MODULE 3 | 3.4.3

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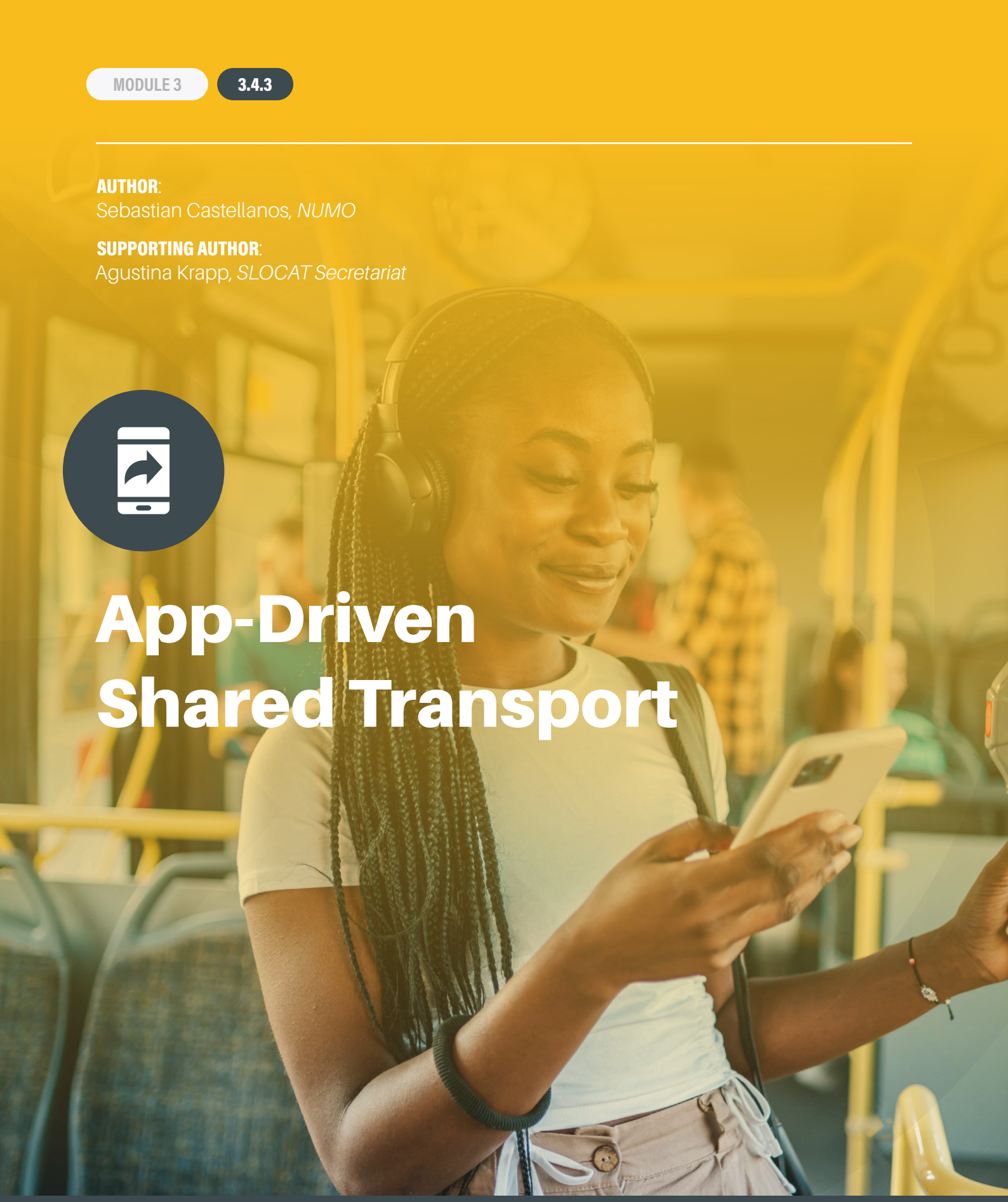


# App-Driven Shared Transport

SLOCAT Partnership on Sustainable, Low Carbon Transport

Transport, Climate and Sustainability
Global Status Report - 3rd edition

**Note:** This section *3.4.3 App-Driven Shared Transport* covers any technology-driven, app-based shared mobility services, while section *3.4.1 Public Transport* covers any collective transport services in cities operated and regulated by public authorities, and *Section 3.4.2 Informal Transport* focuses on informal, unregulated shared services.

# Key findings

- While there is no broadly accepted definition of app-driven shared mobility, the term generally encompasses a set of business models in which mobility assets are shared among multiple users, facilitated by smartphone apps.
- Some of the most visible deployments of app-driven shared mobility have been led by private sector companies. However, public and non-profit organisations also play an important role in regulating, contracting and/or directly operating these services.

## Demand trends

- Carsharing had an estimated 86 million users worldwide as of 2021, and the market is expected to reach 224 million users by 2026. The number of cities offering carsharing services increased from 3,128 in 2019 to 4,100 in 2021.
- In 2022, transport network companies – or companies that provide on-demand transport services, often through apps – had an estimated 1.28 billion users worldwide, and this number is projected to reach 1.45 billion by 2027. Although the market is dominated by cars, around a quarter of the revenues of transport network companies worldwide come from motorcycles.
- After a small lull due to the COVID-19 pandemic, the market for shared micromobility (the use of smaller vehicles such as bikes, scooters and mopeds) experienced an uptick, with these services operating in more than 1,000 cities worldwide.
- Due to the diversity of business models, it is difficult to identify the market size of mobility-as-a-service (MaaS); however, some analysts expect continued growth in this space through 2030.

