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«The effects of user experience on loyalty in carsharing market»

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ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ ВЫПУСКНОЙ КВАЛИФИКАЦИОННОЙ РАБОТЫ

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Сидоров А.Л.

26.05.2022 (Дата)

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I, Sidorov Arseniy Leonidovich, (second) year master student, MiM program «Management», state that my master thesis on the topic « The effects of user experience on loyalty in carsharing market », which is presented to the Master Office to be submitted to the Official Defense Committee for the public defense, does not contain any elements of plagiarism.

All direct borrowings from printed and electronic sources, as well as from master theses, PhD and doctorate theses which were defended earlier, have appropriate references.

I am aware that according to paragraph 9.7.1. of Guidelines for instruction in major curriculum programs of higher and secondary professional education at St.Petersburg University «A master thesis must be completed by each of the degree candidates individually under the supervision of his or her advisor», and according to paragraph 51 of Charter of the Federal State Institution of Higher Education Saint-Petersburg State University «a student can be expelled from St.Petersburg University for submitting of the course or graduation qualification work developed by other person (persons)».

Sidorov A.L.

26.05.2022 (Date)

ABSTRACT

Master Student's Name	Sidorov Arsenii Leonidovich
Master Thesis Title	The effects of user experience on loyalty in carsharing market
Faculty	Management
Major Subject	Master in Management
Year	2022
Academic Advisor's Name	Alkanova Olga Nikolaevna
Description of the goal, tasks and main results	The research goal of this work is to understand how the loyalties towards the carsharing company and towards car brands used in carsharing are connected and how they are influenced by users' age and attitude towards the main benefits and barriers carsharing business model. To achieve the research goal, the following research steps were made: • Literature review, main concepts definition, and initial hypotheses formation • In-depth interviews to respecify initial hypotheses. • Quantitative survey with predetermined quotas to obtain needed data • Descriptive analysis to understand the specifics of data obtained • Factor analysis to group variables into factors • Regression analysis to obtain model coefficients which will be used for hypotheses check • Hypotheses analysis and main results discussion • Additional analysis on the performance of carsharing companies and car models used in carsharing • Managerial implications and research limitations were discussed During the research, it was found that age has a negative effect on loyalty towards car brands used in carsharing. Also, we found out that loyalty towards the carsharing company and towards car brands used in carsharing are interconnected and correlate positively. If a company has a user's favorite car in operation, such a user will be more loyal on average to this company. The last finding is that loyalty towards a particular car brand is negatively affected by the importance of barriers and challenges to using carsharing. Also, this work provides many findings which are business applicable and creates a bridgehead for future scientific research.
Keywords	Loyalty, Sharing Economy, Carsharing, Factor and Regression analysis

АННОТАЦИЯ

Автор	Сидоров Арсений Леонидович
Название магистерской диссертации	Влияние пользовательского опыта на лояльность на рынке каршеринга
Факультет	Менеджмент
Специальность	Менеджмент
Год	2022
Научный руководитель	Алканова Ольга Николаевна
Описание цели, задач и основных результатов	Цель исследования данной работы — понять, как связаны лояльность к каршеринговой компании и к маркам автомобилей, используемых в каршеринге, и как на них влияет возраст пользователей и их отношение к основным преимуществам и барьерам бизнес-модели каршеринга. Для достижения цели исследования были выполнены следующие этапы: • Обзор литературы, определение основных понятий и формирование первоначальных гипотез • Глубинные интервью для уточнения первоначальных гипотез • Количественное исследование с заранее установленными квотами для получения необходимых данных • Описательный анализ для понимания специфики полученных данных • Факторный анализ для группировки переменных в факторы • Регрессионный анализ для получения коэффициентов модели, которые будут использоваться для проверки гипотез • Анализ гипотез и обсуждение основных результатов • Дополнительный анализ эффективности каршеринговых компаний и моделей автомобилей, используемых в каршеринге • Сформированы управленческие рекомендации и описаны ограничения исследования В ходе исследования было установлено, что возраст негативно влияет на лояльность к брендам автомобилей, используемых в каршеринге. Также мы выяснили, что лояльность к каршеринговой компании и лояльность к маркам автомобилей, используемых в каршеринге, взаимосвязаны и положительно коррелируют. Если у компании есть в эксплуатации любимый автомобиль пользователя, то такой пользователь в среднем будет более лоялен к этой компании. Последний вывод заключается в том, что на лояльность к определенной автомобильной марке отрицательно влияет важность барьеров и проблем, связанных с использованием каршеринга. Кроме того, эта работа дает много результатов, которые применимы в бизнесе, и создает плацдарм для будущих научных исследований.
Ключевые слова	Лояльность, Экономика совместного потребления, Каршеринг, Факторный и Регрессионный анализ

INTRODUCTION

Our modern world is developing very fast. New technologies come up every year and they are affecting the world's life. One of the recent significant changes made by new technologies in the transportation system of large Russian cities is the appearance of carsharing services.[1] Large cities and megapolises usually suffer from traffic jams. Large Russian cities such as Moscow and Saint-Petersburg are not an exception. Apart from this, the massive problem of parking also appears, as the number of cars going to the city center is significantly higher than the capacity of parking places. Carsharing can be one solution that can help improve the overall performance of a city's transportation system. The technology of sharing a car between different people can allow society to use cars more efficiently compared to personal usage. Consequently, the number of vehicles on the road will be reduced and traffic will lower, positively affecting the parking problem. According to DuPuis and Rainwater (2014), sharing economy services lead to an increase in the efficiency of economic activities. Besides, carsharing users do not have to think about car maintenance, repairs, seasonal tire change, gasoline refill, etc. Combining these preferences with a modern, convenient, and user-friendly app for mobile attracts a lot of users.

On the other hand, a pandemic of COVID-19 has shown us that ownership is still important, as we could see some restrictions on sharing services and transportation services in Russia in 2020.[2] Vinod & Sharma (2021) researched the impact of pandemics on the ride-sharing industry and came up with an interesting conclusion: people want to continue use sharing services but with more precautions. Even though all carsharing services were banned for a couple of weeks in Russia because of COVID-19 pandemic, the overall market showed a rise in the number of rides in 2020 by 26% compared to the previous year.

Apart from these, carsharing seems to be a severe threat for auto manufacturers as it leads to an overall decrease in a number of cars used on the roads because of its effectiveness. Before, for instance, to transport five individuals across the megapolis, five personal cars were needed. Now it can be done with only one carsharing car. Early-stage findings from Germany and London (Giesel & Nobis, 2016; Le Vine & Polak, 2019) indicate that carsharing users have a tendency to refuse to buy a personal car or sell if they have one. Thus, Le Vine & Polak (2019) indicated that 37% of respondents noted that carsharing appearance affected their car usage. In the long run, this

[1] E. E. (2020, December 28). *Tinkoff study: Yandex.Drive occupies more than 50% of the car sharing market in Russia, Delimobil - 23.8%.* Vc.Ru. https://vc.ru/transport/191937-issledovanie-tinkoff-yandeks-drayv-zanimaet-bolee-50-rynka-karsheringa-v-rossii-delimobil-23-8

[2] RBC. (2020, April 13). Petersburg temporarily banned carsharing. https://www.rbc.ru/rbcfreenews/5e94b6639a7947d629c01133

can potentially mean that the sales of private cars will drop as carsharing overall is more effective mean of transportation.

As more and more people in Russia begin to learn the advantages of the sharing economy, we can suppose that carsharing market will continue its growth, expanding to other large cities of Russia. Consequently, we believe that it is an interesting, growing, and highly important market to study and analyze. It is important to admit that carsharing and private car selling exists together in the same cities and countries; however, still, there is no clear answer how carsharing influences the car industry, although these findings can be extremely important for both industries and also for the scientific community, as it will discover new insights about customer's loyalty formation. Also, currently, there is no information about customers' loyalty in this market and what affects it. To sum up, carsharing is a booming and interesting market into which we want to dive deeper. To do so, we have formulated the following research questions for which we want to find answers in this research.

Research questions

Research questions which we want to approach:

1) How the loyalties towards carsharing company and towards car brand used in carsharing are connected? How important in terms of customer loyalty is acquiring certain car model by the carsharing company?

2) What is the relation between the user's age and his or her loyalty toward car models and carsharing companies?

3) How is the loyalty affected by the importance of the main benefits and challenges of carsharing usage for the customer?

Relevance of the study

These questions are important and relevant to answer due to the following reasons.

It will be useful for business, for carsharing and automotive industries to get insights about their customers and their loyalty. Also, the automotive industry should be aware of carsharing: one day it can become so popular that sales of personal cars may plunge. Or on the opposite, carsharing users can somehow test a vehicle, become interested in it, become loyal to this brand, and then buy afterward, thus increasing the overall demand for personal cars. Answering these questions will help automotive industries derive optimal marketing communication strategies with customers

and carsharing services companies. Apart from the automotive industry, the insights obtained during this research will benefit carsharing companies.

Carsharing industry is booming now and, of course, it should be analyzed properly. However, due to its young age, there are few scientific articles about this sphere. Consequently, there is a significant research gap, and with this work, we plan to sufficiently narrow it, filling it with our new findings and creating a bridgehead for further research.

A better understanding of customers' loyalty and behavior will help interested companies line up effective communication with current and potential customers.

Research gap

Our work deals with the loyalty of carsharing users. But loyalty towards car brands and also towards carsharing companies. Few studies have been conducted on assessing the relationships between carsharing companies and automotive companies. Also, few studies have been conducted on assessing carsharing users' behavior and loyalty. We believe that our work will contribute to narrowing this research gap and that business and scientific society will get new insights into customer loyalty towards car brands and towards carsharing companies in Russia.

Aims of the study

To answer research questions, understand customer behavior patterns, and find new insights that will benefit carsharing companies, automotive companies, and the whole scientific society. The object of this study is the behavior of respondents and their user experience in relation to carsharing companies and car brands that are used in the Russian market. The subject of the study is consumer loyalty to carsharing companies and brands of cars used in carsharing services.

CHAPTER 1. THEORETICAL BASIS OF LOYALTY AND ASPECTS OF CARSHARING MARKET IN RUSSIA

Sharing economy and carsharing industry specifics in Russia

Firstly, we will define the main terms and will try to reflect general world trends about Sharing Economy and carsharing services. Afterward, we will turn down to specifics of Russian carsharing services and the sharing economy development. In the last section, we will try to understand loyalty, why this term is so important, how it is being formed, which loyalty metrics exist, and which are commonly used in Sharing economy models.

Sharing Economy can be described as «peer to peer sharing of access to underutilized goods and services, which prioritizes utilization and accessibility over ownership» (Cheng, 2016). As a part of sharing Economy, Carsharing service is a service that allows customers to rent a car for a short period of time. Generally, carsharing companies have their own mobile application. Customers can find the closest or most convenient car for them, make their ride, and after arriving at the destination point, park a car and forget about it. (Bardhi & Eckhardt 2012)

Many researchers state that sharing economy principles have become predominant nowadays as they provide users with more efficient resource allocation. (Kraus et al, 2019; Richter et al, 2017) As a result, customers will pay less and be able to access resources they previously could not, also combined with a convenient method (app, website, or other). Among other pluses of Sharing economy principles, researchers also mention the following: reduction of ecological impacts (Schor, Fitzmaurice, 2015), social connection and technology advancement (Botsman, Rogers, 2010), better value distribution of supply chain (Gansky, 2010). To sum up, the sharing economy model and, more specifically, the carsharing model has many advantages compared to the traditional economy. As a result, sharing economy has been snowballing for the last ten years. Along with growing of sharing economy, carsharing services also tend to grow all other the world. (Florida, 2011) (Katzev, 2003)

Despite the presence of proper scientific research about Sharing Economy, Marketing issues related to this theme remain unclear (Eckhardt et al, 2019). Our study plans to dig even further and focus on the loyalty aspects of customers involved in sharing economy business models. Maintaining consumer loyalty is a central task for marketing specialists. It is widely known that it is usually much cheaper for the company to keep the current client rather than acquire a new one. There is a significant research gap in the topic of carsharing users' loyalty. We plan to

narrow it with the findings of our work, making this topic much more understandable for future research and the business community.

It is important to discuss specifics of Sharing economy models in Russia and carsharing services in Russia. Generally speaking, Russia is following the worldwide trend of rapidly growing sharing economy services. The development of online platforms and increased awareness of customers about goods and services contribute to forming a new culture of consumption, so-called sharing consumption (Rebyazina et al, 2020). According to another scientific work made by V. Rebyazina (2019), which was dedicated to the assessment of Airbnb (this service also incorporates principles of sharing economy) customers from Russia, the decision to join sharing economy service is guided by four main factors: Economical, Social, Personal, and Ecological. In the 2020 paper, Rebyazina derives six factors why people tend to or tend not to participate in sharing economy services. Among them: Interest in participating in sharing economy, Difficulties at the beginning of participating in sharing economy, Perceived risk, Role of property, Influence of reference groups, and Hygienic aspects. So, by now, we understand the trends of sharing economy in Russia and why people in Russia are interested in participating in SE services. On the next step we focus more on carsharing services in Russia, the current trends and aspects. According to Kireeva et al. (2020), carsharing industry in Russia has been overgrowing over the past five years. Also, the volume of transactions and the total number of trips rose explosively. However, the authors mention that market is still underdeveloped and has a high degree of monopolization. The main barriers for customers in Russia to start using carsharing regularly are: lack of user awareness, concerns about possible car damage, technical failures, high walking distance to the closest car, personal data leakages, lesser sense of comfort, safety, and privacy compared to a private car.

It is important to understand some key numbers and statistics about the Russian carsharing market as of the beginning of 2022. Currently, there are 18 carsharing companies in Russia, with four largest which, in sum, comprise 99% of the market share.[3] These companies are: Delimobil'[4], Yandex Drive[5], City Drive[6] (rebranded from You Drive), BelkaCar[7]. The volume of the Russian

[3] Tinkoff data carsharing research (2022). Tinkoff Bank. https://www.tinkoff.ru/about/news/31032022-carsharing-market-2021-tinkoff-data-research/

[4] Delimobil - carsharing for your achievements. (2022). Delimobil. https://delimobil.ru/

[5] Yandex. Drive. (2022). https://yandex.ru/drive

[6] Citydrive (ex. Youdrive) carsharing service. (2022). Citydrive(ex. Youdrive). https://citydrive.ru/

[7] Belka Car. (2022). https://belkacar.ru/

transport sharing market in 2021 reached 68 billion rubles, an increase of 85% compared to 2020[8] (including carsharing, carpooling, and kicksharing). According to data provided in a study presented by TIAR-Center and the RAEC/Sharing Economy cluster in mid-December 2021, the carsharing itself comprises 41 billion rubles in 2021.

According to Tinkoff Index[9], one user makes on average five car sharing trips per month. Some other significant findings made by Tinkoff researchers[10]:

- The average number of trips a user makes per month has increased for all major carsharing operators, except for Yandex. Drive
- Delimobil and Citydrive increased their market shares in terms of the number of trips, together with Yandex. Drive, they entered the top 3 operators of the car sharing market
- Monthly spending by customers of the largest operators increased by 36%, and the average bill for a trip in 2021 amounted to 433 rubles
- The top three companies in terms of the number of cars in operation are: Delimobil , Yandex. Drive and Citydrive

Also, we should admit that Moscow has the largest carsharing fleet among the world capitals. Moscow accounts for almost 30 thousand cars. In the second place is Tokyo (20.6 thousand cars), and in third place is Beijing (15.4 thousand cars). At the end of 2021, Delimobil had the most cars among Russian operators (19,000). Yandex. Drive had 16 thousand cars, Citydrive had more than 6 thousand, and BelkaCar had 5.5 thousand cars. Of this number of vehicles, according to the Moscow Transport resource, BelkaCar accounts for almost 80% of the fleet in Moscow, while Delimobil and Yandex. Drive - 60% each, and Citydrive - 50%. Overall, we can say that Russian carsharing can act as a benchmark for all the other carsharing services, as it is the most popular one worldwide.

Another research made by Yandex. Drive also provides us with some more important facts about the current state of the carsharing industry in Russia. In the last six months of 2020, the average number of trips per day was 80,000 on weekdays and 87,000 on weekends for

[8] TAdviser is a portal for choosing technologies and suppliers. (2022). TAdviser.Ru. https://www.tadviser.ru/

[9] Tinkoff CoronaIndex. (2022). Tinkoff Bank. https://index.tinkoff.ru/

[10] Tinkoff data carsharing research (2022). Tinkoff Bank. https://www.tinkoff.ru/about/news/31032022-carsharing-market-2021-tinkoff-data-research/

Yandex.Drive company, enormous numbers are only for Moscow.[11] The statistics below is only related to Yandex. Drive customers and only in Moscow. So, the median distance traveled by car in one trip is 6 kilometers on weekdays and 8 kilometers on weekends. In every fifth case, the length of the route exceeds 20 kilometers.

Yandex. Drive provides various types of cars for rent: economy, comfort, and business class cars, minivans for transporting people, and cargo vans (As well as main competitors). According to the Yandex. Drive data from September 2020 until February 2021; a typical "working day" of each type of car looks very different (only economy and comfort are similar). For example, an economy class car drives for an average of three hours and forty-seven minutes, while a business class car drives for eight hours. Detailed results are presented in Figure 1.

