

voi.

REINVENTING PUBLIC TRANSPORT
FOR A FUTURE OF SHARED MOBILITY

Cities made for living.

jaja

Vision statement, June 2022

2 billion

Today, there are 1.4 billion cars on earth. The global car fleet is estimated to grow to a staggering two billion by 2030. While cars provide freedom of movement to their owners, they have many harmful impacts. [Especially in cities.](#)

[Sources: The Natural History Museum, ScienceDirect & Carsguide](#)



It's simply not sustainable
 Cities need to change

Climate

12%

...of CO₂ emissions in the EU are directly related to driving cars. This figure does not include manufacturing of the vehicles.

[European Commission](#)

Pollution

96%

...of the the urban population in Europe are exposed to harmful levels of pollution. Road transport is a leading cause of air pollution.

[European Environment Agency](#)

Noise

20%

...of Europeans live in areas where traffic noise levels are harmful to health, causing stress and impacting sleep.

[European Environment Agency](#)

Safety

80%

...of fatal bike or e-scooter crashes involve a heavy motor vehicle. Cars are the main hazard on our streets.

[International Transport Forum](#)

Space

50%

...of public space in European cities is dedicated to cars. Cars take up much more space than their modal share.

[OECD](#)

Density

55%

...of the global population live in urban areas. The share of people living in towns and cities will grow to 60 % by 2030.

[United Nations](#)

Electric cars are not the cure-all for towns and cities

We need a new way of thinking to break our car dependency



Time

Replacing car fleets takes decades, while we are running out of time to mitigate climate change. It's critical to find equitable solutions that provide mobility for all. If not, climate policies are at risk of not being widely accepted.

[UN IPCC](#)



Size

A typical car weighs 1.4 tonnes and electric cars require six times the mineral inputs of conventional cars. Replacing all cars with new electric cars would require a massive amount of natural resources, and have adverse impacts on environment.

[International Energy Agency](#)

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A better future is possible.

This report aims to substantiate our company's vision statement and further articulate the end goal of the micromobility movement: reinventing public transport for a future of shared mobility.

This report is interactive

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 **Sveavägen. Voi was born in 2018** on Sveavägen, Stockholm, out of a group of young peoples' vision for helping build cities made for living. We use the latest technology to enable access to safe, sustainable and reliable micromobility for everyone.

VISION: FREEING UP SPACE FOR LIVING

Envision the future of your city, without old habits. What if we went back to the drawing board, what would it look like?



Breathing is what keeps us alive and, just as we have all now learned to breathe deeply in times of stress, many of our towns and cities are choking. United Nations data shows that in 2018, around [55% of the global population](#) lived in urban areas. By 2030, one-third of the global population is projected to be living in cities with at least half a million other people. The places we live in are growing before our eyes, and mobility within them often still comes with emissions, pollution, noise, congestion and many other harmful effects.

Cities have a unique opportunity. As

much as [72% of the global greenhouse gas emissions](#) can be attributed to urban areas, and it's increasing. The latest report from the UN Intergovernmental Panel on Climate Change (IPCC) shows that cities essentially [need to be redesigned](#) to tackle climate change. System redesign has almost never been the focus of climate action. When it comes to transport, for decades, CO₂ emission reduction efforts have [mainly focused on](#) optimising the emission performance of cars and other road transport. Now, in order to address climate change, cities around the world

are [faced with the task](#) of halving emissions from the transport sector by 2030.

The positive is that redesigning urban mobility to tackle climate change comes with so many upsides. Setting a direction for greener and healthier cities makes one of the biggest challenges facing humanity into an exciting journey to the future.

Ditch historical data to think new

To move strategically towards a desirable future, we must first envision it. Instead of locking ourselves into designing the future by forecasting historical data

based on the same old trends, it is now up to cities and the people who live in them to envision a future based on a new system. By conceptualising the future we want to arrive at, we can identify what we need to do today to get there.

Imagine a city where car-free zones are the default rather than a one-off oasis of calm. Imagine taking your children to school on a cargo bike, feeling safe in a well-protected cycle lane that goes on for miles, not just minutes. Imagine a city where we slow down, socialise and

Ecosystem services in cities

We tend to take nature for granted (especially when we are in cities). It brings value to our lives that cannot be monetised or sold, which we depend on to live. These values are called ecosystem services. By working with green space and water management services, we can bring the vision of cities made for living to life.

[C/O City](#)

Trees produce oxygen and their leaves reduces noise. All while absorbing carbon dioxide from the atmosphere as they grow.

Plants and vegetation reduce smog and ground-level ozone, capture carbon and prevent flooding... all while improving wellbeing and decreasing stress levels.

Nature in cities, including waterways, reduce and regulate city temperature.

Green areas provides spaces for recreation that helps relieve stress.

Green roofs and walls protect us from UV radiation from the sun, while helping regulate temperatures indoors.



support sustainability instead of always dodging cars. Imagine a city where you can hop on a bike or scooter to ride safely to your local public transit station or bus stop, to your doctor or favourite café.

Take some time, think about it. What does that future look like for you?

In cities made for living, we have room to breathe and clean air. They are places where walking, cycling, scooting and taking public transport are the norm and where the main thoroughfares are free of toxic traffic. This is the future we want at Voi, and we know that many others want it too.

The good news is that we have the

capacity to change, and policies that aim to improve wellbeing while requiring less energy and materials, and producing fewer emissions are [coming into focus](#). We have the collective courage, and it's time to make it happen. Let's get everyone on board and embrace this opportunity to reimagine the places we live.

So breathe... cities made for living are on their way.

Benefits of redistributing space

The first step in moving towards cities made for living is [reclaiming our streets](#) from cars. According to the OECD, [50% of public space](#) in European cities is

dedicated to cars. On average, cars are parked [95% of the day](#). It's time for people to reclaim their streets.

Urban planners and local authorities can make a big impact over the course of the rest of this decade of climate action and in the future by redistributing [space occupied by cars](#) in cities. Parking spots should become 'places to be' and side-walks can then become twice as wide.

This creates safer places to walk, talk and socialise as well as for parks, street food vans, mobility hubs at public transport stops, outdoor gyms and sports courts. The possibilities are endless.

Not only does the environment

around us [stand to benefit](#), with increased greenspaces absorbing the sound of the city and carbon emissions while reducing noise pollution and even increasing the value of surrounding real estate, but we also stand to benefit from it. Well placed plants and water can help reduce and regulate the temperature as well as our stress levels.

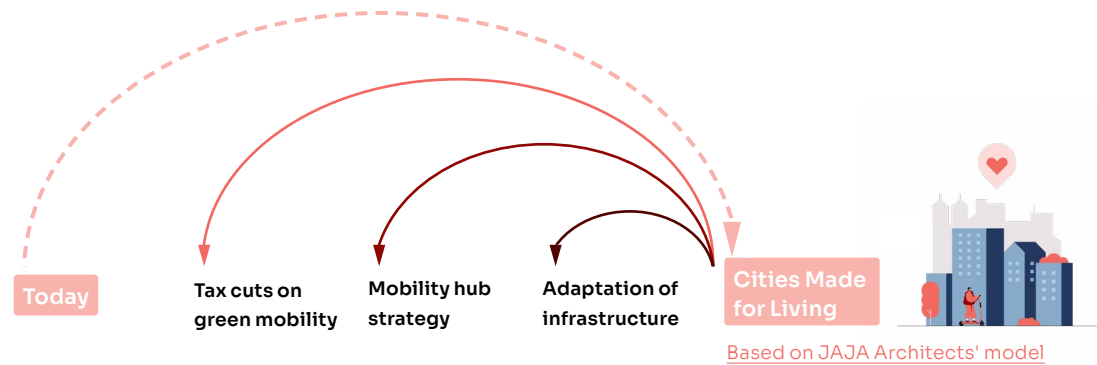
Shared mobility is an enabler

The most recent [IPCC report](#) on climate change mitigation put the spotlight on changing cities in order to urgently address the climate crisis. It outlines strategies for established cities as well

Backcasting

Many decisions are taken by forecasting from historical data. We tend to make decisions about our future based on trends from the past. An alternative approach is backcasting. That means setting out a future vision and backtrack-

ing to determine what actions need to be taken to get there. There are already proven strategies for kickstarting the transition today, for example prototyping by transforming select streets and then evaluating best practices.



as emerging cities to achieve large greenhouse gas emissions savings by changing their building and the way they are built, as well as supporting non-motorised public transport. The infrastructural needs of cities worldwide required to achieve a high quality of life, will be best met through energy-efficient infrastructure and services, as well as people-centred urban design.

Shared mobility can be considered as part of a public transport system if it is accessible to most transport users and does not require private ownership. Shared mobility and multimodal transport hubs integrated into public transportation systems that enable accessing places more conveniently and efficiently than ever before, will be a key part of making this future a reality. Research shows that [shared mobility](#)

[reduces greenhouse gas \(GHG\) emissions](#) if it substitutes for more GHG intensive travel (usually private car travel), and especially if it changes consumer behaviour in the long run “by shifting personal transportation choices from ownership to demand-fulfilment”.

In line with societal goals

The reason these changes are taking off in so many cities across the world is that they support many of our other shared societal ambitions. From the UN 2030 agenda and its [Sustainable Development Goals](#), to the realisation of the 15-minute city concept which was touted as a [blueprint for building back better](#) after the pandemic by C40.

By our count, over 20 large continuous car-free zones in city centres have cropped up in European cities,

and many more have streets in the city centre closed off to cars seasonally. Many of these projects are using public participation to decide how the space reclaimed from cars is utilized. Innovative projects such as [Park\(ing\) Day](#) and [Street Moves](#) in Stockholm, have tapped into the power of people having a say over how their city is planned, and in the process have made countless more curious about what the future of our streets might hold. When people who live in the areas going car-free get a say in shaping the reclaimed space, new opportunities for living emerge. Public support and participation are essential to building the political will to bring about cities made for living.

Not only can we create a liveable future in cities we can also

combat climate change at the same time. All evidence points towards us being able to redesign them to have greater transportation efficiency and accessibility, while also making them safer, more enjoyable places to travel and live in. Cities around the world have already begun making the transition, and the results for the local economies have been promising. We know, this all sounds almost too good to be true, but a lot can happen when you change your priorities. **V.**



Let's get inspired!

We have worked with our friends at [JAJA architects](#) to ideate and sketch what future streets may look like. Scroll on to get a glimpse of what the future can look like.

TRANSPORT CORRIDORS

Marseille

Marseille is a city that has many transport corridors connecting the centre with its suburbs. These transport corridors are overwhelmingly dedicated to cars with multiple lanes of traffic as well as having parking either side. If there is a desire to increase modal share of micromobility, then space needs to be dedicated to this in the city's transport corridors.

In this proposal, based on Rue Paradis, cars have been confined to a single lane travelling in one direction. A mobility hub replaces the existing bus stop, creating easy access for people to combine micromobility with bus travel. Cycle lanes have been provided, with one lane running in the opposite direction to the traffic, and separated from traffic through a 'flex zone'. The 'flex zone' is the width of the existing parking but 50% of those parking places have been taken away.

1 Urban trees

Trees play a vital role in urban environments beyond an aesthetic one. They provide several ecosystem services such as increasing biodiversity, regulating temperature and air quality, sequestering carbon emissions, controlling and filtering excess rainwater, and they offer multiple health [benefits to people](#).

2 Street benches

Population ageing is one of the global trends that will shape the 21st century. In order to encourage activity in older populations, street design must include age-friendly practices. The WHO has identified seating as one of the [top age-friendly](#) features to enable older people to continue walking to nearby facilities.

3 Mobility hubs

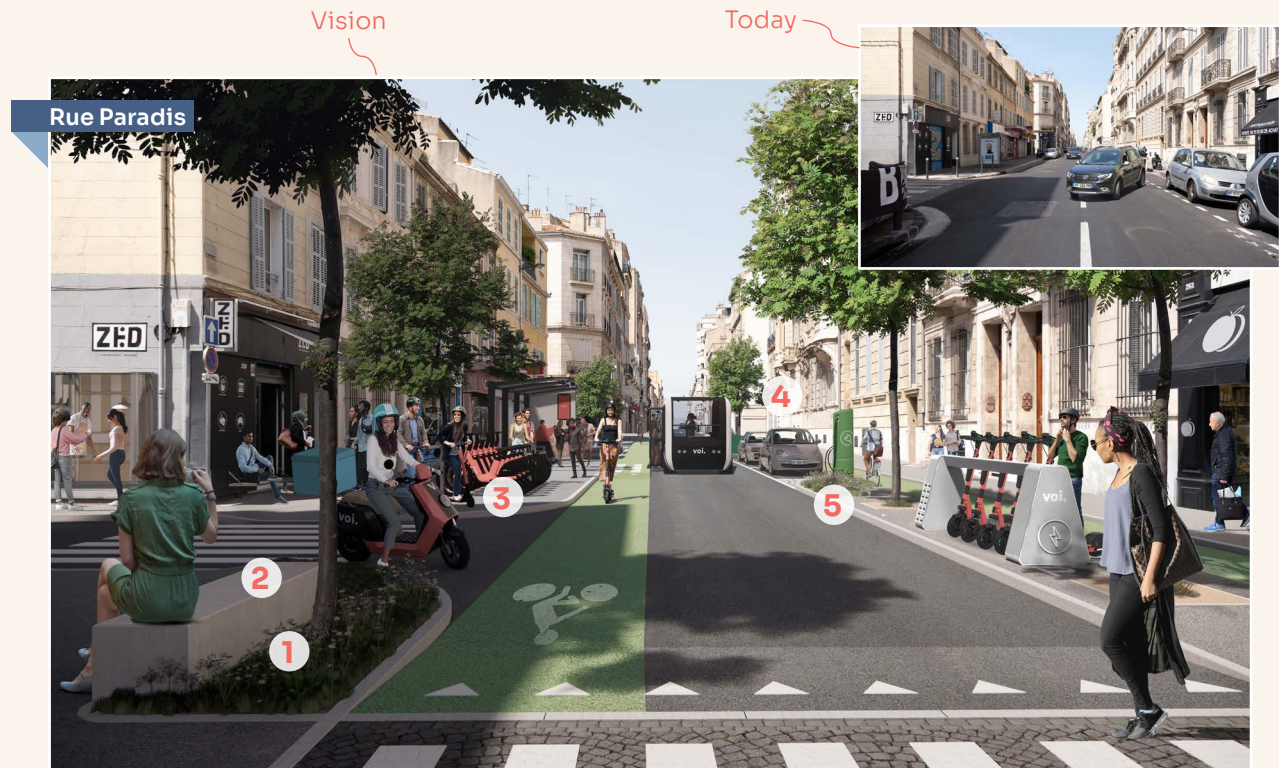
Mobility hubs bring together different forms of mobility such as public transport, shared micromobility and active travel, while also improving the urban environment. Mobility hubs have the potential to improve accessibility to areas that are underserved by public transport, by integrating other modes to enhance first and last mile connectivity.

4 Low parking norm

Parking policies, such as reducing the amount of on-street parking, have been shown to [reduce car use](#) and car ownership when combined with the provision of other mobility options. However, some level of parking should be included on future streetscapes to provide access for people, pick-ups and drop-offs, as well as short-term needs.

5 EV charging point

In urban environments, most households don't have off-street parking to charge their EVs. To accelerate the uptake of EVs, on-street charging points must be installed for people to charge while on the move. However, these charging points mustn't obstruct pedestrian access by encroaching on the pavement. Instead they should be placed in former car parking spaces.