## Emission trends

- Because of the diverse nature of the assets and services within app-driven shared mobility, assessing their impact on sustainability, and specifically on carbon dioxide ($CO_2$) emissions, is difficult. Estimating the overall emission-reduction potential of app-driven shared mobility is challenging, as analyses often focus only on individual services and fail to account for a combined effect.
- Carsharing can reduce $CO_2$ emissions 3-18%, according to the latest modelling. Interest in pairing electric vehicles with carsharing programmes is rising. As more programmes offer electrified options, the potential to mitigate $CO_2$ emissions will likely increase.
- Ride-hailing is similarly marketed as an alternative to car ownership, and here too the evidence regarding the emission impacts is varied.
- The impacts on $CO_2$ emissions of shared micromobility are highly dependent on the transport modes being substituted, as well as on vehicle durability and operational procedures.
- While mobility-as-a-service can in theory reduce $CO_2$ emissions, pollution, and congestion, empirical evidence is very limited, and comprehensive studies are needed.

## Policy developments

- The deployment of peer-to-peer carsharing services has introduced regulatory challenges for governments.
- Ride-hailing operations are now common throughout the world, including in places with diverse regulatory environments – from welcoming to hostile.
- Many European cities have started to deploy stricter regulations for shared e-scooters.
- Commercial deployments of mobility-as-a-service remain limited, but developments in Europe, China and the United States might provide insights into new forms of public-private collaboration.

# Overview

**While there is no broadly accepted definition of app-driven shared mobility, the term generally encompasses a set of business models in which mobility assets are shared among multiple users, facilitated by smartphone apps. Some of the most visible deployments of app-driven shared mobility have been led by private sector companies.** These include so-called transport network companies, or companies that provide on-demand transport services through apps, such as DiDI, Ola, and Uber, as well as bike- and scooter-sharing services such as DiDIi, Lime, Meituan Bike, Tier and Voi**. However, public and non-profit organisations also play an important role in regulating, contracting and/or directly operating these services.**

Consensus also is lacking on the scope of services or vehicle types that fall under the term app-driven shared mobility, although attempts have been made at developing a taxonomy.[1] The term can refer to the temporary use of an asset – such as a car, bike, scooter or boat – owned by a third party (whether a company or a peer), or to a ride service (ride-hailing or carpooling) provided by a third party in a car, airplane or bus (e.g., demand-responsive transit).[2] Due to the difficulty in categorising these services, this section reflects a deep-dive into some of the most prominent types: 1) carsharing, 2) ride-hailing, 3) bike-, scooter- and moped-sharing (shared micromobility) and 4) mobility-as-a-service.

Since 2020, the app-driven shared transport sector has experienced mixed responses. Although private venture capital dominated the space early on, some of the larger players – such as Bird, Helbiz and Uber – have since gone public.[3] The market for transport network companies has continued to consolidate among fewer, bigger players, and this trend also is occurring in the shared micromobility space, with mergers and acquisitions of multiple players.[4] Overall, the demand for shared mobility services is trending upwards after a generalised reduction during the lockdowns of the COVID-19 pandemic.

Shared mobility often is promoted as a more sustainable alternative to car ownership that can increase the number of mobility options, alleviate congestion, reduce pollution, provide equitable access to opportunities and improve efficiency.[5] However, the evidence is not conclusive, and it is not yet affirmed whether shared mobility can support the United Nations Sustainable Development Goals (SDGs), especially SDGs 3, 7 and 11.

- In the case of SDG 3 (good health and well-being), shared mobility may either reduce or exacerbate road deaths. Evidence from Madrid (Spain) suggests that ride-hailing could reduce traffic fatalities.[6] For shared micromobility services, assessing the impacts on road safety has proven difficult due to the novelty of these services, although greater attention has been paid to safety aspects recently.[7]
- Regarding SDG 7 (affordable and clean energy), many shared mobility services promote the sharing of assets, which in theory could be seen as an improvement in energy efficiency; however, the true impact of these services depends mainly on the modes they are replacing. For example, an electric scooter is inherently more energy efficient than a car, so replacing a car trip with a scooter trip could improve overall efficiency (even when considering operational needs). However, if an electric scooter replaces a walking trip, the reverse may be true.
- With respect to SDG 11 (sustainable cities and communities), in theory an increase in the overall availability of new transport services could improve access to necessities; however, the evidence is not yet conclusive. A forthcoming study shows that, paired with frequent public transport, shared bike and scooter services improve access to job opportunities.[8] At the same time, studies have revealed racial discrimination towards users of ride-hailing apps, which can lead to the worsening of access for vulnerable populations.[9]

On the policy front, changes since 2020 are related to the advance of autonomous vehicle technologies, which present regulatory challenges for the ride-hailing market, and to increased targets for the electrification of fleets. Regarding shared micromobility, after a few years of a "wild west" approach to regulation, some major cities have moved towards a more tightly regulated market, with fewer operators working under stricter contracts.

Although the Russian invasion of Ukraine has upended many aspects of the energy sector, it appears to have had only minor impacts on the shared mobility space, most notably Uber's accelerated exit from the Russian market.[10]

# Demand trends

## Carsharing

Carsharing or car clubs are a form of asset sharing in which cars are made available for short-term rentals. Unlike traditional car rental companies, carsharing services typically require a membership, and the vehicles can be accessed at decentralised locations, mostly within cities. The locations can be fixed (station-based), whereby the vehicles must be picked up at or returned to specific locations, or free-floating.[11] The car fleets can either be owned by a company or owned by individuals who make them available to others (peer-to-peer).

