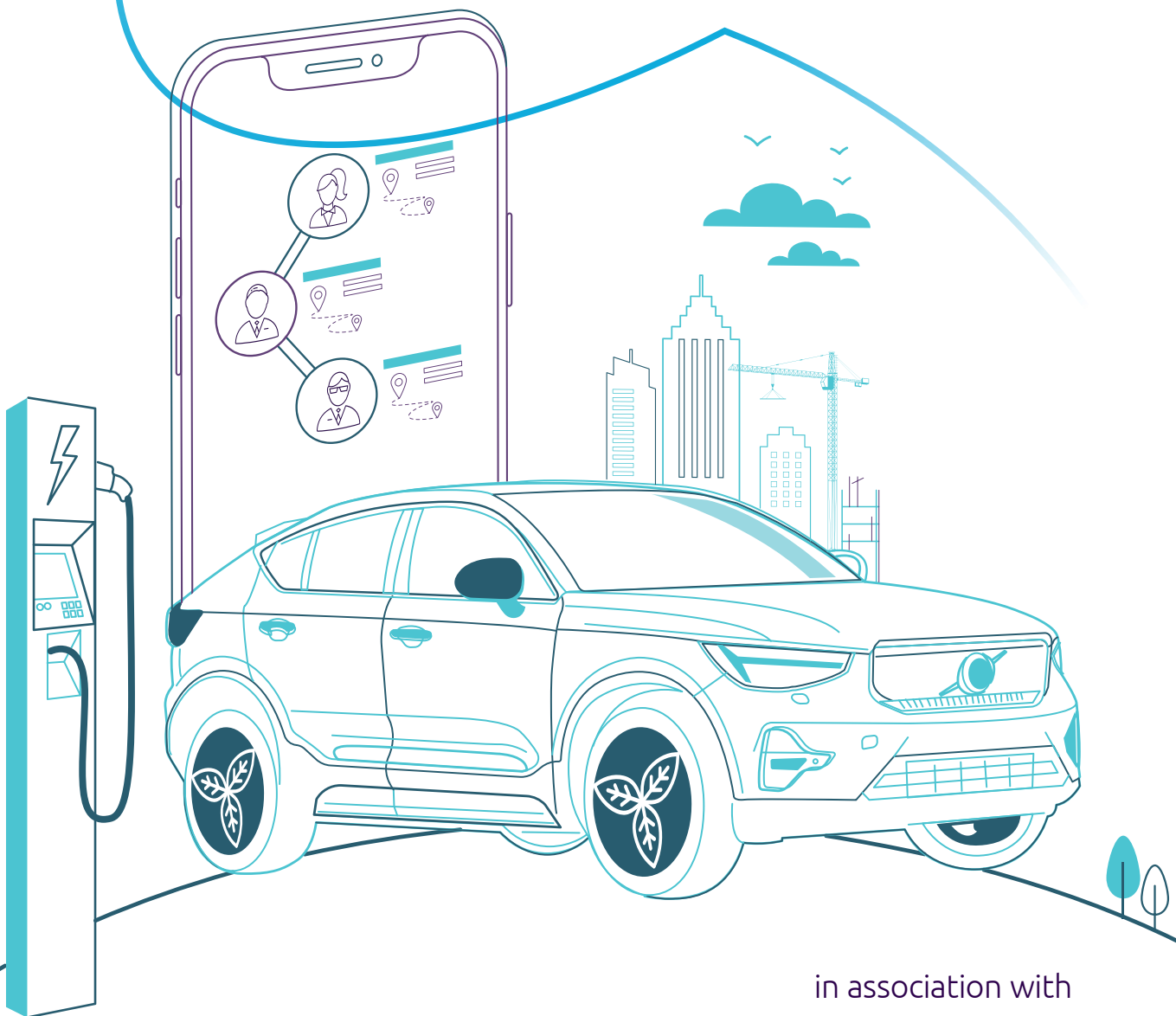


# THE SUSTAINABILITY IMPACT OF CAR SHARING

Value created for cities, property developers,  
companies and consumers

**2021**



in association with

**AI** Volvo Car Mobility

# ABOUT VOLVO CAR MOBILITY

This case study comprises an analysis of Volvo Car Mobility, a wholly owned, independent subsidiary of Volvo Car Group. The company was established in 2017 as a strategic investment aimed at meeting new consumer preferences. The company is headquartered in Stockholm and maintains a local office in Gothenburg. It launched its first service, M, in Stockholm in September 2019. In 2020, it expanded service to nine locations across Sweden.

M is a station-based car sharing service offering urban dwellers and businesses on-demand access to a car, without having to own one. The company does not operate closed stations with restricted access to cars; all customers can use all available cars at all stations. Customers pay for the time they use the cars and the kilometers they drive. The service was initially launched in the Swedish cities of Stockholm, Uppsala, Gothenburg,

Malmö, and is also live in Linköping, Helsingborg, Lund, Mölndal and Trollhättan.