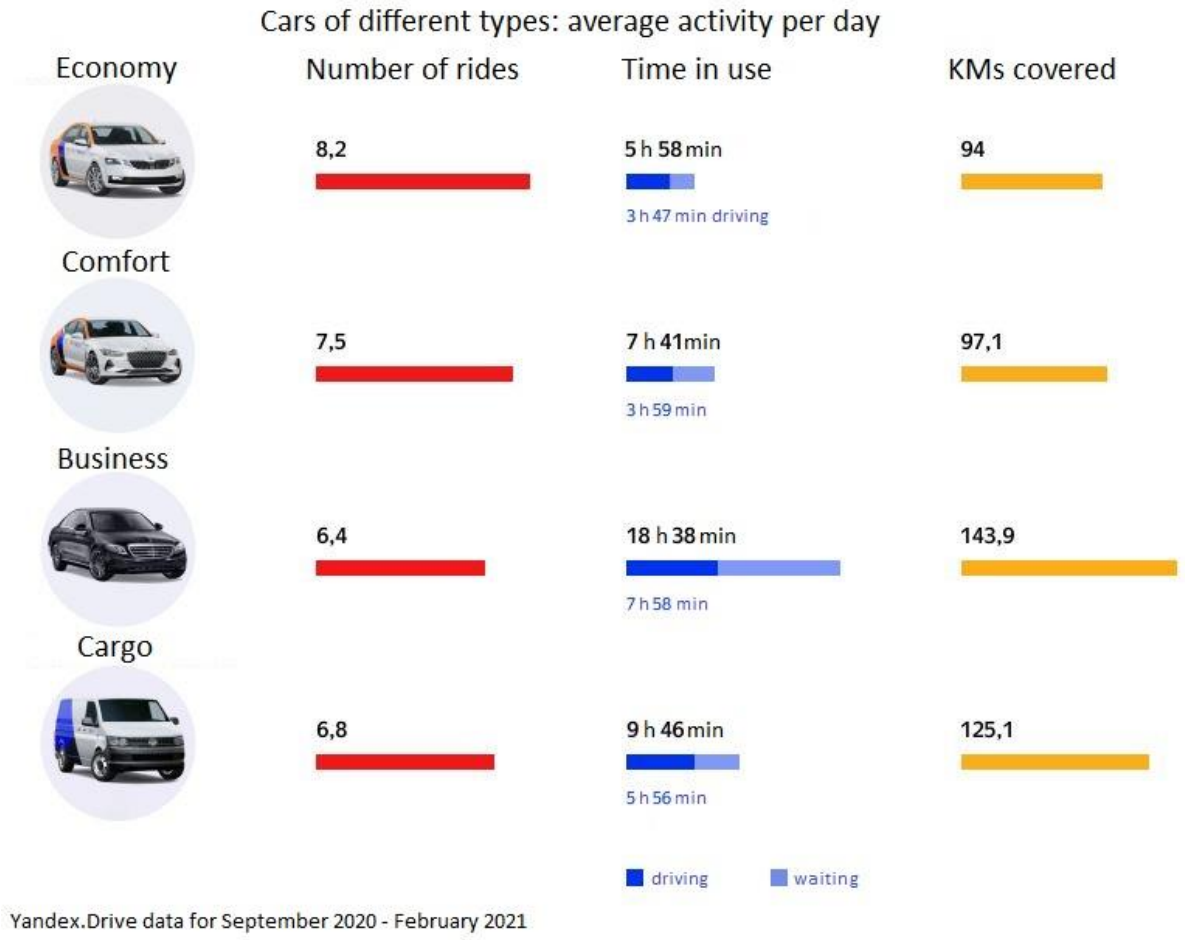

Figure 1. Activities of different types of Yandex.Drive cars

[11] Car sharing in Moscow — research by Yandex.Drive. (2021). Company Yandex. https://yandex.ru/company/researches/2021/drive

Interestingly, business class cars are rented for more than 18 hours per day on average. This is a large difference compared to other types of vehicles.

Apart from extensive research on the statistics of car usage, Yandex. Drive conducted an interesting analysis of the company's clients. The average driving experience of users has also grown - from 9 years at the time of the service's launch to 12 years in February 2021. The share of drivers with little driving experience (from 2 to 4 years) has almost halved to 12%. The percentage of experienced drivers (with an experience of 15 years or more) has doubled and now stands at 30%. The bias towards young people, who were the first to use a new mode of transport, is now eliminated. The share of users aged 35 and older has doubled over the past three years.[12]

Also, researchers' team at Yandex. Drive dedicated some time to properly identify the use cases of carsharing. The results of their survey are presented in the Table 1.

Table 1. Reasons to take carsharing car

This table shows the proportion of Yandex. Drive users for whom this scenario is relevant.

Type of a trip	**Share of users in %**
To the railway station or to the airport (or back home)	44
To bars, restaurants and other places from where you can't drive away on your own	38
To the nearest metro station (or from the metro station to your destination)	26
Transportation of belongings	23
To workplace or to studying place (or vice versa)	23
Rent a car for the whole day when you need to go to a lot of places	17
To shopping	16
To the countryside	12
Just to drive a car	11
*ACCORDING TO THE SURVEY OF YANDEX.DRIVE USERS	

As it can be seen from the table above, the three most common use cases for carsharing are: to go to the railway station or airport or get back home from these places, to go to the bar or

[12] Car sharing in Moscow — research by Yandex.Drive. (2021). Company Yandex. https://yandex.ru/company/researches/2021/drive

restaurant or any other place from which you cannot drive on your own, to the nearest metro station.

Looking ahead to our research, it is important to admit that once we were preparing our survey, we used all the materials and knowledge listed above to make it relevant.

Once we discussed the specifics of sharing economy and carsharing industry in Russia, it can be stated that loyalty on this market is an interesting aspect: on the one hand, we have a loyalty towards a carsharing company itself, on the other hand towards a car being used during the ride. None of the studies covered the relationship between these two types of loyalty. In the next step, it is vital to cover the loyalty term.

Loyalty concepts discussion

After discussion of the previous two parts, we are moving forward to the last part of chapter one, to discuss loyalty metrics and the purposes of their usage. We want to begin this part of the work this a kind of a management axiom: it is much more expensive for a company to acquire a new customer than to keep an old one (Reichheld, Schefter, 2000). That is why customer loyalty is so important. All other benefits which come from loyal customers will be discussed later.

However, it is important to cover loyalty term more precisely. As we can see from the previous paragraph, loyal customers can act very differently. To discuss what loyalty is in general and some important definitions of this term, we carefully reviewed articles made by decent scientists. We will cover types of loyalty based on their nature towards some aspects.

Customer loyalty research was usually focused on the loyalty of consumers towards particular tangible products and is often named brand loyalty (Gremler & Brown,1996). In the 1970s, significant research was made on brand loyalty and was focused mainly on definitional and measurement issues (Jacoby 1971, 1975, and 1978). According to Jacoby (1971), brand loyalty can be expressed by a set of six collectively sufficient and necessary conditions. « These are that brand loyalty is (1) the biased (i.e., non-random), (2) behavioral response (3) expressed over time, (4) by some decision-making unit, (5) with respect to one or more alternative brands out of a set of such brands, and (6) is a function of psychological (decision making, evaluative) processes.» According to the slightly earlier research, Brand loyalty, or in other words, brand preference, has most frequently been defined as the consumer's repeated purchases of goods or services of a particular brand (McConnell,1968).

More recent studies indicate that there are four types of brand loyalty. Rowley (2005) state that they are the following: captive, convenience-seekers, committed, and contended.

Captive-type customers usually tend to prefer repeatedly purchasing of the same product or service because they lack opportunities to substitute for alternatives. Convenience-seekers, on average, may not respect the brand itself but look at the convenience that it can carry. As for the Contented consumers, which usually have a positive attitude towards a brand, they will not attempt to some additional consumption of the product or service. The perfect group of loyal customers is the so-called committed, who are active both in attitude and behavior. So, once we have covered the topic of brand loyalty, now it is time to switch to another loyalty type. Once we have research dedicated to carsharing companies which provide services for a consumer for short car rent, it is crucial to cover the term of service loyalty.

Many researchers claim that the concept of service loyalty is different from the brand loyalty concept. (Gremler & Brown,1996). The main differences covered in studies mentioned below.

As mentioned, service loyalty distinctions are the following: (1) service companies usually tend to create much stronger loyalty bonds together with their clients than do companies which produce tangible goods (Zeithaml 1981; Czepiel & Gilmore 1987), (2) loyalty is much greater and more prevalent on average among the service consumers comparing to goods consumers (Zeithaml 1981; Snyder 1986), (3) services companies tend to provide more opportunities and possibilities for interpersonal interaction between customers and company representatives (Czepiel & Gilmore 1987) which, in turn, usually lead to creation of opportunities for loyalty to develop (Parasuraman et al 1985; Surprenant & Solomon 1987), (4) perceived risk is usually greater when purchasing services comparing to purchasing of goods (Murray 1991). Consequently, it is crucial to provide an atmosphere which will more likely lead to the increase of customer loyalty, as many authors state that loyalty is often used as a risk reducing device (Zeithaml 1981), and (5) for some particular services, switching between providers may involve specific barriers and challenges, while brand switching for goods or tangible products in comparison is much easier (Zeithaml 1981).

A further literature review suggests that service loyalty itself can also be divided into three large groups or, in other words, dimensions. These are behavioral loyalty, attitudinal loyalty, and cognitive loyalty. We will briefly discuss the definitions of these terms and then switch to another vital aspect gaining popularity nowadays – product loyalty.

Behavioral loyalty definition: In particular, loyalty was defined as a form of specific customer behavior (for instance, repeated purchasing or advising a company to a friend) directed towards a particular brand X over time (Tucker 1964; Sheth 1968). Although current thought infers

that loyalty includes more than just a behavioral dimension, some authors still continue to measure loyalty exclusively based on the behavioral aspect.

The second dimension is attitudinal loyalty. Attitudinal Loyalty definition: The researchers questioned the measurement of loyalty based solely on customers' behavioral aspects since 1969. For instance, Day (1969) criticized behavioral conceptualizations of loyalty and stated that brand loyalty develops as a result of conscious and continuous efforts made by the consumers in order to evaluate different competing brands. Other researchers present a more straightforward definition of attitudinal loyalty: the attitudinal loyalty dimension includes consumers' preferences or intentions towards brands (Pritchard 1991; Jarvis & Wilcox 1976). After Day's criticism, the attitude loyalty dimension gained more attention and was stated as an important dimension of loyalty. Since some time has passed, scholars began to consider customer loyalty as having two main dimensions: behavioral and attitudinal (Day 1969; Snyder 1986; Dick & Basu 1994)

However, as we already know, modern science usually highlights three dimensions. The next step is to cover the third one: cognitive loyalty. Some studies suggest that loyalty to a particular service or a brand means it comes up first in a consumer's mind when the one identifies that they need such a particular service or product (Bellenger et al, 1976; Newman & Werbel, 1973), while other authors operationalize loyalty as a customer's "first choice" among other alternatives (Ostrowski et al, 1993). According to Dwyer et al. (1987), customers who are loyal in a cognitive way usually have not ceased attending to alternatives but tend to maintain their awareness of other options without 'constant and frenetic testing.' In other words, a customer who is considered highly loyal to a company or a service does not actively seek for or consider other firms from which to purchase.

To sum up the concept of service loyalty, we mention the definition of service loyalty derived by Gremler & Brown (1996): «Service loyalty is the degree to which a customer exhibits repeat purchasing behavior from a service provider, possesses a positive attitudinal disposition towards the provider, and considers using only this provider when a need for this service arises.»

Nowadays a concept of product loyalty is gaining popularity. This paragraph will be relatively small compared to brand or service loyalty. As for the product, there is not enough scientific research on this theme, and this is logical: the «product» term and product-oriented business are just gaining attention in real-time, so it is a relatively new term. Nowadays product itself becomes even more important than the brand of the manufacturer. However, these terms are very close once we speak about the car industry, for example. Also, product loyalty can be really complicated, as in the case of carsharing. In the carsharing industry, a product that is developed

and delivered by the company is a mobile app, but this is not the only thing, obviously. Also, there are a lot of cars and their maintenance. If a person likes the app, likes the product developed by programmers – it is not enough to become loyal to the whole carsharing company, as where are also cars on the other side. We suppose that once a person is satisfied with both aspects: the mobile app part and the driving part – such a person will become loyal to the carsharing company.

So now we outlined the main types of loyalties, their dimensions, and their definitions. However, it is also important to understand how the loyalty is being formed. Before we proceed, we should answer this question.

As a next step, the aspect of how exactly a customer becomes loyal should be covered. Obviously, the first and one of the most critical aspects of loyalty formation is customer satisfaction. If a customer is not satisfied with the quality of the product or service delivered by the company, he will not become truly loyal to this company. In turn, customer satisfaction is a post-purchase attitude towards a product or service consumed, formed from an exchange and the level of quality that the customer perceives actually receiving from the exchange (Spreng et al, 1996; Oliver & Swan, 1989). Even though the relationship between satisfaction and loyalty is strong, some experts have also mentioned that in some of the cases, more than half of satisfied customers switch to another alternative proposed by a competing firm (Jones & Sasser, 1995). In order to solve this problem, some authors considered the importance of the role of trust in the formation of loyalty (Singh & Sirdeshmukh, 2000). The trust mentioned above is obviously the important factor that influences customer loyalty. Once trust is established in the relationships between customers and the company, we can say that such customers will likely be loyal to the company. Other researchers also believe that a close relationship between the buyer (customer) and the seller (company) shows a customer's satisfaction, and satisfied customers are more loyal (Anderson & Srinivasan, 2003). Significant work was done by Safa & Ismail (2013), who assessed how customer loyalty forms in electronic commerce. The researchers connected the three pillars mentioned above: customer loyalty, customer satisfaction, and trust between customers and a company. Also, they made significant work on systemizing factors which influence E-trust, E-satisfaction, and E-loyalty. The results are presented in Table 2; some of them are about the e-commerce market but are still relevant for our carsharing case.

As it can be seen from the table dedicated to e-commerce, many researchers mention that ease of use, security of the process, price, customer support, ease of ordering, delivery time, stability, product quality, and satisfaction are the main drivers of customer loyalty. This information is also helpful for the carsharing industry: we believe that price, ease of use, and some

of the others will affect customers' loyalty. We will test some of these factors further in our research.

Table 2. Factors affecting the loyalty (Safa & Ismail 2013)

Authors	Factors affecting the loyalty
Helander and Khalid (2000)	Usability, overall security, ease of return/exchange methods, price, detailed descriptions of items, pictures of merchandise, ease of search
Yu, Hsi, and Kuo (2002)	Customer orientation, market orientation, inter-functional coordination, customization, service quality, communication, reliability, satisfaction, trust.
Corbitt, Thanasankit, and Yi (2003)	Site quality, degree of trust, market orientation, technical trustworthiness, and user's web experience.
Chan, Wolfe, and Fang (2003)	Product quality, delivery time, quantity, price/cost, and transparency of the process.
Gunasekaran and Ngai (2004)	3 large groups of factors affecting loyalty: 1 — technical factors, 2 — organizational factors, and 3 — environmental factors.
Oppong, Yen, and Merhout (2005)	People, processes, culture, E-service trends, customer-oriented trends, employee megatrends
Thirumalai and Sinha (2005)	Product selection, website performance, customer support, ease of ordering, on-time delivery, product information, price
Lai (2006)	Responsiveness, reliability, security, credibility, competence, courtesy, access, communication.
Saadé and Kira (2007)	Ease of use
Chang and Chen (2008)	Customization, customer interface quality, convenience, interaction
Lee, Choi, and Kang (2009)	Privacy, expertise, low cost, ease of use, speed, delivery, stability, security, variety, payment.
Chiou, Lin, and Perng (2010)	Responsiveness, ease of use, fulfillment, personalization, individualized attention, visual appearance, information quality, trust, and security/privacy
Lu, Tsao, and Charoensiriwath (2011)	Retail price, manufacture services and competitive advantage

According to another research made by Herhausen et al (2019) the conceptual framework for measuring loyalty formation through customer experiences discussed in the article incorporates three main components. The first one is product satisfaction, which measures the evaluation of the purchased product as an outcome of the customer journey. Second one is journey satisfaction, which measures customers' processing of stimuli encountered during their journey. And the last

one is customer inspiration, which measures a cognitive transformation of a customer, of stimuli encountered during their journey, leading to new cognitive insights**.**

To sum up, the main factors influencing customers' loyalty are customer satisfaction and customer relationships with a company (or customer journey or trust towards a company). Customer satisfaction here is mainly about the attitude of a customer towards the product or service they use, while relationships deal with everything else: what customers know before the usage of this brand, brand image, what happened after the purchase, etc. As you can see, these two prominent factors can be divided into numerous smaller ones. Some of them we are going to assess in our online survey and further data analysis.

Once the concept of loyalty is defined, all the types of loyalty discussed, the process of loyalty formation explained, it is necessary to cover the importance of loyal customers to the company.

According to Evanschitzky (2012), loyal customers, who are regular buyers from company X, help this company to forecast future sales. Also, loyal customers can act as brand promoters, advising the services or products of company X to their colleagues, friends, and relatives (Gee, 2008). In another research by Reichheld (2000), there is information that sellers have to waste as much as four times more money to attract a new client than to continue with the already existing one. Brand loyal consumers who regularly buy products or services of company X significantly reduce the marketing costs of the firm X as the prices of attracting a new customer are about six times higher than the costs of retaining an old one (Rosenberg & Czepiel 1983). Moreover, according to various research implemented by other authors, consumers who can be considered brand loyal are, on average, more willing to pay higher prices for the products or services of this brand and are less price-sensitive (IO-ishnamurthi & Raj 1991; Reichheld & Sasser 1990). The same aspect is also admitted in the work of Mao (2010); loyal customers will not lessen the quantity of their buys once a price for the product or service is raised. Clearly, we can see that loyal customer are extremely important to businesses as they drive overall costs down, bring revenues, and act as brand promoters.

Another critical question that needs to be answered before we proceed with our own research is loyalty metrics. We need to select the appropriate methodology of loyalty calculation in our research. Our work focuses on customer loyalty towards both carsharing companies and towards cars brands. In such cases, it is extremely important to carefully select loyalty metrics that will be used in our research. To choose an appropriate methodology for assessing customer loyalty, a company should consider the following factors: customer's behavior peculiarities, technical

implementation of the approach, its economic feasibility, and the possibility of obtaining a synergistic effect from a combination of approaches (Muravskaya et al 2019).

