



Analysis of the potential impact of car subscriptions on the German automotive market

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ABSTRACT

Title: Analysis the potential impact of car subscriptions on the German automotive market

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The automotive industry is currently subverting several trends. Its traditional focus on product and sales with ownership as the goal is changing to a customer-centric focus with the goal of providing access to car-based services. The car subscription is a fairly new form of these access-based services.

The aim of this thesis is to analyse the potential influence of car subscriptions on car purchases, financing, and leasing in the private customer sector in Germany. Secondary data was collected by reviewing the current literature on access-based services, mobility behaviours and leading trends. The primary analysis consisted of a customer survey to gather perceptions of adults in Germany on car subscriptions. Furthermore, a scenario analysis after Schoemaker (1995) was conducted with insights from five expert interviews.

The findings revealed that car subscriptions are still a niche topic and, in terms of market shares, are far behind the other financing forms. However, car subscriptions are seen as more interesting than leasing and financing. Thus, car subscriptions will become the fourth pillar of financing and, according to the trend scenario, may account for 20% of market shares in 2030, overtaking cash purchase and aligning with leasing. Overall, car subscriptions are here to stay.

Keywords: Car Subscriptions, Automotive Industry, Automotive Retail, German Automotive Market, Car Leasing, Car Ownership, Car Dealerships, Scenario Planning, Uncertainty, Disruptive Innovation

SUMÁRIO

Título: Analisar o potencial impacto das assinaturas de automóveis no mercado alemão de retalho automóvel

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A indústria automóvel está atualmente a subverter várias tendências, nomeadamente o seu foco tradicional no produto. Uma vez que o objetivo é mudar para um foco centrado no cliente, a subscrição de automóveis surge como uma alternativa bastante nova a este tipo de serviços baseada no acesso.

O objetivo desta tese é analisar a influência das assinaturas de automóveis na compra, financiamento e leasing de automóveis no sector privado na Alemanha. Foram recolhidos dados secundários através da revisão da literatura sobre serviços baseados no acesso e comportamentos de mobilidade. A análise primária consistiu num inquérito a clientes para a recolha de perceções na Alemanha sobre as assinaturas de automóveis. Além disso, foi realizada uma análise de cenários após Schoemaker (1995).

Os resultados revelaram que as assinaturas continuam a ser um tópico de nicho e, em termos de quotas de mercado, estão muito atrás das outras formas de financiamento existentes. No entanto, as subscrições são vistas como mais interessantes do que o leasing. Deste modo, as subscrições tornar-se-ão o quarto pilar do financiamento e, de acordo com o cenário de tendência, poderão representar 20% das quotas de mercado em 2030, ultrapassando a compra em dinheiro e alinhando-se com o leasing.

Palavras-chave: Assinaturas de Automóveis, Indústria Automóvel, Retalho Automóvel, Mercado Automóvel Alemão, Leasing Automóvel, Propriedade de Automóveis, Concessionárias de Automóveis, Planeamento de Cenários, Incerteza, Inovação Perturbadora

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TABLE OF CONTENTS

ABSTRACT I

SUMÁRIO II

ACKNOWLEDGEMENTS III

TABLE OF CONTENTS IV

LIST OF FIGURES..... VI

1 INTRODUCTION 1

 1.1 Problem statement 1

 1.2 Research questions 2

 1.3 Academic relevance..... 2

 1.4 Managerial relevance..... 3

 1.5 Outline 3

2 LITERATURE REVIEW 4

 2.1 Developments in the automotive industry 4

 2.1.1 General developments in the automotive industry 4

 2.1.2 Developments in automotive retail 4

 2.1.3 Characterization of the German automotive market 5

 2.1.4 Common forms of financing 5

 2.2 Services in product industries..... 5

 2.3 Changes in consumption and mobility behaviour 6

 2.3.1 Access-based consumption 6

 2.3.2 Changes in mobility behaviour 7

 2.3.3 Mobility-as-a-Service..... 8

 2.4 Subscription business models 9

 2.5 Car subscriptions 9

 2.5.1 Customer side 9

 2.5.2 Company side 10

 2.5.3 Market overview 10

 2.5.4 Car subscriptions in Germany 11

3 METHODOLOGY 12

 3.1 Research design 12

3.2	Data collection.....	12
3.2.1	Primary data collection.....	12
3.2.1.1	Customer survey	12
3.2.1.2	Expert interviews.....	13
3.2.2	Secondary data collection.....	13
3.3	Scenario analysis	13
4	HYPOTHESES PREPARATION	14
5	FINDINGS.....	16
5.1	Qualitative customer survey	16
5.1.1	Survey design	16
5.1.2	Sample composition	16
5.1.3	General findings	17
5.1.4	Hypotheses validation	18
5.2	Scenario analysis	21
5.2.1	Definition of scope	21
5.2.2	Major stakeholders	22
5.2.3	Identification of basic trends	26
5.2.4	Key uncertainties.....	27
5.2.5	Scenario Building.....	28
5.2.6	Evaluation of scenarios	30
6	CONCLUSION.....	31
	REFERENCE LIST.....	VI
	APPENDICES.....	XIII

LIST OF FIGURES

Figure 1: Top 5 requirements for car subscriptions. Own depiction..... 18

Figure 2: Top 5 concerns for car subscriptions. Own depiction. 18

Figure 3: Average rankings of the four financing options for five different car categories.
Own depiction. 20

Figure 4: Preferred car subscription providers by age groups. Own depiction..... 21

Figure 5: Overview of primary, secondary, and tertiary stakeholders affected by spread of car
subscriptions. Own depiction. 22

1 INTRODUCTION

1.1 Problem statement

The German car market has been stagnating since the 1990s. The number of new registrations generally varies between 3 and 3.5 million per year (Statista, 2020). Car ownership among young adults in Germany has decreased (Kuhnimhof et al., 2012), whereas car ownership of older generations is on the rise (Buehler and Nobis, 2010) and potentially causing this stagnation. Furthermore, the trends to urbanization and suburbanization as well as a shift to other, often more sustainable, transport modes such as car sharing or biking may reduce car ownership in general (Kühne et al., 2018).

Companies in the automotive industry have therefore been looking for ways to offer access-based products in addition to ownership-based products (Jittrapirom et al., 2017) to tie customers to their brands. A possible approach in this direction is the concept of Mobility-as-a-Service (MaaS). MaaS can be defined as a disruptive business model solving users' mobility needs through a single interface, a website or an app, of a service provider. The main characteristic of MaaS is service bundling to offer a mobility package tailored to the customer's needs (Jittrapirom et al., 2017). MaaS is a recent mobility concept (Jittrapirom et al., 2017).

