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Management from the NOVA – School of Business and Economics

THE GERMAN car sharing MARKET
CONSUMER PERCEPTIONS AND BEHAVIOR

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APPENDIX

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APPENDIX

Exhibit 1: Overview conducted expert interviews with managers of Bundesverband Carsharing e.V. and car sharing providers

					
Interview date	09.05.2016	20.05.2016	06.05.2016	19.05.2016	12.05.2016
<i>How can the popularity of car sharing grow further?</i>	Promotion, as many consumers are lacking awareness about CS in their neighbourhood; SB offers are almost invisible A big opportunity would be CS stations in public space to be more visible	Customers get attracted by our concept as an alternative to forego car ownership, due to smaller costs, the parking issue – CS should be present close to people's residences and offer various models- this will increase popularity for the future	Rededication of public spaces for car sharing: different legal state and assign them special parking rights	Right now the diesel scandal is affecting CS as well as the whole automotive sector Another problem is the limited parking space and how to find free space for CS stations	Attractive car models and a competitive price, as well as a outstanding service is essential to grow CS popularity further
<i>What are the company's next goals?</i>	Promote CS further and reach customers on a national and regional basis to commute sustainable So we are working on developing the CS law	Goals of each Stadtmobil branch differ Currently we have a fleet of 70 cars, with a constant growth, which should continuously go on, considering customers, currently we are counting 2.000 –which we target to grow to 3.000 in 2020	Extend partnerships with housing construction		We will further work on the loading stations infrastructure concerning both the places as well as technology
<i>How did your business model, but also the customer needs change over time?</i>	n/a	Today the business model got adapted to be more profitable the economic growth and sustainability of bigger fleets is key. CS has several operational challenges – which gets bigger the more we grow. Customer wise the thought of sustainability gets smaller through a cost/benefit motivation and some customers are using our service just as comfort and do not need a car – but we need to adapt to the demand	First the main motivation was environmental, today the main focus is on customer service and customer satisfaction	Today customers are having higher expectations, while cars used to be rather utility, today they are aligned with comfort	Our focus is to be system service for electronic mobility, we do not compete with commercial CSPs which focus on urban areas with non electric cars We are very future oriented and working together with franchise partners, mainly municipalities
<i>Can you tell me something about your different target groups? Is there a typical customer profile?</i>	CS offers in general is targeted to an academic educated population with a high income, or the expectation of a high income in the future Other targets, which could profit of our service are	Our focus is on young families between 30 and 40 with kids in the urban area of Berlin. Beyond, we are one of the few CSOs with a big base of business customer base. They are of a special importance due to the bookings which	Our main customer target is the segment well educated, well earning environmental conscious city-livers between their mid-thirties and mid-fifties. More than 70%	Targeting all age groups of urban livers, especially residents of areas with limited parking opportunities Then we are obviously also targeting business customers, 39% of our customers are	Our focus is on electro mobility, this is an holistic view. Municipalities are our main customers with a 1 vehicle per municipality concept, for the rest of the time private customers

	however less interested, e.g. low income consumers for which car ownership is a financial burden The different offers are targeting however different customers: FF tech affine masculine users, SB rather as car substitute, they are on avg. 10 years older than FF customers FF customer tend to characterize driving as pleasure SB customers: a car is a mean of transport	generate utilization during the week and are using it on a general basis. Peak times are for us usually the weekends. Our business customers are usually smaller enterprises, counting between one and 10 employees – as law offices, architects, boutiques, language schools and associations They are relying a lot on CS and can enjoy the variety of our offer, e.g. minivans for associations	of our customers are holding an academic degree. Growing segment of business customers station	commuting for business or business and private purposes, So business is an important business for us We are having a high customer loyalty, of users commuting with our cars since years, this is like a family Our customers are commuting a lot by PT	are renting the cars
<i>Are you using different marketing strategies for different customers?</i>	Advertisement is done by the operators themselves, however I can state that once certain targets are focussed, as e.g. Cambio is doing it with students, they reached significant results Since CS is not exactly a industry generating huge profits, there is not yet a lot of marketing activities	We are not doing a lot of marketing campaigns and activities, however we are present on sustainability festivals. Otherwise we do not invest in marketing except for our website. Every month we are having one solicitation campaign. We want to target our customers specifically and we do not want scrappers, we need solvent customers This is why we have a subscription fee and monthly fees we want sustainable customers	Recently established campaigns to target people above 60 “60+”, and under 25, “Young Mobility”	We are offering special tariffs for the different private and business segments Furthermore communication is adapted according to the targeted segment	Our customers are our partners: due to our high collaboration with municipalities and associations we are customizing the cars according to their requirements and needs
<i>How are customers using your services?</i>	There are some consumers using CS as additional mobility tool, others completely forego car ownership In any case since our purpose is to change mobility behaviour both kind of customers are doing it FF is also sustainable as it targets an auto affine and tech affine target	We are counting a loyal, logterm customer base. Usually, when people are quitting our service, this is for a reason since they do not use our service, or move away or if we had to close their When we get new customers we ask how they knew of us and this is mainly internet and word of mouth	We are having a focus on hourly, daily and weekly rents. A lot of non-car holders are renting vehicles for their vacations and daytrips. Weekends in summer and holidays are peak times	Booking is done from 15 minutes before to 3 months and also usage purpose differs from weekly supermarket shopping, to daytrips or even holidays	We are having main renters, as municipalities, which are renting the cars themselves. Additionally the cars are getting rented by other customers in the sharing concept

<i>What are special partnerships and collaborations?</i>	Partnerships with the majority of CSOs CS projects are often promoted and supported by municipalities	With Cambio we have a long partnership already. However, the Berlin case is different since we are both present here – the feedback is good since the fleet increased from 70 to 130 cars by the partnership – we will see the further development	Partnership with the public transportation company Special focus on partnerships with construction building companies to integrate mobility stations in new buildings	Especially collaborations with PT is essential, since CS and PT are depending upon each other	Partnerships with the final customers as they are municipalities
<i>How is it possible for you to prevail the OEM-owned providers? How do you contrast against them?</i>	FF operators are present in metropolitan areas with more than 500.000 inhabitants, this is why FF is only present in 12 cities FF has a brighter customer base and more vehicles, however it is differently dispersed, SB offers are operating in a more regional way, in certain markets the SB operators are stronger	While the FF services invest a lot in marketing and offer a quite different concept, us established SB services can still profit from it due to the increasing popularity I would not define DriveNow and car2go as competitors but rather as supplements: a lot of our customers are subscribed with them as well – while they are going with us to work, and during the weekend they commute with our cars Flinkster is SB offer as well as Cambio and Greenwheels, with them we need to compete on the criteria of price and fleet characteristics – everybody is having a niche	We are having a different focus, target customers, who in fact are foregoing car ownership, higher vehicle/customer ratio compared to DriveNow	Our offer is already very different: While OEMs are offering mainly small cars for city commutes, are we offering different models according to every occasional need – this is besides pricing the main difference between us and DriveNow/ car2go Our whole business model differs a lot since the FF are having the financial backup	Due to the different business concept, regional coverage and operating model- we are not competing with the OEMS
<i>How would you describe your contribution towards environment and the subject of sustainability?</i>	As association we were founded out of the motivation for sustainability. Households without own car are commuting more by public transport and bike, even when using CS it is only one mean of transport additionally CS fleets are newer and more environmentally friendly than the average car	Of course we are looking for vehicles with low emissions, a new fleet- then of course we support the idea of foregoing ownership	CS relieves the environment: one CS car in average substitutes car ownership: five private cars are abolished and the planned purchase of five further cars is not necessary anymore	Obviously we are looking to keep cars as environmental friendly as possible, currently the average CO2 emission is of 104 g/km Furthermore a policy of CSR is operated within the company One vehicle of Cambio substitutes 40 privately owned cars 85% of our customers do not own a vehicle after joining us	We are using only renewable energy for our electro mobility – this is an holistic view and can be noticed as a huge factor of our success, this is a completely sustainable project,

<i>What is the average booking time per vehicle? How much time in advance are users reserving cars? What is their main usage purpose?</i>	n/a	We have different kind of bookings: the smaller cars are usually booked for a shorter time, between 1 and 6 hours- beyond, estate cars are getting booked also for holidays- and are booked between 1 and 3 weeks- this is typically during summer, the classic booking is from Fri – Sun for leisure activities	Max 2 years in advance until 5 mins before needed customers can book a vehicle, main usage is for leisure activities but also business customers	Booking duration depends strongly on the vehicle and the location, where the vehicle is parked. In average our rentals are for 4 – 8 hours, depending on various factors	Communities can block the vehicles up to 8 hours daily, the rest of the day private customers are renting the cars, for usual shorter commutes in the region
<i>How would you describe the future of the German car sharing market?</i>	I see a bright future: the market will grow further, however slightly slower than during the last years, when growth was steep due to FF market entry, I guess by 2020 we will reach 2 Mio. customers	Right now we are experimenting projects about the station size etc., further collaborations will play an decisive role – I think a future vision would be a collaboration among all providers – for a higher level of customer service I see room for further development – sharing is sustainable this is why I see the market raising	The car sharing landscape will stay the same of established players today (as they are already holding a strong position. The market did not reach its full potential yet and continue growing.	The parking situation will stay the same, we really need to work on that Furthermore we are having the pricing argument, which will promote the whole sector even further especially once the social change is conducted and a car will loose its role as status symbol I think the future lies in bigger projects such as CS stations integrated in new apartment buildings	I see a future for electro mobility in its dispersion and wider differentiation of CS I consider electro mobility as an essential part for all providers as well as networks and collaborations among each other to offer a higher value and convenience for customers, in a medium run I see autonomous vehicles as a substitute for mobility

Exhibit 2: Interview StattAuto München Olaf Rau (06.05.2016)

In Germany, there are around 1,3 Million registered members of car sharing services. The projected market growth looks very promising. How can the popularity of car sharing grow further and what are the next goals of StattAuto München?

One major topic those days is the subject of rededication of public spaces for car sharing, in other words the claim for a legal framework to rededicate public parkings for car sharing. This topic is a long-term discussion since 10 years and is now launched in Berlin. This subject still is a huge challenge and would promote the whole car sharing sector significantly, once realized. This would give car sharing a different legal state and assign them special parking rights in public space, comparable to a taxi stand. Right now the parking situation in some neighbourhoods is sheer difficult.

Furthermore I would wish for aligned parkings for Station-based providers within public space in the future. This is one of our major goals and I really hope we will get there soon. Than car sharing would also become more visible. This is also one of our difficulties that our cars are often parked underground and in contrary to DriveNow not very visible in the streets. This would promote our service and make us more popular.

One of our major goals for the future are the partnerships with housing construction and we are already planning the next projects within this field. We are having already a big number of inquiries from over 10 constructing companies for the next 3 years. This is a very special advantage of StattAuto München and we are doing already our station planning for the next 3 years. So as soon as the construction permits will be available, we will start working on it. Those projects are offering a win-win situation for both: for the construction companies as they have to provide less parking places and we are having a stable and reasonable station planning.

Stattauto München was founded 1992 and was one of the first car sharing providers Germany's. Today you count a customer base of 12.500 and a fleet of more than 470 vehicles. How did your business model, but also the customer needs change over time?

In the beginning, our association was overall focussed on the environmental motivation. Today, environmental motivation still is one of the arguments, why customers actually join our service, but our business model grew beyond. Our offer includes 470 vehicles on assigned stations. It is our focus to improve the parking situation in Germany, and make car ownership in consequence almost redundant. Therefore our growing strategy means offering a station-based concept, which is as comprehensive and proximate as possible. This model will prove itself also in the future. Our business model differs fundamentally from the one of free floater, we see them as market companions, with a very different orientation.

Our motivation still is sustainability. From the customer side customers are joining us to forgo car ownership and sustainability and environmental friendliness is also their major focus. Compared to the 1990s we are not only targeting eco-concerned people but this is still one of our major concerns. Therefore, our pricing is essential to be an attractive alternative to car ownership.

Can you tell me something about the different target groups of StattAuto München? Is there a typical customer profile?

We are counting a big number of customers, which are not using a car throughout the year but commuting by public transport or bike within the city. Then they are renting three times per year one of our cars for their holidays. This is not typical for other car sharing locations, but Munich is having a special position due to its location close to Italy and Austria, where people use to travel by car. We are having very attractive prices and can compete with classic car rentals. We clearly have a high utilization with long commutes. Pricing is calculated by a combination of time and km driven (see Exhibit xx). This clearly sets us apart from the free-floating offers. We have a clear majority of customers who only use our service to go on holidays, do daytrips to the nature and other leisure activities. The percentage of in city commutes on the other hand is not as high.

Lately we note a high growth rate within the business customer segment. Those are companies, associations and clubs, which are using our services instead of investing in their own fleet. This segment is constantly growing and by now counts already for 25% of all commutes. The utilization concept of those businesses differ. Some of them still have their own fleet of company cars and use our service additional for times when they have a higher demand for vehicles, others are replacing company cars completely by our service. In general those corporations are all based in Munich. The profile of those companies are typically SMEs with 20 – 30 driving beneficiaries, among others we have the social welfare work, several nursing services and the German Alpine Association as business customers.

Our main customer target is the segment well educated, well earning environmental conscious city-livers between their mid-thirties and mid-fifties. More than 70% of our customers are holding an academic degree.

During a long period of time we faced difficulties to reach the very young customer segment of 18 – 25 and the segment of 60+. Those were by far the weakest segments.

Are you using different marketing strategies for different customers?

Now we introduced new concepts to target those segments: the pricing tariffs of “YoungMobility” and “Generation 60+”, were a success and strengthened our position among those segments.

“YoungMobility” is an offer directed to students and young adults in apprenticeships: it charges only an one-time subscription fee and is free of security deposit or any fixed costs, therefore it charges prices of 10% higher than the classic model (but still below the costs for DriveNow). The advantage is clearly that customers only pay by use.

The “Generation 60+” model is an offer, where seniors can test our service without any subscription, security deposit or fixed costs for three months. This serves mainly to take them their skepsis and make the familiar with our service. After three month they can decide to stay with our service if they got convinced, or not and only then the usual payments fall due.

With those two marketing measures, we are targeting the weakest customer segments, which we reached before hardly. For students a security deposit of EUR 500 of course is an issue, and often also the barrier to subscribe to our service. However, obviously it is important to target especially the young segment, since this means also an investment for the future. If students like our offer, they will stay with us and switch after finishing their studies towards our standard tariffs. Our experience shows exactly this, and we already could transfer some of the students to our normal pricing.

How are customers using StattAuto München's services?

We are one of the car sharing providers in Germany with a very efficient utilization rate of approximately 40%, which is very high in this industry. In general utilization depends strongly on the season we are having a strong focus on bookings for leisure activities. We have periods of high utilization, during which the system is almost 100% utilized to capacity, those are Christmas holidays, the long Easter weekend (from Friday to Monday) Whitsun holidays (*explanatory note*: two weeks of school holidays in Bavaria) and the summer holidays. In general weekend in summer demand is very high, especially the long weekends with holidays and bridging days. This is due to bookings for quick trips outside Munich.

Our strongest month of the year is August, then estate wagons and minivans are completely booked out. This shows also one of our major benefits for customers: we – as any of the bigger classic station-based providers offer them the possibility to choose a vehicle from a broad range of our offer according to their current needs. We are offering them 9 classes of vehicles, making customers quite flexible. This counts for 3 different sizes of transporters, 2 different minivans, various sizes of passenger cars – so we can offer the appropriate car for each purpose. It is hard to generalize the bookings as we are having all kind of usage times from 1 hour to 5 weeks.

What are special partnerships and collaboration of StattAuto München?

For environmental reason StattAuto München is partner of MVG, MVV (*explanatory note* : public transport companies in Munich), environmental associations, churches, cities and municipalities housing associations and cooperative societies. Furthermore, we are having very important collaborations with all major apartment construction companies, and are having various marketing campaigns and in this scope as we are part of new construction of housing estate from the very beginning. This is a particularity here in Munich with a long tradition, which started among 15 years ago with the “Münchner Genossenschaft” and evolved to today's cooperation with all Munich based property developer. The point of it here is to integrate car sharing in new apartment complexes from the very beginning. Those mobility concepts take part of the whole building planning and are involved at the municipality's planning. The benefit for apartment construction companies is that they do not have to offer as many parking spots for a building as without the car sharing stations.

Usually there is a regulation by the Munich municipality, which means one parking spot per apartment. Once, a mobility concept with the collaboration of StattAuto München is part of the building, the necessary amount of parking spaces is reduced. We are the only car sharing concept in Munich involved in those mobility concepts and the only one having the necessary technology to realize it.

We are working here with so called “electronic safes”, which are placed in the apartment building and containing all the keys for the vehicles. The particularity of this system is that cars in underground garages can be served, and mostly we are talking about underground garages. So it is necessary anyways to place keys for the garage somewhere outside. With this technology we are one of the first movers in Germany.

Today several of those mobility concepts are realized and in use already and a big success for our company. The involvement in housing projects is a huge subject for our company and by now elaborated to mobility stations containing not only cars but also bikes, electro bikes, cargo bikes electro scooters, all handled via our booking system and safe. Right now we are in the planning for the next housing project with a total number of 2000 apartments and our last completed project is in the North of Munich a complex of 1700 apartments, which will be opened this month. Here we are having a mobility station offering partially electro mobility. Those are the future mobility trends.

We are having cooperations with other car sharing ORGANISATIONS, which are located in other cities in order to build up a Germany-wide car sharing network for our customers, which are enabled to rent cars travelling in other cities to the same conditions as here in Munich. This means that our customers might be in Cologne, Frankfurt or Stuttgart and can easily drive there with their membership. This offer is accepted

very well and has good response rates. We made a major accomplishment just last week: by now our customers can even book automatically the vehicles of our partner Stadtmobil automatically via our website and app and unblock it with their card. This is a major step for the future. And we will extend this collaboration also with cambio in their cities. Step by step an widespread network will be built. This will put us in a even more competitive viable situation with the Cservicesoffers of OEMs.

Which role is the German Association for Carsharing (Bundesverband carsharing e.V. – subsequently named bcs) having for you. How is this network helping StattAuto München?

Bcs is working as umbrella organisation and one of the subjects they are mediating actively is the one of parking in public space. Then of course the collaboration with bcs comes along with further advantages: they are acting as industry platform, offering specialized events and framework agreements with some of the major OEMs, where we are getting directly specialized purchasing conditions. This is one of the major benefits they are offering to us smaller providers, since we are getting better prices due to greater sales. Due to this leverage effect we do not have to negotiate with the local distributor.

What is the average booking time per vehicle? How much time in advance are users reserving cars? What is their main usage purpose?

In our booking system, it is possible to reserve a vehicle 2 years in advance or only 3 minutes in advance. So we offer both, long-term planning and spontaneous usage and both are very important. For example, the German Alpine Association might reserve all our minivans for one weekend even 1 year before. For such a big event it is of major importance for them to have all vehicles at their disposal, and they need to plan beforehand. On the other hand we are having a big percentage of spontaneous usage, due to good weather at the weekend etc. And both is possible. Still compared to DriveNow, we are a bit less spontaneous, since our vehicles are not parked on the street.

Can you tell me something about your customer loyalty? How many regular users do you have?

Due to our business system, working with monthly payments, basically all our members are loyal customers, using our service on a regular base, at least once per year. This is one of the major differences from the OEM-owned carsharing services.

How is it possible for StattAuto München to prevail the OEM-owned providers? How do you contrast against them?

We have to be very careful with the success of free-floating providers in term of memberships. Obviously the free-floating providers car2go and DriveNow are having the biggest customer bases in forms of members, however those statistics contain numbers of registered members, who are actually non-users and never use the service. We are talking therefore of a really big number of nominal members. Since the system is not charging any fixed costs, it does not matter if people actually use the concept or not, but they keep registered. Additionally, those members often subscribed for free in the frame of a special promotion, and might be subscribed to three or even more providers. Our station-based system works very different and due to monthly fees, basically almost all our members are active ones.

Looking at the market situation in Munich, I can show the benchmark with DriveNow: in terms of vehicles their fleet is approximately as big as ours, between 250 and 500 cars, but looking at memberships we are having 12.500 members, while they count 130.000 registered members. This shows obviously that DriveNow is having a high percentage of non-active customers, because it is sheer impossible to supply more than 100.000 active members with that fleet size. The other car sharing providers as stadtmobil and cambio Köln are experiencing the same.

We are having fixed monthly payments which are written off yearly, and after this about 28-40 customers leave our service each time. Those are just people not using the service anymore.

First, when DriveNow entered the market in Munich, the consequence was a slower growth in terms of new customers for us. Lately there is a conversion trend of users of DriveNow, who than are joining our network and often they are telling that they actually never used DriveNow. This development dominated the last two years, however since some month we are having a boosted customer growth again. By now the customer growth for us is even stronger than before free-floaters entered the market. This can be constructed however to various facts. Experts already predicted this development some years ago, that free-floaters will generate growth also to station-based concepts due to stronger attention. This is due to the fact that users get to know the car sharing concept at all by freefloaters, however they realize after a while that this offer is not sufficient for them to replace their own car.

The market in Munich however changed after the entry of FF providers: in the past we had a huge market in Munich with zebramobil and citecar, which both ended insolvent. Therefore a lot of former customers of those providers are joining our network.

This shows clearly, once the free-floating providers are entering the market, the well established Station-based services can survive, however, smaller providers and start-ups get cannibalized. Since we already counted 10.000 members at the time, we were not affected so much by the entry of the OEM CSSs.

Freefloating generates high investments in the beginning, however this is of no interest for OEMs car2go made one year 6 Million losses, but since for the OEMs a car sharing division serves as marketing effort, it is fine anyways. The BMW board made this clear themselves when they entered with DriveNow. Their main goal is not about profitability or sustainability, but to offer users the possibility to get familiar with their vehicles. And transfer them into future buyers. Additionally BMW is a future oriented enterprise, which needs the car sharing division to their transformation as mobility providers.

How would you describe StattAuto Münchens contribution towards environment and the subject of sustainability?

Car sharing enables users to relief environmental pollution. For one car sharing car in average five private cars are abolished and the planned purchase of five further cars is not necessary anymore. At least another 10 cars are saved as users are commuting less by car in general. On average 25 participants are sharing one car at StattAuto München. This comes along with a reduction of emissions, reduction of space needed for vehicles, more economical utilization of cars and a increasing use of public transports. This positive eco-political importance is acknowledged on all political levels. For this reason StattAuto München is partner of MVG, MVV (explanatory note : public transport companies in Munich), environmental associations, churches, cities and municipalities housing associations and cooperative societies.

What can you tell us on behalf of electro mobility?

First of all, this is due to customer behaviour and as I told our users are mostly using car sharing for their holidays, trips and longer commutes. For us electro mobility is only a small part of our business and we are right now collecting the first experiences. We are still at the testing phase. Now at the new apartment complex, we are offering our first electric car, which is subsidized by the city of Munich. The problem with electro mobility is still mainly the high costs. We bought the Nissan Leaf for a price of 33.000 EUR – for the same price we could have bought two transporters. We cannot transfer those high prices to our customers. With DriveNow this is different as they are producing the electronic vehicles in-house at BMW and want to promote them anyways. They can easily include 20 BMW i3. For us this is aligned with more difficulties and we are right now testing this concept. Now the first electronic vehicle is at a mixed station together with four conventional models. The municipality of Munich plans a new subvention of EUR 5.000 for businesses, which are buying an electronic car, so we will see for the future.

How would you describe the future of the German car sharing market?

I think it will grow even further, and due to the high presence of automotive groups, so Daimler with car2go and BMW with DriveNow, in metropolitan areas small providers won't be able to compete on the long-term. So I think the car sharing landscape will stay the same of established players today (car2go, DriveNow, cambio, stadtmobil, StattAuto München, teilAuto, book-n-drive etc), as they are already holding a strong position. Smaller providers, start-ups and new entrants however will face difficulties in the long-run in my opinion.

I am convinced that the market did not reach its full potential yet and continue growing.