Approaches for proper assessment of customers' loyalty are changing significantly over time. New methods appear regularly. Many researchers and business leaders are focusing on loyalty, so the topic is popular and debatable. In a study made by Muravskaya et al (2019), researchers mention some basic loyalty concepts like willingness to advise a brand to others, willingness to pay for a particular product at a higher price, and reduced responsiveness to competitors' offers. Nowadays, one of the most popular concepts is the NPS (Net Promoter Score) index. This index shows the willingness of people to recommend a company to friends and acquaintances (Reichheld, 2003).

This metric is simple and easy to use, but it can be ineffective in some cases. From the authors' personal experience, sometimes this question about willingness to recommend a company is not appropriate for some companies. Other researchers also mention various limitations of this approach (Keiningham et al., 2007; De Haan et al., 2015). Authors mention that in many cases, recommendation intention does not correspond with the actual behavior of the customer. In the other research by Grisaffe (2007), the author argued that the NPS is not sufficient as the only approach to customer loyalty analysis. Recommendations alone made by current company clients are unable to drive business success.

Another popular approach is to measure customer satisfaction (Gupta and Zeithaml, 2007). The main idea behind this concept is that if a customer is satisfied with a service or goods provided by a firm, they will become loyal to this company. Also, various researchers have shown a link between customer satisfaction and customer retention (Anderson and Sullivan, 1993; Bolton, 1998; Jones and Earl Sasser, 1995). Types of customer loyalty were brilliantly classified and structured in the work of Muravskaya et al (2019). In the Figure below you can study the types and appearances of customer loyalty. As it can be seen from Figure 2, there are five different types of loyalties and more than 14 appearances of it.

Before we proceed to the second chapter, it is necessary cover the two topics: which loyalty metrics are usually used in the automotive industry, and which metrics are commonly used in sharing economy businesses, starting with the first one: automobile customers and their loyalty.

With a booming digitalization era, consumer behavior is changing significantly. Thus, according to Scherpen et al. (2018), 60% of consumers do not understand which new car they want to buy exactly at the beginning of a search. And a couple of years ago, on average, people spent 18 months deciding on a particular model. Now this time decreased to 3 months and continues to shrink. Also, according to McKinsey's (2016) research, 90% of customers use the websites of car

brands and dealers, and also 85% of customers still visit dealerships. Also, the authors mention that loyalty to a particular car brand is decreased. After this brief discussion of consumers' behavior changes in the auto industry, we should note that there is a lack of research dedicated to assessing which loyalty metric is the best for the auto industry. Some researchers say that customer loyalty in the automotive industry can be determined simply by the customer's intention to purchase the product and continues its usage by repeated buying (Haq, 2012). However, nowadays, it seems to be not the only goal. Brands are also interested in people who can be viewed as brand ambassadors and brand lovers; even if they do not own this product, they can influence others to buy it. (Wang, 2016).

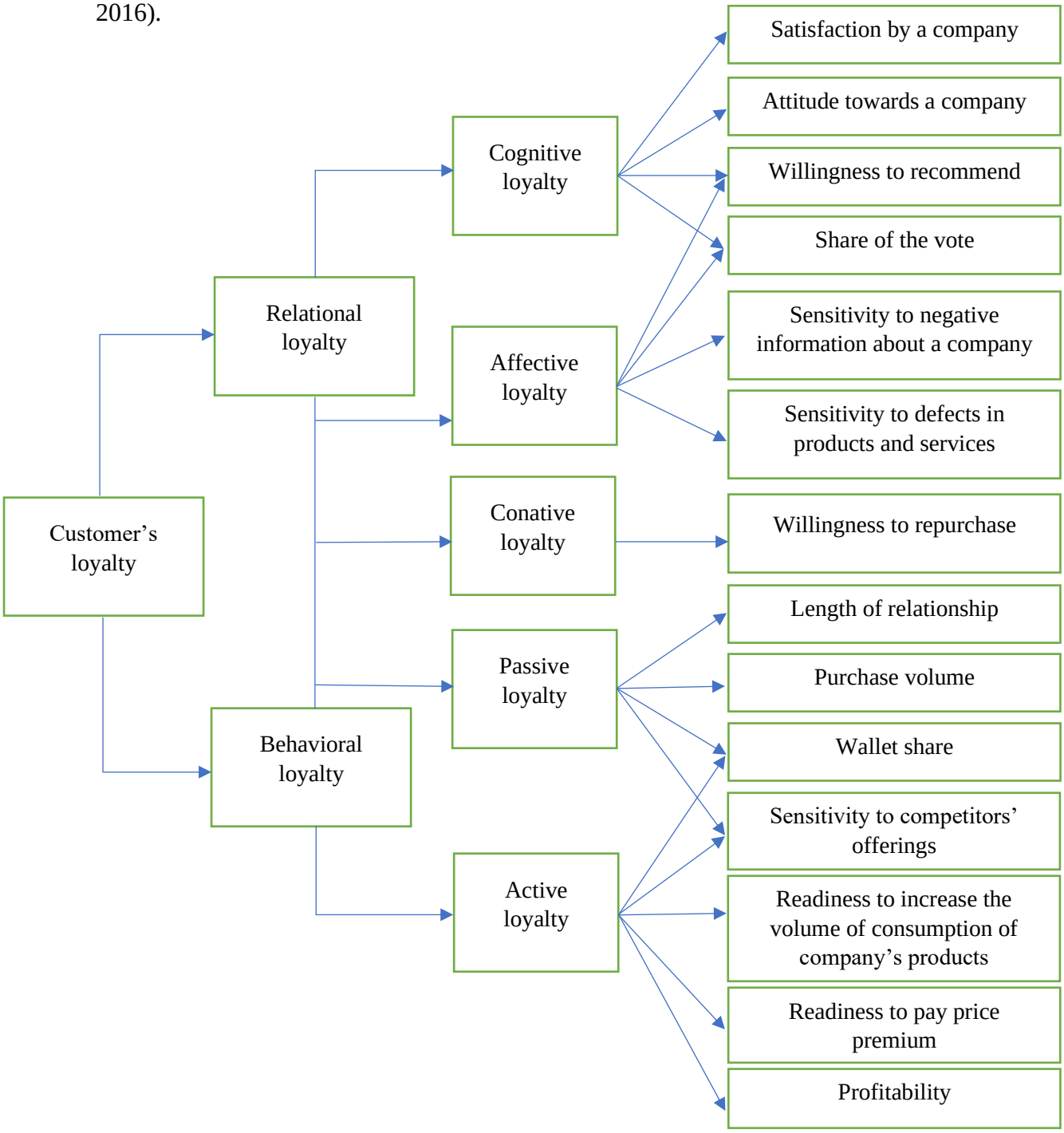

Figure 2. Types of customer loyalty according to Muravskaya et al (2019).

Moving on to answering the questions of which loyalty metrics are commonly used in sharing economy businesses. Thus, according to Hsu & Lin (2016), one of the best ways to measure customer loyalty under sharing economy conditions is to measure their repurchase intention, intention to reuse, and prolong the product life cycle on a platform. Jia et al. (2020) mention that CSI (Customer Satisfaction Index) also plays a huge role in determining customers' loyalty to a company. Also, in modern e-com platforms and apps, two important metrics dedicated to loyalty assessment are the number of purchases during the last month and the number of purchases of all time. We can state that no special metrics are used only in sharing economy companies.

As it was mentioned previously, loyalty is a very popular topic for research. However, the scientific community did not come to an agreement about which approach is dominant or universal for all companies (Aksoy, 2013; Watson et al., 2015). Consequently, there is a high probability that we will derive our own approach or combine two or three existing ones.

Development of a general research model

After the careful analysis of literature and papers previously made by other authors, we decided to assess the Cognitive Loyalty and Active Loyalty of carsharing clients both towards carsharing companies and car models used in carsharing, as already discussed. Due to the imperfections of the classic Net Promoter Score metric mentioned above, we decided to use our own approach.

As for the Cognitive Loyalty, we decided to measure: Satisfaction towards a company, attitude towards a company, and willingness to recommend. As for Active Loyalty, we decided to measure readiness to pay a premium price and eagerness to spend more time before accessing a brand. (Keller, 2008) (Aaker, 1991, 1996) (Yoo, Donthu, 2001) (Loureiro et al, 2012) (Jørgensen et al, 2016). Detailed questions which were asked to respondents to measure loyalty you can find in the second chapter.

Once we have decided on the types of loyalty we assess in our research, it is time to formulate the hypotheses of our study. These hypotheses were developed based on a literature review and further will be modified after the conduction of on in-depth interviews, the process of which will be explained in detail in the second chapter later.

Hypotheses of our research:

H1: Age negatively affects loyalty towards carsharing companies (Rebyazina et al, 2020)

H2: Age negatively affects loyalty towards cars brands used in carsharing (Rebyazina et al, 2020)

After the analysis of studies previously made on the topic of sharing economy, we can suppose that the older the person is, the less loyal on average he or she is towards carsharing company and towards cars used in carsharing.

H3: Loyalty towards a particular carsharing company is affected by the importance of motivations to use carsharing (Hamari et al, 2016; Rebyazina et al, 2019)

H4: Loyalty towards a particular car brand is affected by the importance of motivations to use carsharing (Hamari et al, 2016; Rebyazina et al, 2019)

Again, we derived these hypotheses based on the works mentioned above. However, as of now, it is not clear how exactly loyalties towards a particular carsharing company and towards a particular car are affected by the importance of carsharing benefits in the eyes of a consumer. It is unclear for now as carsharing provides various benefits for its users. For instance, they can save money compared to other means of transportation, save time, enjoy the ride driving by themselves, try new car models, and many other reasons. To identify the main motivations to use carsharing and to forecast the coefficient sign for the future regression model, additional analysis is needed. Consequently, these two hypotheses will be additionally specified through Study One in-depth interviews.

H5: Loyalty towards a particular carsharing company is affected by the importance of barriers and challenges to using carsharing (Hawlitschek et al, 2016; Rebyazina et al, 2019)

H6: Loyalty towards a particular car brand is affected by the importance of barriers and challenges to using carsharing (Hawlitschek et al, 2016; Rebyazina et al, 2019)

The same situation as with the primary motivators happens with the main blockers to carsharing usage. From the literature analysis, we do believe that barriers somehow affect loyalties towards both assessed aspects. However, we do not clearly understand positively or negatively. Also, at this point it is not clear which barriers exactly are the most important for carsharing users. To analyze this and to adjust the initial hypotheses, Study One in-depth interviews were conducted.

To sum up, customer loyalty is a vital part of every business. To be successful, the marketing team of each company should pay special attention to increasing and maintaining the number of loyal customers. However, there is a lack of scientific works discussing the loyalty in the carsharing market. There is no understanding of how the two types of loyalty are

interconnected: loyalty towards carsharing companies and loyalty towards car brands. This study will help answer this question and others proposed as research ones.

CHAPTER 2. METHODOLOGY OF THE RESEARCH

Data collection methodology

As the primary method of data collection and further analysis, we decided to use a questionnaire. This method allows researchers to get a significant amount of data, which will further help identifying correlations, dependencies, and trends. As we are planning to implement regressions and various quantitative models, the questionnaire method of data collection is a must in our case. To be more precise, we used an online survey as a form of a questionnaire. This data collection method is appropriate in the framework of the study, as it allows us to quickly distribute the questionnaire between various respondents and receive answers from them. Apart from this, an online survey will also allow us to collect the exact number of respondents we are looking for in our sampling.

To structure the data collection, blocks of variables were formed. We divided all our variables into five main groups. The first block contains questions about the driving experience of the respondent, the frequency of carsharing usage, and how usually the respondent selects the carsharing car. The second block is about respondents' opinions of carsharing cars and carsharing companies. Here respondents were asked about the companies and cars they used and what are their attitudes towards these carsharing cars and companies. The second block can also be treated as the main block as exactly here we are assessing respondent's loyalty. The third block consists of control variables and is made mainly to understand what customers like about using carsharing. The fourth block has the same logic as the Third, but here we are identifying the main challenges and difficulties for carsharing clients. And the last, the fifth block, is about the demography of respondents.

To decide on the scaling of our variables, we reviewed other research on sharing economy and on similar analyses. For analysis of customer loyalty towards carsharing companies and car brands, we decided to use a 7-point Likert scale. As a benchmark in selecting a 7-point scale, we selected research by Rebyazina et al, 2020 which focuses on assessing consumer attitudes towards the sharing economy in Russia.

Variables that we selected as Loyalty metrics are presented in the table below and the corresponding scientific sources.

Table 3. Variables that will help us to measure loyalty towards companies and car brands

Scales	Source
I feel loyal to this car sharing company / Car brand	Keller, 2008 Aaker, 1991, 1996 Yoo, Donthu, 2001 Loureiro et al, 2012 Jørgensen et al, 2016
I would give preference to this carsharing company / car model, even if I had to pay extra for it	Keller, 2008 Aaker, 1991, 1996 Yoo, Donthu, 2001 Jørgensen et al, 2016
I would give preference to this company, even if I had to walk longer for the car of this carsharing company / for this car model	Keller, 2008 Aaker, 1991, 1996 Yoo, Donthu, 2001
I recommend this carsharing company / car brand to friends and family	Keller, 2008 Jørgensen et al, 2016
I am satisfied with the trips using this carsharing company / car model	Keller, 2008 Loureiro et al, 2012 Jørgensen et al, 2016

Study One: In-depth interviews

As our topic is relatively non-covered by similar scientific works, we decided to obtain additional information for our research from in-depth interviews with carsharing users.

The main goals of Study one:

1. Gain insights about the industry from the carsharing users.
2. Respecify initially proposed hypotheses or identify new ones.
3. Develop a questionnaire further using the findings from the in-depth interviews.

The whole list of questions asked during these interviews is presented in Appendix one. The most important ones are about: use cases of carsharing, main motivations and main blockers for carsharing usage, favorite cars and companies presented in carsharing industry, and overall loyalty towards car brands used in carsharing and carsharing companies. We interviewed 15 people representing different age groups to get more insights into carsharing usage. Each interview had predetermined structure, but if a user pointed out new important aspects, clarifying questions were asked. Approximately, each interview took from 20 to 30 minutes.

The key findings of this study:

These interviews allowed us to preliminary confirm the younger users of carsharing are more loyal to both the model of the used car and the carsharing service, as respondents told us the following:

Andrew, 39 years: «I do not care about the carsharing company and car itself. You know: I've already tried a lot of different cars in my life, and it is not interesting for me to try new models in carsharing. The only two things I carry about are the distance to the car and the price. Usually, I just take the closest and the cheapest car available now, no matter the carsharing company or car brand.»

Sonya, 23 years: «I really like to drive! And I have my own favorite carsharing car – it's Skoda Rapid, which is available in Yandex. Drive. It is easier to drive and park compared to Renault Kaptur or Nissan Qashqai. If I am in a hurry, most likely I will choose the closest car to me. However, if I have some time, I will most likely spend some time walking to Skoda instead of Renault.»

As can be seen from the citations, there are two completely different behavior models, which were also confirmed by a couple of other respondents. Younger users mentioned behavior similar to Sonya's, while older users mentioned behavior similar to Andrew's. As a result, a hypothesis that age affects users' behavior in this market was formed.

Also, we managed to collect essential insights from carsharing users and respecify initial hypotheses. Apart from this, three new propositions were formulated.

P1: The presence of a favorite car in carsharing service increases loyalty towards the company

P2: Loyalties towards a particular carsharing company positively affect loyalty towards the car brand.

P3: Loyalty towards a particular car brand affects loyalty toward the carsharing company positively

These propositions are supported by the following citations:

Ivan, 22 years: «The best car I've tried is Kia Soul. It has great looking design, it is easy to drive and I feel myself good inside it. But is available only in City Drive. Overall, I think that all carsharing companies are about the same, but City Drive is the best for me because of this car. Also, these cars are relatively new and have not any traces of use. »

Anton, 28 years: «Kia Rio X line is the best car ever made, in my opinion and I am not joking. As far as I know, it is available only in Delimobil in Saint-Petersburg. Hence, I am using this app to find my favorite car.»

In other words, we suppose that there is a correlation between loyalty towards a particular car model and a carsharing company, as the consumer can rent this particular car model in the

company, consequently getting loyal to a company too. Many respondents in study one-pointed on this issue, consequently, we do believe that this also works in the other way: if a person gets loyal to a carsharing company, most likely he will also be loyal to one of the car brands used in this carsharing company.

Also, many respondents mentioned Nissan Qashqai and Kia Rio X line as their favorite cars available in carsharing, with Renault Kaptur as the least favorite one.

Questionnaire development and hypothesis formulation

In this paragraph, we will cover in more detail the five blocks mentioned above and also loyalty assessing questions in the table above. After combining knowledge obtained from the literature review and interview results, we managed to formulate final hypotheses.

Hypotheses of our research:

H1: Age negatively affects loyalty towards carsharing companies

H2: Age negatively affects loyalty towards cars brands used in carsharing

In other words, young carsharing users are more loyal to both the model of the used car and the carsharing company; older users use carsharing exclusively as a means of transportation from point A to point B. They do not care about companies and cars they use, and they are less loyal on average both to car models and carsharing companies.

However, other effects also affect loyalty towards car brands and carsharing companies. So, another block of hypotheses will be dedicated to identifying relationships between loyalty and challenges/barriers and motivations to use carsharing and its cars.

H3: Loyalty towards a particular carsharing company is positively affected by the importance of motivations to use carsharing

H4: Loyalty towards a particular car brand is positively affected by the importance of motivations to use carsharing

In other words, basing on the insights obtained in Study One, we suppose that if a consumer believes that the listed motivations to use carsharing are really important and reasonable for him, such a user, on average, will be more loyal to carsharing companies and to car models used in carsharing.

