

THE OPPORTUNITIES AND LIMITS OF PRIVATE–PUBLIC SECTOR COOPERATION IN SUSTAINABLE URBAN MOBILITY

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Abstract: This article reflects on shared micro-mobility, which can be defined as a contribution to sustainable urban mobility as well as a threat to leaders and residents of the city. By the example of Olomouc in the Czech Republic, we illustrate how the division of transportation work is affected by the legislative framework, the size of the city and the interests of different social actors. As the case study results suggest, city government officials cooperate with private providers of shared micro-mobility services to increase their modal share. However, this cooperation is only partially effective due to the absence of a law regulating shared micro-mobility services on the one hand and the size of the city on the other. Concerned that the use of shared bikes and e-scooters could negatively impact public transport, city officials are sceptical about promoting shared micro-mobility services. That results in the underutilisation of the financial support for sustainable urban mobility.

Keywords: sustainable urban mobility; sharing economy; shared e-scooters; bikesharing; case study

1. Introduction

“A bike has a soul, doesn’t smell, and saves your joints. No traffic jam will slow your ride. Thanks to the bike, you can stretch your back. With a bike, you can feel the wind in your hair and the speed in the handlebars. You will enjoy a heady dose of freedom on your bike. Ride down the streets of Prague, sculpt your thighs and buttocks, and save money on transport” (www.cistoustopou.cz/na-kole). The Clean Track campaign slogan above contrasts individual car

transportation with cycling. It illustrates several personal benefits (Bakker et al. 2018). On a bike, one can travel comfortably, quickly, and healthily. What is more, economically.

The representatives of a local administration formulate these arguments in the interest of sustainable urban mobility. They intend to decrease the modal share of individual car transportation on transportation work and increase public interest in using alternative forms of transport (such as city transportation, walking, or cycling), in keeping with the Sustainable Urban Mobility Plan, a conceptual document that (1) reflects on how traffic behaviour of the population affects the environment, urban infrastructure, road safety, and economic situation; (2) proposes a wide range of measures to eliminate the occurrence of negative phenomena caused by individual car transport, such as air pollution, parking problems, traffic accidents, and congestions (Duran et al. 2020).

Regarding measures to promote sustainable urban mobility, this includes the improvement of infrastructure, decreased traffic, and public transport support (Brůhová Foltýnová et al. 2022). Local authorities propose and implement those measures based on cooperation with experts and the general public. In other words, they are subject to negotiations. Social actors of various needs and interests participate in the final form of these measures. However, their degree of involvement in the negotiation process varies, as can be seen in the results of the qualitative research presented in this article.

The research was conducted in Olomouc (March 2022 – April 2023), where local authorities support shared micro-mobility services to a limited extent to contribute to traffic calming, even though this approach has proven successful in other cities, such as Bremen, which has a less car-dependent lifestyle (see Glotz-Richter 2016). Instead, they prefer to support public transport, which is not attractive enough to city residents because its price does not match the quality of the service provided. That is because local government officials define shared mobility services as a private business that can potentially hurt sustainable urban mobility. These findings arise from a situational analysis reflecting how shared micro-mobility services are regarded by providers, local government officials, and city residents.

First, we describe the research methodology and then present its results to show how selected factors (legislative framework, size of the city, and the needs of various interest groups) affect the integration of shared micro-mobility services into the city's intermodal transport system. Finally, the opportunities and limits of public-private cooperation in sustainable urban mobility are discussed.

2. Methodology

We conducted the case study to assess the opportunities and limits of public-private cooperation in sustainable urban mobility. For this purpose, the city of Olomouc was selected for its characteristic plain terrain and its vast network of cycling trails, where people do not use shared micro-mobility services to reach the first and last mile (DeMaio 2009). This is related to the size of the city (10,333 ha). Compared to other big cities, Olomouc's size allows people to easily travel from one side of the city to the other by bike, e-scooter, or public transport. This leads to reduced interest from the local administration in integrating shared micro-mobility services into the city's intermodal transportation system. In this context, there are real concerns that people will not use the public transport service, including shared bikes and e-scooters, evenly. If this were the case, the increased interest in alternative modes of transport could lead to a decrease in public interest in using public transport and an increase in the financial outlay for public transport covered by the municipal budget.