Exhibit 3: Key facts on social – economic trends in Germany

Germany has the fourth largest GDP in the world, making it the largest national economy in Europe, caused mainly on the success of its exports (welt.de). Germany has a population of 80,2 billion, of which 61% are forming part of the active population between 20 and 64 years old. has the trend of an ageing population (see Exhibit 2), with an average mean age of population of 35 years and a median of 45,8 years. Active population is counting for 61% of the total population of 80 (www.destatis.de). 2014 Germany noted 40,2 Mio. private households, counting an average household size of 2,04 persons, already two thirds of households are single or two-persons households (see Exhibit 3). 77.4% of German households are possessing at least a car, in average there is 1,046 cars per household in Germany (Statistisches Bundesamt 2016). In 2015 the disposable income per capita in Germany was EUR 23.040 and is expected to grow by 1,4% in real terms. Out of their spending (EUR 2448 monthly per household) Germans dedicated 2010 14,1% (EUR 342) to transport, of which approximately two thirds (10%) counted for costs of holding a car, and 4% for other means of transport including bike and car-sharing, with public transportation counting as leading position.

Exhibit 4: German population in age groups in Millions by reference date 31.12.2014

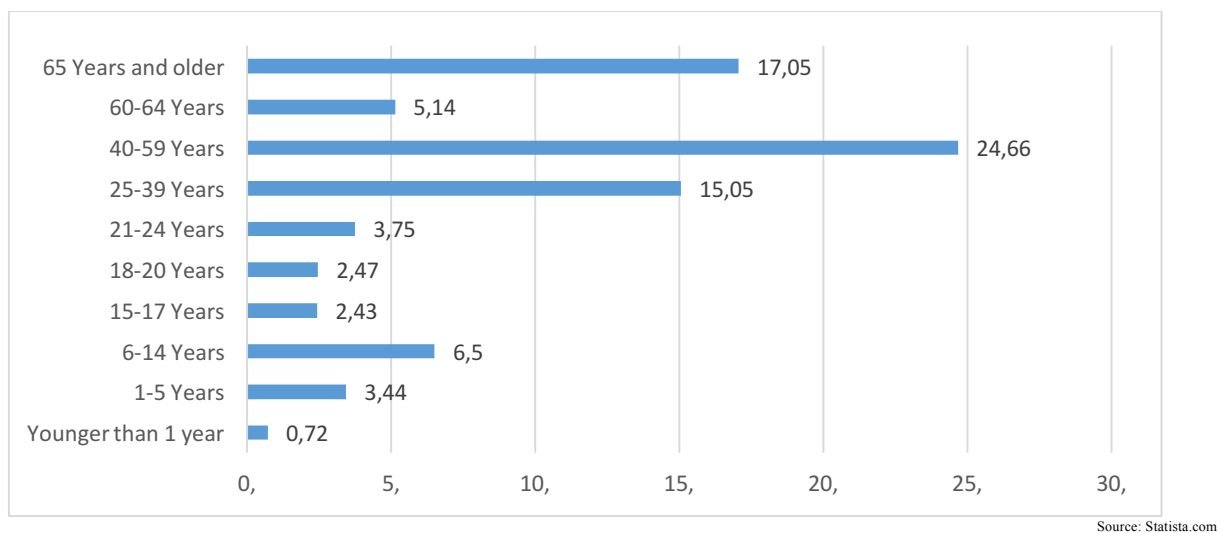


Exhibit 5: Number of households in Germany based on persons between 2000 and 2014

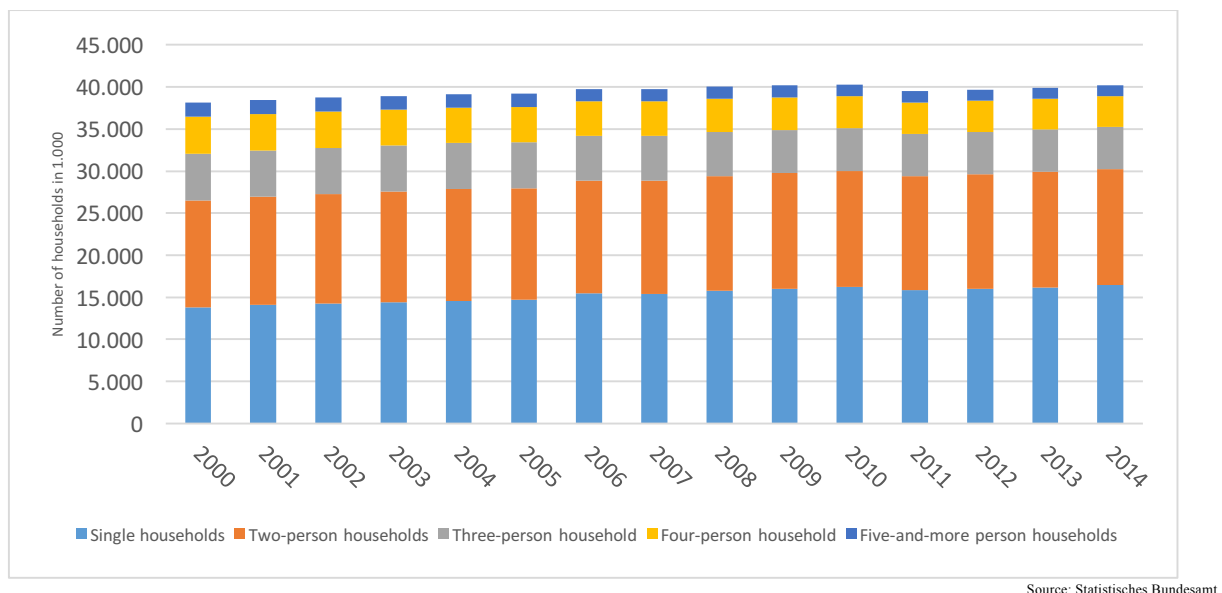
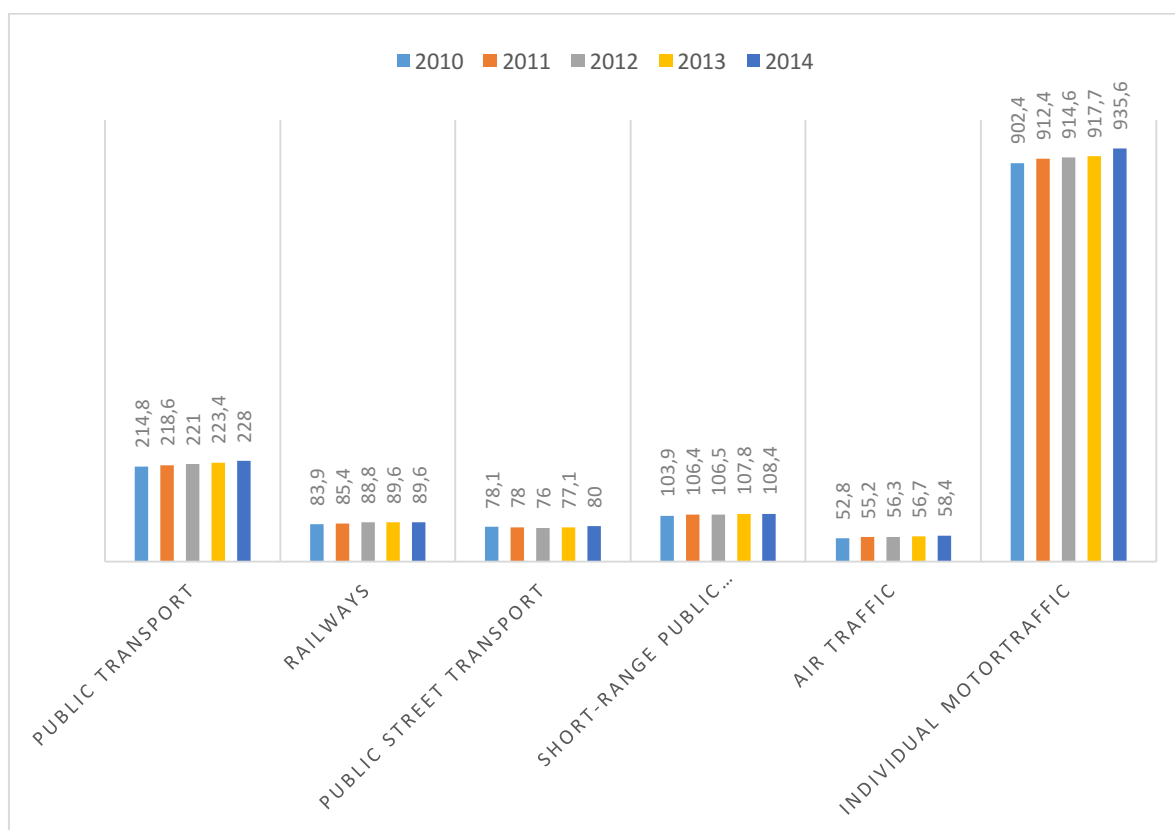
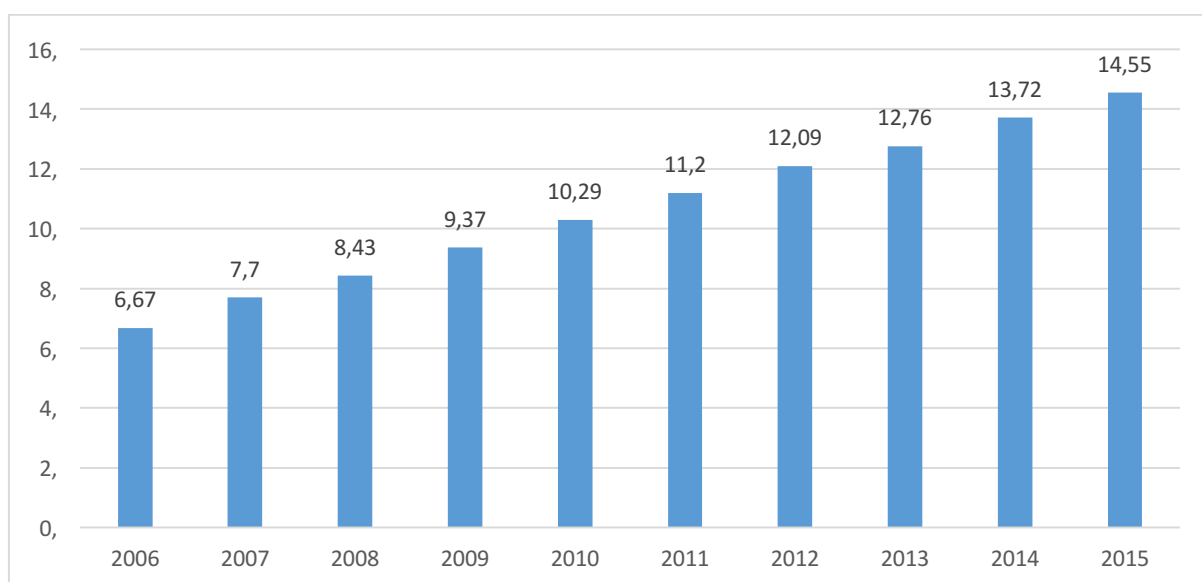


Exhibit 6: German Passenger Traffic by Transport Category 2010-2014 in billion passengerkilometre



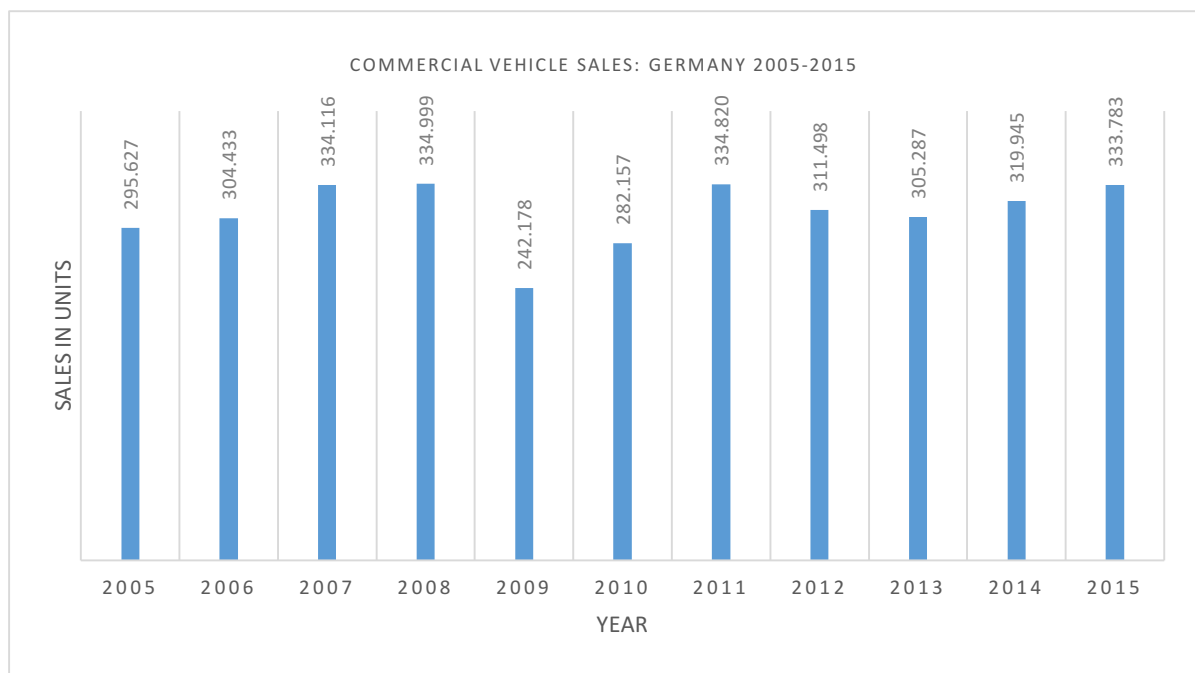
Source: ADAC e.V.

Exhibit 7: Total number of driving licences in Germany from 2006 until 2015



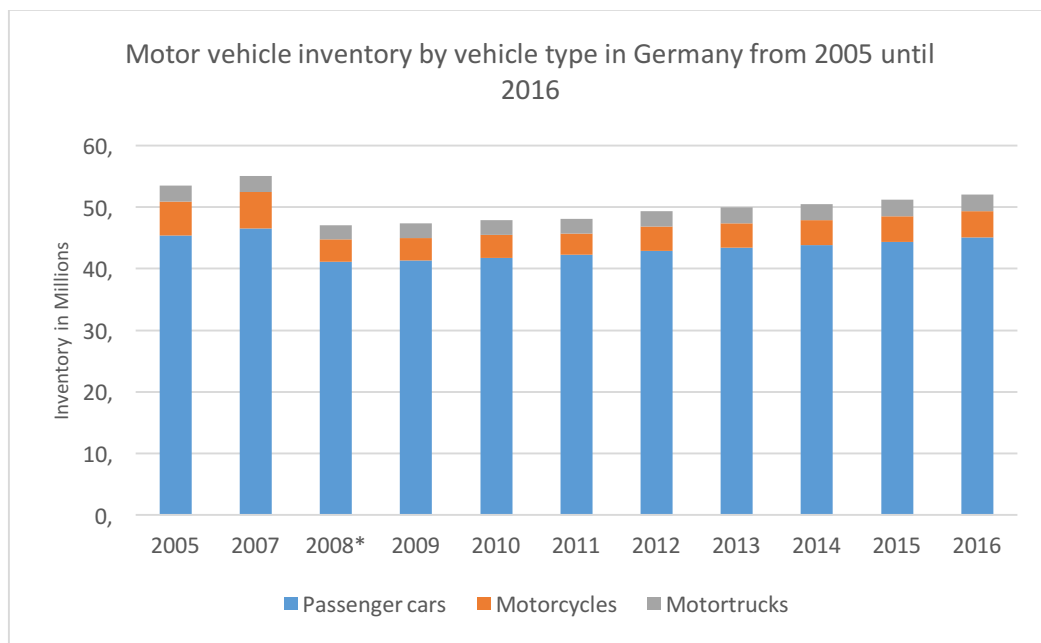
Source: Statista.com

Exhibit 8: Vehicle Sales in Germany 2005-2015



Source: Statista.com

Exhibit 9: Motor vehicle inventory by vehicle type in Germany from 2005 until 2016 (in millions)



Source: Statista.com

Exhibit 10: Average age of passenger cars in Germany from 1960-2015

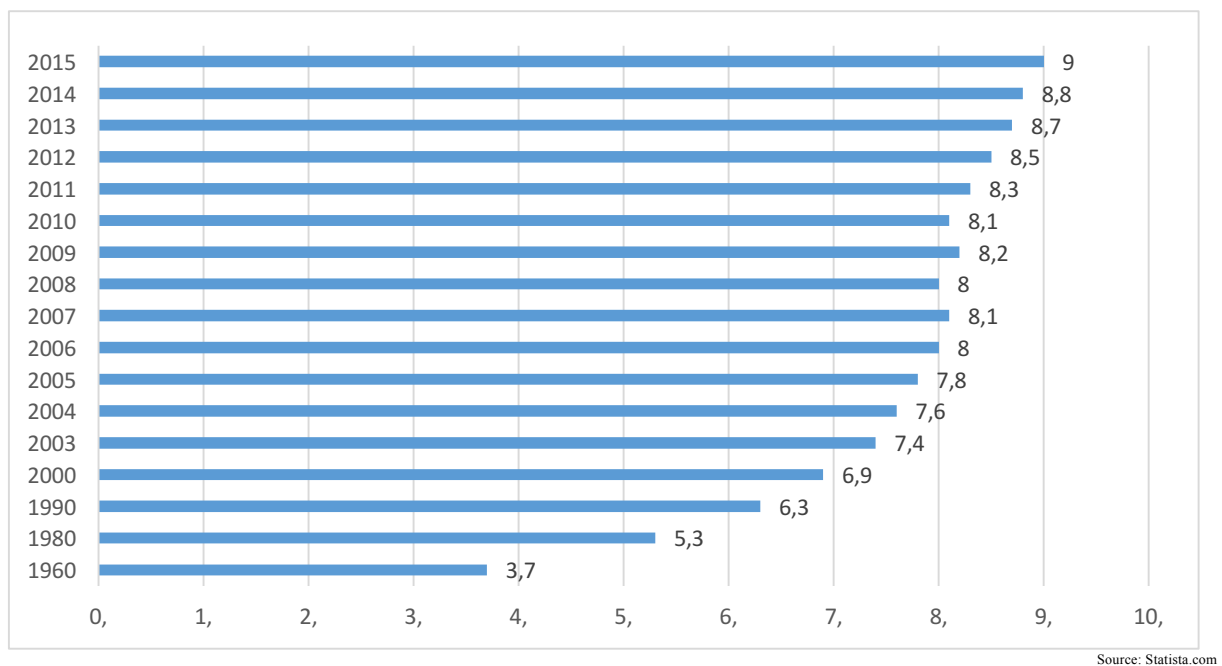


Exhibit 11: Number of passenger cars in Germany from 1960 until 2016 (in 1.000)

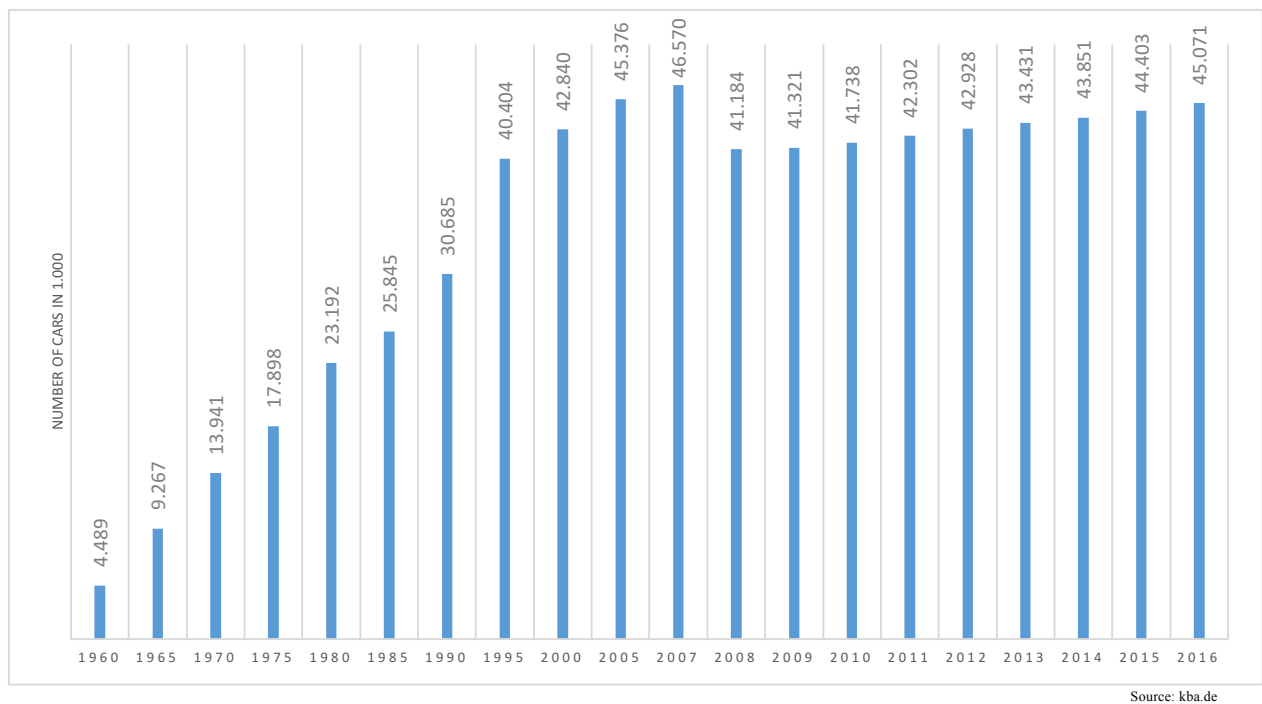
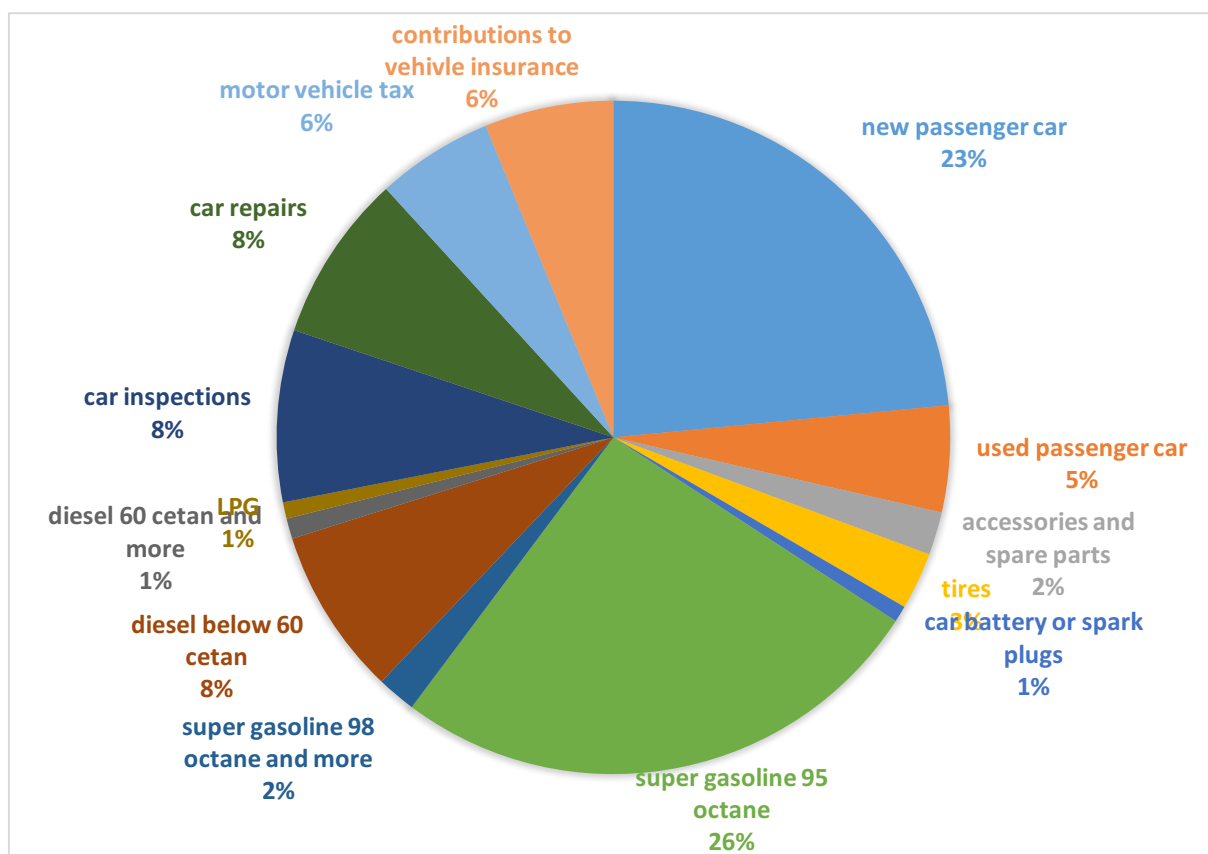
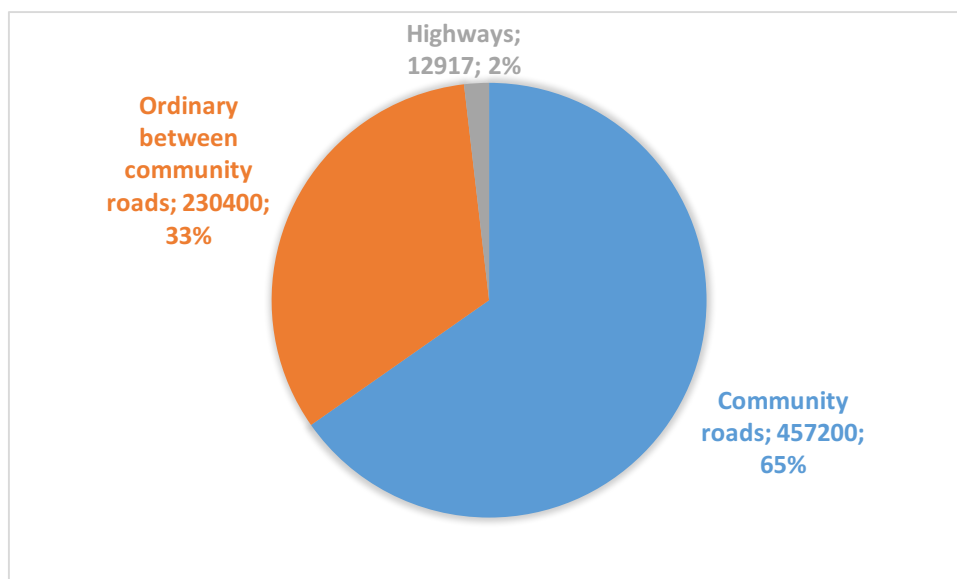