H5: Loyalty towards a particular carsharing company is negatively affected by the importance of barriers and challenges to using carsharing

H6: Loyalty towards a particular car brand is negatively affected by the importance of barriers and challenges to using carsharing

In other words, we suppose that if a consumer believes that the listed challenges and difficulties in using carsharing are important and reasonable for him, such user, on average, will be less loyal to carsharing companies to car models used in carsharing.

The survey questionnaire, as a result, was constructed from several blocks, which included filter questions, questions requiring an assessment of the degree of agreement of the respondent with the proposed statement, and control questions.

First block. The first block consisted of several questions that acted as filter questions to select respondents who should be considered in the further analysis: those who used carsharing at least once in six months before the survey. In addition, this block included questions designed to immerse the respondent in the survey topic and aimed at finding out the experience of using carsharing and preferences when choosing a carsharing car.

Second block. In the second block, which can also be called one of the main blocks, the respondent was asked multiple vital questions. To be precise, we asked about car models which respondents used, the car model which they used most, and which they liked most. After that, a group of questions from Table 3 was asked, and it was about the car model consumer mentioned as a favorite. After these questions, respondents were asked to rate using a 1 to 7 Likert scale how important the characteristics of the car listed in the survey are for them. For instance, how important are safety, dynamics, or interior for the respondent. Once these questions about cars were finished, the new set of questions about carsharing companies started. For carsharing companies, questions had the same logic: first of all, the respondent marked all companies they have ever used. After this, respondent was asked about the most frequently used company and the one which they like the most. Once these questions were finished, a set of questions from Table 3 was again provided to a respondent, now consisting of questions about the carsharing company. And in the end, respondent was asked to rate using a 1 to 7 Likert scale how important for them are the characteristics of the carsharing companies. For instance, how important for consumers are the number of cars of this company available, the average cost of the trip, ease of use of the application, and many others.

Third block. This block was designed to understand the reasons for carsharing uses better. What do respondents especially like about using carsharing and what motivates them to take carsharing cars for a ride? The questions here were formed in the following way: the respondents were asked how much they agree with the statements listed below. In this list, we used the respondents' statements from our in-depth interviews. For instance, respondents were asked to state to what extent they can agree with the phrase: «I like to try different cars in carsharing .» Apart from this statement, there were also eight others; the complete questionnaire will be presented in the Appendix 2.

Fourth block. The fourth block has the same logic as the third one, but here we assessed what consumers do not like about carsharing, and which challenges and difficulties they see in the usage of this service. Questions were formed in the same way as in the third block.

Fifth block. The last block of the questionnaire was devoted to the socio-demographic characteristics of the respondent. This analysis was necessary to form specific conclusions about the work based on the respondents' belonging to different socio-demographic groups. In addition, having questions about gender and age was mandatory to meet a predetermined quota.

Selection of carsharing companies and car brands for analysis

In order to conduct a reliable analysis, we had to select carsharing brands and car brands which are used in carsharing in Russia. Obviously, we cannot use all companies and all car brands in our research as this list will be too extensive. So, beginning with carsharing companies, we decided to select three carsharing companies: Yandex Drive, City Drive and Delibomil'. The main reason behind this selection is that these companies are the most popular and they operate in multiple large Russian cities. However, it is crucial to turn to statistics.

According to research conducted by Tinkoff Data[13] in 2022, three largest companies in terms of market share are Yandex Drive, City Drive and Delibomil'. Also, they are the largest in terms of fleet of cars in operation. On the graph below you can see that BelkaCar has also a decent market share. However, it operates only in Moscow and Krasnodar region. As researchers are based in Saint-Petersburg, the vast majority of respondents will come from Saint-Petersburg, so we initially did not select BelkaCar in our research. However, there was a possibility for respondents to mention BelkaCar as the one they use.

In the next step, it is important to cover the topic of a car model selection which we included in our research. Here we use the same logic: we selected the most popular models used in these three carsharing brands mentioned above. There are many different models presented on the market; for instance, City Drive in 2022 has more than 40 different cars. Obviously, we cannot include all models in our research as it will bother respondents. We selected models which will be included in a final list using two types approaches. Firstly, we browsed the internet

[13] Tinkoff data carsharing research (2022). Tinkoff Bank. https://www.tinkoff.ru/about/news/31032022-carsharing-market-2021-tinkoff-data-research/

to find some open statistical data about the number of carsharing cars available on the roads grouped by their brand and model. [14][15][16][17]

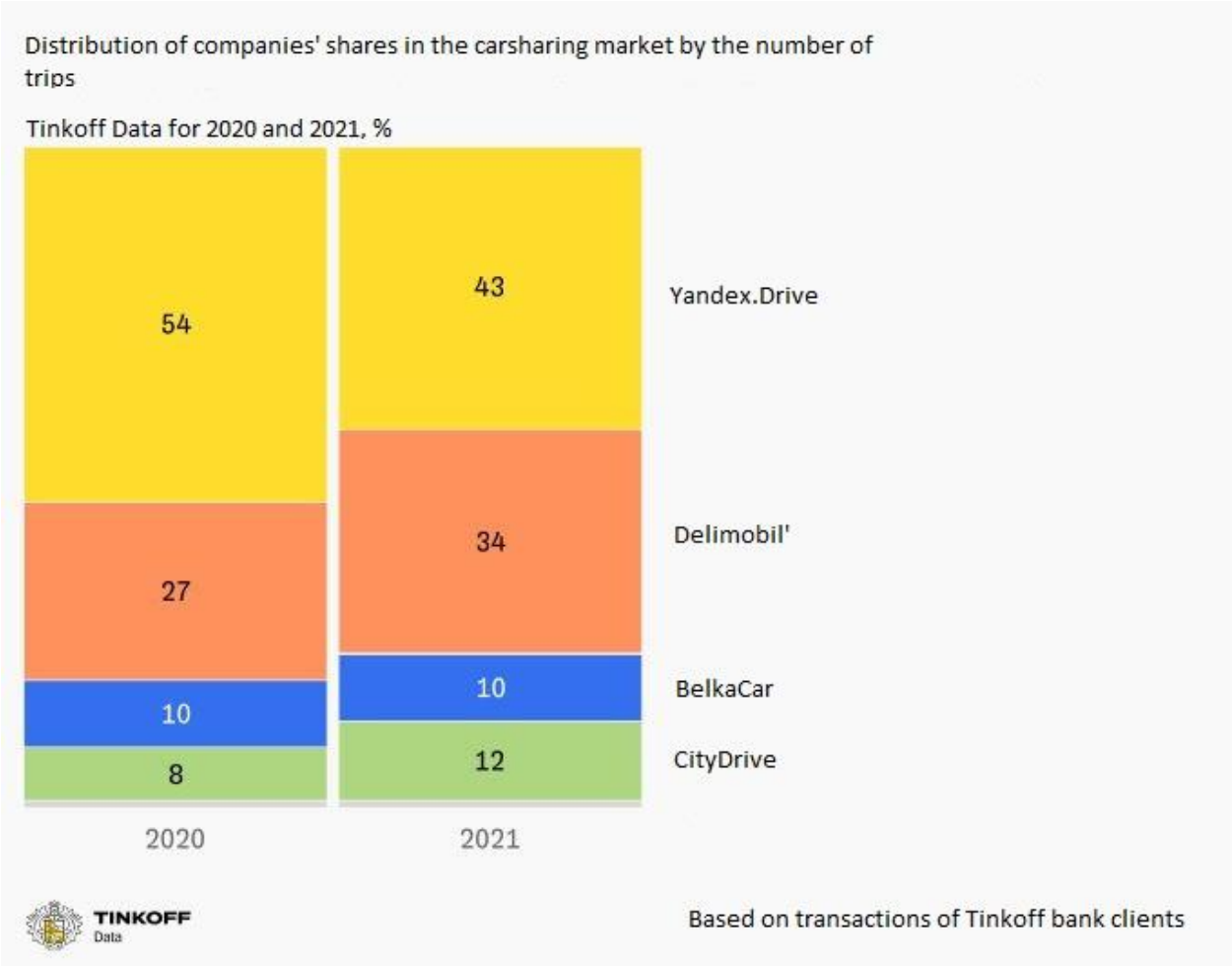

Figure 3. Distribution of companies' shares in the Russian carsharing market by the number of trips

Among the most popular ones, we definitely should mention Volkswagen Polo, Skoda Rapid, Nissan Qashqai, Renault Kaptur, Kia Rio, Kia Rio X-line, Hyundai Solaris, and Skoda Octavia. As a second research type, we analyzed the distribution of car models of carsharing companies in different cities and also included a couple of other popular models which can be

[14] T. (2022, January 18). What cars are the most popular and unpopular in carsharing. TechInsider. https://www.techinsider.ru/vehicles/798203-kakie-avtomobili-samye-populyarnye-i-nepopulyarnye-v-karsheringe/

[15] Gronsky, Ya. (2019, June 25). The most popular cars in the economic segment of carsharing in Moscow have been named. Autonews. https://www.autonews.ru/news/5d1222679a7947d70430c715

[16] Auto Mail.ru. (2019, March 27). The most popular cars in carsharing (there are exact numbers). https://auto.mail.ru/article/72273-samyie-populyarnyie-mashinyi-v-karsheringe-est-toc/

[17] Named the most popular cars in the Moscow carsharing. (2019, June 26). AUTOSTAT. https://www.autostat.ru/news/39827/

frequently found both in Moscow and Saint-Petersburg, as the two largest cities. So, we also added a Renault Duster, Kia Soul, Hyundai Creta, and BMW 320i to our list. The BMW model is playing in the upper segment compared to other car models, and it requires users to achieve some particular goals before this car can be unlocked for them. To sum up, the final list consisted of twelve models, and also respondents could mention the other models they used.

Justification of the sampling used and survey organization

In our empirical study, we decided to use a pre-determined sampling method. The use of this sampling method can be explained by the fact that the study was conducted through an online survey on the Internet, so it was necessary to control the characteristics of the respondents included in the sample. In the study, the construction of quotas was based on observing the proportion of respondents by gender and age group. In the beginning, we assumed that each age group would have an equal number of respondents, and the ratio of men and women would be 1:1. However, some changes were made once we dived deeper into carsharing market analysis. According to research made by the leader of Russian carsharing market, Yandex Drive, the majority of carsharing users are aged from 25-34 years. [18] As a result, in our research, we decided to dedicate to this age group a slightly larger quote. In our research, we decided to use similar age groups:

- From 18 to 24 years,
- From 25 to 34 years,
- 35 years and older.

In Yandex research, there is also a group of 45+ age; however, the share of these users is relatively small, so we will not include it in our research. We agreed that the sample should be large enough to build a reliable, stable, and persistent model and results. Consequently, we agreed on a sample size of at least 250 respondents who are using carsharing services. So, regarding the age groups, the required minimum of respondents from a younger group aged from 18 to 24 years is 75 respondents. For the «main» carsharing users group aged from 25 to 34, the required minimum is 100 respondents. For the older group aged 35+ years, the required minimum is 75 respondents too. As for the gender, we decided to keep the balance of 1:1. According to data from Yandex.Drive, Tinkoff, and other researchers, now approximately 65% of carsharing users are men. However, this percentage has had a negative trend over the last few years, so the 1:1 quota seems logical.

[18] Car sharing in Moscow — research by Yandex.Drive. (2021). Company Yandex. https://yandex.ru/company/researches/2021/drive

The systematized quota sample of the study is presented in Table 4.

Table 4. Quotas we stated as the minimum for our research

№ of respondents in a group	75		100		75	
Gender	M.	F.	M.	F.	M.	F.
Gender Distribution	38	37	50	50	38	37
Age	18-24		25-34		35+	

The whole process of survey organization can be divided into four groups. The first one, as mentioned already, can be classified as in-depth interviews, the main goal of conducting which was to get more insights about consumer behavior and loyalty. Once all interview information was gathered and properly analyzed, we built a survey based on the literature and market data analysis and based on interviews' results. The second block is, obviously, survey creation. Once the survey and all the questions were prepared, we began the third step of survey organization. The third step in the survey organization is pilot testing. We have sent our survey to a couple of marketing specialists and experts who carefully reviewed it. Also, we tested our survey on the target audience directly. Once all the feedback was collected, we implemented all the changes to the questions and logic of the survey. After these modifications, the survey had to be transferred to an electronic form, in which the questionnaire was distributed on the Internet. We used Google Surveys as the service for collecting survey responses since its interface is quite clear. The platform can instantly show the statistics on questions, and data can be immediately uploaded in a convenient .xls format for further analysis.

Once all the data has been gathered, before we can proceed to data analysis, we had to complete one more step. Respondents could mark "other" answers in some questions and insert their custom answers. Such cases had to be standardized and recalculated. Also, before inserting our data into the SPSS program, we had to divide some multi-choice questions into dummy variables. Once all the preparations were done, we proceeded to Data analysis.

CHAPTER 3. QUANTITATIVE DATA ANALYSIS, FINDINGS AND DISCUSSION OF THE RESULTS

Descriptive statistics

During the surveying process, we received 293 answers. This number allowed us to fulfill our minimum required quota. The answers received were without any missing data as we prepared the questionnaire containing only questions that are mandatory to fill. Once we carefully screened the data, we deleted answers from the respondents who did not satisfy the criteria of our filer questions, in other words, answers from non-users were deleted. Also, we deleted responses from those who do not live in Russia. In the end, we are left with 263 respondents in total. On the next step, it is necessary to explore the descriptive statistics presented in Table 5.

Table 5. Socio-demographic characteristics of respondents who participated in the survey.

Characteristics	Item	Frequency	Proportion, %
Gender	Male Female	143 120	54,4 45,6
Age	18-24 years 25-34 years 35+years	75 112 76	28,5 42,6 28,9
Marital status	Single Married Divorced Widowed	142 104 16 1	54,0 39,5 6,1 0,4
Children presence	No Yes	194 69	73,8 26,2
City of living	Moscow Saint-Petersburg Other	71 182 10	27,0 69,2 3,8
Income level	1 2 3 4	7 77 133 46	2,7 29,3 50,6 17,5

Descriptive analysis of socio-demographic characteristics has shown that our sample consists of approximately the same number of women (45,6%) and men (54,4%). This is logical as initially we required a certain minimum number of women and men engaged in our survey.

Also, in Table 5, information about age distribution is presented. It can be seen that minimal quotas are met and we can proceed with the analysis. According to the data we obtained about our respondents' marital status, approximately 54% are single, while 39,5% are married. The majority of our sample does not have children (73,8%). Our respondents were asked about the city of their residence. Approximately 69,2% of our respondents live in Saint-Petersburg, 27% live in Moscow, and 3,8% live in other regions. And the last socio-demographic aspect we asked our respondents about is their income level. The majority of people (50,6%) answered that their income can be classified as: «Buying household appliances and electronics is not difficult, but I can't afford a car.»

The following research step is to switch to descriptive statistics, which we collected about consumers' experience with driving and using carsharing. This statistic is presented in Table 26 in the appendix.

As we can see from the Table 26, we have drivers with very different experience presented in the study. The largest group is the ones who have more than ten years of driving experience, comprising 34,2% of the total sample. Thirty-five people represent the smallest group, and these are the ones who have less than two years of driving experience. One hundred sixty-five respondents, equal to 62,7% of our sample, indicated that they have been using carsharing for more than two years. And the last question here was asked to respondents about the frequency of carsharing usage. The smallest group here is the ones who use carsharing almost every day – only 23 people accounting for 8,7% of the total sample. The largest group, which accounts for 31,9%, indicated that they use carsharing once in a couple of months.

The following step is to cover the descriptive statistics of variables attributed to car models and brands mentioned in our survey. However, we did extensive research to calculate the performance of carsharing companies and car brands on the Russian market in the eyes of respondents, so this paragraph will be covered separately later.

We analyzed already which respondents use carsharing companies and car models. Also, we understand their socio-demographic characteristics and driving experience. The next step is to discuss in which cases our respondents usually take the carsharing car, and after it, we will switch to the analysis of the main barriers/reasons for respondents to use carsharing and which factors of carsharing companies and cars are important for them. The results are presented in the Table 27 in appendix.

It can be seen that the most popular carsharing use case is to have a trip to a bar or restaurant (51,3% of respondents marked this as a typical use case). Among the most popular are also rides for Shopping (42,6%) and a trip to a railway station or airport (38,4)

Now it is time to focus on the factors which respondents claim as important for them in a car. The factor 1, which will have an average score higher than the factor 2, can be considered more important. The information obtained from our online survey can be found in the Table 28 in appendix.

From Table 28, it can be noted that the three most important car characteristics in decreasing order are: Safety (5,45/7 on average), Controllability (5,40/7 on average), and Comfort (5,36/7 on average). The least important characteristic is Exterior design (3,71/7 on average). The next step is to analyze which characteristics of carsharing companies are most important for our respondents. The results are presented in Table 29.

According to the findings presented in Table 29, the most crucial company characteristics are: Technical condition of the fleet of cars (5,99/7 on average), № of vehicles in operation (5,87/7 on average), Ease of use of the mobile app (5,81/7 on average), Average price per trip (5,76/7 on average) and Car cleanliness (5,69/7 on average). The least important factor is the «Variety of different car models presented in this carsharing company,» which equals 3,89 out of 7 on average. Consequently, on average, factors like price/technical condition of a car/Clean interior, and other similar factors are more important to the customers than trying new car models which they did not before.

In the next step, we built two more tables with the same logic, analyzing the main blockers and challenges in using carsharing according to the respondents' opinions and analyzing the main motivators to use carsharing. In Table 6, we can see what people like the most while using carsharing. Consumers were asked to mark from 1 to 7 to what extent they agree with the listed phrases. The results are presented below.