Volvo Car Mobility is focused on modernizing traditional car sharing. Through its vertically integrated mobility platform, it leverages user and operational data to predict demand and continuously improve the availability of the fleet of cars through its dynamic scheduling system, which is driven by machine learning. With this proprietary technology stack, it is able to effectively match a car with a customer's reservation as close as possible to the desired time. This provides an improved customer experience, by automatically providing alternatives, which enables Volvo Car Mobility to operate with both high utilization and high availability. Overall, this reduces the number of cars on city streets.

In this report, the Stockholm region includes Stockholm and Uppsala, the Gothenburg region includes Gothenburg, Mölndal and Trollhättan and lastly the Malmö region includes Malmö, Helsingborg and Lund.

# RECAP OF THE 2020 REPORT

In 2020 we explored the far-reaching sustainability impact of M, the on-demand car sharing service by Volvo Car Mobility. Our research found that each car from Volvo Car Mobility removed up to 8 privately owned cars from the streets of Sweden. This resulted in positive impacts for customers, companies, property developers and cities at large across all three areas of sustainability: environmental, economic and social.

## DURING 2020, THE SERVICE CONTRIBUTED TO UP TO:

**8,200 tons**

of CO2 from tailpipe emissions reduced

**56,400 m<sup>2</sup>**

area of land can be freed up due to a reduction in number of parking spots needed

**430 M SEK**

in reduced construction costs as fewer parking spots need to be built

## ADDITIONAL VALUE VOLVO CAR MOBILITY BRINGS:

- 3.2 M liter of reduction in fuel consumption
- Active customers of a car sharing service tend to drive less in comparison with private car owners
- 3.8 M liters in water savings due to fewer car washes
- Volvo Car Mobility increases the share of new cars
- Improved human safety due to increased number of safe cars in traffic
- Volvo Car Mobility will be a cheaper option than owning a car up to a travelled distance of 7,000-9,000 km/year for consumers and companies
- on the streets. New cars are more fuel-efficient and yield lower emissions than older cars

The report also examined the ways that Volvo Car Mobility contributed to 5 of the 17 Sustainable Development Goals of the United Nations' Agenda 2030.<sup>1</sup>



Goal 3: Good health and well-being



Better public health from fewer and safer cars in traffic



Goal 8: Decent work and economic growth



More time efficiency and less traffic congestion



Goal 11: Sustainable cities and communities



Better utilization of city area with greener infrastructure and more housing



Goal 12: Responsible consumption and production



More efficient use of resources



Goal 13: Climate action



Lower CO<sub>2</sub> emissions

# INTRODUCTION TO THE STUDY

In 2020, we could see that car-sharing services are enabling customers to travel more sustainably, and that each shared car from Volvo Car Mobility removed up to 8 privately owned cars nationally.

One year has passed, during which time newcomers have joined M, and experienced customers have matured their relationship with the service. Volvo Car Mobility's geographical scope has also expanded out from the Stockholm region to regions across Sweden. This growth and expansion to new regions leads to the first two questions of this report:

1. Nationally, how many privately owned cars have been removed from the streets per shared car from Volvo Car Mobility?
2. How many privately owned cars are removed per shared cars from Volvo Car Mobility in the Stockholm, Gothenburg and Malmö regions, and are there any differences between the regions?

After having investigated the number of privately owned cars removed as an effect of Volvo Car Mobility's service, we look deeper into how customers want to access and use a car.

More specifically:

3. What behavioral or lifestyle factors influence a customer's car ownership preferences?
4. What could be done to further increase the number of customers that reevaluate their car ownership preference?

In 2020, a key driver of the sustainability effects of Volvo Car Mobility's service was the number of cars removed due to the service. The environmental, economic and social sustainability effects in Stockholm were quantified.

Compared to 2020, the focus is now expanded to a region-by-region analysis, which raises the question:

5. What are the sustainability effects of Volvo Car Mobility's service in Stockholm, Gothenburg and Malmö respectively?

As sustainable development is a continuous journey, the report aims to explore the future impact of car sharing in a final question:

6. How can car sharing play an even greater role in the transition to a sustainable tomorrow?

Capgemini Invent was commissioned by Volvo Car Mobility, a wholly-owned, standalone venture of Volvo Car Group, to conduct a study that answers these questions. With their extensive database, the company was able to provide the data needed for the intended analysis. In this report, we have investigated the development of key perspectives addressed in last year's report and identified some of the key factors that affect customers' car ownership preferences.



# VOLVO CAR MOBILITY HAS INCREASED THEIR POSITIVE SUSTAINABILITY EFFECTS DURING 2021

In 2020, a wide range of metrics for environmental, social and economic sustainability were quantified. This year, one key metric has been selected within each pillar. Specifically:

- Reduced CO2 emissions (environmental sustainability)
- Freed up space (social sustainability)
- Reduced construction cost (economic sustainability).