- **Carsharing had an estimated 86 million users worldwide as of 2021, and the market is expected to reach 224 million users by 2026.**[12]
- **The number of cities offering carsharing services increased from 3,128 in 2019 to 4,100 in 2021.**[13]
- The global carsharing fleet is estimated at 539,000 vehicles – a majority of which are station-based systems – and this value is projected to grow to 973,000 vehicles by 2026[i].[14]

The market is dominated by a mix of traditional car manufacturing companies, such as BMW and Renault, and other private sector entities, as well as a few non-profit companies, such as Colorado CarShare.[15] The majority of carsharing operations are in Europe, North America, and the Asia-Pacific region, with leading markets in China, France, Germany, Italy, Japan, the Republic of Korea and the Russian Federation.[16] As of 2018, an estimated 70% of registered carsharing members were in Asia.[17]

- In China, DiDi had more than 550 million users as of 2019, with its service offerings covering carsharing among other types of shared mobility.[18]
- In 2022, Turo, one of the world's largest peer-to-peer carsharing services, expanded its operations to all 50 US states as well as to Australia and Europe (through its acquisition of OuiCar).[19]
- India's leading carsharing company, Zoomcar, had 25,000 registered vehicles on its platform as of September 2022.[20]
- In 2022, HourCar launched an all-electric carsharing service in the Twin Cities area (Minneapolis–Saint Paul) of Minnesota (USA) that is entirely owned by the municipality; the service relies on stations located mainly in communities of colour and along public transport corridors.[21]
- Zity, present in Madrid (Spain) and Paris (France), expanded its service in 2022 to Lyon (France) and Milan (Italy), increasing its customer base 22% to reach 600,000 users.[22] The company's fleet grew 44% in 2022, adding nearly 600 new vehicles to reach a total of 1,875 all-electric cars.[23]

## Transport network companies

Transport network companies provide a form of app-driven shared mobility service in which users can access point-to-point ride service, similar to a taxi. Also known as ride-hailing, these services are typically provided by individuals who own their vehicles; however, examples of corporate-owned fleets do exist, and this organisational type might grow in the future with the advent of autonomous vehicles (*see Policy Developments section*). Among the factors that can influence ride-hailing choice are convenient travel times, reduced waiting times (compared to unavailable or inconvenient public transport), ease of requesting the service, ease of payment, and comfort and safety.[24]

**In 2022, transport network companies had an estimated 1.28 billion users worldwide, and this number is projected to reach 1.45 billion by 2027.**[25] **Although the market is dominated by cars, around a quarter of the revenues of transport network companies worldwide come from motorcycles.**[26] The most prominent global operators include DiDi, Grab, Ola and Uber.

- In early 2023, Bolt announced plans to expand its operations across Africa, with expected investments of nearly EUR 500 million (USD 533 million) over a two-year period, and 300,000 new drivers.[27]
- DiDi, the largest transport network company in China, was allowed to resume normal operations in January 2023 following an 18-month ban on signing up new users due to cybersecurity concerns.[28] At the same time, China announced the launch of its public ride-sharing platform, Qiang Guo Jiao Tong.[29]
- Cabify, a leading ride-sharing operator in Latin America and Spain, announced that it would cease operations in Ecuador in 2023.[30] The company Beat closed operations in Latin America in 2022.[31]
- Following the Russian Federation's invasion of Ukraine, Uber divested from the Russian ride-hailing operator Yandex Taxi.[32]

## Shared micromobility

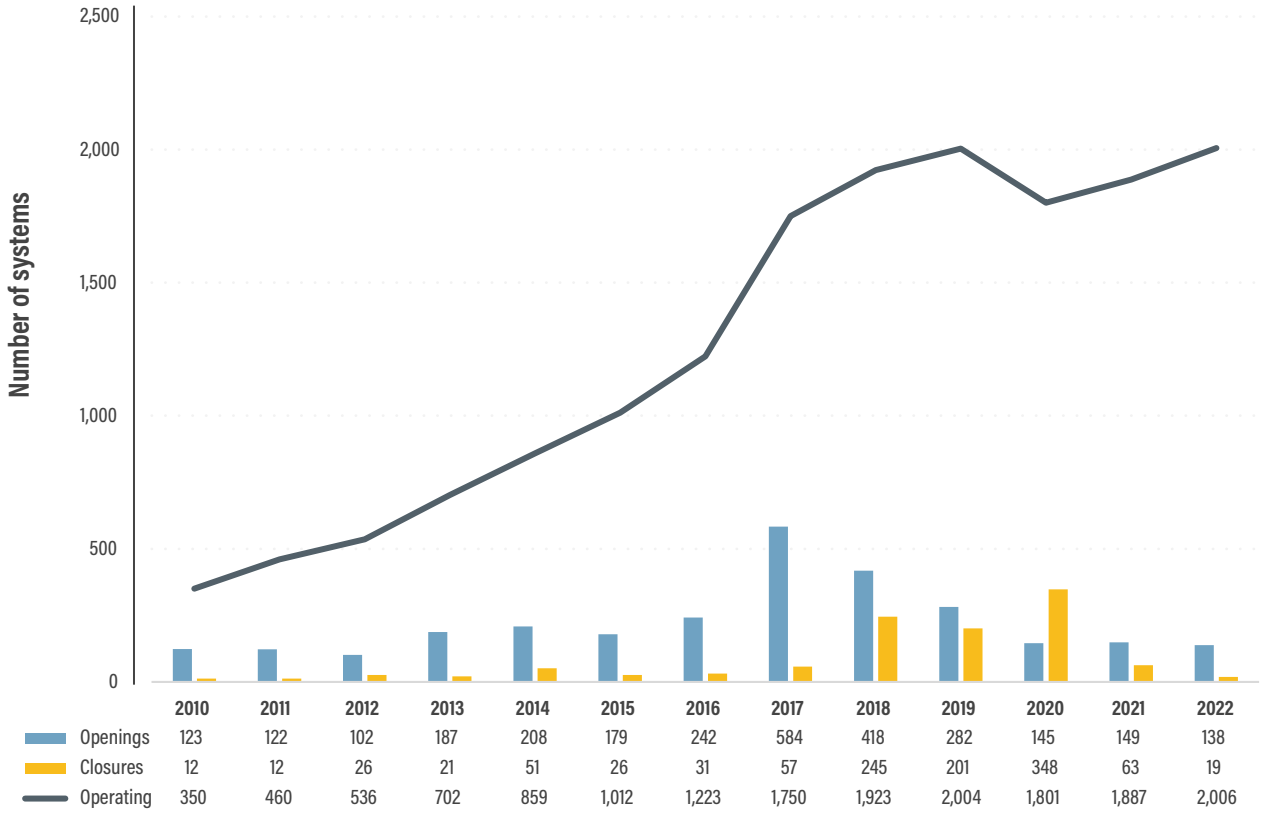
Micromobility refers to the use of smaller vehicles such as bikes, scooters and mopeds. In its shared form, it works similarly to carsharing, with users accessing the vehicles mostly in cities using an app. Besides increased mobility, this mode can foster greater use of active transport such as walking and cycling.