In this table, we can see that the three most essential aspects consumers like about carsharing are the following: Firstly, respondents want to be the one who drives, which is the main benefit they can get from carsharing usage. The average score for this aspect is 6,08/7. The second most important factor (5,71/7 on average) compared to a taxi or some other transports) is that in a carsharing car you can set your own music, the temperature which is comfortable for you and make some additional adjustments which are not available in other types of transportation through the city. The third most important factor is saving money compared to taxis (5,56/7 on average). In the majority of cases carsharing is cheaper than taxis, so this is also a point why consumers prefer carsharing. The least important factor is that carsharing usage helps to unload the city transport

system (3,25/7 on average). This indicates that despite the fact no one likes traffic jams, most people do not want to reduce the amount of traffic by sacrificing trips on their own car.

Table 6. Descriptive statistics for the importance of main drivers and motivations to use carsharing

Characteristics	Item	Average	Standard deviation
I like to….	Drive a car	6,08	1,51
	Try different car models	5,11	1,84
	Choose my own route	5,41	1,73
	Set my music, temperature etc	5,71	1,66
	Save money vs taxi	5,56	1,81
	Save money vs own car	3,75	2,14
	Unload city transport system	3,25	2,02
	Save my time vs other transports	4,90	1,97

After this, we considered the main blockers and challenges for carsharing usage. The logic of the questions listed in the table below is the same as for the questions we asked in Table 6. However, when we were analyzing benefits, the following logic could be used: if an average score is high, this can be an indicator that this benefit seems real for respondents and they like this aspect of carsharing usage; if the score is relatively low – this means that this aspect is not so important or beneficial for the user. With the questions about difficulties with carsharing usage – the high average grade will indicate that users agree that this problem exists and is a blocker for carsharing use. Still, the low grade will indicate that the problem mentioned by us is not a problem for the user.

Table 7. Descriptive statistics for the importance of main challenges and difficulties to using carsharing

Characteristics	Item	Average	Standard deviation
I do not like to…. / I do not like...	Drive a car which was used by stranger	2,86	1,74
	Drive a car which technical condition I do not control	4,17	1,90
	Drive a car with dirty interior	6,02	1,63
	That only uninteresting models for me are presented	2,86	1,66
	Drive a car with dirty exterior	3,42	1,85
	Drive a car with carsharing labels and branding	2,50	1,80
	Be responsible for carsharing car	3,68	1,93
	It’s hard to verify In carsharing app	2,57	1,75
	Cars in carsharing are in bad technical condition	3,82	1,68
	It's hard to find a car close to your location	3,60	1,75
	The possibility of receiving a fine for the damage someone else did	5,23	2,04

The next step is to describe the findings we got from analyzing the table above. The following are the top three most important challenges in using carsharing from the respondents' perspective. Ultimately no one wants to drive a car with a dirty interior, and this aspect is super important as it received an average score of 6,02/7. The second most crucial negative aspect of carsharing is that it is possible to receive a fine for the damage someone else did before or after your trip (5,23/7 on average). And the third concern in our ranking is that it is not comfortable for some people to drive a car technical condition of which they are not controlling (4,17/7 on average). The top 3 negative factors which are considered to be not really relevant for our respondents are listed below. Firstly, driving a car with carsharing labels and branding is not a stopper for the majority of people as it accounts only for 2,5/7 on average. Also, users admit that the verification process in the carsharing apps is relatively easy and does not cause serious problems (2,57/7 on average). Also, respondents cannot fully agree with statements that they do not like to drive a car previously used by a stranger and that there are only not attractive car models presented in carsharing services (2,68/7 on average for each)

Before we proceed to hypothesis testing, we should also analyze an important block on how respondents usually make their decision on which carsharing car to rent. The analysis of the respondents' answers is presented in Table 8.

Table 8. Descriptive statistics of factors influencing the choice of a car to ride

Characteristics	Item	Average	Standard deviation
What is the most important factor for you once choosing a carsharing car?	Price	2,02	1,07
	Distance to car	2,25	0,97
	Car model	2,92	1,06
	Carsharing company	2,81	1,10

In this table, we can see factors that the consumers usually assess while they are searching for a carsharing car to rent. Users were asked to rank factors from the most important (№1) to the least important (№4). Consequently, the factor with the lowest average number can be considered the most important for respondents. From Table 8, we can see that the average price of the trip is the most critical factor. The second most important factor is Distance to the car, which a person has to cover before starting a trip. The third most important factor is the carsharing company, while the least important is the car model. This can indicate that, on average, consumers once using a carsharing service get loyal to the carsharing company more frequently than to a car model.

Before proceeding to the next paragraph, it is necessary to make one last part of the descriptive analysis. To test H3, which is about the testing of the fact that ***Carsharing users usually take their favorite car model to which they are loyal in the particular carsharing***

company, we created a new dummy variable. The logic behind this variable is the following: if a person marked car model X as the most favorite one, the variable would get «1» if this car model is presented in the carsharing company Y, which this person selected as the most favorite one. If this favorite car model is not presented in the favorite carsharing company, the variable will equal «0».

The descriptive statistics of this variable are the following: in 90,9% of cases (240 respondents), the favorite car model of the respondent is presented in the favorite carsharing company. This fact can already indirectly prove our hypothesis, but we will cover this in detail later.

In this paragraph, we got deep into our data and found a lot of interesting facts and insights that can be already used in further scientific research or by businesses.

Factor analysis

Before Hypothesis testing, it is worth discussing another big block: a factor analysis. As we conducted an online survey with a relatively large number of similar questions assessing approximately the same concepts, the factor analysis might be beneficial for us to perform. All the components for the factor analysis were conducted using the SPSS program.

So, it is important to check if some of our loyalty questions dedicated to assessing customers' loyalty towards carsharing companies sum up into factors. The result of our analysis is presented in the table below.

Table 9. Results of factor extraction for variables related to loyalty towards carsharing companies

Total Variance Explained						
		Initial Eigenvalues		Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,236	64,713	64,713	3,236	64,713	64,713
2	0,831	16,614	81,328			
3	0,383	7,651	88,979			
4	0,299	5,981	94,960			
5	0,252	5,040	100,000			

Extraction Method: Principal Component Analysis

As seen from the table above, all questions related to assessing the loyalty of respondents towards carsharing company sums up into one factor, as it is the only factor with an eigenvalue

higher than 1, with 64% of total variance explained. We will use the Principal Component Analysis extraction method for these items and all the factors further. Also, we rotated the obtained factors using oblique rotations as we suppose that there is a correlation between our items. Oblique rotation will also be used in all further factor extractions. The reliability of this factor will be discussed later once we finish the initial stage of factor extraction for all the variables of our interest. The factor is included in our data set and was named «Factor 18_LoyaltyCompany ».

The next step is to analyze loyalty questions towards car brands and models used in carsharing. We will use the same logic as we did for the previous loyalty question pack.

Table 10. Results of factor extraction for variables related to loyalty towards car brands

Total Variance Explained							
		Initial Eigenvalues		Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	2,101	42,023	42,023	2,101	42,023	42,023	1,872
2	1,090	21,796	63,818	1,090	21,796	63,818	1,572
3	0,856	17,120	80,938				
4	0,633	12,665	93,603				
5	0,320	6,397	100,00				

Extraction Method: Principal Component Analysis

As can be seen from the output, two factors were extracted. The first includes variables: «I am ready to pay extra for the car model I like» and «I am ready to walk further for the car model I like». This extraction follows overall economic logic, and we can state that this factor is about assessing customers' extra effort towards a particular product. We also included this factor in our data set and named it «Factor 12_1_ExtraEffortCar». The second factor comprises variables: «I am satisfied with trips on this car,» «I am willing to advise this car to my friends and colleagues,» and «I feel loyal to the brand of this car .» Based on the works of Muravskaya (2019), Bellenger et al. (1976) and Newman & Werbel (1973) we can say that this factor is mainly about cognitive loyalty. Consequently, we included this factor and named it «Factor 12_2_CognitiveLoyaltyCar.»

The further step is about extracting factors from the items representing the importance of car characteristics. The results are presented in Table 11.

Table 11. Results of factor extraction for variables related to the importance of car characteristics

Total Variance Explained							
		Initial Eigenvalues		Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3,492	38,797	38,797	3,492	38,797	38,797	3,042
2	1,756	19,509	58,306	1,756	19,509	58,306	1,988
3	1,438	15,982	74,288	1,438	15,982	74,288	2,150
4	0,639	7,097	81,384				
5	0,569	6,325	87,709				
6	0,395	4,388	92,097				
7	0,307	3,411	95,508				
8	0,212	2,353	97,861				
9	0,193	2,139	100,000				

Extraction Method: Principal Component Analysis

Here it can be seen that the system identified three factors from nine variables. The next step is to discuss the economic rationality behind these factors and which items exactly were included in which factor. Into the first factor were incorporated the following variables: the importance of «Dynamics,» «Controllability,» «Comfort,» and «Safety» of a car. Overall, all these items are attributed to the engineering part of a car. We will include this factor in our model as a new variable named «Factor 13_1_Engineering». The second factor consists of «Interior Design» and «Exterior Design.» These two variables are about overall car design. Consequently, the new variable will be named «Factor 13_2_Design». The third and the last factor here included items: «Off-road capabilities,» «Spaciousness,» and «Visibility capabilities.» All these factors can be grouped as utilitarian ones, so the name of the variable will be «Factor 13_3_Utilitarian».

In the next step, we will discuss the items which are related to the importance of some of the carsharing companies' aspects to the end-user. The results of extraction are presented in the table below.

Table 12. Results of factor extraction for variables related to the importance of company characteristics

Total Variance Explained							
		Initial Eigenvalues		Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5,090	46,274	46,274	5,090	46,274	46,274	4,619
2	1,387	12,605	58,879	1,387	12,605	58,879	2,886
3	1,244	11,306	70,185	1,244	11,306	70,185	1,680
4	0,748	6,798	76,983				
5	0,569	5,173	82,156				
6	0,469	4,264	86,420				
7	0,434	3,950	90,369				
8	0,340	3,089	93,458				
9	0,267	2,429	95,888				
10	0,240	2,185	98,073				
11	0,212	1,927	100,000				

Extraction Method: Principal Component Analysis

From this analysis, it can be seen that three factors were extracted out of 11 variables. In the next step, it is necessary to dive deeper into the newly obtained factors and the economic sense behind them. The first factor is the largest one as it consists of 6 items: «Technical condition of cars,» «Ease of use of an app,» «Cleanliness of cars,» «Number of cars in operation,» «Average price,» «Rental zone size.» All these variables can be grouped into one factor, directly influencing the carsharing trip process. The factor will be included in a model with the name «Factor 19_1_AspectsDuringTheRide». Furthermore, the second factor is about the aspects that relate to the start and the end of the carsharing ride process. Here we will include variables related to: «Ease of verification,» «Fines presence and their amount,» and «Ease of starting and ending the ride.» Variable name: «Factor 19_2_AspectsBefore&After». The last, third factor is about additional pleasure that a company can give to its customers. Variables included in this factor: «Variety of different cars» and «Car equipment». The new variable will be named «Factor 19_3_PleasureAspects».

The two groups of variables are left: main motivations to use carsharing and main blocks and challenges to use carsharing. Firstly, the benefits of carsharing in the eyes of respondents

should be covered. Respondents were asked to what extent they agree with the statements provided. Factors extracted from this group of items can be seen below.

Table 13. Results of factor extraction for variables related to the importance of main motivations to use carsharing

Total Variance Explained							
		Initial Eigenvalues		Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	2,963	37,042	37,042	2,963	37,042	37,042	2,729
2	1,709	21,360	58,402	1,709	21,360	58,402	2,183
3	0,772	9,647	68,049				
4	0,720	9,006	77,056				
5	0,602	7,530	84,586				
6	0,467	5,839	90,425				
7	0,435	5,437	95,861				
8	0,331	4,139	100,000				

Extraction Method: Principal Component Analysis

So, two factors were extracted from the eight variables. In the first factor, the following variables were included: «I like to drive a car,» «I like to test different cars,» «I like to build my own route,» and «I like to set my own music and temperature,» «I like to save money vs. taxi.» The first four variables can easily stack into once as they represent an overall pleasure the respondent can get from driving. However, the economy factor compared to taxis is also included here (the distribution of this item is 0,6 for this factor and 0,4 for the second one). This may happen due to the fact that a taxi is frequently viewed as not a more expensive option but as a less comfortable one. The factor will be included in the model and named «Factor 20_1_DrivingPleasure». The second factor included: «I like to save money vs. own car,» «I like to save time vs. other means of transport,» and «I like to use carsharing because it unloads the city's transport system.» Consequently, we can see that the economic sense here is that carsharing helps to optimize humans' lives. The name of a new variable is «Factor 20_2_Optimization».

And the last part about the main challenges for carsharing usage is to be discussed. However, once we started extracting factors from these blocks, we faced some difficulties: oblique rotation did not converge after 25 iterations because some of the items were nearly equally distributed between the factors. Consequently, we deleted two variables with such results: «Verification is a

challenging process» and «I am afraid of getting fined for the damage someone else did.» Results of factor extraction without these two variables are presented below.

Table 14. Results of factor extraction for variables related to the importance of main challenges to using carsharing

Total Variance Explained							
		Initial Eigenvalues		Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3,016	33,512	33,512	3,016	33,512	33,512	2,653
2	1,316	14,628	48,140	1,316	14,628	48,140	1,314
3	1,020	11,331	59,471	1,020	11,331	59,471	2,079
4	0,836	9,287	68,757				
5	0,819	9,103	77,861				
6	0,611	6,785	84,645				
7	0,529	5,873	90,518				
8	0,498	5,531	96,049				
9	0,356	3,951	100,000				

Extraction Method: Principal Component Analysis

Three factors were extracted. In the first factor, the following variables were included: «I do not feel comfortable driving a car which has been previously driven by a stranger,» «I do not feel comfortable driving a car which technical condition I do not control,» and «I do not like to be responsible for a carsharing car,» «Cars presented in carsharing are usually with technical problems,» «It is hard to find a carsharing car close to your location.» The newly made factor was named «Factor 21_1_GeneralBarriers» as we do not see the only common thing that unites these variables. The second factor contains only one variable, and this may happen due to the fact that this variable is strongly skewed towards one of the answers, «I do not like to drive a car with a dirty interior.» Obviously, it is crucial for the majority of people not to ride in a car polluted by others. The new variable, which is precisely the copy of the old variable, got the name «Factor 21_2_DirtyInterior». In the third factor, three variables were included. These are: «Car models presented in carsharing are not interesting for me,» «I do not feel comfortable driving a car whose exterior is dirty,» and «I do not feel comfortable driving a car with carsharing painting.» The name of a new variable is «Factor 21_3_BeautyLook», as all these variables can be attributed to the looking of a car. Once all the factors have been formed, it is time to verify their reliability.

To assess that our factors are reliable, we conducted a calculation of Cronbach's alpha indicators. This indicator will show the internal consistency between items included in the same factor. Usually, if the Cronbach's alpha indicator has a coefficient higher than 0.70, this can allow us to state that the factor is reliable so that we can use this particular factor in further research. If the factor has Cronbach's alpha indicator lower than 0,70, it is a sign that such a factor should not be used in further analysis. All the factors extracted, and their Cronbach's alphas are presented in the table below.

Table 15. Cronbach's Alpha for all the factors extracted

Factor (variable) name	Cronbach's Alpha
Loyalty factors	
Factor 18_LoyaltyCompany	0,863
Factor 12_1_ExtraEffortCar	0,807
Factor 12_2_CognitiveLoyaltyCar	0,486
Important aspects in carsharing cars and companies	
Factor 13_1_Engineering	0,830
Factor 13_2_Design	0,871
Factor 13_3_Utilitarian	0,694
Factor 19_1_AspectsDuringTheRide	0,889
Factor 19_2_AspectsBefore&After	0,733
Factor 19_3_PleasureAspects	0,521
Motivations & benefits of carsharing usage	
Factor 20_1_DrivingPleasure	0,771
Factor 20_2_Optimization	0,720
Challenges & difficulties of carsharing usage	
Factor 21_1_GeneralBarriers	0,703
Factor 21_2_DirtyInterior	-
Factor 21_3_BeautyLook	0,621

In the table above, it can be seen that factors: Factor 12_2_CognitiveLoyaltyCar, Factor 19_3_PleasureAspects, and Factor 21_3_BeautyLook have Cronbach alpha which is significantly lower than 0,7. Consequently, such factors cannot be considered reliable and will not be included in our final model

Model assessment: Loyalty towards carsharing company and hypothesis test

To confirm or deny the proposed hypotheses, the regression models should be constructed. Firstly, we begin with the model, where the dependent variable will be Factor 18_LoyaltyCompany, which is about loyalty towards the carsharing company. In our model, we included only the factors of interest, which will further help us check our hypotheses. Non-reliable factors with Cronbach's alpha significantly lower than 0,7 were not included in the model. Apart from the factors, we included two items: the respondent's age, and we included a dummy variable, which indicates if a favorite car of the respondent is presented in their favorite carsharing. So, the final model included:

Dependent:

Factor 18_LoyaltyCompany

Regressors:

Factor 12_1_ExtraEffortCar

Factor 13_1_Engineering

Factor 13_2_Design

Factor 13_3_Utilitarian

Factor 19_1_AspectsDuringTheRide

Factor 19_2_AspectsBefore&After

Factor 20_1_DrivingPleasure

Factor 20_2_Optimization

Factor 21_1_GeneralBarriers

Age

Do you have a favorite car in operation in this company?

In the table 30, which is presented in the appendix, the model's main characteristic is displayed: R Square. R Square is a characteristic that indicates the percentage of total variance explained by regressors presented in the model.

From the table 30, it can be seen that the R Square of model one is 0,478. It means that our set of regressors explains 47,8% of the variance of the dependent variable. It may not be the best result if the goal of the model is to forecast the degree of loyalty. However, the primary purpose of the research and the models formed is to check whether particular factors influence the dependent variable. For this task, our models are more than enough.