## VOLVO CAR MOBILITY'S SUSTAINABILITY CONTRIBUTIONS ARE ENABLED BY ITS PROPRIETARY MOBILITY PLATFORM

All of the benefits discussed are made possible by M's proprietary mobility platform. The mobility platform is what enables Volvo Car Mobility's business model and operations, making sure customers can find a

shared car from Volvo Car Mobility when and where they need it. In a wider sense, the mobility platform is what enables Volvo Car Mobility's contributions to environmental, social and economic sustainability.



# IN 2021, EACH VOLVO CAR MOBILITY CAR REMOVES UP TO 9 PRIVATELY OWNED CARS

In 2021, one shared car from Volvo Car Mobility removes up to 9 privately owned cars from the streets nationally\*, which is a 12.5% increase compared to 2020. In tangible terms, this implies that up to approximately 12,000 privately owned cars have been removed from the streets based on the average shared Volvo Car Mobility fleet size.

This 12.5% growth results from a 10% increase in active M customers while the national shared Volvo Car Mobility fleet size has decreased by 4%. This has been made

possible in part by the algorithms in Volvo Car Mobility's platform. Combined, these changes are the major drivers of the growth from up to 8 to 9 privately owned cars removed per Volvo Car Mobility car.

The next question is how this nationwide improvement breaks down, region by region. Is it a result of homogeneous success across the country, or does the national improvement arise from the success of certain regions?

*Up to 9 privately owned cars are removed from the streets for each Volvo Car Mobility car.*

**≈25%**

of respondents have reevaluated their car ownership preferences and sold a car as a direct effect of their M membership since joining M.

**≈51%**

of respondents have reevaluated their car ownership preferences and will not need to buy a car within the upcoming year as a direct effect of their M membership.

## HOW WE ARRIVED AT THESE NUMBERS

We conducted a customer survey in which we asked active customers about mobility changes since joining M. A customer is defined as active if they have used the service at least 6 times over the last 12 months. Key survey questions related to the reduction and suppression effect, which studies whether customers' car ownership has changed during their time as M customers, and if their M membership contributed to these decisions.

The reduction effect refers to the share of respondents who have reevaluated their car ownership preferences and sold a car as a direct effect of their M membership.

The suppression effect refers to the share of respondents who have reevaluated their car ownership preferences and will not need to buy a car within the upcoming year as a direct effect of their M memberships.

\* "Up to" refers to the maximum effect on the total number of cars on the street. This is due to the fact that avoided car purchases have a direct impact on the number of cars on the street, while sold cars affect the number of cars on the street at the end of the car's life cycle. The national number of cars removed per shared car from Volvo Car Mobility includes all regions where Volvo Car Mobility is active in Sweden.

# REMOVED CARS HAVE A SIMILAR IMPACT ACROSS ALL KEY SWEDISH METROPOLITAN REGIONS

One shared car from Volvo Car Mobility removes up to 9 privately owned cars nationally. Calculated based on each region's shared Volvo Car Mobility fleet size, this results in up to approximately 2,150 privately owned cars in the Malmö region, 3,150 privately owned cars in the Gothenburg region and 6,250 private cars in the Stockholm region removed from the streets as a direct result of M memberships.

Looking more closely, there are slight differences between the regions. In the Stockholm region, up to 9.05 privately owned cars are removed from the streets for each Volvo Car Mobility car, 9.00 in the Gothenburg region and 8.72 in the Malmö region. The Stockholm region reaches the highest number due to its customers having

reevaluated their car ownership preferences the most, while also serving more customer per Volvo Car Mobility car, on average.

When comparing the Gothenburg region and Malmö region, an average customer in the Malmö region reevaluate their car ownership preferences more than a customer living in the Gothenburg region. Despite this, more privately owned cars are removed per Volvo Car Mobility car in the Gothenburg region than in the Malmö region. This is due to a higher fleet utilization in the region. In other words, even though customers in the Gothenburg region are less inclined to reevaluate their car ownership preferences, this is more than made up for by a relatively smaller shared Volvo Car Mobility fleet size.

## NUMBER OF PRIVATELY OWNED CARS REMOVED PER SHARED CAR FROM VOLVO CAR MOBILITY

**9.05**

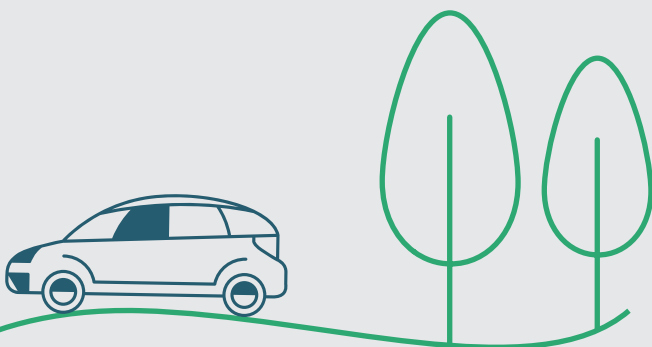
Stockholm region

**9.00**

Gothenburg region

**8.72**

Malmö region



Thus, the number of privately owned cars removed per Volvo Car Mobility car is primarily influenced by two factors: fleet utilization, and customers' decision to reevaluate their car ownership preferences. Why some customer are more willing to reevaluate their car ownership preferences was outside the scope of our 2020 report. This year's report has successfully identified two reasons, which we turn to next.