RESIDENTIAL STREETS

Copenhagen

The Social Democrat mayor, Sophie Hæstrop Andrsen won the 2021 Copenhagen election on the back of a promise to remove one third of all parking places in the city and give back space to its residents. The reality is, however, that this 'cycling city' still suffers from too many cars than the parking infrastructure can cater for. This results in cars piling up on residential streets which doesn't help the quality of life for people living there.

This proposal, on Ægirsgade, showcases what Copenhagen's residential streets could look like if they were made for living instead of cars. One third of parking is removed, the street is made one directional with freed up road space replaced by integrated street play spaces, micromobility parking and new outdoor dining areas.

1 Integrated parking

Improperly parked electric scooters can be dangerous to other road users. Studies show that parking solutions such as racks and painted parking bays can significantly improve parking behaviour, especially when located in convenient locations. Such as right outside residents' doors and integrated in with other street furniture.

2 Street play spaces

The prevalence of childhood obesity is increasing markedly with time spent outside inversely related to obesity. Providing play facilities on the street increases children's physical activity levels, social interactions and general wellbeing. They also create more [cohesive communities](#) amongst neighbouring families.

3 Outdoor shop display

Our residential streets should support both the residents and local businesses that call them home. With excess space reclaimed from cars, there is also room for ground floor shops to expand onto the street through outdoor displays. This both provides more opportunities for businesses to sell their wares, but also activates the street through increasing activity.

4 Cargo bike access

Cargo bikes are becoming increasingly attractive for families living in urban environments. Their relative affordability compared with other types of electric vehicles, means that people can still take children to schools, do shopping or even undertake heavy tasks such as transporting furniture, makes them a perfect complement to car-free living.

5 Shared car space

Shared car services are becoming a viable alternative to private car ownership while also providing several city benefits. Studies have shown that a single shared car can [replace up to nine](#) privately owned cars, thereby reducing parking demand in dense urban cores and freeing up space for people. Shared car users also tend to make fewer journeys by car.

Don't miss the details



We can start building these future streets today. In fact, we already do.

In fact, in more than 25 cities and towns across Europe, we've installed over 700 parking racks in collaboration with authorities and the private sector. These racks have proven to have a positive effect on reducing street clutter. Step by step we help building the cities of tomorrow, by prototyping infrastructure solution for shared micromobility.

We believe that the use of parking racks in central areas can not only reduce clutter but also increase the adoption of shared micromobility. Dedicated parking spaces can increase reliability for users to know where to go to find shared micromobility, especially when placed at public transport stations to enable combined trips. However, we do not believe that dedicated parking spots should be the norm for shared micromobility

throughout whole cities and towns. It needs to be a mix to allow scaling of the service to new places as demand for shared micromobility grows.

Key to involve local community

One particularly exciting parking project we've partaken in is called Street Moves, led by the Swedish thinktank ArkDes, to pilot the use of flexible and modular wooden parklets that replaced a regular on-street parking in Stockholm. What's interesting about this project is that it involved many partners with different competencies as well as citizens who were invited to be co-architects of their own street's layout. Voi believes that it's elementary that local communities are involved in the process of building the cities of tomorrow. **V.**

Photo: Lundberg Design



Learn about parking solutions in this Gehl x Voi report

We commissioned Gehl to document best practices in e-scooter parking, and create [The Micromobility Parking Guide](#), a playbook

for cities looking to embrace shared micromobility. The findings have already helped Voi teams to improve our service.

We hope planners, urbanists, and policymakers find this a helpful resource as they invest in changes to create sustainable cities.





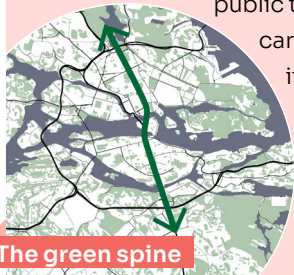
THE GREEN SPINE

Stockholm

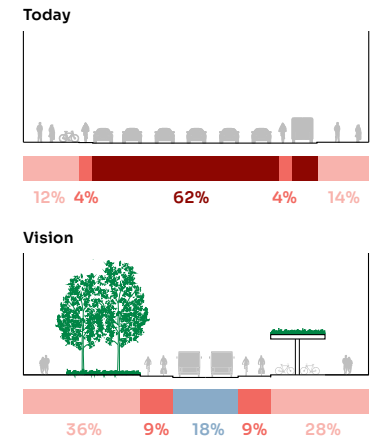
Sveavägen is a busy main road in central Stockholm with up to five lanes of traffic. One of the main reasons for there being so much traffic is the tunnel, Klaratunneln, at the end of the road which was built to extend Sveavägen and connect it with the south of Stockholm. Every day, approximately **42.000 heavy vehicles** go through the tunnel (mainly cars due to the tunnel's low ceiling).

The tunnel was built in the 1960s and, even before construction started, it **was criticized**. The Stockholm Chamber of Commerce said, in order to have a good urban environment, traffic must be limited. They added that the tunnel would act like a funnel, pushing concentrated traffic right into the city centre. They were right.

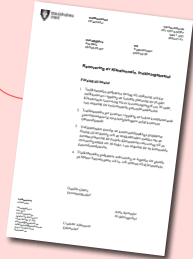
Our proposal is to create a green spine on Sveavägen, rather than a polluting road. The green spine would prioritise walking, biking, micromobility, public transport and delivery cargo bikes. In addition, it would provide space for people to enjoy a less frantic, and more vibrant city centre. It is important to note



The green spine

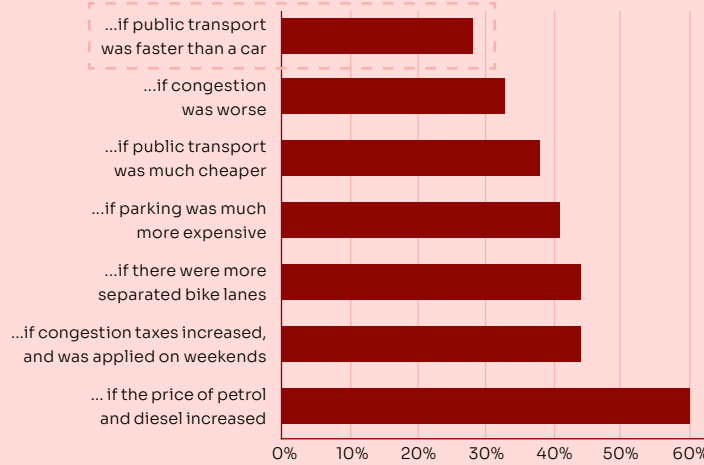
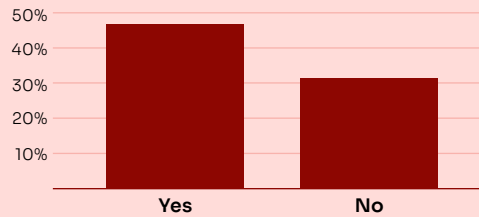


This report shows that nearly half of all car drivers on Sveavägen can travel in other ways, and we can make it work for even more.



When the car drivers were asked whether **they still would take the car** if any of these scenarios happened, it turns out that **faster public transport would make most people leave their car at home.**

Share of car drivers who says that they would be able to take another mode of transport today



Share of car drivers who would still take the car



that, for emergencies, there are plenty of other roads in the city for heavy vehicles.

The lanes in our proposal are curved, enabling space to be opened up for smaller plazas. Since the reimagined Sveavägen is no longer focused on car traffic, it's not as important to have straight lanes, designed to increase the flow of cars driving at high speed.

We've done our homework

Klaratunneln is getting old and is due for a [planned renovation](#), which is supposed to start in 2024. The purpose of the renovation is to extend the tunnel's function

for drive-through traffic for the next 50 years.

Stockholm's Traffic Office [published a report](#) analysing how traffic in the city will be impacted during the reconstruction phase, which will last at least one year. There are several alternative paths, but the travel time for car drivers is expected to be a couple of minutes longer during this time. The Traffic Office does conclude, however, that public transport needs to be prioritised to reduce congestion.

Interestingly, the Traffic Office report reveals the results of a survey carried out with car drivers' on Sveavägen.

It shows that nearly half of the drivers have the option to take another form of transport, mainly public transport but also walking or cycling. It is worth noting that the survey was carried out in 2015, before shared micromobility existed in Stockholm.

For drivers who claim to not be able to travel another way, the main reason is time. Some people say that it simply doesn't work, or that it's more convenient taking the car.

The factor that has the least impact on whether drivers would change transport modes is the price of fuel. Instead, the biggest factor is if public transport

would be a faster option. More affordable public transport and wide, separated bike lanes would also make many people leave their cars at home.

While our proposal may seem like a wild dream at first, it's perhaps not a stupid idea for a vision. We believe that shared micromobility can contribute to making public transport an even more accessible, time-efficient and affordable choice for the citizens of Stockholm and other cities. **V.**



Hi Robert!

Many thanks to you and your team at JAJA for helping us visualise what we believe can be real cities for living.

Can you explain more about who you are?

I'm an Australian-born but Copenhagen-based architect and green mobility advocate. Currently, I'm the Head of Mobility at JAJA Architects where I'm responsible for mobility strategies for cities as well as the development of new typologies of urban transport infrastructure.

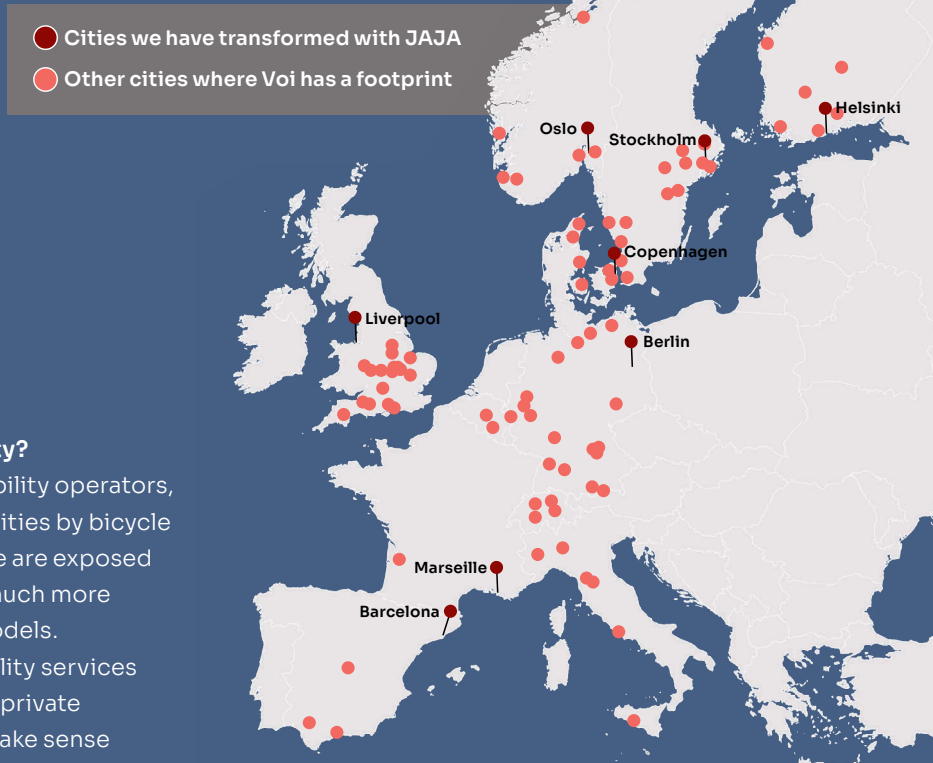
What have you learnt from working with Voi?

That there are a lot of passionate people determined to reduce the impact of car-based transportation! It's been great having been able to collaborate with so many different professionals that work at Voi that range from public policy, operations, data science and communications. It really show the holistic approach that Voi takes to achieve its mission of creating cities made for living.

What do you see is the future of mobility?

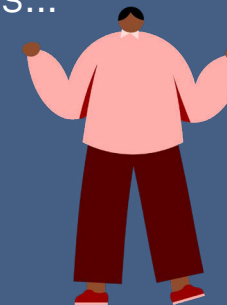
With the growing success of micro-mobility operators, I see a lot more people getting around cities by bicycle and e-scooter. However, as more people are exposed to these vehicles, we're going to see a much more diverse range of uses and ownership models.

Fundamentally, as more shared mobility services enter the market, I see a shift away from private car ownership in cities. It just doesn't make sense economically, environmentally or socially to keep them when we can see how much better our cities can be without them.



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future cities...

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to skip to next
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PEDESTRIAN STREETS

Liverpool

The city of Liverpool is going through a transformation with local authorities exploring a range of strategies to reduce the impact of cars. One has been as a pilot project on Lark Lane, a social hub in the city full of lively cafes, bars and shops, where street parking has been removed to allow for outdoor seating and expanded pavements.

This proposal takes the city’s pilot one step further by reimagining the street as a car-free shared street for pedestrians. While micromobility isn’t allowed on the street, there are parklets to facilitate easy pick-ups and drop-offs, which also double up as green social spaces and seating for cafes.



1 Pedestrian streets
 Pedestrian streets prioritise people over cars by prohibiting most traffic. They are in areas where pedestrian volume is high and usually with commercial activity on both sides of the street. Studies show that, contrary to the myth that removing cars ruins business, pedestrianised streets result in increased [economic benefits](#) for surrounding businesses.

2 Delivery zone
 Growth in uses of a street can result in conflicts between different road users. Delivery by cargo bike, however, is less impactful than that of diesel vans. However, policy and planning need to allocate enough dedicated zones to allow delivery riders to safely and securely unload their cargo for delivery.

3 Tactile paving surfaces
 In shared streets the physical barriers between the pavement and road are removed, creating one smooth surface. Although this can slow down traffic and make the street more attractive, for blind and visually-impaired people, shared streets can be harder to navigate. Therefore, it is vital to include tactile paving surfaces for navigation, accessibility and safety.

4 Geofenced area
 Responsible rider behaviour can be encouraged through the design of safe infrastructure, but also through technology. The GPS that is used to locate electric scooters can also be used to [create geofenced zones](#) where specific rules are enforced. For example, to limit speed in busy areas, create good parking practices or, in this case, block use in a pedestrian area.

