

**ATKearney**

# The Demystification of Car Sharing

An in-depth analysis of customer perspective,  
underlying economics, and secondary effects



*ATKearney*

## Key Messages

1

Only a small group of members uses car sharing on a regular basis—the substitution effect between car sharing and private car use is limited. It is primarily seen as a complementary service, at best substituting for public transportation.

2

People still value the inherent advantages of private car ownership, such as permanent availability, privacy, and a feeling of personal freedom, which will make it challenging to increase car sharing's penetration rate.

3

At the same time, current car-sharing members primarily choose car sharing for economic and convenience reasons, resulting in an economically challenging business model.

4

The lack of major urban agglomerations and the relatively low population density of many major European cities prove to be key limitations to increasing the vehicle usage and financial success of car sharing. In Germany, only 5 percent of the theoretical market can be served in economically viable terms.

## Recommendations for Action

1

Collaborate closely with city administrators to integrate car sharing in the public transportation network and gain exclusive benefits, such as reserved parking.

2

Select car-sharing cities based on population density, availability of interconnected hot-spot areas, and local government support.

3

Proactively use positive secondary effects of car sharing such as brand image building, customer relationship management, and data collection to balance likely financial losses (especially in the start-up phase).

4

Target potential younger customers through marketing efforts, since they're more open to alternative value propositions based on vehicle offerings compared to potential older customers.

# Introduction

The purpose of this publication is to shed light on a publicly hyped mode of transportation: car sharing, which has gained significant presence in major cities around the world and has received heavy media attention over the past few years. The end of personal car ownership is frequently touted, with car sharing taking over and replacing this old-fashioned ownership model. Additionally, it is high on the agenda of many automotive OEMs, who perceive it as a potential cornerstone of their future business models, geared toward becoming more of a “mobility provider” instead of a manufacturer and seller of vehicles.

However, recent developments in the industry speak both for and against a rapid advancement of this mobility solution. While the global number of car-sharing members increases significantly, major car-sharing players have removed their services from cities such as London and Copenhagen, which at first seem like obvious locations for car sharing.

The estimated number of **global car-sharing members** has increased from **7 million** to **27 million** between **2015** and **2018**

**In this publication, we will explore the parameters of the car-sharing business model on three levels:**

1. Customer perspective
2. Car-sharing economics
3. Secondary effects for OEMs

Our in-depth analysis aims to demonstrate to what degree the service will reshape mobility, and what it will take for car sharing to become financially successful going forward. We will focus on Western markets (Europe and North America), where car-sharing services are established in most major

cities. An emerging-markets perspective on car sharing, where accelerated urbanization and growing megacities shape the mobility of tomorrow, will follow in a future publication.

## A World of Change?

Multiple socioeconomic trends are currently at play and can potentially help the car-sharing business model:

- Governments are taking action to increase sustainability and reduce emissions via changes in their mobility-related policies.
- Digital technology is increasingly becoming part of our daily lives and is inherent in the way we use many products and services, including how we organize our individual mobility.
- The sharing economy is gaining acceptance, particularly with millennials and younger generations, and thanks to connectivity through smartphones, it's never been easier to gain access to assets owned by corporations or other private individuals.

These trends have fueled car-sharing offerings in recent years. This new business model has sparked enthusiastic hopes for multiple parties, from policymakers to OEMs and new mobility players.

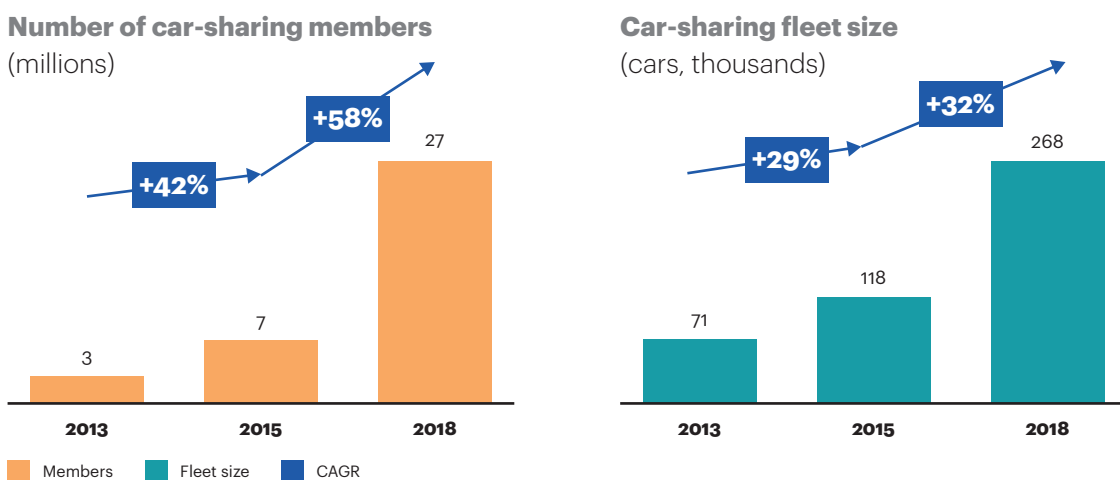
However, recent M&A activity in the industry raises questions about the financial performance of car sharing. Moreover, consumers appear reluctant to let go of the traditional ownership model. Will car sharing change the mobility industry as we know it today, or will it only grow to become a complementary addition to the existing portfolio of mobility options?

Several **withdrawals** of car-sharing providers from major cities and recent **M&A activity** highlight the difficult **path to profitability** for the business model.

Consumer and media attention to car sharing is a global phenomenon. Headlines such as “City car owners moving to car sharing schemes” (Sunday Times) and “Owning a car will soon be a thing of the past” (The Guardian) clearly show the media’s interest. Consumers are showing similar excitement as the global membership base of car-sharing platforms has grown from 3 million members in 2013 to close to 27 million in 2018 (see figure 1). Although our sources are aligned historically on these numbers, forecasts of future trends show wide discrepancies for the anticipated future member numbers.

In this section, we investigate the reasons behind consumers’ increased interest in this relatively new mobility option. Do consumers use car sharing as a mobility option to increase convenience and flexibility, or is the demand purely financial? Will consumers take on car sharing as a complementary addition to owning a car or will it become a complete substitute to car ownership, thus reshaping the industry and mobility as we know it?

Figure 1  
**Global development of membership base of car-sharing platforms and fleet size of car sharing**



Sources: Frost & Sullivan, Berg Insight, A.T. Kearney analysis

With membership rates rising, the global fleet size of car-sharing vehicles reached 268,000 in 2018. As membership numbers grow faster than fleet size, the member-to-car ratio rises, thus improving unit economics. Yet, implementing car sharing in major cities such as London, Copenhagen, and Stockholm has proven difficult for some players. We will explore what's needed to foster a profitable environment for car sharing.

Multiple OEMs, large car rental players, and new-to-the-industry entrants are participating in the car-sharing industry in a variety of setups. While their agendas may be financial, additional reasons influence the choices made by these players. We will now investigate how OEMs can benefit from offering a car-sharing service as it may increase brand awareness and improve relationships with existing and new customers. Can these secondary effects justify operating a car-sharing service from the OEM perspective, even if the service itself is not financially sustainable (yet)?