Car subscriptions as part of MaaS in automotive retail only appeared in the last couple of years and they can be defined as a long-term rent of a car for at least one month. All costs such as insurance or wear and tear are included in the monthly subscription fee, except for fuel cost. The major difference between leasing contracts in the private customer sector and car subscriptions is flexibility. Leasing often ties the customer to the manufacturer or dealership for a couple of years, whereas car subscriptions can usually be terminated on a monthly basis (Joas & Deinlein, 2019).

Since it is a rather young service, the number of players on the German market is still moderate. Car manufacturers, car rental companies, car trade groups and start-ups divide the young market among themselves and pursue different concepts. However, this shows that car subscription models have gained companies' interest and it could be expected that further offers of this kind may appear on the market in the future, whereas others disappear.

Given the similarity to leasing, one could assume that a potential expansion of car subscriptions may cannibalise the leasing business in particular and would have rather less impact on car

purchases. However, as this business model has so far received little attention from an academic perspective, no precise statement can be made on this assumption.

The aim of this thesis is therefore to assess customer perceptions and preferences for car subscriptions in order to determine the potential influence of car subscriptions on car purchases and leasing in the private customer sector in Germany and to create scenarios for the future development of this business model.

1.2 Research questions

- What is the potential impact of car subscription business models on the German automotive retail market, especially on purchases and leasing?
- What will the German automotive retail market evolve into if car subscription business models become widespread?

1.3 Academic relevance

Since the car subscription business model only appeared in the last 3-4 years, at least in the B2C business, there is not a lot of academic work on this topic, yet. So far, customer preferences and opinions on car subscriptions have mainly been explored by management consultancies like Oliver Wyman (Joas & Deinlein, 2019) and providers of car subscriptions.

However, academic papers on car ownership and buying behaviour in Germany, the dynamics of the market itself, car leasing, and further topics related to automotive retail exist. In regard to subscription business models, studies on transaction models without transfer of ownership, subscriptions for other durable goods, strategic bundling of product prices, and perceived ownership are already available. Those findings may be transferred onto car subscription business models to some extent. However, category errors must be avoided.

An exploratory analysis should therefore be conducted, bringing together existing insights from studies and newly obtained insights from a customer survey and interviews.

1.4 Managerial relevance

The topic of car subscriptions has a high relevance for managers from various companies and players in the automotive retail world, since its future impact and potential for disruption is largely unknown. It is therefore of great relevance for managers and companies to know which stakeholders exist and will exist in this business, what influence subscription models will have on purchases and leasing, and what customers are looking for in these subscription models. Furthermore, it is important for managers to have concrete scenarios for the potential development of this business model on the German market in order to make decisions.

1.5 Outline

In the following chapter, the literature review will be conducted. At the outset, developments in the automotive industry and automotive retail will be presented and the German car market will be characterized. Afterwards, the importance of services in product industries will be shown and changes in consumption and mobility behaviours will be stated. Furthermore, a definition of Mobility-as-a-Service will be provided. In the final part of the literature review, a closer look on car subscriptions, both from customer and company view, will be given and a market overview will be presented.

Next, the methodology will be described in chapter 3, to provide an understanding of how data was gathered and analysed. Descriptions of surveys, interviews and the concluding scenario analysis will be given here. The hypotheses created to analyse the customer survey will be presented in chapter 4. Afterwards, in chapter 5, the scenario analysis will be conducted, before presenting the discussion about the results in chapter 6.

Finally, in chapter 7, the main insights will be summarized in the conclusion.

The survey structure, interview scripts and further documents and information, which were not included in the main text or have been used to gather or extract data, will be presented in the appendix.

2 LITERATURE REVIEW

2.1 Developments in the automotive industry

This literature review explains the current state and important developments in the car industry, automotive retail and the German car market.

2.1.1 General developments in the automotive industry

The car industry, with its few major players, has long been characterised by its stability (Ferràs-Hernández et al., 2017). The most important innovations have always revolved around improving the quality of the vehicles and adding features (Firnkorner & Müller, 2011). This has enabled certain car manufacturers to consolidate dominant positions in the market (Ferràs-Hernández et al., 2017).

Today, however, the industry is in flux (Park et al., 2019). Advances in electrical engineering, sustainable technologies, and the spread of sharing platforms, are causing change. Many new entrants occupy a range of niches, bringing new dynamics to the industry through the sharing economy, connectivity, electric mobility and autonomous driving (Park et al., 2019; Ferràs-Hernández et al., 2017; Mohr et al., 2016). The acronyms ACES or CASE are widely used to denote these trends (Park et al., 2019).

2.1.2 Developments in automotive retail

Selling cars to private customers was a stable business strategy that now is having to adapt to new business opportunities (Firnkorner & Müller, 2011). Car sales, like other areas of sales, are undergoing a shift away from scale-based, efficiency-driven and product-centric sales models towards customer-centricity (Grieger & Ludwig, 2018; Dinsdale et al., 2016). Customers increasingly seek tailored sales experiences (Dinsdale et al., 2016) and a growing number of third-party providers are enabling sales through their platforms. Customers can now compare prices and information more easily (Wang & Wright, 2020) and car dealers consider this a threat (Krämer & Kalka, n.d.).

In addition, service innovations will be crucial for the automotive retail sector (Proff et al., 2019). It is already apparent that more people are leasing cars instead of buying (Sultan, 2010), especially customers who prefer simplified maintenance processes (Trocchia & Beatty, 2003). As a result, manufacturers and dealers are looking for new ways to sell cars (Proff et al., 2019).

2.1.3 Characterization of the German automotive market

The German market is the largest car market in Europe (Ritter & Vance, 2012). Sales here have not declined in recent years (Ritter & Vance, 2012), but have stagnated (Statista, 2020a; Buehler et al., 2016). Every year between 3 and 3.5 million new cars are sold in Germany (Statista, 2020a). Even during the Corona pandemic in 2020, more than 2.9 million new cars were sold (DAT, 2021). With a market share of 18%, VW is the best-selling brand, followed by Mercedes-Benz with 10.1% (Statista, 2020b; www.kba.de, n.d.).

2.1.4 Common forms of financing

A distinction can be made between cash purchase and financing. In the case of a cash purchase, the car becomes the property of the buyer immediately. In the case of financing, a distinction can be made between forms that lead to ownership and those that do not. The forms of financing that do not lead to ownership include leasing or car subscription, where leasing contracts are usually entered into for three to four years. The car subscription is more flexible. In both leasing and subscription, at the end of the term, the car is returned to the provider.

In the case of financing through an instalment loan via the independent bank or manufacturer's bank, an instalment is paid monthly by the customer. In addition, a down payment and possibly a final instalment is made. After that, the car becomes the customer's property.