Exhibit 12: Costs of car ownership in Germany in categories based on the consumer price index (CPI) 2015



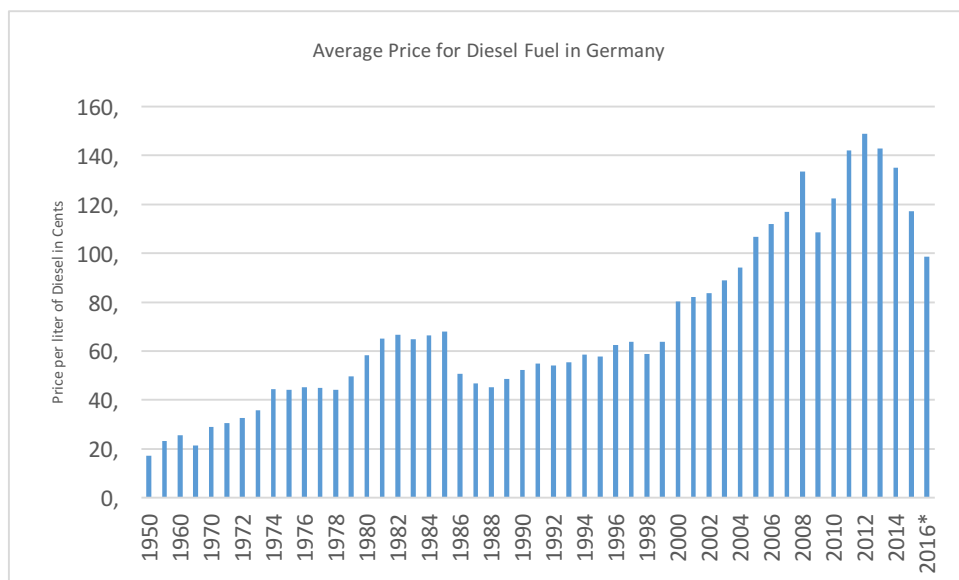
Source: Bundesamt für Statistik

Exhibit 13: German road network 2015 (in kilometre)



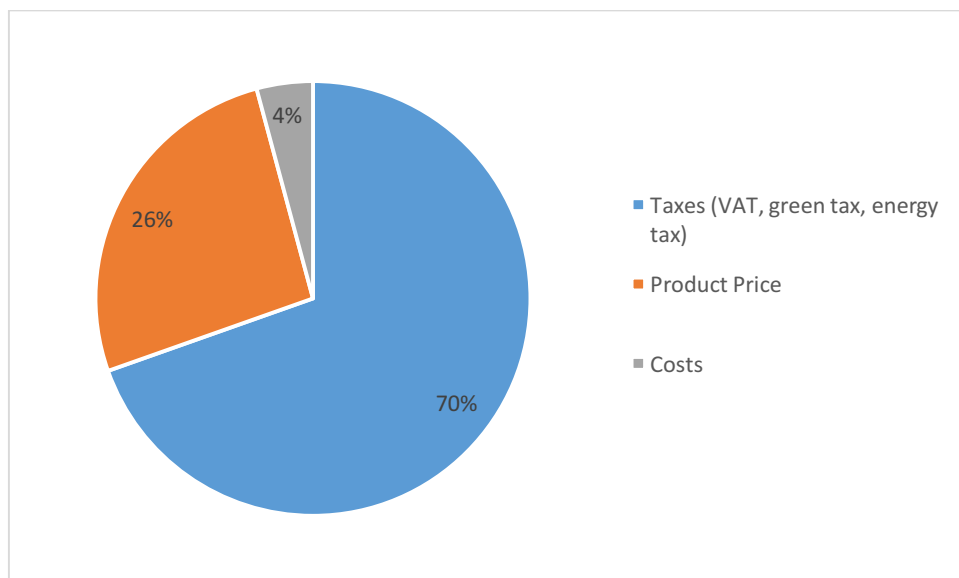
Source ADAC e.V.

Exhibit 14: Average price for Diesel fuel per litre in Germany from 1950 until 2016



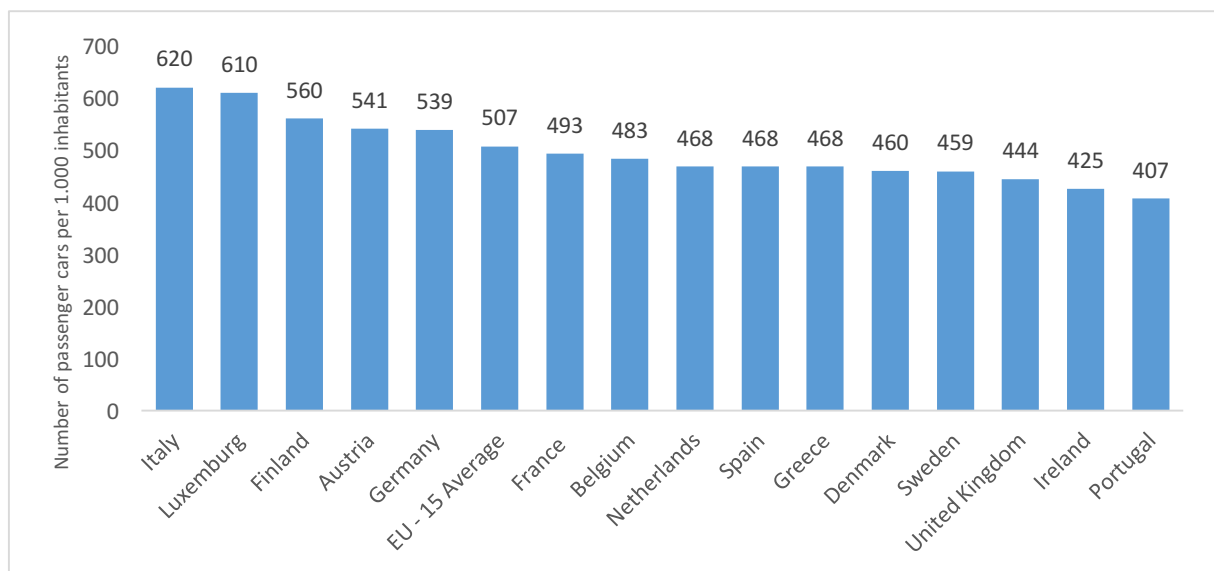
Source: ADAC e.V.

Exhibit 15: Composition of the fuel price per litre in Germany as of March 15th 2015



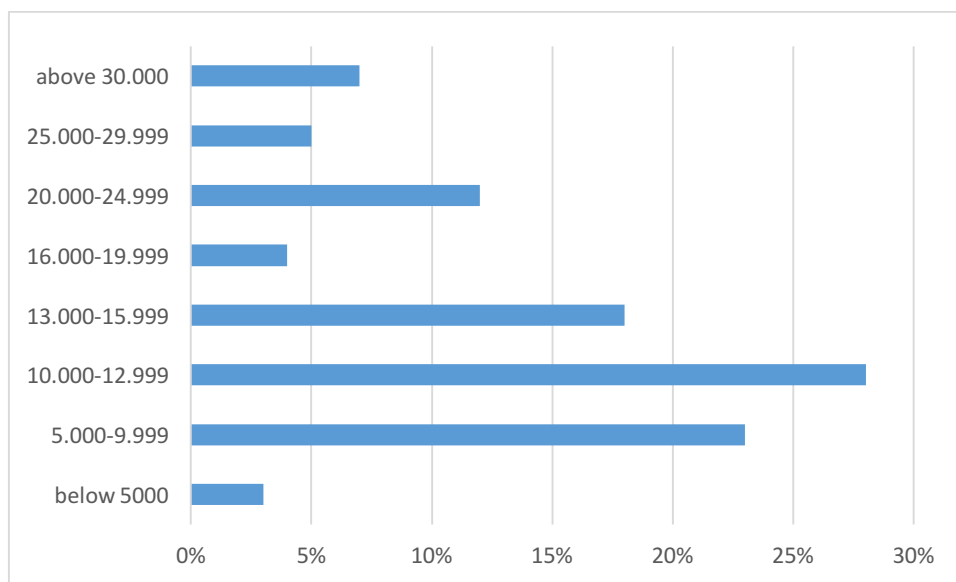
Source: Statista.com

Exhibit 16: Passenger car density in the EU-15 countries in 2012



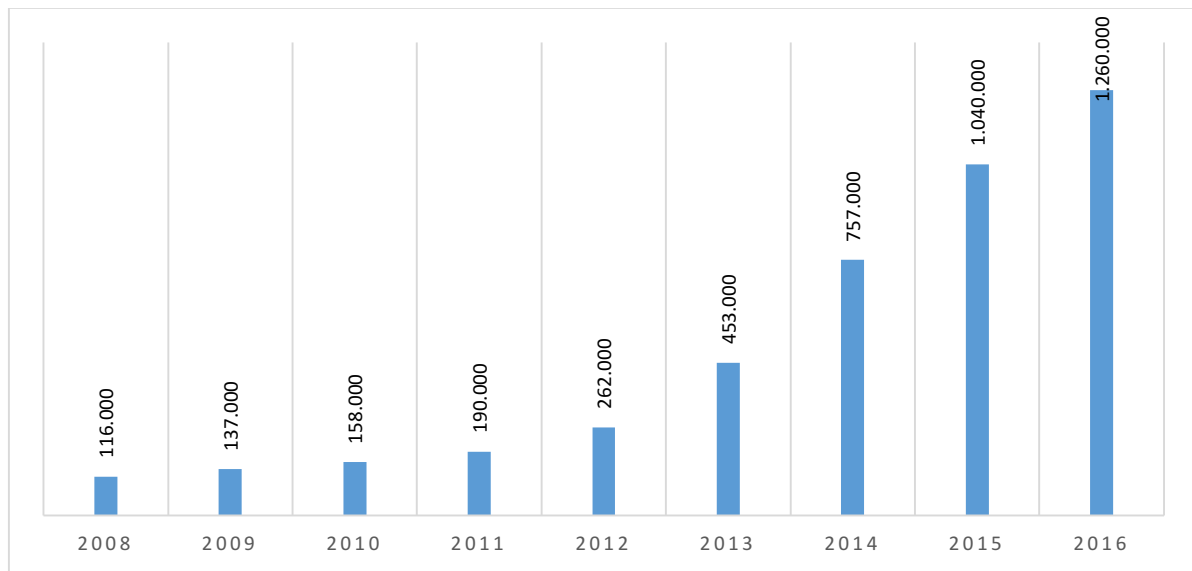
Source: ADAC e.V.

Exhibit 17: Annual kilometres travelled by car by German car keepers (2015)



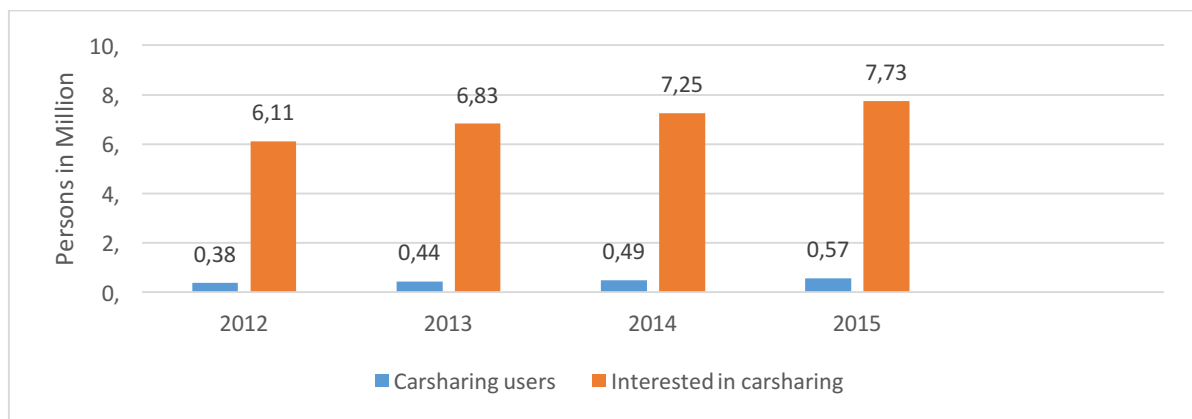
Source: DAT

Exhibit 18: Number of registered car sharing users in Germany 2008-2016



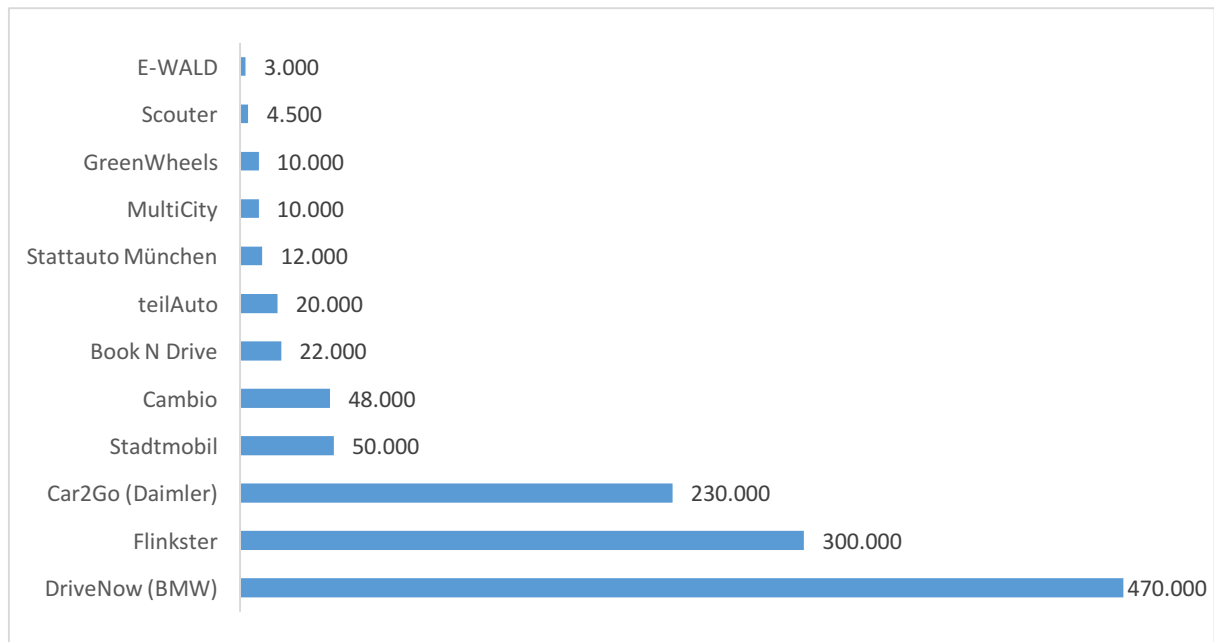
Source: Bundesverband Car sharing e.V.

Exhibit 19: Survey concerning the interest in car sharing 2012 – 2015 in Germany



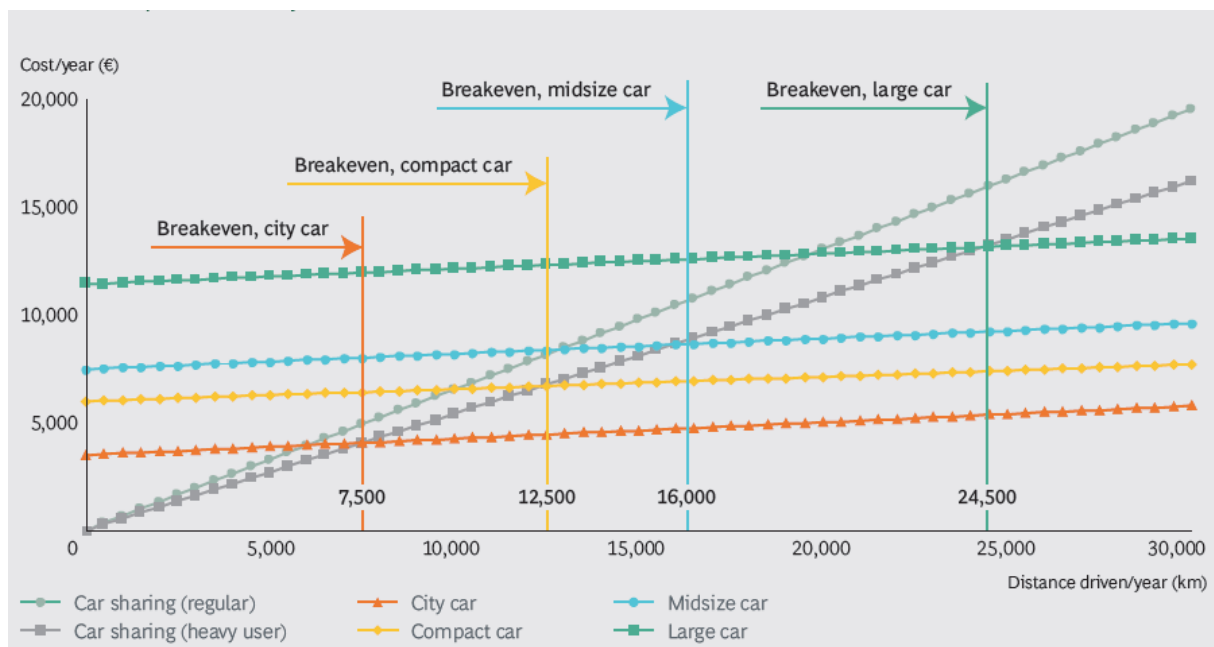
Source: Statista.com

Exhibit 20: Largest Car sharing providers by customer base 2015 (September 2015)



Source: Statista.com

Exhibit 21: Breakeven analysis car sharing vs car ownership based on vehicle classes



Source: BCG Analysis 2016 based on ADAC and car sharing companies information

Exhibit 22: Breakeven analysis car sharing vs car ownership based on vehicle classes

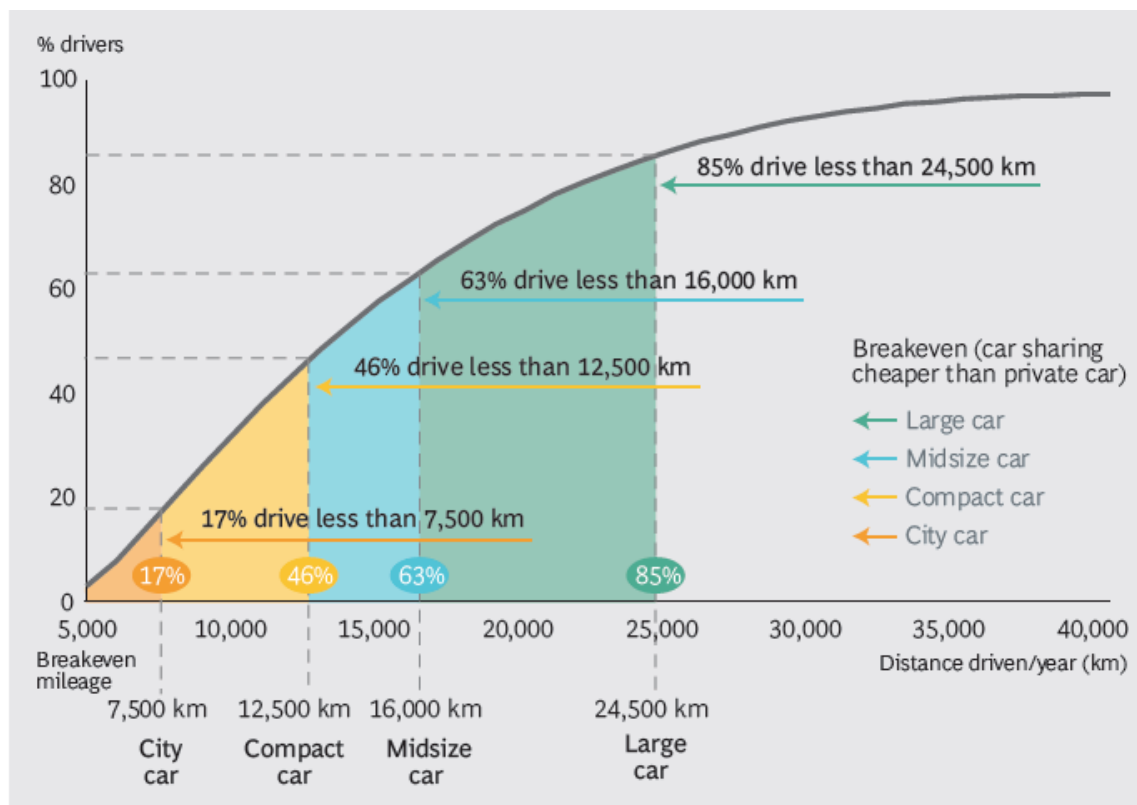


Exhibit 23: Different forms and business models of car sharing

<u>Round-trip car sharing</u>	Round-trip CS is an already longer existing form of CS. Users need to reserve the vehicle beforehand via a smartphone app or website, mostly they need already to book the vehicle, with specifying the rental time. The car fleet is owned or leased centrally by one CS provider and parked mostly centrally in dedicated parking places. The special characteristic of this form is that the car usage is “round-trip”, so customers need to return the car at the end of the renting period at the same station, where they began the trip.
<u>Peer-to-peer car sharing</u>	The structure of this model is decentralized and vehicles of the fleet are property of different private owners, so they are located widespread. The car owners, who decide to give access to their vehicles get monetary compensation for the time other users use their cars. The operating company provides an online platform to bring car owners and prospective renters together and offers often as an additional service an insurance to the vehicle owners in case of accidents during the car rental.
<u>Point-to-point free-floating car sharing</u>	Point-to-point free-floating CS enables users to pick up and return the cars anywhere within a defined business area within one city. Cars can be reserved either via the corresponding app or website, or just be taken spontaneously on the street. Unlike the concepts which were introduced before, this type of CS promotes a spontaneous and flexible usage. The fleets are centrally owned by the operators. This system needs a contractual agreement with the city department responsible for the on-street parking. The pricing is calculated by travelled time or distance or a combination out of the two factors. This form of CS demands a big fleet from the beginning a minimum coverage throughout the business area, even in the beginning average utilization occupancy is low. This is why this type of CS got very popular by the market entry of manufacturers such as Daimler with car2go 2008, or BMW with DriveNow 2011, as OEMs had the necessary resources to survive the initial time. The high level of investment needed and the difficulty to reach profitability are reasons for DriveNow’s and car2go’s focus on metropolis counting more than 500.000 inhabitants (Bundesverband CarSharing e.V. 2015).
<u>Point-to-point station-based car sharing</u>	Station-based CS means the user picks up the vehicle from a certain station and drops it at another one. The stations are provider owned parking spaces providing a certain infrastructure such as a customer service, or charging stations for electric cars. The backside of this model is higher costs for the provider, to rent and manage the parking spaces and a lower degree of flexibility as customers need to return the vehicles always at the assigned stations. The two latter types of CS are both subject to demand flows (Le Vine, Zolfaghari, and Polak 2014).