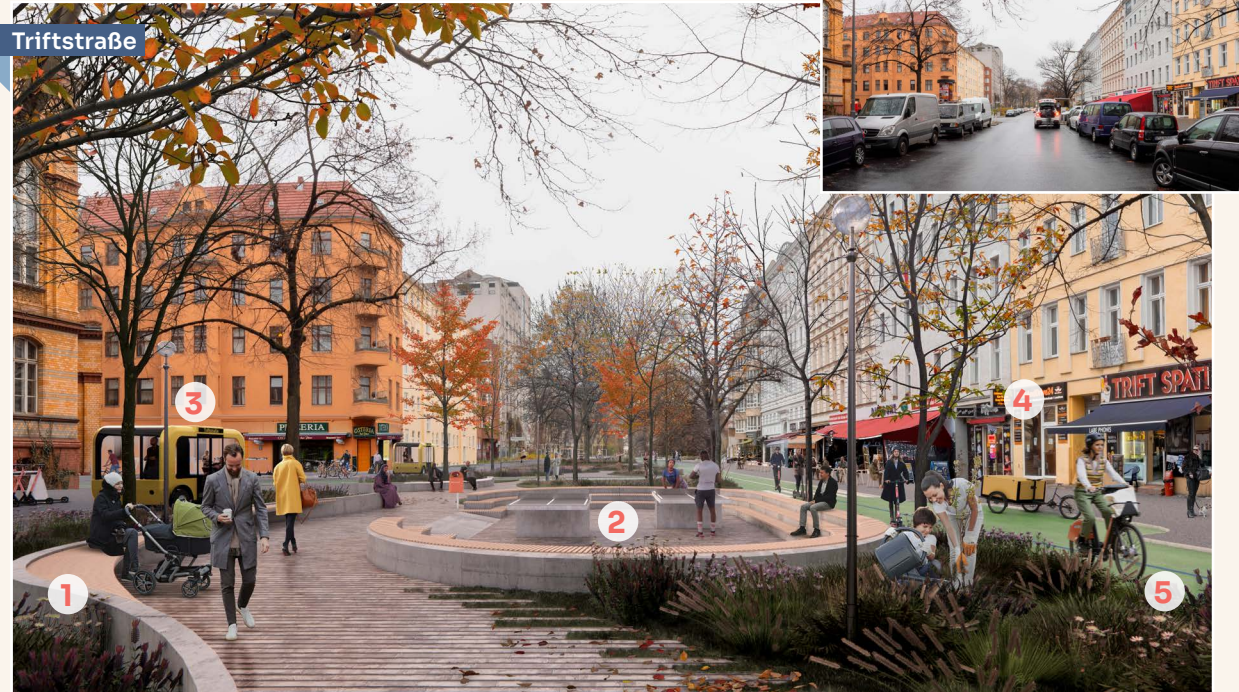
5 Planter benches
 On shared streets, there needs to be provision to protect members of the public who are enjoying outdoor dining from vehicles. Bollards may provide this protection, but do not add anything aesthetically to the street. You can, however, achieve similar protection with seating and planters, which are multi-functional and more aesthetically pleasing.

CAR-FREE AREAS

Berlin

The activist group, Autofrei Berlin, have been lobbying for a car-free zone that would cover the entire rail network in the German capital. At 88 km², this would make the car-free zone the largest in the urban world. But what would such a ‘car-free’ city look like? It is not about restricting Berliners' mobility, of course, but offering them new mobility options to replace car ownership.

This proposal, in Triftstraße, reveals what a car-free Berlin could look like. Taking a future-oriented perspective, there are autonomous shuttles whizzing commuters around the streets, and wide cycle highways for people and goods to be delivered by micromobility. Most importantly, there are lots of new ways for pedestrians and residents to use the street with new recreational facilities and green areas.



1 Street garden

On-street gardens are designed to collect and hold rainwater runoff from the surrounding hard surfaces on the street before flowing into storm drains. The soil in these gardens can also naturally remove pollutants from rain runoff, reducing the amount that flows out to nearby streams, rivers, harbours and lakes.

2 Outdoor recreation

While streets should be designed to enable safe use for all mobility users, they are also the largest public space that towns and cities have. Therefore, they should also be used for recreational purposes, which can foster community, provide social connections and increase wellbeing.

3 Autonomous shuttle

Without cars on the street, commuting to work can be done by hailing an autonomous shuttle. These small buses are a combination of driverless technology and public transport. With capacity for 6 to 12 passengers, the shuttles can provide much more dynamic and frequent services than traditional buses.

4 Cycle logistics

The rise of e-commerce is placing enormous pressure on urban freight delivery. Cargo bikes are becoming a more feasible replacement for vans in urban environments as their use can cut carbon emissions by 90% compared with diesel vans. They also **deliver 60% faster**, with a higher average speed and rate of parcel deliveries per hour, while taking up less space.

5 E-bikes

E-bikes are bicycles that have a battery-powered motor and demand for them has grown exponentially in recent years, with sales exceeding that of electric cars by a **factor of 10:1**. E-bikes are becoming popular because of their capacity to overcome barriers normally associated with cycling such as distance, gradient and physical ability.

SUPERBLOCKS

 **Barcelona**

Barcelona is the sixth largest city in the EU with a population of 1.6 million. The city suffers from extreme temperatures due to urban heat islands caused by excessive amounts of road asphalt and car emissions. Sixty per cent of public land is used for car infrastructure, causing a lack of much needed green space to counteract the heat island effect.

A key aspect of the city’s plan to tackle this is to implement a superblock program whereby through traffic is banned in residential streets. Instead, excess road space is transformed into other community amenities. This proposal, on Carrer de Girona, is an interpretation of Barcelona’s strategy where superblocks become an oasis of trees and greenery, supported by a transport network of pedestrians, micromobility and public transport.



Carrer de Girona

1 Urban biodiversity

Increasing biodiversity in urban areas is important because it increases the health of the urban ecosystems that we society live in. Providing the necessary habitat, such as street gardens, means that a diverse array of insects, birds and mammals can make our ecosystems more robust and withstand crises.

2 Green roofs

Urban heat islands occur when cities lay down too much pavement and asphalt that absorb and retain heat. Green roofs and plants help reduce the effects of heat islands by shading hard surfaces, diverting sun radiation and releasing moisture into the atmosphere.

3 Bicycle highway

A bicycle highway is space where cyclists and micromobility users are given the highest priority. These highways connect residential areas with amenities such a work, study and recreation. Bicycle highways should be planned to run near public transport hubs so that it becomes easy to commute between public transport and micromobility.

4 Emergency Access

Despite the ambition to be vehicle-free, pedestrianised streets still require minimum dimensions to allow emergency vehicles to gain access quickly and allow adequate room to unload and deploy equipment. Therefore, pedestrianised streets should have a minimum clear way of 5 metres.

5 Public transport

The most impactful strategy to reduce car use is to create multimodal transport systems that take into consideration active, micro and shared mobility to get to and from public transport services. Likewise, station locations must be brought into the urban fabric of cities, in this case within the superblock itself.

HISTORICAL CENTRES

+ Helsinki

Helsinki was established as a trading town in the 16th century. With over 500 years of urban development, the inner city has several layers of heritage that gives its historic neighbourhoods their charm. But what happens when micromobility interacts with this history? Cobblestone streets are charming to walk on, but they aren't so nice when riding a bike or e-scooter.

To stop micromobility users riding on the pavement, and potentially colliding with pedestrians, cycle lanes must be incorporated into cobblestone streets. However, we can't just slap down some asphalt and paint it red. This proposal, in Koreavuorenkatu, explores how to create sensitive material choices when integrating cycle lanes into historical areas.



1 Bicycle lane

A protected cycling network reduces conflicts with cars and encourages micromobility usage. In historic inner cities, with cobblestone streets instead of tarmac, the installation of protected cycle lanes clashes with the historic context of the city. New styles of cycle lanes that integrate tiling to mimic existing street materials are key to cycling infrastructures.

2 Wide sidewalk

High quality pavements are vital for promoting walking. Having a clear and dedicated pathway that runs parallel to the street ensures that pedestrians, visually-impaired and disabled people have plenty of safe places to walk. In city centres, there should be a minimum 2.4m clear pathway.

3 Disabled parking

Despite removing the majority of car parking from this street to provide bicycle lanes, and expanded pavements, parking provision for disabled people must still be provided to allow access for all road users. A cut in the street flex zone allows space for a disabled parking place to be provided.

4 Street flex zone

The street flex zone is defined as the section between the pedestrian pathway and the curb. This is where amenities that support the street, such as e-scooter parking, benches, lighting, café seating and green areas can be located to not block pedestrian access.

5 One-way street

One-way streets are an effective strategy for calming car traffic in urban areas. They are especially useful when streets are narrow, and they also discourage drivers from cruising through residential areas. In contrast, bicycle and pedestrian networks allow bi-directional movement, encouraging these mobility modes.

URBAN PLAZAS

Oslo

The Norwegian capital, Oslo, is on an ambitious journey to greatly reduce cars from its central business district. In its plans, the city proposed establishing car-free zones within the city's inner-ring, building out 60km of new bicycle lanes, a new public transport system, as well as pedestrianising its main shopping streets.

To facilitate the city's transition to sustainable mobility, first and last mile options are required to facilitate gaps in the public transport network. In this proposal, based on Knud Knudsens Plass, shared micromobility hubs are placed near bus stops as the last link in commuters' journeys. These timber, tree-like structures house and charge e-bikes and e-scooters, leaving the public spaces tidy and free for residents to enjoy.

Knud Knudsens Plass



1 Urban wayfinding

It is a complex challenge to guide people using different modes of transport through the city safely and efficiently. Urban wayfinding is the art of doing this through signs, markings and graphics. In this instance, street paint is used as a pedestrian guiding tool so that they can locate and cross at safe pedestrian crossings.

2 Mobility pavilions

These mobility pavilions function as parking solutions that keep the plaza clear of vehicle clutter, while providing easy access to both shared and private micromobility. The pavilions also function as shading devices, keeping the plaza cool in the summer for residents and visitors.

3 Outdoor dining

Kerbside dining can turn a lifeless street into a vibrant one. However, taking away parking to create these spaces is often met with resistance from business owners who claim it deters customers. However, the City of Melbourne's programme to convert car parking spaces into dining parklets found that 75% of nearby businesses received an additional weekly revenue.

4 Accessible curb cut

A curb cut is a depressed ramp that connects the curb to the ground. At bus stops where there are often multiple curbs to separate traffic, wheelchair users are met with challenges to move from the shelter to the curb. By creating a curb cut at the bus access point, it allows greater accessibility for wheelchair users to reach the bus.

5 Green median strip

Median strips provide small opportunities to increase the amount of nature in urban environments. Studies have shown that road users have more favourable responses to communities with greener roads, and they respond more positively as the amount of green area increases.

Less is more

Shared mobility for all

- Enabling people to lead a life without owning a car means providing options to support all transport needs.
- Digitalisation is transforming mobility by enabling sharing and accessing transports as a service rather than relying on ownership.
- European policymakers are on board and are working to foster this transition.



Moving people and trips to the top of the sustainable mobility diet.

The car is still the dominant mode of transport in European countries such as [Denmark, Germany and Italy](#), and these cars on average move 1.3 passengers. More than 50% of all car trips in [Europe](#) cover distances of less than 5km. In [Sweden](#), 80% of car journeys in urban areas are shorter than 3-4km.

It's clear that there are many opportunities for people to walk, bike, scoot or take public transport to replace some of those short car journeys. The inspiring side effect of leaving the car at home is that this also benefits your health. You can think of it, therefore, as a healthy, sustainable mobility diet, in which more trips in your daily life are replaced with more lightweight or active modes of transportation. For some people, there

may of course be challenges. And the e-scooter ride will of course give you less exercise than riding a pedal bike. However, balancing on a scooter also keeps your muscles activated, and it can also be [good for mental wellbeing](#).

Not being bound to one vehicle, but having access to several services, increases your flexibility of choice, so you can always find one suited for a particular trip. For example, taking a walk in one direction and, saving time by picking up an a shared micro-vehicle on the way home can be an efficient way to increase the daily dose of fresh air and put you on the path to having a sustainable mobility diet. **V.**

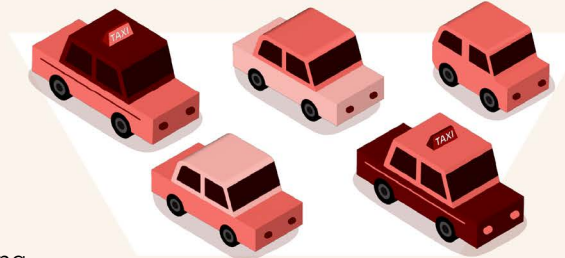
Walking and wheeling



Electric micromobility and public transport



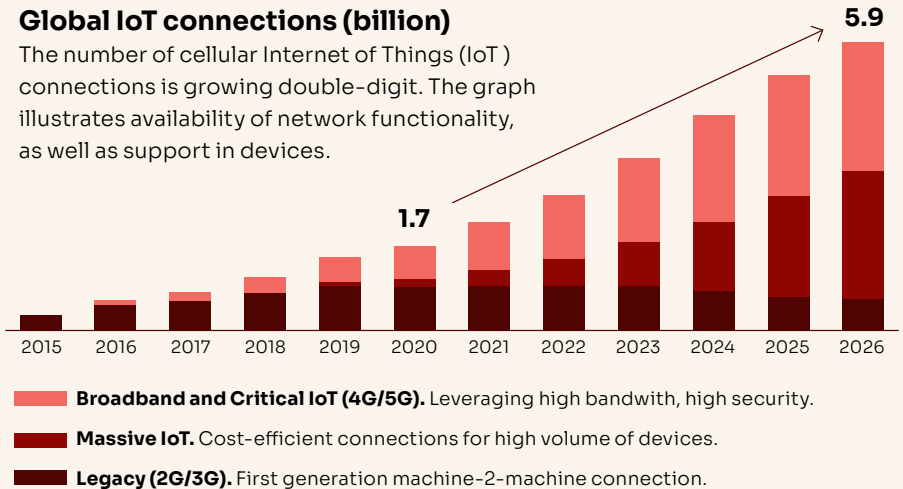
Taxis and shared cars



Private car



Digitalisation is transforming mobility by enabling sharing and policy makers are onboard.



Source: [Ericsson mobility report \(May 2021\)](#)

To reduce people's reliance on cars, viable alternatives must be available. The International Transport Forum, an intergovernmental organisation operating as a think tank advising the ministers and governments of its 63 member countries on transport policy, says that [the key principle at play](#) in reducing car dependency is to enable

“The guiding principle for managing car use is to enable citizens to carry out their daily activities without a car and not having to rely on cars to satisfy their transport needs.”

[International Transport Forum](#)

citizens to carry out their daily activities without a car. In practice, this means helping people be less reliant on owning a car to satisfy their transport needs.

Increasing the coverage of public transportation networks, both the number of places connected and how frequently services run, is seen as pivotal to achieving this. However, the rigidity of a fixed transportation network does not always answer people's mobility needs. Preferred travel modes differ based upon countless factors including time of day, location, weather, urgency and proximity to destination. A shorter trip is often better solved with a bike or e-scooter, while a car sometimes is the only feasible

choice, for instance, in an emergency or when travelling with cargo. By providing access to alternative modes of transport, shared mobility systems enable citizens to choose the most suitable (and sustainable) transport mode – or a combination of modes – for a specific trip.

Cities and towns have high population density, or concentration of people living in them, making them perfect spots for shared mobility systems to answer people's transport needs. An increasing number of shared mobility services have evolved during the past decade. Voi is one of these new companies, specialising in providing access to shared micromobility for short trips and

for longer journeys when a scooter or bike complements public transport.

Shared mobility services offer opportunities to maximise the utilisation of vehicles and increase the flexibility of mobility in urban areas. While shared mobility is still in its infancy, it's clear that sustainable travel options are becoming increasingly available. More and more people are finding that they can meet their transport needs without a privately-owned car, and this development has just started.