## Customer Perspective

A first look at the customer side of the car-sharing ecosystem seems to suggest a positive outlook for the business model—the number of car-sharing members is increasing rapidly and providers are proudly announcing the milestone of 27 million customers globally. To allow for a more differentiated evaluation, A.T. Kearney conducted a survey of more than 1,000 car-sharing members and non-members in Germany, the United States, and the United Kingdom to investigate customer motivations, service satisfaction, and improvement potential.

### User behavior: what do we learn from actual usage?

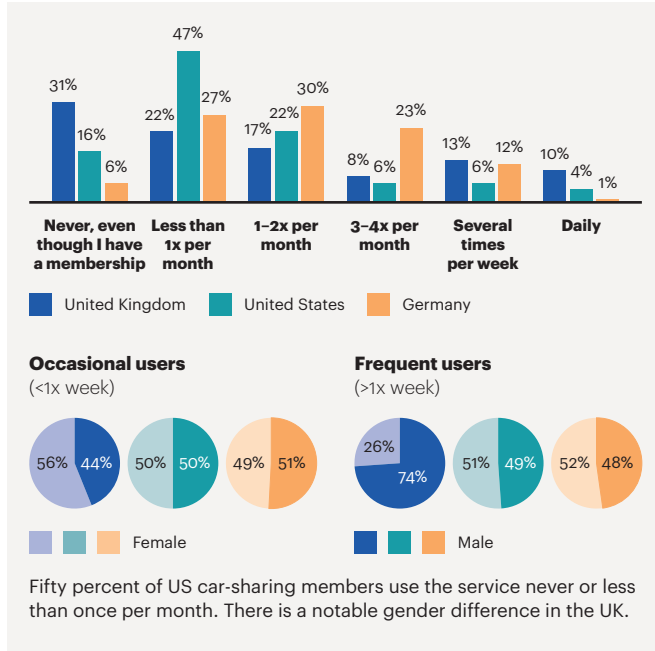
The results of usage frequency are a first indicator that membership numbers do not equal active customers. For the United States and United Kingdom, more than 50 percent of car-sharing members use the service never or less than once per month (see figure 2 on page 5). Germany has a slightly better outlook with only 33 percent of car-sharing members using the service never or less than once per month. The higher share of frequent users in Germany can be explained with a more mature market offering, which has been especially shaped by large car-sharing providers such as car2go, DriveNow, and Flinkster.

In terms of satisfaction with the car-sharing service, our survey signals significant differences across the three analyzed markets. While the United Kingdom (-12) and in particular the United States (-35) show a negative Net Promoter Score (NPS), car-sharing members in Germany (+23) are more likely to recommend their provider(s). Frequent users show a better NPS compared to occasional users. Based on the NPS results, providers in the United States and United Kingdom might look to Germany to identify best practices such as vehicle offering, availability, and pricing.

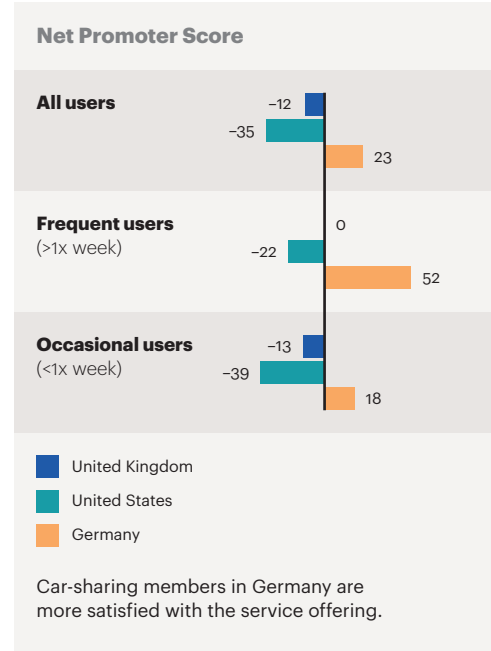
To investigate potential substitution effects, we asked members in Germany to list the mobility options they use in addition to car sharing. The results show that the share of private car use is unaffected by an increasing frequency of car-sharing use. Thus, we can assume a limited substitution between the private and shared car. This finding of limited substitution, based on our customer survey, is also supported by an analysis of new car registrations in Hamburg and Berlin. To assess whether the introduction of car sharing on a larger scale has affected customer demand for privately owned cars, we compared the share of new car registrations for each of the two cities to the total number of new car registrations in Germany. By looking at the relative

Figure 2  
Survey results

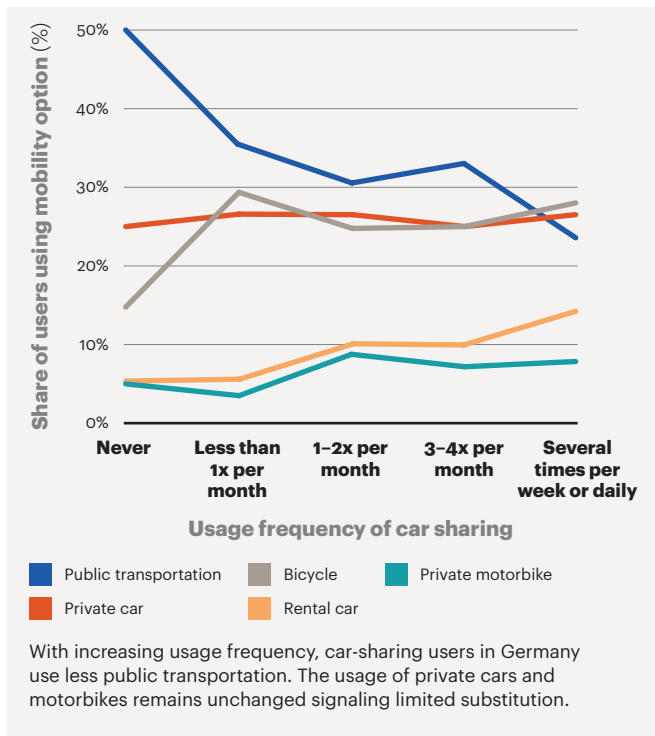
How frequently do you use the car-sharing service?



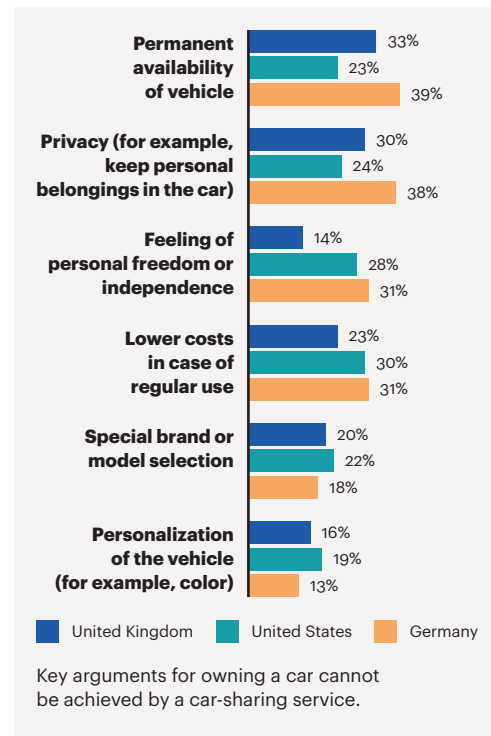
Would you recommend the car-sharing service(s) you are using to a friend or acquaintance?



Which other mobility options do you use besides car sharing? (Example: Germany)



Which factors do you miss in a car-sharing service compared to a private car?