Warm-up

Good morning / afternoon / evening. My name is Lea Loderer and I'm currently a student of NOVA School of Business and Economics. In the scope of my final work project/ master thesis, I am conducting a research related to the usage and consumer perception of car sharing.

For this purpose, I would like to interview you for approximately 15 to 20 minutes, by means of an in-depth interview, which means that I will ask you several questions, to which there are not right or wrong answers and you are free to say whatever comes to your mind on the subject.

- Do you have an own car?
- What comes into your mind when you hear the term car sharing?
- Which car sharing providers plop up in your mind?
- Do you have any personal experiences with car sharing? (Do you use it/ Did you ever use it/? Why?/ Why not?)
- How did you first hear about car sharing?
- Which advantages are coming along with car sharing?
- Describe a typical day during the week/ weekend.
- For which occasions do you use car sharing?
- What are the (dis-) advantages of car ownership? / Is car ownership attractive? (why/Why not?)
- What are the (dis-) advantages of car sharing?
- Do you use other products/ services of the sharing economy?
- IF YES → Which ones?
- IF NO → explain → Do you use Netflix, Airbnb, etc.?
- Which associations do you connect with car sharing?
- How do your smartphone apps help you to organize your everyday life?
- Which of your apps help you specifically with your daily commutes?

QUESTIONS ON MEDIA CONSUMPTION

- How do you keep up to date with news and events?
- How do you keep up to date with new technologies?
- What sources of news do you check out regularly?
- At what time of the day? And for how long in total?
- (social media, TV, magazines, printed, blogs etc.)

QUESTIONS ON GENERAL PURCHASING BEHAVIOR

- What are you in general looking to when buying a new product?
 - Quality
 - Price

- Brand
- Price/quality ratio
- Strong brand name
- Recommendations from family and friends

IMPORTANT TOPICS

Perception on car sharing & experiences

General idea about mobility & freedom

Symbols and ideas connected to car ownership

Get the lifestyle and attitudes - subculture (to make a connection with car sharing)

Exhibit 25: : Questions for the semi-structured interviews for non-car sharing users

Warm-up

Good morning / afternoon / evening. My name is Lea Loderer and I'm currently a student of NOVA School of Business and Economics. In the scope of my final work project/ master thesis, I am conducting a research related to the usage and consumer perception of car sharing. For this purpose, I would like to interview you for approximately 15 to 20 minutes, by means of an in-depth interview, which means that I will ask you several questions, to which there are not right or wrong answers and you are free to say whatever comes to your mind on the subject.

For the purpose of analyzing our interviews later, I would like to record our conversation – would that be ok? It will remain anonymous and you will not be contacted further past this interview.

- Do you have your own car?
- Which brand?
- What comes into your mind when you hear the term car sharing?
- Describe a typical day during the week/ weekend (which role plays your car/ how often do you use it)
- For which occasions could you imagine using car sharing?
- What are the (dis-) advantages of car ownership? / Is car ownership attractive? (why/Why not?)
- What might be the advantages/ disadvantages of car sharing?
- Do you use other products/ services of the sharing economy?
- IF YES → Which ones?
- IF NO → explain → Do you use Netflix, Airbnb, etc. ?
- Which associations do you connect with car sharing?
- How do your smartphone apps help you to organize your everyday life?
- Which of your apps help you specifically with your daily commutes?
- Do you connect those only with car ownership or also with car sharing?

QUESTIONS ON MEDIA CONSUMPTION

- How do you keep up to date with news and events?
- How do you keep up to date with new technologies?
- What sources of news do you check out regularly?
- At what time of the day? And for how long in total?
- (social media, TV, magazines, printed, blogs etc.)

IMPORTANT TOPICS

- Perception on car sharing & experiences
- General idea about mobility & freedom
- Symbols and ideas connected to car ownership
- Get the lifestyle and attitudes - subculture (to make a connection with car sharing)

Exhibit 26: Semi-structured interviews insights; Possessed cars among interviewees by brand

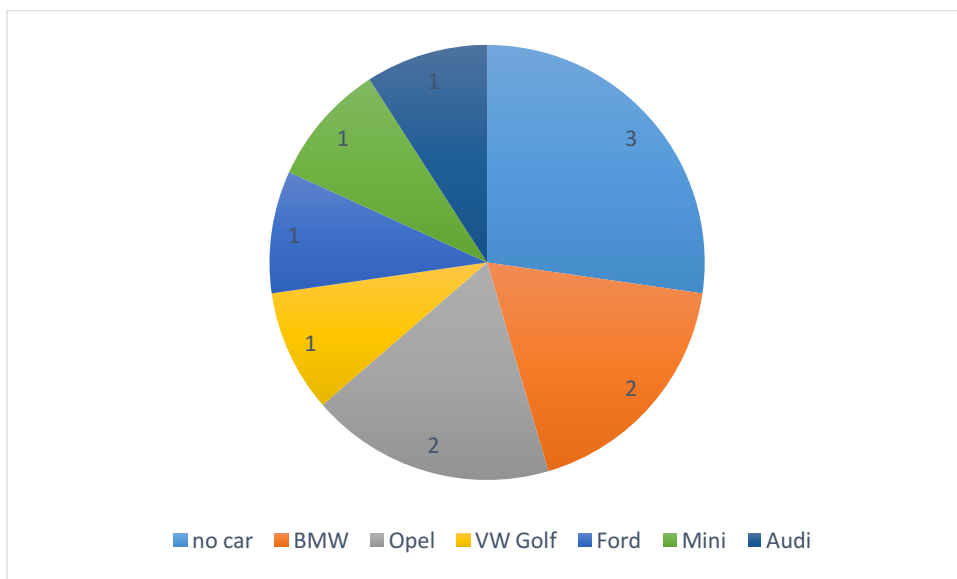


Exhibit 27: Semi-structured interviews insights, Vehicle usage when driving

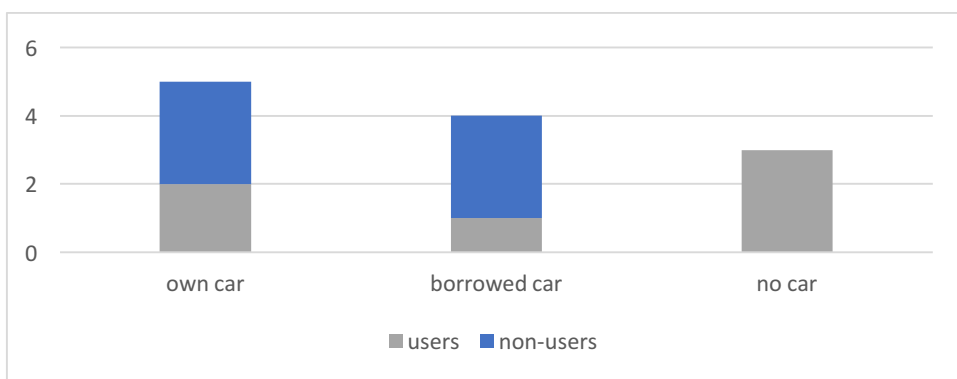


Exhibit 28: Semi-structured interviews insights; Connections towards car sharing of car sharing users vs. non-users

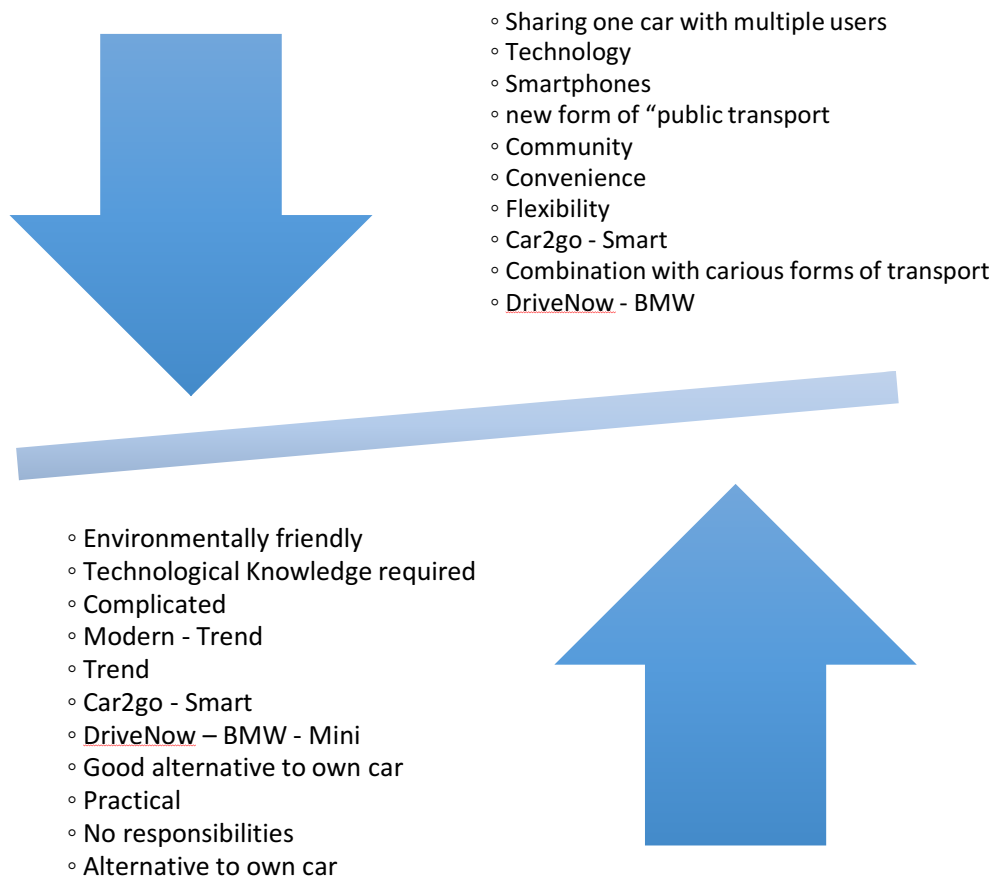


Exhibit 29: Semi-structured interviews insights; Associations towards car sharing by users and non-users

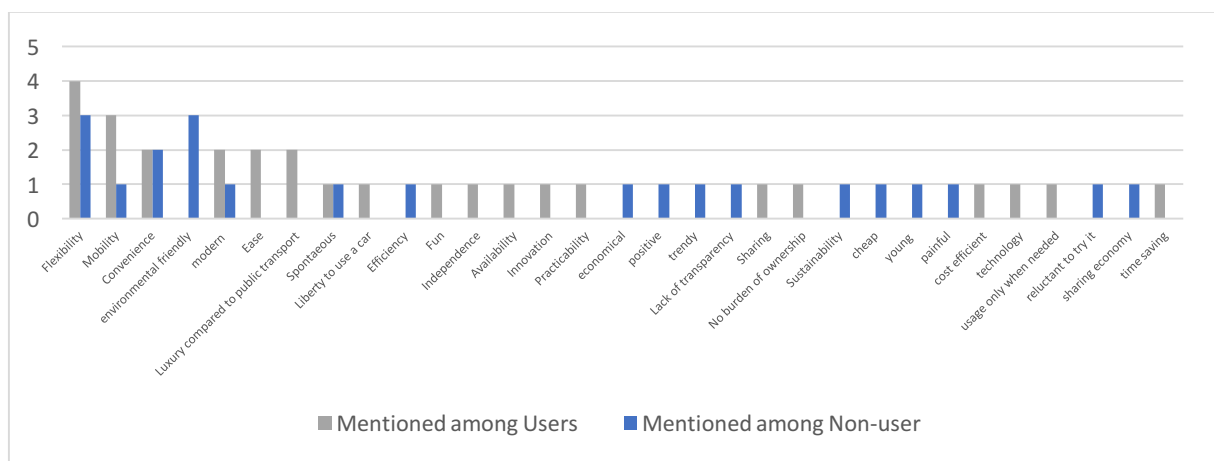


Exhibit 30: Semi-structured interviews insights; Car sharing provider by popularity

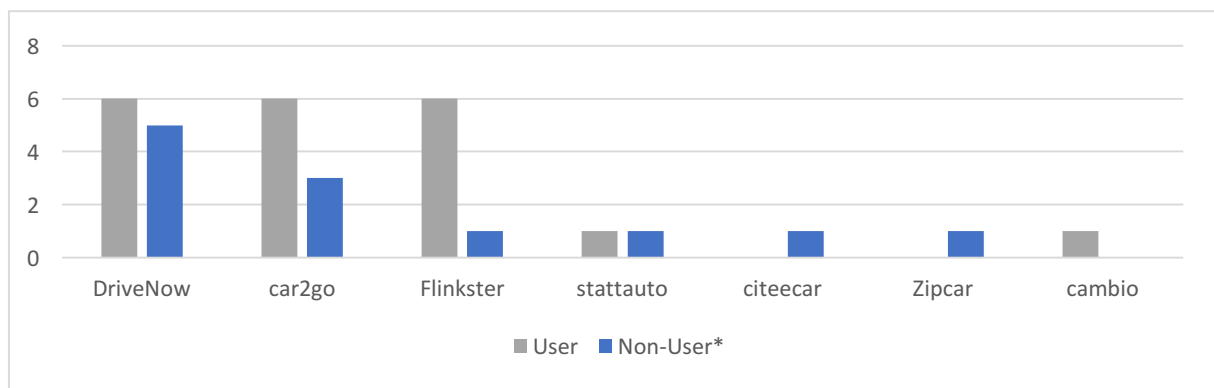


Exhibit 31: Semi-structured interviews insights; Car sharing provider by subscription

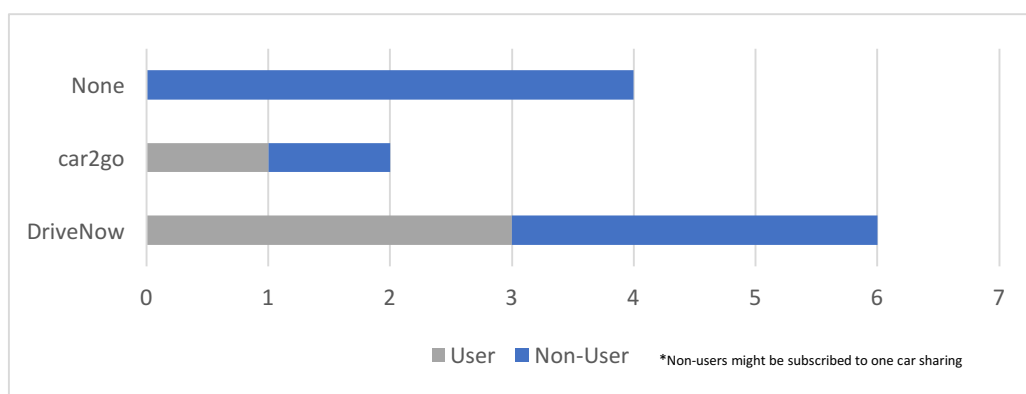


Exhibit 32: Semi-structured interviews insights; Usage purposes among car sharing users

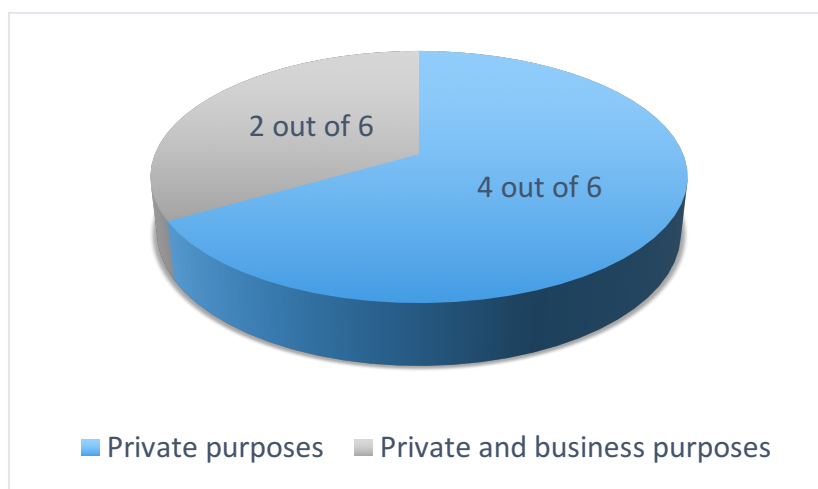


Exhibit 33: Semi-structured interviews insights; Car sharing experience by interviewed users and non-users

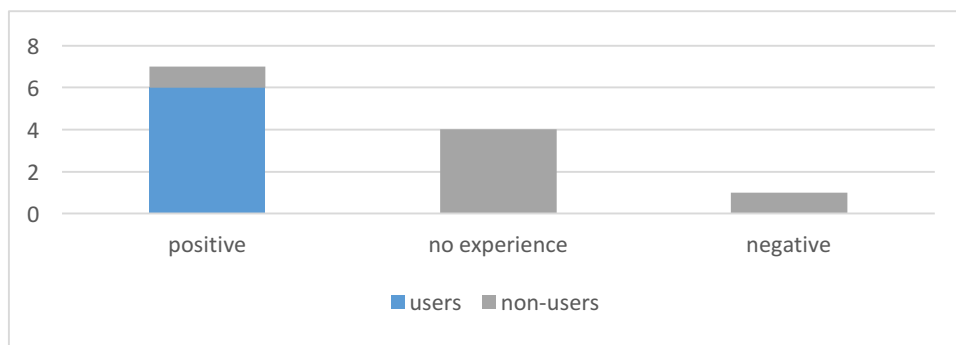


Exhibit 34: Semi-structured interviews insights; Occasions for which car sharing is used (users) / might be used (non-users)



Exhibit 35: Semi-structured interviews insights; Graph: Occasions for which car sharing is used (users) / might be used (non-users)

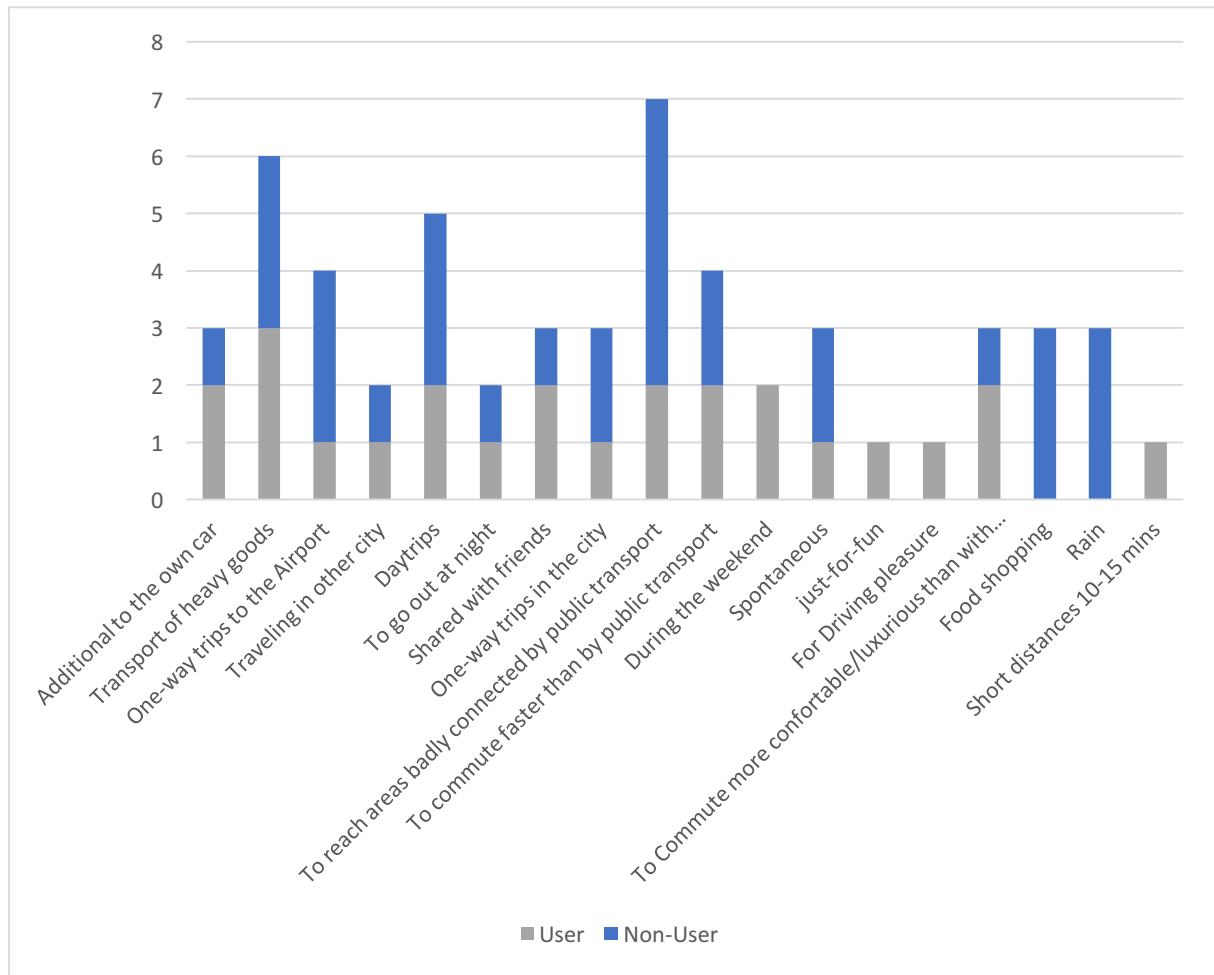


Exhibit 36: Semi-structured interviews insights; Perceived advantages of car ownership among car sharing users and non-users