**After a small lull due to the COVID-19 pandemic, the market for shared micromobility experienced an uptick.** As of 2022, a total of 2,006 docked or hybrid (i.e. combination of docked and dockless) bike-sharing systems were operating in 92 countries (see Figure 1).[33] In addition, 1,478 scooter services and more than 200 moped-sharing services were operating

i The sources used for this third edition differ from the sources used in the second edition, possibly resulting in discrepancies in numbers.

## FIGURE 1. Number of bike-sharing systems worldwide, 2010-2022

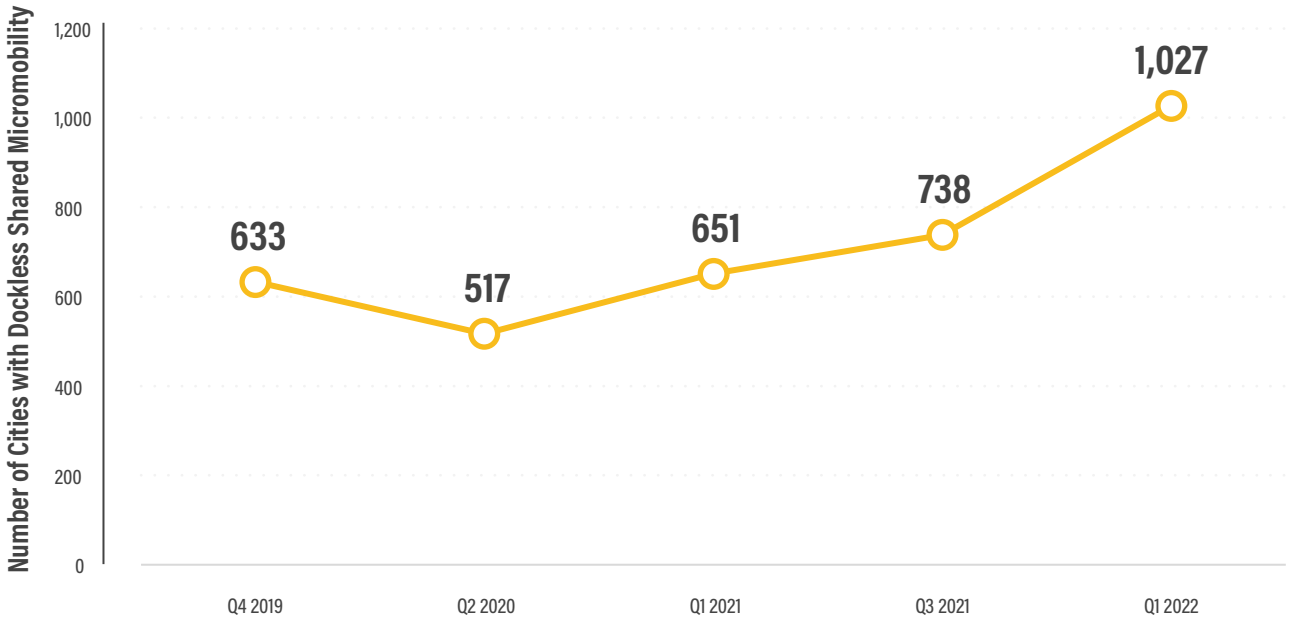
**Source:** See endnote 33 for this section.




| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Openings | 123 | 122 | 102 | 187 | 208 | 179 | 242 | 584 | 418 | 282 | 145 | 149 | 138 |
| Closures | 12 | 12 | 26 | 21 | 51 | 26 | 31 | 57 | 245 | 201 | 348 | 63 | 19 |
| Operating | 350 | 460 | 536 | 702 | 859 | 1,012 | 1,223 | 1,750 | 1,923 | 2,004 | 1,801 | 1,887 | 2,006 |