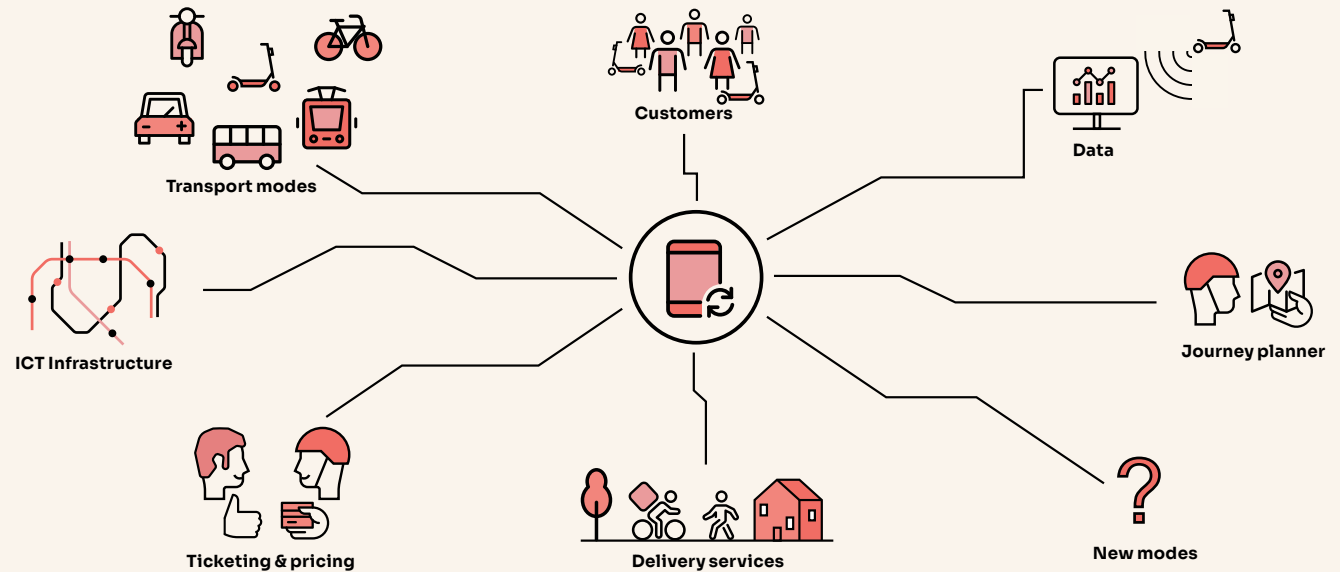
Digitalisation is an enabler

One of the primary reasons why shared mobility has taken off during the past few

years is that the technology required to make these systems work has matured enough to make such services viable. Today, Smartphones are widely available allowing users to interact with services, while Internet of Things (IoT) devices which connect these systems are more readily available at lower prices. GPS technology is also steadily improving. While advances in IoT and GPS technology has enabled this ecosystem of services to blossom, increased digitalisation has been the key to unlocking its potential.

Digitalisation is the transformation of traditional business models through the use of digital technologies and the production of new value-producing opportunities with such technologies. In this context it has enabled people to access shared mobility through the mobile phone in their pocket. It has also increased opportunities for operators to provide viable services, especially within the micromobility industry. These technologies allow vehicle tracking to optimise availability and battery charging. Furthermore, they allow more efficient logistics and the development of features to nudge and enforce responsible use.

This combination of vehicle technology not only enables companies to provide better operations, but creates



an improved user experience and allows for better integration into cities for the benefit of all citizens. It informs accessibility and safety decisions, ride zone distribution and ensures responsible usage and adherence to road traffic regulations. These applications merely scrape the surface of what is possible.

Shared mobility becomes more accessible when planning, booking and paying for different mobility services on a single app. This concept is usually called Mobility as a Service (MaaS). Connecting micromobility, buses, trains

and other mobility services on joint platforms makes it easier for people to meet their mobility needs without relying on a car.

Just as with shared mobility, the development of MaaS is still in its early stages, and there's no set direction for how it will develop. Besides the digital integration of services, there's still a lot of development needed to identify pricing options and different ways of bundling subscriptions for multiple services. We'll likely see a variety of MaaS options emerge rather than a one-size-fits-all solution.

A policy priority

Ultimately, the alternatives to car ownership will only be adopted if convenient. Investors have poured money into new companies building the technology for a future of shared mobility, and citizens have taken to the services. However, it's also vital to have policymakers onboard.

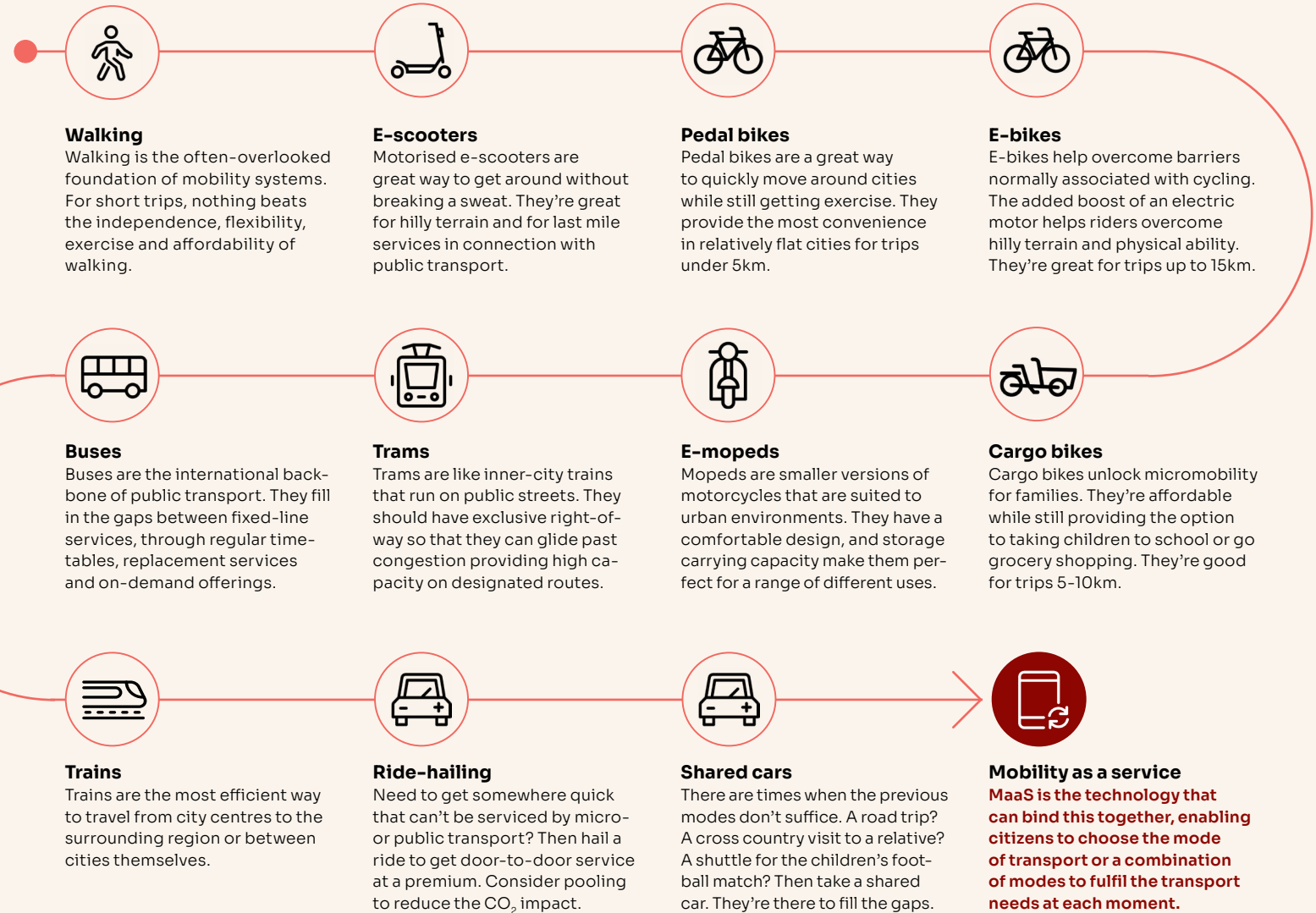
The OECD has stated that policies to mainstream shared mobility are fundamental to accelerating the development of sustainable transport, together with actions enabling redesigning public spaces and reducing urban sprawl. The

recommendation came as one of the key conclusions in a report focusing on strategies to accelerate the transition to net-zero emissions in the transport sector. According to the OECD, policy-makers should support the expansion of shared bikes and micromobility, as this helps strengthen public transport networks.

What's encouraging is that a transition to shared mobility is aligned with the trajectory of European policy. In December 2020, [the European Commission set out the strategy](#) for the Union to reach net-zero emissions in the transportation sector. One of the three pillars of the strategy is that sustainable transport alternatives “must be made widely available now in a fully integrated and seamless multimodal mobility system”.

While the Commission is pushing this agenda, member states are working out ways to support the development of shared mobility, including introducing e-scooters which have become a common sight on European streets. In many cities, shared mobility services such as Voi are becoming integrated with public transport. New mobility systems are under construction to increase citizens' opportunities to lead a life without relying on private cars. **V.**

Enabling people to lead a life without owning a car, means providing different options to support all transport needs.

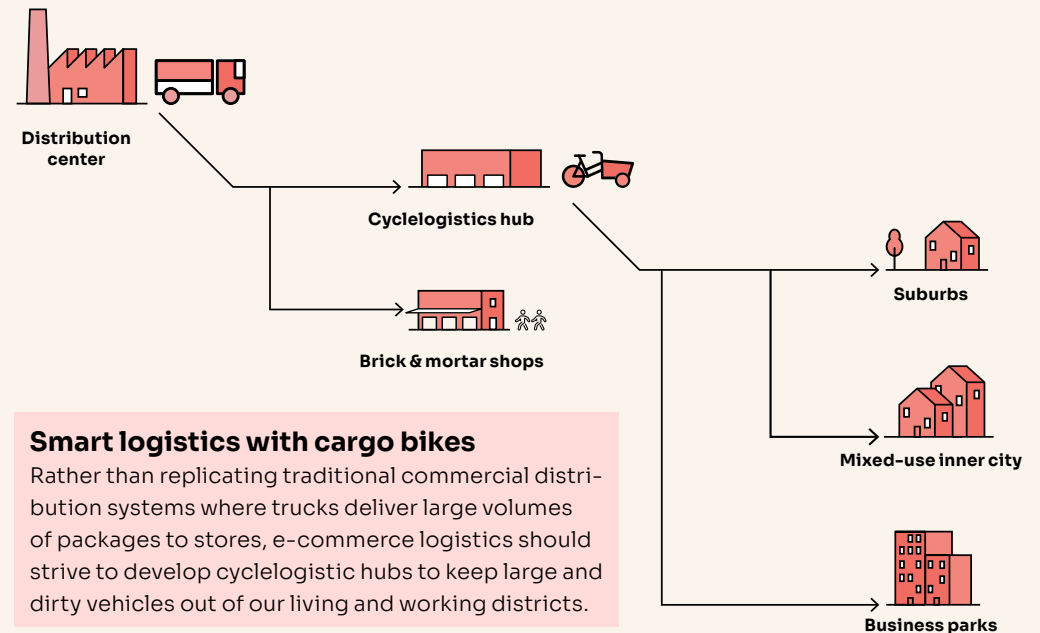


E-commerce is also still in its infancy...

While still in its infancy, e-commerce is already making its mark. From getting food delivered from a local restaurant by bike to same-day delivery from online retailers, the internet is changing the way we engage in commerce. A new ecosystem is emerging from demand for both convenience and carbon-neutral logistics and delivery; one in which climate-smart last mile transport like cargo bikes, smart drop-off and pick up stations connected to logistics platforms, and inner-city dis-

tribution hubs pair perfectly with a less car-centric urban environment.

This development is picking up pace in cities across Europe as demands for healthy living, better air quality and zero-emission distribution add to the trend. The transformation has led to an outcropping of new business models developed around the use of cargo bikes and other zero-emission micromobility modes to do things from moving flat to swapping micromobility fleet batteries. **V.**



Smart logistics with cargo bikes
 Rather than replicating traditional commercial distribution systems where trucks deliver large volumes of packages to stores, e-commerce logistics should strive to develop cyclelogistic hubs to keep large and dirty vehicles out of our living and working districts.

30%

...increase in local shopping after a large area in central London implemented increased traffic restriction. The activity and people spending time on the streets increased by 200%.
[Transport for London](#)

65%

...increase in visits to a shopping street in Berlin after it closed down car traffic and opened it for pedestrians and cyclists. People stayed longer and revenues in local shops increased.
[Berliner Zeitung](#)

90%

...of Stockholmers believed that closing select streets to cars in the summer has made the streets a place where people want to stay and socialise and the streets safer and more attractive.
[City of Stockholm](#)

...and local business thrive with fewer cars.

Car-free city centres and pedestrian streets (either temporary or permanent) have been shown to increase commercial activity on high streets in different towns and cities across Europe and the UK, as people want to stay around and socialise, in a safer, more attractive place. While

local businesses are sometimes at first sceptical, surveys monitoring the results of such projects have shown that in the long run business owners have positive attitudes and indicate that transforming city streets to have less car traffic has positively affected their activities. **V.**



Hi Michael!



...we met Michael and his partners when our co-founder Douglas Stark participated in a seminar about shared mobility, arranged by Lund University. Click [here](#) if you want to learn more about the research Michael works with.



Your research around shared mobility in the SHARE-North project sounds super interesting. We are keen to learn more!

Who are you and what is your research about?

My name is Michael Johansson, and I live in Allerum in south of Sweden. I have for 20 years been a researcher at Lund university at Campus in Helsingborg. My main research area is on sustainable mobility, urban natural ecosystem service with natural based-solutions and other social urban values and space solutions, especially in new housing developments.

IPCC says that we need to rethink cities. How can shared mobility make urban areas more sustainable?

The growth of shared mobility modes such as carsharing, bike sharing, and shared micromobility (e-scooters and mopeds) has been significant in the past years. These modes also have the great potential to reduce existing transport problems and negative impacts on the environment. Research shows that citizens are most likely to change their travel behavior when a major

change occurs in their life, perhaps a new job, starting a family or moving house. Cities and promoters of sustainable travel behavior can use these critical periods in people's lives to increase the uptake of shared mobility.

The potential for shared mobility to contribute to sustainability goals, however, goes beyond influencing transport emissions and travel behavior. Parking standards for new housing and business developments are still predominantly car-centric in most cities and do not support sustainable development and spatial efficiency.

There is a need for wide-scale reform. Progressive policies that allow developers to reduce the number of required parking spaces by integrating shared mobility and other mobility management measures can contribute to creating equitable cities of the future and free up space for other purposes, such as climate adaptation measures or places for people to meet and play. That's issues that my partners in the Interreg project SHARE-North focus on.

Does shared micromobility, such as e-scooters and bikes, contribute to reversing car dependency?

Micromobility services are often mentioned as a solution for first- and last-mile connection in over-consumed urban environments. At the same time, micromobility solutions like e-scooters are typically used for distances between one and two miles, while bicycles are used for longer stretches, between one and three miles. If these solutions substituted individual vehicles, the benefits could be massive.

Micromobility really has the potential to deliver substantial benefits to consumers around the world, including efficient and cost-effective travel, reduced traffic congestion, decreased emissions and hopefully a boost to the local economy. Micromobility can be considered as one of many puzzle bits to fulfill the puzzle of sustainable shared mobility. But cities must in my opinion have a clear understanding of where micromobility is best positioned to offset vehicle travel and they must have the necessary tools to engage with and manage these services.

Scaling systems

Connecting services and neighbourhoods

- Shared micromobility reinvents what public transport is.
- Integrating micromobility with public transport increases the opportunities for people to travel car-free in cities by combining modes of transport.
- Successful integrations with micromobility increase train ridership.



Reinventing public transport. Micromobility brings new connections to the network.



Public transport systems are the backbone of urban mobility. By enabling mass transit and car-free access to towns and cities they keep these places functioning. Public transport systems reduce inequality by providing equal access to mobility to all socio-economic groups and reducing mobility poverty. They are also fundamental to achieving a [future of sustainable mobility](#), according to the IPCC and many other institutions.