From the ANOVA Table 31, presented in the appendix, it can be seen that the F statistic is significant as the p-value is less than 0,001. Consequently, overall, model one is significant. The total number of observations was reduced to 247 from 263, as we deleted outliers that exceeded two standard deviations once subtracting the actual value of a dependent variable from the forecasted value. The next step is to analyze the overall output. The results are presented in the table below:

Table 16. 1st model output

Coefficients								
		Unstandardized coefficients		Standardized coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	Constant	-,148	,222		-,666	,506		
	Factor12_1_ExtraEffortCar	,367	,049	,385	7,451	<0,001	,834	1,199
	Factor 13_1_Engineering	,002	,061	,002	,030	,976	,517	1,933
	Factor 13_2_Design	,028	,048	,030	,587	,558	,844	1,185
	Factor 13_3_Utilitarian	-,197	,049	-,208	-4,018	<0,001	,825	1,212
	Factor 19_1_AspectsDuringTheRide	,334	,067	,360	4,967	<0,001	,423	2,365
	Factor 19_2_AspectsBefore&After	,186	,052	,195	3,583	<0,001	,753	1,328
	Factor 20_1_DrivingPleasure	,064	,053	,069	1,215	,226	,690	1,450
	Factor 20_2_Optimization	,058	,049	,059	1,177	,240	,873	1,145
	Factor 21_1_GeneralBarriers	-,171	,045	-,180	-3,770	<0,001	,975	1,025
	Age	-,005	,006	-,046	-,953	,342	,938	1,066
	Do you have a favorite car in operation in this company?	,428	,160	,130	2,670	,008	,939	1,065
	R Square	0,478						
	F statistics	19,555			<0,001 Sig.			

Dependent variable: Factor 18_LoyaltyCompany

Important to note that variables: Factor 13_2_Design, Factor 13_1_Engineering, Factor 20_1_DrivingPleasure, Factor 20_2_Optimization, and Age variable are not significant at a 95% confidence level, while other variables are significant. This information will allow us to test

hypotheses further. Also, we can notice that there are no signs of multicollinearity as all the VIFs indicators are significantly lower than 10. Apart from it, collinearity diagnostics did not show some significant correlations between regressors. The same situation is also with residuals: this model does not show any signs of heteroscedasticity. The scatterplot is presented in the figure below.

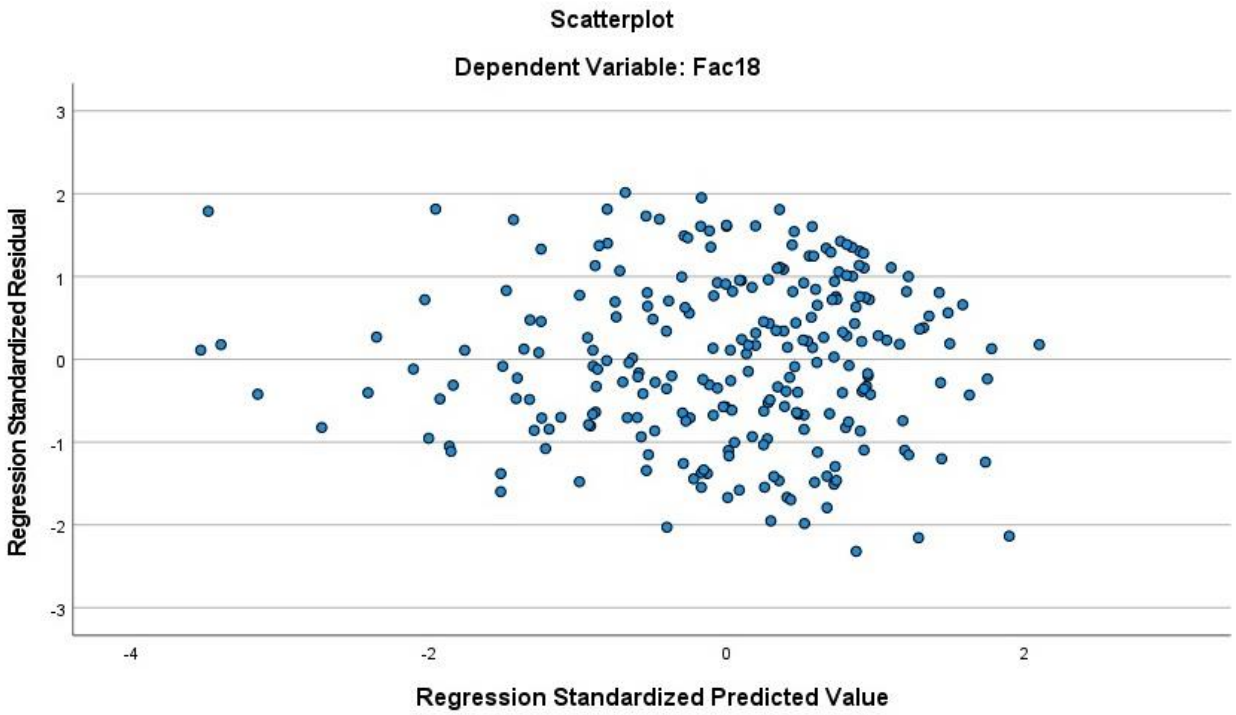

Figure 4. Scatterplot of residuals for the first model

On this scatterplot, it cannot be seen that residuals are increasing or decreasing with a particular trend once the predicted value is increased. Consequently, we can state that there are no signs of heteroscedasticity in this model. To sum up: model one is reliable, and its coefficients can be trusted and used for further hypotheses testing, as there are no signs of heteroscedasticity or multicollinearity, and outliers that could possibly deviate the coefficients were deleted.

All the needed information to check hypothesis is collected. Consequently, the next step is to proceed to hypothesis assessment. Results of hypothesis checks are presented in the Table 17.

Table 17: Hypothesis check table

Hypothesis	Variable to check	Forecasted sign	Actual coefficient	Significance	Confirmed?
H1: Age negatively affects loyalty towards carsharing companies	Age	-	-0,005	N.S.	Not Confirmed
H3: Loyalty towards a particular carsharing company is positively affected by the importance of motivations to use carsharing	Factor 20_1_Driving Pleasure; Factor 20_2_Optimization	+	1. Driving Pleasure 0,064 2. Optimization 0,058	1. Driving Pleasure N.S. 2. Optimization N.S.	1. Driving Pleasure Not Confirmed 2. Optimization Not Confirmed
H5: Loyalty towards a particular carsharing company is negatively affected by the importance of barriers and challenges to use carsharing	Factor 21_1_General Barriers	-	-0,171	<0,001	Confirmed
P1: The presence of a favorite car in carsharing service increases loyalty towards the company	Favorite car in operation	+	0,428	0,008	Confirmed
P3: Loyalty towards a particular car brand affects loyalty towards the carsharing company positively	Factor 18_LoyaltyCompany; Factor 12_1_ExtraEffortCar	+	0,367	<0,001	Confirmed

Firstly, it is important to describe how this table is organized. The first column is about a particular hypothesis we are assessing. The second column is related to variables that are tied to hypotheses. The third one is about the sign we anticipate for the coefficient, while the fourth one shows us an actual coefficient obtained in the model. The fifth column shows the significance of the coefficient from column four, while the last column shows the result of the analysis made on all the columns: and answers is the hypothesis confirmed or not. In a more user-friendly way, the outcomes of hypotheses analysis are presented in the Table 18.

H1 is not confirmed as age variable is not significant in the model one. H3 is not confirmed for the same reason: both factors representing the importance of main motivations to use carsharing are not significant. H5, P1 and P3 are confirmed as coefficients are significant and the sign is

exactly the same that we forecasted. Now it is time to discuss the second model, where the dependent variable is the one responsible for loyalty to car brand.

Table 18: Hypothesis outcomes

Hypothesis	Outcome
H1: Age negatively affects loyalty towards carsharing companies	Not confirmed
H3: Loyalty towards a particular carsharing company is positively affected by the importance of motivations to use carsharing	Not confirmed
H5: Loyalty towards a particular car brand is negatively affected by the importance of barriers and challenges to use carsharing	Confirmed
P1: The presence of a favorite car in carsharing service increases loyalty towards the company	Confirmed
P3: Loyalties towards a particular carsharing company affect loyalty towards car brand positively.	Confirmed

Model assessment: Loyalty towards car brands used in carsharing

After we finished the model one analysis, the next step is to proceed to the second model of our interest. The dependent variable is a factor about customers' loyalty towards car models and their brands. The whole list of regressors is about to be the same, now including the Factor 18_LoyaltyCompany. Firstly, a discussion of ANOVA analysis results and the R square indicator needed to be made, as this will allow us to assess the overall quality of our model. In the table 32 presented in the appendix it can be seen that our model explains 41,6% of total variance of dependent variable.

The results presented in the ANOVA table 33 (see appendix) show that the model is significant at a p-value of 0,001. Consequently, we can proceed to further analysis. Also, here it can be seen that the overall dataset consists of 247 observations after outliers' deletion, which exceeded two standard deviations. Overall, model two is significant; the next step is to proceed to a coefficient analysis. Results are presented in the table 19 below.

Firstly, variables: Factor 19_2_AspectsBefore&After, Factor 20_1_DrivingPleasure, Factor 21_1_GeneralBarriers, and «Do you have a favorite car in operation in this company» - seem to be non-significant. Other variables seem to be significant at a 95% confidence level. This information is extremely important and will be used in hypothesis testing. Before we proceed to

hypothesis testing, we should also check the model for multicollinearity and heteroscedasticity. As it can be seen from the regression output, all VIFs indicators are normal, and there are no signs of multicollinearity. The same is also applicable for heteroscedasticity; the graph below shows no signs of heteroscedasticity.

Table 19. 2nd model output

Coefficients								
		Unstandardized coefficients		Standardized coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
2	Constant	,610	,249		2,446	,015		
	Factor 18_LoyaltyCompany	,504	,058	,514	8,759	<0,001	,721	1,387
	Factor 13_1_Engineering	,151	,066	,156	2,292	,023	,537	1,862
	Factor 13_2_Design	,244	,051	,251	4,782	<0,001	,903	1,107
	Factor 13_3_Utilitarian	,113	,054	,117	2,087	,038	,795	1,257
	Factor 19_1_AspectsDuringTheRide	-,241	,073	-,249	-3,308	,001	,438	2,282
	Factor 19_2_AspectsBefore&After	-,026	,058	-,026	-,447	,656	,723	1,382
	Factor 20_1_DrivingPleasure	,064	,059	,065	1,080	,281	,681	1,469
	Factor 20_2_Optimization	-,147	,053	-,149	-2,763	,006	,854	1,171
	Factor 21_1_GeneralBarriers	,071	,050	,073	1,420	,157	,934	1,071
	Age	-,021	,006	-,178	-3,504	<0,001	,963	1,038
	Do you have a favorite car in operation in this company?	,056	,186	,016	,303	,762	,937	1,068
	R Square	0,416						
	F statistics	15,195			<0,001 Sig.			

Dependent variable: Factor12_1_ExtraEffortCar

To sum up, overall, model two is significant, and there are no signs of multicollinearity or heteroscedasticity. Consequently, we can use the coefficients presented in this model. Now we can proceed to hypothesis testing.

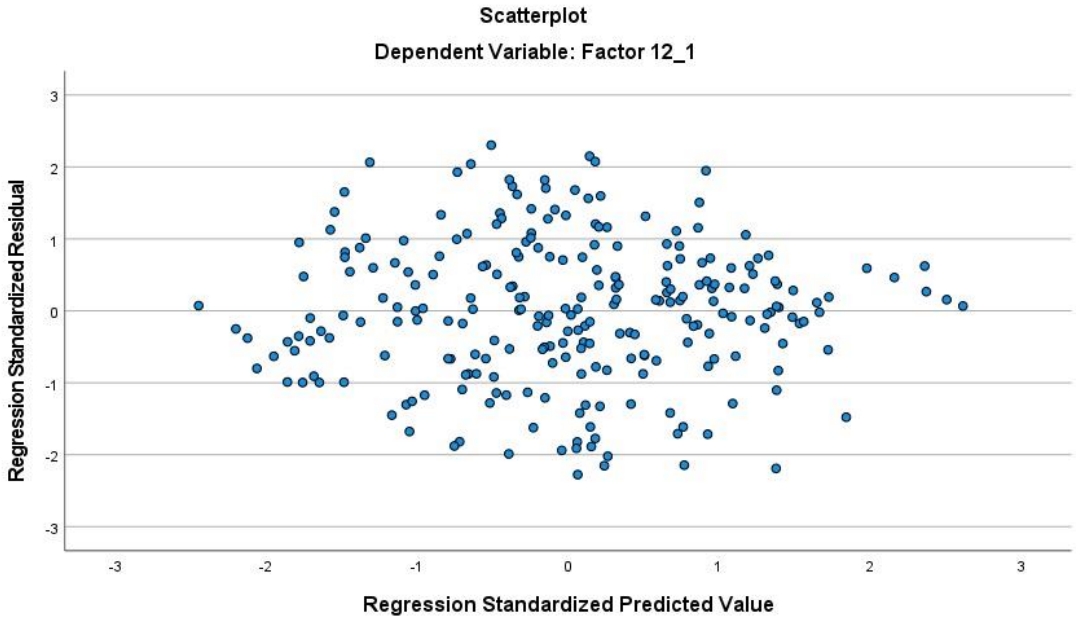

Figure 5: Scatterplot of residuals for the second model

To visualize our hypothesis testing, we created a special table. It follows the same logic as table 17. The results are presented below.

Table 20: Hypothesis check table

Hypothesis	Variable to check	Forecasted sign	Actual coefficient	Significance	Confirmed?
H2: Age negatively affects loyalty towards cars brands used in carsharing	Age	-	-0,021	<0,001	Confirmed
H4: Loyalty towards a particular car brand is positively affected by the importance of motivations to use carsharing	Factor 20_1_DrivingPleasure; Factor 20_2_Optimization	+	1. Driving Pleasure 0,064 2. Optimization -0,147	1. Driving Pleasure N.S. 2. Optimization 0,006	1. Driving Pleasure Not Confirmed 2. Optimization Denied
H6: Loyalty towards a particular car brand is negatively affected by the importance of barriers and challenges to using carsharing	Factor 21_1_GeneralBarriers	-	0,071	N.S.	Not Confirmed
P2: Loyalties towards a particular car brand and towards a carsharing company affect each other positively.	Factor 18_Loyalty Company; Factor 12_1_ExtraEffortCar	+	0,504	<0,001	Confirmed

To additionally simplify the visualization and highlight the result a separate table with hypothesis outcomes was created.

Table 21: Hypothesis outcomes

Hypothesis	Outcome
H2: Age negatively affects loyalty towards cars brands used in carsharing	Confirmed
H4: Loyalty towards a particular car brand is positively affected by the importance of motivations to use carsharing	Not confirmed
H6: Loyalty towards a particular car brand is negatively affected by the importance of barriers and challenges to using carsharing	Not confirmed
P2: Loyalties towards a particular car brand and towards a carsharing company affect each other positively.	Confirmed

Here we can see that H2 is confirmed, so we can say that age negatively affects loyalty towards car brands used in carsharing. In other words, the older the user, the less important for

him which car he uses in carsharing. Also, P2 is confirmed. However, H4 and H6 are not confirmed, due to the fact that corresponding coefficients are not significant.

Carsharing companies and car models relative performance on the Russian market

A lot of questions about car models which respondents and their favorite ones used were asked during online survey. The same questions were asked about carsharing companies. The tables below are useful for carsharing companies and car brands as they indicate the overall success of the carsharing company in the eyes of a consumer, plus the attitude towards carsharing companies and cars themselves.

In this table, we can see three fundamental questions which were asked to our respondents. In the first question, respondents were asked to mark all the car models they have ever used in carsharing. The most popular car used by approximately 84,4% of respondents is Renault Kaptur. The second most popular is Nissan Qashqai; 219 respondents out of 263 have tried this car, accounting for 83,3% of the total sample. The third most popular car is Volkswagen Polo, accounting for 78,7% of total respondents. The least popular car on the list is Kia Soul; only 24% of survey participants have ever tried it. 22,1% of respondents mentioned other car models they tested in carsharing. Proceeding to the second question: «which car model presented in carsharing was used the most by the respondent? » This question can be a proxy for model popularity and the number of vehicles of this model in operation. The most popular model is Nissan Qashqai; 26,2% of respondents mentioned that they often took Qashqai. The second place is also relatively prominent – Renault Kaptur with 55 respondents and 20,9% of the total sample. We could think that the third place will be after the Volkswagen Polo, but Polo is only 4th. The Kia Rio X-line takes 3rd place here; 16,3% of respondents take this car more often than any other. In the next step, we cover the last question in Table 22. In this question, respondents were asked to mark the model they liked the most among all cars they used in carsharing.

Table 22. Descriptive statistics of car models presented in carsharing usage and preference.

