking areas which were mostly converted from on-street car parking slots. The parking areas are mandatory to use, and the irregular parking of e-scooters on footpaths and in pedestrian areas has been prohibited by municipal law.

While the use of (shared) bikes is considered a normal use of road space all over Europe, other kinds of shared vehicles, such as electric kick-scooters only recently emerged as mobility means. As of now, they are officially categorized as street-legal in most EU member states. Still, vehicle standards and requirements for their use differ among the member states, for example on maximum speed, minimum age of users, insurance, or where to use them. Most often, e-kick scooters are classified as light motor vehicles with a maximum speed of 20 to 25 km/h, and they should be used on cycle lanes or roads, but not on sidewalks and in pedestrian

areas. Given such vehicles are classified as street-legal, cities cannot easily prohibit their use on public streets. Only a few member states, including the Netherlands, Hungary, or Poland have not yet categorized e-kick-scooters as vehicles; and their applicability remains unclear, as experienced in the SPROUT use case in Budapest.

1.3. The success factors of urban space reallocation to support and regulate micro-mobility

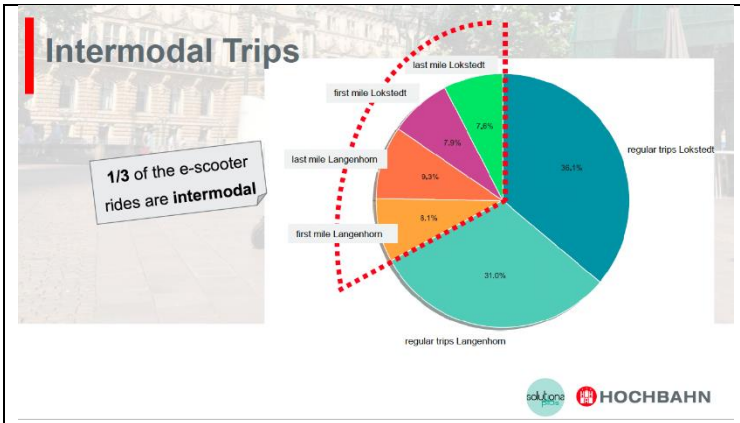
This chapter outlines the conditions under which the integration of active mobility and (shared) micro-vehicles can increase the sustainability of urban mobility systems. This chapter starts with a review of cost-benefit analyses (CBA) on shared micro-vehicles which have been conducted over the last years (Deutsche Energie-Agentur 2021; EY 2020; Hollingsworth, Copeland, and Johnson 2019; International Transport Forum 2021). All studies conclude that these new kinds of mobility can be beneficial for the urban mobility ecosystem, given that they fulfil certain conditions.

Shared micro-vehicles can improve the environmental impact of the entire mobility system by substituting individual motorised mobility. If other mobility means are substituted, benefits are substantially reduced or even become negative (Hollingsworth, Copeland, and Johnson 2019; International Transport Forum 2021; Severengiz, Schelte, and Bracke 2021). Findings from the SOLUTIONSplus Hamburg demonstration project on shared e-scooters in suburbs of the city of Hamburg[4] indicate that most micro-vehicle trips cover up to 2km distance and take 4-6 minutes. That means that point-to-point trips will not replace typical car trips – which are usually longer – and tend to substitute walking and cycling. A study by the Portland Bureau of Transportation found that 42% of e-scooter trips replaced walking and cycling trips (Portland Bureau of Transportation 2018). Hence, the focus of cities should be on promoting intermodal trips, in which collective public transport covers the main distance and (shared) micro-vehicles are used as first- and last-mile solutions, specifically in areas beyond the city centre with lower public transport service levels.

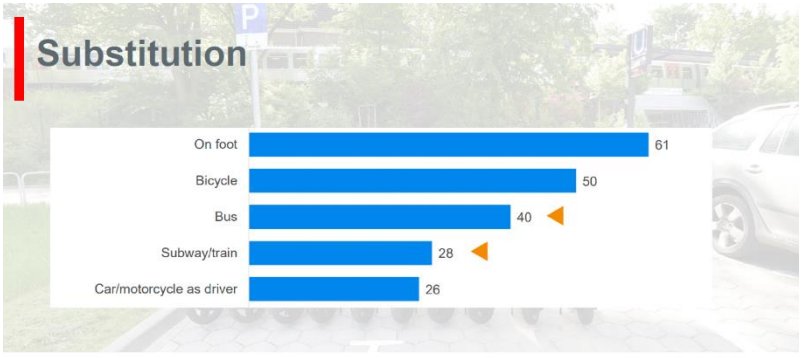
SOLUTIONSplus demonstration project Hamburg

In the SOLUTIONSplus project, shared e-scooters were made available in two suburbs of Hamburg. The demonstration comprised the provision of e-scooters through a private operator, the provision of parking zones at light rail stations, and the integration of shared e-scooters with the public transport provider's mobility app. A user survey that was carried out found that one third of all scooter rides were part of intermodal travel chains.