So-called 3-way financing is also common in Germany. The customer pays a down payment and monthly instalments. At the end of the contract, the customer can return the car (no ownership), buy it for the residual value (ownership) or continue financing until a final instalment is made (ownership) (Baumgarten & Gerhäuser, 2021).

According to the latest DAT Report, financing, both credit and three-way financing, made up 62% of new car sales in the private sector in Germany in 2020 (+7% compared to 2019). Leasing is the second largest pillar with a market share of 22% and cash purchases only account for 16% (-7%) (DAT; 2021).

2.2 Services in product industries

Car subscriptions and other services are becoming more significant within the automotive industry and it is important to understand the potential impact of car subscriptions on the automotive industry.

Car manufacturers are examples of consumer goods manufacturers (Mahut et al., 2015; Copeland et al., 2011). Today, however, cars are no longer seen as stand-alone products, but rather integrate different stakeholders, devices, functions and data into interrelated systems of value creation (Svahn et al., 2017). Most car manufacturers remain product-centric organisations (Mahut et al., 2015), and despite the ongoing digitalisation process, their business models have remained largely unchanged. However, familiar business models are being challenged by new entrants such as Tesla or Uber (Grieger & Ludwig, 2018). From a management perspective, many companies are not sufficiently engaged in creating innovative services (Suarez et al., 2013) or product-services-systems that can create new customer benefits and value (Boehm & Thomas, 2013).

Adapting a service-dominant logic could, according to Vargo and Lusch (2004), help companies restructure their business models away from selling products and towards simply enabling access (Lovelock & Gummesson, 2004). In this way, companies hope to gain competitive advantages (Grieger & Ludwig, 2018; Suarez et al., 2013) and to create new sources of income, such as recurring payments (Suarez et al., 2013). Suarez et al. (2013) posit this trend towards being a service as an inevitable life-cycle process through which different product industries pass. Furthermore, new technologies are enabling companies to better track customer usage, enabling, for example, pay-per-use or access-based services (Lambrecht & Skiera, 2006).

2.3 Changes in consumption and mobility behaviour

2.3.1 Access-based consumption

Ownership is historically the dominant consumption model (Bardhi & Eckhardt, 2012). The two biggest purchases in a consumer's life are buying a house and a car (Chandra et al., 2015). However, as society becomes more fluid and people's lives more unstable, they are less inclined to own or hold onto things (Bardhi & Eckhardt, 2012).

Non-ownership services (Lovelock & Gummesson, 2004; Moeller & Wittkowski, 2010), offer an alternative to ownership. They can be defined as services whereby clients are granted certain rights of ownership of an asset and a certain degree of freedom in the use of the asset for a certain period of time, with the burden of ownership remaining with the owner (Wittkowski et. Al., 2013; Moeller & Wittkowski, 2010; Lovelock & Gummesson, 2004). Service providers can create the following value propositions for non-ownership services: Reducing the cost of

ownership, releasing limited management capacity to focus on opportunities that can develop high value, and entrepreneurial agility and leverage (Ehret & Wirtz, 2010).

The term access-based services is more common today, but refers to the same concept (Bardhi & Eckhardt, 2012). Access-based services (Acquier et al., 2017; Bardhi & Eckhardt, 2012) are growing in popularity in a variety of forms (Prieto et al., 2019; Trocchia & Beatty, 2003) and are enhanced by the Internet (Bardhi & Eckhardt, 2012). These access-based services enable customers to receive physical goods, for example, for a certain period of time. They pay an access fee (Bardhi & Eckhardt, 2012; Durgee et al., 1995). However, ownership does not pass to them, but remains with the service provider. Access therefore relieves consumers of ownership obligations (Bardhi & Eckhardt, 2012). Customers, thus, have the opportunity to acquire access to networks or products that they otherwise could not or would not want to afford (Lovelock & Gummesson, 2004).

Access and sharing are similar, as both consumption models do not involve transfer of ownership and are utilitarian (Bardhi & Eckhardt, 2012). However, they differ in that access is not altruistic or social as it is with sharing (Belk, 2010; Moeller & Wittkowski, 2010), but it is an economic exchange (Bardhi & Eckhardt, 2012).

2.3.2 Changes in mobility behaviour

Germany has one of the highest motorisation rates in the world (Buehler and Nobis, 2010), private cars dominate passenger transport today. However, this seems to be changing (Svennevik, 2019; Kühne et al., 2018). Car travel is decreasing in Germany and other industrialised countries (Kuhnimhof et al., 2012b). Kuhnimhof et al. (2013) recognise the so-called "peak car" trend within this long-term decline – the peak of car use has been surpassed and the market appears saturated (Thakuriah et al., 2010).

The decline in car ownership and car travel is particularly noticeable among young people who live in cities (Kuhnimhof et al., 2012a; Kuhnimhof et al., 2012b). Car ownership is becoming less interesting for them due to various factors, e.g. rising maintenance costs (Belk, 2014) and car's losing their role as a status symbol (Firnkorn & Müller, 2011). In rural areas, however, there is no sign of a decline in car ownership among young people (Thakuriah et al., 2010). Among older people, the number of trips by car is increasing (Kuhnimhof et al., 2012b; Buehler & Nobis, 2010).

However, the need to travel, across all age groups and regardless of car availability, has increased (Kuhnimhof et al., 2013). This is due to the growing trend towards the use of alternative modes of transport (Kuhnimhof et al., 2013). Despite the high density of motorisation, the modal split in Germany is more differentiated than many other industrialised countries (Buehler & Nobis, 2010) and the shift towards more multimodality is continuing to increase in Germany (Kuhnimhof et al., 2012a).

Education, income, and population density also play a role in renouncing car ownership (Kühne et al., 2018). Granular knowledge about the influence of different life circumstances on car ownership decisions is limited (Oakil et al., 2013). Furthermore, Chowdhury and Ceder (2016) recognise that once a car is purchased, it is no longer considered a luxury good but a necessity.

2.3.3 Mobility-as-a-Service

The changes described above mean that companies in the automotive industry are now increasingly offering access-based products in addition to ownership-based products (Jittrapirom et al., 2017) to retain customers (Krämer & Kalka, n.d.). One possible approach is Mobility-as-a-Service (MaaS) services (Buss et al., 2016). MaaS is a more recent mobility concept (Jittrapirom et al., 2017), and current examples range from car sharing (Le Vine & Polak, 2015; Wilhelms et al., 2017) and car subscriptions, to intermodal transport services.

MaaS can be defined as a disruptive business model that solves mobility needs of users through a single interface, website or app, of a service provider. According to Christensen (1997), disruptive business models take root in growing or niche markets based on their improved functions, better performance and the fact that they are easier to use. They then migrate from early adopters to the mainstream market.