Characteristics	Item	Frequency	Percentage
Car model used in carsharing (Multiple choice)	Renault Kaptur	222	84,4
	Renault Duster	65	24,7
	Nissan Qashqai	219	83,3
	Skoda Rapid	155	58,9
	Skoda Octavia	114	43,3
	Kia Rio X-line	167	63,5
	Kia Rio	130	49,4
	Kia Soul	63	24,0
	Hyundai Solaris	164	62,4
	Hyundai Creta	91	34,6
	BMW 320i	69	26,2
	Volkswagen Polo	207	78,7
	Other car models	58	22,1
Which Car model used in carsharing did you use more often?	Renault Kaptur	55	20,9
	Renault Duster	1	0,4
	Nissan Qashqai	69	26,2
	Skoda Rapid	14	5,3
	Skoda Octavia	5	1,9
	Kia Rio X-line	43	16,3
	Kia Rio	10	3,8
	Kia Soul	0	0
	Hyundai Solaris	18	6,8
	Hyundai Creta	2	0,8
	BMW 320i	2	0,8
	Volkswagen Polo	38	14,1
	Other car models	6	2,4
Which Car model used in carsharing did you like the most?	Renault Kaptur	12	4,6
	Renault Duster	2	0,8
	Nissan Qashqai	108	41,1
	Skoda Rapid	12	4,6
	Skoda Octavia	15	5,7
	Kia Rio X-line	39	14,8
	Kia Rio	6	2,3
	Kia Soul	8	3,0
	Hyundai Solaris	5	1,9
	Hyundai Creta	1	0,4
	BMW 320i	21	8,0
	Volkswagen Polo	18	6,8
	Other car models	16	6,0

And here we can see a very interesting and promising result for Nissan Motor Company. 41,1% of respondents, 108 people, mentioned that they liked Qashqai the most. This is a severe dominance compared to other car brands and models presented in carsharing. The second place that Kia Rio X-line holds accounts only for 14,8% of total respondents. The third place is taken by the BMW 320i (8%), but this can be explained by the fact that BMW belongs to a higher

class than other car models. Also, 16 of the respondents mentioned other car models as their favorite ones, which are not presented in our list. Once we got these exciting statistics, we decided to make a table of each model's performance in carsharing, so we built two new variables. Firstly, we took the number of respondents who mentioned car X as their favorite and divided this number by the number of respondents who have ever tried the car. The second variable was built using the same logic: but we divided by the number of respondents who mentioned the car X as the most frequently used one. The results of our calculation are presented in Table 23.

Table 23. Performance of car models in carsharing according to our survey

	Favourite/Everused	**Favourite/MostFrequent**
Renault Kaptur	0,05	0,22
Renault Duster	0,03	2
Nissan Qashqai	0,49	1,56
Skoda Rapid	0,08	0,85
Skoda Octavia	0,13	3
Kia Rio X-line	0,23	0,9
Kia Rio	0,05	0,6
Kia Soul	0,13	-
Hyundai Solaris	0,03	0,27
Hyundai Creta	0,01	0,5
BMW 320i	0,3	10,5
Volkswagen Polo	0,09	0,47
Other car models	0,27	2,66

This provides us with important insights that can be especially important for car manufacturers. Firstly, we focus on the variable, **Favourite/Everused.** Here we can see that the leader is Nissan Qashqai with 0,49 as a result. Approximately half of the respondents who ever tried Qashqai marked this model as their favorite one. A decent result for Nissan. The second place (0,3) takes the BMW 320i, and this is not surprising as we have already said a couple of times – BMW belongs to a more premium class. In the third place – Other car models with 0,27 as a result. Here we can say that this is also because most of the models mentioned in «other» are premium, and there are not a lot of them circulating on the roads. However, because the car model belongs to a premium brand and, obviously, provides a better experience for the user, many respondents

marked this option. The worst performance can be seen in Hyundai models. Only one person marked Hyundai Creta as the favorite model, while 91 people have ever tried it. Hyundai Solaris's situation is slightly better: 0,03 total score with only five fans after 164 tryouts. Now we discuss the second variable, **Favourite/MostFrequent.** This variable indicates how good the model is in the eyes of respondents compared to the frequency of use of this model**.** The Kia Soul held the «0» place, as eight users marked that they liked this model the most, but 0 mentioned that this is the most frequently used car. The first place with a large gap to any competitors holds BMW 320i, obviously. This car is allowed only for experienced users. Also, these cars' total number is much less compared to popular models such as Kaptur, Qashqai, Rapid, and others. Consequently, we receive a result of 10,5 for this variable for BMW. The second place, surprisingly, holds Skoda Octavia. This model is not widely distributed but still has some fans, receiving a score of 3. The third place is again taken by the «other car models» with a result of 2,7 and with the same logic as BMW got its 1st place. Surprisingly, the worst car model presented in carsharing in terms of **Favourite/MostFrequent** is Renault Kaptur. Only 12 people marked this model as the best one for them, while 55 mentioned this model as the most frequently used**.**

The next step is to implement the same analysis for the carsharing companies. The table below can help us understand better which carsharing companies are more popular, which are most frequently used, which are considered excellent in the eyes of the respondents, and in which services users usually take their favorite car models.

The important information is presented in Table 24. From the data obtained, we can see that the most popular carsharing company among our respondents is Yandex Drive; 84,8% of respondents had a ride with this company, while the least popular is City Drive, with only 48,3% of consumers have ever used it. In the following questions, respondents were asked to mark the company which they use more often. Again, here we can see that most respondents (51%) mentioned that they use Yandex Drive more frequently compared to other companies. Similarly, the least frequently used company is City Drive (19%). In the following question, we asked respondents to mark a carsharing company where they usually take their favorite car model. Here we can see the considerable correlation even without any calculations with the question before. Consequently, we can say that users usually take car models which they like more than others in carsharing companies which they use most often. However, we will also additionally check this statement using SPSS data analysis tools. The last question in this subblock was about identifying respondents' favorite carsharing companies. The best one here is again Yandex Drive – 139 people mentioned this company as their favorite one, which accounts for 52,9% of our sample. 24% voted for City Drive and only 19,8% for Delimobil'. 9 people mentioned other companies as their favorite. We proceed with analyzing two variables **Favourite/Everused** and

Favourite/MostFrequent but for carsharing companies. The calculation logic will be the same as we did for car models. Also, we will not include other carsharing companies apart from the three most popular as the share of others is too small. The analysis results are presented in Table 25.

Table 24. Descriptive statistics of carsharing companies' popularity among users.

Characteristics	Item	Frequency	Percentage
Have you ever used this company?	Delimobil' Yandex Drive City Drive	179 223 127	68,1 84,8 48,3
Which carsharing company did you use more often?	Delimobil' Yandex Drive City Drive Other	71 134 50 8	27,0 51,0 19,0 3,0
In which company do you usually take you favourite car model you mentioned earlier?	Delimobil' Yandex Drive City Drive Other	71 130 54 8	27,0 49,4 20,5 3,0
Which carsharing company do you like the most?	Delimobil' Yandex Drive City Drive Other	52 139 63 9	19,8 52,9 24,0 3,3

Table 25. Performance of carsharing companies compared to their popularity

	Favourite/Everused	Favourite/MostFrequent
Delimobil'	0,40	0,73
Yandex Drive	0,62	1,03
City Drive	0,50	1,26

This table provides some important information. We can see that approximately 62% of respondents who have ever Used Yandex Drive mentioned that this company is the best one for them, and it achieved the highest result among other companies. The City Drive takes 2nd place with a result of 0,5, and the last one is Delimobil with 0,4. This information is definitely helpful for carsharing companies as they can compare their performance to competitors. Also, we compared the number of favorite brands to the frequency of their use. The higher ratio here will

indicate that despite the lower number of cars in operation or despite the lower number of active users, the overall satisfaction is higher than for other brands. And precisely, this situation happened with City Drive. As we remember, this brand is the least popular. However, its relative ratio of favorite company/most frequently used is the highest – 1,26. Yandex Drive holds second place with 1,03, while Delimobil' is the last again with a result of 0,73.

Discussion of the results, managerial implications and limitations of the study

At the beginning of this paragraph, it is vital to mention the **theoretical contribution** of our work. Firstly, research provides many insights into factors affecting customers' loyalty in a carsharing market, consequently creating a bridgehead for further analysis. Secondly, this study managed to narrow the research gap significantly, as now it can be understood what influences loyalty (and how) and what does not. Apart from these, this work portrayed the target audience for carsharing companies and further researchers. We clearly outlined factors that should be included in the model of loyalty prediction.

Now it is time to discuss the main results of our work. Here briefly and straightforwardly, we will discuss the outcomes of the hypothesis's tests. Our research found out that older users, on average, are less loyal to particular car brands used in carsharing. However, there is no confirmation that such users are less loyal to carsharing companies, as the tested coefficient in the model went nonsignificant. Another finding is that if a favorite car of a user is presented in the carsharing services company, on average, the user will be more loyal to this company. Also, in 91% of cases, the favorite car of the consumer is in the operation of a company which is also mentioned as a favorite.

As one of the findings, it is crucial to mention the fact that loyalties towards a particular car brand and towards a carsharing company affect each other positively. In other words, a person who is loyal to one of the carsharing companies will more likely be loyal to some particular car presented in carsharing and vice versa.

According to the results of the H3 and H4 tests, if a person values the benefits of carsharing higher, it does not lead to an increased loyalty towards carsharing companies and car brands. Findings from the analysis of H5 and H6 allow us to state that loyalty towards a particular carsharing company is negatively affected by the importance of barriers and challenges to using carsharing. However, barriers to carsharing usage do not significantly affect loyalty towards car brands.

The next step is to cover the **managerial implications** of our study. Our research is business-oriented. Thus, carsharing companies, car manufacturers, and some other businesses may be highly

interested in our research. Therefore, we wrote down the main managerial implications which were made during this research.

To get more loyal customers carsharing companies should focus on acquiring cars to which the majority of customers are loyal. Currently: Nissan Qashqai, Kia Rio X-line, BMW 320i (and possibly other premium cars). This should be done because we already discussed that once a person likes the car he used in carsharing services and gets loyal to its brand, on average, such a user will be more loyal to the carsharing company itself.

Main carsharing problems such as «hard to find a car close to your location,» «bad technical condition of cars,» «do not like to take responsibility for carsharing car» and some others negatively affect loyalty, thus carsharing companies should pay attention and solve these problems. Once a company has many cars in operation, and all of them or almost all are in good technical condition, this will increase their client's loyalty. Also, carsharing companies should pay special attention to responsibility aspects as respondents clearly outlined that they do not want to pay huge fines for an accident.

The importance of driving pleasure-related aspects of carsharing and other benefits of this business model does not significantly affect the loyalty of a user towards the carsharing company and car brand either. This is a bit controversial as the ones who value the benefits of carsharing higher were expected to be more loyal to the companies and car brands used in carsharing. However, this did not happen as the coefficients in the model went non-significant. This may occur because such users, who enjoy the model of sharing economy, may not be fully satisfied with the current carsharing companies and their performance. Therefore, these users do not get loyal to carsharing companies available on the Russian market, and their loyalty towards car brands is also lower on average, as we already know that two loyalties correlate positively.

Age negatively affects loyalty towards car brands used in carsharing. Thus, automobile companies may be interested in promoting their cars in the carsharing to the younger audience. The older audience, on average, does not care about the car they use in carsharing. This insight might be useful for carsharing companies as now they can develop a new, custom approach to both younger and older target audiences. It is also important to note that we did not manage to confirm the hypothesis that age negatively affects loyalty towards the carsharing company, as the tested coefficient went non-significant. Consequently, for now we can say that there are no statistically significant differences between the older and younger age group once becoming loyal to a car brand used in carsharing.

In this research, extensive work was done on collecting the data. Survey results and data obtained can be used by businesses to test even more hypotheses further. For instance: how the

driving experience affects loyalty, which customer audiences select company X, which audiences select Car brand Y, how other socio-demographic characteristics affect loyalties, and many other hypotheses. In this study, the data collected was covered only partially.

Our survey results will be interesting both for carsharing companies and car manufacturers as we can assess the overall performance of the carsharing company compared to competitors and the overall performance of a particular car model in carsharing compared to others. After the main hypothesis tests, this assessment was done by us in a separate paragraph. Among the best performing car models in carsharing, it is worth mentioning: Nissan Qashqai, Kia Rio X line, BMW 320i, Kia Soul, and Skoda Octavia. The worst-performing car models are presented in the body of the main research. Among the carsharing companies, the most favorite company for respondents is Yandex. Drive. However, City Drive also shows excellent performance: even though this company has fewer vehicles in operation than competitors, consumers do like the service this company provides. Delimobil is the company ranked lowest by our respondents on average.

Despite the long list of managerial implications, our study also has some **limitations**. In this work, the goal was not to forecast the customer's loyalty but to understand whether aspects influence the loyalty and in which way. Our study successfully reached the initial goal. However, Future research can be focused on identifying all the factors influencing loyalties and thus building a model with a high R square that can be used for customer loyalty forecasting.

During the outliers analysis, we deleted a small group of observations, which can be called «haters,» the ones who marked «favorite» company and «favorite» car with the lowest scores but highlighted the overall importance of other factors. This phenomenon can be studied further in other works dedicated to the topic of sharing economy.

During the factor analysis, items related to company loyalty were grouped into one factor. Still, items related to car brand loyalty were grouped into two factors. The second one represented readiness to advise this car, overall satisfaction with this car, and the extent to which a respondent is loyal to this car. However, this second factor went nonreliable as Cronbach's alpha was significantly lower than 0,7. Consequently, this factor was not included in the model. In further research – it can be possible to explore further customers' loyalty towards car brands using a different approach.

The last aspect to mention is that this study was focused only on the Russian companies and car models used on the Russian market. Obviously, the Russian carsharing industry has its specifics. However, we believe that some of the findings mentioned in this work will also be applicable to other markets. This can become a topic for future studies.

CONCLUSION

At the beginning of the conclusion, it is vital to mention the purpose of the research. The purpose of the analysis was to study the effects of user experience on loyalty in the carsharing market. Specifically, we wanted to find out answers to the three questions:

1) How are the loyalties towards the carsharing company and the car brand used in carsharing connected?

2) How do socio-demographic characteristics of consumers, such as age, affect loyalty toward car models and carsharing companies?

3) How the loyalty affected by the importance of the main benefits and challenges of carsharing usage for the customer?

In the first chapter, we analyzed the existing scientific research made on this topic, also combining with industry reports. We have studied the specifics of sharing economy business models, key characteristics of the Russian carsharing market, and discussed the loyalty concept and various definitions of this term. Also, we analyzed how loyalty is being formed, how it is measured, and why loyal customers are essential for a company. Based on the previous research analyzed, we formulated six initial hypotheses.

In the second chapter, we conducted two studies. Study one was made in the form of in-depth interviews to collect additional insights from carsharing users and respecify the initial hypotheses. Fifteen people representing different age groups and social statuses were interviewed. As a result of study one, six initial hypotheses were formulated in their final version. Apart from it, three additional propositions were made.

As a second step, quantitative data was acquired. We conducted an online survey with predetermined quotas to test the proposed hypotheses and propositions further. As a result, we collected 293 answers. Irrelevant answers were deleted, and the data was prepared for further analysis.

In the third chapter, we began with an extensive descriptive analysis of our data. The analysis was made using the SPSS statistical software. In our survey, we managed to collect a decent data set, the description of which can be already useful for carsharing companies. In the next step, we conducted a factor analysis. After all the necessary variables were transformed into factors, we checked their reliability using Cronbach's alpha test. Non-reliable factors were not included in further analysis.

In the next step, two models were built: one for assessing the effects on loyalty towards carsharing companies and the other one for evaluating the effects on loyalty towards car brands used in carsharing. Both models were significant, with no signs of heteroscedasticity or multicollinearity. Consequently, the obtained model coefficients were used for further hypothesis check. From six hypotheses, only two were confirmed. All three propositions were confirmed.

This study indicates that age has a negative effect on the loyalty towards car brands used in carsharing. Also, we found out that loyalty towards the carsharing company and towards car brands used in carsharing are interconnected and correlate positively. Also, if a company has a user's favorite car in operation, such a user will be more loyal on average to this company. The last finding is that loyalty towards a particular car brand is negatively affected by the importance of barriers and challenges to using carsharing. Other hypotheses were not confirmed, but this is also an important finding for future research and businesses.

In the section on managerial implications, several recommendations and findings were outlined. We do believe that they will be extremely important for any carsharing company operating in the Russian market.

In the end, we outlined the limitations of this study and highlighted the possible directions for future research.

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Appendix 1. Study one, in-depth interview questions.

1. When choosing a way to get from point A to point B: how do you make a decision? What are the alternatives before you, and what do you pay attention to when choosing a mode of transportation?
2. How long have you been using carsharing? What motivated you to start using it? Tell us about your first experience, if you remember.
3. Tell us how you usually use carsharing? When would you choose carsharing? Why? How often do you use carsharing on average? (Go to work, to a bar, to travel when public transport is inconvenient?)
4. (if using multiple services) Do you have a favorite carsharing company/app? If so, why is she? / (if using one service) Can you say that this is your favorite service? Why?
5. On what basis do you choose a car that you rent? (For example, model and brand, distance to the vehicle, fuel level in the tank, price per minute, car-sharing company, something else?) Maybe some other factors?
6. Do you have favorite car models that you prefer in carsharing? If so, which ones? Why exactly them? (Did you discover their good qualities for yourself by trying them in carsharing, or were you already familiar with them before carsharing?)
7. Imagine a specific situation: you will go (the most frequent place where a person goes) and decide to go by car sharing. There are two cars to choose from: one is right at your house and costs 8 rubles per minute. The second one you like is a 5-10 minutes' walk and costs 10 rubles per minute. What car will you choose? Why? Are you ready to pay a little more rubles per minute (2-3) and go further (+5-10 minutes) to drive the car you like the most?
8. Do you see car sharing as a way to get from point A to point B or as an opportunity to try out new cars that you haven't driven before? Why? Do you instead enjoy driving, or is this an uninteresting activity for you?
9. Do you have your car? If yes, how often do you use it, and for what purposes? When do you prefer your car over carsharing?
10. Have you thought about acquiring ownership of a car model that you liked while using carsharing? Under what circumstances? How serious were your intentions? Has the pandemic affected these intentions?

Appendix 2. Study two, quantitative survey questions.

Анкета была составлена на русском языке. Ниже приведены оригинальные вопросы на русском языке, а также английский вариант.

Исследование отношения потребителей к каршеринговым компаниям и авто
Данный опрос посвящен каршеринговым сервисам и брендам автомобилей, используемым в каршеринге. Опрос проводится исключительно в исследовательских целях, все данные будут использованы только в обобщенном виде.