Source: A.T. Kearney analysis

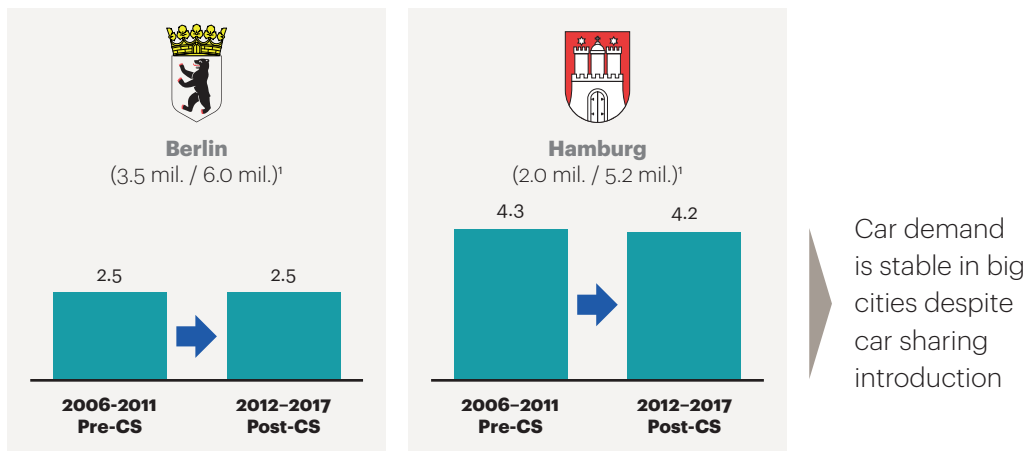
share instead of the absolute number of new car registrations, we can cancel out the effect of potential overall market fluctuations, which are caused by macroeconomic forces. The analyzed time periods are 2006–2011 and 2012–2017, respectively. These periods were chosen as from mid-2011, car2go and DriveNow started to roll out their services in Hamburg and Berlin.

As shown in figure 3, there has been no significant change in the share of new car registrations since the introduction of these two large car-sharing service providers. Thus, market analysis mirrors the results of our customer survey. Even without the possibility of car sharing, it's remarkable that, despite presumably growing traffic jams and ever more densely populated cities, city dwellers are still, as much as ever, following the traditional car ownership model.

Figure 3  
**Impact of car sharing on new vehicle registrations**

**Germany**

(% share new vehicle registrations for total German market)



<sup>1</sup> Population (city district/metropolitan area) in millions  
 Note: CS is car sharing.  
 Sources: Kraftfahrtbundesamt (KBA); A.T. Kearney

For public transportation, a different result becomes obvious—with increasing car-sharing frequency, the share of public transportation use decreases, thus signaling a substitution effect. This observation supports critics who question the sustainability advantages of car sharing based on predominant substitution with public transportation. One opportunity to limit this substitution is the integration of car sharing into the public transportation network. This approach was followed by DriveNow in Copenhagen, where the company partnered with Arriva, a local public transportation operator.

To estimate the long-term potential of car sharing's position in the mobility landscape, we asked members to list factors they miss in a shared car compared to a private one. Responses indicate that, based on the current mood, car sharing will remain only one of multiple mobility options next to owning a private car. This is because car-sharing members rank aspects such as permanent availability and storing personal belongings as key advantages of a private car. Naturally, these are inherently difficult for a car-sharing service to provide.



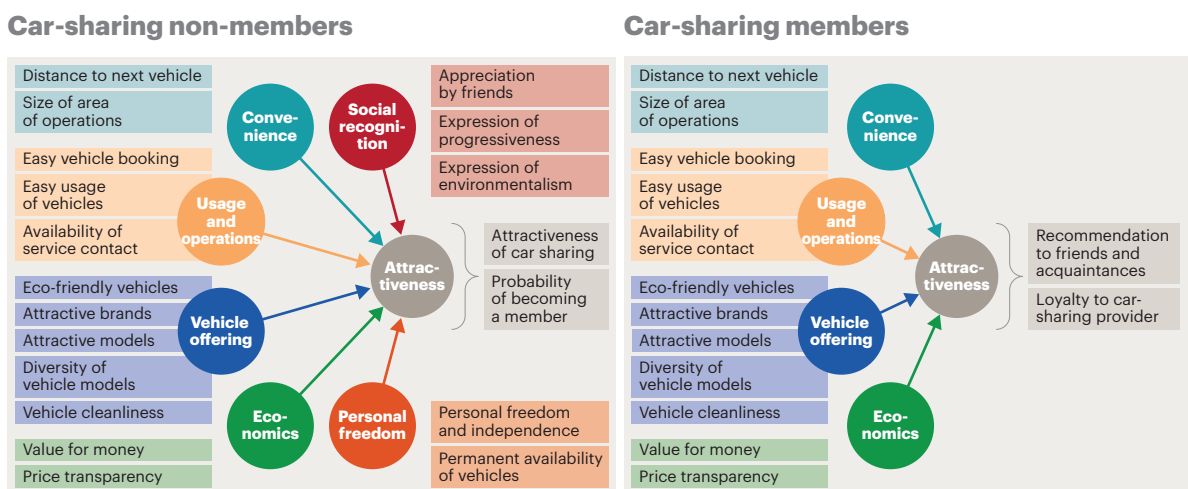
# Member Motivations: What Are “True” Drivers of Members and Non-Members?

In addition to analyzing actual user behavior, we were particularly interested in user and non-user motivations for using or not using car sharing. What makes a user a satisfied and loyal customer? And what keeps non-members from becoming car-sharing members?

## Methodology excerpt: understanding “true” relevance of drivers and discovering “hidden” motivators

To decipher the “true” drivers behind user and non-user behavioral patterns, we applied advanced analytics. We created two distinct analytical models for members and non-members, each designed to identify the “true” relevance of drivers and motivational patterns (see figure 4). To also understand potentially “hidden” motivations, we applied structural equation modeling (SEM). This methodology allows us to accurately and indirectly assess member and non-member motivations, as we do not directly ask how important certain drivers and levers related to car sharing are. Instead, we ask members and non-members to assess the validity of statements related to the use of car sharing and use their answers to feed a partial least squares (PLS) algorithm. Most customer investigations ask directly about the relevance of certain drivers, thus frequently falling into the trap of, for example, socially desired answers. Our methodology is thus designed to understand what motivates member and non-member behavior regarding car sharing and also uncover otherwise hidden aspects of their decision-making.

Figure 4  
Analytical models



- Sample size: 250 car-sharing members and 250 car-sharing non-members in Germany
- Rating different aspects of car sharing concerning performance
- Different aspects clustered into economics, convenience, vehicle offering, and usage and operations
- Additional categories for car-sharing non-members includes social recognition and personal freedom

- The performance attributes in the driver categories were used as independent variables used to explain the dependent variable, which is either the service recommendation (for members) or the probability of becoming a member (for non-members)

Source: A.T. Kearney analysis



## What drives car-sharing members to become satisfied and loyal customers?

In a nutshell, the answer is favorable economics. This accounts for a full 38 percent of a member's satisfaction and loyalty—price transparency and good value for money specifically are key levers for members to recommend car sharing. This is followed by the convenience factor, predominantly explained by a desired short distance to the next vehicle and a large operating area, which accounts for another 25 percent.