The main feature of MaaS is the bundling of services to offer a mobility package tailored to the needs of customers (Jittrapirom et al., 2017). Another definition of MaaS explains that it is a mobility solution that can be personalised for customer needs and that it provided more sustainable transport (Buss et al., 2016). Implementation of innovative services such as MaaS will contribute to the shift from ownership-based models to an access-based transport system (Bardhi & Eckhardt, 2012; Jittrapirom et al., 2017; Prieto et al., 2019). Thus, MaaS has the potential to provide an alternative to private vehicle ownership (Chowdhury & Ceder, 2016; Jittrapirom et al., 2017; Wilhelms et al., 2017).

For purposes of this thesis, another common definition of MaaS will be employed. This definition states that cars are not bought, owned, maintained and used by individuals, but that access is granted to different users on a pay-per-use or subscription basis (Le Vine & Polak, 2015; Jittrapirom et al., 2017). From the customer's perspective, the advantage of these access-based services relates to flexibility (Bardhi & Eckhardt, 2012).

Established car manufacturers now offer various forms of MaaS as do many third-party providers such as Uber, Lyft or blablacar (Belk, 2014). Ride sharing companies with access-based consumption models are putting pressure on incumbents causing lower car purchases and ownership (Boesler, n.d.). Younger people in particular are the most frequent users of MaaS offerings (Prieto et al., 2019).

2.4 Subscription business models

Subscription models with annual or monthly payments are not new pricing models. Before digitisation, companies were using subscription models to gain customer loyalty or to maintain basic capacity utilisation of production (Krämer & Kalka, n.d.). Subscription models are an efficient mechanism for creating customer loyalty (Krämer & Kalka, n.d.) and in its digital version it can be considered as a non-ownership or access-based model.

2.5 Car subscriptions

Car subscriptions are a fairly new phenomenon (Joas & Deinlein, 2019). Just like ride sharing or car sharing, car subscriptions are part of the MaaS ecosystem (Buss et al., 2016; Jittrapirom et al., 2017). Users can get access to a car or pool of vehicles with the purchase of a subscription, and everything is done largely paperless (Buss et al., 2016).

2.5.1 Customer side

Car subscriptions represent an alternative to purchasing or leasing. They are most comparable to traditional private leasing where customers pay a monthly fee and insurance, taxes, repairs and maintenance are already included with only fuel being an overhead. However, unlike leasing, with contract terms of 2-3 years (Sultan, 2010), the customer can usually cancel the subscription on a monthly basis (Joas & Deinlein, 2019; Buss et al., 2016).

From the customer's point of view, the main advantages of the subscription model are reduced commitment costs and added flexibility. There are no large one-off payments or long contract terms (Joas & Deinlein, 2019). Depreciation associated with purchases, especially of new cars,

also promotes a decision to subscribe (Buss et al., 2016). In addition, subscription users can change their vehicles regularly, depending on the package. By accessing a vehicle pool (Buss et al., 2016), it is possible to drive a convertible in summer and a four-wheel drive vehicle in winter (Joas & Deinlein, 2019). Customers can thus expand their vehicle usage options (Prieto et al., 2019; Bradhi & Eckhardt, 2012) and adapt them to their needs (Peters et al., 2014).

2.5.2 Company side

When buying a car, the manufacturer or dealer receives a large single payment on top of the purchase price, whereas in the case of leasing the customer is bound to the company for several years. MaaS services, such as car sharing or rentals, do not bind the customer to a particular vehicle, and the short sharing or rental periods mean that no large sums of money flow to the provider (Joas & Deinlein, 2019). With car subscriptions, on the other hand, customers are bound to the dealer or manufacturer for at least one month and regular payments are made (Joas & Deinlein, 2019; Buss, Chacko, and Bauer, 2016). Leasing offers should be regarded as a benchmark for pricing (Joas & Deinlein, 2019).

According to Joas and Deinlein (2019), car manufacturers should look into this business model, otherwise new entrants could become a threat. First, manufacturers would lose direct customer contact, as third-party platforms for car subscriptions would intervene between the customer and the manufacturer. Furthermore, similar to other MaaS offerings such as ridesharing, manufacturers may simply become suppliers of vehicles. They must, therefore, expand into customer-specific offers, pricing oriented to customer value, and fleet management (Joas & Deinlein, 2019). Dealerships, on the other hand, could bring similar offers to the market by cooperating with technology start-ups (Buss et al., 2016).

Efficient fleet management may become particularly important for suppliers. Due to depreciation, it is not advisable to offer new cars on a subscription basis, but rather younger used cars. If a vehicle is too old for car subscriptions, at some point it can be integrated into other MaaS services such as car sharing (Joas & Deinlein, 2019).

2.5.3 Market overview

There are about 44 car subscription providers in Germany. The following information was extracted from the providers' websites as well as from a blog post by Siebert (2020).

Manufacturers

Some car subscriptions from manufacturers are available throughout Germany. These include "Care by Volvo", "Abo-a-Car" by Volkswagen Financial Services, "CONQAR" by SEAT or "KINTO FLEX" by Toyota. Other car subscriptions are only available regionally. There are differences not only in availability but also in the scope of the subscriptions. Volvo offers a 30-day trial period, Volkswagen offers a minimum subscription period of three months. SEAT requires a lead time of 12 weeks, while Cadillac vehicles are available within 48 hours. At Mercedes-Benz, customers can change their vehicles twelve times a year. The basic principle is evident in all offers, but they differ in the details.

Start-ups

Start-ups penetrated the market early on. The largest providers on the German market include Cluno, finn.auto, like2drive, Faaren and ViveLaCar. Some providers such as ViveLaCar are to be classified as asset light, as they only regulate the mediation and conclusion of contracts between customers and dealers through their platform and retain a commission for this. In contrast, providers such as Cluno are to be classified as asset heavy, as they purchase fleets of vehicles and then offer them to their customers. Some of these start-ups, for example "Sorglos günstig fahren", are backed by large automotive trade groups

Car rental companies

On the car rental company side, there is currently only one provider of car subscriptions. SIXT offers its subscription under the name "SIXT+" through branches throughout Germany. The company already has a large fleet of rental cars and integrates them into the subscription model, where individual cars can be used for a maximum of 12 months.

2.5.4 Car subscriptions in Germany

Exact figures on car subscribers in Germany are not available as many providers do not publish user figures (Krämer & Kalka, n.d.). A study by the CAR institute suggested that 42,000 cars were newly registered in Germany in 2020 through car subscriptions. This amounts for about 3% of all new registrations in the private market (Wittler, 2021). However, a survey by Krämer and Kalka (n.d.) on the perception of car subscriptions in Germany showed that only 11.7% of the respondents knew about car subscriptions. 58.1% had never heard of this model of car use. A study by Oliver Wyman, on the other hand, showed that 26% of those questioned would be interested in a car subscription (Joas & Deinlein, 2019).