## FIGURE 2. Number of cities with dockless shared micromobility operations, 2019-2022

**Source:** See endnote 34 for this section.



by year's end, resulting in shared micromobility services of all types **operating in more than 1,000 cities worldwide** (see Figure 2).[34] For bike sharing, the biggest increase has been in dockless operations, perhaps because these are private and do not require a public contract (*see Policy Developments section*).[35] Europe, China and the United States lead in the number of operations.[36]

In China, 360 cities had dockless bike sharing systems as of 2020, with a combined total of more than 287 million users.[37] A 2022 study on shared mobility in China revealed knowledge gaps on topics such as the health impacts, life-cycle greenhouse gas emissions and equity implications of such systems.[38]

## Mobility-as-a-service (MaaS)

Mobility-as-a-service is a loosely defined concept in which multiple mobility services are bundled together and accessed via a single interface, typically a phone app. Business models differ but can include planning, booking and paying for services such as carsharing, ride-hailing, public transport, bike sharing and others. Some forms include a "mobility wallet" or a suite of bundled services available to users for a monthly fee.

The market includes both public and private initiatives. Large players include Jelbi and Whim in Europe; more traditional asset-sharing operators such as DiDi and Uber; and mapping apps such as Baidu Maps, Citymapper, Google Maps and Moovit.[39] Multiple shared scooter companies are now integrated into the Google Maps platform, enabling users of the app to locate available vehicles nearby.[40]

**Due to the diversity of business models, it is difficult to identify the market size of mobility-as-a-service (MaaS); however, some analysts expect continued growth in this space through 2030.**[41]

- By 2021, the global MaaS market was worth an estimated USD 3.27 billion, with projections to grow as much as seven-fold by 2028.[42] The MaaS market generated an estimated USD 20 billion in revenue in 2022 and is expected to generate USD 92 billion by 2027, most of it through paid subscriptions.[43]
- In Europe, multi-modal trips increased 221% in 2022, and the number of people taking such trips increased 27%.[44] A study found that 60% of Europeans would like a single app that integrates all mobility options.[45]
- In the United Kingdom, Wales announced plans in 2022 to develop a national MaaS solution, projecting investment of GBP 2.3 million (USD 2.8 million) over five years.[46]
- Tampa (USA) launched a MaaS app in 2022.[47]

# Emission trends

**Because of the diverse nature of the assets and services within app-driven shared mobility, assessing their impact on sustainability, and specifically on carbon dioxide ($CO_2$) emissions, is difficult.** In general, these services are marketed as an alternative to car ownership, although some recent life-cycle emissions analyses reveal that the services may increase $CO_2$ emissions on a per passenger-kilometre basis, depending on the transport modes they substitute.[48]

**Estimating the overall emission-reduction potential of app-driven shared mobility is challenging, as analyses often focus only on individual services and fail to account for a combined effect.** The growing availability of alternatives to car ownership could make it more feasible to live a car-free or car-light life, such that the impact of multiple services could be greater than that of individual ones.

## Carsharing

Because carsharing is marketed as an alternative to car ownership, it is generally assumed that the reduction in car ownership will lead to a decline in vehicle-kilometres travelled and thus a reduction in $CO_2$ emissions. **Carsharing can reduce $CO_2$ emissions 3-18%, according to a 2020 analysis that modelled three different markets.**[49] However, operational demands from carsharing programmes can result in increases in $CO_2$ emissions, indicating that more sophisticated analyses of life-cycle emissions are required to identify the overall effect.[50]

**Interest in pairing electric vehicles with carsharing programmes is rising. As more programmes offer electrified options, the potential to mitigate $CO_2$ emissions will likely increase.**

- Zity in Spain (660 electric cars) and MILES Mobility in Germany (2,000 electric cars) are among the largest carsharing programmes that include electric vehicles in their fleets.[51]
- Zipcar in the United States joined the White House EV Acceleration Challenge and announced plans to expand its electric vehicle fleet throughout 2023 and to allocate 25% of its electric fleet to disadvantaged communities.[52]

## Transport network companies

**Ride-hailing is similarly marketed as an alternative to car ownership, and here too the evidence regarding the emission impacts is varied.**[53] Again, context plays an important role. In cities with good public transport and non-motorised infrastructure, ride-hailing tends to mostly replace walking, cycling and public transport trips. Elsewhere, it mostly replaces car trips, including taxis. The operational component of transport network companies also plays a key role in potential increases in $CO_2$ emissions, as drivers ride "dead miles" in search of passengers, leading to higher vehicle-kilometres travelled and thus greater emissions.[54]

Since ride-hailing vehicles tend to drive more kilometres, research has shown that electrifying these fleets can lead to greater $CO_2$ reductions.[55] Some companies have moved towards electric vehicles to increase the overall efficiency and lower the emissions of ride-hailing fleets. Power utilities also have joined this space.

