Final report

ANALYSIS OF THE IMPACTS OF CAR-SHARING IN BREMEN, GERMANY

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A note on terminology:
The term ‘car-sharing’ in British usage is synonymous with ‘ride-sharing, carpooling, or lift-sharing’ in US usage. The term ‘car-sharing’ in US usage is synonymous with ‘car clubs’ in the UK. In the present study, which is otherwise in British English, the term ‘car-sharing’ is used in the American sense, which is also prevalent in mainland Europe.

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FOREWORD: CONTINUOUS DEVELOPMENT OF CAR-SHARING IS PAYING OFF

Willi Loose, Executive Director, *Bundesverband CarSharing e.V.* (*bcs*, Federal Car-sharing Association)

The *Bundesverband CarSharing e.V.* is very pleased with and interested in the findings of the present study. Its results impressively confirm—once again—how station-based car-sharing reduces traffic and demonstrate that large numbers of car-sharing users still see no need to own a car. From our perspective, it confirms that the greatest achievements of car-sharing are reducing traffic and freeing up urgently needed on street parking spaces. Car-sharing reliably offers users the mobility by car they desire whenever other means of transport are not fitting alternatives.

We thank *team red* for including car-sharing providers' insights in the survey methodology and asking about households' car ownership in the year prior to joining car-sharing for the first time. The result confirms the result of *bcs*'s own 2015 study of twelve major cities, namely that many people switch to car-sharing only when their own cars have reached the end of their lives or when they decide to no longer own a car for other reasons. Although the fact that most users made that decision 'a few weeks / directly prior to registering' for car-sharing does not prove that the existence of car-sharing opportunities was the direct reason for no longer owning a car, we do know from other studies that the decision to no longer own a car or to refrain from buying a new one is the outcome of a complex process. In this respect, it is unnecessary to determine whether car-sharing played a 'very large,' 'large,' or 'relatively large' role in the decision to no longer own a car, or whether it was 'merely one factor'. What matters is that car-sharing users show great satisfaction with their everyday mobility and the alternative they have to their households owning a car. In this way, they are stabilised long-term in a lifestyle without a car of their own.

This study also confirms that participation in car-sharing does not decrease the use of public transport or bicycles. On the contrary, car-sharing members use public transport and bicycles more often after joining car-sharing. This is documented even more clearly in the case of those car-sharing users who no longer have a car of their own.

We are particularly pleased with the following two partial findings since no other study of car-sharing has elaborated them so clearly. For this we thank *team red* for conducting the study and Bremen's Senator of Environmental Affairs *(Senator für Umwelt, Bau und Verkehr)* for commissioning it.

The first is the spatial differentiation at the neighbourhood level of rates of replacing a privately owned car with car-sharing vehicles. Car-sharing providers know that customer density is much higher in urban neighbourhoods close to the city centre than in neighbour-

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hoods closer to the periphery. The correlation of car ownership and density has never been studied in such detail before. Of course, this also means that in areas where the shortage of parking spaces is most acute and where car-sharing providers are often unable to rent private land for car-sharing stations, it is most urgent to establish parking spaces reserved for car-sharing on public roads. This has been common practice in Bremen for a long time in the form of the '*mobil.punkte*'—intermodal mobility hubs—and even more so the '*mobil.pünktchen*,' their smaller version. The study provides impressive evidence for the fact that the space for these hubs is not taken away from other drivers. On the contrary, they benefit from a measure in the neighbourhood that very effectively lessens pressure on parking spaces.

The other new insight from this study is that car-sharing users select destinations for shopping close to their places of residence more often than before, thereby contributing to the vibrancy and economic health of their neighbourhoods. This is also a finding from previous surveys conducted by the Munich public transport service *MVV* among customers of *Stattauto* car-sharing in Munich. However, the present study has evidenced this fact for traffic in relation to shopping more clearly than ever before.

The findings underline the achievement on the part of the Bremen car-sharing providers of demonstrating long-standing continuity and reliability to their customers. Satisfaction with car-sharing opportunities is very high.

Political support for car-sharing has long been an integral component of municipal transport policy. From the beginning, the Federal State of Bremen has been a political ally of *bcs* in its efforts to make car-sharing stations on public land approvable.

Bremen has long established '*mobil.punkte*' and '*mobil.pünktchen*' as car-sharing stations on public roads. In so doing, Bremen pioneered the model of making public land available to station-based car-sharing as a 'special land use'. No less than 14 years passed before the federal legislature created a comparable regulation at the federal level in 2017 in the form of the *Gesetz zur Bevorrechtigung des Car-Sharing* (CsgG, Car-sharing Prioritisation Act), which can now be implemented with legal certainty by other municipalities. We hope that many municipalities that have been hesitant to date consider the present study evidence for the fact that by supporting their local car-sharing opportunities and by establishing parking spaces reserved for car-sharing on public roads, they will create stronger incentives for considerably reducing private car ownership as well as traffic.

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1. EXECUTIVE SUMMARY

Positive impacts of car-sharing in Bremen can be determined in terms of reducing traffic: car-sharing users own fewer private cars, and they make fewer trips by car and more trips with environmentally friendly modes of transport such walking, bicycling and public transport .

The present report summarises the findings of the evaluation of car-sharing in Bremen conducted in 2017. The study is based on an online survey of 1,563 users of the two car-sharing providers *cambio* and *Move About*. In addition, a representative survey of the general population of Bremen was conducted by telephone and online with 502 participants.

Every car-sharing vehicle in Bremen replaces 16 privately owned vehicles or prevents their purchase.

When the surveys were conducted in August 2017, 301 vehicles were available for the 13,533 customers registered with *cambio*. *Move About* had 16 vehicles for 316 customers. Approx. 32 % of the *cambio* customers surveyed and approx. 22 % of the *Move About* customers stated a reduction in the number of privately owned cars because of car-sharing. In addition, 44 % (*cambio*) and 26 % (*Move About*) of respondents stated they had decided not to purchase a car of their own because of car-sharing.

When various bias correction factors are applied to the survey data, it emerges that 16 vehicles (seven vehicles no longer owned and nine vehicles not purchased) correspond to each vehicle used for car-sharing in Bremen.

Overall, the car-sharing opportunities studied account for approx. 5,000 fewer vehicles taking up space on Bremen's streets and parking spaces.

Member surveys allow us to state with a high degree of confidence that car-sharing in Bremen has already contributed to a reduction of more than 2,300 privately owned cars. The surveys also show that car-sharing has contributed to people deciding not to purchase more than 2,700 vehicles, in addition to the reduction of privately owned cars.

The most frequently mentioned motives for no longer owning a vehicle are the costs and the time and effort for vehicle maintenance, the fact that vehicles are not economically viable, and environmental protection.

The survey also revealed that if car-sharing were abolished, the car-sharing users' households would own roughly as many cars as average households in Bremen in the medium to long term—the reduction effect would be lost.

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The kilometres travelled by car in a 'car-sharing household' are more than 50 % lower than in an average household in Bremen.

This is clearly confirmed by comparing the findings of the sample of car-sharing users with the control group. Trips taken with car-sharing vehicles are taken into account in the comparison.

When a private household no longer owns a car, its members use environmentally friendly modes of transport for three quarters of the trips previously taken by private car.

In cases where private households no longer own cars because of car-sharing, especially distinct displacement effects emerge. The trips previously taken by private car are then taken on environmentally friendly modes of transport.

Car-sharing contributes to reducing parking demand.

Beneficial effects of car-sharing on parking arise both from the shorter periods when car-sharing vehicles are parked and from the fact that fewer vehicles are owned and others have not been purchased. In neighbourhoods close to the city centre with stronger parking pressure, higher rates of households no longer owning a car are to be observed than in neighbourhoods located farther from the city centre.

Systematic integration of car-sharing opportunities in new housing developments also enables more cost-effective building, since the regulations already in force require fewer parking spaces, which are expensive.

Households tend to sell or scrap their cars (without purchasing new ones) before joining car-sharing.

As a rule, households sold or scrapped their cars just before registering with a car-sharing provider. This underlines the significance of approaching potential new users in periods of transition, e. g., when replacing an old vehicle or relocating.

Car-sharing gives people a reliable and easy-to-use way to participate in transport by car.

Car-sharing also enables the citizens of Bremen to participate in transport by car even without having to own a car. Following the idea of 'use it, don't own it', automobile use is possible at costs lower than those calculated by the ADAC (*Allgemeiner Deutscher Automobil-Club*, German Automobile Association) for the fixed costs of private vehicles[1]; in other words, car-sharing enables even people with lower incomes to drive cars when they need it for less money.

The analyses show that overall, current users are highly satisfied with the existing car-sharing opportunities. They consider three aspects particularly important: a straightforward booking process (simplicity), the availability of vehicles when desired (reliability), and proximity to the nearest station (convenience).

Whereas the booking process and the availability of vehicles at the stations are the responsibility of the car-sharing providers, the importance of proximity confirms the long-stand-

1 Cf. https://www.adac.de/_mmm/pdf/TOP10-Autokosten-Kleinstwagenklasse_48953.pdf

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ing approach in Bremen, namely bringing car-sharing opportunities closer to the city's residents by making car-sharing opportunities available in the form of a large number of *mobil.punkte* and *mobil.pünktchen*—larger and smaller intermodal mobility hubs.

Compared with the general population, car-sharing users shop significantly more often in their neighbourhoods and significantly less often at shopping centres. The lifestyle associated with car-sharing makes an important contribution to strengthening local retailing.

The present study is the first to analyse the link between car-sharing usage and consumer behaviour. The results of the analysis furnish clear evidence that car-sharing users more frequently use environmentally friendly modes of transport when they shop, and that that they shop in their neighbourhoods more often.

Round-trip car-sharing does not get people 'hooked' on driving cars.

This is evidenced by lower car ownership rates, the lower shares of the modal split for motorised individual transport as compared with the control group, and the lower average number of trips with car-sharing vehicles. On the contrary, car-sharing is an important building block for shifting traffic to environmentally friendly modes of transport.

Car-sharing makes an important contribution to climate mitigation and air pollution prevention.