But what is public transport really? It's hard to find a common definition where the distinction between what is considered "public" transport and that does not get a bit blurry. However, it's

usually understood as a system of mass transit vehicles, following fixed routes and timetables for moving groups of people. Different cities and countries have different models of ownership and operation. It's not unusual for public transport to be run as a subsidised government service in the public sector, although it's quite common for private companies to take up the operation of a fleet of vehicles through government contracts and procurement processes.

Public transport, as we know it, originated in the [early 19th century](#) when entrepreneurs started to offer horse-drawn omnibuses for people to share

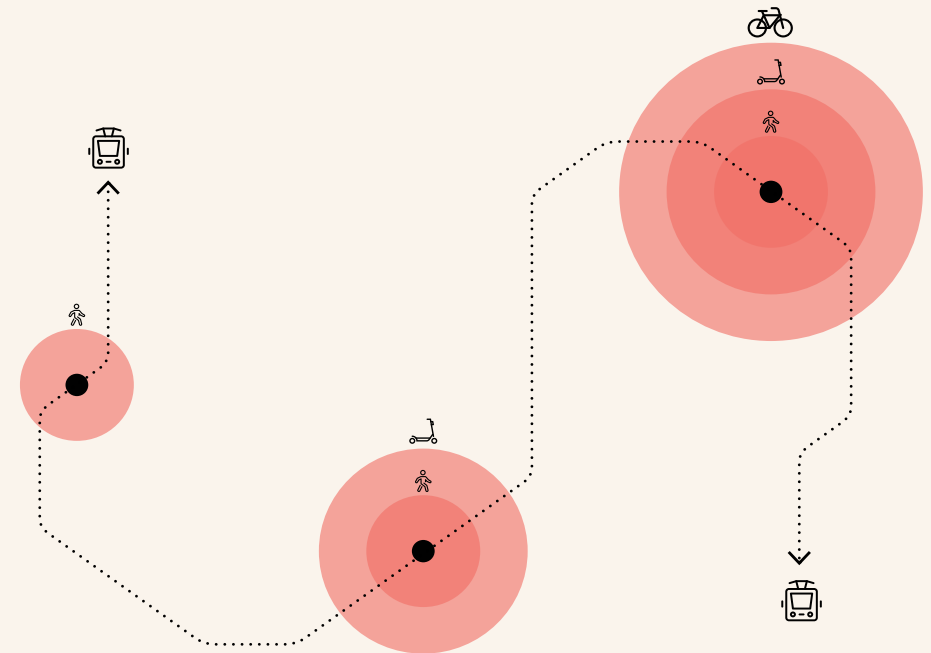
a ride across streets of France. Over the years, public transport developed further with the introduction of new modes of transport such as cable cars, railways, trams, buses and even boats depending on the geography and needs of a given town or city.

When cars became more affordable in the middle of the 20th century, they started to compete with public transport. Cars offered the flexibility to live further away from public transport stations, and the convenience to travel individually without following fixed routes and timetables. This made cars the preferred mode of transport for many people, as car

ownership became a symbol of social status in the growing middle classes across Europe. As a consequence, many towns and cities were increasingly built with a lower density and roads to benefit access for cars instead of other modes.

Public transport under pressure

Public transport has been under pressure for decades. Reduced funding and financing opportunities, leads to risks of a downward spiral impacting the availability of routes or the frequency of trains and buses, which consequently further impact financing opportunities. This undermines the opportunities for public



 **29** g CO₂e/km

...was the average carbon emissions per ridden kilometer with a **Voi in 2021, when accounting for the full lifecycle** – from production to operations and end of life. For Voi, our environmental impact is foremost within our vehicle production.

[Voi's LCA](#)

 **46** g CO₂e/km

...was the average carbon emissions per passenger kilometer travelled with a **bus in Stockholm** in 2021. The figure only includes **well-to-wheel emissions**, meaning it covers the lifecycle emissions of the fuel but not the carbon impact of production.

[Region Stockholm](#)



transport networks to outcompete the flexibility of the car.

The strain on public transport increased during Covid-19 when travelling sharply decreased in towns and cities around the world. Meanwhile, recently introduced shared micro-mobility services exploded in popularity as a safe way to travel during the pandemic. Some people claimed that these micromobility services were drawing riders from public transport services hampered by the pandemic, while others saw opportunities for new mobility systems to emerge.

K2, Sweden's national centre for research on public transport, has studied how Covid-19 impacted public transport in Sweden. In a [working paper](#), they identified four different scenarios for future developments, of which some

included an increased growth for shared mobility to connect with public transport. A particularly interesting scenario, called "public transport as backbone", forecasted that shared mobility services become widely available with mass transit connecting these mobility services and car ownership becoming less common.

Such a shift would require larger institutional changes, including changes to behaviour, policy interventions, and new funding models. The authors of the paper conclude that this scenario would "in more fundamental ways change the perception of what public transport is and how it should be funded".

An affordable way to scale

Shared micromobility is a transport service available to everyone, which to

date has been developed without any subsidies from the public sector and introduced with funding from venture capital. Private investors are supporting operators including Voi in developing technical solutions and operating models to create an economically sustainable transportation service, which supports innovation and the growth of public transport.

E-scooters are space-efficient and have proven to attract [new user groups](#) to try micromobility. Furthermore, they are cost-efficient to operate in shared schemes, even when taking into account the developmental costs and continuous optimisation of safer and more durable vehicles. This means opportunities to scale such systems connecting micro-vehicles, including bikes and e-bikes, to serve different mobility

needs in towns and cities. For micro-mobility to provide maximum benefit to society, it's vital to introduce more new modes to enable greater access to the evolving public transit system for vulnerable groups and communities.

Interestingly, shared micromobility has quickly become a sustainable mobility mode on par with mass transit. A [lifecycle assessment of Voi's service](#) showed that an e-scooter trip in Stockholm produces fewer carbon emissions per passenger kilometre than the average emissions per passenger [on a bus](#) in the public transport system, when considering emissions from the entire lifecycle of the scooter. With that said, it is when these services are taken together and integrated to fulfil a wider variety of mobility needs, that they significantly increase car-free access in cities.

Filling in the gaps

Shared micromobility is often understood as a solution to the first and last-mile issue that traditional public transport has faced. For instance, combining a bus and a scooter can reduce hurdles and total travel time, making public transport a viable alternative to the car. This is particularly relevant in the context of commuting, whether it's for work, to meet relatives, or to visit a gallery with friends.

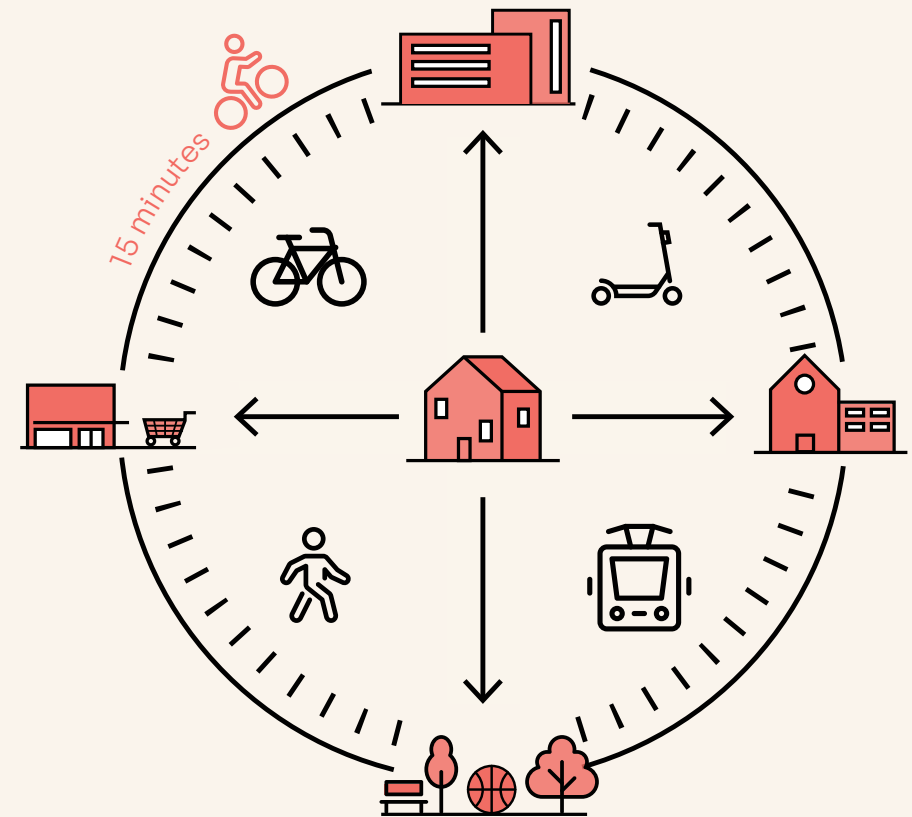
As towns and cities adapt to reduced urban sprawl, in line with what the [IPCC calls for](#), providing accessibility for people living outside of the city centre may become more challenging. For instance, the 15-minute city concept [has been criticised](#) for not considering accessibility the population living outside of city centres. Shared micromobility can provide a solution to this issue as it provides access to micro-vehicles, without the burden of private ownership. This can deliver a more inclusive 15-minute city where mass transit connects different areas and shared micromobility further increases access to this connectivity.

However, thinking of shared micromobility as primarily a first and last mile contribution to mass transit is a limiting mindset. Shared micromobility enables flexibility for people to move

closer to their final destination, in a time-efficient way without the restrictions of a timetable. All while not being bound to their own vehicle, and therefore able to choose another mode of transport on the return trip.

Shared micromobility also provides new opportunities to utilise data for smart traffic planning, especially when data is shared with public transport operators and city authorities. For instance, shared micromobility brings more opportunities for the up and downscaling of mobility access depending on weather, special events such as construction work or festivals, and a number of other factors. Free-floating systems, or at least partly free-floating combined with parking stations in central areas, also offer the opportunity to scale availability to new places as demand grows. This can, for instance, help to connect neighbourhoods and increase access to areas further away from public transport stations.

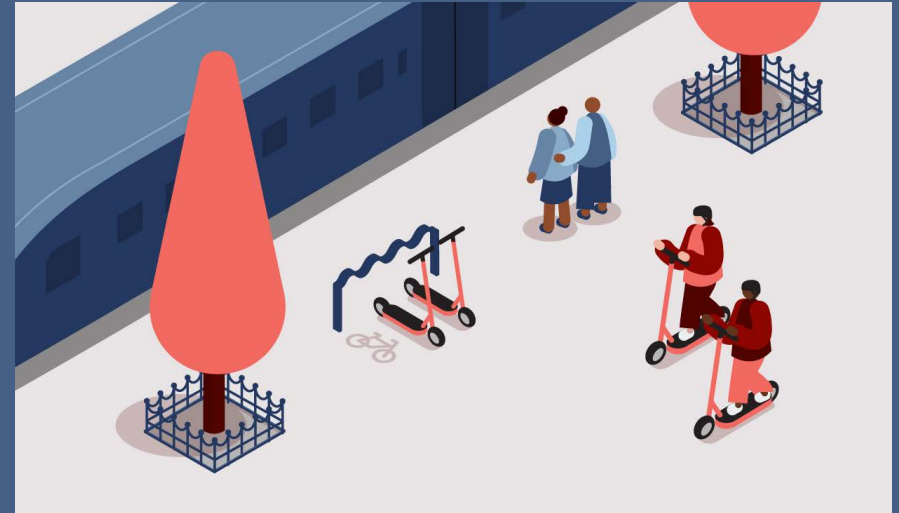
Shared micromobility is still in its infancy and the opportunities are immense. By working together with the public sector, shared micromobility operators can help reinvent public transport – how it works, but also what we consider it to be. Together we grow the pie of sustainable mobility by enhancing car-free access in towns and cities. **V.**



The 15-minute city

The 15-minute city is a concept for urban development inspired by [Carlos Moreno](#) and popularised by Paris' mayor Anne Hidalgo. In short, the concept means that people should be able to access their daily necessities within a 15-minute trip by walking, biking, or taking public transport. In July 2020, the 15-minute city was [touted as a blueprint](#) for Covid-19 recovery by The C40 Cities Climate Leadership Group.

The success factors: Integration on three different levels



Digital integration

Digital integration enables a seamless experience where the user can book a combined trip with many modes of transportation in a one-stop-shop.

This integration can go in different directions and at varied levels. For instance, a light integration could enable citizens to find available shared micromobility options near the train station in the local public transport app.

Deeper integrations may even enable the user to search for a route door to door, including a combination of transit and micro vehicle modes. By also enabling citizens to book and pay for all modes used during the trip in one single app, the convenience of taking public transport increases.



Commercial integration

Commercial integrations can take many different shapes and forms to show that it's a mutual partnership. A good start is for all involved parties to work together with different kinds of marketing and information campaigns. For instance, all parties can promote the opportunities to take combined trips with public transport and shared micromobility.

A more impactful way to nudge people to change their travel habits can be to offer discounts for taking combined trips. This can be everything from one-off campaigns for single combined trips to a more ambitious approach with bundles packaging a Monthly Pass that combines public transport and micromobility.



Physical integration

Physical integrations mean enabling users to access different mobility options in the same place. For instance, by enabling micromobility users to park at public transport stations. In transport lingo, we call these places mobility hubs.

Adding dedicated parking spots, placing a parking rack or making a painted bay, contributes to reducing clutter with micromobility vehicles around the station. Besides improving order and the convenience of taking public transport, mobility hubs are the perfect tool to market the new opportunities that people can leave the car at home. Instead, they can take a seamless trip with a combination of different transport modes.

A pioneer in public transport partnerships

Germany is leading across Europe when it comes to integrations between public transport and shared micromobility. One reason for this is that the public sector has taken a proactive stance in the development.

For instance, the MaaS platform provider Mobimeo was founded in 2018 as a venture of the state-owned rail operator Deutsche Bahn, with the vision of making cities greener and mobility easier. Another example is the Jelbi app, which aggregates public transport with shared mobility services in Berlin.



47%

...of Voi's riders report that they typically combine e-scooters with public transport.

Voi Global User Survey 2021, 13.072 responses

Stuttgart. Micromobility increased train trips by 35%

A pilot initiative in Stuttgart showed that integrating shared micromobility into the local public transport system can help increase public transport ridership. Research showed an increase in rides with shared e-scooters by 250%, which contributed to increased [train ticket sales by 35%](#) during the pilot period. The pilot took place at Bad Cannstatt station, a highly frequented commuter hub in Stuttgart.

Voi was part of the project with the local rail operator S-Bahn Stuttgart and the MaaS platform provider

Mobimeo. The decision to go for Bad Cannstatt was in part due to e-scooter traffic data showing a potential to connect micromobility with the different S-Bahn lines, buses and U-Bahn lines.

What's special about this pilot project is that it involved the three levels of integration: digital, commercial and physical. Voi's e-scooter service became available for booking in the [Mobility Stuttgart App](#), which involves various modes of shared mobility connecting to public transport and a traffic planner making it easier for users to plan

their trip. Furthermore, users were offered vouchers when combining different modes of transportation.

Last but not least, parking racks for e-scooters were placed at the train station, contributing to increased visibility for the service and reduced clutter with wrongly parked e-scooters.