The most positive aspects are taken to be the assumption of maintenance costs, short-term cancellation options and predictable costs (Krämer & Kalka, n.d.). The most positive feature according to the study by Oliver Wyman is the possibility of frequent car changes (Joas & Deinlein, 2019), but a study by Krämer and Kalka (n.d.) found that this was only perceived as an advantage by 52% of those surveyed.

There is, thus, still considerable uncertainty in the market regarding car subscriptions.

3 METHODOLOGY

3.1 Research design

The methodology underlying this dissertation is qualitative primary and secondary analysis. First, for the secondary analysis, the literature already described in chapter 2 was used to gather knowledge and relevant information on the topic of car subscriptions. This served as the basis for the primary analysis.

To complement the findings from the secondary analysis, a two-part qualitative primary analysis was conducted. First, an online customer survey was undertaken to determine respondents' opinions and attitudes towards car ownership, mobility behaviour and attitudes towards car subscriptions. Hypotheses were formulated to evaluate the survey, which were then verified or falsified with the results of said survey.

For further primary data collection, expert interviews were then conducted with representatives of manufacturers, start-ups, trade groups, classifieds platforms and research institutes. These findings as well as insights from a in-depth literature analysis were then used in a scenario analysis after Schoemaker (1995) to create three scenarios describing the future development of car subscriptions in the German market.

3.2 Data collection

3.2.1 Primary data collection

3.2.1.1 Customer survey

On the basis of the findings from the literature review, empirically verifiable hypotheses on the perception of customers towards car subscriptions were developed. These will be presented in chapter 4 and validated in chapter 5.1.4. To validate these hypotheses, a customer survey was

created. The aim of this survey is to identify findings on mobility behaviour, car ownership, attitudes towards car subscription as well as concerns and requirements for subscriptions.

3.2.1.2 Expert interviews

Since the literature on this topic is limited, semi-structured interviews were conducted with experts from various players to gain further insights into the topic of car subscriptions. For this purpose, a guideline was created, which was slightly adapted depending on the interview partners. The experts are not mentioned by name in this paper but were anonymised in order to obtain the most unfiltered results possible. During the interviews, notes were taken that were incorporated into the scenario analysis according to Schoemaker (1995). These notes can be found in the appendix.

3.2.2 Secondary data collection

In order to supplement the experts' statements and the results of the survey, the literature review already described in the second chapter was supplemented by a further, more in-depth literature review. This dissertation mainly makes use of Grade-A papers, official figures from various German authorities, the websites of car subscription providers, white papers and studies by renowned management consultancies as well as a few newspaper articles. The insights gained are not presented in a separate chapter, but flow directly into the scenario analysis.

3.3 Scenario analysis

To determine the influence of car subscriptions on the German automotive market, a scenario analysis was conducted. In doing so, this dissertation will follow the framework according to Schoemaker (1995). After describing the scope of this scenario analysis at the beginning, the next step is to list the most important stakeholders that would be affected by a greater market penetration of car subscription. Then the main underlying trends are presented and briefly explained. The same is done with the main uncertainties that affect the spread of car subscriptions. The data needed for this is extracted from the expert interviews and from an in-depth literature review. The three scenarios are then formed. The trend scenario describes the foreseeable development, whereas the conservative and optimistic scenarios represent the respective positive and negative extremes depending on the trend scenario. These three scenarios represent different degrees of market penetration. In all three cases, it is then shown how the individual stakeholders will behave and how it would affect the market dynamics.

Finally, the author comments on the scenarios, assesses them according to their probability of occurrence and presents the impact.

4 HYPOTHESES PREPARATION

As already described in the literature review, people who live in urban areas tend to forego car ownership due to various reasons such as a lack of parking space and a good offer of public transport. The flexibility that the car subscription brings with it, for example through short contract terms, should therefore be particularly appealing to city dwellers. This leads to the following hypothesis:

H1: People living in big cities show greater interest in car subscriptions than people living in more rural areas.

A main argument for the car subscription is flexibility. It is supposed to make car ownership more flexible, reduce the financial obligation and make it possible to try out different models. However, car ownership is still important in Germany, which is why it can be assumed that the car subscription does not generate much interest among people who currently own a car. Car subscriptions might appeal to people who do not currently own a car and for whom car ownership is therefore not very important. The following hypothesis can be derived from this:

H2: People who do not own a car show more interest in car subscriptions than people who currently own a car.

Young survey participants in particular often have a flexible lifestyle in which owning a car is often a hindrance. Therefore, it is assumed that younger survey participants show greater interest in the car subscription than older survey participants. The following hypothesis was derived from this:

H3: People under 35 years of age evaluate the car subscription more positively than people older than 35 years of age.

Car subscriptions can be seen as a more flexible, all-inclusive variant of traditional leasing. Therefore, it would be informative to know how respondents who already lease or have leased cars think about car subscriptions. Based on their experience with leasing and the presumably lower interest in car ownership, it is assumed that this group of people is more likely to be interested in car subscriptions than people who prefer cash purchase. This leads to the following hypothesis:

H4: Customers who have had experience with leasing (private or business) are more inclined to use a car subscription in the future than people who are more likely to buy.

It is assumed that the respondents have a wide range of preferences regarding the form of financing used, whereby the respective costs could play a role. Therefore, it should be investigated which form of financing the respondents would choose in relation to a certain vehicle category, if the total cost of ownership is the same. It is assumed that the car subscription will perform better than cash purchase, leasing and financing due to its flexibility and the all-inclusive principle, whereby the greatest differences in perception should be between leasing, financing and the subscription. The perception between cash purchase and subscription should be due to price-independent and ownership-related preferences.

H5: If the total cost of ownership for cash purchase, leasing, financing and car subscription are the same over the term, then the respondents rate the car subscription better than the other forms of financing.

Car subscriptions are mainly offered online. The entire booking process and the signing of the contract takes place online, and in some cases the provider also delivers the car to the customer. Nowadays, car buyers visit their trusted dealer about twice before buying a car. Likewise, customers often remain loyal to their dealers. Therefore, it is assumed that despite a completely digital booking process, the dealer will continue to be seen as the provider of choice for car subscriptions. However, it is assumed that this is mainly the case with older respondents and that younger people do not attach much importance to personal contact with the dealer. Therefore, the following hypothesis was derived:

H6: Older respondents prefer their local dealer as a car subscription provider, whereas younger respondents would lean more towards the start-up as a provider and prefer the completely digital, impersonal booking process.