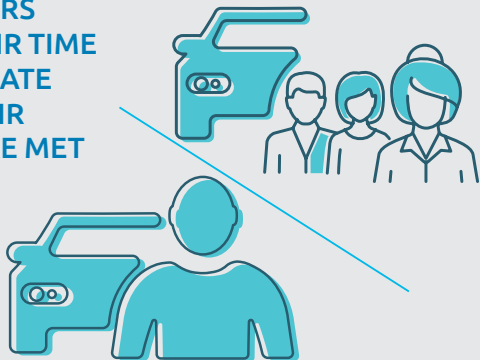
# CUSTOMERS TAKE THEIR TIME TO EVALUATE THAT THEIR NEEDS ARE MET (BUT IT'S WORTH THE WAIT)

One would expect membership time to influence car ownership preferences. And in fact, for the first two years of membership this appears to be true.

The first two years of membership show a positive correlation between length of time as a member and a willingness to reevaluate car ownership preferences. Comparing customers who recently signed up (0-0.5

years membership) to more long-term customers (1.5-2 years) reveals an approximate 30% increase in number of respondents who have reevaluated their car ownership preferences. The most likely explanation for this is that reevaluating car ownership preferences requires time to be sure that all mobility needs are met.

**CUSTOMERS TAKE THEIR TIME TO EVALUATE THAT THEIR NEEDS ARE MET**



*A long-term customer is **≈30%** more likely to reevaluate their car ownership preferences as a direct effect of their M membership.*

Since M launched two years ago, this sets the upper boundary on how this analysis can be generalized. Therefore, this analysis needs to be revisited, to determine if this trend continues beyond the second year of membership.

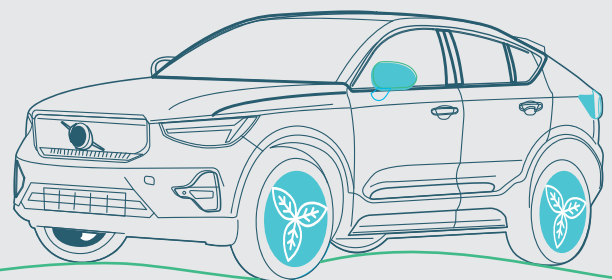




# M STATION PROXIMITY MATTERS IN CUSTOMERS' DECISION TO NOT OWN A CAR

It turns out that proximity to an M station is a strong driver to reevaluate car ownership preferences, but not entirely in the way you would expect. We had predicted that having the M station directly connected to your home would result in a higher likelihood of reevaluating your car ownership preferences. Surprisingly, this turned out not to be the case. In fact, having an M station directly connected to your home or within 50-500 meters does not make a difference.

Less surprisingly, the results show that beyond 500 meters, and as the distance increases, fewer customers reevaluate their car ownership preferences. Therefore, to encourage customers to reevaluate their car ownership preferences, Volvo Car Mobility should strive towards limiting each customer's distance to the nearest M station to 500 meters.



# VOLVO CAR MOBILITY CONTRIBUTES TO HEALTHIER AND MORE SUSTAINABLE CITIES

## CO2 EMISSION REDUCTION

Car sharing brings many other benefits too, as removing cars from the streets reduces CO2 tailpipe emissions. In 2021, Volvo Car Mobility reduced Stockholm's CO2 emissions by up to approximately 8,600 tons, as up to 6,250 private cars were removed from the streets as a direct effect of M membership. For context, 8,600 tons of CO2 is the equivalent of approximately the yearly consumption-based CO2 emissions of 950 Swedes.<sup>2</sup>

Compared to 2020, Volvo Car Mobility's contribution to lowering CO2 emissions improved by 5% in Stockholm. This improvement is a result of an increase in the number

of private cars removed per shared car from Volvo Car Mobility, in combination with an increased shared Volvo Car Mobility fleet size in Stockholm.

In the Gothenburg region, the reduction in CO2 tailpipe emissions reached up to approximately 4,550 tons and in the Malmö region 2,850 tons. In turn, these reductions are the equivalent of approximately 500 Swedes' yearly consumption-based CO2 emissions in the Gothenburg region and approximately 300 Swedes in the Malmö Region.<sup>2</sup>

Up to **16,000 tons** of CO2 tailpipe emissions reduced.