[4] https://www.solutionsplus.eu/hamburg



The user survey confirmed the findings of other reports (International Transport Forum 2021; Moreau et al. 2020) that shared e-scooter rides most often substituted active mobility and public transport. Still, 26% of respondents indicated that e-scooter trips also replaced private motorised mobility (several answers to the question were possible).



More information on the SOLUTIONSplus demonstration project: https://www.solutionsplus.eu/hamburg

Based on this assessment, the chapter identifies preconditions for the re-allocation of urban space to promote and regulate micro-mobility, and provides good practice examples.

- **Consent of public land-owners and managers**

One precondition for intermodal trips is the provision of well-connected physical infrastructure, including mobility hubs at public transport stations. Mobility hubs are locations in the public space where different mobility options such as public transport, safe parking for private bikes, shared bikes and micro-vehicles, shared cars, etc., and possibly additional services such as parcel lockers or charging infrastructure for e-bikes are combined in one place.

The SPROUT pilots have shown that the disposal over the use of public land is a critical resource. Relevant public actors can be the city, individual city districts, public transport operators, or road authorities. Installing mobility hubs require the consent of those actors on the re-allocation of urban area. This may include an agreement on suitable locations, on the

assumption of operational costs, or on possible compensation payments (for example for the loss of car parking fees). The availability of city-wide provisions, which are binding for all relevant public actors, may facilitate this process.

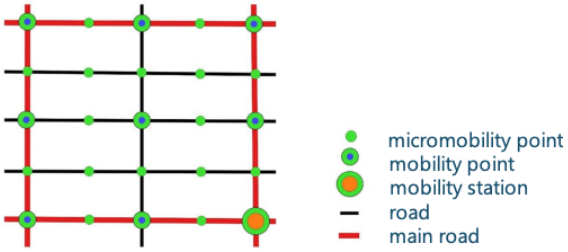
- **Legal capacity to regulate the use of shared vehicles**

Dockless shared micro-vehicles are criticized for obstructing pedestrian infrastructure, and blocking access to buildings and public transport stations, specifically for visually and mobility-impaired persons. To manage the placing of dockless shared vehicles, cities are increasingly implementing no-parking zones in parks or around busy tourist attractions, in which users cannot end their trips. Other urban administrations are turning on-street car parking spaces into dedicated return areas for shared vehicles. Paris, for example, provides 2,500 parking zones which are mandatory to use. Other cities are implementing no-parking areas in a circle of 100 meters around return zones. This requires that cities have the legal authority to regulate the use of shared vehicles.

Good practice example Budapest: urban space allocation

Budapest aims at facilitating intermodality between public transport and shared mobility services. Over the last few years, the Centre for Budapest Transport BKK has developed a system for setting up mobility points, that are open to both private and shared vehicles. The purpose of mobility points is to make shared micro-vehicles reliably available in a concentrated area and to prevent inappropriate and obstructive parking of micro-vehicles in the public space, which constrains in particular elderly and visually and mobility-impaired pedestrians.

- **Physical integration – parking for micromobility**



Source: BKK

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Within the SPROUT project, BKK plans to establish a network of mobility points. In the city centre, mobility points should be accessible within a maximum of a 1 to 2 minute-walk; in a broader transition zone, this would increase to a 4 to 5-minute walk. Those distances are in line with a user survey carried out in Paris, which indicated that the highest share of potential users considers a 2 minutes-walk (90%) respectively a 5 minutes-walk (43%) acceptable to find an e-scooter (6-t 2020, 19).

There are different kinds of mobility points, following a hierarchy: the smallest solution is micro-mobility points for scooters, bicycles, and cargo bikes at every 150 meters; mobility points also include car sharing offers at ca. every 250 to 300 meters; and finally, mobility stations are located at larger intermodal transport hubs, which can also have additional features such as pick-up points, or luggage storage.