- Uber offers incentives to nudge drivers to transition to electric vehicles, in an attempt to become a zero-emission platform.[56]
- In 2022, BGE, a utility in the US state of Maryland, partnered with Lyft to rent electric vehicles to ride-hailing drivers.[57]
- Cabify received a loan of EUR 40 million (USD 42 million) from the European Investment Bank in 2022 to acquire 1,400 electric vehicles and deploy charging infrastructure in Spain, contributing to the company's larger effort to invest EUR 82 million (USD 87 million) in fleet decarbonisation.[58] Cabify aims to provide all trips in zero-emission vehicles in Spain by 2025 and in Latin America by 2030.[59]
- In January 2023, Uber and the car rental company Hertz announced a partnership through which Hertz will offer 25,000 electric vehicles for rent to Uber drivers in European capital cities by 2025.[60]

## Shared micromobility

Attempts to quantify the emissions impacts of shared micromobility, using life-cycle analyses, also point to the importance of context. **The impacts on $CO_2$ emissions are highly dependent on the transport modes being substituted, as well as on vehicle durability and operational procedures.**[61]

- A modelling exercise from the International Transport Forum found that shared micromobility devices could generate as much $CO_2$ emissions as a battery electric private car (see Figure 3).[62]
- A study in Zurich (Switzerland) showed that shared micromobility was mostly replacing trips by public transport, walking, and biking, resulting in a net increase in $CO_2$ emissions.[63]
- A US analysis found that under a scenario of high adoption of shared micromobility, energy consumption from passenger travel could be reduced 1% at the national level and 2.6% at the city level.[64] Micromobility-induced public transport trips were identified as the largest contributors for these reductions.[65]
- A study in Germany revealed that e-scooters could potentially substitute 13% of daily car trips in the country, with potential savings of 1.2% of transport emissions if the scooters replaced petrol cars.[66]

A promising area of study is the potential of shared micromobility to fill the gaps in first- and last-mile connectivity, therefore expanding the reach and impact of public transport. A survey of nearly 7,000 dockless bike-sharing users across 12 Chinese cities found that the majority of these users (54%) used the bikes to make convenient connections to other transport modes, and more than a third (36%) used them to commute to work.[67] However, this is a nascent area of study, and context likely also plays an important role.

## Mobility-as-a-service

As with other shared mobility services, the promise of mobility-as-a-service is its potential to reduce private car ownership and use, while improving access to necessities. It is a major element of digitalisation and enabling integrated transport planning (see *Section 3.1 Integrated Transport Planning*). **While MaaS can in theory reduce $CO_2$ emissions, pollution, and congestion, empirical evidence is very limited, and comprehensive studies are needed.**[68]

- MaaS resulted in fuel cost savings globally of an estimated USD 2.8 billion in 2022, with projections to reach USD 10.8 billion by 2027.[69]
- A MaaS pilot carried out in Sydney (Australia) during 2019 and 2020 showed promising outcomes in terms of reduced private car use and emissions, but results cannot be easily scaled over a large population.[70]
- A 2022 simulation for Amsterdam (Netherlands) compared different MaaS scenarios (based on service characteristics, interest in using MaaS and shares of population using it) and found that emissions decreased 3-4% in a conservative scenario, 14-19% in a balanced scenario and 43-54% in an optimistic scenario.[71]
- A 2022 literature review suggested that the positive impacts of MaaS on $CO_2$ reductions might be lower than previously thought.[72]

# Policy developments

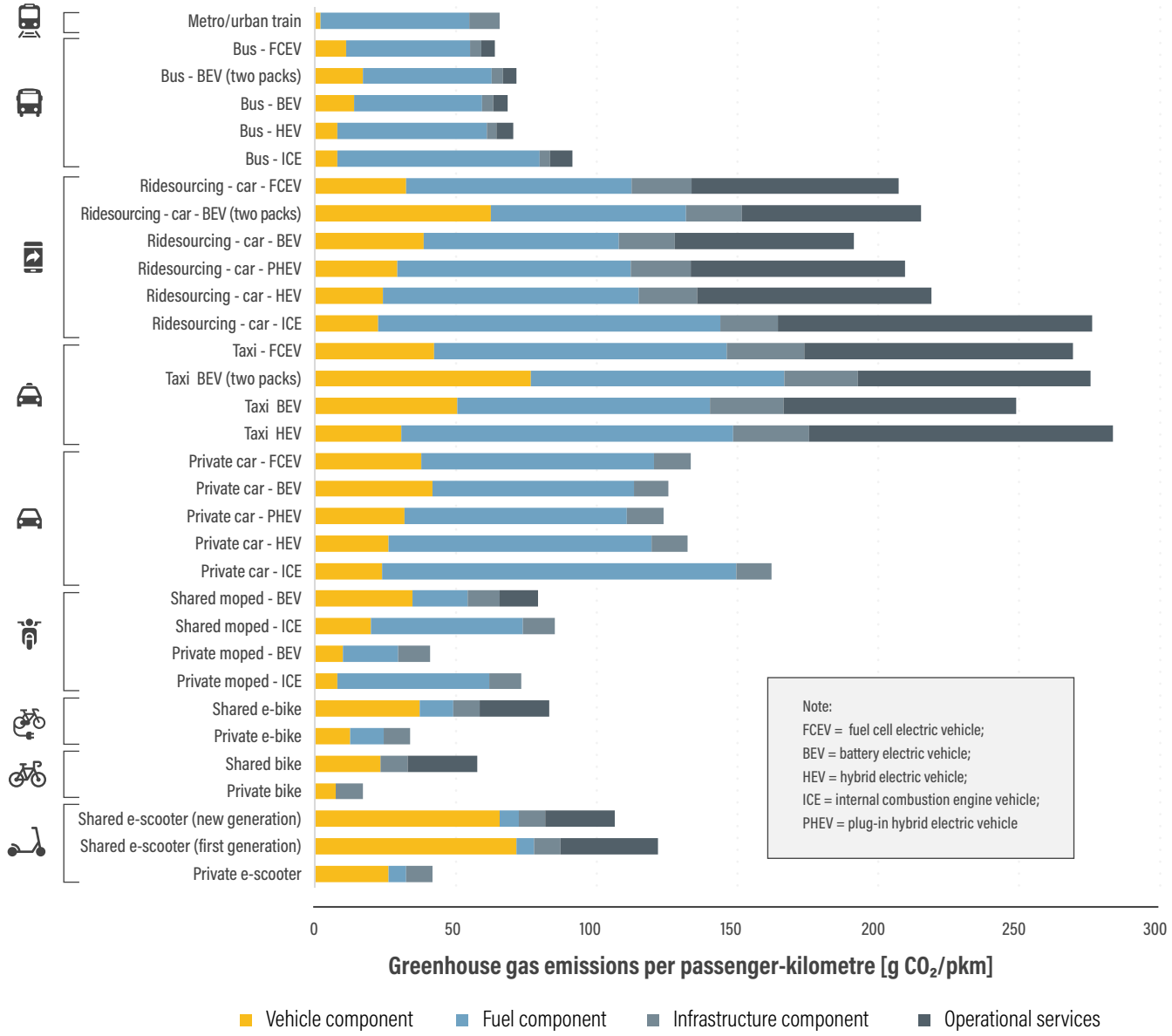
Policy making in the shared mobility space remains complicated. Cities have taken diverse approaches to regulation, with little evidence to conclude that one regulatory approach is better than another.[73]