**≈1775** Swedes' yearly consumption-based CO2 emissions<sup>2</sup>.

STREET VIEW OF TODAY

STREET VIEW OF TOMORROW



## POTENTIAL TO RECLAIM SPACE

In the Stockholm, Gothenburg and Malmö regions combined, a total of about 128,000 m<sup>2</sup> (approximately 18 football fields<sup>3</sup>) could be reclaimed for other purposes, such as green infrastructure or living space.

## LOWER CONSTRUCTION COSTS

Lastly, approximately 985 million SEK in construction costs are potentially saved when building for shared mobility. This as fewer parking spots would be required if the total fleet size in the three cities decrease.

All metrics presented in this section have been quantified using the same analysis structure and data sources as in the 2020 report.

# CAR-SHARING HAS THE POTENTIAL TO REMOVE EVEN MORE PRIVATELY OWNED CARS

Although the car has been around for more than 100 years, car sharing as a service is a relatively new concept. Given this novelty, it's interesting to look to the future and consider the different ways this service could evolve. Since sustainability is at the core of Volvo Car Mobility's mission, the key question is: "How could Volvo Car Mobility help customers reevaluate their car ownership preferences to an even larger extent?"

Although a large set of Volvo Car Mobility's customers already feel confident in reevaluating their car ownership preferences, there is a sub-set of customers who have not reached this decision yet. When looking at reasons why these customers have not yet reevaluated their car ownership preferences after signing up for M, the data

reveals a large variety of reasons. This poses a challenge for all car-sharing services. There is no silver bullet; each of these customers will only reevaluate their car ownership preferences when their specific need is addressed.

To serve each sub-set of customers, car-sharing services must focus on continuing to address customers' most challenging obstacles. When this is solved, these customers' mobility need is met, making them feel comfortable enough to reevaluate their car ownership preferences. With this, in combination with policy changes that encourage car sharing, the number of privately owned cars removed from the streets could increase even further.

## A SUB-SET OF CUSTOMERS STILL HAVE NOT REEVALUATED THEIR CAR OWNERSHIP PREFERENCES



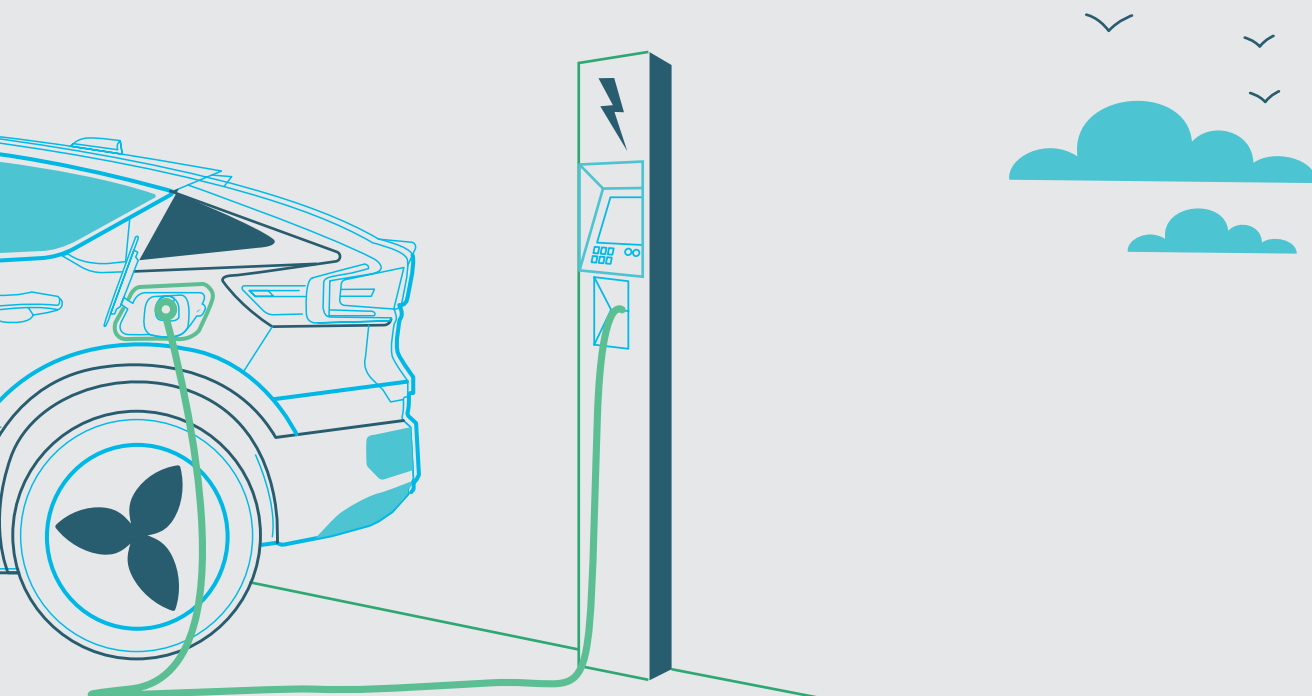
# CAR SHARING ACCELERATES THE SHIFT TOWARDS MORE SUSTAINABLE TRANSPORTATION

In Europe, passenger cars are responsible for around 13% of total CO<sub>2</sub> emissions, and a massive 60.7% of road transportation CO<sub>2</sub> emissions.<sup>4</sup> But while transportation of people is a fundamental part of a working society and economy, emissions of CO<sub>2</sub> are not. Therefore, enabling sustainable transportation is key to creating a sustainable future. This is emphasized by the United Nations' 11th Sustainable Development Goal "Sustainable cities and communities," specifically "Sustainable transportation". In line with this, Volvo Car Mobility's goal for 2022 is to have a shared fleet of plug-in hybrids and fully electric cars.