This is evidenced by the considerable reduction of the vehicle stock and the accordingly significantly lower car ownership rates among car-sharing users mentioned above, the proven shift of trips to environmentally friendly modes of transport when the number of (privately owned) cars has been reduced, and the significantly lower shares of the modal split for motorised individual transport, compared with the control group. Moreover, the reduced need for parking spaces is an important contribution to environmental protection and other improvements.

In addition, the environmental burden is reduced by the following factors:

- Fewer vehicles are required overall, resulting in lower pollution from energy generation, raw material consumption, and production of the vehicles.
- In comparison, the users drive less overall.
- The newest vehicle technology is in use because of the relatively low average age of the fleet.

On the basis of the findings, the approaches taken in Bremen can be considered successful and a model for cities of comparable size and structure.

This can be seen, among other things, by the fact that car-sharing is well-known in Bremen: approx. 85 % of the residents surveyed indicated that they knew about car-sharing opportunities. In a comparable survey in Munich in 2013, *team red* found that 73% of respondents were familiar with car-sharing.

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2. RECOMMENDATIONS FOR ACTION

2.1. Overview

The following recommendations are oriented toward the goal of reaching at least 20,000 car-sharing users in Bremen by 2020, as formulated in the Car-sharing Action Plan (2009) and supported by the *Verkehrsentwicklungsplan Bremen 2025* (VEP, Transportation Development Plan Bremen 2025). This will require not only increasing demand in existing target groups, but also attracting **new target groups**. The survey of the control group showed clearly that considerable potentials exist, for example among those Bremen residents driving their private cars significantly less than 10,000 km per year.

The recommendations derived from the survey are summarised in Table 1. It shows which stakeholders are the relevant partners for each recommendation. The individual fields of action are explained in more detail in section 2.2.

	RECOMMENDATION	TOPIC	ACTORS
1	**Expand the decentralised structure of stations**	Continue to focus on increasing the number of *mobil.punkte* and especially the small, decentralised *mobil. pünktchen*	**Municipality**: Planning and permissions, make public space available in areas of greatest car-sharing demand and opportunity, **Car-sharing providers**: Operate the car-sharing system, obtain private parking spaces where available; identify and communicate to the municipality the areas of greatest car-sharing opportunity
2	**Expand to additional neighbourhoods**	Expand the area served by station-based car-sharing, specifically targeting additional suitable neighbourhoods	**Municipality**: Planning and permissions, make space available, enable economical operation by (temporarily) granting more favourable conditions **Car-sharing providers**: Operate the car-sharing system, obtain private parking spaces (Housing industry: Integrate in new construction projects)
3	**Continue to expand the infrastructure for bicycle and pedestrian traffic**	Take the close connection between car-sharing and bicycling into account when expanding stations Ensure good access to the stations for pedestrians	**Municipality**: Plan and construct infrastructure

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	RECOMMENDATION	TOPIC	ACTORS
4	**Vigorously encourage cooperation between the housing industry and car-sharing**	Link sustainable, multimodal mobility and housing in existing and new housing developments, approach and inform (future) residents about car-sharing opportunities	**Municipality**: Advise the housing industry on implementing the *Stellplatzortsgesetz* (StellplOG, Bremen's local law on parking space requirements) **Housing industry**: Integrate car-sharing in construction projects in their own commercial interest **Providers**: Operate the car-sharing system
5	**Establish cooperation with local retailers**	Establish car-sharing stations in cooperation with local retailers and at their locations	**Local retailers:** Make parking spaces available for car-sharing/Support such parking spaces **Providers**: Operate the car-sharing system, approach local retailers **Municipality:** Approach local retailers in a targeted fashion and supporting cooperation
6	**Put communication strategies into practice and approach residents currently not using car-sharing**	Continue ongoing campaigns	**Municipality:** Conduct additional campaigns **Providers/Public transport operators:** Cooperation partners for campaigns
7	**Take advantage of periods of transition**	Identify suitable periods of transition and appropriate communication channels to approach people in a targeted fashion, for example: new residents family formation people transitioning to retirement owners of older vehicles	**Providers**: Identify target groups and suitable communication channels **Municipality:** Financial and other support (coordination)
8	**Integrating car-sharing in corporate mobility management**	Integrate car-sharing opportunities in corporate mobility management measures	**Providers/Local public transport operators:** Approach business customers, make targeted packages available as part of cooperation arrangements **Municipality:** Support, taking on a pioneering role **Chamber of Commerce, Chamber of Trade, Chamber of Labour** Provide information and advice to members

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	RECOMMENDATION	TOPIC	ACTORS
9	**Further optimise customer processes**	Continue to simplify member joining and vehicle usage processes and to lower barriers to access	**Providers:** Review current processes and identifying potential for optimisation
10	**Review one-way options**	Expand the existing car-sharing opportunities by adding spontaneous use from one station to another	**Municipality:** Review whether the increased space this would require can be made available **Providers**: Review whether this can be implemented

Table 1: Overview of recommendations for action

2.2. The findings in detail

1. **Expansion of the decentralised structure of stations:** The analyses show very clearly that the **proximity of the car-sharing stations to the users' residences** is of **decisive importance** for the observed success of the car-sharing opportunities in Bremen. Intensively **continuing** the approaches already implemented, namely ***mobil.punkte*** and especially the smaller, decentralised ***mobil.pünktchen***, is recommended in terms of strategic planning measures. The approaches already pursued are endorsed by the definition of car-sharing as a 'permissible special use' in the (German Federal) Car-sharing Prioritisation Act.

2. **Expansion to additional neighbourhoods:** In this context, the area served by station-based **car-sharing should be expanded, specifically targeting additional suitable neighbourhoods**, in order to achieve the best possible coverage with car-sharing stations long-term. An additional report was prepared on this matter.

   It must be taken into account that stations in lower density neighbourhoods farther from the city centre are financially less attractive for providers. Because of smaller numbers of users and less frequent use, it is more difficult in these areas to generate sufficient revenues that cover costs. This is already accounted for in Bremen today by differentiated fees for using public parking spaces. This system should be continued as a matter of principle. In addition, it should be reviewed whether further **fee reductions, as an incentive to expand the network of stations**, are feasible, potentially for a limited period of time and/or resulting in differentiated fees.

3. **Additional expansion of the infrastructure for bicycle and pedestrian traffic:** The **close linkage of car-sharing and bicycle usage** in Bremen should continue to be taken into account in the future when the number of car-sharing stations is further expanded. The customer survey showed that for the large majori-

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ty of **car-sharing customers** in Bremen, the **bicycle** is the means of transportation forming the **basis of their mobility**. For this reason, promoting bicycle traffic amounts to indirect promotion of car-sharing. That is why we recommend **continuing to promote bicycle traffic in Bremen as best possible**, for example by intensifying the establishment of bicycle parking facilities at the *mobil.punkte* and *mobil.pünktchen*, which has already been initiated.

Approx. 80 % of the surveyed car-sharing users stated that they reached the car-sharing vehicle on foot. Thus, pedestrian infrastructure is also of great importance, especially in the direct surroundings of the car-sharing stations.

4. **Cooperation between the housing industry and car-sharing:** The **housing industry** can also benefit from the car-sharing opportunities available in Bremen. For one thing, each car-sharing vehicle replaces seven privately owned vehicles, for another, the *Stellplatzortsgesetz* (Bremen's local law on parking spaces) permits developers to provide fewer parking spaces if they can present a suitable mobility concept. This enables the housing industry to build residential units at lower cost. For this reason, it is in **developers' own commercial interest to offer car-sharing providers parking spaces** in new residential developments.

   In addition, residents do not have to cover the fixed costs of maintaining vehicles. Viewed together with enabling lower construction costs, cooperation between the housing industry and car-sharing providers should also be considered an important social policy task to be accomplished.

5. **Cooperation with retailers**: The present evaluations show that **car-sharing users shop locally more often**, using environmentally friendly modes of transport more often for this purpose, and generally do not purchase large amounts of goods at car-oriented shopping centres. That is why local retailers should be approached in a targeted fashion and included in the further development of car-sharing opportunities. **Win-win situations for retailing and urban development** are to be expected here; one successful example is the cooperation between car-sharing provider mobility and retailer *MIGROS* in Switzerland.

   Their customers often shop when collecting or dropping off a vehicle at a station by a retailing outlet. This includes both planned shopping trips, for example for large amounts of goods which can be transported home conveniently with the car-sharing vehicle, and spontaneous purchases when collecting or dropping off the vehicle. And if such spontaneous purchases are larger than expected, the existing car-sharing opportunity is available for transporting them home.

   Overall, the experience in Switzerland shows that an existing **car-sharing** opportunity located directly adjacent to retailers functions like an instrument to **accelerate purchases**. Retailers can also use their active involvement for sustainable urban mobility to **enhance their image**.

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6. **Communication strategies**: Although 79 % of the respondents in the control group fundamentally consider car-sharing a good idea and almost four out of ten respondents with a driver's license in Bremen could imagine using car-sharing, at the same time **many people lack knowledge** about the existing car-sharing opportunities. More than half are unfamiliar with the prices, and 39 % do not know what they would have to do to access car-sharing vehicles.

   Even today, various communication efforts exist, such as the UDO campaign[2]. The City of Bremen is promoting car-sharing through the UDO campaign, including a promotional video available on YouTube[3], among other places. Continuing such **communication strategies** long-term is recommended. They can **address and activate the potentials** mentioned above.

7. **Taking advantage of periods of transition:** In this context, the ongoing campaigns and activities in **marketing for new residents of Bremen are to be continued and expanded, as appropriate**. Opportunities for additional promotion of car-sharing are seen in identifying suitable periods of transition and appropriate communication channels tailored to them. Ways to approach **people transitioning to retirement or starting a family** as well as **owners of older vehicles** should be considered.

   This matter will be discussed in more depth in section 2.3 because of its fundamental significance.

8. **Corporate mobility management:** People commuting to work and back home by car are responsible for a considerable amount of traffic in cities. Besides many small and medium-sized enterprises, numerous major businesses are located in Bremen. Hospitals and the university are major employers as well.