## Carsharing

Corporate-owned carsharing is a well-established service that has been around for at least 20 years. More recently, **the deployment of peer-to-peer carsharing services has introduced regulatory challenges for governments.** In the United States, the state governments of Arizona, Florida, Hawaii, Maryland and Oklahoma adopted regulations in 2021 governing peer-to-peer carsharing by defining standards for consumer protection, insurance and taxation.[74]

**FIGURE 3.** Estimated life-cycle greenhouse gas emissions per passenger-kilometre, by urban transport mode

**Source:** See endnote 62 for this section.




A key aspect of carsharing services that requires active government involvement is the definition of parking locations. In some cities in Finland, for example, carsharing vehicles have access to a different parking charge than regular vehicles, and in other cities the government actively decides parking locations, making sure that they are close to public transport or pedestrian zones.[75]

## Transport network companies

In some geographies, the policy space for transport network companies has neared a steady state after a decade of being in the front news, while in other locations policy action is still happening. **Ride-hailing operations are now common throughout the world, including in places with diverse regulatory environments – from welcoming to hostile.** At the same time, taxi companies have evolved their business models to include phone apps, thereby blurring the factor that differentiated the services of transport network companies a few years back.[76]

- In 2022, Uber partnered with two taxi companies in New York City (USA) to start featuring taxis in its app, allowing nearly 14,000 taxi drivers to gain access to Uber's customer base.[77]

A more recent development in this space has been the advent of commercial ride-hailing operations using autonomous vehicles. These services create novel regulatory challenges for policy makers, including related to safety, data sharing and form factor (e.g., do these services require a steering wheel?).[78]

- In 2021, Baidu received a permit to operate the first driverless taxi service in two Chinese cities, Chongqing and Wuhan.[79] In early 2023, the company was granted the first licence to pilot the service in Beijing.[80]
- Hyundai launched a driverless ride-hailing service in Seoul (Republic of Korea) in 2022, although a safety driver is always on board.[81]
- In 2022, Cruise received a permit to provide driverless rides in San Francisco (USA).[82]

Governments are implementing policies to curb $CO_2$ emissions from transport network companies, especially in urban environments.

- The deployment of low-emission zones (so far mainly in Europe) can pressure the fleets of transport network companies to transition towards electric vehicles to be able to access broader areas of a city.[83]
- In 2021, the California Air Resources Board (CARB) approved the Clean Miles Standard, the first US programme requiring ride-hailing companies to transition towards electric vehicles by 2030.[84]

Another potential area for policy development is the link between public transport and transport network companies. Some agencies have either tapped into private transport network companies to serve areas that are underserved by public transport. or deployed their own ride-hailing services to serve the same purpose.

- In 2021, the Los Angeles metro (USA) expanded its Metro Micro pilot of on-demand vans for residents underserved by transport network companies to serve new areas of the city, as part of its current bus plan.[85]

## Shared micromobility

After an initial period in which policy makers were caught off guard by the private deployment of shared micromobility services, **many European cities have started to deploy stricter regulations for shared e-scooters.** These developments have been aided by national-level regulations that provide the tools for local governments to act.[86]

- Paris (France) led the way, shifting from an open market that allowed any operator to deploy vehicles, to a more controlled procurement process that limits the number of vehicles and operators and establishes stricter, binding rules.[87] To accommodate these new services, the city has repurposed some on-street car parking spaces as micromobility parking areas.[88] In 2021, Paris set a maximum speed limit of 10 kilometres per hour in areas with a high pedestrian volume.[89]
- In April 2023, after public consultation, Paris decided to ban shared e-scooters as of September of that year. The referendum, motivated by safety and ecological concerns, was criticised for the low voter turnout, with only 8% of registered Parisians going to the polls.[90] The measure does not affect e-scooters owned by individuals.[91]
- In August 2021, Oslo (Norway) established a ban on e-scooter rentals between 11 p.m. and 5 a.m. to reduce night-time accidents.[92] The following month, the city reduced the number of shared e-scooters from 25,000 to 8,000.[93]
- In February 2022, Stockholm (Sweden), in response to residents' complaints about blocked sidewalks, decided to reduce the number of e-scooters by nearly 50% (from 23,000 to around 12,000) and to split them equally among the eight companies operating in the city.[94] In September 2022, the city banned the scooters from sidewalks and established dedicated parking spaces.[95]
- Spain's Traffic Law, updated in March 2022, establishes general requirements for the use of e-scooters and requires municipalities to adopt specific criteria to regulate the use in each city.[96]

Micromobility operators also have realised that their long-term financial sustainability is tied to more regulated markets and limits on the supply of service providers.