Transitioning to electric vehicles (EV) moves us one step closer towards sustainable transportation. Although the transition to EVs is speeding up (in total 10.2 million EV cars\* in the world in 2020, and growing by 56% yearly between 2014 and 2020)<sup>5</sup>, there is a long road ahead to replace today's approximately 1.4 billion cars globally<sup>6</sup>.

Wide-spread adoption of EV faces several obstacles. When people were asked what held them back from purchasing an EV car, the most common reasons were "Not enough public charging stations" (48%), "Purchase price" (43%) and "Insufficient driving range" (42%)<sup>a7</sup> – all three of which are solved by car sharing.

Car sharing companies, like Volvo Car Mobility, could partner with charging infrastructure stakeholders to secure a charging network that enables the sharing of electric cars. Station-based shared cars have one additional advantage – by building charging infrastructure into their car stations, they can provide fully-charged EV cars that are ready-to-go. As for the purchasing price, there is no up-front cost for the customer since Volvo Car Mobility provides a subscription-based car fleet. Lastly, the concern regarding driving range diminishes as EV's battery capacity improves.



\* Including BEV (battery electric vehicle) and PHEV (plug-in hybrid electric vehicle).

# IN CONCLUSION

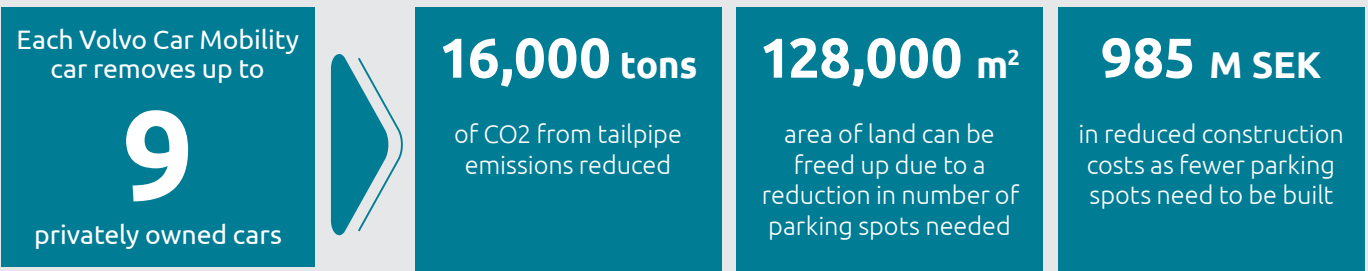
In 2020, we could see that each shared car from Volvo Car Mobility removed up to 8 privately owned cars nationally. In the last year this number has increased by 12.5%. In 2021, each shared car from Volvo Car Mobility removed up to 9 privately owned cars from the streets, both nationally and within the Stockholm, Gothenburg and Malmö regions.

As the usage of M has grown, so have its positive sustainability effects. In the Stockholm region, Volvo Car Mobility's contribution to reduced CO2 tailpipe emissions improved by 5% compared to 2020. In total, up to 16,000 tons of CO2 from tailpipe emissions were reduced during 2021. In addition, approximately 985 million SEK were

potentially saved in construction costs, and about 128,000 m<sup>2</sup> of land could be reclaimed for other purposes in the three cities combined.

Volvo Car Mobility's impact could be accelerated even further. Firstly, by fulfilling the car mobility needs for even more customers, and thereby make them feel comfortable enough to reevaluate their car ownership preferences. Secondly, Volvo Car Mobility can support customers' transition to EV by removing their most commonly cited obstacles. In that way, Volvo Car Mobility can accelerate the transition towards a more sustainable tomorrow.

## DURING 2021, THE SERVICE CONTRIBUTED TO UP TO:



# FURTHER COMMENTS ON THIS ANALYSIS

Having focused on the value and positive effects of Volvo Car Mobility's car-sharing service, this section aims to address some important notes.

This report does not set out to be a complete analysis of car sharing at large, but rather to build upon and add to last year's report\*. This report's insights are formulated from surveyed customers of Volvo Car Mobility, meaning the insights are not necessarily generalizable for customers of other car sharing services. Instead, these insights should be interpreted as a result of Volvo Car Mobility's business model, mobility platform and operations.