This issue is being addressed by local government officials seeking to reduce the share of individual car traffic in the city transportation work. Part of the implementation process of the sustainable urban mobility plan (<https://spokojena.olomouc.eu/plan-udrzitelne-mobility-olomouc/>) is the cooperation between the municipality and private providers of shared micro-mobility services to contribute to changing the transport behaviour of Olomouc residents. The following section discusses the specifics of their cooperation.

2.1. Data generation and analysis

The qualitative research was conducted between March 2022 and April 2023, exploring how shared mobility services are approached by their providers, the local government, and residents. A total of 13 participants, selected through purposive sampling, were interviewed for the research study. Among them were two representatives of the local government (the responsible policymaker for Smart City and shared mobility coordinator), one provider of shared mobility service, and ten citizens who move around the city of Olomouc by different modes of transportation. Some prefer individual car transport; others combine walking with public transport, cycling, or using an e-scooter. The research sample is heterogeneous, including four users and six non-users of shared micro-mobility services. Among them are four women and six men between

21 and 48 years of age. Of these, three are students, six are economically active, and one is on parental leave.

In order to identify the different needs and interests of the participants, we designed three types of interview guides. The first explored how the local government (1) evaluates shared micro-mobility services and (2) engages with the service providers in the area. The second interview guide reflected on (1) the providers' experience of shared micro-mobility service and (2) how they cooperate with the local government officials. The third one concentrated on identifying the needs of residents who either use the shared micro-mobility services or not.

Each interview was audio-recorded and transcribed verbatim. Data analysis was conducted simultaneously with the data generation process, involving the creation of situational maps (Clarke et al. 2022) that reflected how various elements shaped the reality under investigation. The starting point for data analysis was the Messy Situational Map, which allowed us to describe the human and non-human elements found in the research situation as articulated by the participants and the researcher. Subsequently, we created an Ordered Situational Map to organise the elements of the Messy Situational Map more clearly. The following analytical step was the creation of Relational Maps. By drawing lines between elements, we defined their relations and captured the messy complexity of their dense relations and permutations. After describing the types, characteristics, and asymmetry of these relations, we draw Social Worlds/Arenas Maps to illustrate the social worlds of the actors and their discursive arenas. Through this step, we captured different forms of collective action related to the planning, implementing, and using of shared micro-mobility services. Finally, our team explored the positions of individual actors in relation to discourses and various elements of the situation based on Positional Maps.

3. Findings

The qualitative data analysis shows the effect of social actors' different needs and interests on the integration of shared micro-mobility services in Olomouc. In line with our first research question, which explored how the local government evaluates and engages with service providers, and our second question concerning providers' experiences, the findings highlight a negotiation process shaped by competing perspectives. On the one hand, some service providers allow citizens (clients) to rent a bike or an e-scooter for money, which seems

advantageous for users who wish to enjoy the benefits of these vehicles without the need to own them (Lamberton & Rose 2012). On the other hand, we have representatives of the local administration who are considering how to implement shared mobility services into the city's intermodal transportation system without negatively affecting sustainable urban mobility.

As noted earlier, there are two possible definitions of shared mobility services: (1) a contribution to sustainable urban mobility (Shaheen & Cohen 2015; Bakket et al. 2018); and (2) a threat to local government officials and city residents (Howe 2018; Sun 2018). This duality resonates with the concerns raised in our interviews and illustrates the tension between opportunities and risks identified in the methodological section. It seems evident, given social actors' previous experiences with these services. According to users, shared micro-mobility services are a suitable alternative to individual cars and public transport. They allow for efficient and quick travel, and unlike public transport, their use is not regulated by timetables. For this reason, they can be used at any time – during the day, when it is challenging to get from point A to point B due to traffic jams, and at night, when public transport is temporarily suspended. During this time, users appreciate that shared mobility services are cheaper than taxis. On top of that, they offer a unique user experience.