   The survey showed that just 9 % of **trips to work by car were taken by car-sharing users**; this figure is far below the **corresponding value** for the control group (45 %). A marked reduction of trips to work by car is to be expected through targeted integration of (corporate) car-sharing within the context of corporate mobility management measures (potentially in the context of the existing *Partnerschaft Umwelt Unternehmen* (PUU, Partnership Environment Businesses) in Bremen).

   Numerous tried and tested models of corporate car-sharing exist for company car fleets / business-related travel. In addition, the EU Corporate Social Responsibility Directive, which includes ecological and social aspects, has been in force since 1 January 2017, affecting businesses with total assets of more than 20 million euros.

2 UDO stands for: '**U**se it, **D**on't **O**wn it'.
3 https://www.youtube.com/watch?v=ocwVYNvs340

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We also recommend taking advantage of the PUU to promote car-sharing in Bremen. Especially the companies involved in the PUU initiative[4] come into question here.

It would be ideal to recruit companies to invest in car-sharing, thus enabling car-sharing providers to expand their operations at reduced risk.

9. **Further optimising customer processes:** The **aspects most important** to the surveyed users include **straightforward booking processes, good availability of vehicles when desired, and easy-to-use vehicles** Users were highly satisfied with all these aspects. In order to maintain these high values for satisfaction and to recruit new customers, we recommend examining the existing customer processes in terms of the following:
   - Whether the car-sharing system can be made easier to use (for example, through new, expanded functionalities of an app or the like),
   - Whether barriers to access can be identified, and how these might be lowered,
   - Whether temporary trial memberships without registration fees are feasible.

10. **Reviewing one-way options:** Some **customers** mentioned **one-way and free-floating options as desirable expansions of car-sharing opportunities** in addition to the current station-based options in the surveys: 10 % of the surveyed users asked for these options, without being prompted by predefined answers.

    Car-sharing providers in some cities have complemented the station-based car-sharing opportunities with free-floating ones (for example *Joe-Car* in Mannheim, *cityflitzer* in Frankfurt/Main, and *flow>k* in Osnabrück). A comparable study by *team red* on the combined car-sharing opportunities—station-based as well as free-floating—in Osnabrück shows: this type of expansion make the car-sharing opportunities themselves more attractive, even for customers who use the station-based cars only.

    On the other hand, it should be taken into consideration that operation of such a car-sharing model faces significant obstacles. One-way car-sharing means driving from one station to another. It is necessary to have more spaces than vehicles at the stations to have free spaces available at all times. This massively increases the need for space and should therefore be viewed critically for locations in the city centre.

    Car-sharing providers and the municipality should critically review for the case of Bremen
   - Whether some of the vehicles (for example, a selected vehicle category) can explicitly be made available for rentals without prior reservations and without

4 The partnership was established by the Senator for Environment, Construction, and Transport. Its goal is to support companies in Bremen and Bremerhaven in profitably integrating sustainable economic activity in their everyday operations. The partnership encompasses targeted advice, specialised events, and meetings of partners for exchanging knowledge and experiences.

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predetermining the duration of the rental in order to increase the perceived availability of vehicles,
- Whether station-to-station car-sharing options can be established for certain vehicle categories, for example compact (electric) cars, and also for a selected vehicle category, potentially limited to selected stations,
- Whether it is possible to expand the stations in areas accessible to the public—also in light of the limited road space available in some locations, and
- Which measures would be required to prevent trips within the city, which are ecologically harmful.

2.3. Intensifying communication in periods of transition

The surveys show that approximately two thirds of households that **no longer own a car** made that decision **prior to** registering for car-sharing. Moreover, many people switch to a car-free life at the same time as they make another **significant change in their everyday lives** (e.g. moving to another dwelling (with car-sharing nearby), marriage or divorce, major repairs needed to an owned vehicle). The goal of marketing should be to encourage citizens to join car-sharing during such periods of transition in order to take advantage of a peoples' greater openness to changing habitual patterns of travel during periods of transition.

That is why it is advisable to approach people about their mobility in situations already involving change. Bremen has already implemented a program to approach new residents of the city. In addition, further periods of transition should be identified, and suitable measures for approaching people should be developed. Such periods could include the transition to retirement, family formation, or the pending replacement of older and increasingly maintenance-intensive vehicles in the household.

New residents of the city

The City of Bremen offers new residents of the city the opportunity to order an **'information package about mobility in Bremen'** by mail.

We recommend continuing to actively approach new residents of the city and offering temporary trial packages for car-sharing, analogous to those that already exist for public transport in Bremen's marketing to new residents. In other municipalities, a **book of vouchers for new residents** has proven successful; it is handed out either when new residents register their residence or is distributed by mail. The vouchers not only offer incentives for new residents to acquaint themselves with the city's public and commercial activities, but also enable them to test mobility opportunities without facing obstacles. In Tübingen, for example, 25 % of new customers use such a voucher when registering for car-sharing.

Seniors—the transition to retirement

The **transition to retirement** is an important turning point that often entails a relevant **change in mobility needs**: retirees no longer have to travel to work, they tend to use other

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means of transportation for long distances, and their children have left home. In addition, their incomes generally drop. The costs of owning a car they do not use much become increasingly important.

We consider seniors to be a further target group, but few of them have engaged in car-sharing to date. In our experience, personal reservations and attitudes play an important role here. The survey of car-sharing users also showed that this population group has a considerably lower affinity for using smartphones.

We recommend developing a **communication strategy** tailored to this group's needs. To the best of our knowledge, such a strategy does not yet exist, but it could become a model far beyond Bremen's borders. A suitable way to address the target group could be tested, perhaps in a research project, and the scientific evaluation could be supported with federal or EU funding. We also recommend recruiting specific partners for joint projects and for approaching seniors. Such partners could include clubs in which retirees are frequently involved, for example gardening clubs, choirs, music clubs, or the like.

Family formation

Family formation is an important **period of transition**. Increasing family size often entails purchasing a 'family car'. The municipality of Munich is attempting to **address mobility needs during this period of transition** with the project 'Go! Family,' among other things with free membership with a local car-sharing provider for one year (no deposit, no registration fee[5], and no basic monthly fee). We recommend that the City of Bremen examine whether analogous **support** can be **implemented** there.

Getting old cars off the road

The surveys of the car-sharing customers and the control group showed two things: they owned a **disproportionate number of vehicles more than 10 years old**, and a very large number of vehicles are driven considerably less than 10,000 km per year.

Provided this is possible in terms of data privacy law, we recommend **specifically approaching the owners of old cars** and tailoring low-threshold offers for their intermodal mobility, for example a true scrappage scheme, i.e., a programme that enables people to get rid of their cars without having to buy new ones. Here too, we recommend seeking out **local cooperation partners**. They could include **local automobile associations**, for example.

5 Cf.: https://www.gofamily-muenchen.de/unser-angebot/carsharing/

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3. BACKGROUND, SCOPE, AND SUBJECT MATTER OF THIS STUDY

Car-sharing was first introduced in Bremen in 1990. Since then, it has developed into a professional, market-based service. Besides *cambio* as the pioneering car-sharing provider, the providers *Move About* and *Flinkster* are also active in Bremen. All providers in Bremen operate station-based car-sharing only. As of the writing of this report, **almost 14,000**[6] **residents of Bremen use car-sharing**.

3.1. The current structure of car-sharing opportunities

The provider *StadtAuto Bremen Car-Sharing GmbH* is the market leader, with 301 vehicles under the *cambio* label and 13,533 customers at the time of the survey in August 2017.

Move About, an internationally active electric car-sharing provider, is a small local actor in the market with 316 customers and 16 vehicles in August 2017.

Flinkster, the Germany-wide car-sharing operation of *Deutsche Bahn* (the German rail service), considers itself mainly a provider of last-mile mobility at train stations, including Bremen. In Stuttgart and Cologne, *Flinkster* provides station-based car-sharing at numerous locations and cooperates with many regional providers. According to the company's own information, the *Flinkster* system, which consists of mobility via *Deutsche Bahn* (*DB*) as well as a large number of small providers available through DB's online platform, had approximately 300,000 customers and 3,300 vehicles at 1,000 locations in 200 cities in mid-2015.

In Bremen, *Flinkster* operates one station at the main railway station, currently with three vehicles of the provider *Drive-CarSharing*. *Flinkster* was approached for the present study, but did not respond. For this reason, *Flinkster* could not be included in the study.

3.1.1. *cambio* Car-Sharing

The *Verein* (association) StadtAuto Bremen was founded in 1990 and transformed into *StadtAuto Bremen GmbH* (a limited company) in 1993. *StadtAuto* and two other car-sharing organisations joined forces and established Bremen-based holding *cambio Mobilitätsservice GmbH & Co. KG* in 2000. The holding company does not provide car-sharing services itself, but makes the brand as well as key support services, in particular software and a call centre, available to its subsidiaries and partners in an arrangement similar to franchising. The company also offers electronic data processing and call centres for other car-sharing companies through its subsidiary *Car-Sharing Service GmbH* (CSS), which was founded in 2005, and can operate completely independently on the market for this reason. *cambio* is the market leader in station-based car-sharing in northern and western Germany.

6 As at August 2017.

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The range of vehicles offered follows the principle 'a car for any eventuality' and includes the broad range of vehicles that has proven successful in station-based car-sharing: from compact cars to vans to buses seating nine. Electric cars are available as well.

Customers pay for the time they have booked the vehicle plus the kilometres driven. Prices range from € 1.10 to € 4.90 per hour and € 0.22 to € 0.36 per kilometre. Fuel is included in the price per kilometre.

The system of rates is somewhat confusing, with a total of five rates for different user groups, such as people who do or do not drive much, and students, as well as four separate categories of rates. This disadvantage is partly compensated by good menu navigation and the online rate calculator, which was made available on the website early on.

In recent years, *cambio* has lowered the traditionally high hurdles faced by new customers. For example, a deposit is no longer required, and some rates do not involve a monthly fee. The only fee is € 30 for registration.

Holders of annual subscription tickets for Bremen's public transportation service (*MIA ticket*), *JobTickets*, or *VBN-SemesterTickets* do not need to pay the registration fee for any of the rates offered. Students with a *SemesterTicket* who choose the Campus rate do not have to pay monthly fees.