The intensity of use and the potential need to adapt the number and size of parking spaces to user behaviour are monitored using vehicle data (for shared vehicles) and regular site visits (for private bicycles and scooters).

Properly implemented, micro-mobility parking zones can also contribute to a safer design of junctions, for example through better visual relationships when car parking spaces are converted.

Defining parking areas also reduces the spatial distribution of shared vehicles, which reduces the effort and the required vehicle kilometres for collecting, servicing, and re-locating micro-vehicles and bikes (International Transport Forum 2021, 13).

- **Capacity to influence operations of shared vehicle providers**

Most of the energy use and the greenhouse gas emissions that relate to shared micro-mobility stem from the vehicle and battery production phase. Life cycle assessment studies show that such embedded emissions by far outweigh emissions caused during the operational lifetime, including the use and servicing (Deutsche Energie-Agentur 2021; Hollingsworth, Copeland, and Johnson 2019; International Transport Forum 2021). The ITF assumes that while the energy consumption per kilometre during the use phase is lower than for all other motorised trips, emissions per vehicle-kilometre drastically increase if the product lifecycle is considered (International Transport Forum 2021, 30). The cumulated amount of embedded emissions increases the more vehicles are used and the more often e-scooters and e-bikes must be replaced. Consequently, increasing the lifetime of vehicles is the central lever to reduce the climate impacts of micro-vehicles.

Shared micro-vehicles have been criticised for their short life expectancy. Assumptions about the average lifetime of e-scooters range from 6 months up to 2 years, depending on the generation of vehicles (e.g., Deutsche Energie-Agentur 2021; International Transport Forum 2021). Despite the technical advances, many scooters and bikes are withdrawn from service before the expected end of their technical lifetime because of vandalism, including dumping of scooters into rivers and lakes or pushing them down slopes and bridges.

Figure 2: Shared vehicles, removed from the river Spree in Berlin

To prevent such practices, city authorities, along with providers, can introduce no parking zones along water bodies and on bridges, along steep slopes, etc. Introducing corresponding regulations requires the legal and personnel capacity to define, to implement and to enforce no-parking areas, or the cooperation of shared mobility providers. Technically, geo-fencing technology to ensure that share micro-vehicle rides cannot be ended in prohibited areas is required.

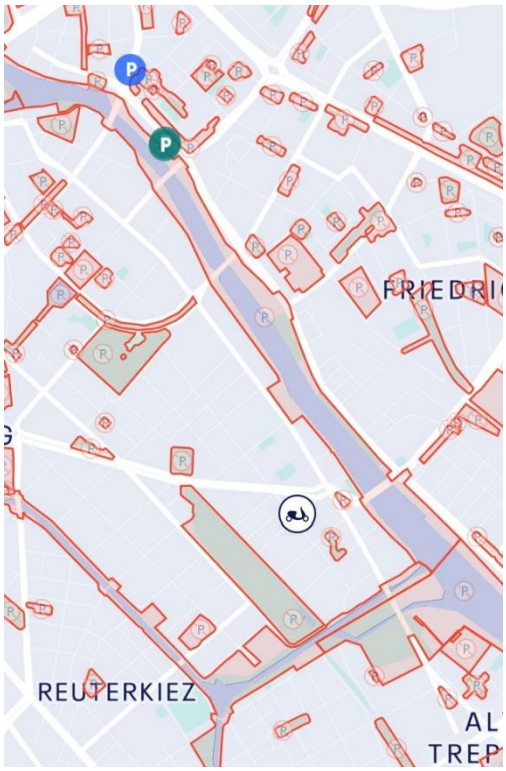

Figure 3: No parking zones along water bodies in Berlin. Source: TIER app.

- **Implementing push-measures to discourage private car use**

Finally, cities should implement policies to actively discourage private car use. Those measures complement the pull measures that facilitate the intermodal use of shared micro-vehicles and public transport. Push measures that cities can implement comprise increasing parking fees, the reduction of on-street car parking spaces in city centres, or the re-allocation of car lanes to cycle lanes, which can also be used by e-scooters in most member states. A policy inventory that covers both push and pull measures is provided in SPROUT Deliverable 3.3 Policy impacts of city-specific scenarios.[5]

Conclusion

Realising the benefits of new (shared) mobility services while avoiding negative consequences requires a (multi-level) policy mix of dialogue, incentives, and regulation. Cities must take roles both as facilitators and regulators of new mobility solutions.