“It’s a cool thing! Like when I go to a store for a smaller purchase (we live on the outskirts of town) or if I arrive at the train station and want to speed up my trip home. Or we take them and go for a ride. (...) it’s quick, affordable, and cheaper than starting the car. Plus, many times, it’s faster on the e-scooter than if I were driving somewhere in rush hour.”

(female, 22 years old, economically active, user)

“I don’t have to wait for a bus, and I can grab the e-scooter whenever I want. Nothing goes to my place in the evening, but the e-scooter has a parking place there, so I can get home even completely drunk. I used to ride a bike before I started using a scooter – it’s faster, more mobile, and has a closer parking space... It just makes it quicker to move from A to B.”

(male, 25 years old, economically active, user)

However, the unique user experience is only available to a limited population. Here, our third research question – focusing on the needs of residents who either use or do not use the services – becomes particularly relevant. Among

them are people with a smartphone who are media literate and able to move independently. It is less accessible to those without smartphones¹ or those travelling with small children. For this target group, public transport seems more attractive than shared micro-mobility services, despite the disparity in price and quality of the services provided.²

Parents with small children specifically prefer to travel by public transport, as it better suits their needs. They also benefit from discounted fares,³ which saves them money.

“I don’t know how I could transport two children on that. Until recently, we didn’t even have a smartphone to scan the QR code and never needed it because we have our own bike. [...] In Olomouc, families with children have an advantage when using public transport. When an adult travels with a child under 3, it’s free for both. For children between 3 and 6, the ticket is free of charge for the child.”

(male, 40 years old, economically active, non-user)

Regarding their assessment of shared micro-mobility services, parents with young children are concerned about its effect on road safety (Minli, 2022). They talk about problematic parking of shared vehicles and unsafe driving on the local roads (excessive speed, driving on pavements, and drunken driving).

“I haven’t had a good experience with this. On more than one occasion, people on those scooters rode past us extremely fast. My husband has a colleague who broke her leg on it three times. I don’t like when people dump them on the pavement and I have to go around it with a stroller to avoid it.”

(female, 30 years old, on a maternal leave, non-user)

¹ Citizens can use shared micro-mobility services in Olomouc if they have downloaded the service provider’s application on their smartphone. Those without a smart phone cannot rent shared bikes or e-scooters.

² According to some participants, it is difficult to travel with public transport in the city of Olomouc due to insufficient frequency and interconnectedness of different lines. The following excerpt from an interview illustrates this: “Well, sometimes in my free time, I could use public transport, but in Olomouc, it’s a disaster. Trams and buses are packed with people, and I won’t be squeezing into the car with others; I hate it. Moreover, I find it too expensive, given that it doesn’t run often enough” (male, 48 years old, economically active, non-user).

³ Free ride for a) one adult person accompanying a child under three years of age; b) children under six years of age. More information on fares is available at: <https://www.dpmo.cz/en/information-for-passengers/tarif-fares-from-1-9-2023/>.

In the matter of seeking redress, the parents communicate with local government officials who are responsible for solving (a) problems with parking shared bikes/e-scooters (overcrowded or lacking bike racks, incorrect parking in designated areas due to non-functioning GPS application); (b) inappropriate driving on local roads (unsafe fast driving on sidewalks, non-compliance with traffic rules).⁴ The local administration is authorised to propose and implement measures that would contribute to sustainable urban mobility. For this reason, local government representatives organise information and awareness campaigns to raise public awareness of alternative forms of transport, highlighting their relevance to individual car transport and safe road traffic. Furthermore, they give preference to alternative forms of transport over individual car transport⁵ and cooperate with private providers of shared micro-mobility services.

As for favouring alternative forms of transport, there is a difference between promoting shared micro-mobility services and public transport. The operation of public transport is financed by the local government from the public budget, in contrast to shared micro-mobility services. The reason for this lies in the definition of shared micro-mobility services as a private business that could potentially reduce public interest in public transport.⁶ In comparison, local government officials in larger cities consider shared micro-mobility a service to citizens.