3.1.2. *Move About*

Move About AS was founded in 2008 and is active in various European countries—besides Germany also in Sweden, Denmark, and Norway. An investor, *Elektromobilité Ventures* (*EMV*), acquired an interest in 2012. *EMV* is supported by the French companies *Total Elf*, *Orange*, and *SNCF*.

The German branch of *Move About* was established in Bremen in late 2009 and provides both electric car-sharing for private customers and vehicle fleets for commercial users. To date, its focus in Bremen has been on commercial customers. *Move About* is seeking strategic partners such as the model region Bremen/Oldenburg, but also partners such as the student dormitory *Galileo Residenz* in Bremen, to expand its range of services.

Various battery-powered vehicle models are available in Bremen.

Move About offers three different rates (Business, Campus, Basic) in a single rate category and attempts to approach various target groups and groups with particular needs in this way. The rates are between € 1.90 and € 4.60 per hour and between € 0.10 and € 0.29 per kilometre. A deposit is not required, and two of the three rates do not involve a monthly fee.

Holders of *MIA tickets*, *MIA plus tickets*, or *JobTickets* are reimbursed for the € 30 registration fee; holders of *BOB-Tickets* receive a € 15 discount on the registration fee.

3.2. Measures and goals of the municipality

Since 2003 the municipality of Bremen has been supporting car-sharing by establishing stations on public roads (*mobil.punkte* and *mobil.pünktchen*). In so doing, Bremen strengthened its pioneering role in mobility, which it took on as early as 1998 by initiating cooper-

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ation with the public transportation service ('*Bremer Karte* plus *AutoCard*') and continued in 2013 with the *Stellplatzortsgesetz* (local law on parking spaces).

Both the 2009 **Bremen Car-sharing Action Plan** and the **Verkehrsentwicklungsplan Bremen 2025** (VEP, Transportation Development Plan Bremen 2025), which was adopted by the *Stadtbürgerschaft* (Bremen's municipal parliament) in 2014, formulate the goal of reaching at least 20,000 car-sharing users in Bremen by 2020. Reducing traffic on Bremen's road system by 6,000 cars is a contribution in the areas of pedestrian traffic / short-range mobility, street environment design, and accessibility.

The VEP mentions the following building blocks as **measures**:

- **Extension and spatial expansion** of the network of large and small **car-sharing stations**,
- **Creation of car-sharing opportunities for neighbourhoods** to enable neighbourly sharing of privately owned cars, but with professionally organised access,
- **Reduction of parking space and introduction of privileged parking for car-sharing** in order to be able to designate stations on public roads,
- **Mobility advice for new residents of Bremen** to inform them about how to use public transportation and car-sharing,
- **Mobility advice for interested businesses or schools** to provide information about how the traffic they generate can be organised in a more cost-efficient, socially acceptable, and environmentally friendly way, for example by including car-sharing.
- **Introduction of a mobility card** which people can use flexibly for public transportation, taxis, car-sharing and car rentals, without needing a vehicle of their own.

3.3. Scope and subject matter of the evaluation

The evaluation performed had the goal of determining the impacts of car-sharing opportunities, based on the users' assessments and experiences, as well as ascertaining the car-sharing users' needs with respect to the factors relevant to a municipality and requirements posed to car-sharing providers.

In the present study, *team red* dealt with the following **topics**:

- **Survey of the mobility behaviour** of the car-sharing users registered in Bremen
- **Measurement and evaluation of the impacts of car-sharing on the use of various means of transportation**
- **Extrapolation of the impacts of car-sharing on private car ownership**
- Statements about the car-sharing users' **motivation and consumer behaviour**
- Identification and evaluation of **potentials for optimising car-sharing in Bremen**, focusing on options for change that the public sector can influence.

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A modified questionnaire on the basis of *team red*'s standardised survey tool mob.eValue for determining impacts of car-sharing was agreed on with the contracting authority. The customers of the car-sharing providers *cambio* and *Move About* as well as a representative control group were surveyed[7].

The survey of car-sharing users took place online. The two cooperating providers sent their customers invitations to participate in the survey. The survey itself was conducted on one of the servers operated by *team red Deutschland GmbH*. The procedure was agreed on in advance with the data protection officers of the City of Bremen and *team red Deutschland GmbH*, and it was organised so as to make identification of individuals impossible. The control group was surveyed in part by telephone and in part online by Omnitrend GmbH.

Recommendations were developed for promoting car-sharing in Bremen on the basis of the data analysis of the survey results and the expertise of *team red*.

The following section presents the most important findings of the analysis. For the full report and explanation of the methodological background and detailed analysis, please view the German version of the study: http://mf.team-red.de/fileadmin/user_upload/tr_Endbericht_Bremen_web.pdf

7 Users of the provider *Flinkster* could not be surveyed because no cooperation was achieved with that provider despite numerous attempts to come into contact.

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OVERVIEW OF FINDINGS

4. USE OF VARIOUS MEANS OF TRANSPORTATION AND AVAILABILITY

The users of the car-sharing opportunities studied differ **significantly** from the general population with respect to **ownership and availability of cars. Whereas more than 80 % of the respondents in the control group state that a car (privately owned or company car, excluding car-sharing) is available to them at all times, this is the case for only just under 21 % of car-sharing users.**

This corresponds to the **average number of cars in the household** given by the respondents. The average number—1.0 in the control group—is roughly three times as high as in the group of users surveyed—an average of 0.3 per household. **Thus, for a majority of households of surveyed car-sharing users, car-sharing provides their primary access to mobility by car.**

There were also significant differences in the **ownership of transit passes for public transport**. Approx. 78 % of surveyed users indicated that they owned a transit pass or a *BOB-Karte*[8]. The corresponding figure for the control group is just 58 %.

Generally, car-sharing users stand out because of their lower use of cars and their higher shares of trips using environmentally friendly modes of transport. Even if the shar of automobile use because of car-sharing is included, car-sharing users' use of cars is significantly different in the modal split, for various trip purposes (see Figure 1). **This shows that the existing car-sharing opportunities strengthen public transport. No shift from trips taken on public transport to trips by car was observed.**

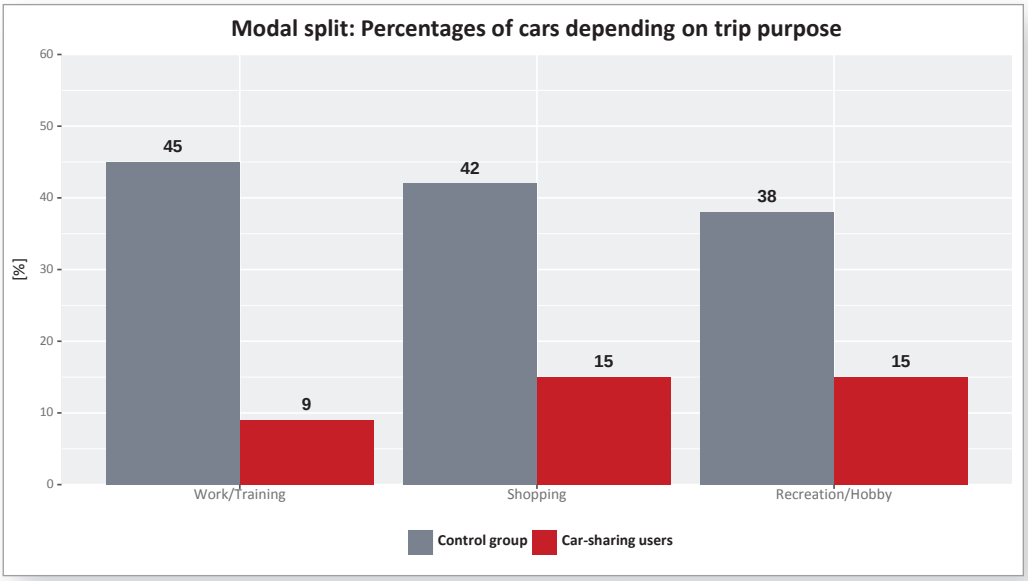

Figure 1: Comparison of the share of cars in the modal split for various trip purposes

8 *BOB—'bequem ohne Bargeld'* (convenient without cash)—is a payment card for public transportation in the transport association Bremen-Niedersachsen VBN with an integrated calculator for the best price per day.

For all trip purposes, car-sharing users use cars considerably less frequently than the respondents in the control group. The shares of automobile use in the general population are up to three times as high as those among car-sharing users.

There is a converse effect for public transport and bicycle use: car-sharing users use public transport more often for trips to work/training (difference: + 8 percentage points); their shares of bicycle use are higher for all trip purposes than those of the control group (difference between 16 and 28 percentage points).

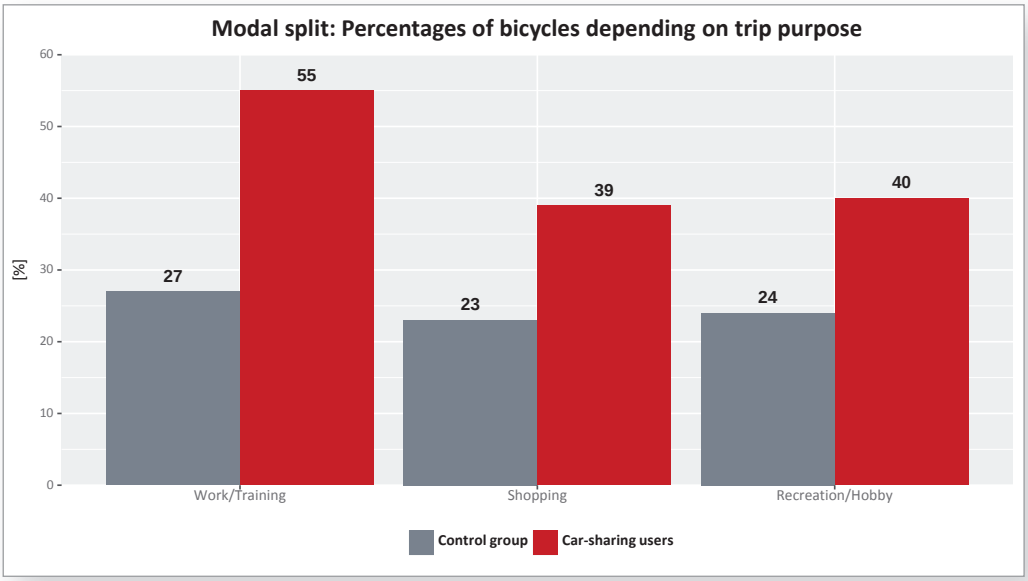

Figure 2: Comparison of the shares of the modal split for various trip purposes

Survey results indicate that the use of **car-sharing results in a significant increase in the use of environmentally friendly modes of transport** and does not motivate users to use cars more frequently. This is the case especially when people no longer own a car because they participate in car-sharing. In this case, **approximately three quarters of the trips previously made by car are made using environmentally friendly modes of transport after joining car-sharing**.