The pilot initiative, which has been extended and is under continuous development, shows the importance of taking a holistic approach to driving demand for combined mobility. Another contributing success factor was that

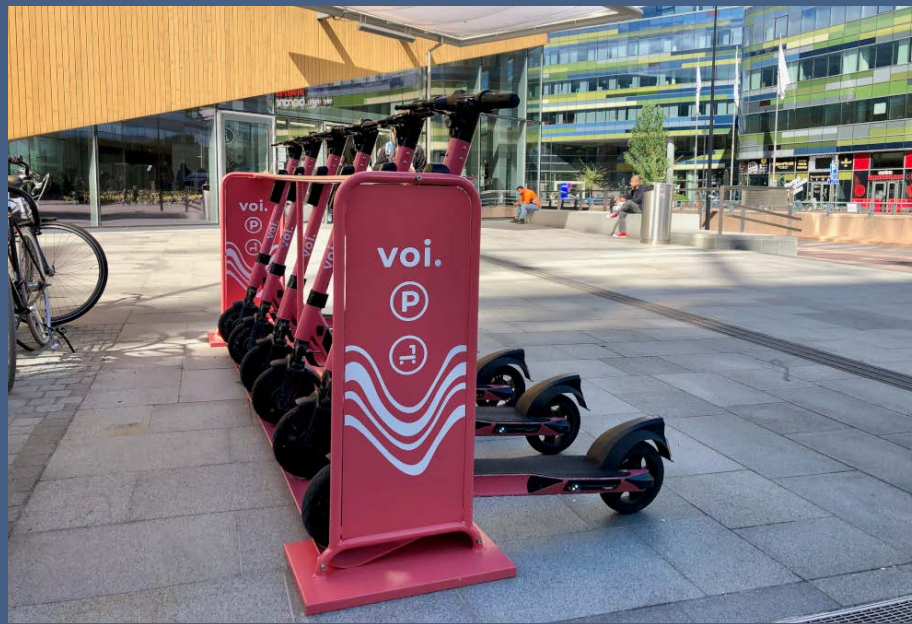
all partners shared an understanding of the mutual benefits of integrating micro-mobility with public transport.

Developing mobility as a service in a way that competes with the flexibility of car ownership, requires knowledge from different fields being leveraged. Shared mobility providers can learn a lot from public transport agencies. Still, it's also essential that the public sector is willing to learn from shared micromobility companies and trust their ability to innovate, and help accelerate the development of car-free access in cities. **V.**

✚ Pioneering datasharing regulation to support MaaS

The concept of Mobility as a Service (MaaS) was pioneered by Sampo Hieta-nen, the founder of MaaS Global (Whim), and pursued by the Government of Finland. In 2017, the government submitted a [new national transport regulation](#) to support digitalisation for customer-oriented mobility services. A key theme of the regulation was to make data for transport services, including public transport, open to the public while also setting down provisions for the interoperability of ticket and payment services.

The government’s decision to promote data sharing has been instrumental for the development of mobility as a service in Finland.



Helsinki. Bundles increased sales for public transport

Whim was introduced in Finland in 2016 as one of the world’s first full-scale MaaS platforms, connecting different transport services with public transport. Voi has been deeply integrated into Whim since January 2021, enabling users to book and pay for a Voi vehicle in the Whim app.

In August 2021, Voi and Whim started offering bundles in the Finnish cities Helsinki and Turku making it easier for users to seam-

lessly combine a trip with public transport and a Voi e-scooter. The bundled prices were offered for either 30 or 60 minutes, giving the users the option to pay a fixed price for the whole trip at a discounted rate, enabling a more seamless trip.

Now data shows that this bundle option has not only contributed to increased e-scooter usage in Helsinki, but also increased the sales of public transport tickets. The bundle, which

was developed after requests from users, increased the sales of public transport tickets in the Whim app by 3.3 % between August and December last year.

According to the data analysis, combined travel in the Helsinki region is above the European average: 53% of Voi users combine e-scooters with public transport. All in all during 2021, 2.8 million rides were made on Voi scooters in Helsinki. **V.**

Milan. Sharing our knowledge about MaaS partnerships

Milan’s public transport operator, ATM, strives to offer an efficient mobility service to encourage people to use buses, metro and trams. Especially now that cities are undergoing an unprecedented transformation to combat climate change, air pollution and congestion.

“Mobility plays a crucial role in tackling those challenges and creating better places to live,” says Carole Ciliberti, ATM’s Smart Mobility Director. “Many people focus on the technological aspects of this transformation, but the reality is that it will also require a mindset shift in the way stakeholders operate and collaborate.”

Several shared mobility services are available in Milan, and ATM is now developing a MaaS platform to integrate with these new mobility services. Voi has been chosen as a partner to share expertise on successful public-private partnerships for MaaS projects.

“Collaboration between public and private sectors is key to implementing a future-proofed mobility system, but this requires forward-looking visions and bold decisions”, says Carole Ciliberti. **V.**

Berlin. Expansion of micromobility to suburban areas

Since 2020, we have partnered with BVG – Berlin’s public transport authority, taking the lead in building mobility hubs throughout the city. By developing the mobility app “Jelbi”, BVG has combined shared micromobility and public transport, making their vast mass transit system even more accessible.

When Jelbi plans a new mobility hub, the primary consideration is commuters. Voi has expanded its service to several suburban areas to support this, starting in 2020. For example, in 2021, Voi worked with Jelbi to install six parking racks at two locations in the suburban area of Spandau. These mobility hubs connect with buses and the subway taking commuters directly to the city centre. This initiative has enabled a fivefold growth in Voi ridership and thus enhanced access to public transport.

Partnering with the world’s biggest MaaS scheme also provides a platform for education. Voi has been partaking in several safety events together with BVG. In April last year, Voi and Jelbi conducted a safety training at VELOBerlin with approximately 15.000 visitors. **V.**

Solent. Integrating with the UK's first multi-city MaaS app

Later this year, our partners Solent Transport, will launch the UK’s first multi-city MaaS app in the Solent region. The platform was developed by Solent Transport and its four local transport authority partners and powered by Trafi. The app provides live travel and route planning for several different transport modes in the south of Hampshire including Southampton, Portsmouth, Winchester, Havant and the Isle of Wight.

As a major e-scooter operator in

the Solent region, Voi has embedded its e-scooter service in the MaaS app, with an aim to support first and last-mile connectivity. Voi data shows that 26% of all journeys started or finished at a train station in Portsmouth and Southampton.

After integrating Voi’s service in Solent Transport’s MaaS app, it has become even easier for citizens to explore, book and pay for e-scooters to combine with buses and trains, without having to switch to the Voi app. This helps expedite the modal

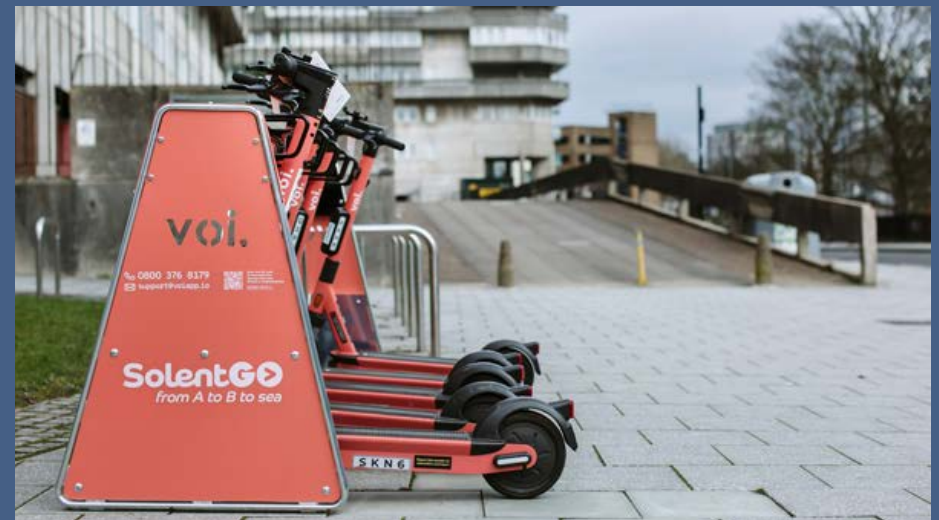
shift to sustainable transport by offering additional options to people who had not previously considered micromobility solutions.

To help promote the scheme, Voi will add the MaaS brand logo to its vehicles in the region, as well as to the e-scooter parking racks in Portsmouth and Southampton. Furthermore, Voi utilises a variety of marketing channels to drive broad awareness of the scheme, grow ridership, and educate about safe riding and parking practices.

E-scooter trials foster public-private partnerships

To support a green restart of local travel and help mitigate reduced public transport capacity, the UK’s Department for Transport (DfT) made regulations in 2020 [allowing trials of rental e-scooters](#) to be fast-tracked and expanded.

E-scooter operators can participate in the trials only through a local authority procurement, with necessary permissions from DfT. Trials are now live in 31 regions across England. The procurement process has proven beneficial for fostering public-private partnerships to develop e-scooter services for the public interest.





Hi Lidia!

Many thanks to you and the International Association of Public Transport (UITP) for inviting Voi to your Combined Committee.

Tell us, Lidia - who are you and what drives you?

I am the Combined Mobility Manager at the International Association of Public Transport (UITP), looking at how different mobility services, from a train to an e-scooter passing through shared and on-demand services, can work together to already create better and more sustainable mobility. As an urban mobility planner, I am as passionate about mobility and cities as much as I am about ice-cream and travel.

What do you think can public transport agencies can learn in the Combined Committee from Voi?

There is an opportunity for cities and regions to strengthen multimodality and provide door-to-door services as an attractive alternative to the usage and ownership of private cars. Voi can help authorities to harness micromobility potential while working together towards win-win situations, for a more integrated, safer and accessible mobility offer and for the wider policy goal of sustainability. MaaS schemes in cities must serve societal goals but, to get there, we need common understanding, vision and collaboration.

From Egosystems to Ecosystems – how can we scale the system in a joint effort more effectively?

Public authorities have a critical role to play, to set a frame for collaboration and steer the ecosystem towards sustainability. But public sector should focus on the right components and not funding financially viable services.

Accessible, seamless and integrated mobility services require multimodal infrastructure such as mobility hubs and reallocation of public space to favour walking, cycling, wheeling and public transport. Private sector needs to participate to this paradigm shift and enable public authorities to do their job in this new era of digital services. For example, data sharing with mobility services providers is recognised as one critical tool that can help cities to achieve a sustainable society.

45

Voi partners with public transport agencies and MaaS operators in more than 45 cities.



Voi is a proud partner of the [UITP](#) and a member of the European Commission's [Multimodal Passenger Mobility Forum](#), working to further strengthen the legal framework to facilitate the development of combined transport across the EU.



Making change

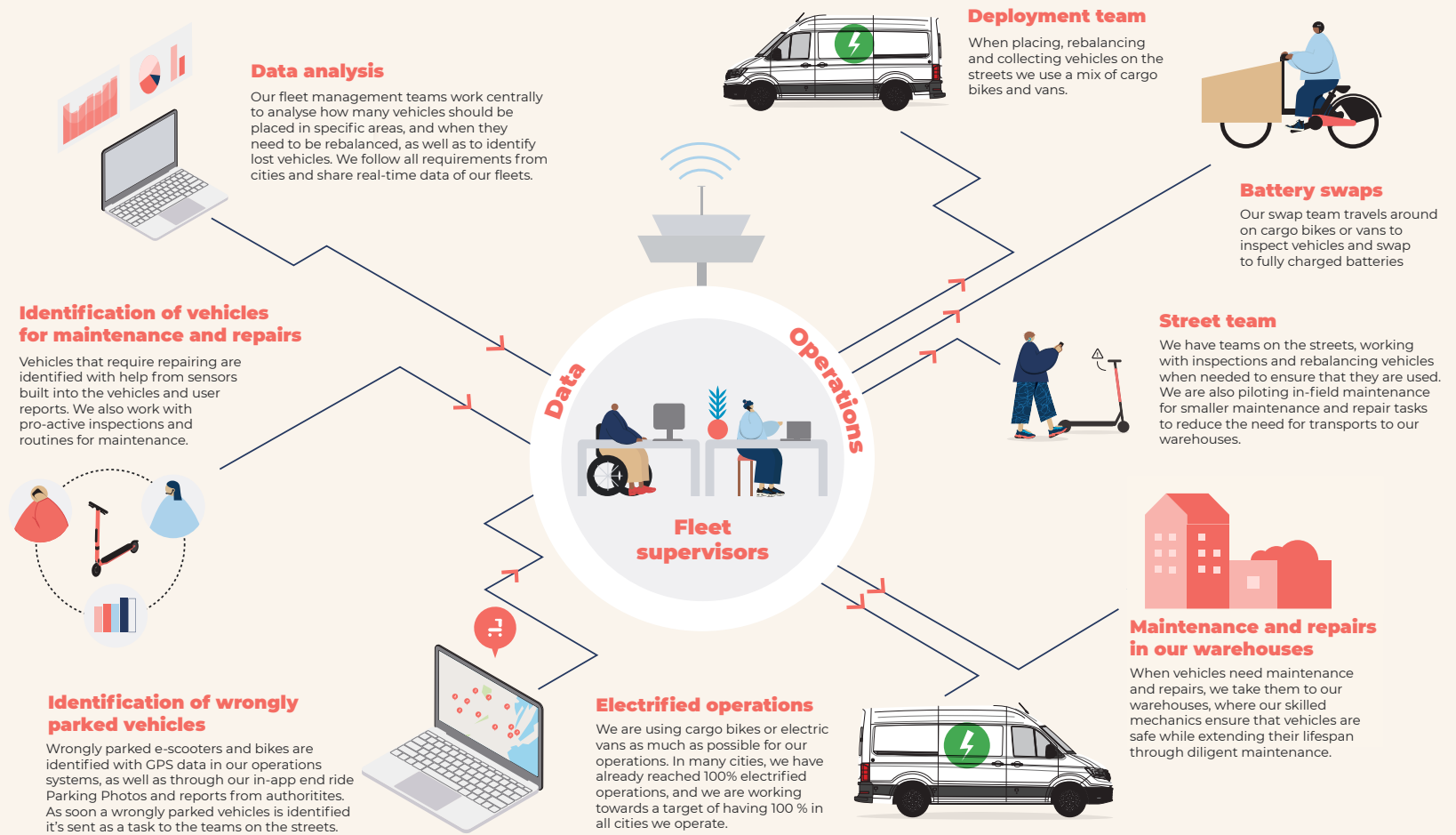
Environmental reporting 2021

- We believe in transparency and accountability around our environmental impact.
- With an industry-first lifespan report, we now have third-party validation that our vehicles will last for many years to come.
- Our Environmental Action Plan takes a holistic approach to our environmental impact and strives to achieve fully circular vehicles by 2030.



Behind the wheels on the streets.

Responsible operations and service design.



Here are some of our partners and certifying organisations

 **ISO certification.** Our Environmental Management System is certified according to [ISO's](#) 14001 standard.

 **SCIENCE BASED TARGETS**
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

Science Based Targets initiative. Our climate targets are verified by [SBTi](#) for SME:s. We're in the process of verifying for large corporations.

 **UN Global Compact.** Voi is a signatory of the UN Global Compact: our business practices and [Supplier Code of Conduct](#) abide by its 10 Principles.



International Transport Forum. Voi is a member of ITF's Corporate Partnership Board, which is supporting policy-makers in solving transport challenges.

We also have a negative impact on the environment. But we do all we can to take it down to zero.

We have conducted a full mapping of our environmental impacts. Engaging with stakeholders across the organisation and external partners, we mapped our activities and their interaction with our environment. All impacts considered significant are monitored and improved via our Environmental Management System (EMS).