“Perhaps I haven’t mentioned that the approach of local administrations varies in the level of support because historically, Rekola company collaborated with a university or a private company that provided the users with the first 15 minutes of the ride for free. Now, for example, Prague follows a similar strategy – they have selected all the final stops in Prague... and when a user with a year-round pass chooses one of the shared bikes or e-scooters and continues their travel from that stop, the ride fee is covered by the city. For example, Ostrava, Havířov, and

⁴ According to Act No. 361/2000 Coll. on Road Traffic and Amendments to Certain Acts (the Road Traffic Act), scooter drivers are subject to the same rights and obligations as bicycle drivers. Both activities are defined as cycling (Section 57).

⁵ The public interest in IAD is declining due to the change in parking policy and the rise in fuel prices. On the one hand, the price of parking fees is increasing. On the other hand, free parking spaces are designated for car-share users.

⁶ The size of the city of Olomouc allows its citizens to easily travel from one side of the city to the other using bicycles and scooters without using public transport services (as is the case in larger cities). In this case, if people prefer using shared micro-mobility services, it means increasing public transport expenditure from the city budget.

Prostějov gave subsidies and organised a competition for bike operators. So the Rekola and Nextbike companies applied, competed on the cost of a 15-minute ride, and approved a sum of 2 million or 3 million CZK to cover those 15 minutes. Therefore, some local administrations consider it a benefit for the residents and contribute more or less.”

(responsible politician for Smart City Olomouc)

As illustrated above by the policymaker’s statement, there are differences in the extent of support for shared micro-mobility services by the local administration. Their financial support can be found in larger cities, where these services are integrated into the intermodal transportation system. Residents can use combined season tickets for public transport and shared micro-mobility services, “creating a more substantial base for those riding public transport and a lifestyle less dependent on automobiles” (Glotz-Richter 2016, 1301). That, however, is not the case in the city of Olomouc, where no combined season ticket exists. Citizens interested in using both services must pay fares to two different providers separately. That results in reduced public interest in using them equally. Additionally, those who would appreciate combining all modes of transport (including individual car transportation) lack available parking lots on the city outskirts – a place where they could park their car before choosing a more sustainable mode of transport. This applies particularly to visitors who commute to the city from a greater distance.

Since visitors do not have allocated parking lots, they park their cars in free-of-charge zones on the city’s outskirts or suburbs, where parking capacity is limited. Those places are primarily reserved for residents who have grown dissatisfied with the parking policy, as they face ongoing troubles with parking due to visitors taking over their designated parking lots. It is in the interest of those residents that local officials are gradually changing parking policies in the city (<https://parkovani.olomouc.eu/>) and expanding paid parking zones. Alongside this, they are addressing the issue of overcrowded bike racks, which were initially intended for parking citizens’ bikes. To maintain the original intention, the local representatives have agreed with the providers of shared micro-mobility services on the following measures: (a) service users can use half the capacity of the city bike racks; (b) service providers will improve the monitoring of shared bike/e-scooters parking; (c) furthermore, they will set up dockless stations for parking shared vehicles at their own expense.

Those measures were established by informal agreement between representatives of the local administration and private service providers. Therefore, they are the product of a negotiation process that emerged from a mutual consensus of two interest groups. This directly reflects our methodological focus on assessing the opportunities and limits of public–private cooperation in sustainable urban mobility. It is also worth noting that one group holds a more powerful position than the other – local government officials significantly regulate shared micro-mobility services, despite their range of action being limited by the current legislative framework. It does not allow, for example, regulating the number of operators of shared micro-mobility services and the scope of their service, which concerns local authorities across the Czech Republic.

“... now in March 2022, I received information that in Hradec Králové, they introduced a local fee for special use of public space. They wanted to charge 30 CZK [1.2 EUR] per square meter from the operators of e-scooters for dockless parking stations. Surprisingly, the ministry didn’t shoot it down. They just said that the fee must be a maximum of 10 CZK [0.4 EUR]. I know they agreed in Hradec to approve 3 CZK [0.1 EUR]. It is the first city that has broken the legislative barrier with the Ministry of Internal Affairs, so there is an idea that in case the communication with the operators stops working, we have an opportunity to draw inspiration from Hradec and at least do something.”

