

1.2.2.2 MLL 1 - Amsterdam: Mobility as a Commons (MaaC)

Existing shared mobility services[39]	1268 shared cars; 700 e-mopeds; 18 eHUBS; 100 e-cargo bikes; 400 shared bikes; 15 shared ebikes in the targeted deployment sites
Modal split (2022)	Private car 20%, PT: 17% Walking: 29%, Bike: 32%, Other 2%
MLL scale	180-240 vehicles, 800 users

MLL focus and new services*:* The MLL introduces an alternative to commercial business and governance models for shared mobility in Amsterdam, coined as "Mobility as a Commons" (MaaC). MaaC comprises a set of initiatives organised by communities in the form of cooperatives with the purpose of meeting the social mobility needs of the community members through shared mobility. The city sees great potential in the MaaC business model. The result envisioned is more affordable community-based mobility, resilient cities, and citizens, where citizens are in charge of their own mobility costs, data ownership, type of modality and platform used, and sometimes free ridership for members of a MaaC cooperative. These are very interesting incentives making people move more and use modes that are zero-emission and take up less space enhancing an inclusive and sustainable future.

Challenges and existing measures:

Socio-economic: Shared mobility is increasingly becoming more popular in The Netherlands and particularly in larger cities where several commercial mobility providers operate. In smaller cities or in suburban areas it is seen that shared mobility is still not available, mostly due to the lack of a business case for mobility providers. A recent study by Utrecht University shows that in order to maintain profitability, shared mobility providers serve higher income groups[40]. In Amsterdam, mobility providers are interested in offering their services in the city centre or the more affluent districts. Most shared mobility users are (white) men aged between 18 and 30 earning close to double of the average Dutch salary[41]. With the concept of MaaC the city of Amsterdam wishes to make shared mobility more affordable and inclusive and offer an alternative to the current commercial offer/proposal. Research showed that 70% of the people who participated in *de reisproef*[42], a study where people were asked to hand in their car and received €500 budget to make use of the alternatives that are available for a duration of two months, did not think the current mobility system is a worthy alternative for the privately owned car.

Environmental: Transport is the main contributor for poor urban air quality in the city. Being situated below sea-level, the city has particularly high concentrations of NOx. In 2019, the city published the Clean Air Action Plan, introducing Clean Air Zones for zero emission vehicles starting from commercial and public vehicles operating in the centre (2022-2025) and expanding to all modalities across the city (2030). By 2030 Amsterdam aims to become a climate neutral city and was recently admitted in the EU Cities Mission.

Health: Air pollution poses the third-largest health risk for the citizens of Amsterdam[43]. People's fitness should be elevated in a person's priorities. However, the shared modes currently offered cars and e-mopeds and transport operators are focused in making as many rides as possible. Many people use these modes instead of active modes.

Accessibility: Access to mobility should not be a positional good, but a common good. The less affluent sub-urban and rural districts have PT, but little if no access at all to new shared mobility modes. Because the business model of MaaC does not evolve around creating a close to 100% occupancy per asset it can serve less dense suburban areas.
Gender and inclusion: Most shared mobility modes are not equipped with the right tools to really accommodate less abled people. MaaC can be tailored to the needs of the local community who are choosing the types of modes and vehicles, including the less abled but also young parents and/or women with children.
Safety and security aspects: In MaaC the community becomes owner of their own data. Privacy awareness and cybersecurity of ICT solutions employed are of high importance. Moreover, the community becomes more aware of their travel behaviour and inclined to shift to more sustainable mobility as they oversee their own administration. In the MLL a DMP will define the data that will be shared with the research project partners.
Urban design: Offering shared mobility in a commons can help reduce car ownership. The relation between handing in parking permits, lowering the parking-permit-ceiling, and returning the parking spaces to the neighbourhood, with the purpose of freeing up space for people, make the city greener and more liveable. Apart from a SUMP and the Clean Air Action Plan the city has put in place a Smart mobility programme, a "car shy" agenda, a hubs programme, a shared mobility programme, a charging vision, and Puccini, AmsterDOEN (MaaC movement).
MLL Objectives - Ambition: The MLL is structured in five mission driven MaaC initiatives (Sub-Labs) each with a different approach (Figure 4).