Voi's environmental aspects

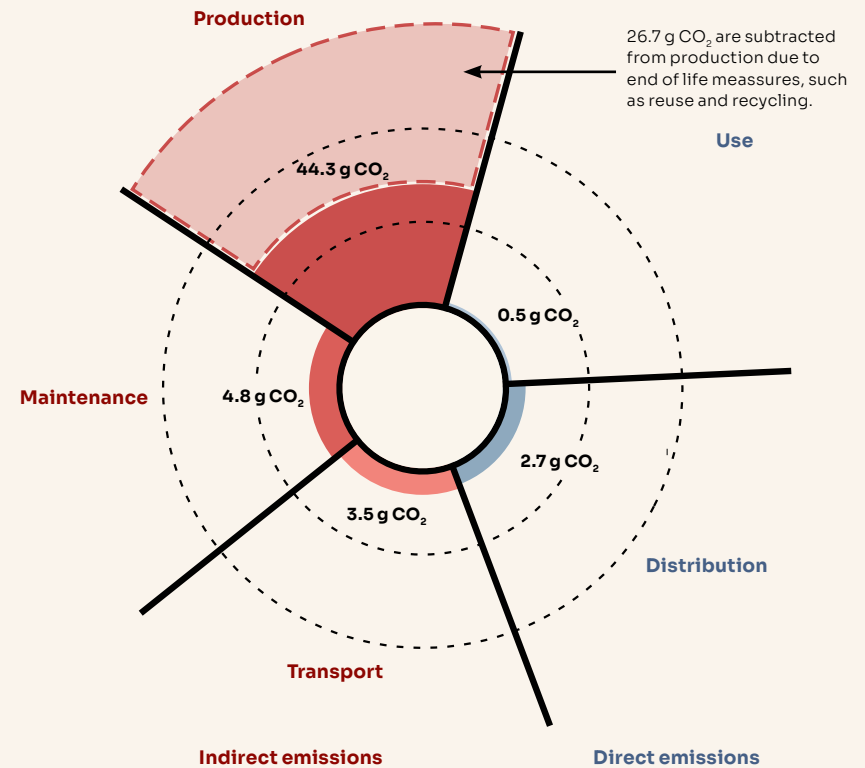
Our EMS covers the following environmental aspects, which we impact to varying degrees: emissions to air, energy use, water, material use, waste including hazardous waste and chemical use. Together these impact climate, air quality and biodiversity.

What is measured is improved

■ **Life Cycle Assessment.** [Voi's Life Cycle Assessment](#), which was independently performed by EY (Ernst & Young) in accordance with ISO 14040 and ISO 14044 standards, has formed the basis for our sustainability strategy. It is updated for new vehicles, most recently by Electric Avenue.

A Life Cycle Assessment maps all emissions linked to a product or service. In this sense, it includes areas of both scope 1, 2 and 3 emissions.

■ **Carbon footprint assessment.** Voi is in the process of finalising a carbon footprint assessment in all of its services which will map all of our scope 1, 2 and 3 emissions.



Emissions per trip with a Voi e-scooter (grams CO₂e/km)

The diagram illustrates the average grams CO₂e emissions per ridden kilometer with a Voi scooter when taking the whole lifecycle into account. The calculations are based on data from all Voi markets, summing up to 29 grams CO₂e per kilometer on average during 2021.

The climate impact of our service

is mainly a consequence of vehicle production. Almost half of those emissions related to resource extraction and processing of materials are subtracted. We are able to subtract these emissions thanks to an ambitious work to extend the second life of vehicles, batteries and components.

Our ambition is to have a fully circular service.

Voi's Environmental Action Plan tackles the whole lifecycle

Based on our eco-mapping and life-cycle assessment, we have developed a holistic Environmental Action Plan that tackles all environmental impacts along our services' lifecycle. The Environmental Action Plans' North Star is to operate fully circular vehicles, produced in Europe with renewable energy by 2030.

Voi's Environmental Action Plan is governed by our ISO 14001 certified Environmental Management System. Voi's EMS is designed and implemented to govern and continually improve our environmental performance.

ISO 14001 certified:



ISO 14001 certification in progress:



1. Production

- 30% recycled materials in the V5. Assembly in Europe for Voi's e-bike.
- European production and 60% recycled materials in Voi's vehicles.

2. Transport

- Partial transition from train to marine shipping
- Shorten supply chains to reduce shipping emissions by 85%

3. Operations

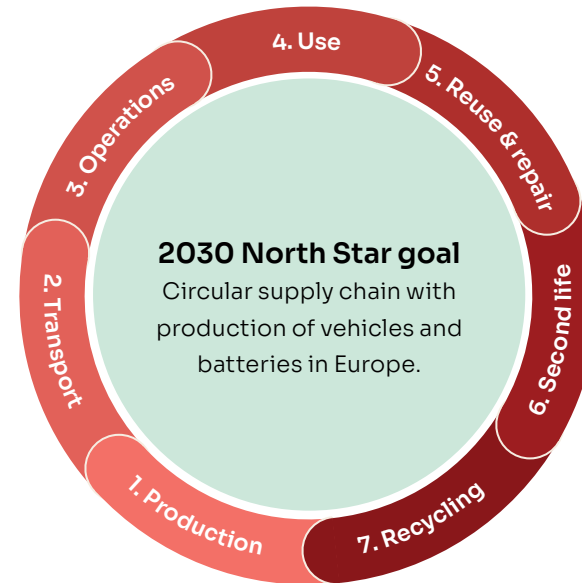
- 77% renewable energy used at warehouses and 72% electric vehicles.
- Net zero operations in all towns and cities by Q1 2023.

4. Use

- Ongoing safety education for responsible riding. Fleet optimisation for maximum fleet utilisation and accessibility. Service design for sustainable adoption.

5. Repairs

- Repair frequency reduced 12 fold. Spare parts reused for repairs.
- Track and reuse all spare parts by 2023.



- 2018-2021 accomplished progress and improvements
- Environmental targets

7. Recycling

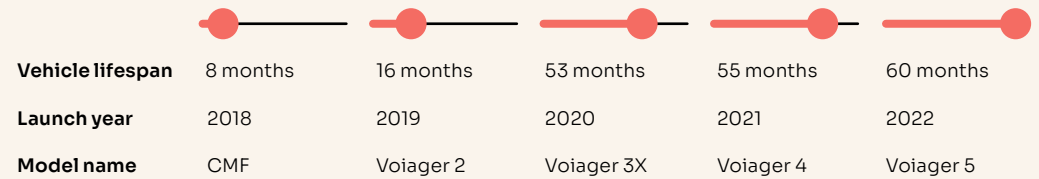
- Local partnerships to ensure top recycling, recycling set up and training for employees.
- Zero-waste and circular warehouses by 2024

6. Second life

- 71% of vehicles not in use anymore have received a second life with their batteries via Voi Resell.
- Reconditioning for damaged batteries by 2023

Vehicles built for being on the streets for years to come.

Estimated lifespan of Voi's scooter models



Source: Electric Avenue's Micromobility Vehicle Lifespan report (forthcoming)

Making products and services more circular is key to ensuring we respect our planetary boundaries. We need to ensure that Voi products use recycled materials, that they last a long time and are used for as long as possible. This applies during their first, second and further lives, thanks to repairs and repurposing. At end-of-life, materials should be recirculated rather than going to landfill or energy recovery.

At Voi, engineering teams, supply chain and operational and repair teams come together to make our vehicles more circular. We work with a definition that researchers and experts use, for example at the Research Institute of Sweden. The definition focuses on three areas to improve: product endurance, product utilisation and material recirculation

1 Product endurance (vehicle lifespan)

As micromobility vehicles are still quite new, how long they will last in operation can be tricky to assess. Our later generations of vehicles have only been in use for 12-24 months and will likely last much longer.

How can we estimate vehicle lifespan? Voi worked closely with micromobility

4.6

...years is the verified lifespan for Voi's Voyager 4, launched in 2021. Voyager 5 is expected to last 5 years.

experts from Electric Avenue and their panel of experts to develop a third-party validated methodology for estimating vehicle lifespan. The results show that, with each generation, great strides have been made in terms of durability and sustainability.

2 Vehicle utilisation

We're proud to achieve high vehicle utilisation with our service. This means that each vehicle we put on the streets and the urban space it occupies provides more rides to people. Our Fleet Optimisation team works wonders ensuring that each vehicle is placed where it can provide the most value to the community and make sure that they are more accessible to all.

3 Material recirculation & recycling

Our vehicle engineering team works closely with our suppliers to use recycled and recyclable materials in the vehicles.

We have doubled the amount of recycled materials with our latest scooter, Voigaer 5. The proportion of recycled materials used in the scooter now stands at over 30%, more than double what it was previously. Furthermore, over 91% of the vehicle is recyclable. Thanks to recycling partners in each of our markets, we can achieve top recycling rates.

A focus area for us is to get better insights from our recycling partners of the total volumes of recycled materials and to improve the recycling traceability.

Extending vehicle lifespan through repairs and second life.

1 Designing for repairability

Our latest vehicle, the V5, was built with circularity and repairability in mind. Based on large data sets, our Quality Assurance and Engineering teams work to identify the components leading to frequent repairs, new spare part use and safety concerns. Using these insights they were able to work together with our supplier to design improved components and more durable materials.

2 Repair excellence

Excellence in predicting, identifying and addressing repair needs are central to our every day operations. Voi currently has over 340 trained mechanics working to ensure the vehicles are always safe and remain in use as long as possible.

A focus area for improved repairability is our battery packs. We are working

to design more repairable batteries and collaborate with partners that can identify and repair battery issues.

3 Second life

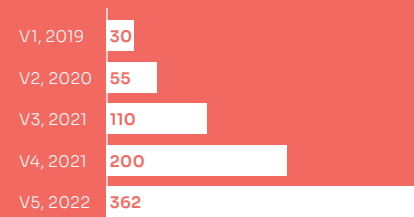
Resale of the entire scooter, including the battery, is the best way to ensure that all materials are reused. Vehicles and batteries are given a holistic second life via Voi Resell, our platform for selling used scooters. A holistic second life, where both the battery and the vehicle are used makes sure both components are used to their maximum capacity. 71% of decommissioned scooters have been given a second life since April 2020.

Together with our partner Nortical, a battery analytics and machine learning expert, we provided second life batteries as power banks for journalists covering the war in Ukraine in March 2022.



Rides between repair

For each new scooter model, we've seen a consistent improvement in how many rides, on average, are taken before a vehicle needs any kind of repairing.



Industry-first lifespan report
This international team of experts reviewed Voi's fleet and repair data to verify lifespan and develop recommendations for continuing to improve it.



Melinda Hanson,
Principal at Electric Avenue
Co-founder of Electric

Avenue, a US consulting firm specialising in light electric transport. Former Head of Sustainability at Bird.



Matt Chester,
Affiliate at Electric Avenue

A data analyst with expertise in energy policy, transportation technology and sustainability.



Chris Cherry, Professor at the University of Tennessee

A professor in Civil and Environmental Engineering at the University of Tennessee and an internationally recognised expert in electric micromobility and sustainable transport.



Pierpaolo Cazzola,
Independent Consultant

Pierpaolo is a transport researcher and lifecycle assessment expert who led the seminal report "[Good to Go? Assessing the Environmental Performance of New Mobility](#)" for the International Transport Forum.

Partnering with suppliers to ensure responsible sourcing of materials.

We are happy to have close relationships with our suppliers. We work to select suppliers who work on their environmental and social impact and are committed to improving.

Our e-scooter is produced by Ninebot. It's ISO 14001 certified and we are working closely with Ninebot to increase the rate of recycled and recyclable materials in our vehicles.

Our e-bike is produced by Sital in Italy, making it a truly European vehicle. This also shortens our supply chain which reduces shipping emissions. Our product and engineering teams are working hard to source European-made scooters.

In parallel, we are also working on sourcing our battery packs from Europe. A pilot will start soon with a producer based in Denmark.

We are working to have all of our

suppliers sign and comply with [our Supplier Code of Conduct](#) that is based on the UN Global Compact's 10 Principles. These cover human rights, labour rights, environment and anti-corruption.

Responsible battery sourcing

Lithium-ion batteries are everywhere today. They are compact, portable and equipped with fast-charging and great storage capacity. And they are safer to human health than lead or cadmium batteries. They're used in our phones, solar energy storage, portable charger, electric cars, e-bikes and e-scooters. Li-ion batteries will power the transition to decarbonised, electric mobility.

But we need to make sure they're safe for everyone one along the supply chain. A main concern around Li-ion



Voiager 5. Thanks to close collaboration between our engineers and suppliers the V5 is our most circular and repairable vehicle yet. It features 30% recycled materials and over 90% recyclable materials. It provides 12 times more rides between repairs than our V1 model.

E2B. Voi's e-bike, the EB2 is made in Italy and has been designed with equitable access, safety and sustainability in mind. The EB2 features an ergonomic unisex saddle and adjustable seat, making it comfortable and suitable for all riders of varying shapes, sizes and abilities.

batteries is their reliance on minerals like cobalt that are at risk of containing conflict minerals.

We source our batteries from LG and Samsung who both operate mineral management systems in line with the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals

from Conflict Affected and High-Risk Areas. [The OECD's guidelines](#) involve inspection, due diligence, risk assessment and improvement plans from smelters (mineral extractors) and refiners in the supply chain. They both disclose the audits and origins of minerals through their website and sustainability reports.

Working towards fully green operations.

Since 2018, Voi has been working to roll out green operations to all of our towns and cities. We first achieved this in April 2020 in France. Today, we've been able to electrify some countries fully and are still working on this in other places.

Green operations defined

Operations run exclusively with electric vehicles and powered by renewable energy.



We're proud to have achieved fully electric operations in Denmark, Norway, Spain and France. We are working to do the same in other countries. In some places, e-vans are less readily available so we need to work with suppliers and along the supply chain to secure electric vehicles.



Sweden

Launched: 2018
Number of cities: 14
Voi electrification: 100%
3PL electrification: 75%
Renewable energy: 100%

Highlight: We are making progress to reach 100% electrification, and use cargo bikes for battery swapping.



Norway

Launched: 2019
Number of cities: 7
Voi electrification: 93%
3PL electrification: 100%
Renewable energy: 100%

Highlight: First Voi market to be ISO 14001 certified. Voi's recycling processes have been certified by Stena.



Denmark

Launched: 2019
Number of cities: 6
Voi electrification: 100%
3PL electrification: No 3PL
Renewable energy: 75%

Highlight: First market to have 100% in-house operations and 100% electric operations.



Finland

Launched: 2019
Number of cities: 8
Voi electrification: 43%
3PL electrification: 0%
Renewable energy: 75%

Highlight: Has introduced electric vans in our major cities Helsinki, Tampere and Turku.



France

Launched: 2019
Number of cities: 2
Voi electrification: n/a
3PL electrification: 100%
Renewable energy: 100%

Highlight: Marseille to become 100% electric by Q4 2022. Discounts on days of high air pollution provided.



Germany

Launched: 2019
Number of cities: 22
Voi electrification: 20%
3PL electrification: 6%
Renewable energy: 70%

Highlight: Multiple pilots with cargo bikes, and introducing electric vans. Close to 100% Ökostrom in our warehouses.



Switzerland

Launched: 2019
Number of cities: 6
Voi electrification: 100%
3PL electrification: 33%
Renewable energy: 100%

Highlight: In several markets, for example, Bern and Frauenfeld, both Voi and 3PL are using 100% renewable energy.



Italy

Launched: 2019
Cities: 6
Voi electrification: n/a
3PL electrification: 25%
Renewable energy: 100%

Highlight: All three Voi warehouses in Milan, Rome and Palermo use 100% renewable energy.