Car sharing will not automatically ensure completely sustainable mobility. Car sharing can best be seen as a key part of a multi-modal solution in the future. In line with

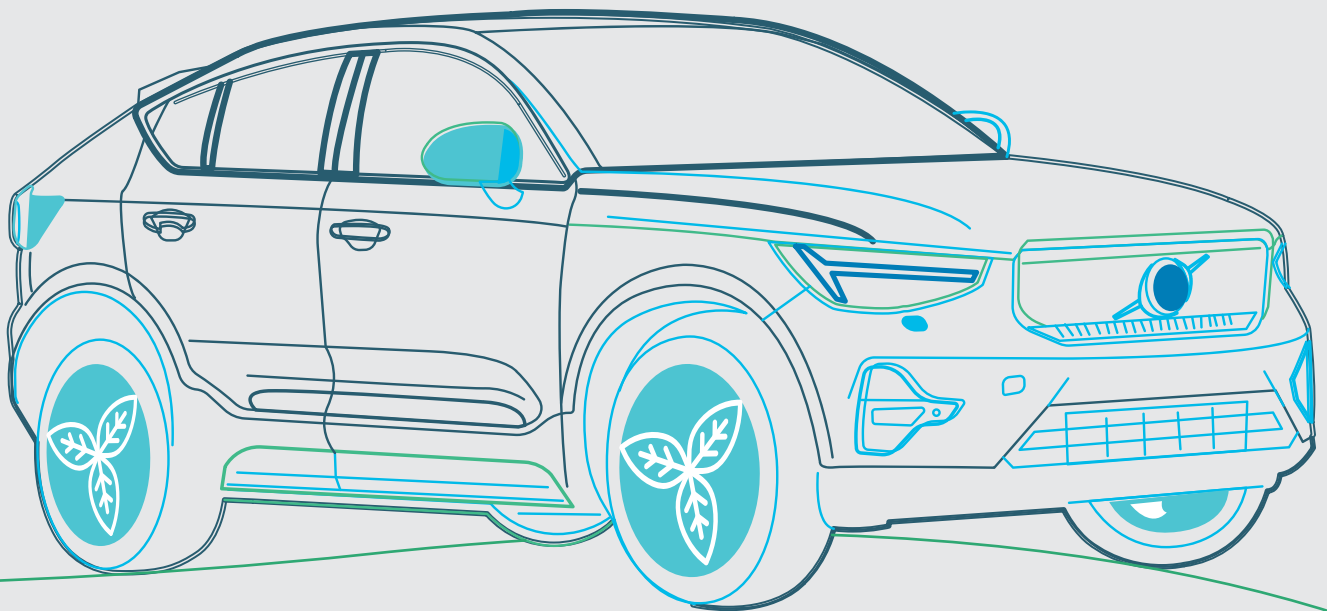
this, Volvo Car Mobility customers cannot book a shared car from Volvo Car Mobility for less than one hour. This ensures that for traveling shorter distances, M customers utilize other types of mobility, such as walking, cycling or public transportation.

Moving on, although EVs do deliver a cleaner type of traveling compared to petrol or diesel cars, EVs are currently not a silver bullet that enables 100% clean passenger transportation. A circular use of resources and renewable energy sources is required for EVs to become fully sustainable.

This report demonstrates how the use of car sharing services continues to remove even more cars from the streets. This raises questions about the parking norms in metropolitan areas which may be well worth revisiting.



\* [Here you find last year's report.](#)



# APPENDIX

## METHODOLOGY

### ABOUT THE SURVEY

We surveyed 10,923 active private customers nationally. Active customers are defined as customer who have used Volvo Car Mobility at least 6 times during the last year. The total number of responses was 1,797, which corresponds to a response rate of 16.4%. Respondents were asked questions on car ownership and driving behavior before and after using M.

### METHODOLOGY TO CALCULATE THE NUMBER OF PRIVATELY OWNED CARS REMOVED PER SHARED CAR FROM VOLVO CAR MOBILITY

To be able to calculate how many privately owned cars are removed per shared Volvo Car Mobility Car, customers have been surveyed on changes in their private car ownership since joining M. When constructing the survey, two aspects are important to consider. Firstly, who to send the survey to, and secondly, how many customers to apply the survey's results to.

The most optimistic approach is to only include the most active customers in the survey, and then apply the survey's results to the entire customer base. This report has taken a more restrictive approach, by only including active customers in the survey and applying the results to active customers only. This is the same approach as was adopted in the 2020 report.

Respondents were asked questions as to whether they sold a car due to their M membership, as well as whether they were planning to buy a car within the next year but changed their minds. The respondents who said they have reevaluated their car ownership preferences were also asked whether their membership contributed towards the decision to reevaluate their car ownership preferences. Respondents could also indicate if they had sold a car or changed their intentions to buy a car for reasons other than their membership. There were in total 458 privately

owned cars sold and 920 avoided car purchases due to M memberships. The sum of these numbers (1,378) was then divided by 1,797, the total number of responses. This gave the average number of privately owned cars removed from the street per respondent (0.767).