Space-related policy responses to avoid the negative impacts of (shared) micro-vehicles include parking restrictions, general and local speed limits, or environmental and social standards for vehicles and operations. They can be set either directly through national or city regulations or be defined in public-private concession agreements (note that not all cities in all EU member states might be in the legal position to impose such binding regulations).

The (re-)allocation of public space from cars to active and (shared) micro-mobility is a means to incentivise the use of more efficient vehicles. A practical example that combines both push- and pulls elements is the conversion of car parking into return zones for shared micro-vehicles and bikes, which are mandatory to use. A proper location of (non-)parking zones can reduce vandalism and the premature demolition of shared vehicles and thus contribute to reducing their life-cycle greenhouse gas emissions.

Finally, intermodal travel with shared micro-vehicles can replace car trips, specifically in areas outside the city centre with lower or unregular public transport offers that connect to rail or light rail stations. The availability of shared vehicles is one key determinant for their uptake. The city of Budapest implemented a hierarchical order of shared mobility points, starting with a dense network of micro-vehicle and bike parking (1–2 minute walking distance) which is integrated into a wider network of mobility hubs that combine additional mobility offers.

1.4. Challenges and lessons learnt from pilots' implementation

Implementing innovations in cities can be an arduous task. From the experience gained through the SPROUT pilot cities, some common problems and lessons learnt can be distilled. The focus of this policy brief is on urban space re-allocation and the integration of active and shared micro-mobility solutions, which were tested in the Budapest pilot, but experiences are also drawn from the other pilots, as some common problems arose. Additionally, the lessons learned have wider applicability than only the specific pilot tested and can therefore be transferred to other innovative solutions and different cities. In this case, we use the problems

[5] https://sprout-civitas.eu/resources/d3-3-policy-impacts-of-city-specific-scenarios

encountered and the lessons learned to make recommendations to help support and regulate shared micro-mobility services in cities.

A first important aspect is the **current lack of regulation of shared micro-mobility solutions**. As e-scooters were introduced on the European market only recently, they are not yet classified as vehicles in some member states.[6] In Budapest, for example, the status of e-scooters, their street legality and the terms of use is not detailed yet, which created uncertainties during the SPROUT pilot implementation stage and delayed the planning. For example, as of now, e-scooter users count as pedestrians, and it is not yet specified whether the vehicles are allowed on the road or on cycle paths; which has implications for the location of the return zones.

A second problem encountered by the SPROUT pilot cities is **dispersed responsibility and lacking coordination** among the entities involved. Physically linking mobility hubs, bike parking and parking zones for shared vehicles to the bike network was identified as an adequate policy response in Valencia and in Budapest. Still, the public authority responsible for the city-wide or regional bike network might not oversee the required redistribution of public land. In the SPROUT Valencia pilot, where safe bike parking ("Cicloparcs") have been installed in the proximity of metro stations to promote intramodality, the public transport operator is not the owner of the land on which the parking is located. In this case, an agreement with the respective municipalities on the use of public land, and the financing and operation of the infrastructure had to be concluded. In Budapest, the urban space in which the mobility points are located is in the hands of the city districts, each of which followed different priorities and preferences for the location of parking (e.g. on sidewalks vs. re-allocation of car parking). Consequently, BKK representatives pointed to the need for city-wide planning standards, that contain binding provisions for districts and planning authorities to assign sufficient urban space to active and shared mobility; including the provision of parking facilities for car parking (D7.1). BKK pointed out that, currently, a lot of time and energy was spent with different stakeholders in trying to find an agreement, and this lack of coordination postponed the implementation of the mobility points.

Those examples show that overcoming these recurring coordination challenges between departments and administrative levels requires an overarching, city or region-wide strategy and regulations that make it compulsory for public authorities to provide space and free access to land for sustainable mobility purposes. In the case of Valencia, it has been found supportive that the Cicloparcs' initiative was completely aligned with the current policies of Valencia City Council and the regional government (Generalitat Valenciana) in terms of encouraging the use of bicycles, public transport and, intermodality between them as an alternative to private vehicles. In 2020, BKK elaborated an 'active and micro-mobility strategy' which explains that a well-organised active and micro-mobility infrastructure can relieve the burden on public transport at peak times. This requires high-capacity bike parking at public transport stations and a better linkage of public transport with micro-mobility services (BKK 2020).