Together, favorable economics and short distances to the next vehicle in a large covered area make up the recipe for a razor-thin margin business. Customers predominantly looking for the cheapest offer and a vehicle around the next corner—thus driving up costs of the car-sharing offering—significantly lower achievable margins for car-sharing providers. The “true” preference structures of car-sharing members mean making money with this service is a challenging task.

When we differentiate members into younger (18 to 29 years) and older (40 years+) segments, we see similarities, yet also striking differences. For the older group, rational economic reasons (47 percent) are the most relevant. This is also true for the younger target group of members, but to a lesser extent (34 percent). Older members are thus primarily “economically forced” to use car sharing, which explains the high relevance of price for this target group. In contrast, younger members care very much about the vehicle offering, which becomes their main satisfaction and loyalty driver (38 percent). This high relevance of concrete vehicle offerings for younger members allows for (profitable) differentiation of car-sharing providers. In combination with a relatively low relevance of costly driver convenience (2 percent), this makes younger car-sharing members a more promising customer group (compared to the older demographic of members) from a profitability perspective.

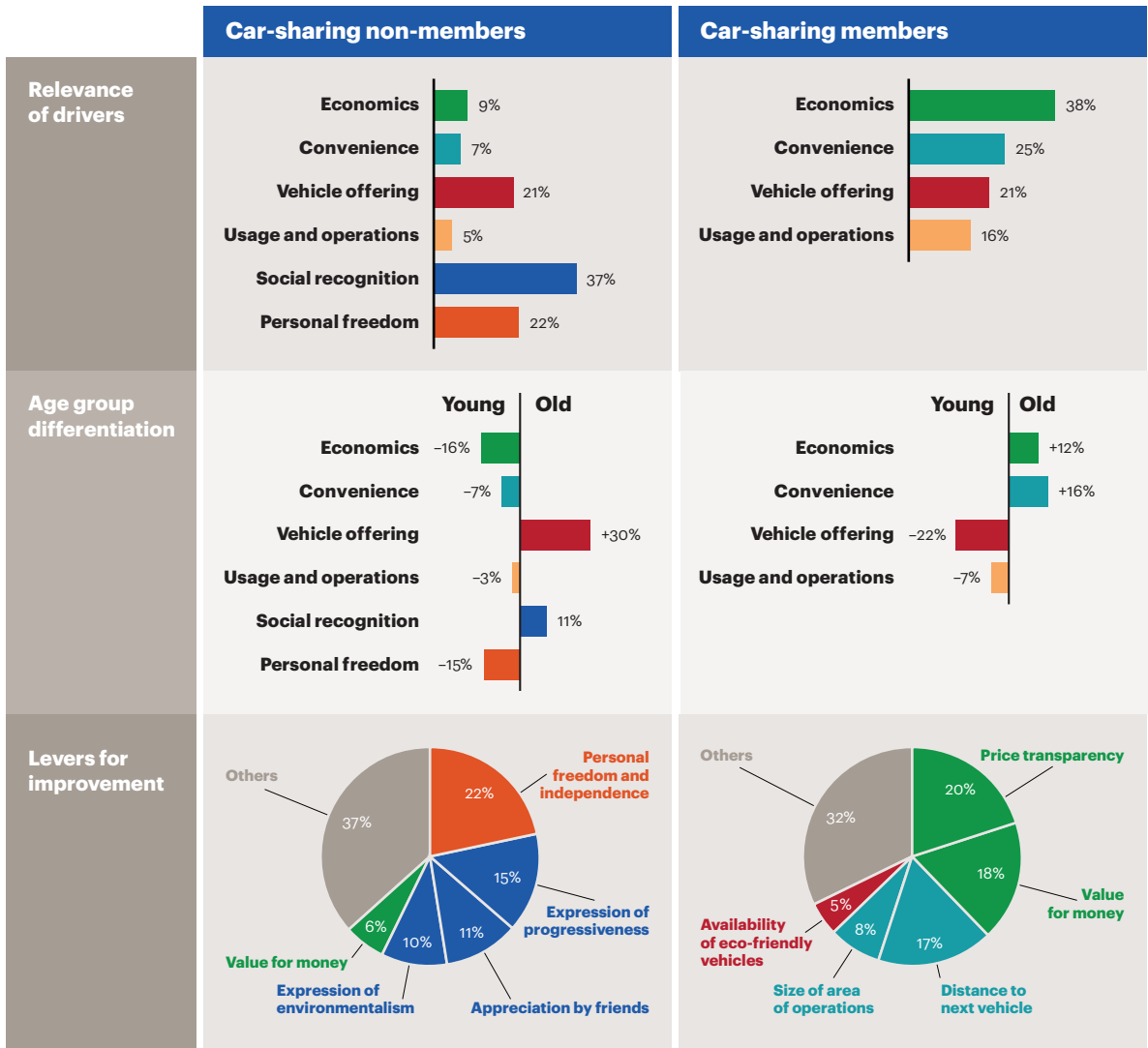
## What is needed to turn non-members into advocates?

We now turn to people who are not yet members of a car-sharing offering. It becomes apparent that a powerful bundle of levers for converting them to members can be found in the “social recognition” aspect of car sharing (accounting for 37 percent of what could increase non-members' likelihood of becoming car-sharing members)—expressions of progressiveness and environmentalism and appreciation by friends are the main factors that increase the appeal of car sharing for non-members (see figure 5 on page 9). Nevertheless, non-members don't feel that car sharing currently benefits their social recognition. This indicates that marketing efforts of providers may want to focus on promoting a progressive and socially valuable image of car sharing in the future.

The second most important factor is the apparently missing feeling of “personal freedom” (relevance score of 22 percent)—providing personal freedom and independence, which is also expressed by permanent vehicle availability, is an almost unachievable task for car-sharing providers when compared to the user benefits of having a private car. Simply making it cheaper (9 percent relevance) and providing better brands and models (21 percent) will hardly turn non-members into members. The same holds true for increasing convenience (7 percent). In sum, non-members clearly don't shy away from car sharing due to economic or convenience aspects. Rather, today, it is due to the perceived lack of freedom and independence, non-permanent availability of cars, and insufficient social recognition.

Figure 5

**Drivers of satisfaction and loyalty (members) and offering attractiveness and likelihood to participate (non-members)**



Source: A.T. Kearney analysis

For non-members, we also differentiated our analysis for younger and older demographics. Overall, older non-members are significantly more skeptical about car sharing than younger ones, indicated by a much lower attractiveness score (on average, three out of 10 for older non-members compared to a similarly low five for younger non-members). Going forward, this exceptionally low attractiveness score for older non-members will prove hard to overcome.

The biggest gap in demographics regarding the relevance of individual driver categories comes from “personal freedom,” where it seems like younger non-members do perceive this as significantly more relevant than older ones. For older non-members, it seems like the “traditional” lever of what vehicles (brands, models) are being offered (30 percent) could, at least theoretically, convert them—this is significantly less important for younger non-members (1 percent). Differences can also be found in the importance of economics: while this category ranks high for young non-members (20 percent), it is of almost no importance for the older group (4 percent).

## Comparing motivational patterns of members and non-members

When comparing members and non-members and differentiating between the different demographics, a few aspects become strikingly apparent and need to be emphasized:

- While it's predominantly an economics and convenience game for members, non-members can't be persuaded to join the club by these arguments.
- Favorable economics are the predominant motivator for older members and younger non-members to turn to car sharing.
- Conversely, the car-sharing offering (specifically the brands and models offered) is of high relevance predominantly for younger members and older non-members.