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5. IMPACTS OF CAR-SHARING

One of the most important impacts of car-sharing is the **reduction in the number of cars**. Even before using car-sharing, approx. 40 % of today's customers did not have a private car in their households. An additional approx. 32 % of *cambio* users and approx. 22 % of *Move About* customers no longer own a car because they use car-sharing.

Two figures are relevant for evaluating the impacts: first, the number of privately owned vehicles reduced because of car-sharing, and second, the number of private cars not purchased.

Figure 3 shows reductions of private vehicles owned as well as cars not purchased, broken down by *cambio* and *Move About* users and the general population.

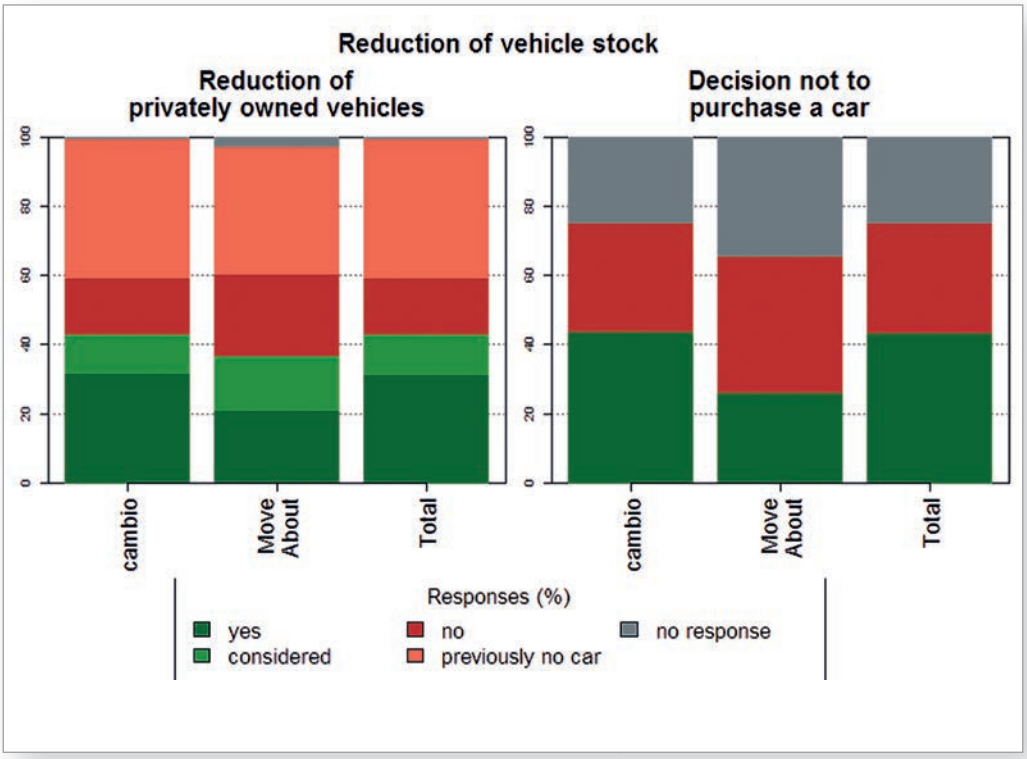

Figure 3: Reduction in the number of cars

From the perspective of survey methodology, it should be assumed that the survey responses result in an overestimation of the actual reduction effects[9].

9 The causes can include, for example, over-reporting, biases in the willingness to participate in surveys, or biases from the extrapolation of impacts from a sample of individuals to the household level.

For this reason, data was also gathered on the relative significance of car-sharing for deciding to no longer own a car or deciding against purchasing one:

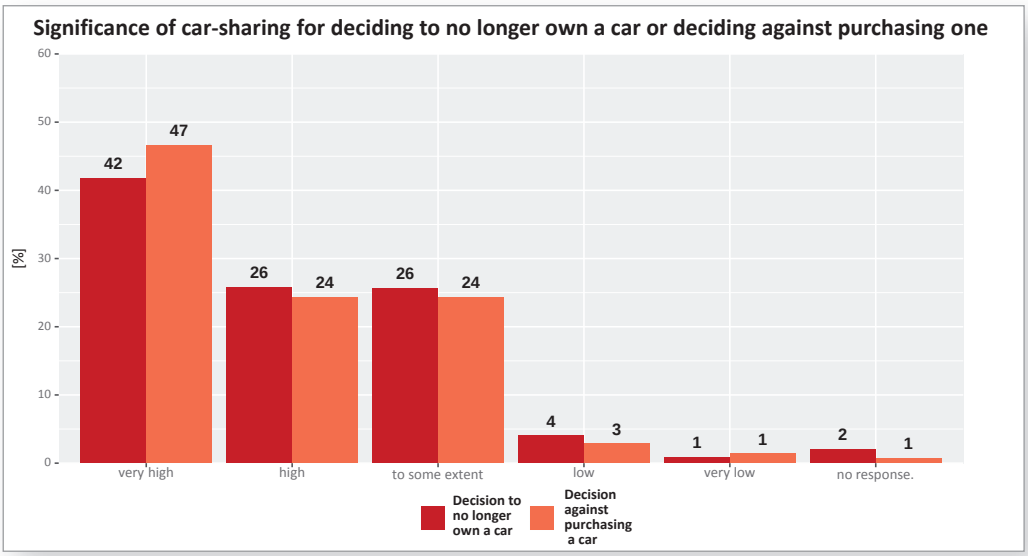

Figure 4: Significance of car-sharing for deciding to no longer own a car or deciding against purchasing one

The following factors were taken into account to balance out potential biases when determining the reduction effects:

- Information given by users about the significance of car-sharing opportunities when deciding to no longer own a car
- Weighting of survey data to balance biased participation rates, dependent on intensity of use
- Number of registered car-sharing users in the household

Taking the correction factors into account, calculations on the basis of 317 vehicles yield the following rates:

- **Decision to no longer own a car: approx. 1:7**
- **Decision not to purchase a car approx. 1:9**
- **Total: approx. 1:16**

These **rates are significantly higher than the values determined using a similar method for car-sharing in other cities**, where the total rates (encompassing both deciding to no longer own a car and deciding not to purchase one) were between 1:6 and 1:9[10]. Overall, the **car-sharing** opportunities in Bremen have a **significant effect on reducing the number of cars owned by car-sharing users**.

10 Studies for comparison: *EVA-CS*, Munich and *stat>k/flow>k*, Osnabrück.

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Overall, car-sharing use has positive effects on the use of public transport and bicycles. Once a household no longer owns a car, three out of four trips previously taken with a private car are taken with environmentally friendly modes of transport. Overall, significantly more users state that since they began using car-sharing, they have used public transport or bicycles more, rather than less.

In the hypothetical case that the **car-sharing providers were to discontinue their services**, this would have long-term consequences for the car-sharing users:

- Approximately two thirds of respondents said this would mean a **loss of quality of life**. They would lose an important mode of transport.
- Approximately half of respondents estimated that they **could no longer reach important destinations** without car-sharing.

If the existing car-sharing opportunities in Bremen were to be taken off the market, it should be assumed that households that had sold their cars would purchase cars again. One would also have to assume that some of the car-sharing users who had decided against purchasing a car because of car-sharing would buy one then. With a view to the number of cars in the car-sharing users' households, this would mean that the currently registered users could potentially have roughly the same number of cars per household as the respondents in the control group, at least in the medium to long term. In this scenario (no decisions to stop owning a car, decisions to purchase a car), the number of households without a car could approximate the ownership rates of the control group.

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6. CONSUMER BEHAVIOUR OF THE GENERAL POPULATION / CAR-SHARING USERS

In some aspects, car-sharing users' shopping behaviour is significantly different from that of the general population. This is shown clearly in the following diagram. For example, 80 % of the car-sharing users indicate without reservation ('strongly agree') or for the most part ('agree') that they **like shopping by bicycle very much**. This is true of just 55 % of the general population. Moreover, **environmental awareness** is somewhat stronger among car-sharing users (70 %) than in the general population (63 %).

Overall, the respondents in the control group considered a car necessary as a means of transport for shopping trips significantly more often (49 %) than car-sharing users (19 %). And: whereas only roughly one fifth of car-sharing users 'strongly agree' or 'agree' that they prefer to shop less often, purchasing larger amounts, this is true of 43 % of the general population.