[6] Currently, e-scooters are classified as e-vehicles in some members states, or treated similar to bicycles in others. A unified EU-wide classification is currently being discussed.

The distribution of financing **costs** for the implementation and the operation of infrastructure is a source of conflict which might complicate the negotiations between the diversity of actors involved. Those costs are often not refinanced through user fees for new services. Valencia decided that while a cost-covering fee for the secure bicycle parking spaces would be between €0.41 and €6.58, use should be free of charge for owners of a valid public transport ticket to not discourage potential users (SPROUT D4.3, p.28). Budapest decided to keep the design of micro-vehicle parking areas as simple as possible ('less is more') to limit financial burdens and operation costs for districts.

A related concern in the Budapest pilot was that city districts worried about a potential **loss of public revenues** from parking fees when on-street car parking are replaced with micro-mobility return zones, which could make the re-allocation of public space financially unfeasible. Stakeholders, however, pointed to the environmental and health benefits in general, but also in monetary terms as it reduces healthcare costs. Since costs are directly attributable, benefits or avoided costs normally are not. This situation requires political consent that measures to reduce private motorised mobility should be followed even if direct costs are encountered.

The last question that arose for the pilot cities concerned the **inclusion of the new and privately organised mobility services within the 'traditional' public transport network**. It is crucial to understand the complementarity of public transport and new mobility solutions, which can help relieve the pressure on collective transport systems during rush hours. However, new mobility solutions must not be considered a gapfiller for areas that are not served by public transport. As they are privately operated, those solutions need to be profitable and thus will focus on areas with high demand forecasts. Moreover, micro-mobility specifically has a limited group of potential users and use cases, and thus is not suited to provide basic mobility for all. Ensuring universal availability and accessibility remains the task of public transport. Shared private mobility offers can be an additional mobility option, which adds value to the urban mobility system when it replaces car or motorcycle trips and serves as part of intermodal travel chains. One policy response that was selected in SPROUT cities was to raise awareness of the existence of such intermodal options, for example by announcing mobility hubs in public transport vehicles or in public transport apps.

1.5. Recommendations for the integration of active and shared mobility services into the urban mobility services of cities

As shared active and micro-mobility services are likely here to stay, it is crucial for cities to address them if they wish to harness their potential in the context of a sustainable urban mobility transition. New shared mobility offers are referred to in a range of EU documents as innovative future elements of urban mobility systems. The European Mobility Framework states that "*new mobility services are part of a multimodal, integrated approach to sustainable urban mobility. They can reinforce public transport and substitute car use. The 'micro-mobility revolution' requires more effort in terms of sharing best practice and providing guidance, especially as these vehicles pose significant safety challenges*"[7]; and under its 2020

[7] Questions and Answers: European Urban Mobility Framework, https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_6729

Sustainable and Smart Mobility Strategy[8], the European Commission pledges to *"help cities modernise their policy toolbox, including in areas such as micromobility, […], and associated infrastructure"*.

The provision of urban space for new mobility services and their integration into the existing transport system is a local task which will be mostly in the hand of municipalities. Still, the SPROUT pilots revealed a list of practical issues that several cities face in their attempts to better integrate active and shared micro-mobility into intermodal travel chains. While local circumstances and national legal frameworks may differ, the European level can provide guidelines and act as a facilitator for the exchange of good practices. Based on the key success factors identified in section 3.3 and on the lessons learned through the different pilots, SPROUT formulates the following recommendations.

1.5.1 Develop a coherent legal framework

The experience provided by the SPROUT pilots shows the crucial importance of the development of a coherent legal framework in which to operate. This is specifically relevant when the responsibilities for implementing the new solution are distributed among different actors, including city districts, administrative departments, and transport providers.

As such, city-specific planning regulations which are binding for public institutions should be developed, for example, a decree, that contains city-wide provisions planning for all modes of mobility and public space reorganization. This could be done along the SUMP cycle. Importantly, when doing so, is that the relevant stakeholders be involved from the onset. SPROUT pilots showed that the selection of adequate locations for shared mobility infrastructure is critical for the uptake of the solution. Cities also pointed to the need for cost-effective implementations that still adhere to minimum standards on safety and user comfort.

Moreover, a strategic design and location of mobility stations and hubs can support the needed re-distribution of urban space and enhance traffic safety, for example by re-designing junctions. Often, it is not the urban planning department, but city districts or neighbouring communities that provide urban space and implement return zones and mobility hubs. Those actors are often concerned about the implementation and operation costs of infrastructures. Providing neutral guidelines on the adequate number, the design and the required equipment of mobility hubs and stations facilitates the coordination among involved actors and ensures a consistent quality of the offers for the users.