Thus, a differentiated approach to target groups is recommended—and the differences between segments do warrant a differentiated perspective on which potential customers can, and which potential customers can't, be served profitably.

## Car-Sharing Economics

From an economic perspective, we need to consider costs for operating a specific number of cars in a city and revenues generated from time-based rentals of these cars. Both the required number of cars on the cost side and the number of potential revenue-generating users depend significantly on various parameters of the city or region in which the car-sharing provider operates.

### Revenue and costs of operation

Based on a forsa study, a key customer criterion for considering car sharing as a mobility option is finding a car within a walking distance of less than one kilometer (see figure 6 on page 11).<sup>1</sup>

A minimum number of cars per city is thus required to fulfill this condition, assuming cars are equally distributed in the operation area. On a single-car level, the purchase price of the car, fuel (or electricity), maintenance, and overhead are the most important cost categories. The specific costs per car for the provider depend on several parameters:

- **Car fleet.** The type of car and depreciation period mainly influence the hardware cost of the cars. Car-sharing services operated by OEMs will benefit from larger discounts on the purchase price compared to independent providers. Smaller cars result in lower fuel costs and lower depreciation and maintenance costs.
- **Operating model.** Free-floating car-sharing services face additional costs for relocating cars. Furthermore, they incur higher costs for more advanced hardware (for example, equipment for car unlocking by smartphone, Internet connectivity). In comparison, stationary services face additional costs for reserved parking lots.

On the revenue side, the most important factors are car usage and the pricing model of the car-sharing provider. Based on studies and expert interviews, average car usage is below 10 percent per day. Parameters influencing car usage are:

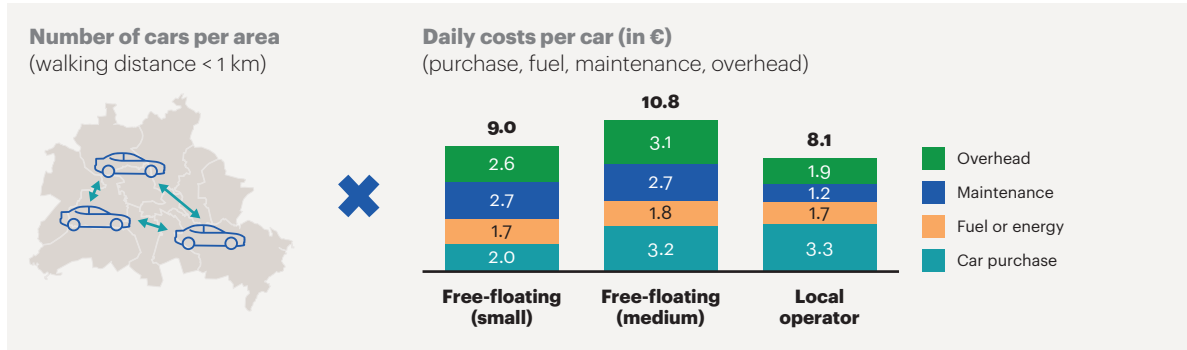
- **Number of users of the car-sharing service.** Besides population size, other factors such as population age and income level influence the size of the user group.

<sup>1</sup> Study "Car-Sharing in Großstädten," forsa, 2016

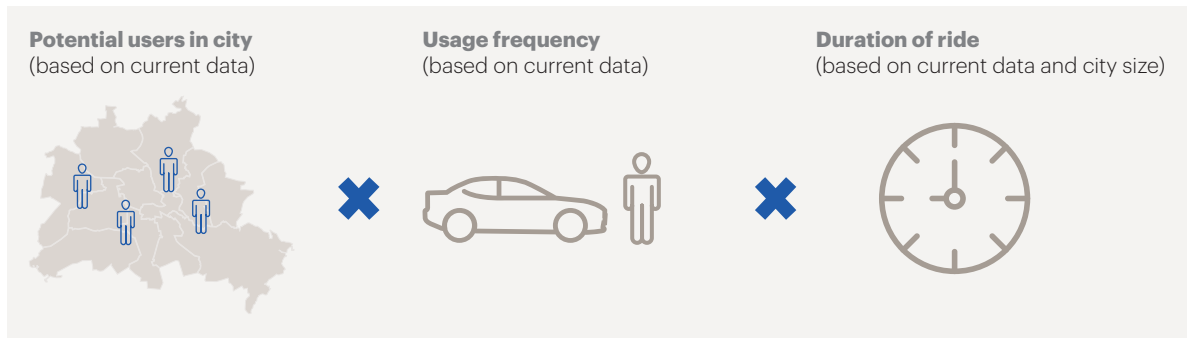
Figure 6

**Factors influencing revenue and cost of a car-sharing provider**

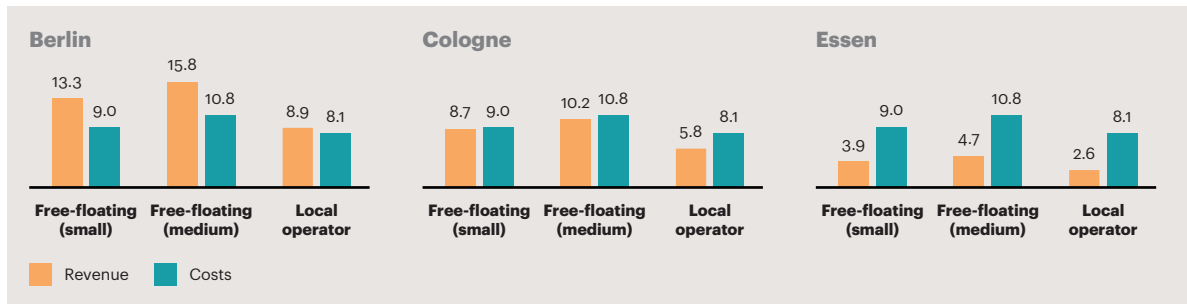
**Cost calculation**



**Revenue calculation**



**Daily profit (€/car)**



Source: A.T. Kearney analysis

- Usage frequency.** The usage frequency of the service by a user is determined mostly by the attractiveness of the service. Car sharing is in competition with public transportation, taxis, and private cars in terms of convenience and price. By increasing the density of cars in the operation area, the average distance to the next available car is decreased, which increases usage frequency.
- Ride duration.** The duration of a single ride depends on driving speed and distance traveled. The duration of a ride is generally longer in large cities, because the distance between points of interest increases as driving decreases due to higher traffic congestion. On the other hand, car sharing becomes less attractive in cities with slower-moving traffic, since most providers offer a time-based payment model.