5 FINDINGS

5.1 Qualitative customer survey

5.1.1 Survey design

The online survey was conducted between 23.02.2021 and 07.03.2021. An online survey to ascertain opinions on car subscriptions was preferred to other methods such as focus groups in order to obtain a larger sample. Since the topic of this thesis is related to the German market and the opinions on car subscriptions of potential car buyers in Germany should be collected, the survey was written from scratch in German. This should reduce possible language barriers and present the concept of car subscriptions in a more understandable way.

The survey was divided into three parts. In the first part, the participants were asked questions about their mobility behaviour, car ownership, the types of financing used as well as their attitude towards car (ownership) itself. In the second part, questions were then asked about the car subscription itself. These included questions on the general evaluation of car subscriptions, the requirements and concerns, and a comparison with other forms of financing. Finally, biographical details were gathered.

5.1.2 Sample composition

241 people completed the survey in its entirety. Of these 241 survey participants, 51% were female and 46% male. Almost 70% of the participants indicated that they were younger than 35 years. 71 people (29.5%) said they were between 18 and 24 years old, 95 people (39.4%) were between 25 and 34 years old. 75 people (27%) were between 35 and 64 years old and thus belonged to the group of people responsible for the majority of car purchases in Germany.

The participants were asked about their place of residence and 63 persons (26% each) stated that they lived either in a rural area with a medium-sized town in the immediate vicinity or in a medium-sized town itself. 12.1% (29 persons) lived in large cities with more than 100,000 inhabitants, 23.8% or 57 persons lived in large cities with more than 500,000 inhabitants. The

majority (55%) stated that they had some degree of higher education, 50% or 120 people stated that they were employed and one third were students at the time of the survey.

5.1.3 General findings

Respondents reported having an average of 1.65 vehicles per household, with about 28% of the vehicles being mid-size, 23% belonging to small cars and 13.7% to compact cars. 30 people did not own a car in the household at the time of the survey. Two thirds of the respondents used their car several times a week (37% daily, 30% several times a week) and 62.8% of the respondents travelled less than 1,000km by car per month.

As expected, the majority of cars had conventional powertrains (51.3% petrol, 34.2% diesel) and only 20 cars had alternative powertrains (12 hybrids, 5 electric, 3 gas). More than half said they drove cars from German brands. About 40% acquired at least one of their currently owned cars as a used car, 27% acquired new cars and 18% year-old cars.

57.1% of respondents used cash as the method of purchasing for the cars they currently owned. Financing (15.2%) and business leasing (8.9%) were the second and third most popular forms of financing. 20 people reported currently using private leasing for at least one of their cars. No respondent was using car subscriptions at the time of the survey.

The Net Promoter Score, or NPS, was then used to determine respondents' attitudes towards car ownership. On average, respondents rated the importance of ownership at 6.6 out of 10, suggesting, that the respondents had a slightly positive attitude towards car ownership.

Perception of car subscriptions

When asked if the participants were aware of car subscriptions, 50.4% stated that they had never heard of car subscriptions. 23.2% did not know exactly what car subscriptions were about, 19.2% already knew the concept. Only 3 people stated that they had already used a car subscription in the past. Afterwards, the participants were given a short explanation of the car subscription in order to determine the general attitude towards this form of vehicle use via the NPS.

This revealed that only 10% could be classified as promoters. 35% were neither inclined nor disinclined towards car subscriptions and can therefore be classified as passives. 55% can be classified as detractors, they are not convinced by the concept of car subscriptions. On average,

the car subscription was rated with 6.2 out of 10 points. This results in a Net Promoter Score of -44.94. Accordingly, the vast majority is very sceptical about car subscriptions.

Subsequently, the respondents were given a selection of conditions that they consider important for car subscriptions.

Rank	Requirements	Votes total	Votes prop.
1	Low monthly rate	193	15.3%
2	Termination at short notice	139	11.0%
3	Providers in the immediate vicinity	137	10.9%
4	Kilometre packages to suit your needs	128	10.2%
5	Short contract period	116	9.2%

Figure 1: Top 5 requirements for car subscriptions. Own depiction.

Respondents were also asked about the concerns they have about car subscriptions. The five concerns with the most votes are listed below:

Rank	Concern	Votes total	Votes prop.
1	Additional costs incurred on return of the vehicle	136	16.8%
2	Fear of hidden costs	130	16.1%
3	I prefer ownership	105	13.0%
3	High costs for additional free kilometres	105	13.0%
5	No provider near me	88	10.9%

Figure 2: Top 5 concerns for car subscriptions. Own depiction.

5.1.4 Hypotheses validation

H1: The survey asked respondents about the size of the city they live in (Q26 in survey, see appendix). Rural community, small town, medium-sized town and large city were available for selection. It is convenient here to divide the response options into two categories, large cities with more than 100,000 inhabitants (n = 86) and smaller cities with up to 100,000 inhabitants (n = 154).

In Q11, respondents gave a rating on car subscriptions. They rated the subscription from 0 to 10 using the Net Promoter Score (NPS). It was found that people living in big cities rated the

car subscription on average with 6.54 out of 10 points, whereas people not living in big cities rated the subscription on average with 5.95 points, about 0.6 points lower. In order to be able to evaluate these differences, a t-test was carried out. The confidence level is 95% and the significance level is 5%. The p-value here is 0.043. Thus, the size of the place of residence has influence on the evaluation of car subscriptions. In addition, a linear regression was undertaken. The size of the place of residence is beta 1. $B1 = 1,203$, which means that with an increase of one unit in B1, the evaluation of subscriptions increases by 1,023. This value is statistically significant. The F-statistic is 24.38 and therefore far from 1. With a rather small sample size of 240 data points, this could mean that there is correlation between the size of the place of residence and the evaluation of car subscriptions. Thus, statistical significance obtains.

This means that a difference between the places of residence does result in a delta in the evaluation of car subscriptions, which is why hypothesis 1 is validated.

H2: Respondents were also asked about the number of cars that their household has at its disposal at all times (Q1). To verify or falsify the hypothesis, the choices are also divided into two groups, people with (n = 211) and without cars in the household (n = 28). Q11 is used again to test the hypothesis.

When calculating the average rating of car subscriptions depending on car ownership, it was found that people who own a car gave the subscription an average of 6.17 points, whereas people who do not own a car rated the car subscription with 6.18 points. The p-value here is 0.128, which is why the null hypothesis cannot be rejected. It can be deduced from this that car ownership has no influence on the evaluation of car subscriptions. In the subsequent linear regression showed as well, that there is no correlation between car ownership and the rating of car subscriptions. Hypothesis H2 is falsified.