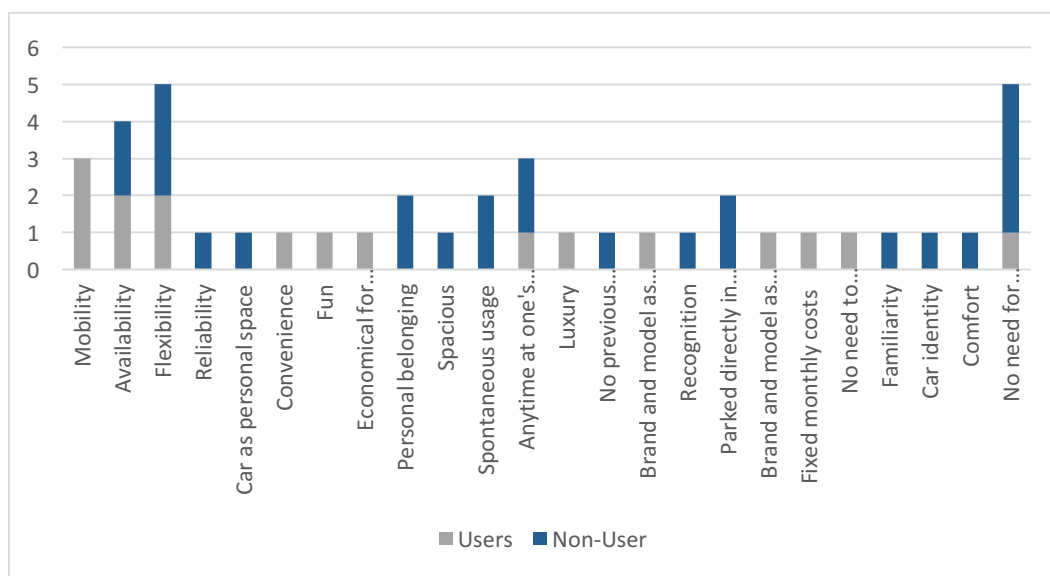


Exhibit 37: Semi-structured interviews insights; Perceived disadvantages of car ownership among car sharing users and non-users

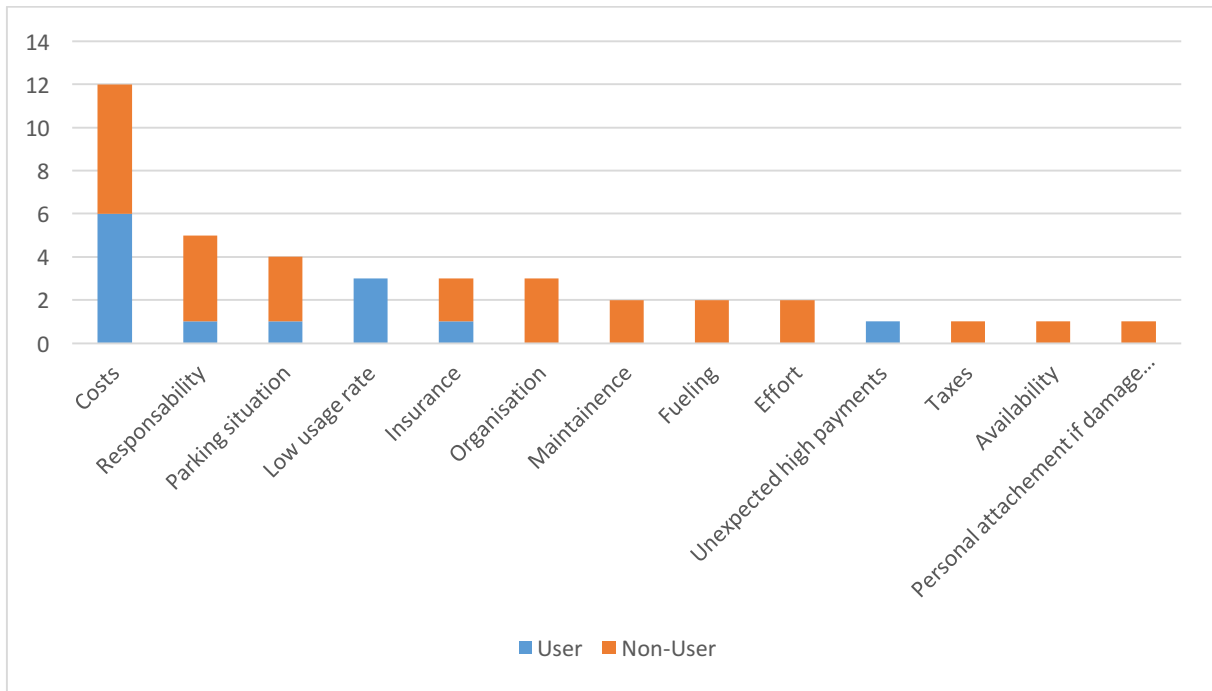


Exhibit 38: : Semi-structured interviews insights; Perceived advantages of sharing among car sharing users and non-users

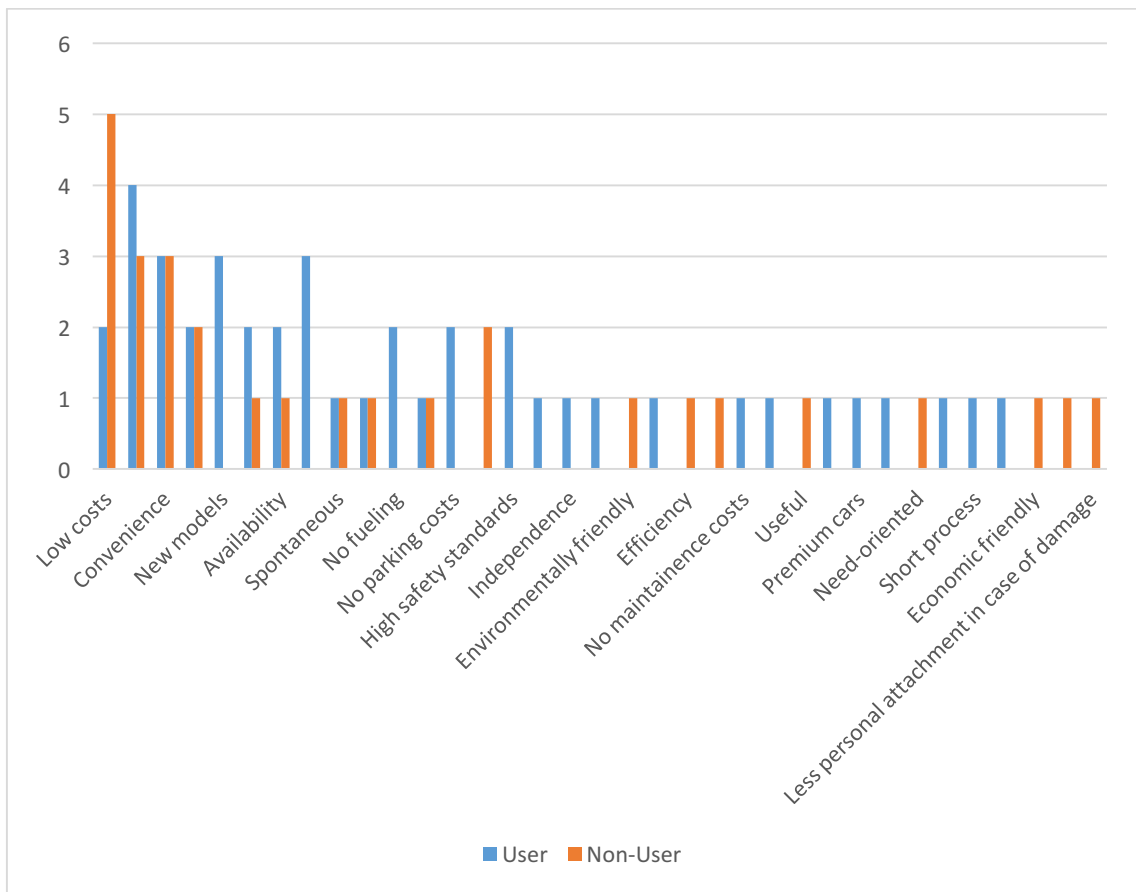


Exhibit 39: Semi-structured interviews insights; Perceived disadvantages of car sharing among car sharing users and non-users

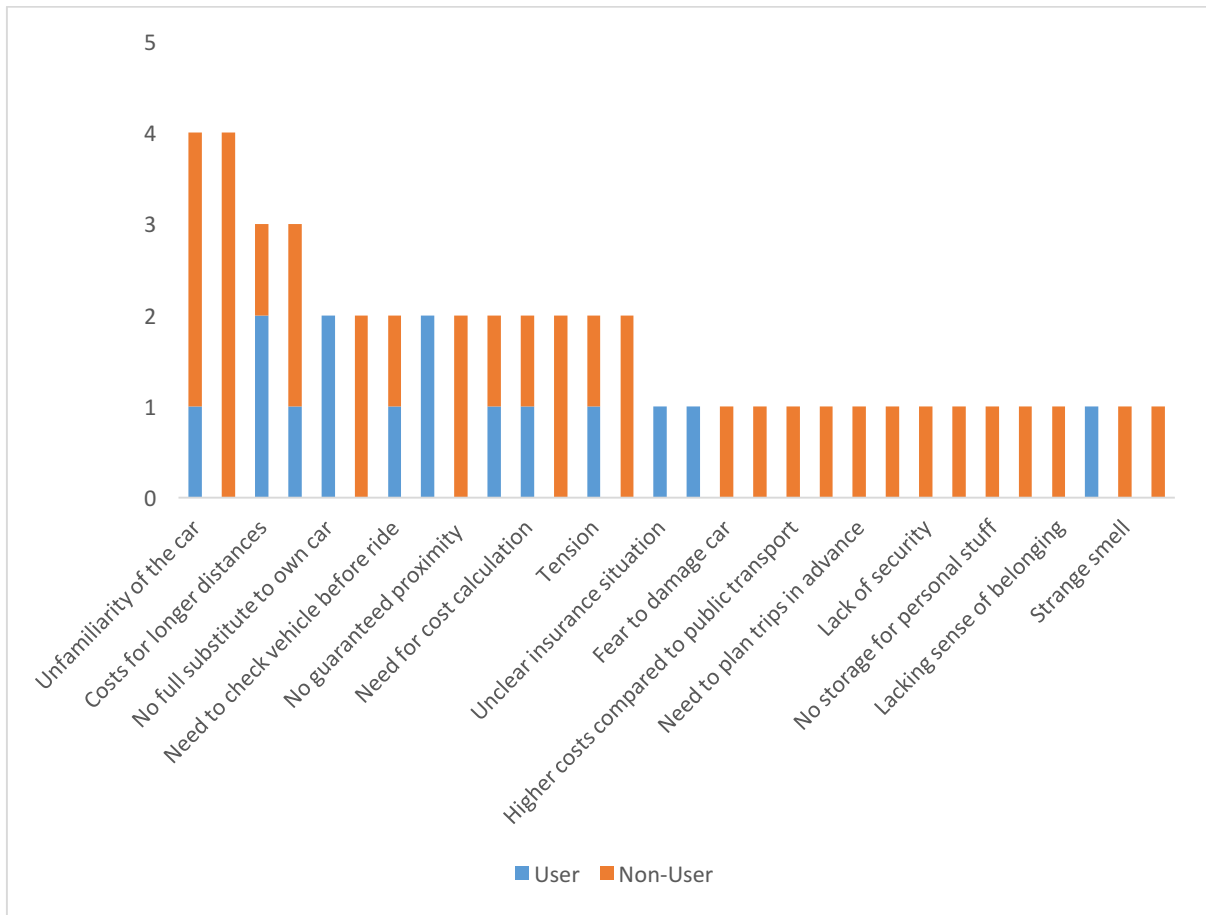


Exhibit 40: Semi-structured interviews insights; Daily used smartphone apps to organize everyday life among car sharing users and non user

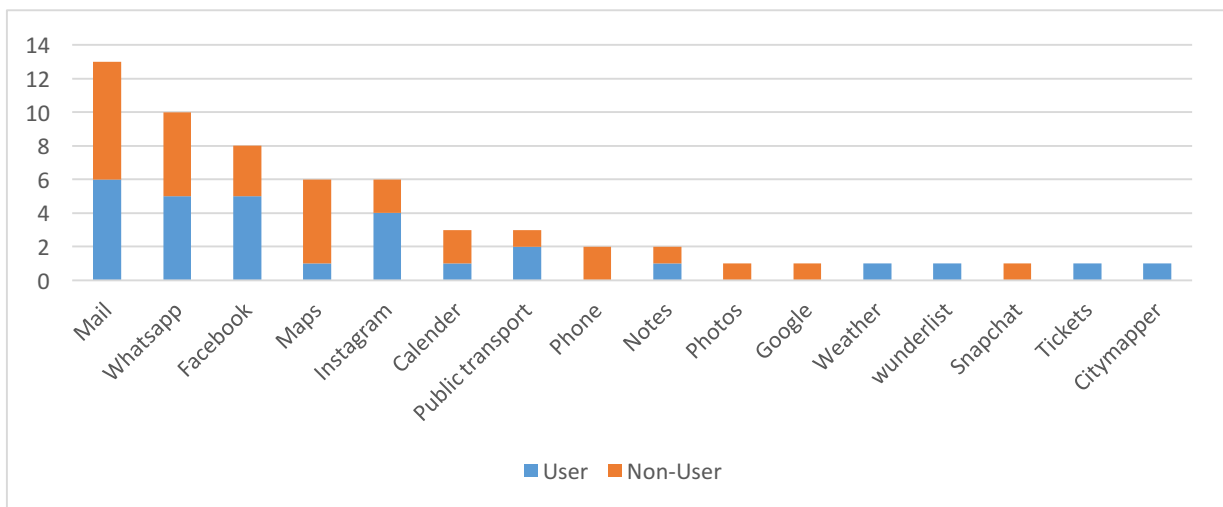


Exhibit 41: Semi-structured interviews insights; Used transportation apps among car sharing users and non-users

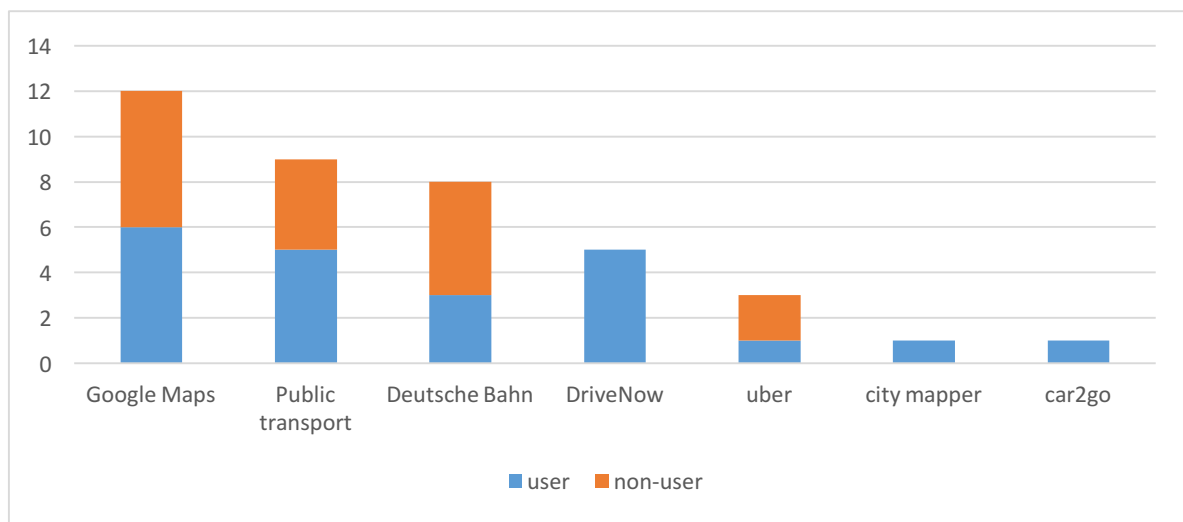


Exhibit 42: Semi-structured interviews insights; Other used services of the sharing economy among car sharing users and non-users

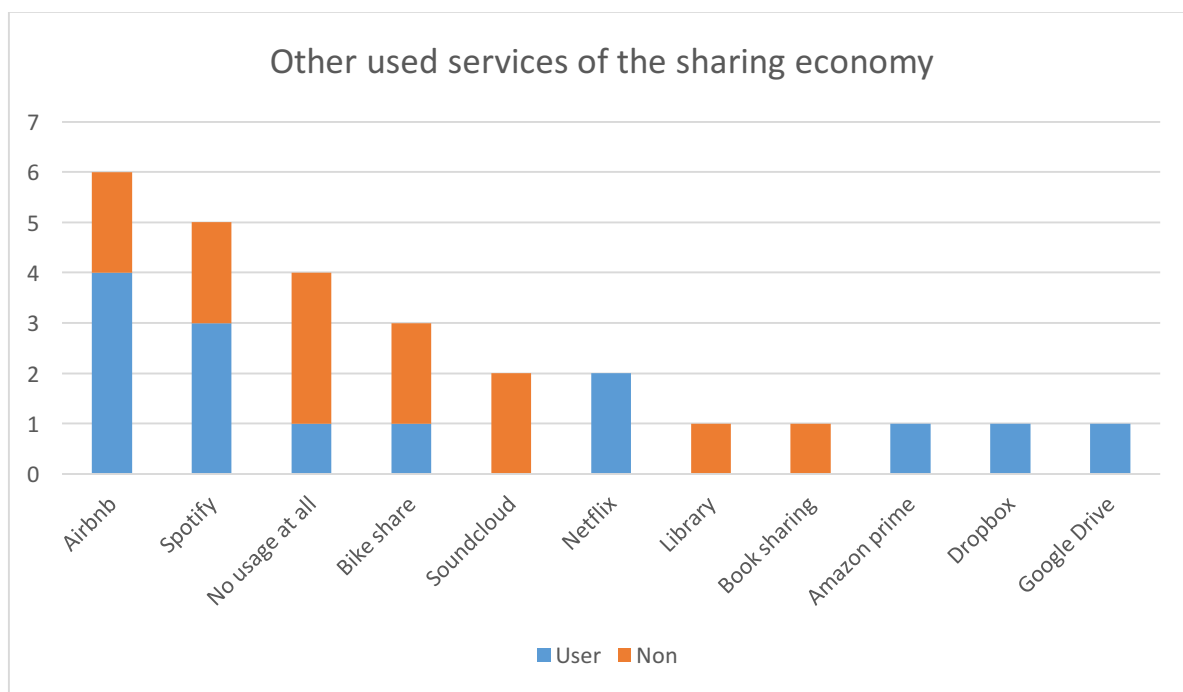


Exhibit 43: Semi-structured interviews insights; General attitudes towards technology among car sharing users and non-users

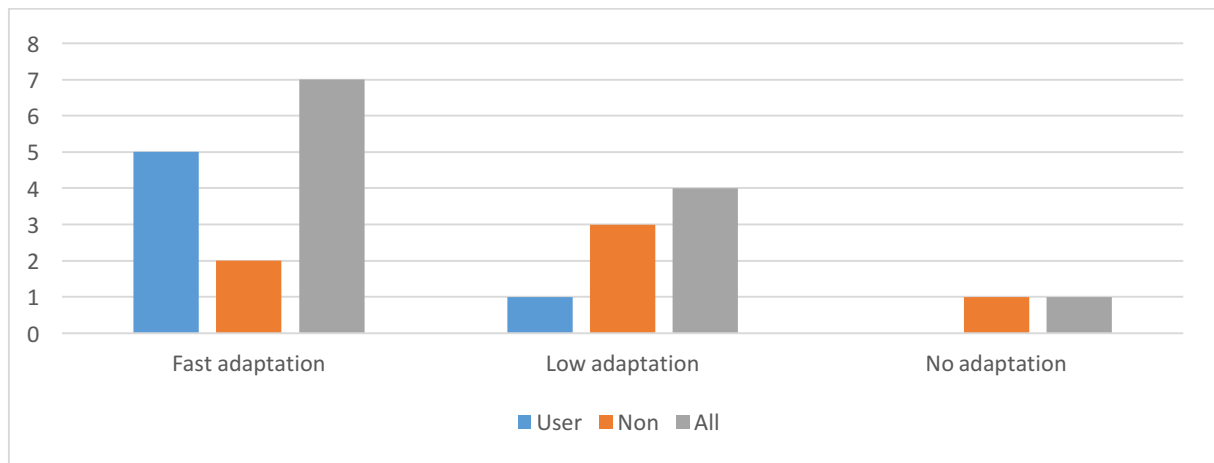


Exhibit 44: Semi-structured interviews insights; Motivations for fast technological adaption

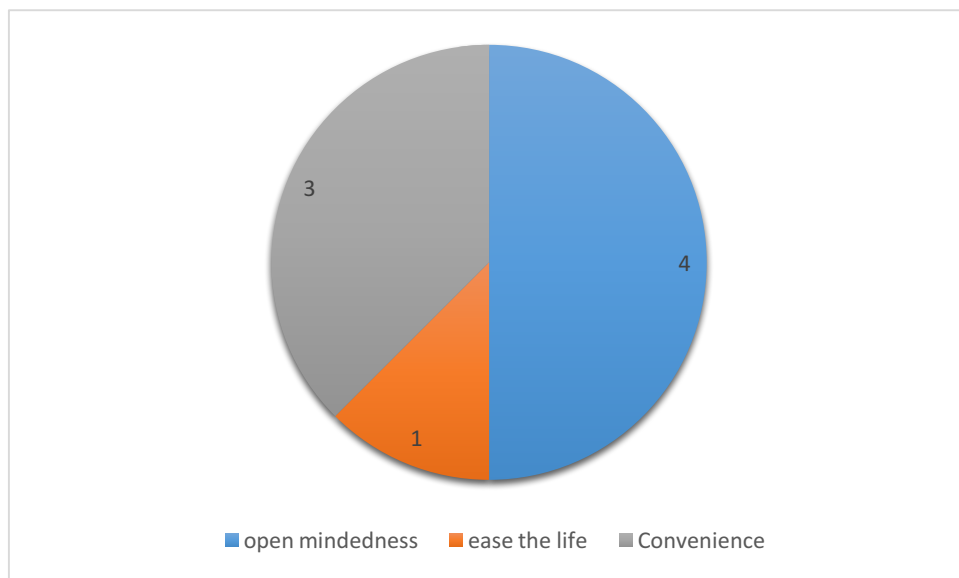


Exhibit 45: Semi-structured interviews insights; Causes for low/no technological adaption



Exhibit 46: Semi-structured interviews insights; Media consumption among car sharing users and non-users

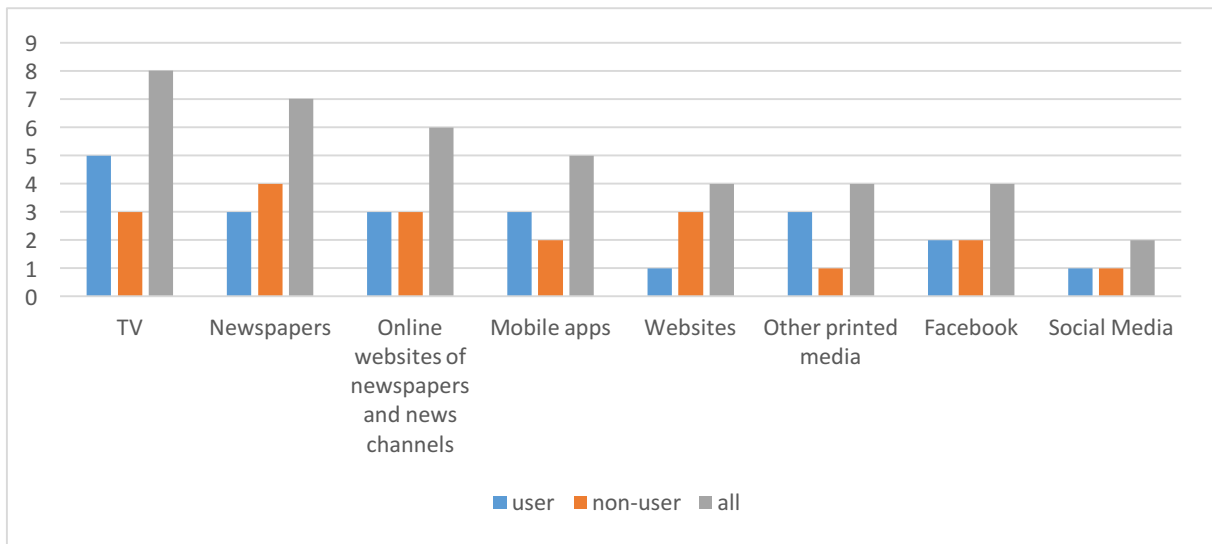


Exhibit 47: Semi-structured interviews insights; Regularly checked news sources among car sharing users and non-users