We applied this factor to the survey base of 10,923 active private customers. Customers are defined as active if they had used the service at least 6 times in total over the 12 months. This scaled factor was then divided by the size of the shared Volvo Car Mobility fleet (1337) to obtain the number of privately owned cars replaced by each Volvo Car Mobility car. Since the survey only includes private use of the service, the vehicle fleet was adjusted based on the share of booking time made by Volvo Car Mobility's active private customers (0.709). The suppression effect was included in our calculations since car sharing services also reduce the number of privately owned cars bought in the future. When quantifying the suppression effect, the assumption was that each customer who expressed that they avoided buying a car as a direct result of their M membership suppressed a total of one car.

The time frame used in the analysis is 2020-11-01 to 2021-10-01 unless otherwise stated.

### ASPECTS TO CONSIDER WHEN CALCULATING HOW MANY PRIVATE CARS ARE REMOVED PER SHARED VOLVO CAR MOBILITY CAR

Aspects	Most optimistic methodology	Our methodology
Which customers are surveyed	Only the most active customers are included	Active customers, who have used M at least 6 times within the last 12 months
Which customers are the survey's results applied to	Entire customer base	Active customers only
Implication of methodology	Higher number of cars removed per shared car	Lower number of cars removed per Volvo Car Mobility car



## CALCULATION OF NUMBER OF PRIVATE CARS REMOVED PER SHARED CAR FROM VOLVO CAR MOBILITY

Variable	Nationally	Stockholm region	Gothenburg region	Malmö region	Other regions
Total survey base	10,923	5,648	3,045	1,913	
Total number of responses	1,797	957	479	302	
Number of cars owned by active members sold due to their membership	458	253	114	82	
Respondents that avoid buying a car due to their membership	920	525	228	142	Included on national level, but not analyzed on a regional basis
Reduction effect	25.49%	26.44%	23.80%	27.15%	
Suppression effect	51.20%	54.86%	47.60%	47.02%	
Total number of cars sold and avoided car purchases by survey respondents	1,378	778	342	224	
Average number of cars in the shared Volvo Car Mobility fleet over the analysis time horizon	1,337	697	350	239	
Share of booking time by private customers	0.709	0.728	0.691	0.681	
Number of private cars removed per shared car from Volvo Car Mobility	8.84	9.05	9	8.72	-

The reduction effect refers to the share of respondents who have sold a car as a direct effect of their M membership since joining M.

The suppression effect refers to the share of respondents who will not need to buy a car within the upcoming year as a direct effect of their M membership.

## METHODOLOGY TO CALCULATE THE SUSTAINABILITY EFFECTS

All three sustainability effects presented in this report have been calculated using the same analysis structure as in the 2020 report.

### LIMITATIONS OF THE STUDY

Some limitations exist in these findings.

Firstly, the impacts of Volvo Car Mobility on respondents are self-reported. However, since the respondent is the most knowledgeable as to whether their membership decreased their car ownership or not, this limitation is unavoidable.

Secondly, results reflect the estimated impact on individuals who have used the service at least 6 times within the last 12 months. This is because active customers are more likely to change their car ownership relative to the general population.

Lastly, when calculating the total number of privately owned cars sold and avoided car purchases per survey respondent, we included both the number of cars sold and the number of avoided car purchases. However, potential double counting among respondents has not been taken into consideration. Double counting could potentially occur when respondents indicate that they both sell and avoid a car purchase. Since we do not know whether the respondents would have both kept their current car and bought another one in the absence of Volvo Car Mobility, we decided not to consider this, but rather to see it as a limitation in the calculation methodology.

### RESEARCH METHODOLOGY

The sourcing of the report has been done by conducting extensive research between October and November of 2021, during the COVID-19 pandemic. We have combined external data, such as industry reports and national statistics, with internal data provided by Volvo Car Mobility, to obtain credible and nuanced results.

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## About Capgemini Invent

As the digital innovation, design and transformation brand of the Capgemini Group, Capgemini Invent enables CxOs to envision and shape the future of their businesses. Located in more than 36 offices and 37 creative studios around the world, it comprises a 10,000+ strong team of strategists, data scientists, product and experience designers, brand experts and technologists who develop new digital services, products, experiences and business models for sustainable growth.

Capgemini Invent is an integral part of Capgemini, a global leader in partnering with companies to transform and manage their business by harnessing the power of technology. The Group is guided everyday by its purpose of unleashing human energy through technology for an inclusive and sustainable future. It is a responsible and diverse organization of over 300,000 team members in nearly 50 countries. With its strong 50-year heritage and deep industry expertise, Capgemini is trusted by its clients to address the entire breadth of their business needs, from strategy and design to operations, fueled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering and platforms. The Group reported in 2020 global revenues of €16 billion.

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