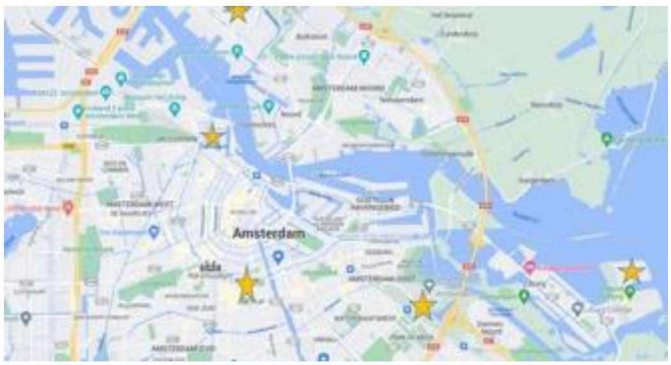


Figure 4. GEMINI Amsterdam MLL sites



Figure 5. MaaC hub

Mobility Living Sub-Lab 1: ED de Pijp - Amsterdam Centre
Site Characteristics: Densely populated urban area close to the centre with limited parking space – Parking permits required. Although private mobility providers operate in the area, the members of the initiative have a strong preference for non-commercial schemes. They don't see the current offer of shared mobility as worthy alternative for their privately owned car.
Description of initiative: Direct relation between joining the MaaC and the use of public space. For every 5 people joining the initiative and handing in their parking permit, the city clears 4 parking spaces for better liveability.
Mobility Living Sub-Lab 2: MeerDelen - Watergraafsmeer Amsterdam East
Site Characteristics: Densely populated suburban area. Diverse cultures, a third of the district's inhabitants are of foreign origin. Parking permits required.
Description of initiative: Publicly accessible MaaC. Different pricing for members and non-members. Financing the trips for members (partly) with the profits of non-members. Everybody who lives in a radius of 0,5km of one the MaaC hubs can become a member. Extra allowance of trips made by car which are shorter than 5km. With the earnings they finance active modes, so they can offer them below cost price, making it close to free.
Mobility Living Sub-Lab 3: Deelcentrum - Newly developed peri urban area, called Centrumeiland
Site Characteristics: Situated on the edge of the city in the newly developed part of Ijburg. Not (yet) well accessible with PT. Many (young) families. No parking permits allowed. Residential cars must be parked in indoor parking stations or private property.
Description of Initiative: Hybrid MaaC solution, offering modes in member's own building(s) and on streets. The city district will provide the same exemption commercial shared mobility providers have for parking on street level. Governance and renting of internal parking spots will provide interesting information for the business case.
Mobility Living Sub-Lab 4: Tuindorp Oostaan - Amsterdam North
Site Characteristics: Former industrial and working-class area. Mostly elderly people and families with children. Today no parking permits are required.
Description of Initiative: Because this area does not need parking permits, they do not have to fit policy and they will operate a basic MaaC.
Mobility Living Sub-Lab 5: Staatsliedenbuurt in collaboration with social housing organization Lieven de KEY
Site Characteristics: A densely populated area in the city centre. A mixed neighbourhood of social housing and newly developed more expensive houses. Mixed population.

Description of Initiative: In collaboration with the housing company explore what MaaC governance models fits the residents best. Also looking for a better mix of people for improved social interaction.

The initiatives will offer different types of zero emission shared modes including electric cars, microcars, bikes, and mopeds. The communities are free to choose for the distribution of the modes included on their MaaC fleets, given that the provisioned modes are accepted/permitted on the public roads and the city's zero-emission zones. Biking will play a pivotal role in all MLL initiatives, due to the fringe character and increased bike usage in the Netherlands. To this end, the development of a purpose-built shared modular e-bike in the commons is foreseen. The MaaC NMS are tailored to the needs of local communities (e.g., providing modes for less abled or extra child seats for families with young children). MaaC describes a bottom-up initiative led by local communities/neighbourhoods. Given their nature it is not likely that the shared modes will be integrated to the PT network by the city. However, the shared mobility modes will be operated with the help of a **white label application**. The community is free to decide if they want to integrate in their apps the PT route planner.