## The effect of population density

Based on these parameters, it becomes clear that population density has a significant impact on car-sharing profitability in a given city. Cities with a high population density will have a larger number of users per car and hour, leading to advantages in terms of revenue. Detailed information on theoretical profitability for major German and several international cities can be found in figure 7. Theoretical profitability is calculated based on:

- The number of cars needed to cover the hot-spot areas of the city (with the assumption that the distance to the next available car is less than one kilometer)
- The potential user group living in the hot-spot areas of the city
- The average member rate of car sharing in the country
- The usage frequency of car-sharing members and the average duration of a ride

Figure 7

### Comparison of demographic and economic parameters for major car-sharing cities

City	Population (thousands)	Population in hot-spot areas (thousands)	Area (km <sup>2</sup> )	Population density (1/km <sup>2</sup> )	Share of population in hot-spot areas	Car-sharing profit margin	Car owner rate	Salary index
Berlin	3,520	1,783	892	3,946	51%	32%	29%	95%
Munich	1,450	422	310	4,677	29%	32%	33%	117%
Hamburg	1,790	427	755	2,371	24%	19%	33%	105%
Cologne	1,060	216	405	2,617	20%	-5%	34%	107%
Düsseldorf	610	110	217	2,811	18%	-9%	35%	101%
Frankfurt	730	83	248	2,944	11%	-80%	30%	119%
Stuttgart	628	13	207	3,034	2%	-177%	47%	126%
Dortmund	585	25	280	2,089	4%	-1056%	41%	101%
Essen	580	94	210	2,762	16%	-131%	40%	105%
Bremen	555	30	327	1,697	5%	-1025%	35%	105%
Dresden	545	97	329	1,657	18%	-250%	34%	97%
Hannover	530	71	204	2,598	13%	-196%	32%	101%
Nuremberg	510	71	187	2,727	14%	-172%	37%	101%
Milano	1,190	Not available	182	6,538	Not available	9%	Not available	
Vienna	1,790		415	4,313		16%		
Brooklyn	2,560		180	14,222		-46%		
Miami	454		143	3,175		-154%		
Prague	1,200		496	2,419		-55%		
Paris	2,200		109	20,183		81%		
Zurich	403		92	4,380		14%		
Kopenhagen	780		88	8,864		58%		
Helsinki	635		214	2,967		-26%		
Brussels	1,175		161	7,298		49%		

Sources: Statistisches Bundesamt, city websites; A.T. Kearney analysis

Even though mean population density and absolute city population size can be indicators for the financial success of car sharing, it's more important to look at a city's detailed population distribution. Significant car use can only be achieved in areas with a high local population density—so-called hot-spot areas. In these areas, the operator can afford a high density of cars, which ensures a short distance to the next available car and thus makes car sharing a convenient mobility option.

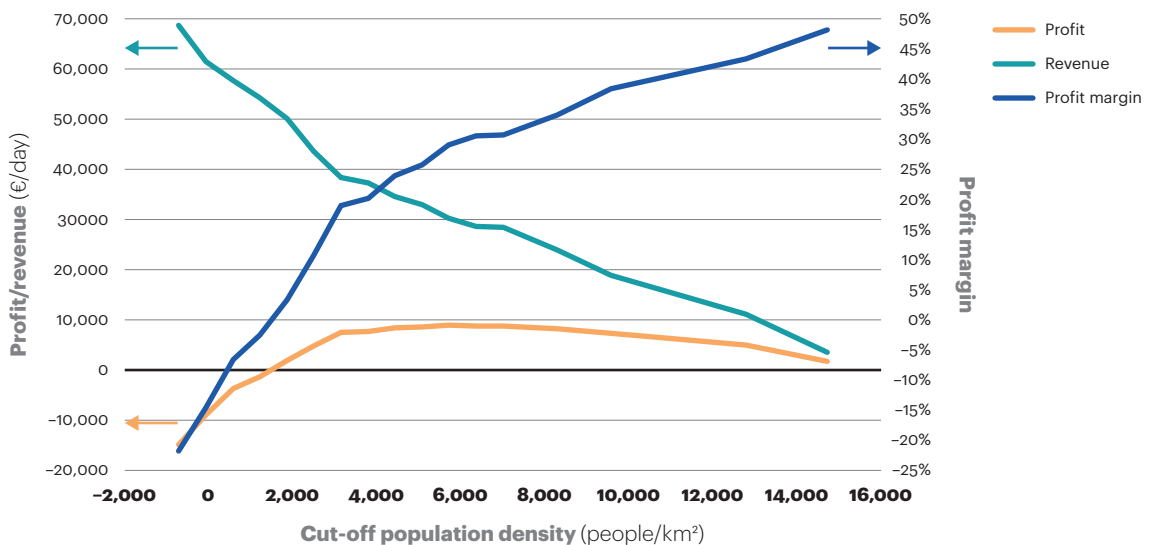
The right threshold for local population density can be identified by looking at the development of revenue and profit as a function of the area of operation with a certain cut-off in local population density. Assumptions for this calculation are:

- Cities are divided into official districts (Berlin: 96, Cologne: 86, Munich: 26, Hamburg: 104) for which area and population are known.
- Districts for the operation area are chosen based on different threshold levels of population density (from 3,000 to 15,000 people per square kilometer).
- The total area and population of the operation area are calculated.
- The number of cars in the operation area is calculated from the area (with a maximum walking time to a car of 5 minutes).
- Potential users are calculated from the total number of people living in the operation area.
- Revenue and costs are calculated from the number of potential users and number of cars needed (as described above).

Figure 8

**Profit, revenue, and profit margin as a function of the area of operation based on local population density**

(sample cities: Berlin, Munich, Hamburg, and Cologne)



Source: A.T. Kearney analysis

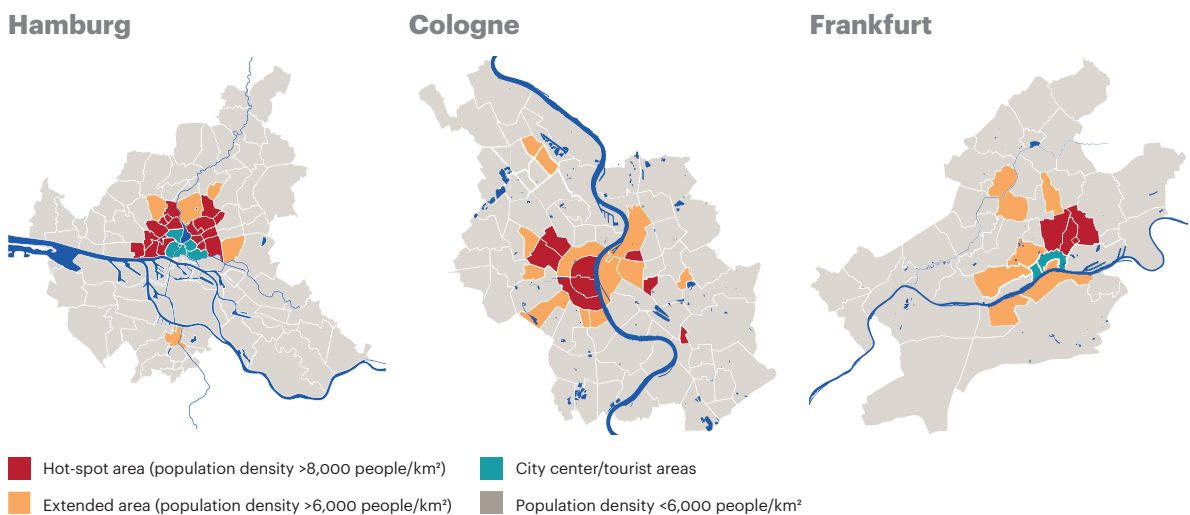
Figure 8 shows the aggregated result for the four biggest cities in Germany (Berlin, Munich, Hamburg, and Cologne). If the threshold for population density is lowered, the profit margin decreases, as the ratio between potential users and necessary cars is lower. Although these areas are less profitable, they contribute to total revenue, which therefore increases. Due to both effects, a plateau can be found in the total profit for threshold values between 6,000 and 10,000 people per square kilometer. By choosing the operation area based on these conditions, a car-sharing service can operate in the most profitable way.