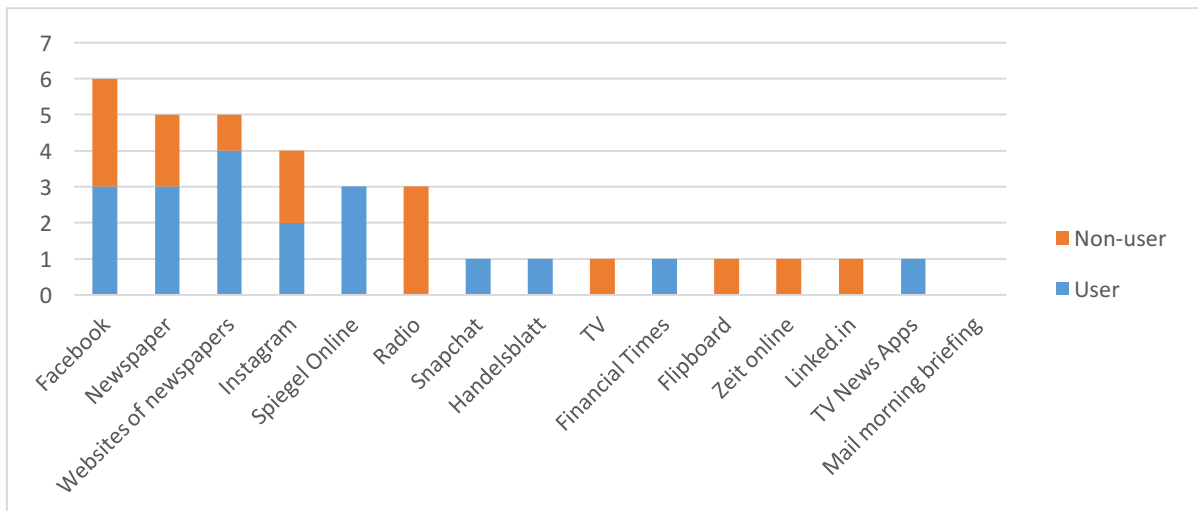


Exhibit 48: Semi-structured interviews insights; Main hours for news updates among car sharing users and non-users

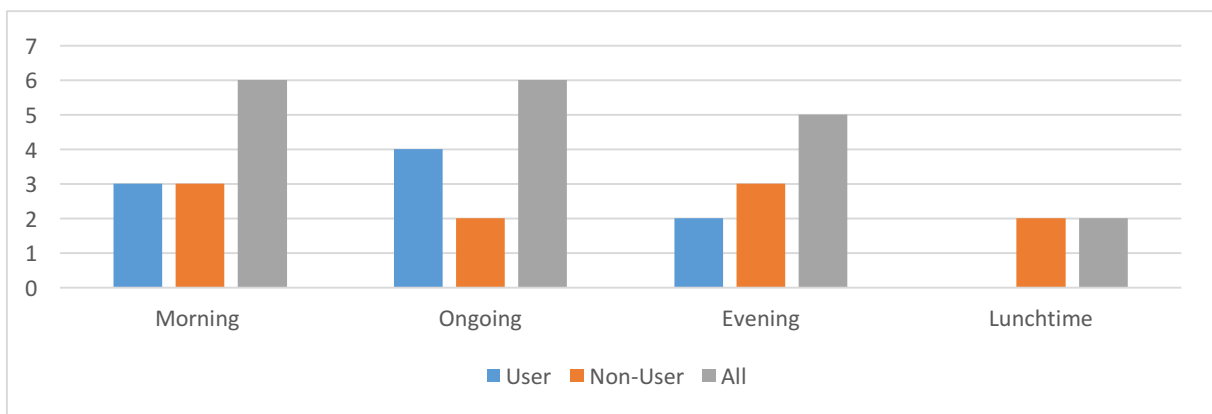


Exhibit 49: Semi-structured interviews insights; Average time per day spent on news updates by car sharing users and non-users

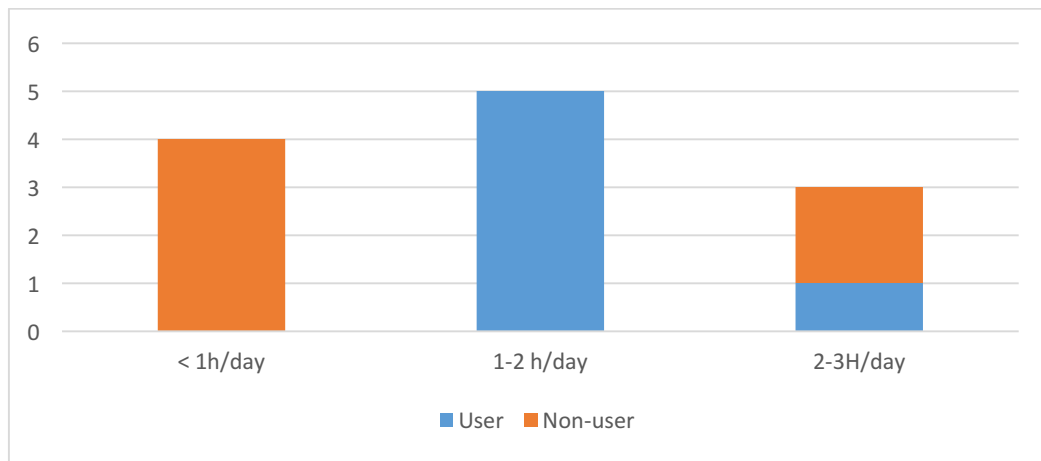


Exhibit 50: Semi-structured interviews insights; Possible interest among the interviewed non-car-sharing-users in car sharing

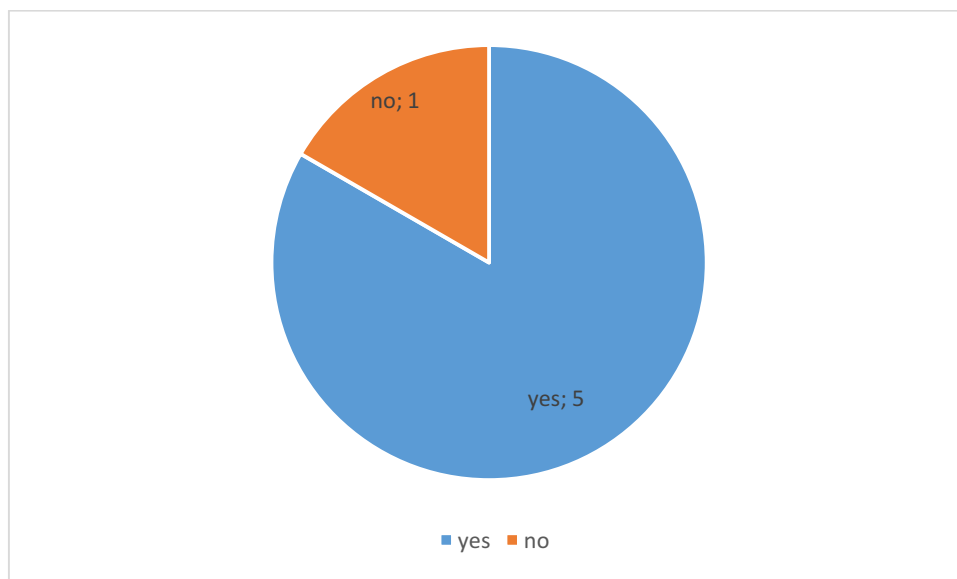
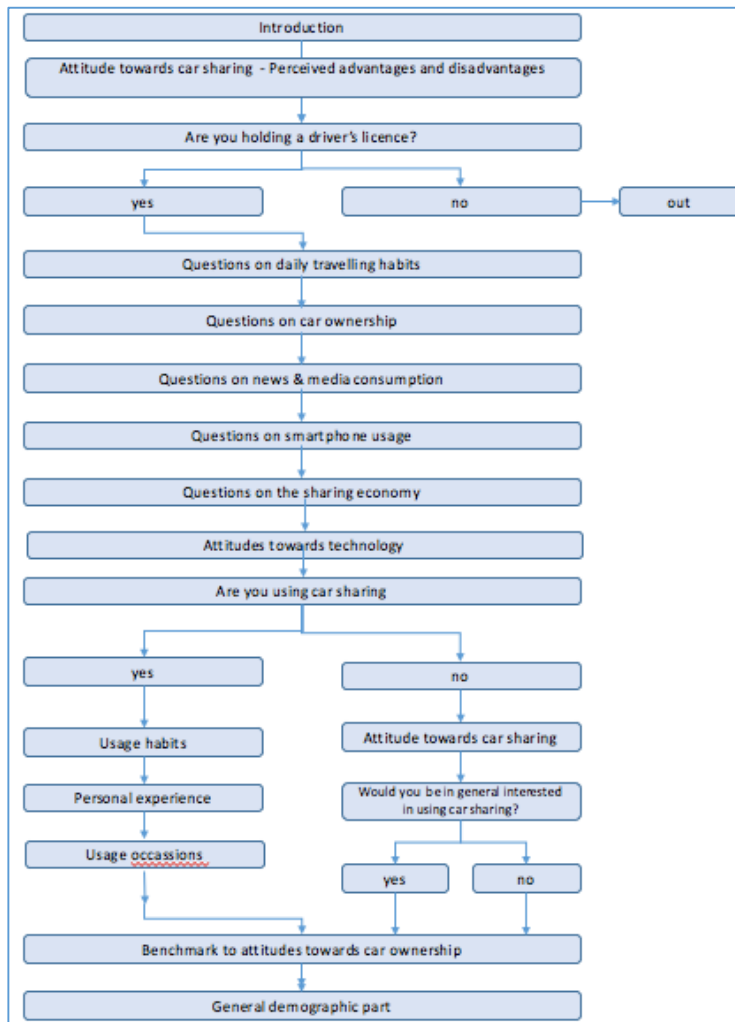


Exhibit 51: Semi-structured interviews insights; Perceived obstacles why non-users are resilient about using car sharing



Exhibit 52: Questionnaire Design



English

Introduction

Dear participants,

Car sharing is a growing phenome in Germany, more than 140 car sharing services are in operation today holding a total number of 16.000 vehicles. The development of big and efficient car sharing networks is a significant challenge for the mobility sector.

This is subject of my master project at Nova SBE in Lisbon, Portugal. Your opinion towards car sharing and mobility in general is therefore one of my major points of interest and I am extremely thankful that you can find **5 minutes** of your time to answer my questions. There are no correct or wrong answers, it is only your personal opinion, which matters. I am very happy if you share this survey among your friends and relatives. Of course all your provided information will be treated highly confidential.

Thank you for your participation and support!
Lea Loderer

If you have any questions or are interested in the results of the project, please don't hesitate to contact lea.loderer.2014@novasbe.pt.



Attitudes towards car sharing

How much do you agree with the following statements?
Car sharing...

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	I don't know
... is easy to use	☐	☐	☐	☐	☐	☐
... is environmentally friendly	☐	☐	☐	☐	☐	☐
... is an innovative concept	☐	☐	☐	☐	☐	☐
... promotes a more conscious usage than car ownership	☐	☐	☐	☐	☐	☐
... has a modern image	☐	☐	☐	☐	☐	☐
... enables its users to save their time on their commutes	☐	☐	☐	☐	☐	☐
... is a new mobility trend	☐	☐	☐	☐	☐	☐
... is a time efficient mean of transport	☐	☐	☐	☐	☐	☐

Advantages and disadvantages

In the following part you will see some statements, please state to which extent you agree with them. Car sharing...

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	I don't know
... is a spontaneous process	☐	☐	☐	☐	☐	☐
... is a complicated process	☐	☐	☐	☐	☐	☐
... provides its users with mobility	☐	☐	☐	☐	☐	☐
... comes with the risk of not finding any available car nearby	☐	☐	☐	☐	☐	☐
... is a comfortable method to get around in the city	☐	☐	☐	☐	☐	☐
... is expensive when using it for long distances	☐	☐	☐	☐	☐	☐

In the following part you will see some statements, please state to which extent you agree with them. Car sharing...

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	I don't know
... requires its users to adapt each time to unknown vehicles	☐	☐	☐	☐	☐	☐
... is impersonal	☐	☐	☐	☐	☐	☐
... provides users with the possibility to try electric cars and new models	☐	☐	☐	☐	☐	☐
... is missing the component of a car as personal storage	☐	☐	☐	☐	☐	☐
... is a time consuming process	☐	☐	☐	☐	☐	☐
... provides its users with flexibility as they can do one-way rides	☐	☐	☐	☐	☐	☐
... is easy to use	☐	☐	☐	☐	☐	☐

In the following part you will see some statements, please state to which extent you agree with them. Car sharing...

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
... is cheap compared to alternatives	☐	☐	☐	☐	☐
...makes users stress about the usage time	☐	☐	☐	☐	☐
... offers its users always available cars	☐	☐	☐	☐	☐
...has an unclear insurance situation in case of accident	☐	☐	☐	☐	☐
... has high safety standards for the vehicles	☐	☐	☐	☐	☐
... frees users from the responsibility and maintenance for a car	☐	☐	☐	☐	☐
... provides its users with flexibility as they can choose from a broad range of cars	☐	☐	☐	☐	☐

Selection Block

Are you holding a drivers licence?

- ☐ Yes
☐ No

How did you first hear about the concept of car sharing?

- ☐ Family
☐ News
☐ Friends
☐ Mobile Apps
☐ I never heard about car sharing before
☐ Direct Mail
☐ I just saw the branded cars on the street

Car sharing is a transportation tool in urban areas on the basis of member-based service, providing vehicles for a short term access to its users.

Which car sharing providers do you know? (Multiple answers possible)

- ☐ 
- ☐ 
- ☐ 
- ☐ 
- ☐ 
- ☐ 
- ☐ 
- ☐ 
- ☐ 
- ☐ 
- ☐ 
- ☐ Other, please specify:

Are you currently subscribed to any car sharing service?

- ☐ Yes
- ☐ No

Car ownership and travel behavior

If you are driving, which car are you using in general? (Multiple answers possible)

- ☐ Car sharing
- ☐ My own car
- ☐ A car, which is owned by my friends or family

How many kilometers distance do you travel daily?

- ☐ Less than 25 km
☐ 25 km - 50 km
☐ 51 km - 100 km
☐ More than 100 km

How much time do you spend on average on your daily commute?

- ☐ Less than 30 mins
☐ 30 mins to one hour
☐ 1 - 2 hours
☐ 2 - 3 hours
☐ More than 3 hours

In a typical month how many times are you going off on a trip to another city (for business or private purposes)?

- ☐ I travel very rarely
☐ Once per month
☐ 2 - 3 times per month
☐ 4 - 5 times per month
☐ More than 5 times per month

Which of the following means of transport do you use?

	Daily	At least once per week	At least once per month	Unregularly, but I tried at least once	Never
Car	☐	☐	☐	☐	☐
Bike	☐	☐	☐	☐	☐
Public Transport	☐	☐	☐	☐	☐
Uber	☐	☐	☐	☐	☐
Vespa	☐	☐	☐	☐	☐
Car Rental	☐	☐	☐	☐	☐
Taxi	☐	☐	☐	☐	☐
Walking	☐	☐	☐	☐	☐
Other, please specify: 	☐	☐	☐	☐	☐

Media Consumption

How much time are you spending daily to check the news?

- ☐ Less than 30 minutes
☐ 30 mins - 1 hour
☐ 1 - 2 hours
☐ 2 - 3 hours
☐ More than 3 hours

Which mobile apps are you using to organize your daily commutes? (multiple answers possible)

- ☐ Google Maps
☐ Flinkster
☐ Taxi Apps
☐ DriveNow
☐ Uber
☐ Trains
☐ Car2go
☐ Public Transport
☐ Other, please specify:

Which other products and services of the sharing economy do you use?

	Daily	At least once per week	At least once per month	Unregularly, but I tried at least once	Never
Spotify	☐	☐	☐	☐	☐
Airbnb	☐	☐	☐	☐	☐
Bike Sharing	☐	☐	☐	☐	☐
Soundcloud	☐	☐	☐	☐	☐
Dropbox	☐	☐	☐	☐	☐
Kleiderkreisel	☐	☐	☐	☐	☐
Netflix	☐	☐	☐	☐	☐
Couchsurfing	☐	☐	☐	☐	☐
iCloud	☐	☐	☐	☐	☐
Google Drive	☐	☐	☐	☐	☐
Other, please specify: 	☐	☐	☐	☐	☐

How would you describe your attitude towards technology?

	I fully agree	I rather agree	I don't know	I rather disagree	I fully disagree
I am open to try new technologies	☐	☐	☐	☐	☐
I am organizing my life with my smartphone	☐	☐	☐	☐	☐
I dislike trying new technologies because I am afraid of failure in using them	☐	☐	☐	☐	☐

Questions to users

How often do you use car sharing in a typical week?

- ☐ I rarely use car sharing (less than once per week)
- ☐ Around once per week
- ☐ 2 - 3 times per week
- ☐ 4 - 5 times per week
- ☐ More than 5 times per week

How would you in general evaluate your car sharing experience?

- ☐ Great, I never had any problems
- ☐ Positive, in general I am content with the process
- ☐ Indifferent
- ☐ Negative, I am not happy about the system
- ☐ Comments:

How are you using car sharing? (Multiple answers possible)

- ☐ In concurrence to my own car
- ☐ Combined with other means of transport
- ☐ To complete public transport
- ☐ Other, please specify:

For which purposes are you using car sharing?

- ☐ Private
- ☐ Business
- ☐ Private and business

For which occasions are you using car sharing? (Multiple answers possible)

- ☐ For short distance commutes
- ☐ To go around when I am traveling in another city
- ☐ To commute more comfortable than by public transport
- ☐ Shared with friends
- ☐ To go out at night
- ☐ To transport heavy goods
- ☐ During the weekend
- ☐ To commute faster than by public transportation
- ☐ For day trips out of the city
- ☐ (Food) Shopping
- ☐ When it is raining
- ☐ To go to locations where public transport connection is bad
- ☐ For spontaneous purposes
- ☐ For one-way trips to the airport
- ☐ For the driving pleasure
- ☐ To go to work
- ☐ For one-way trips within the city

Which car sharing service are you subscribed to? (Multiple answers possible)

- ☐ 
- ☐ 
- ☐ 
- ☐ 
- ☐ 
- ☐ 
- ☐ 
- ☐ 
- ☐ 
- ☐ 
- ☐ 
- ☐ Other, please specify:

Questions to Non - users

Are you interested in using car sharing?

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Might or might not
- ☐ Probably not
- ☐ Definitely not

All Socio- demographic

How old are you?

- ☐ 18 - 20
- ☐ 21 - 25
- ☐ 26 - 29
- ☐ 30 - 39
- ☐ 40 - 49
- ☐ 50 - 59
- ☐ 60 and older

Which is your gender?

- ☐ Male
- ☐ Female

Which is your nationality?

- ☐ Germany
- ☐ Portugal
- ☐ Italy
- ☐ France
- ☐ Spain
- ☐ Austria
- ☐ Switzerland
- ☐ Denmark
- ☐ Sweden
- ☐ Other, please specify:

Which country are you currently living in?

- ☐ Germany
- ☐ Portugal
- ☐ Italy
- ☐ France
- ☐ Spain
- ☐ Austria
- ☐ Switzerland
- ☐ Denmark
- ☐ Sweden
- ☐ Other, please specify:

How many inhabitants has your current place of residence?

- ☐ Less than 5.000
- ☐ 5.000 – 20.000
- ☐ 20.000 – 500.000
- ☐ More than 500.000

At which distance do you live from the next city?

- ☐ City
- ☐ Suburbs (< 25 km from the city center)
- ☐ Agglomeration (< 50 km from the city center)
- ☐ Countryside (> 50km from the city center)

What is your highest completed educational level?

- ☐ PhD
- ☐ Master
- ☐ Bachelor
- ☐ Apprenticeship
- ☐ High school diploma
- ☐ Other, please specify:

What is your net income/ disposable income per month?

	0	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
Net income per month											

What is your household size?

	1	2	3	4	5	6
Persons in the household						

How many cars are currently owned by your household?

- ☐ None
- ☐ 1
- ☐ 2
- ☐ 3 or more

How many children under the age of 18 are living in your household?

- ☐ None
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4 or more

Block 10

Exhibit 54: Demographics of the sample; Nationality

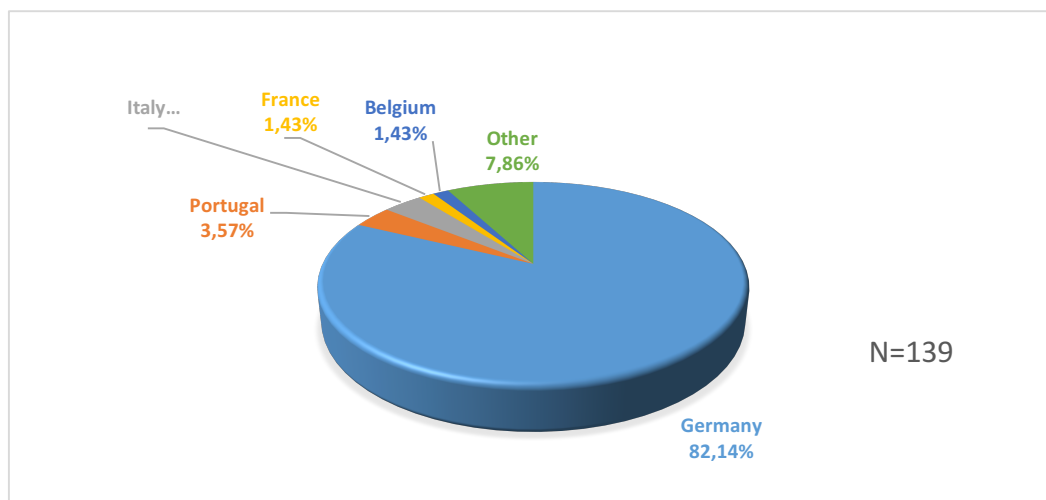


Exhibit 55: Gender distribution

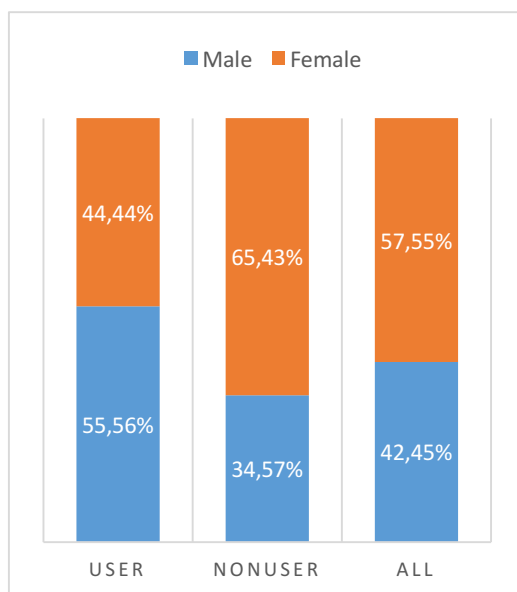


Exhibit 56: Net income by different groups

Income	Variance	Std Dev.	Minimum	Maximum	Mean	Count
	1054409,98	1026,84	253,00	4136,00	1594,33	100
User	956406,2282	977,9602385	253,00	4066,00	1702,88	34
Non User	1111048,43	1054,062821	321,00	4136,00	1538,41	66