(responsible politician for Smart City Olomouc)

The policymaker believes it is essential for representatives of the local administration to have a law allowing them to regulate shared micro-mobility services if informal cooperation with providers begins to stagnate. Referring to previous negative experiences with implementing that service, he positively evaluates the measures intended to eliminate overcrowded public spaces through shared micro-mobility services. Although potentially perceived as a powerful tool, introducing a local fee for the special use of public space is a potential solution to the existing problems.

As far as the providers are concerned, they would appreciate it if the professional community and the general public would stop negatively evaluating shared micro-mobility services as a totality. Instead, they suggest focusing on what and who is causing the negative perception of these services. Users ride the e-scooters on sidewalks, where there is an insufficient network of cycle paths. Therefore, they break the road traffic laws due to concerns for their safety.

“Well, it depends on where you are coming from. Where there are cycle paths, I ride on cycle paths. If there is no cycle path, I ride on the pavement. I don’t dare ride on the road. The cycle paths are not everywhere in the city. And the worst thing is that there are cobblestones in the city center, so it’s impossible to ride then.”

(male, 27 years old, university student, user)

Some users also endanger road safety by riding shared bikes/e-scooters at excessive speed, or inebriated. In doing so, they put themselves and others at risk of traffic accidents. Last but not least, the vandals cast a bad light on shared micro-mobility services (Sun 2018) by tampering with e-scooters. Because they are lighter than bikes, we often see them dumped on the pavement, around cultural monuments and rivers. Those users whose ride is regulated by service operators are less likely to commit such acts. They can only start and end their ride by reaching the dock(less) station. They are charged for a started ride until the shared vehicle is returned and parked correctly. Additionally, their driving and speed may be monitored in selected areas of the city (such as historical parts of the city, parks, and the grounds of the University Hospital), where there is an increased risk of traffic accidents. To this end, intelligent technologies provide information on rides and contribute to proper parking and improved road safety.

That is how service providers approach the integration of shared micro-mobility service into the intermodal transportation system of the city. In addition, as mentioned by our participant, they aim to enhance cooperation with local government officials when evaluating the opportunities and limitations of collaboration between the public and private sectors in sustainable urban mobility. In his words, the potential of cooperation is not sufficiently exploited. The exchange of experiences usually occurs once a year at a meeting primarily focused on parking policy. Less is said about the possibilities of improving infrastructure and building new dock(less) stations.

Taken together, these findings show how different interest groups – city residents (both users and non-users of shared micro-mobility services), providers, and policymakers – interpret and negotiate the role of shared micro-mobility in Olomouc. Among non-users, families with small children and older residents with discounted fares often find public transport more suitable, particularly when limited by the absence of a smartphone or reduced mobility. In contrast, users value flexibility, affordability, and the unique experience of shared bikes and e-scooters. By linking the perspectives of these actors back to our research

questions, the analysis demonstrates both the opportunities and the limits of public–private cooperation in sustainable urban mobility.

The opportunities lie above all in the potential to diversify transport modes, reduce dependence on private cars, and create synergies between public transport and shared micro-mobility through joint ticketing systems or improved parking facilities. At the same time, the limits become visible in the uneven accessibility of these services, their problematic regulation, and the occasional conflicts between providers, users, and non-users. Overcoming these barriers requires more than informal agreements: it calls for clear legislative frameworks enabling municipalities to regulate providers, infrastructure investments that ensure safe and inclusive use, and continuous dialogue among stakeholders. If these steps are taken, shared micro-mobility can move from being perceived as a disruptive private business to becoming a complementary component of a sustainable intermodal transport system.

4. Conclusion

This paper partially contributes to the ongoing discussion of shared micro-mobility and its contribution to sustainable urban mobility (Hamman & Guldenberg 2018; Sun 2018; Minli 2022). It discusses the reasons behind the failure to integrate shared micro-mobility services into the city's intermodal transportation system and creates space for improving the current situation.