UK

Launched: 2020
Number of cities: 17
Voi electrification: 86%
3PL electrification: 100%
Renewable energy: 86%

Highlight: Highest car replacement rate at Voi reaching 39% replacing a total of 3.2 million short car trips in 2021.



Spain

Launched: 2021
Number of cities: 3
Voi electrification: 25%
3PL electrification: 100%
Renewable energy: 100%

Highlight: Madrid has Voi's first Circular Warehouse. In Seville we are using cargo bikes for battery swaps.



Belgium

Launched: 2021
Number of cities: 2
Voi electrification: 0%
3PL electrification: 0%
Renewable energy: 100%

Highlight: Will receive our first e-van in July. On our way to 100% electrification by the end of this year.

Company-wide

Launched: 2018
Number of cities: 93
Voi electrification: 72%
3PL electrification: 39%
Renewable energy: 89%

Our street teams consists of both Voi employees and sub-contracting businesses (3PL in Voi lingo). When working with sub-contractors we choose professional companies who abide to good work conditions and minimum wages.

We search for and rescue lost vehicles to ensure that waters stay clean.

We are committed to protecting bodies of water in the cities and towns we serve. We have partnered with NGOs and governmental partners to ensure that waters stay clean. For example, we partnered with Rena Mälaren in Stockholm, Os Om Havet in Aarhus and Copenhagen, Isarrettung in Munich and a joint water rescue action with other operators in Cologne through the Association of Shared Mobility Providers in Germany.

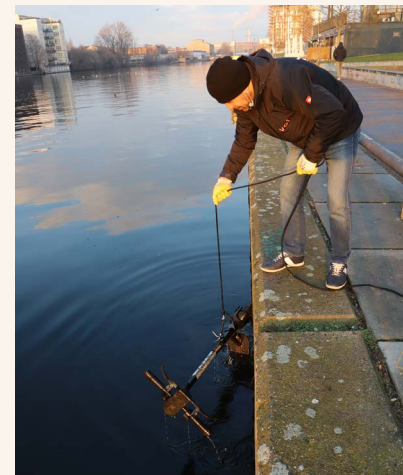
Preventing vehicles from ending up in water and quick retrieval is important for promoting vehicle durability and lifespan but also for protecting biodiversity.

Our Clean Waters Programme builds on the following four principles:

- 1 Prevent:** We place No Parking Zones near bodies of water to minimise the risk of vehicles ending up in water due to vandalism.
- 2 Identify:** We have a dashboard which our operations team uses to identify vehicles that are at risk of being submerged in water.
- 3 Rescue:** In some cases, vehicles can be rescued by our own Search and Rescue team. We also partner with local partners in towns and cities to retrieve submerged scooters as quickly as possible
- 4 Report:** We track hotspots for submerged scooters, to continually improve our clean-ups.



Aarhus. Voi's Operations Manager, Elisabeth Wurmser, organised and participated in a water rescue operation with our partners Os Om Havet in Aarhus and By & Havn in Copenhagen. Over 1.2 tonnes of rubbish were collected from the canals.



Berlin. Retrieval of a submerged scooter during one of our routine water checks, as a part of our our Clean Waters Programme.



Stockholm. Our CEO, Fredrik Hjelm, and VP Communications, Kristina Nilsson, together with the founder of Rena Mälaren, during our first search and rescue exercise in 2020.

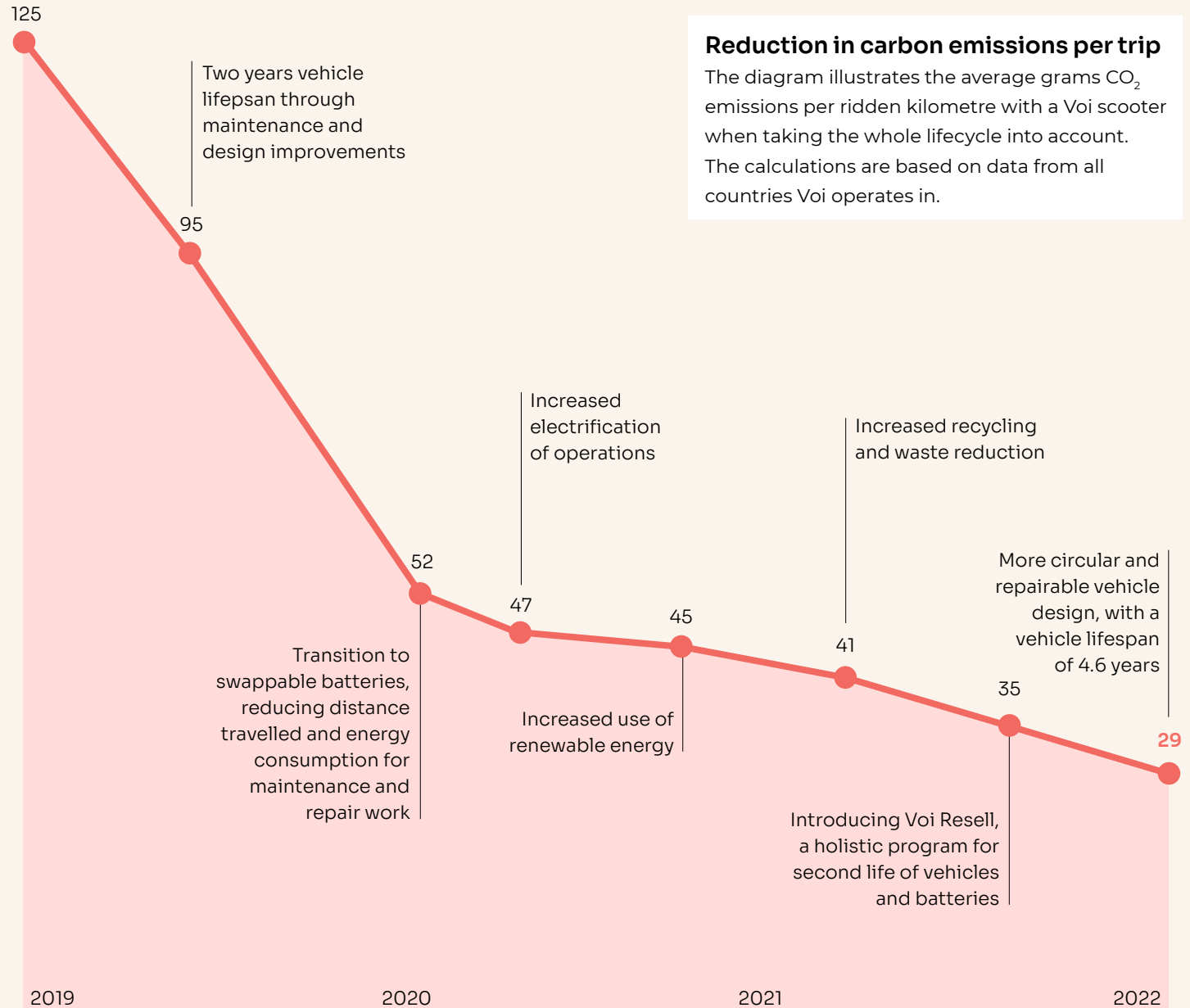
The climate impact of each trip is decreasing.

Thanks to our [lifecycle assessment](#), conducted for Voi's service by EY (2020) and updated by Electric Avenue (2022) in accordance with ISO 14040 and 14044 standards, we can measure the emissions linked to our service in each city.

On average across Voi cities and towns, each ride emitted 29 grams CO₂ equivalents per kilometer ridden in 2021.

On a ride basis, emissions have been significantly reduced since 2019. Improvements like the increased lifespan of our vehicles, adopting green operations in multiple cities and improved recycling have reduced emissions by about 75% since 2019.

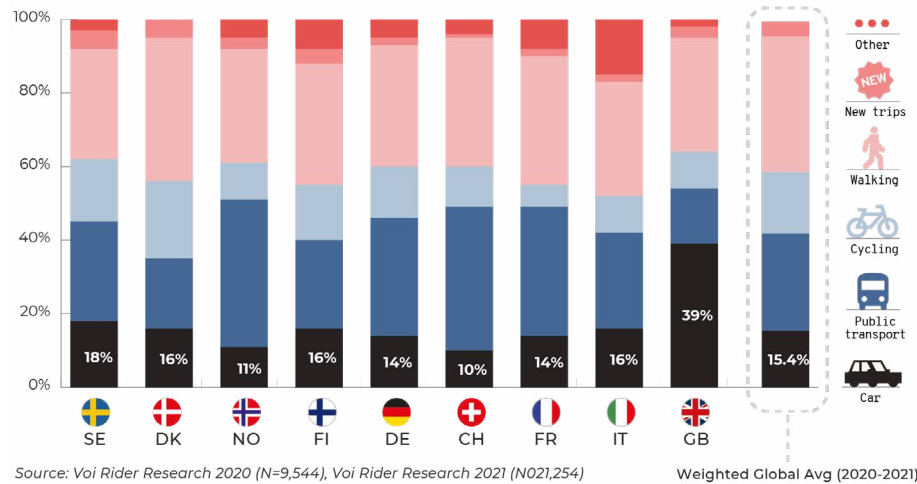
We are continuously working to find ways to even further decrease the lifecycle emissions for each trip.



Reduction in carbon emissions per trip
 The diagram illustrates the average grams CO₂ emissions per ridden kilometre with a Voi scooter when taking the whole lifecycle into account. The calculations are based on data from all countries Voi operates in.

Car replacement rate

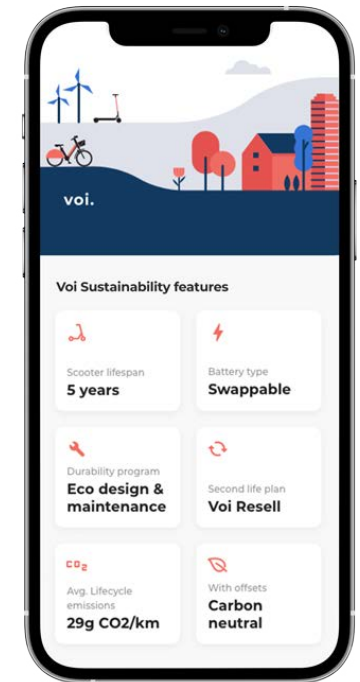
We know from surveying over 30,000 riders across Europe and the UK that, on average, 15.4% of Voi rides have replaced car trips since January 2020. When asked what mode of transportation they would have taken if they had not taken a Voi, this diagram shows what riders in different countries said:



Source: Voi Rider Research 2020 (N=9,544), Voi Rider Research 2021 (N021,254)

Our in-app Impact Dashboard, nudging users to ditch car trips

9.3
...million short car trips were replaced by Voi's service in 2021.



...and yes, we are already replacing short car journeys

How riders travel varies across towns and cities, depends on the local mobility mix, infrastructure and the micromobility offering. Our mission to provide safe, sustainable and reliable micromobility to all helps diversify the mobility mix, enhancing alternatives to cars.

We regularly ask riders about how they use our service to understand how we can nudge people towards more

sustainable habits. It's important to keep in mind that these survey questions don't fully capture whether the availability of shared micromobility has impacted the need to own a car, or whether a replaced active travel trip actually served as a first/last-mile solution to access public transport.

In 2021, 16.3% of our trips replaced car trips on average. This is 26% higher

than in 2020, showing that as micro-mobility services improve, mature and become more reliable, the potential for car replacement increases. 47% of riders combine Voi with public transport serving as a first or last mile option.

To nudge riders towards greener mobility habits, we partner with public transport agencies and have recently launched our in-app Impact Dashboard.

Our Impact Dashboard is designed to show riders the impact they're having on climate change and air pollution. It works by calculating the harmful emissions that have been avoided by riding with Voi, so riders can understand their impact – and how making conscious mobility choices contributes to reducing emissions and the fight against climate change.

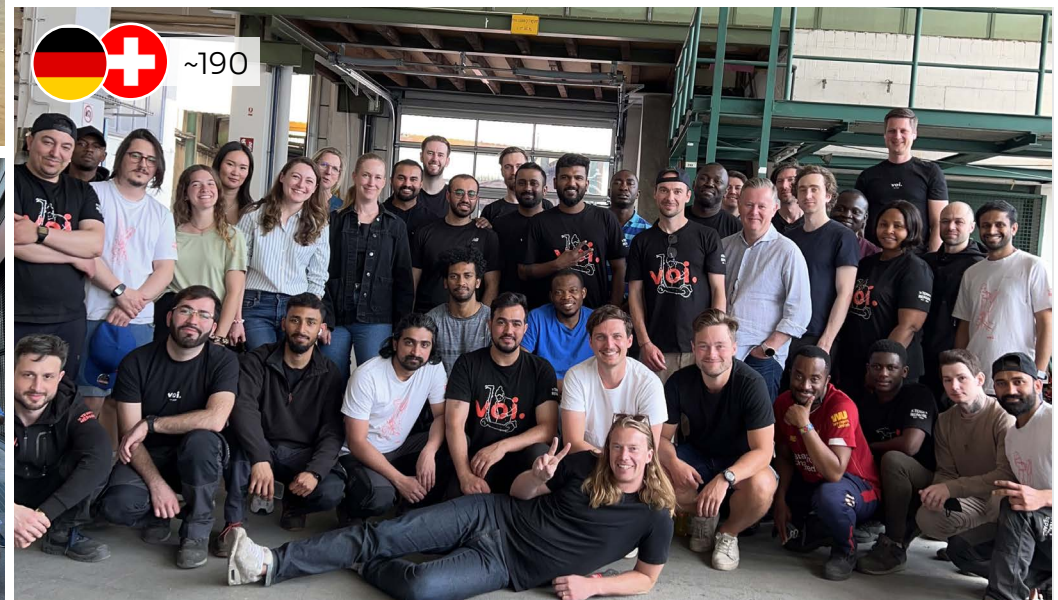
Our workforce. A diverse and growing team of changemakers

760 employees (FTE) work at Voi at our headquarter and in our local markets. Data from end of 2021.

33% of our leadership positions are held by women. We are working to increase this share.

77 different nationalities are represented in our diverse team of changemakers.

33 is the average age of our workforce. Note: this figure also includes consultants.



SUMMING UP

The sustainable impact we strive to have for people, communities, cities and our planet



Healthy and liveable cities

Reducing reliance on cars helps decrease air pollution, noise and congestion while enabling a redistribution of space for more green and social areas.



Nature positive business impact

Shared micromobility is resource efficient since it increases the utilisation of vehicles, with clear incentives for us as a company to increase the vehicle lifespan.



A just and fast climate transition

We strive to quickly scale up access to sustainable transport modes for all and, by doing so, we contribute to strengthening the public transport system.



Supporting the targets taking us closer to the goals

The SDG targets we are contributing to

- Direct impact
- Indirect impact



- **3.6.** By 2020, halve the number of global deaths and injuries from road traffic accidents.
- **3.9.** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.



- **5.5.** Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life.



- **9.1.** Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.
- **9.4** By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.



- **10.2.** By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.



- **11.2.** By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.
- **11.6.** By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.
- **11.7.** By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities.



- **12.2.** By 2030, achieve the sustainable management and efficient use of natural resources.
- **12.5.** By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.



- **13.3.** Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.



- **17.17.** Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships Data, monitoring and accountability.



voi. Cities made
for living

Learn more about Voi's
sustainability work in
our annual Safety report.
A new one is on its way.

Safer
streets
with
shared
micro-
mobility

Voi's Annual Safety Report
June 2021, updated in August

voi.



Cities made for living