## Replacement of the car ownership model: 5 percent is not a revolution

Assuming a minimum population density of 6,000 people per square kilometer, only a small part of the city population qualifies for the user group who can be served profitably (see figure 8 on page 13). By comparing different cities with a similar mean population density, significant differences can be identified in the share of people living in hot-spot areas (for example, 24 percent in Hamburg, 21 percent in Cologne, 11 percent in Frankfurt). In addition to the number of people in hot-spot areas, it's important that the areas are connected to each other and not dispersed throughout the city (see figure 9). This ensures a profitable area of operation and reduces relocation costs.

Figure 9

### Calculated areas of operation for Hamburg, Cologne, and Frankfurt



Sources: Statistisches Bundesamt, city websites; A.T. Kearney analysis

Based on the analysis of hot-spot area inhabitants in all German cities with a population of more than 500,000, only 4 million people qualify as potential users (see figure 10 on page 15). This translates to a mere 5 percent of the German population. Assuming these 5 percent would switch from owning a car to exclusively using car-sharing services (considering an average car owner rate of 57 percent in Germany), this would in the long term lead to a car park reduction of around 2 million cars in Germany, or 5 percent of the total number of cars. For the rest of the population, car sharing can only become a further mobility option in addition to owning a car or using public transportation for the duration of a hot-spot area visit. These figures—and the full switch of the theoretical 5 percent of the population to car ownership is already a serious assumption—clearly indicate that car sharing will not replace the ownership model.

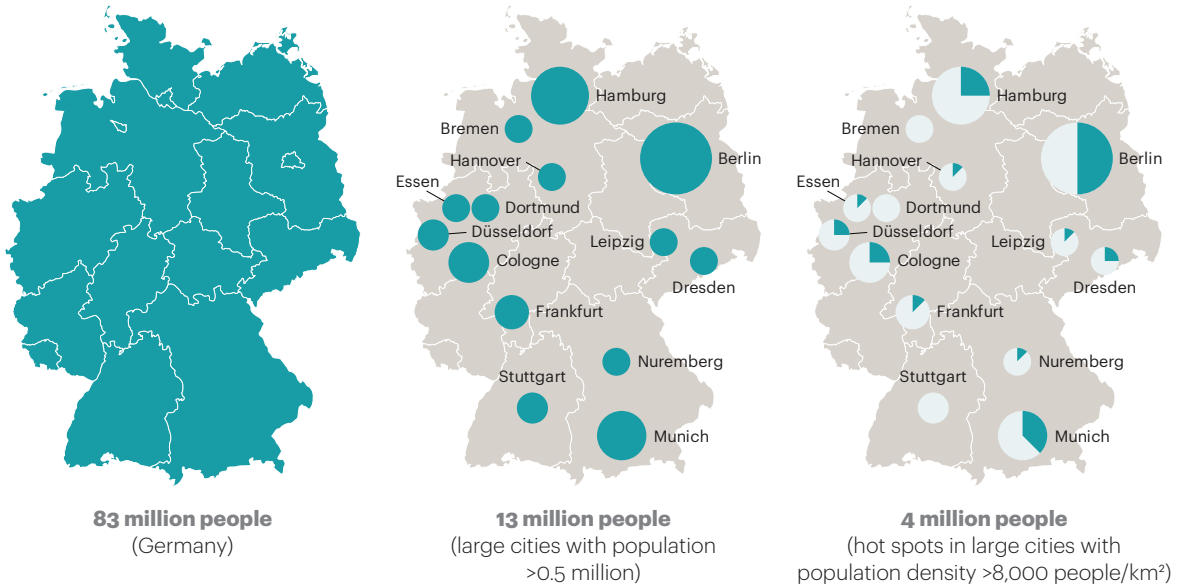
## Other factors influencing economic success

We can observe the significance of population density in the financial success of car sharing in a given city by looking at Miami, where car2go ceased operations due to low car usage. However, it's not only population density that affects the success of car sharing in a city



Figure 10

### Share of the German population able to participate in an economically successful car-sharing service



Sources: Statistisches Bundesamt, city websites; A.T. Kearney analysis

(see figure 11 on page 16). Cities such as Stockholm are good candidates from the perspective of population density, but in 2018, DriveNow had to discontinue its service after three years in operation because city-specific congestion charges and parking fees decreased profitability. Furthermore, administrative complexity can be responsible for the failure of car sharing. In London, car2go initially received an operation permit for only three of the 32 London boroughs. The company failed to convince the other borough administrations, which individually decide on parking permits and charging stations. As a result, the area of operation remained too small and car2go had to discontinue its service after 18 months.

Only cities with a high population density and connected hot-spot areas are suitable for financially successful car-sharing operations.

On the other hand, big car-sharing providers operate in cities with negative calculated profit margins—so clearly, secondary effects need to be considered when starting a car-sharing service in a city. The merger between car2go and DriveNow will have a significant impact on the profitability of the cities in which they are operating. By merging the two car fleets, the companies will be able to either reduce the number of cars in each city (leading to advantages on the cost side) or attract a larger number of users because of higher availability and shorter walking distances to cars.

Figure 11

**Crucial success factors in the economic success of car sharing for a city sharing provider**

<p><b>City size</b> (&gt;0.5 million people)</p> <p>Necessary amount of users and districts with high local population density</p>	<p><b>Local population density</b> (&gt;6,000 people/km<sup>2</sup>)</p> <p>Districts to operate car-sharing service profitably</p>
<p><b>Agreement with administration</b></p> <p>Permit for operation, parking, and placement of infrastructure (for example, charging stations)</p>	<p><b>Moving traffic</b> (average speed &gt;15 km/h)</p> <p>Otherwise slower than public transport and not much cheaper than taxi</p>
<p><b>Parking situation</b></p> <p>Short times for finding parking lot, otherwise car sharing too expensive</p>	<p><b>Population demographics</b></p> <p>Enough young people accepting car sharing as a mobility option</p>

Source: A.T. Kearney analysis

## Secondary Effects for OEMs

Following the profitability assessment of car sharing, there are additional aspects that can justify operating a proprietary service from the OEM perspective. While car sharing may not currently be regarded as a financial investment, it can certainly be considered a strategic one. OEMs can generate so-called “secondary effects” that can balance the financial losses their services cause if fleet usage is still insufficient to break even.

### Brand image

As car sharing is one of the more frequently discussed topics regarding new business models in the automotive industry, getting involved with a proprietary service has a direct effect on an OEM’s brand image. The effect can be differentiated in two ways: the perception of an OEM’s sustainability and the perception of an OEM’s progressiveness.

One of the key pillars of the sharing economy is sustainability. Sharing assets results in the consumption of fewer resources. To a certain extent, this also holds true for car sharing. If two people share one car, instead of buying two new ones, less raw material and energy are consumed for production and assembly. Similarly, only half of the physical space is needed, so cities could, for example, prioritize green spaces over parking areas. However, a reduction in emissions compared to private car ownership can only be achieved if car sharing extends to ride-sharing (with multiple passengers) or if the shared car has a lower fuel consumption than the private car.