- Derive general guidelines on methods for the selection of the location of return zones for shared bikes and micro vehicles, mobility stations and mobility hubs, including methods, required data, and indicators;
- Develop a design guidelines handbook that outlines good practice examples, standards and minimum requirements for the design of shared vehicle return zones, mobility stations and mobility hubs.

[8] COM(2020) 789 final

1.5.2 Integrate active and shared new services within the public transport network

Shared micro-vehicles and bikes can contribute to more sustainable transport when they are integrated with collective public transport, which will remain the backbone of sustainable urban mobility systems. Action on the EU level should provide practical examples and in-depth advice on how new mobility services can be integrated; be it through physical integration via mobility hubs, the integration of shared mobility providers in public transport apps, or integrated payments and ticketing.

1.5.3 Guidance to account for benefits of new mobility solutions

Financial costs of investments in sustainable mobility infrastructure can be determined and attributed. The same applies to lost benefits, for example when managed parking spaces are converted. Even if cities or city district's investments may be outbalanced as this measure reinforces the micro-mobility points and the cultural change towards more active, shared and eco-friendly mobility. Benefits may occur from other actors (e.g., public transport providers) or be diffuse in terms of avoided damage (from noise, air pollution, and greenhouse gas emissions). Need to cross-subsidise costs for districts

The benefits of less traffic, pollution and greenhouse gas emissions, on the other hand, are harder to establish: they are diffuse, difficult to express in monetary terms and cannot be assigned to individual actors. Depending on the (potentially volatile) political support, city administrations may need guidance on how to assess the benefits of new shared mobility solutions to justify public investments. This can include approaches and data required to assess avoided costs of infrastructure wear, from air and noise pollution, greenhouse gas emissions, or reduced congestion. Approaches should also highlight possible impacts on the urban mobility system, for example how to account for the impacts of modal shifts and increased intermodal mobility.

1.5.4 Support the double role of cities

So far, urban mobility has been organised and managed by city administrations, either via city-owned transport companies or via service contracts for providing public transport services and based on urban transport planning strategies. The taxi sector, as privately-operated providers of transport, is highly regulated through local provisions. With the appearance of new mobility offers, however, cities need to take a double role, both as facilitators of innovative mobility solutions and as regulators to avoid negative consequences. Dealing with private mobility providers is new for many city governments, and cities need practical guidance on how to link privately operated shared mobility business models with collective public transport, keeping in mind that availability of and access to mobility is a basic need. This includes systematic guidance and good practice examples on the options that cities have to influence the operation of sharing systems, the use of vehicles, or the provision of data, for example via direct regulations or in tenders.

2. Conclusions

This document is extracted from ‘Deliverable 7.2: Urban Agenda policy briefs’ which consists of two policy briefs on recent innovations in the urban mobility field: on the integration of (shared) micro-vehicles and on autonomous vehicles. Both examples have the potential to contribute to more sustainable and future proof urban mobility systems. Still, the beneficial integration of those – most often privately operated – solutions into the mobility system requires strong guidance and regulation.

Key factors are the regulatory capacities and competencies of cities. As the mobility solutions have only recently been introduced or are upcoming developments, the respective legal frameworks are still emerging, and many standards are set on the national or European level.

In terms of automatic vehicles, cities can provide room for experimentation by actively supporting the implementation of pilot projects. Such real-world test settings can help overcoming technical challenges, explore potential business models, support the definition of standards and specifications, understand data requirements, increase user acceptance, and facilitate the creation of an adequate administrative and legal framework.

Integrating (shared) micro-mobility with collective transport is a prime example for the new role of urban governments as facilitators and regulators of new mobility solutions. Most standards and legal requirements, for example the vehicle classification, the street legality of vehicles, or the minimum age of for users, are decided at national or European level. Cities can promote and regulate innovative mobility offers mainly through the allocation of urban space and through specifications on how it is to be used. While the use of shared vehicles was largely un-regulated in European cities in early stages, an increasing number of communities moved to combined approach of integration with collective transport via the provision of parking spaces, physical mobility hubs and public transport apps on the one hand, and regulation via concessions, caps on the number of vehicles and providers, parking regulations, or speed limits, on the other hand.

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