H3: 165 people reported being younger than 35 years old, whereas 72 people reported being older than 35. The younger group rated the car subscription in Q11, on a scale of 0 to 10, on average with 6.4 points, older persons rated it with 5.6 points. The t-test yielded a p-value of 0.36, which is why the null hypothesis can be rejected. Age thus plays a in the evaluation of car subscriptions. A linear regression showed that there is a correlation between age and car subscription rating, as the F-statistic of 27.365 is far from 1. The result is statistically

significant. The age of the respondents thus plays no role in the evaluation of car subscriptions, which leads to hypothesis H3 being falsified.

H4: In Q7, customers were asked about the types of financing they currently use for the cars in their household. The respondents were divided into two groups, respondents who use leasing (n = 43) and respondents who do not use leasing (n = 167). The aim is now to determine whether experience with leasing has an influence on the evaluation of car subscriptions. People who use leasing gave the car subscription an average rating of 6.6 points, people without leasing experience gave the subscription an average rating of 6.0 points. The p-value is at 0.142. This, is why there is no statistical significance and the null hypothesis “that leasing experience has no influence in the evaluation of car subscriptions“ cannot be rejected. The regression proved that there is no correlation between leasing and subscription. Hypothesis H5 is thus falsified.

H5: Regardless of the total cost of ownership (TOC), the participants were asked about their preferred form of financing for cars from various categories. Respondents were asked to rank the four forms of financing from 1 to 4, with rank 1 being the first choice. The following table shows the average rankings broken down by vehicle category.

Car category	Cash purchase	Financing	Leasing	Car subscription
Small and compact	1.58	2.57	3.05	2.81
Mid-size	1.85	2.46	2.95	2.73
SUV	2.26	2.47	2.81	2.46
Sportscar/convert.	2.37	2.55	2.86	2.23
Electric car	2.42	2.60	2.83	2.15
Avg. Ranking	2.09	2.53	2.90	2.48

Figure 3: Average rankings of the four financing options for five different car categories. Own depiction.

Overall, cash purchases came out as the most popular, with an average rank of 2.09. The car subscription, on the other hand, lands in second place with an average rank of 2.48. The car subscription accordingly lands in second place and is preferred by respondents over financing and leasing, with the difference to leasing being significantly greater. Cash purchase performs best, which is why hypothesis H6 cannot be confirmed.

H6: Here, the age breakdown from the evaluation of hypothesis H3 is used again. In Q15, respondents had the opportunity to choose their preferred car subscription provider. Multiple choices were possible.

	Younger than 35 (n = 165)		Older than 35 (n = 72)	
Provider	Votes total	Votes prop.	Votes total	Votes prop.
Manufacturer	104	26.6%	24	19.8%
Authorised dealer	90	23.0%	33	27.3%
Independent dealer	42	10.7%	12	9.9%
Start-up	55	14.1%	12	9.9%
Car rental companies	76	19.4%	13	10.7%
I would not subscribe	24	6.1%	27	22.3%

Figure 4: Preferred car subscription providers by age groups. Own depiction.

It can thus be seen that preferences do not differ greatly between age groups. Both groups rank authorized dealers and manufacturers at the top, while ranking start-ups only fourth. Hypothesis H6 therefore cannot be confirmed.

5.2 Scenario analysis

5.2.1 Definition of scope

The aim of our scenario analysis is to develop three scenarios for the development of the car subscription model in the German car market relying on Schoemaker (1995). This market includes private customers as well as commercial customers, who are responsible for the majority of the annual new registrations. In the commercial sector, full-service leasing is already widespread (Interview A, 2021), and car subscription is merely a more flexible alternative. Since car subscriptions were originally developed primarily for the private customer market (Interview C, 2021), as there is no equivalent to full-service leasing, this scenario analysis is limited to the development of car subscriptions in the private customer market. Likewise, the time horizon of the scenario analysis is limited in time in order to exclude developments in the more distant future (Schoemaker, 1995). Therefore, scenarios for the

development of car subscriptions in the German private customer market up to the year 2030 are formed and analysed.

5.2.2 Major stakeholders

According to Schoemaker (1995), when analysing potential scenarios, individual stakeholders influenced by the change need to be addressed. These stakeholders are divided into primary stakeholders who drive the change, secondary stakeholders who are affected by the change, and tertiary stakeholders who experience indirect benefits or losses from the spread of car subscriptions. For overview purposes, these stakeholders are presented in the following table.

Primary Stakeholders	Secondary Stakeholder	Tertiary Stakeholder
<ul style="list-style-type: none"> - New entrants like Cluno or ViveLaCar - Manufacturers - Car rental companies (SIXT in particular) - Fleet management companies like FleetPool 	<ul style="list-style-type: none"> - Automotive trade groups - Car dealerships - Insurance companies - Banks - Customers 	<ul style="list-style-type: none"> - Public transport - Car sharing companies - Ride hailing/pooling companies - MaaS platforms

Figure 5: Overview of primary, secondary, and tertiary stakeholders affected by spread of car subscriptions. Own depiction.

Primary stakeholders

Car subscriptions, like other disruptions (Christensen, 1997), were introduced to the market by newcomers instead of incumbents. Among the pioneers are companies like Cluno and like2drive. About 4 years ago, the first car subscription offers came onto the private market. However, the new car sales volume generated by this new form of financing are currently still very low. With new registrations amounting to about 1.3 million vehicles in Germany per year, the 40,000 or so cars sold via subscriptions are still barely significant (Interview B, C, 2021; Wittler, 2021). It corresponds to a market share of about 3%.

New entrants are driving the development of car subscriptions and are strongly oriented towards the needs of customers (Interview C and D, 2021). They are engaging in strong marketing activities to gain market share during this early phase of market penetration (Interview A, B, and C, 2021). Due to the price pressure, hardly any money is being earned on the customer’s end at the moment. It occurs mainly in the background through economies of scale during

vehicle procurement and with insurance and maintenance framework contracts, if the provider follows an asset heavy strategy and manages its own vehicle fleet (e.g. Cluno or finn.auto). Therefore, fast scaling is very important but also highly complex for them (Interview C, 2021). If, on the other hand, the company follows an asset light strategy and provides dealerships with a platform to offer car subscriptions (e.g. ViveLaCar) and thus to monetise their inventory, scaling is easier (Interview B, and D, 2021) and could happen through continuous onboarding of new dealerships. In both cases, start-ups would have to differentiate themselves from other providers like fleet providers and car rental companies. They will achieve this by more intensively focusing on customer needs and creating customer centric operations around their offering. (Interview D, 2021).

For manufacturers, the topic of customer centricity is also increasingly coming to the fore (Jittrapirom et al., 2017), whereby the development of the car subscription comes in handy for them. They are increasingly adopting agile ways of thinking and working to meet customer needs, instead of pushing a product onto the market in the traditional way (Interview C, 2021).