Exhibit 57: Highest completed education by groups

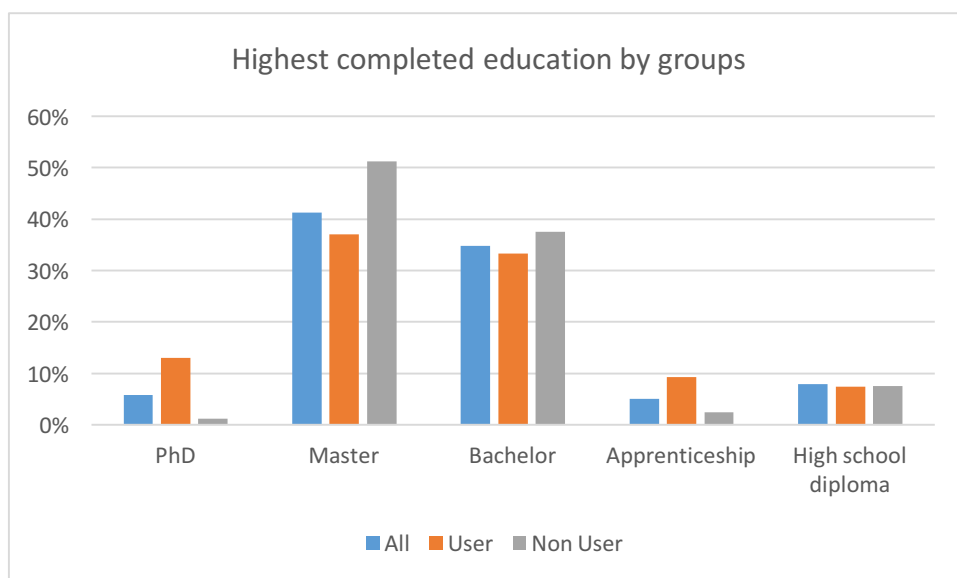


Exhibit 58: Daily commuted distance by different groups

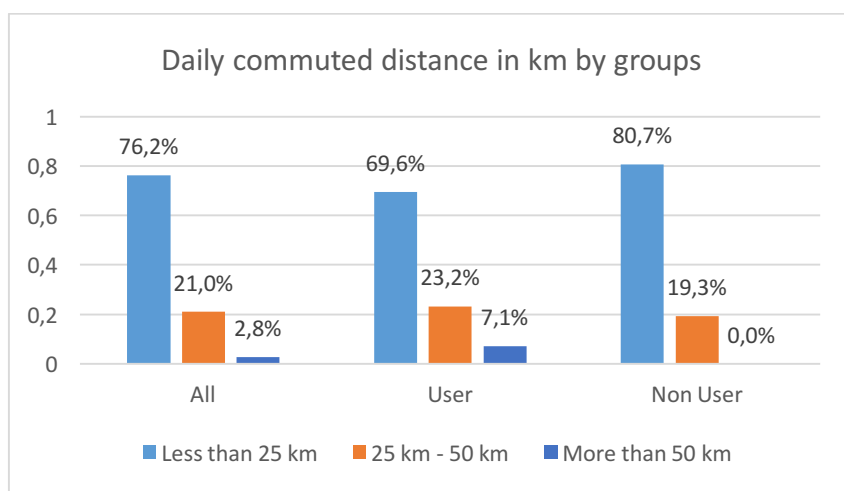


Exhibit 59: Daily time spent on commutes by groups

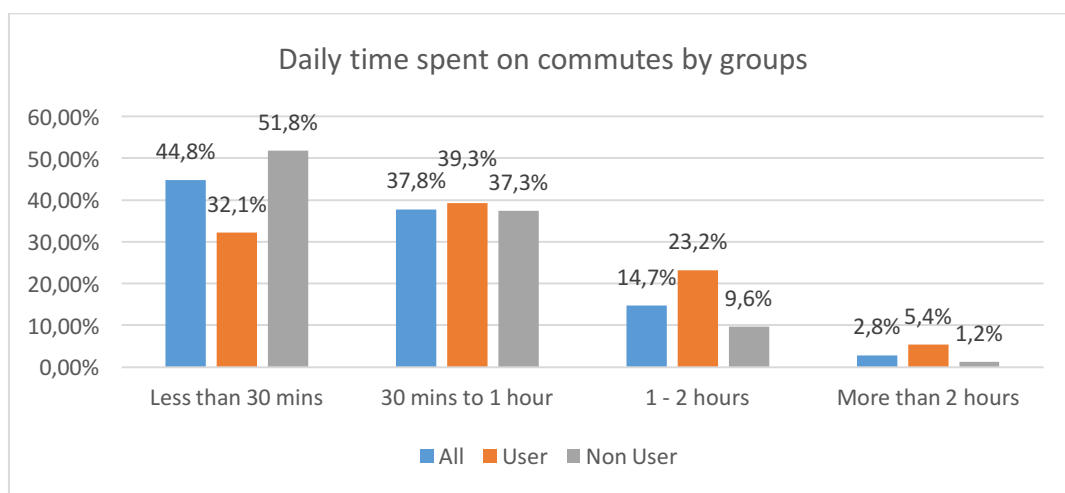


Exhibit 60: Trips to other cities done by different groups

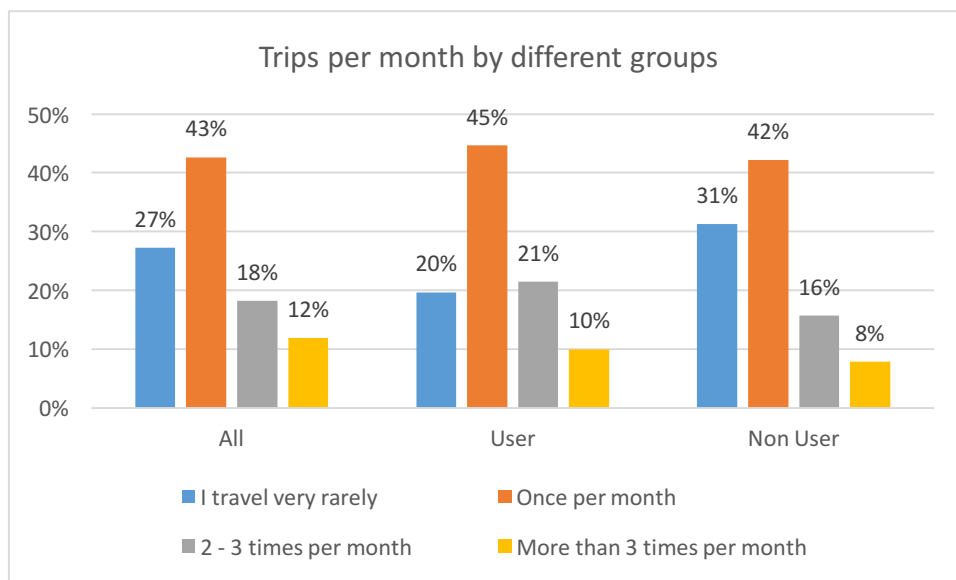


Exhibit 61: Car possession by users and non-users

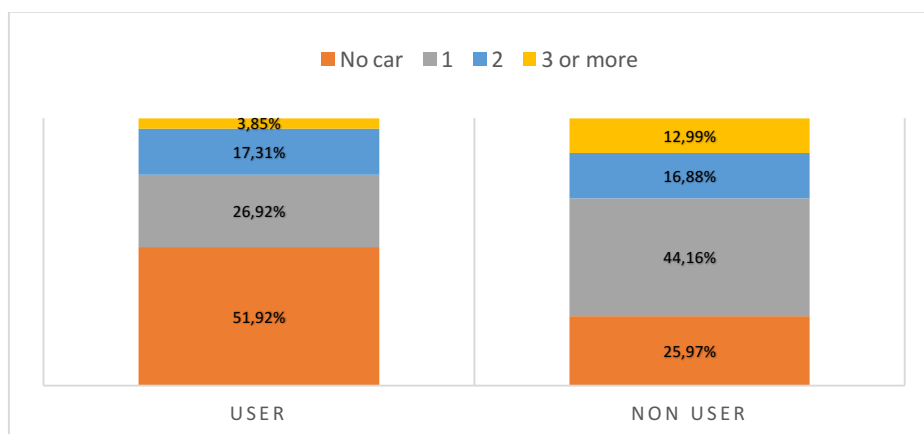


Exhibit 62: Children per household by users and non-users

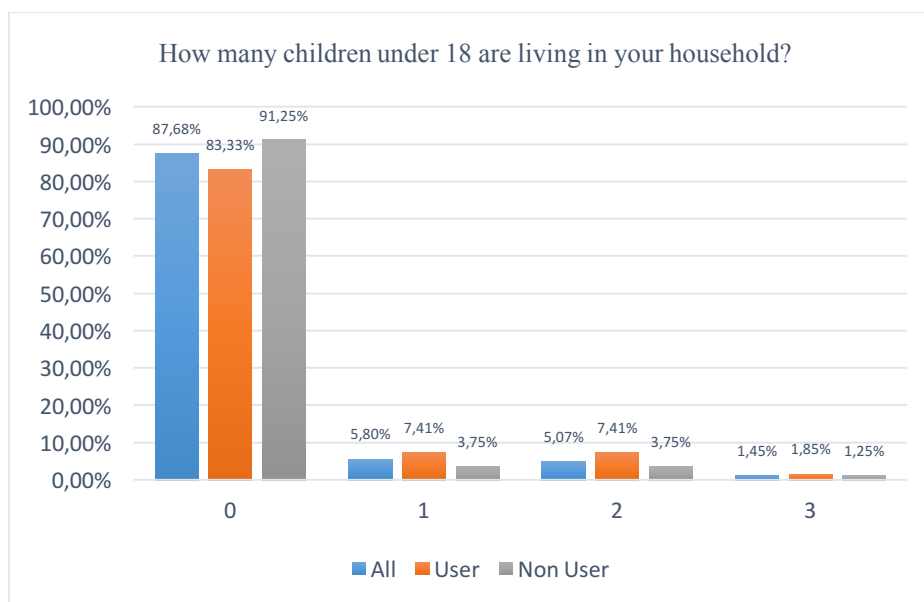


Exhibit 63: Household size by different groups

Household size	Variance	Std Dev.	Minimum	Maximum	Mean	Count
All	1,616735895	1,271509298	1,00	6,00	2,49	108
User	1,098930481	1,048298851	1	5	2,147058824	34
Non User	1,792669382	1,338906039	1,00	6,00	2,65	74,00

Exhibit 64: Usage of other services of the sharing economy - User

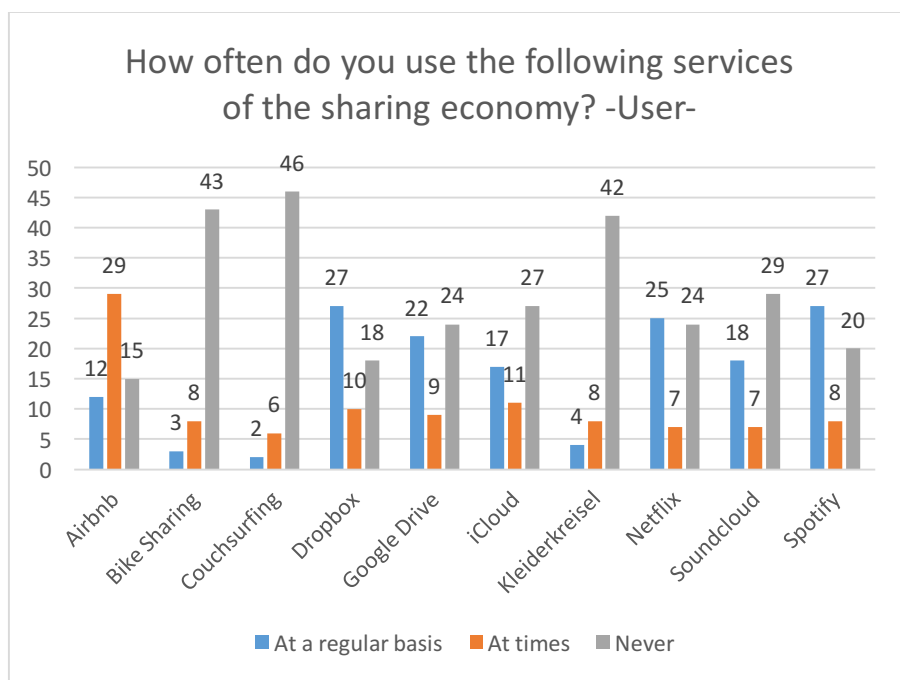


Exhibit 65: Usage of other services of the sharing economy by non-users

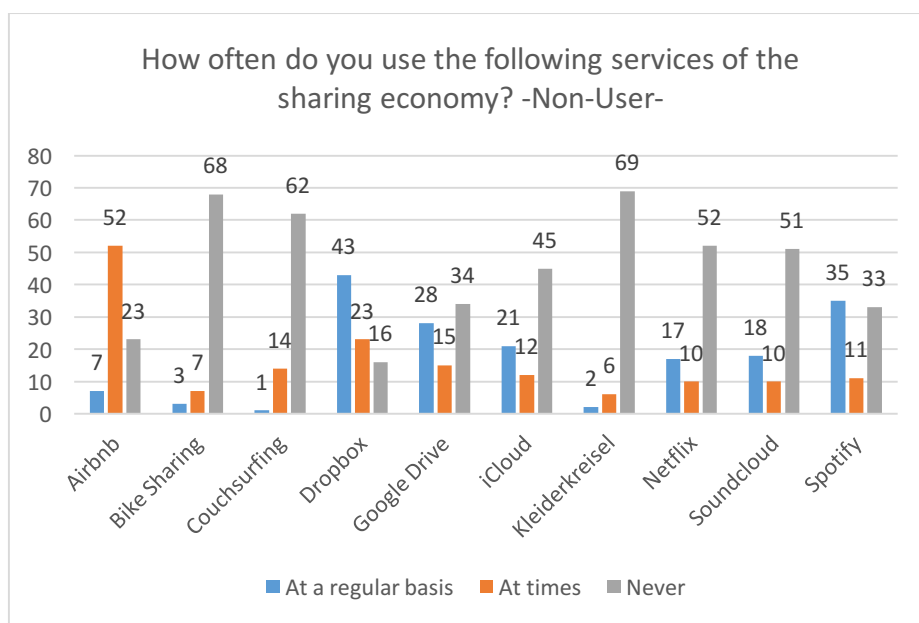


Exhibit 66: Attitude towards technology by users

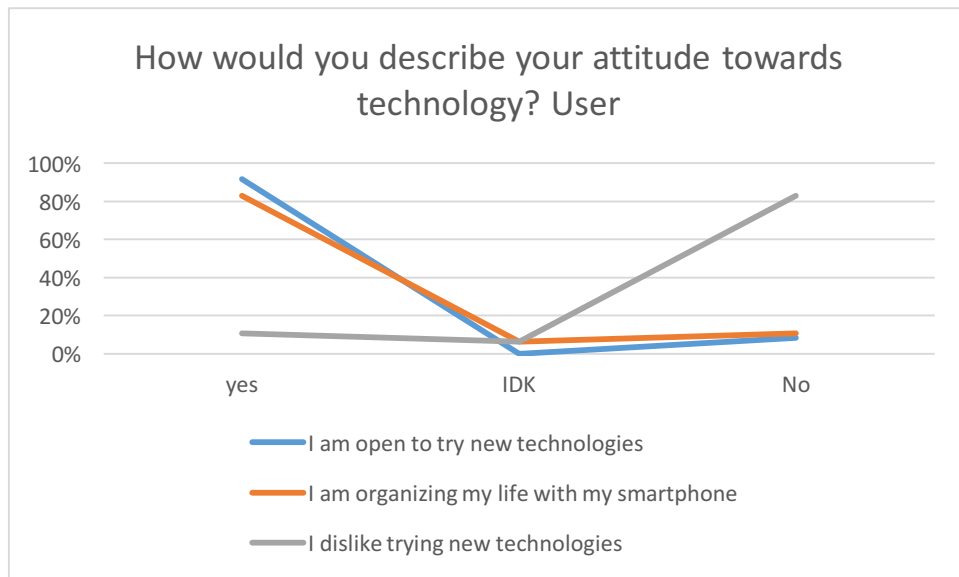


Exhibit 67: Attitude towards technology by non-users

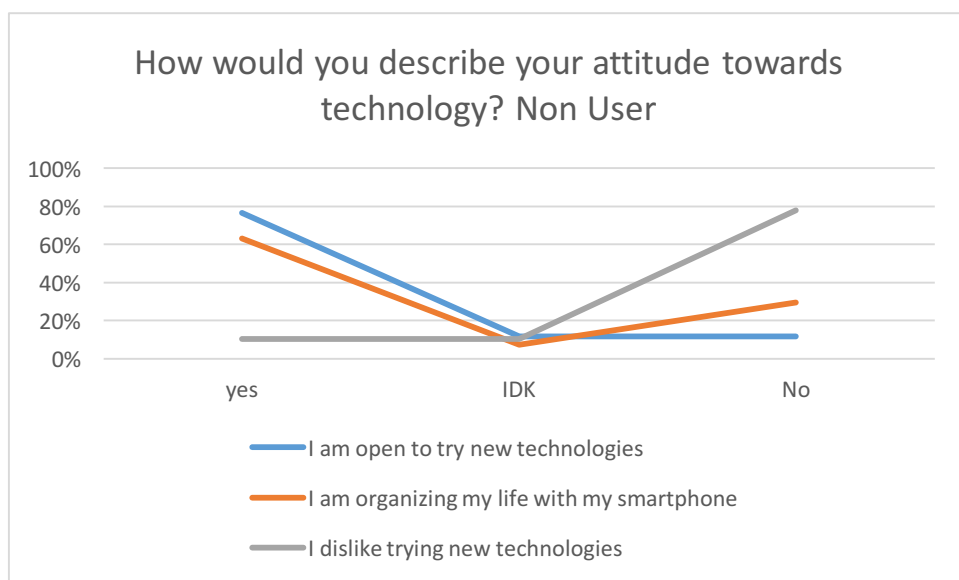


Exhibit 68: Distribution of the new created variable technological affinity

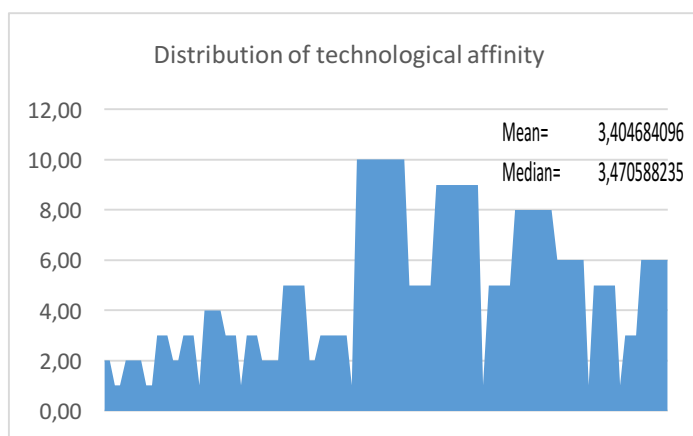


Exhibit 69: General perceptions on car sharing- Associations

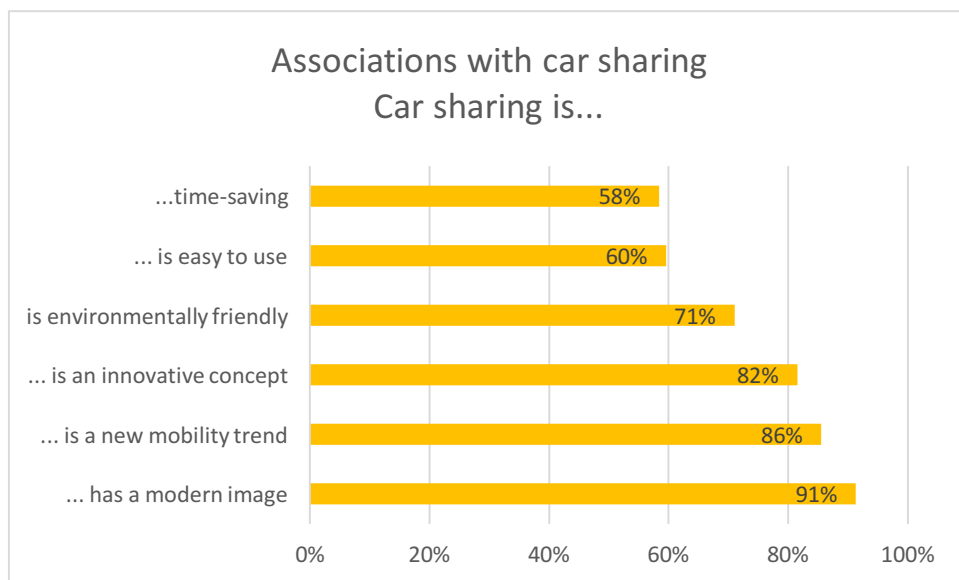


Exhibit 70: General perceptions on car sharing- Main perceived advantages and disadvantages

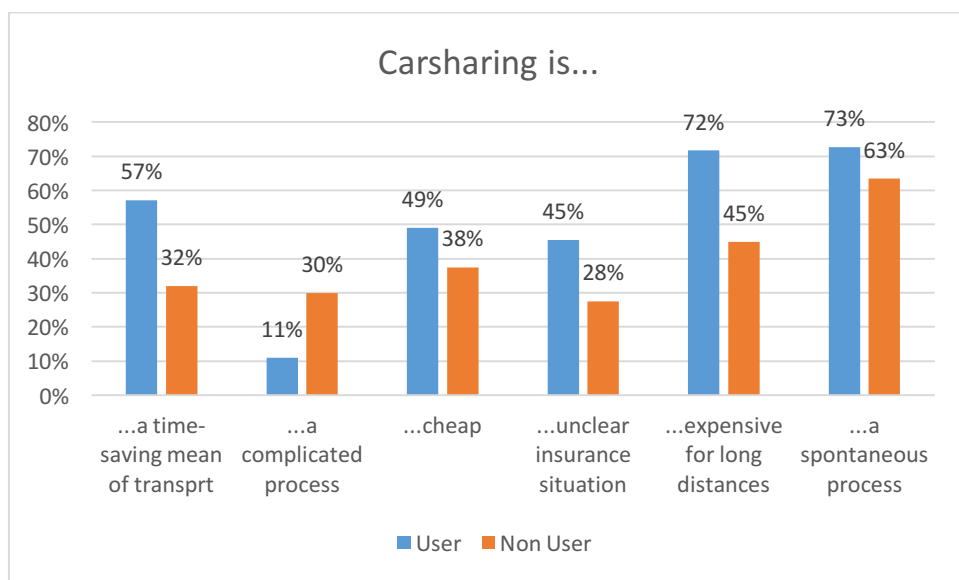


Exhibit 71: Car sharing behaviour; Which car sharing provider are you subscribed to?