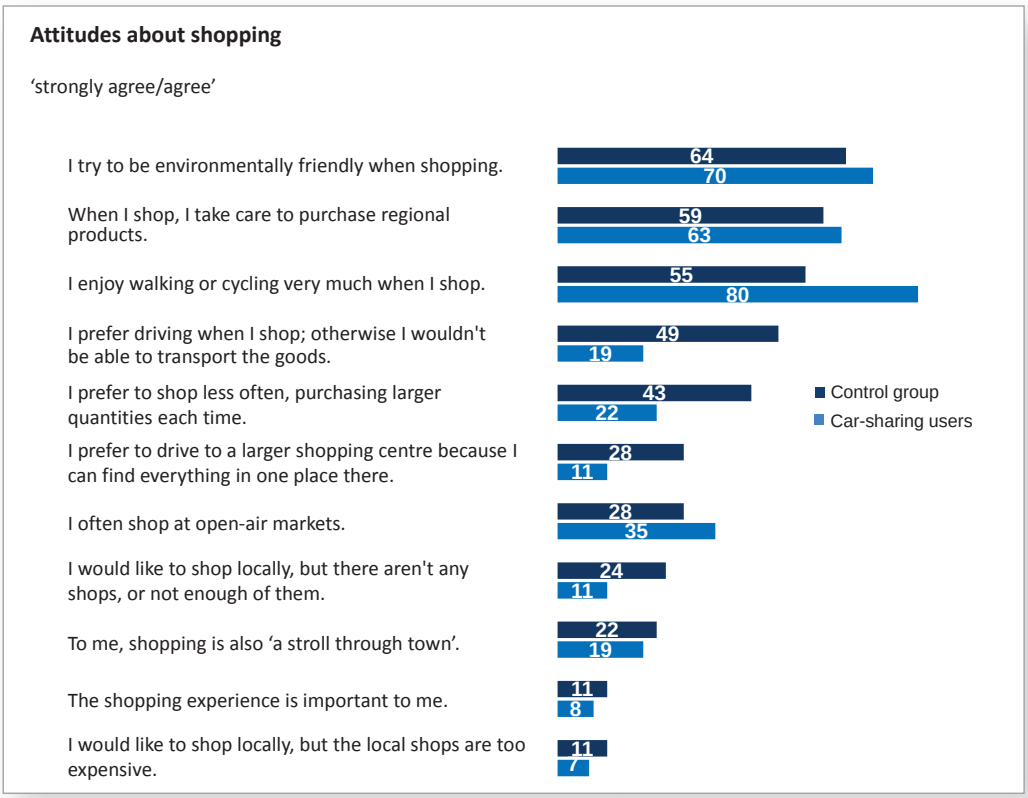

Figure 5: Attitudes about shopping

When it comes to actual shopping behaviour, the overwhelming importance of a supermarket nearby is striking. Both in the general population and among car-sharing users, having a **supermarket near their home** has an outstanding function: more than eight out of ten residents of Bremen shop at the supermarket 'around the corner' at least once a week.

Shopping at local retailers generally plays a dominant role for car-sharing users: three quarters of car-sharing users shop with **local retailers** at least once a week (general population: 62 %). And almost one in three car-sharing users, but only one in four of the general population, regularly shops at **open-air markets**.

In contrast, the general population shops at **larger shopping centres three times as often** as car-sharing users do.

Significant differences can also be found with respect to **shopping for goods not purchased on a daily basis**: local delivery services are used more often by the general population (at least once a month: 18 %) than by car-sharing users (11 %). Do-it-yourself shops and garden centres are also frequented more often by the general population (38 %) than by car-sharing users (23 %). And: whereas 12 % of Bremen residents go to furniture stores such as IKEA once a month, this is true of just 4 % of car-sharing users.

Interim conclusion: car-sharing users' behaviour is extremely environmentally aware; they support local retailers especially, and they go to large shopping centres significantly less often than the general population. Car-sharing users can thus be perceived as an important pillar of local retailing.

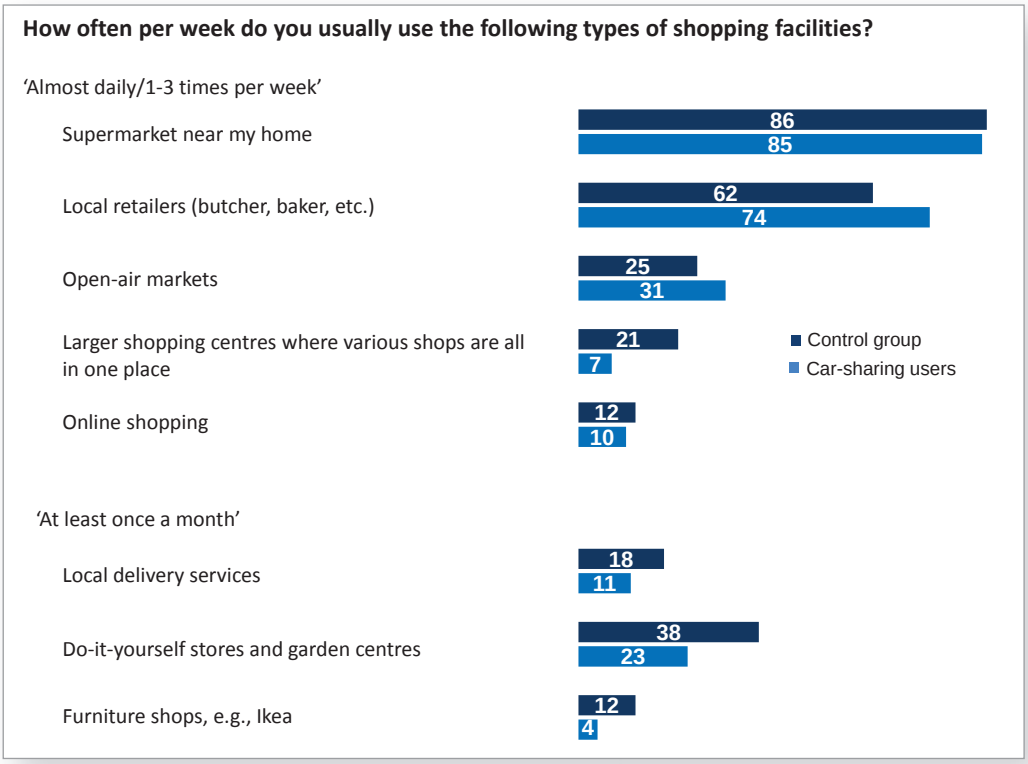

Figure 6: Use of various types of shopping facilities

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7. CURRENT CAR-SHARING OPPORTUNITIES: USER PRIORITIES AND SATISFACTION

7.1. Priorities

A fundamental problem of survey research arises when asking about the importance of various factors: in general, respondents consider practically all of them to be 'important'. A meaningful list of priorities can be generated if only the strongest response option ('very important') is taken into account for the ranking.

Three categories can be used to sum up the importance of the various aspects of the car-sharing opportunities surveyed: from the users' perspective, **straightforward booking** ('very important': 79 %), the **availability of vehicles** when desired (68 %), and the **proximity of the nearest station** (60 %) are of **decisive importance**.

Easy-to-use vehicles (46 %), accommodating arrangements in case of damages etc. (42 %), and 24-hour availability of the provider by telephone (41 %) have relatively **high relevance**.

All the other aspects in the survey are **less important** to the car-sharing users overall. They include: cleanliness, large variety of vehicle models, accessibility by public transport, infor-

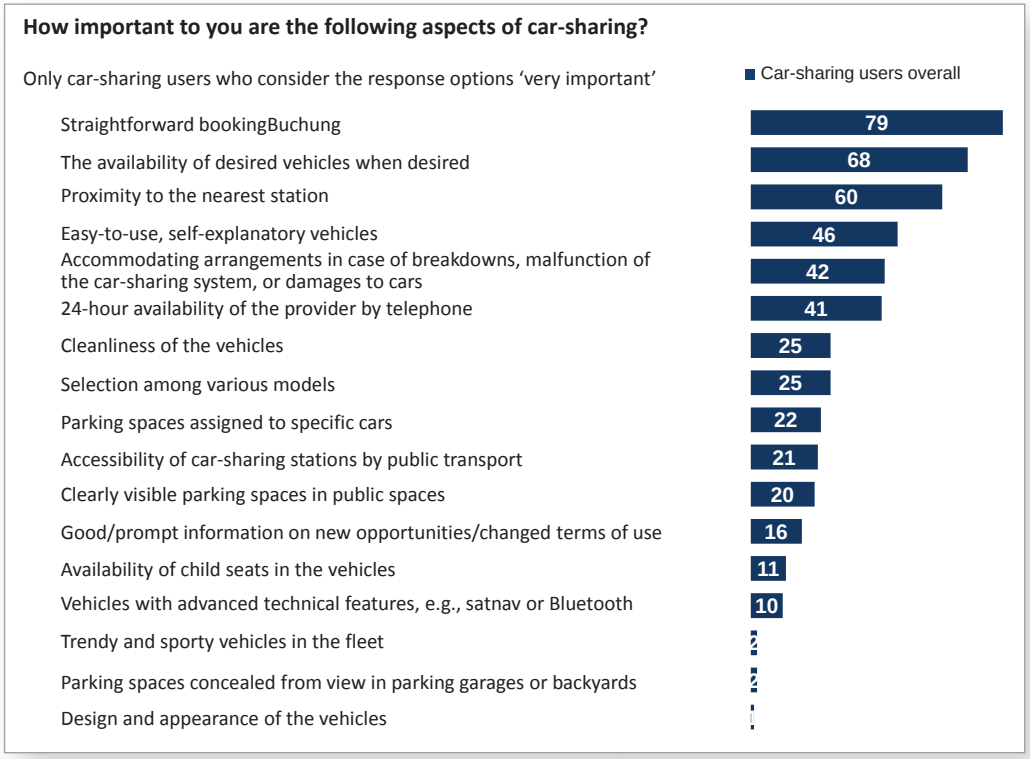

Figure 7: Important aspects of car-sharing

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mation on new services and changes to terms of use, availability of child seats, vehicle features, and topics relating to parking spaces. Design and appearance of the vehicles or desires for trendy, sporty vehicles were mentioned only very rarely.