The example of Olomouc shows the role of the interests of various social actors, the city's size, and the absence of a law regulating shared micro-mobility services in the process. First and foremost, local government representatives use limited support for shared micro-mobility services to calm traffic. Instead, they prioritise information and awareness campaigns aimed at reducing individual car use and increasing interest in alternative transport. In addition, they financially contribute to public transport operations, which, unlike shared micro-mobility services, is not a subject of private business and is accessible to a broader range of citizens (families with children, older people, and people with disabilities). Its use is not dependent on intelligent technologies, nor is it associated with the increased risk of traffic accidents and disorganised parking found in shared micro-mobility services (Minli 2022). Those reasons are mentioned by local administration representatives when seeking to regulate these services by law. Another reason is the city's size, which allows people to easily travel from one side of the city to another by public transport or in shared

vehicles. As a result, shared micro-mobility services are caught in a conflict of interests; local representatives consider them direct competition with public transport, rather than a service to citizens that can coexist with it. In contrast, in larger cities, they are widely used for the first and last mile (DeMaio 2009).

Users and operators support integrating shared micro-mobility services into the city's intermodal transportation system. According to users, it is a suitable alternative to individual car transport, public transport, and taxis. Some use shared bike/e-scooters because they provide greater convenience and time savings (Bakker et al. 2018). Others use it, especially in the evening, as a substitute for taxis when public transport services are temporarily unavailable. These services thus combine clear benefits – such as cost savings and flexibility – with notable risks, including accidents caused by speeding, riding on the pavement, or usage under the influence of alcohol.

Consequently, the operators face criticism, which they try to cope with by improving the quality of shared micro-mobility services and contributing to their regulation (limiting driving speed in selected locations and penalising users). In addition, they are willing to discuss possibilities for cooperation with local government officials, as their potential is currently insufficiently exploited. The mutual exchange of experience usually occurs once a year at a meeting where parking policy is primarily discussed. Other issues are given less attention, although the discussion could significantly contribute to sustainable urban mobility. The issues mainly concern improving infrastructure, which is not sufficiently interconnected in the historical city centre. This results in driving on pavement, which endangers the safety of pedestrians. It also leaves room for discussion of (1) the construction of parking lots and new dock(less) stations, (2) increasing the inclusiveness of provided services (Kjaerup et al. 2021), (3) the introduction of promotional activities to increase public interest in equal use of public transport and shared micro-mobility services, and (4) the introduction of combined fares.

Those findings are based on qualitative research conducted in a specific socio-cultural context, with the participation of 13 communication partners. In this respect, the validity of its accounts is limited. On the other hand, the findings point to prevalent problems arising from the implementation of shared micro-mobility services. Therefore, it is natural to ask what we can do for policy-makers to change their approach to supporting shared micro-mobility services. One option is to increase the legal regulation of shared micro-mobility services (e.g. by introducing a local fee for the special use of public spaces). Another

option is to improve the public-private sector cooperation on sustainable urban mobility. Last but not least, we can seek to weaken the unequal power position of stakeholders.

In this regard, our findings suggest several concrete recommendations. For policymakers, the priority should be to establish a clearer legal framework enabling municipalities to regulate providers not only through informal agreements but also through enforceable measures. At the same time, cities could pilot combined ticketing systems that connect public transport with shared micro-mobility services, which would mitigate the perception of competition and instead frame them as complementary. Investment in infrastructure – such as safer cycle paths, dock(less) stations, and parking facilities on the city outskirts – would improve safety and accessibility for both users and non-users. For providers, the key challenge lies in increasing inclusiveness by developing services accessible to families with children, older people, and those without smartphones. Moreover, closer and more regular dialogue with local government officials could transform the current ad hoc cooperation into a more strategic partnership.

Overall, the analysis highlights both the opportunities (diversification of urban mobility, reduction of car dependence, innovative public–private partnerships) and the limits (uneven accessibility, insufficient regulation, conflicts of interest) of shared micro-mobility in medium-sized cities. Overcoming these barriers requires coordinated action: legislative reform, infrastructure investment, and inclusive service design. If addressed, these measures would not only mitigate existing tensions but also strengthen the perception of shared micro-mobility as a complementary, rather than competing, mode of transport. In this way, shared micro-mobility can gradually move from being regarded as a disruptive business model towards becoming an integrated and equitable component of sustainable urban transport.

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