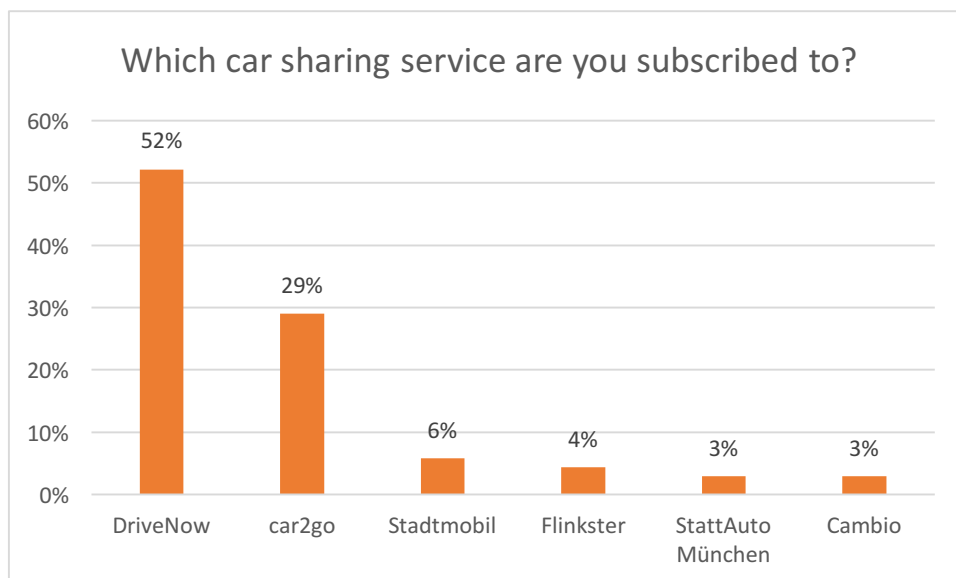


Exhibit 72: Perceived car sharing experience by users

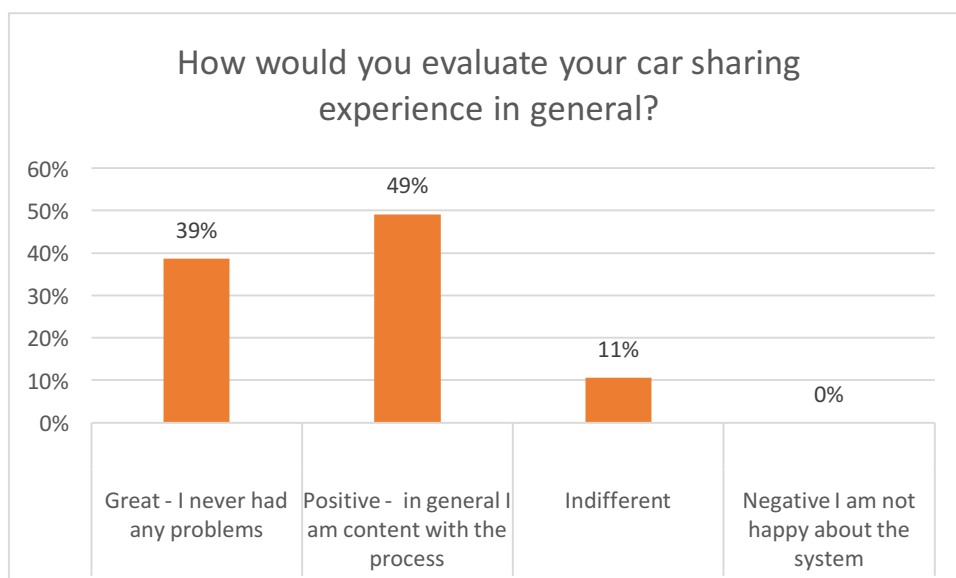


Exhibit 73: Car sharing behaviour - Renting frequency by users

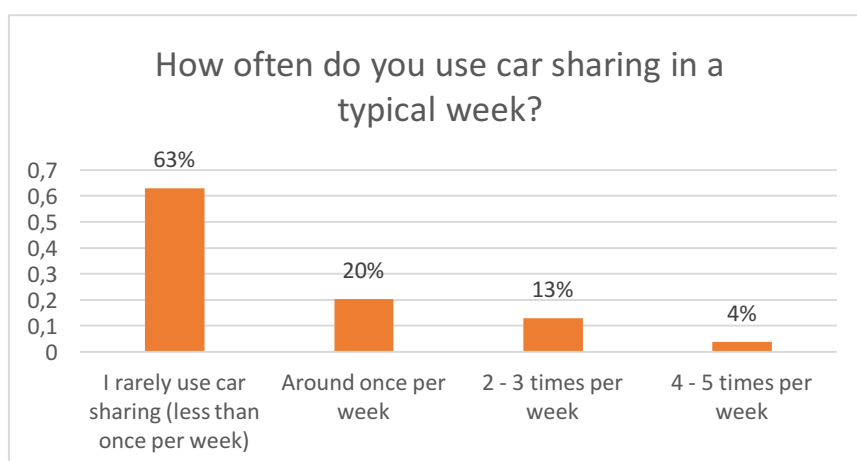


Exhibit 74: Car sharing usage behaviour: Car sharing purposes by users

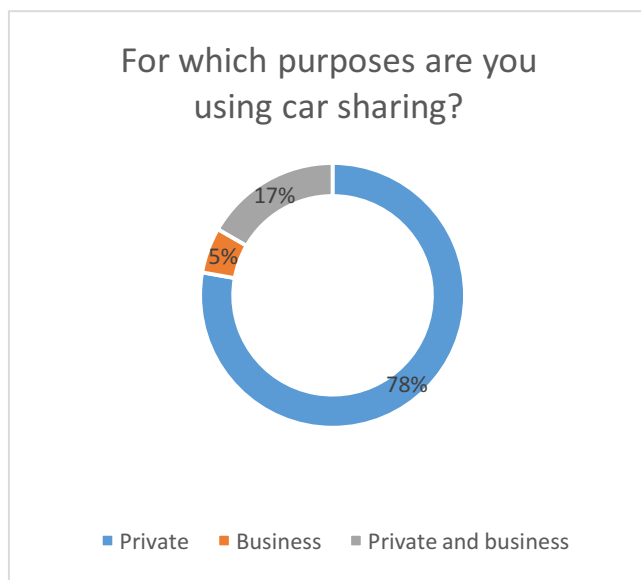


Exhibit 75: Car sharing usage behaviour: Usage characteristics

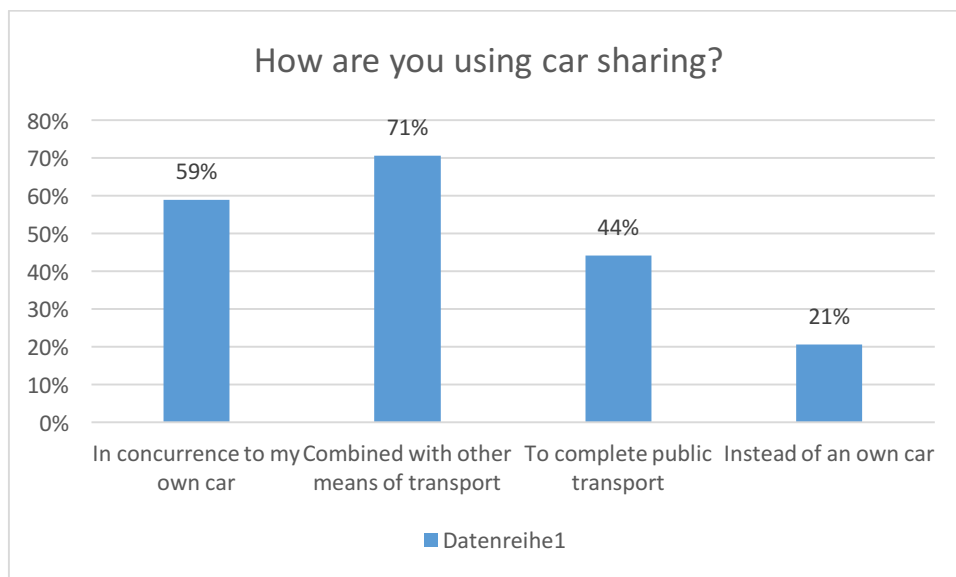


Exhibit 76: Car sharing usage behaviour, Usage occasions

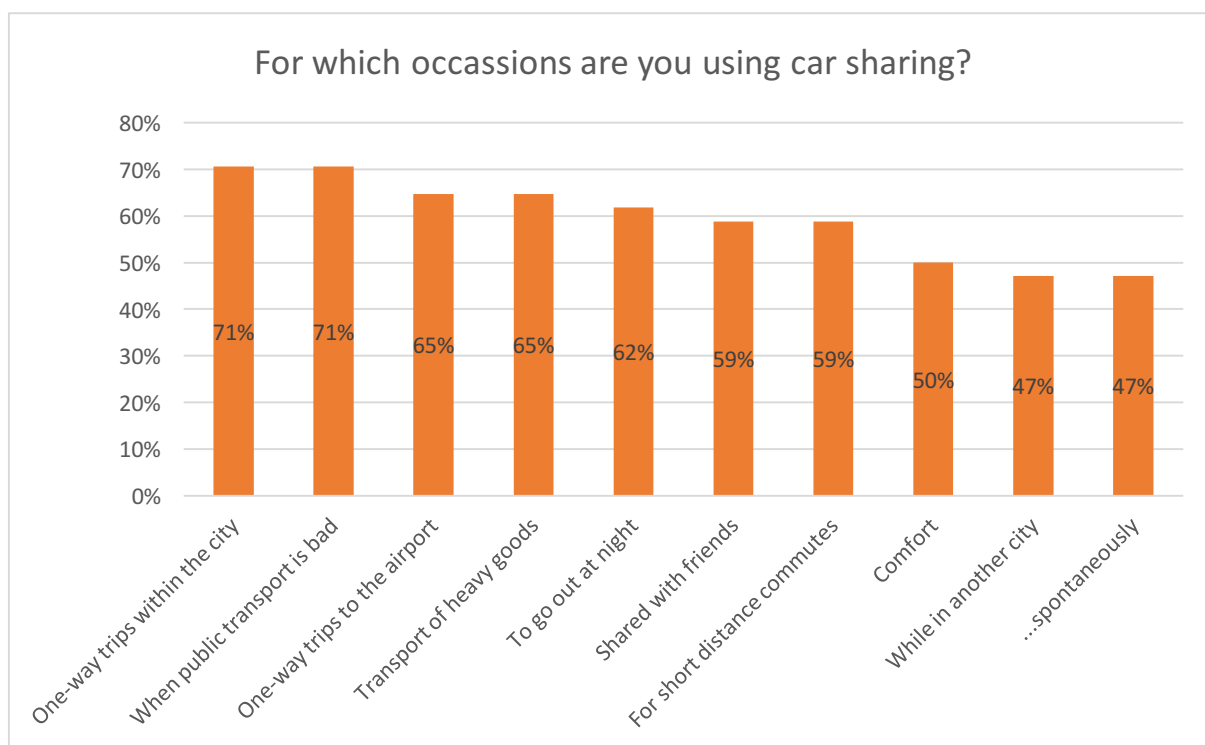


Exhibit 77: Car sharing usage behaviour: Possible interest among non-users

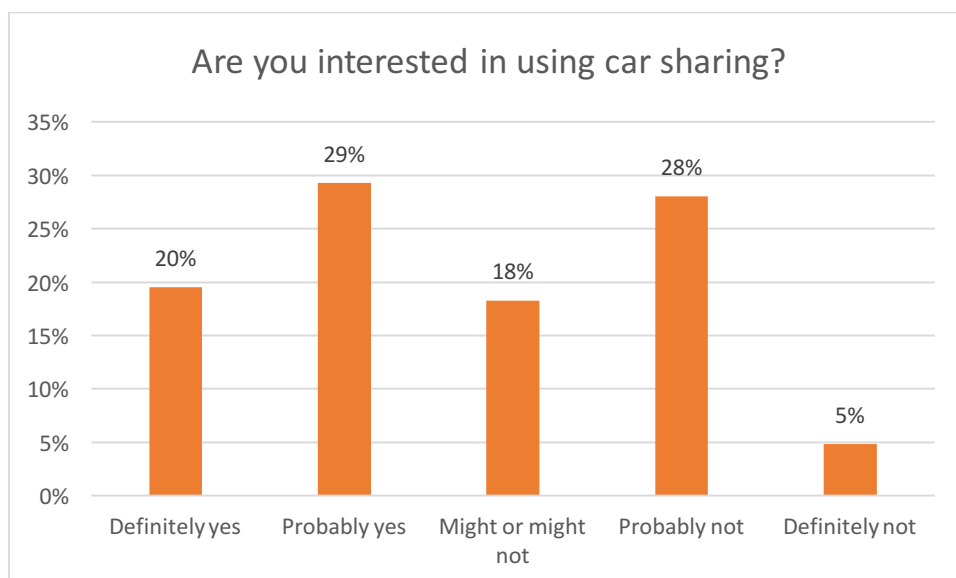


Exhibit 78: Correlation with control variables – Environmental friendliness – C1

Correlation with control variables			
	Environmental friendly	C1	
Environmental friendly		1	0.464
C1	0.464		1

Exhibit 79: Correlation with control variables: Time Efficiency – C2

Correlation with control variables			
	Time Efficient	C2	
Time Efficient		1	0,6119
C2	0,6119		1

Exhibit 80: Correlation Matrix of selected independent variables

	Environment	TimeEfficient	Finding	Complicated	Flexibility	CarExperience	Adaption	Insurance	Price	Noresponsibility	Trips	News	Income	CarsHousehold	Household	CitySize	Tech
Environment	1.0000																
TimeEfficient	0.2120	1.0000															
Finding	-0.0392	0.0233	1.0000														
Complicated	-0.0073	-0.1735	0.3300	1.0000													
Flexibility	0.0373	0.1653	-0.0192	-0.2082	1.0000												
CarExperience	0.0529	0.3796	-0.0263	-0.1061	0.2893	1.0000											
Adaption	0.3370	0.1041	-0.0697	0.1838	-0.0221	0.1748	1.0000										
Insurance	0.1518	0.0365	0.1086	0.3030	0.1405	0.0994	0.3038	1.0000									
Price	0.1698	0.3083	-0.3385	-0.0372	0.0812	0.0169	0.2642	0.1772	1.0000								
Noresponsibility	0.0243	0.3275	0.0862	0.1278	0.0933	0.3055	0.0792	-0.0199	0.0352	1.0000							
Trips	0.1141	0.0294	0.0309	0.1357	-0.1171	-0.1339	0.1921	0.0834	-0.0355	0.0242	1.0000						
News	0.1760	-0.0867	-0.0798	-0.1388	0.0820	0.0604	-0.1389	0.0778	-0.0883	0.0061	0.2188	1.0000					
Income	-0.0491	-0.1040	-0.0760	0.0224	0.0989	-0.1314	-0.1048	0.1675	0.0001	-0.2405	0.1909	0.1333	1.0000				
CarsHousehold	-0.1491	0.0796	-0.0347	-0.1537	-0.0030	0.1698	-0.2056	-0.0750	-0.1707	0.0068	-0.2018	-0.0776	-0.0643	1.0000			
Household	-0.1224	0.1892	0.0489	-0.1031	0.0014	0.1717	-0.0102	0.1356	-0.0143	0.1103	-0.0835	-0.0485	-0.1690	0.4539	1.0000		
CitySize	0.0744	0.0871	-0.0265	0.0970	-0.0925	0.0230	0.3058	0.1135	0.2484	-0.0426	-0.0052	-0.0064	0.0980	-0.3027	-0.1841	1.0000	
Tech	0.1939	0.0078	-0.1090	0.0496	0.0283	0.0384	0.0883	-0.0574	-0.0616	0.1331	0.1152	0.2291	-0.1951	-0.0672	-0.0901	-0.0998	1.0000

Exhibit 81: Descriptives CS attitudes

Descriptives									
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	
					Lower Bound	Upper Bound			
Flexibility One way rides	User	32	4,53	,879	,155	4,21	4,85	1	5
	Non	72	4,29	,701	,083	4,13	4,46	3	5
	Total	104	4,37	,764	,075	4,22	4,51	1	5
is a complicated process	User	32	2,25	1,016	,180	1,88	2,62	1	5
	Non	63	2,75	1,191	,150	2,45	3,05	1	5
	Total	95	2,58	1,154	,118	2,34	2,81	1	5
possibility to try new models	User	32	4,66	,602	,106	4,44	4,87	3	5
	Non	70	4,16	,987	,118	3,92	4,39	1	5
	Total	102	4,31	,912	,090	4,13	4,49	1	5
requires users to adapt to unknown vehicles	User	32	3,50	1,016	,180	3,13	3,87	1	5
	Non	73	3,77	1,048	,123	3,52	4,01	1	5
	Total	105	3,69	1,041	,102	3,48	3,89	1	5
unclear insurance situation in accident	User	32	3,47	1,295	,229	3,00	3,94	1	5
	Non	74	2,91	1,241	,144	2,62	3,19	1	5
	Total	106	3,08	1,278	,124	2,83	3,32	1	5
is cheap compared to alternatives	User	32	3,19	1,091	,193	2,79	3,58	1	5
	Non	74	3,27	1,038	,121	3,03	3,51	1	5
	Total	106	3,25	1,049	,102	3,04	3,45	1	5
frees users from responsibility	User	32	4,44	,716	,127	4,18	4,70	3	5
	Non	74	4,09	1,125	,131	3,83	4,36	1	5
	Total	106	4,20	1,027	,100	4,00	4,40	1	5
risk of not finding available vehicle nearby	User	32	4,34	,827	,146	4,05	4,64	2	5
	Non	73	4,07	,962	,113	3,84	4,29	2	5
	Total	105	4,15	,928	,091	3,97	4,33	2	5

Exhibit 82: Test of Homogeneity of Variances CS attitudes

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
Flexibility One way rides	,144	1	102	,705
is a complicated process	2,302	1	93	,133
possibility to try new models	9,745	1	100	,002
requires users to adapt to unknown vehicles	,024	1	103	,878
unclear insurance situation in accident	,970	1	104	,327
is cheap compared to alternatives	,037	1	104	,847
frees users from responsibility	2,826	1	104	,096
risk of not finding available vehicle nearby	,020	1	103	,889

Exhibit 83: ANOVA car sharing attitudes

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Flexibility One way rides	Between Groups	1,272	1	1,272	2,204	,141
	Within Groups	58,844	102	,577		
	Total	60,115	103			
is a complicated process	Between Groups	5,221	1	5,221	4,049	,047
	Within Groups	119,937	93	1,290		
	Total	125,158	94			
possibility to try new models	Between Groups	5,471	1	5,471	6,970	,010
	Within Groups	78,490	100	,785		
	Total	83,961	101			
requires users to adapt to unknown vehicles	Between Groups	1,587	1	1,587	1,473	,228
	Within Groups	111,041	103	1,078		
	Total	112,629	104			
unclear insurance situation in accident	Between Groups	7,090	1	7,090	4,487	,037
	Within Groups	164,307	104	1,580		
	Total	171,396	105			
is cheap compared to alternatives	Between Groups	,153	1	,153	,138	,711
	Within Groups	115,470	104	1,110		
	Total	115,623	105			
frees users from responsibility	Between Groups	2,627	1	2,627	2,525	,115
	Within Groups	108,213	104	1,041		
	Total	110,840	105			
risk of not finding available vehicle nearby	Between Groups	1,686	1	1,686	1,976	,163
	Within Groups	87,876	103	,853		
	Total	89,562	104			

Exhibit 84: Cross tables: Complicated Process – Car sharing usage

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
is a complicated process * User	95	86,4%	15	13,6%	110	100,0%

is a complicated process * User Crosstabulation

		User		Total
		User	Non User	
is a complicated process	Strongly disagree	8	11	19
	Somewhat disagree	12	17	29
	Neither agree nor disagree	9	16	25
	Somewhat agree	2	15	17
	Strongly agree	1	4	5
Total		32	63	95

Exhibit 85: Chi Test Complicated Process – Car sharing usage

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5,508 ^a	4	,239
Likelihood Ratio	6,204	4	,184
Linear-by-Linear Association	3,922	1	,048
N of Valid Cases	95		

a. 2 cells (20,0%) have expected count less than 5. The minimum expected count is 1,68.

Exhibit 86: Symmetric Measures: Complicated Process – Car sharing usage

Symmetric Measures		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal	Phi	,241			,239
	Cramer's V	,241			,239
	Contingency Coefficient	,234			,239
Interval by Interval	Pearson's R	,204	,094	2,012	,047 ^c
Ordinal by Ordinal	Spearman Correlation	,203	,095	1,997	,049 ^c
N of Valid Cases		95			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Exhibit 87: Cross tables Unclear insurance situation – car sharing Usage

unclear insurance situation in accident * User Crosstabulation				
Count		User		Total
		User	NonUser	
unclear insurance situation in accident	Strongly disagree	3	13	16
	Somewhat disagree	5	11	16
	Neither agree nor disagree	6	30	36
	Somewhat agree	10	10	20
	Strongly agree	8	10	18
Total		32	74	106

Exhibit 88: Chi Square Tests Unclear insurance situation – car sharing Usage

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9,586 ^a	4	,048
Likelihood Ratio	9,626	4	,047
Linear-by-Linear Association	4,343	1	,037
N of Valid Cases	106		

a. 2 cells (20,0%) have expected count less than 5. The minimum expected count is 4,83.

Exhibit 89: Symmetric Measures: Unclear insurance situation – car sharing Usage

Symmetric Measures		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal	Phi	,301			,048
	Cramer's V	,301			,048
	Contingency Coefficient	,288			,048
Interval by Interval	Pearson's R	-,203	,096	-2,118	,037 ^c
Ordinal by Ordinal	Spearman Correlation	-,210	,097	-2,194	,030 ^c
N of Valid Cases		106			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Exhibit 90: Behavioural variables - Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Tech	1	34	3,927335640138409	,945850562108142	,162212033157793	3,597312777248559	4,257358503028260	1,5882352941176472	5,4117647058823530
	2	74	3,164546899841016	1,010537443634532	,117472591684730	2,930424362242564	3,398669437439469	,8823529411764706	5,4117647058823530
	Total	108	3,404684095860566	1,048471710212184	,100889237354785	3,204682949498774	3,604685242222357	,8823529411764706	5,4117647058823530
How much time do you spend on average on your daily commute?	1	34	1,91	,830	,142	1,62	2,20	1	4
	2	76	1,59	,715	,082	1,43	1,76	1	4
	Total	110	1,69	,763	,073	1,55	1,84	1	4
How many kilometers distance do you travel daily?	1	34	1,29	,629	,108	1,07	1,51	1	4
	2	76	1,21	,410	,047	1,12	1,30	1	2
	Total	110	1,24	,487	,046	1,14	1,33	1	4
Trips	1	34	2,18	,834	,143	1,89	2,47	1	5
	2	76	2,12	1,070	,123	1,87	2,36	1	5
	Total	110	2,14	1,000	,095	1,95	2,33	1	5

Exhibit 91: Behavioural variables: Levene

	Levene Statistic	df1	df2	Sig.
Tech	,541	1	106	,464
How much time do you spend on average on your daily commute?	,143	1	108	,706
How many kilometers distance do you travel daily?	3,359	1	108	,070
Trips	2,154	1	108	,145

Exhibit 92: Behavioural variables ANOVA

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Tech	Between Groups	13,555	1	13,555	13,806	,000
	Within Groups	104,069	106	,982		
	Total	117,624	107			
How much time do you spend on average on your daily commute?	Between Groups	2,400	1	2,400	4,244	,042
	Within Groups	61,091	108	,566		
	Total	63,491	109			
How many kilometers distance do you travel daily?	Between Groups	,164	1	,164	,690	,408
	Within Groups	25,690	108	,238		
	Total	25,855	109			
Trips	Between Groups	,079	1	,079	,079	,780
	Within Groups	108,875	108	1,008		
	Total	108,955	109			

Exhibit 93: Chi-Square test Technology – car sharing Usage

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	41,410 ^a	38	,324
Likelihood Ratio	52,397	38	,060
Linear-by-Linear Association	12,331	1	,000
N of Valid Cases	108		

a. 75 cells (96,2%) have expected count less than 5. The minimum expected count is ,31.

Exhibit 94: Symmetric Measures Technology – car sharing Usage

Symmetric Measures					
		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal	Phi	,619			,324
	Cramer's V	,619			,324
	Contingency Coefficient	,526			,324
Interval by Interval	Pearson's R	-,339	,081	-3,716	,000 ^c
Ordinal by Ordinal	Spearman Correlation	-,349	,085	-3,838	,000 ^c
N of Valid Cases		108			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Exhibit 95: Crosstab car sharing Usage: Daily time spent on commutes

Crosstab				
Count		User		Total
		User	Non User	
How much time do you spend on average on your daily commute?	1	11	40	51
	2	17	28	45
	3	4	7	11
	4	2	1	3
Total		34	76	110

Exhibit 96: Chi-Square Tests: Daily time spent on commutes - car sharing Usage

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5,027 ^a	3	,170
Likelihood Ratio	4,953	3	,175
Linear-by-Linear Association	4,121	1	,042
N of Valid Cases	110		

a. 3 cells (37,5%) have expected count less than 5. The minimum expected count is ,93.

Exhibit 97: Symmetric measures car sharing Usage - Daily time spent on commutes

Symmetric Measures					
		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal	Phi	,214			,170
	Cramer's V	,214			,170
	Contingency Coefficient	,209			,170
Interval by Interval	Pearson's R	-,194	,095	-2,060	,042 ^c
Ordinal by Ordinal	Spearman Correlation	-,192	,093	-2,037	,044 ^c
N of Valid Cases		110			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.