Business Model Scenario: In the MaaC concept, citizens themselves decide what kind of mobility (from which operator) and in what quantity they want to acquire and use. Each Amsterdam Sub Lab is expected to have between 50 and 200 members, 50% of whom own a car. By joining the MaaC initiative, it is anticipated that 75% of the car-owners will either sell their cars or use them within the commons. The potentially improved affordability and user experience will determine the scalability and replication potential within the city. The city will work with **an umbrella commons structure** where the different smaller neighbourhoods' initiatives can join so that the municipality can create efficient mechanisms, such as **insurance and administration**. This approach will also help the transferability of the concept. MaaC implies that a group of people, citizens mostly, but also private and public entities organize themselves in a commons to share mobility with the members of the commons without the need of making a profit, but rather being self-sufficient as a group and capable of operating and organising their mobility collaboratively. This group own or lease their own vehicles (EVs, e-mopeds etc). They organize their own pricing strategy in which way they can steer on more sustainable travel behaviour, contrary to commercial shared mobility providers, that clinch users to be dependent on their services and hand out incentives solely to increase frequency of use. This can be counter-effective to city decongestion schemes, since it increases the number of trips performed with cars. MaaC also differs from sharing/renting cars with neighbours through a peer-to-peer scheme, by means of a renting platform like Snapcar. When working within the commons every member is part owner of the modes. When car sharing is organized by commercial parties this mostly caters to higher income groups to maintain profitable[44] and shared mobility is clustered at parts of the city which are commercially 'interesting'. When non-profit shared mobility providers deploy shared mobility, social capital increases in the neighbourhood and car mobility becomes affordable. The recent pandemic experience indicated that MaaC is more resilient than commercial shared mobility business models. For instance, in case of reduced travel demand, the MaaC scheme does note face financial viability challenges. The modalities in the commons have a fixed and variable cost which are shared by the members/owners per ratio of usage. A potential scenario to be explored is for members to undertake the overheads (cleaning, administration, servicing the modes) or to outsource them (preferably locally). In GEMINI, the MLL stakeholders **will elicit alternative schemes to identify the most prominent MaaC model, define the modes and actors involved, subscription processes, insurance and maintenance cost sharing models, onboarding prerequisites (e.g., providing a vehicle), rate per distance etc.**

Added Value - Impact: *Modal Shift:* The MLL will measure the impact of MaaC to the number of cars in the city (instead of looking only at the shared mobility usage numbers alone). *Environmental:* More user groups will have access to zero emission vehicles and car ownership will decrease. That will lead to improved air quality and reduction of GHG emissions. The MLL will make use of incentives to steer people towards active mode travel (bikes/e-bikes over e-cars), leading to additional GHG and pollutants reduction across, collecting insights on motives. *Social:* The MaaC model is expected to deliver Zero-emission mobility solutions at more affordable fees to a larger group of people beyond high-income young professionals. Will foster social cohesion because of the enhancement of the sense of belonging in the community. Will improve accessibility to NMS by defining the price, type of vehicles, platform used for shared modes, use of credit cards, geographic location to meet the needs of the community whilst keeping all equity within the commons. Will free up parking spaces thus leading to more liveable cities. *Safety & Security:* People are the owners and in charge of their data. To improve safety, intelligent speed adaptation for e-bikes on the bike lanes will be pursued. *Economic:* New jobs locally on vehicle maintenance.

MLL Stakeholders and their role:

Partner	Role	Key Activities
City of Amsterdam	MLL leader	responsible for setting up, running, supervising, monitoring, and evaluating the pilots' activities in all sites
Townmaking	MLL participant	Responsible for working with the citizens in implementing the MaaC and design the MaaC administration procedures
GOODMOOVS	e-mobility operator	Will provide their e-vehicle sharing platform.
CENEX	Research	Develop the different governance structures and business models for MaaC, contribute to policy, data driven assessment of MaaC vs commercial offerings