- In 2022, the company Bird decided to stop operating in Germany, Sweden, and Norway, and to reduce operations in several cities across the United States, Europe, the Middle East, and Africa, due to an oversupply of vehicles in these markets and to a lack of adequate regulatory frameworks.[97]

Some cities have taken a pro-active approach to the deployment of e-scooters by running pilots to understand their functioning.

- In 2021, after New York City (USA) launched an e-scooter pilot together with three companies in the Bronx district, a survey revealed that the vehicles were mostly replacing walking or public transport trips, and that some of the highest ridership corridors connected riders to public transport and commercial activities.[98] After a year of safe operations, the city decided to extend the programme for five more years, expanding it to communities underserved by existing public transport and micromobility services.[99]
- In 2022, the state government of Victoria (Australia)

announced a trial, in partnership with Lime and Neuron Mobility, to deploy 1,500 e-scooters in the cities of Melbourne, Port Phillip and Yarra for one year to understand how to incorporate e-scooters as a safe mobility option.[100]

Bike sharing systems also continued to expand in different regions.

- Quebec (Canada) launched a pedal-assist electric bike sharing system in 2021, with the goal of providing 1,000 bicycles and 100 smart stations by 2026.[101]
- In 2022, London (UK) expanded its bike sharing service Santander Cycles by adding the first 500 e-bikes across key locations in the city centre.[102]
- Cairo (Egypt) launched a downtown bike sharing programme in 2022, which includes 250 GPS-tracked bicycles distributed across 26 solar-powered docking stations, with the goal of eventually operating 500 bicycles and 45 stations.[103]
- In 2022, Hanoi (Viet Nam) approved an e-bike sharing pilot to serve bus rapid transit passengers travelling between two specific destinations for free.[104]
- The first shared bicycle system of Bogotá (Colombia) began operating in 2022, with 1,500 mechanical bikes, 1,500 e-bikes, 150 hand-pedal bikes for wheelchair users, and 150 cargo bikes to transport goods distributed across 300 stations.[105]
- In 2022, Mexico City began expanding its shared bicycle system, Ecobici, with the goal of extending coverage from three to six city zones and adding 2,980 bikes for a total of 9,480.[106]

Another area of innovation in the micromobility policy space is the use of data to aid in regulations. Los Angeles (USA), in its scooter sharing pilot programme, pioneered the development of the Mobility Data Specification (MDS), a data standard that defines data requests by public sector agencies.[107] Multiple agencies in the United States and beyond have since adopted the MDS.[108]

## Mobility-as-a-service

**Commercial deployments of MaaS remain limited, but developments in Europe, China and the United States might provide insights into new forms of public-private collaboration.**

- An important recent development in MaaS was the launch of Jelbi in Berlin (Germany) in 2019. The service, operated by the public transport operator, encompasses most mobility services in the city, and it includes payments and real-time navigation. Furthermore, the operator created mobility hubs that allow a user to access multiple services at a single location around rail stations.[109]
- Other pilot projects have been implemented in Pittsburgh and Tampa (USA) and in Beijing and Guangzhou (China).[110]
- In addition, some commercial services have been operational for multiple years, such as Whim in Helsinki (Finland).[111] The space is still nascent, and existing examples could provide insights into good policy practices to replicate.

## Partnership in action

- The **Better Bike Share Partnership** is a collaboration of the City of Philadelphia, the National Association of City Transportation Officials (NACTO) and PeopleForBikes to increase access to and use of shared micromobility systems in low-income areas and communities of colour.[112] In 2020, the partnership launched the Living Lab programme in five US cities to undertake best practices studies, provide technical assistance and measure changes over time.
- The **MaaS Alliance** is a public-private partnership dedicated to creating and advancing the foundations for a common approach to mobility-as-a-service by unlocking the economies of scale needed for successful implementation and uptake of MaaS in Europe and beyond.[113] Its three working groups address issues related to user needs, regulatory challenges, governance and business models, technology and standardisation.[114]
- The **NUMO New Mobility Atlas** is an extensive, data-driven platform mapping the rapid proliferation of new mobility, including micromobility, in cities around the world. Developed in partnership with organisations from the public and private sectors, the Atlas uses open data to track shared transport options (e.g., dockless scooters, bicycles and mopeds) by 127 mobility service operators in 53 countries and 626 cities.[115]
- The **Open Mobility Foundation** developed the Mobility Data Specification (MDS), an open source tool to help manage dockless micro-mobility programmes (including shared dockless e-scooters).[116] MDS is a set of Application Programming Interfaces that create standardised two-way communications for cities and private companies to share information about their operations, and that allow more than 130 cities across the United States and around the globe to collect data and publish regulations that can inform efficient traffic management and policy making.
- The **Polis Network's Working Groups on Active Travel and Traffic Efficiency** address the broad subject of multimodal network management from both a strategic and technical perspective, focusing on supporting city and regional authorities in the management and regulation of carsharing, ride-sharing, bike sharing services and MaaS. [117]

## 3.4.3
## APP-DRIVEN SHARED TRANSPORT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