Заполнение анкеты займет приблизительно 10-15 минут. Ваш ответ очень поможет!

Часть 1:
Здравствуйте! Расскажите, пожалуйста, о вашем опыте вождения и опыте использования каршеринга

1. Какой у Вас опыт вождения?

Меньше двух лет
От двух до пяти лет
От 5 до 10 лет
Больше 10 лет

2. Как давно Вы пользуетесь каршерингом?

Меньше 6 месяцев
6-12 месяцев
Больше 1 года, но меньше 2-х лет
Больше 2-х лет
Не пользуюсь каршерингом

3. Как часто в среднем Вы пользуетесь каршерингом?

Почти каждый день
1-2 раза в неделю
1-2 раза в месяц
Раз в несколько месяцев
1-2 раза в год
Не пользовался год и более

4. Пожалуйста, расставьте в порядке убывания приоритета факторы, влияющие на Ваше решение при выборе автомобиля в краткосрочную аренду (1 – самый важный фактор, 4 – самый не важный фактор)

Расстояние до автомобиля
Цена
Модель и бренд автомобиля
Каршеринговая компания

5. Есть ли другие важные факторы, которые влияют на Ваш выбор автомобиля в краткосрочную аренду?

Нет
Другое

6. В каких жизненных ситуациях Вы обычно пользуетесь каршерингом?

Поездка в бар/ресторан
Поездка в магазин, за покупками
На работу или учебу
Поездка загород
Пользуюсь, когда приезжаю в другой город
На вокзал, в аэропорт
Другое

7. В каком городе Вы проживаете постоянно?

Санкт-Петербург
Москва
Казань
Нижний Новгород
Другое

8. В каких городах Вы пользуетесь каршерингом?

Санкт-Петербург
Москва
Казань
Нижний Новгород
Другое

Часть 2. Поделитесь, пожалуйста, мнением о каршеринговых автомобилях и каршеринговых компаниях.

9. Какими автомобилями Вы пользовались в каршеринге?

Renault Kaptur

Renault Duster

Nissan Qashqai

Skoda Rapid

Skoda Octavia

Kia Rio X-line

Kia Rio

Kia Soul

Hyundai Solaris

Hyundai Creta

BMW 320i

Volkswagen Polo

Другое

10. Каким автомобилем Вы пользовались чаще других?

Renault Kaptur
Renault Duster
Nissan Qashqai
Skoda Rapid
Skoda Octavia
Kia Rio X-line
Kia Rio
Kia Soul
Hyundai Solaris
Hyundai Creta
BMW 320i
Volkswagen Polo
Другое

11. Какой автомобиль, представленный в каршеринге, Вам нравится больше остальных?

Renault Kaptur
Renault Duster
Nissan Qashqai
Skoda Rapid
Skoda Octavia
Kia Rio X-line
Kia Rio
Kia Soul
Hyundai Solaris
Hyundai Creta
BMW 320i
Volkswagen Polo
Другое

12. Насколько Вы согласны с утверждениями об автомобиле, который вы указали как самый понравившийся в предыдущем вопросе? (1 - совершенно не согласен, 7 - полностью согласен)

Лояльность к бренду автомобиля	1	2	3	4	5	6	7
Я чувствую себя лояльным к бренду данного автомобиля							
Я бы предпочел(-ла) этот автомобиль при выборе в каршеринге, даже если мне необходимо было бы доплатить за это							
Я бы предпочел(-ла) этот автомобиль при выборе в каршеринге, даже если мне необходимо было бы пройти дольше за этим автомобилем							
Я рекомендую бренд этого автомобиля друзьям и знакомым							
Я удовлетворен(а) поездками на данном автомобиле							

13. При поездке на автомобиле насколько для Вас важны характеристики автомобиля, перечисленные ниже?

Характеристика автомобиля	1	2	3	4	5	6	7
Динамика							
Управляемость							
Комфорт							
Дизайн интерьера							
Дизайн внешнего вида авто							
Вместительность салона и багажника							
Обзорность							
Проходимость							
Безопасность							

14. Какими каршеринговыми сервисами Вы пользовались за последний год?

Делимобиль
Яндекс Драйв
СитиДрайв
Другое

15. Каким сервисом Вы пользовались чаще всего?

Делимобиль
Яндекс Драйв
СитиДрайв
Другое

16. В какой каршеринговой компании Вы обычно берете свой автомобиль-фаворит, о котором мы говорили в 11-12 вопросах?

Делимобиль
Яндекс Драйв
СитиДрайв
Другое

17. Какой сервис Вам нравится больше остальных?

Делимобиль
Яндекс Драйв
СитиДрайв
Другое

18. Насколько Вы согласны с утверждениями о каршеринговой компании, которую вы указали в вопросе 17? (1 – совершенно не согласен, 7 – полностью согласен)

Лояльность к бренду каршеринговой компании	1	2	3	4	5	6	7
Я чувствую себя лояльным(-ой) к данной каршеринговой компании							
Я бы отдал(-а) предпочтение данной компании, даже если мне необходимо было бы доплатить за это							

Я бы отдал(-а) предпочтение данной компании, даже если мне необходимо было бы пройти дольше за автомобилем данной компании							
Я рекомендую данную компанию друзьям и знакомым							
Я удовлетворен(а) поездками на автомобилях данной компании							

19. При поездке на автомобиле каршеринговой компании – насколько для Вас важны характеристики компании, перечисленные ниже? (1 – совершенно не важно, 7 – очень важно.)

Характеристика компании	1	2	3	4	5	6	7
Разнообразие автомобилей							
Чистота автомобилей							
Оснащение (комплектация) автомобилей							
Удобство пользования приложением							
Количество автомобилей							
Средняя цена поездки							
Техническое состояние автомобилей							
Размер зоны завершения аренды							
Удобство верификации в приложении							
Удобство старта и завершения поездки							
Наличие штрафов и их размер							

Часть 3. Что вам нравится при использовании каршеринга?

20. Насколько Вы согласны с утверждениями ниже? (1 – совершенно не согласен, 7 – полностью согласен.)

Преимущества использования каршеринга	1	2	3	4	5	6	7
Мне нравится управлять автомобилем							
Мне нравится пробовать разные автомобили в каршеринге							
Мне нравится самому (самой) выбирать маршрут							
Мне нравится самому (самой) выбирать музыку, настраивать температуру в салоне и так далее							
Мне нравится экономить деньги при поездке на каршеринге по сравнению с поездкой на такси							
Мне нравится экономить деньги при поездке на каршеринге по сравнению с поездкой на собственном автомобиле							
Мне нравится использовать каршеринг, поскольку это разгружает транспортную систему города							
Мне нравится экономить свое время при передвижении по городу на каршеринге							

Часть 4. Что вам не нравится при использовании каршеринга?

21. Насколько Вы согласны с утверждениями ниже? (1 – совершенно не согласен, 7 – полностью согласен.)

Барьеры и недостатки при использовании каршеринга	1	2	3	4	5	6	7
Мне не комфортно садиться за руль автомобиля, которым до меня управлял кто-то еще							

Мне не нравится управлять автомобилем, техническое состояние которого я не контролирую							
Мне нравится самому (самой) выбирать маршрут							
Мне некомфортно садиться в автомобиль с грязным или прокуренным салоном							
В каршеринге предлагают неинтересные для меня модели автомобилей							
Мне некомфортно передвигаться на автомобиле, грязном снаружи							
Мне некомфортно передвигаться на автомобиле в оклейке каршеринга							
Мне не нравится, что я несу ответственность за каршеринговый автомобиль							
Есть значительные сложности при начале использования каршеринга (прохождение верификации и подтверждение личности)							
В каршеринге автомобили с техническими проблемами							
Сложно найти автомобиль близко к своему местоположению							
Мне не нравится возможность получить штраф за повреждение, нанесенное предыдущим водителем							

Часть 5. Расскажите, пожалуйста, чуть больше о себе

22. Укажите Ваш пол

Мужчина
Женщина

23. Сколько вам лет

Открытый вопрос

24. Укажите Ваше семейное положение:

Холост/не замужем
Состою в браке
Разведен(а)
Вдовец/вдова

25. Есть ли у Вас дети?

Да
Нет

26. Какое утверждение наиболее точно характеризует Ваше материальное положение?

Денег хватает только на приобретение продуктов питания и продуктов первой необходимости
Денег хватает на приобретение продуктов и одежды, более крупные покупки приходится планировать заранее
Покупка бытовой техники и электроники не вызывает трудностей, но автомобиль позволить себе не могу
Денег достаточно, чтобы ни в чем себе не отказывать

Спасибо вам!

ENGLISH VERSION:

A study of consumer attitudes towards carsharing companies and car brands.

This survey focuses on car sharing services and car brands used in carsharing. The survey is conducted for research purposes only, all data will be used only in aggregated form.

The questionnaire will take approximately 10-15 minutes to complete. Your answer will help a lot!

Part 1. Hello! Please tell us about your driving experience and car sharing experience

1. What is your driving experience

Less than 2 years
From 2 to 5 years
5 to 10 years
Over 10 years

2. How long have you been using carsharing?

Less than 6 months
6-12 months

More than 1 year but less than 2 years

More than 2 years

I don't use carsharing

3. How often do you use carsharing on average?

Almost every day

1-2 times a week

1-2 times a month

Once every few months

1-2 times a year

Haven't used in a year or more

4. Please, rank in descending order of priority the factors influencing your decision when choosing a car for short-term rental (1 is the most important factor, 4 is the least important factor)

Distance to car

Price

Car model and brand

Car sharing company

5. Are there other important factors that influence your choice of a short term rental car?

No

Yes (open question)

6. In what life situations do you usually use carsharing?

A trip to a bar or restaurant

Trip to the store, shopping

To work or study

To countryside

I use it when I come to another city

To the railway station, to the airport

7. What city do you live in permanently?

Moscow

Saint-Petersburg

Other

8. In which cities do you use carsharing?

Moscow

Saint-Petersburg

Kazan’

Nizhniy Novgorod

Part 2. Please share your opinion about carsharing cars and carsharing companies.

9. Which cars did you use in car sharing?

Renault Kaptur

Renault Duster

Nissan Qashqai

Skoda Rapid

Skoda Octavia

Kia Rio X-line

Kia Rio

Kia Soul

Hyundai Solaris

Hyundai Creta

BMW 320i

Volkswagen Polo

Other

10. What car did you use more often than others?

Renault Kaptur

Renault Duster

Nissan Qashqai

Skoda Rapid

Skoda Octavia

Kia Rio X-line

Kia Rio

Kia Soul

Hyundai Solaris

Hyundai Creta

BMW 320i

Volkswagen Polo

Other

11. Which car presented in carsharing do you like more than others?

    Renault Kaptur

    Renault Duster

    Nissan Qashqai

    Skoda Rapid

    Skoda Octavia

    Kia Rio X-line

    Kia Rio

    Kia Soul

    Hyundai Solaris

    Hyundai Creta

    BMW 320i

    Volkswagen Polo

    Other

12. How much do you agree with the statements about the car you listed as your favorite in the previous question? (1 - totally disagree, 7 - totally agree)

Loyalty towards car brand	1	2	3	4	5	6	7
I feel loyal to the brand of this car							
I would prefer this car if I choose car sharing, even if I have to pay extra for it							
I would prefer this car when choosing in car sharing, even if it would take me longer to get to this car							
I recommend the brand of this car to friends and acquaintances							
I am satisfied with this vehicle							

13. When traveling by car, how important are the characteristics of the car listed below to you?

    (1 – not important at all, 7 – very important)

Characteristics of a car	1	2	3	4	5	6	7
Dynamics							
Controllability							
Comfort							
Interior design							
Exterior design							
Cabin and trunk capacity							
Visibility out of the car							
Offroad capabilities							
Safety							

14. Which car sharing services have you used in the last year?

Delimobil’

Yandex. Drive

CityDrive

15. What service did you use most often?

Delimobil’

Yandex. Drive

CityDrive

16. In which car sharing company do you usually take your favorite car, which we talked about in 11-12 questions?

Delimobil’

Yandex. Drive

CityDrive

17. What service do you like the most?

Delimobil’

Yandex. Drive

CityDrive

18. How much do you agree with the statements about the car sharing company that you listed in question 17? (1 - totally disagree, 7 - totally agree)

Loyalty towards carsharing company	1	2	3	4	5	6	7
I feel loyal to the brand of this carsharing company							
I would prefer this carsharing company, even if I have to pay extra for it							
I would prefer this carsharing company, even if it would take me longer to get to this car							
I recommend the brand of this carsharing companies to friends and acquaintances							
I am satisfied with the service this company provides							

19. When driving a car of a car sharing company, how important are the characteristics of the company listed below to you? (1 - not important at all, 7 - very important.)

Carsharing company characteristics	1	2	3	4	5	6	7
Variety of cars							
Car cleanliness							
Equipment of cars							
Ease of use of the application							
Number of cars							
Average trip price							
Technical condition of cars							
Lease completion area size							
Convenience of verification in the application							

Ease of starting and ending a trip							
Presence of fines and their amount							

Part 3. What do you like about using carsharing?

20. How much do you agree with the statements below? (1 - totally disagree, 7 - totally agree.)

Benefits of carsharing usage	1	2	3	4	5	6	7
I like driving a car							
I like to try different cars in carsharing							
I like to choose the route myself							
I like to choose music, adjust the temperature in the cabin, and so on.							
I like to save money when traveling by car sharing compared to traveling by taxi							
I like to save money by car sharing compared to driving my own car							
I like to use carsharing because it offloads the city's transport system							
I like to save my time when moving around the city on carsharing							

Part 4. What do you dislike about using carsharing?

21. How much do you agree with the statements below? (1 - totally disagree, 7 - totally agree.)

Risks from carsharing usage	1	2	3	4	5	6	7
I don't feel comfortable driving a car that was driven by someone else before me							

I don't like driving a car which technical condition I am not controlling							
I feel uncomfortable getting into a car with a dirty or smoky interior							
In carsharing they offer models of cars that are not interesting for me							
I feel uncomfortable driving a car that is dirty on the outside							
It is uncomfortable for me to travel by car in car sharing wrapping							
I don't like being responsible for a car sharing car							
There are significant difficulties when starting to use carsharing (passing verification and confirming identity)							
Cars in carsharing are usually with technical problems							
It’s difficult to find a car close to your location							
I don't like the possibility of getting a fine for damage caused by the previous driver							

Part 5. Please tell us a little more about yourself

22. What is your gender?

Male
Female

23. How old are you?

Open question

24. Please indicate your marital status:

Single
Married

Divorced

Widowed

25. Do you have children?

Yes

No

26. Which statement most accurately characterizes your financial situation?

We only have enough money to buy food and basic necessities

There is enough money to buy food and clothes, larger purchases have to be planned in advance

Buying household appliances and electronics is not difficult, but I can’t afford a car

Enough money not to deny yourself anything

Thank you!

Appendix 3. Descriptive statistics tables

Table 26. Descriptive statistics of driving experience and experience with carsharing

Characteristics	Item	Frequency	Percentage
Driving Experience	Less than 2 years	35	13,3
	From 2 to 5 years	60	22,8
	From 5 to 10 years	78	29,7
	More than 10 years	90	34,2
How long have you been using carsharing	Less than 6 months	26	9,9
	From 6 to 12 months	25	9,5
	From 1 to 2 years	47	17,9
	More than 2 years	165	62,7
Frequency of carsharing usage	1-2 times in a year	32	12,2
	Once in a couple of months	84	31,9
	1-2 times in a month	65	24,7
	1-2 times in a week	59	22,4
	Almost every day	23	8,7

Table 27. Descriptive statistics for use cases of carsharing

Characteristics	Item	Frequency	Percentage
In which cases do you usually take carsharing?	Trip to bar/restaurant	135	51,3
	Shopping	112	42,6
	Work/Study	90	34,2
	Countryside	63	24,0
	Other City	66	25,1
	Railway station/Airport	101	38,4
	Own car unavailable	17	6,5
	Other use case	47	17,9

Table 28. Descriptive statistics for the importance of car characteristics

Characteristics	Item	Average	Standard deviation
Once you are driving a carsharing car, how important for you is car characteristic …	Dynamics	4,51	1,79
	Controllability	5,40	1,83
	Comfort	5,36	1,75
	Interior Design	3,98	1,69
	Exterior Design	3,71	1,85
	Cabin & trunk capacity	3,81	1,91
	Visibility out of the car	4,80	1,76
	Offroad capabilities	3,84	1,89
	Safety	5,45	1,82

Table 29. Descriptive statistics for the importance of company characteristics

Characteristics	Item	Average	Standard deviation
Once you are driving a carsharing company car, how important for you is company characteristic …	Variety of Car models	3,89	1,94
	Car cleanliness	5,69	1,61
	Car equipment	4,70	1,69
	Ease of use of the app	5,81	1,55
	№ of cars in operation	5,87	1,49
	Average price per trip	5,76	1,60
	Technical condition of cars	5,99	1,52
	Rental area size	5,59	1,72
	Verification convenience	4,59	1,93
	Ease of starting and ending the trip	5,45	1,67
	Fines and their amount	4,66	1,83

Table 30. R Square for the first model

Model Summary				
Model	**R**	**R Square**	**Adj. R Square**	**Std. Error**
1	0,691	0,478	0,453	0,69465598

Table 31. ANOVA for the first model

ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	103,798	11	9,438	19,555	<0,001
	Residual	113,399	235	,483		
	Total	217,196	246			

Table 32: R square for the second model

Model Summary				
Model	**R**	**R Square**	**Adj. R Square**	**Std. Error**
2	0,645	0,416	0,388	0,75420970

Table 33: ANOVA for the second model

ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
2	Regression	95,075	11	8,643	15,195	<0,001
	Residual	133,676	235	,569		
	Total	228,751	246			