Since car sharing is still a novel business model for major OEMs rather than an industry standard, running a proprietary service signals progressiveness and the ability to adopt new trends. Furthermore, it showcases that the OEM recognizes changes in the mobility landscape and is willing to adjust its offering to serve new client needs. In a time of continuous brand rejuvenation facilitated through design language, technology development, and marketing campaigns, car sharing presents an authentic way for OEMs to communicate the zeitgeist to existing and potential new brand customers.

## Customer relationship management

Getting involved with a new customer can be a challenging and expensive process for car brands. The broad spectrum of competitors combined with the high financial burden associated with car ownership make new customers a very valuable currency for brands. The annual report of the United States' National Automobile Dealers Association (NADA) determined that the advertising expense per new vehicle was \$624 in 2018. This amount has proven to be stable with only a slight decrease from the 2017 amount of \$629.

Car sharing offers OEMs the opportunity to present their products to a wider audience in a cost-efficient way. In many cases, this audience is young and, outside of car sharing, would not experience the brand's products at their age. Car sharing thus enables OEMs to establish relationships early in the customer life cycle. This can positively influence brand loyalty and increases the likelihood of brand interactions beyond using the car-sharing service. A customer can, for example, promote the brand's products in front of his or her peers. In case of a purchasing decision later in the customer life cycle, the brand is automatically part of the customer's awareness set. Since the customer is already familiar with the brand and its products, the purchase involves less uncertainty for him or her.

Due to this valuable opportunity, OEMs try to present themselves and their products in the best way possible. This is one reason why car-sharing fleets are closely monitored in terms of age, mileage, and mechanical and visual condition.

Furthermore, car sharing can lower the entry barriers for potential customers to try products. An official dealership test drive usually comes with several inconveniences. The customer must convince the salesperson that he or she is interested and in a financial position to purchase the car. From here, the customer and salesperson's schedules need to align, and the customer needs to drive to the dealership, which is often located outside the city center. Finally, after the test drive, the customer usually needs to evaluate the car, which may entail potential follow-up calls from the salesperson. In a car-sharing scenario, the customer can integrate the test drive in his or her daily routine without interacting with the dealership at all. This makes the process leaner, less binding, and more spontaneous for the customer. The dealership also benefits, as the customer pays for the test drive and does not consume any resources at this early stage of the potential purchasing process. Based on expert interviews, we estimate the average cost of a one-hour test drive at roughly €40, including human resources and vehicle depreciation.

The lowered entry barriers brought on by car sharing can be particularly well-observed for more exotic models. BMW has chosen to integrate the electric i3 in its DriveNow fleet and Daimler's car2go added 10 Mercedes-AMG CLA 45 models to their Munich and Hamburg fleets between November 2017 and October 2018. Both models have a high potential to excite customers and strengthen their relationship with the brand. However, due to their exclusivity, only a limited number of customers can experience them outside of the car-sharing context.

## Data collection

Another positive secondary effect of a car-sharing service that can benefit OEMs is the opportunity to collect data, both on customers and cars.

On the customer level, the OEM receives contact data. If the customer agrees to extended user conditions, he or she can be contacted regarding offers from the car-sharing service itself or even from the OEM brand. Furthermore, the OEM can track customer movements within the operating area of its service, preferences for specific models depending on customer

demographics, and the usage of specific vehicle features (such as the infotainment system). Finally, the car-sharing customer base offers an additional channel for direct product feedback.

On the car level, the OEM can analyze the durability of its products as input for future R&D improvement measures. Short-distance city driving with constantly changing drivers presents one of the toughest tests in terms of material stress. Analyzing wear and tear patterns of car-sharing vehicles can therefore serve as an early warning system, which complements the OEM's own test drives for continuous product improvements.

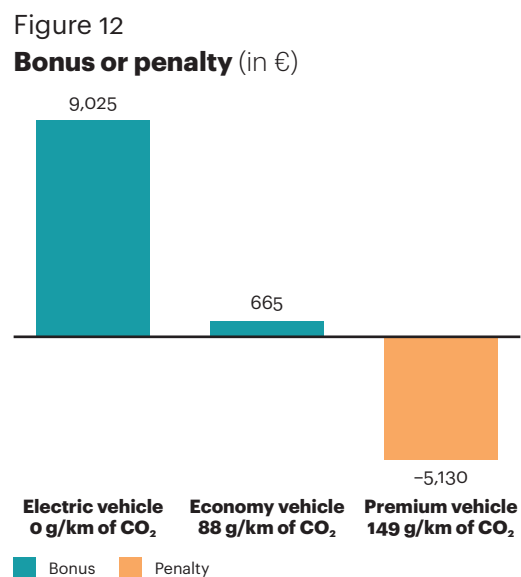
Car sharing presents an authentic way for OEMs to communicate the zeitgeist to existing and potential new brand customers.

## Fleet aspects

Car sharing's positive secondary effects for an OEM's fleet can be differentiated between emission penalties and demand volatility.

From 2021 on, the fleets of car manufacturers in Europe must not exceed 95 g of carbon dioxide emissions per kilometer. For every gram above this threshold, a penalty of €95 per sold car will be charged. A recent study from PA Consulting estimates that six out of 11 manufacturers active in Europe will not achieve this target and face annual penalty charges between €0.2 and €1.7 billion, depending on their average fleet emissions and number of cars sold.<sup>2</sup>

An OEM's car-sharing fleet, equipped with electric vehicles or low-emission economy cars, could counteract these penalties by lowering the fleet's average carbon dioxide emissions. Naturally, the impact of an OEM's car-sharing service on fleet emissions can only become relevant if the service's fleet size is significantly increased. However, on a single-car level, the planned carbon dioxide penalty could significantly improve the business case for an electric vehicle in a car-sharing scheme. If electric vehicles continue to be certified with an emission standard of 0 grams per kilometer of carbon dioxide, as BMW's i3 and smart electric drive currently are, each vehicle would carry an artificial bonus of €9,025 (see figure 12).



Source: A.T. Kearney analysis

<sup>2</sup> Study "The CO<sub>2</sub> Emissions Challenge," PA Consulting, 2017

Similar to balancing fleet emissions, a car-sharing fleet could be used by an OEM to balance demand volatility in its model portfolio. In the event that sales for a specific model drop and factory production cannot be shifted to other models, the car-sharing fleet can function as a temporary production capacity buffer. Certainly, current fleet sizes are not sufficient to serve this purpose but increasing use of car-sharing offerings and the resulting growth of fleets could make these aspects another positive secondary effect of car sharing in the future.

## Outlook

A more differentiated look at car sharing has shown that there are many parameters to consider beyond the growth figures of memberships and fleet size. While customers acknowledge the benefits of the business model, they are aware of its current limitations and in many cases regard car sharing as an additional mobility option rather than a fully fledged substitute to private car ownership. Current members who predominantly seek to combine the lowest cost with the highest convenience will continue to challenge providers' business models. Increasing network density is thus an important way for providers to make the service more convenient and boost usage. To achieve this, a close collaboration between providers and city administrators is required. This can facilitate a better integration of car sharing in public transportation and ensure advantages over private vehicles such as reserved parking. From a financial perspective, a boost in usage will decide whether car sharing can break even as an independent service or whether it remains dependent on positive secondary effects for OEMs.

We will continue to observe the market and the impact of technological trends such as drive-train electrification and autonomous driving. A future A.T. Kearney publication will analyze the business environment for car sharing in emerging markets. Higher population density combined with rapidly growing metropolitan areas and a lower car-ownership rate will change important fundamentals of the business model in these markets.

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