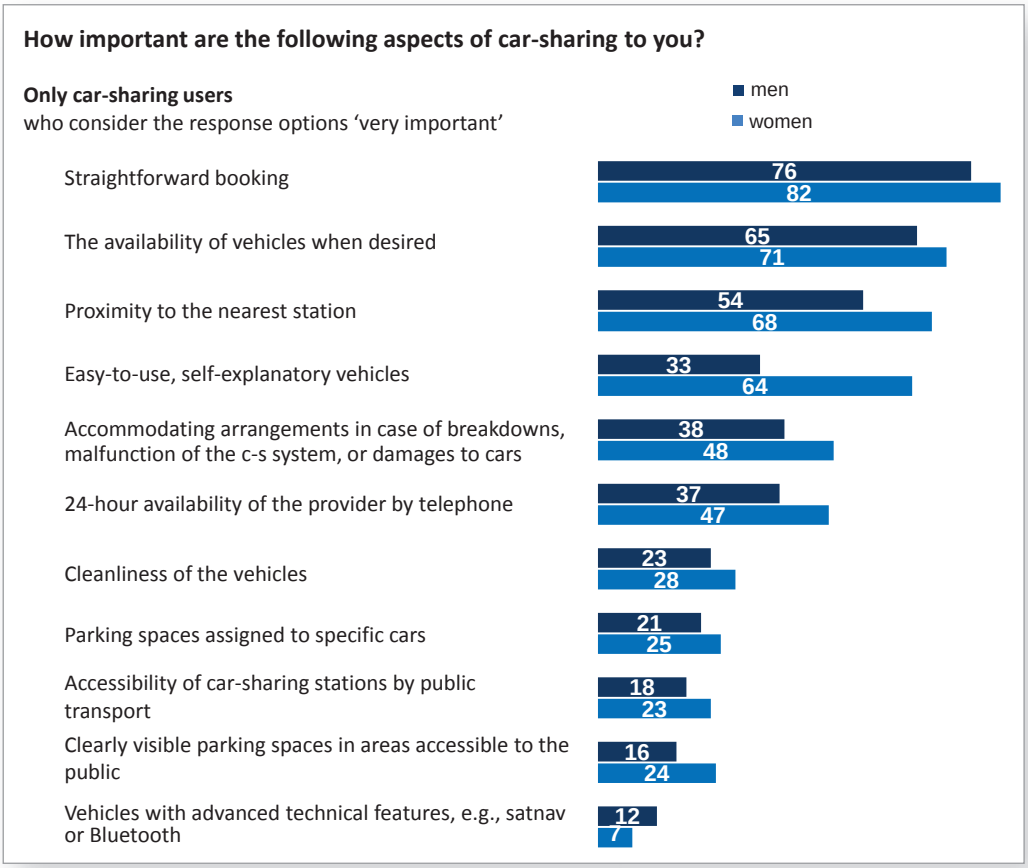

Figure 8: Important aspects of car-sharing, by gender

It is striking that **a greater percentage of female than male car-sharing users consider most of the surveyed aspects to be 'very important'**; they assign higher priority especially to easy-to-use, self-explanatory vehicles (+31 percentage points), proximity to the station (+14), and 24-hour availability by telephone (+10). With respect to gender aspects, the establishment of a network of easily accessible stations close to users' residences is of particular relevance for municipal planning.

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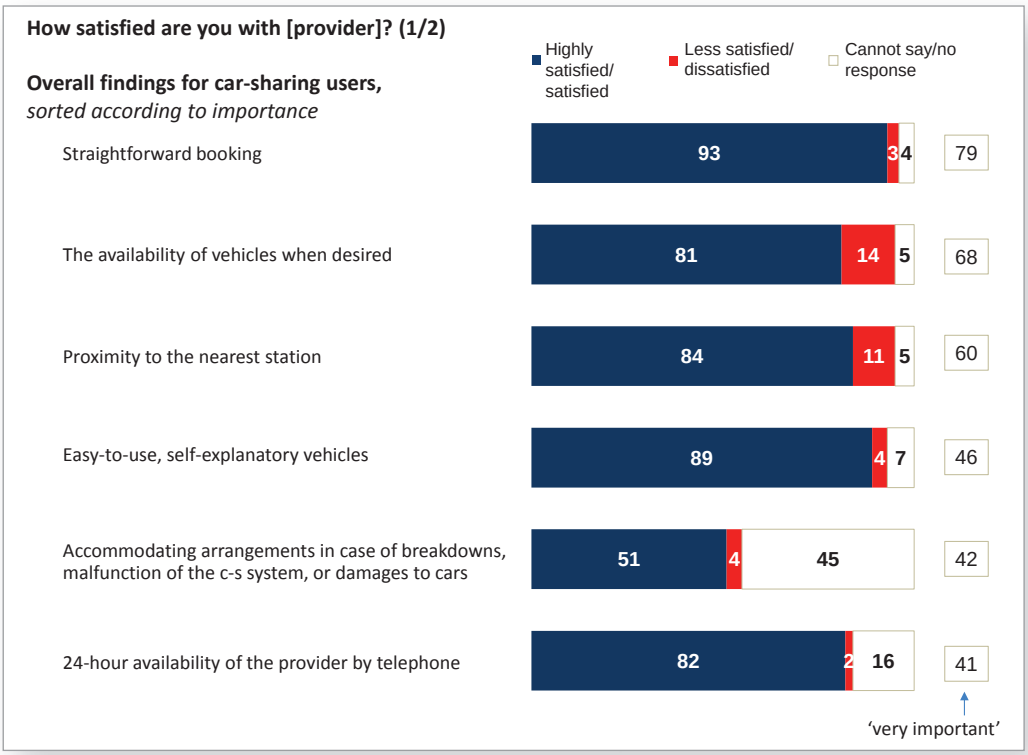
7.2. Satisfaction with the existing opportunities

Car-sharing users' high satisfaction with all the surveyed aspects is striking. In particular in those areas 'very important' to the users, that is, the ones that top their lists of priorities, there is much praise and little criticism.

Concerning the aspects of **decisive importance** or **high relevance**: overall, 93 % are 'highly satisfied' or 'satisfied' with the booking process. The availability of the vehicles desired is viewed as positive by 81 %; appropriately short distances to the next station exist for 84 %; and 89 % consider the system self-explanatory and easy to use. Moreover, 82 % view the provider's availability by telephone as positive, and an additional 16 % could not say (perhaps due to a lack of experience with this matter). At first glance, satisfaction with accommodating arrangements in case of breakdowns, malfunction of the car-sharing system, or damages to cars seems somewhat lower, at 51 %. However, almost half of respondents (45 %) were simply unable to assess this aspect, presumably because most of them have never been confronted with these situations and have no experience with them.

Only a minority of users state they are 'less satisfied' or 'dissatisfied' with individual high-priority aspects. The little criticism that was expressed referred mostly to vehicle availability (14 %) and distances to the nearest station (11 %).



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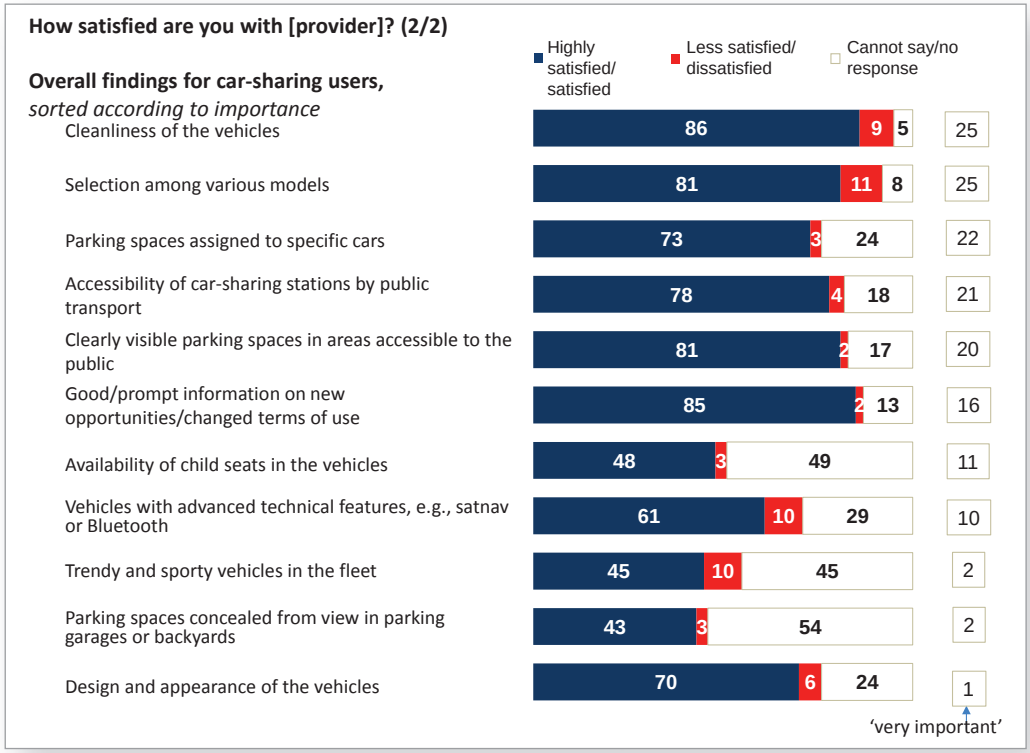

Figure 9: Satisfaction with car-sharing opportunities

A similar image emerges for the aspects the users consider to be of **minor relevance**: in all areas, there are large majorities expressing their satisfaction, above all regarding the cleanliness of the vehicles (86 %), the information about car-sharing opportunities (85 %), the selection of vehicles, and the clearly visible parking spaces (81 % each). Appreciable criticism, by a minority of respondents, referred mostly to the selection of vehicle models (11 %) and technical features (10 %). Criticism concerning the lack of trendy and/or sporty vehicles was expressed by roughly the same percentages.

It should be noted that some aspects of decisive importance or high relevance cannot be assessed by the users, either, since they presumably lack experience with them or have never concerned themselves with these aspects. This is true especially of whether parking spaces are concealed from view (54 %), the availability of child seats (49 %), trendy and sporty vehicles (45 %), and the vehicles' technical features (29 %).

Interim conclusion: **positive assessments clearly predominate** with respect to all the aspects examined. This applies especially to the three areas by far most important to users: **an overwhelming majority perceives the booking process as straightforward, the vehicles are available when desired, and the distance to the nearest station is considered acceptable.**

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7.3. Comparison of the significance and satisfaction with individual aspects

The priorities described in section 7.1 are contrasted with the values for satisfaction/dissatisfaction described in 7.2 in Table 2. Regarding priorities, the table shows the response categories 'very important' and 'important,' taken together, and regarding satisfaction, the response categories 'highly satisfied' and 'satisfied' as well as 'very dissatisfied' and 'dissatisfied,' taken together[11].

An **index for the relevance for taking action (action index)** based on the evaluations was calculated by multiplying the percentages relating to dissatisfaction by the importance of the item. The minimum value of the index is 0 (for example, if an aspect were entirely unimportant and/or if nobody were dissatisfied with the aspect), the theoretical maximum value of 100 would be reached if all respondents considered this aspect (very) important and at the same time, all respondents were (very) dissatisfied with this aspect.

As Table 2 shows, all index values are in the lower the range of theoretically possible values. Accordingly, no urgent need for action can be derived with respect to the aspects assessed.

'Availability of desired vehicles at the desired time' and 'short distances to the nearest station' have the highest index values. However, the levels of satisfaction are still very high for these items, at 78 % and 79 %, respectively. Nonetheless, the analysis confirms the findings described above and the relevance of continuing to promote the creation of car-sharing stations close to users' homes, thereby also increasing the availability of vehicles.

	IMPORTANCE	SATISFIED	DISSATISFIED	INDEX
Availability of vehicles	98 %	82 %	14 %	13.7
Short distances	96 %	84 %	11 %	10.6
Selection	74 %	81 %	10 %	7.4
Cleanliness	85 %	87 %	8 %	6.8
Advanced technical features	40 %	60 %	11 %	4.4
Accommodating arrangements in case of damages etc.	92 %	51 %	4 %	3.7
Easy to use	91 %	89 %	4 %	3.6
Accessibility by public transport	56 %	77 %	5 %	2.8
Straightforward booking	99 %	93 %	2 %	2
Parking spaces assigned to specific cars	52 %	73 %	3 %	1.6
Clearly visible parking spaces	63 %	81 %	2 %	1.3
Information	67 %	84 %	2 %	1.3
Trendy and sporty vehicles	9 %	44 %	10 %	0.9

11 The shares for non-responses and the response category 'cannot say/no response' are not shown.

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Availability of the provider by telephone	79 %	82 %	1 %	0.8
Availability of child seats	28 %	48 %	3 %	0.8
Design and appearance	12 %	71 %	6 %	0.7
Parking spaces concealed from view	6 %	43 %	3 %	0.2

Table 2: Comparison of importance and satisfaction

The comparison of importance, dissatisfaction, and the **action index**, broken down by users **with and without car-sharing use during the period under review**, is shown in Table 3.

The table shows that car-sharing customers set the same priorities and are overwhelmingly satisfied with the existing car-sharing opportunities, largely independent of whether they actually used a vehicle during the period under review. Three aspects in the table should be highlighted:

- Satisfaction is comparable between customers who used a car-sharing vehicle during the period under review and those who did not; the latter gave the **accessibility of car-sharing stations by public transport** higher priority (63 % vs. 51 %).
- In both groups, the aspect **'availability of desired vehicles at the desired time'** reaches the highest value for the action index.
- Registered customers who did not use a car-sharing vehicle are somewhat more dissatisfied (13 % vs. 9 %) with the aspect **'short distances to the nearest station,'** resulting in a correspondingly higher value for the action index.

These findings again highlight the significance of the proximity of car-sharing stations to users' residences.

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	CUSTOMERS WHO DID NOT USE A CAR-SHARING VEHICLE			CUSTOMERS WHO DID USE A CAR-SHARING VEHICLE		
	Importance	Dissatisfied	Index	Importance	Dissatisfied	Index
Availability	96 %	14 %	13.2	99 %	14 %	13.9
Short distances	96 %	13 %	**12.6**	96 %	9 %	**8.7**
Selection	73 %	8 %	5.9	75 %	11 %	8.5
Accessibility by public transport	63 %	7 %	4.1	51 %	3 %	1.6
Cleanliness	84 %	5 %	4	86 %	10 %	8.7
Advanced technical features	38 %	10 %	3.7	40 %	12 %	4.7
Easy to use	93 %	4 %	3.6	89 %	4 %	3.2
Straightforward booking	99 %	3 %	3.3	99 %	1 %	1.5
Accommodating arrangements in case of damages etc.	92 %	3 %	2.7	92 %	5 %	4.6
Parking spaces assigned to specific cars	55 %	3 %	1.8	51 %	3 %	1.3
Availability of the provider by telephone	79 %	2 %	1.4	80 %	1 %	0.9
Information	69 %	2 %	1.2	67 %	2 %	1.1
Availability of child seats	29 %	3 %	0.8	29 %	2 %	0.7
Clearly visible parking spaces	67 %	1 %	0.6	60 %	2 %	1.5
Trendy and sporty vehicles	6 %	8 %	0.5	10 %	12 %	1.2
Design and appearance	9 %	6 %	0.5	13 %	6 %	0.7
Parking spaces concealed from view	7 %	2 %	0.2	6 %	3 %	0.2

Table 3: Comparison of importance and satisfaction for users who did and did not use a vehicle

7.4. Experiences with car-sharing

When asked about their experiences to date, car-sharing users clearly mention the **advantages**: overall, 92 % 'strongly agree' or 'agree' with the statement that not having to deal with **vehicle care and maintenance** makes their lives easier. 85 % consider **not having to pay the costs of maintenance, taxes, and insurance** to be a further advantage.

In addition, 60 % feel **freer in their decisions about which mode of transport to use**.

Opinions are inconsistent concerning the question whether car-sharing has enabled **more spontaneous decisions about which mode of transport to use**. 36 % agreed with the statement, another 36 % disagreed, 19 % responded 'sometimes yes, sometimes no'. The same is true of opinions concerning **mobility costs**: whereas one third reported lower costs

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because of car-sharing, 35 % came to the contrary conclusion. Approx. two thirds of those with lower mobility costs no longer own a car because of car-sharing. Another fifth had no car in their households even before using car-sharing.

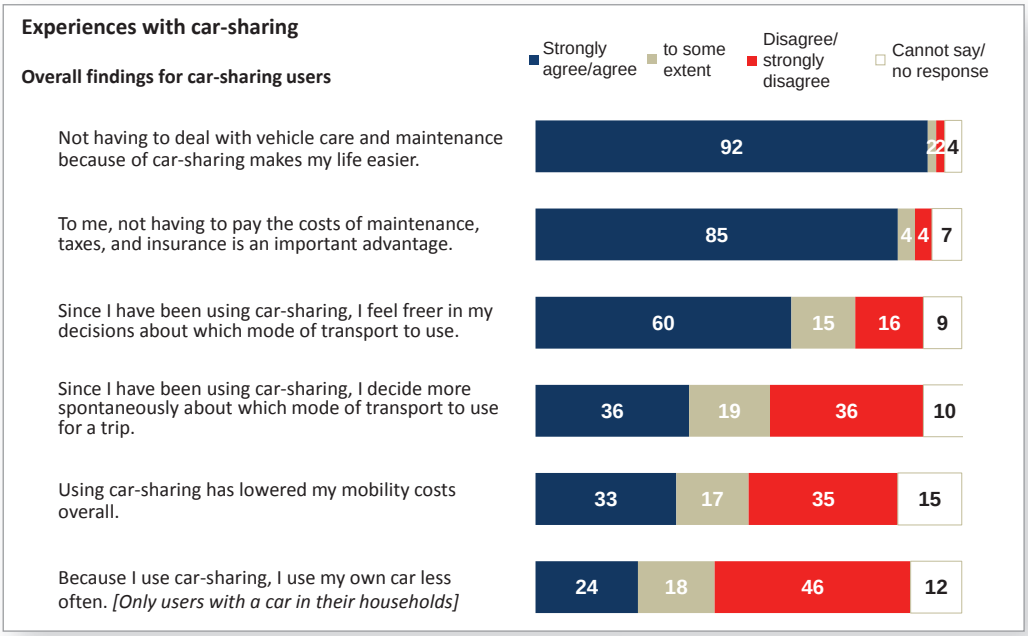

Figure 10: Experiences with car-sharing

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8. OVERALL ASSESSMENT

Overall, car-sharing opportunities in Bremen are extremely positive. Taken together, the establishment of the *mobil.punkte* and *mobil.pünktchen*, already existing regulations, communication measures, as well as the opportunities available through the providers have brought about long-term positive effects for transport, environment, and local retailing.

In summary, the following can be stated about the existing car-sharing opportunities in Bremen:

- Car-sharing brings about **positive effects in terms of reducing traffic**. The traffic reduction has occurred through
  - a **reduction of more than 2,300 privately owned vehicles** and the fact that each car-sharing vehicle replaces up to 14 privately owned vehicles,
  - the fact that **an additional more than 2,700 vehicles were not purchased** by private households, or up to 19 vehicles per car-sharing vehicle, and
  - the **shifting** of trips previously taken by car **to environmentally friendly modes of transport**.
- A further impact reducing traffic arises from **shorter distances for shopping trips**. Car-sharing users shop locally more frequently than Bremen's general population. This means: **car-sharing strengthens local retailing**.

If the goal mentioned in the **Car-sharing Action Plan and the *Verkehrsentwicklungsplan*** of increasing the number of car-sharing customers to 20,000 is to be reached, then it will be necessary to continue to activate the target groups served to date as well as to **access new target groups**. The following suggestions on this matter emerge from the surveys:

- **The users already active consider the following to be very important**:
  - **proximity to the nearest station**,
  - the **availability** of vehicles when desired, and
  - a **straightforward booking process**.
- **Further potentials** exist with certain market segments that select their modes of transport pragmatically, depending on the situation.
- **The positive perception on the part of people not using car-sharing to date and the certainly existing potential should be utilised in communications.** This includes explanations of prices and terms of use. It would also be helpful if the media, business community representatives, and trade unions focused more strongly on the topic of (station-based) car-sharing and the advantages it entails.

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The following **guidelines** are recommended for further expansion of car-sharing opportunities:

- **The number of stations should be further increased to minimise the distance users must walk to access the vehicles,** and car-sharing opportunities should be expanded to cover suitable neighbourhoods not yet served.
- **Communication measures** should be **continued** in order to reach target groups that are potentially suitable for car-sharing, but are poorly informed.
- **People in periods of transition** (relocation, transition to retirement, family formation, pending replacement of vehicles) should be approached and recruited for car-sharing in a targeted fashion.
- It should be examined whether options for **one-way trips** from one station to another should be made available as well.

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