Manufacturers have entered the car subscription market somewhat later and to varying degrees. Volvo for example is pushing the car subscriptions strongly (Interview B and C, 2021). Most manufacturers, however, are still restrained, and car subscriptions hardly play a role in their total sales (Expert B, C, 2021). Additionally, manufacturers must decide between binding the car and the customer to themselves through the subscription or selling the car directly to the customer or dealership. This depends on the respective sales targets of the manufacturer (Interview D, 2021) as well as on their willingness of taking over financial risk (Interview C, 2021).

Manufacturer interest lies above all in introducing customers to purchasing cars online, as there are currently major inhibition thresholds here (Interview A and B, 2021). They also see a threat coming from new entrants and car rental companies in this niche. These providers disrupt the relationship between manufacturers and customers, which could cause manufacturers to lose direct contact to the customers (Interview B, 2021). However, this is countered by the opportunity to bind customers to the brand via the car subscription. The classic car purchase involves a one-time payment of a large sum, followed by the handover of the vehicle. The customer has to be re-engaged for maintenance and insurance offers each time. The subscription would tie the customer to the brand, similar to leasing, but without the possibility to freely choose insurance or service offers (Interview B, C, and D, 2021).

The manufacturers are in a power position. They can enter into cooperation with various new entrants, setting up the subscription model together with them or preventing certain models of their brands from being offered by these providers. This creates a certain dependency of the new entrants on the favour of the manufacturers (Interview B, 2021). Likewise, manufacturers already offer the individual components that are part of the car subscription as part of leasing or via service contracts. The infrastructure for rolling out car subscriptions is given by the branch and dealership network, which is why a rapid introduction of the car subscription might be possible (Interview B and C, 2021).

For car rental companies, the car subscription offers the possibility to somewhat easily offer new services in the B2B and B2C business. Since they already have the corresponding structures and processes in place through their car rental business, introducing car subscriptions into their product portfolio would mean quite little effort. In addition, car subscriptions could potentially compete with long-term rentals, which is why car rental companies want to take on this business themselves (Interview C, 2021). Furthermore, their inherent operations provide them with an advantage at this early stage of market penetration (Interview B and C, 2021). They manage large fleets and thus have standardised processes in place to manage these large fleets. This lays the basis for offering car subscriptions on a large scale. Additionally, they might be able to flexibly distribute their vehicles between different products like short term rental or car sharing (Interview D, 2021).

SIXT, the leading car rental provider in Germany has recognised the opportunity of this new business model. SIXT addresses private customers directly with its SIXT+ offer, but in the background, it concludes contracts with banks for the operational handling of the banks' car subscription offerings. The banks will act as the customer-facing frontend, while SIXT will conclude framework agreements with insurance companies, garages and take over remarketing, vehicle procurement and disposition (Interview C, 2021).

Fleet management companies are also in a leading role in the nascent car subscription market. Similar to car rental companies, they have experience in handling large fleets for their corporate clients. Some of these companies, for example Fleetpool (Wittler, 2021; Fleetpool GmbH, n.d.), already offer this product, both in B2B and B2C markets. Like car rental companies, they have the corresponding processes for the disposition of large quantities of vehicles, the development of framework agreements with insurance companies and workshops, as well as standardised

processes for the purchase and sale of vehicles in place. Thus, hardly any operational structures need to be created from the ground up for offering car subscriptions (Interview D, 2021).

Secondary stakeholders

Various secondary stakeholders are influenced by the development of car subscription models. Large trade groups could benefit from the introduction of car subscriptions through their network of dealers and their experience with remarketing vehicles and existing processes (Interview A, 2021). However, the notion of developing economies of scale already mentioned would probably only apply to the largest trade groups, such as Emil Frey. In particular for remarketing of vehicles, processes are in place that should make it possible to manage large quantities of cars. In addition, the network of car dealerships can provide many physical points of contact for interested customers (Interview E, 2021).

Smaller dealerships will not have the capacity, financially and in terms of personnel, to set up a car subscription business completely on their own (Interview D, 2021). Nevertheless, the car subscription model offers advantages for them, such as the possibility to monetise their inventory until it is sold (Interview D, E, 2021). Therefore, many dealers may well establish a presence on platforms such as ViveLaCar. However, for them, the calculated residual value of the vehicle after the return from the subscription will be the decisive factor for or against adopting car subscription (Interview A, 2021).

Banks and insurers would also be affected by the increasing volume of car subscriptions. Currently, many captive banks, i.e. banks that are tied to manufacturers (DAT, 2021), offer leasing services and are now taking the first steps towards car subscription. However, they lack the operational infrastructure to handle the vehicles, which is why they would probably have to resort to a third-party provider or their manufacturer's fleet management. The same is true for insurance providers (Interview A, 2021).

Finally, customers must be mentioned as secondary stakeholders, since the car subscription gives them another form of car use. Since 84% of new private car registrations are already financed (Interview C, 2021; DAT, 2021), the introduction of the subscription should not meet with aversion. However, it is still unclear which customers will opt for the subscription. (Interview D, 2021). For young people, the monthly rate could often be too high (Interview B, 2021). Nevertheless, customers want to have the greatest possible choice and as little effort as possible, which could play into the subscription's favour (Interview D, 2021). Therefore, some

customers will probably switch from leasing to subscriptions (Interview B, C, and D, 2021). However, since cash purchases are strongly dependent on personal preferences and are declining anyway (DAT, 2021; Interview D, 2021), these customers will not reorient themselves towards subscriptions.

Tertiary stakeholders

A spread of car subscriptions in the German market would also have indirect effects, both positive and negative, on other stakeholders than those already mentioned. Especially in big cities, there is a wide range of mobility services competing for customers. These are characterised by different degrees of flexibility and partly overlap. Car sharing, ride hailing and ride pooling services could be influenced by a proliferation of car subscriptions, depending on user preferences. Constant access to the same vehicle could attract certain customers and take customers away from the other services. However, this raises the question of monthly costs, which are likely to be higher for the car subscription than for the other services (Interview D, 2021). Furthermore, large cities usually have a well-developed network of public transport, which has already lost passengers due to the corona pandemic. A proliferation of car subscriptions could have an impact on them, but it can be assumed that customers will switch back to public transport in the future, after the pandemic is over (Interview A and B, 2021).

5.2.3 Identification of basic trends

Various trends affect the possible spread of car subscriptions on the German market and thus influence the impact of this new business model.

For fewer and fewer customers, cash purchase is the preferred form of financing when buying a car. Only a small group of customers still chooses an all cash purchase. Leasing and credit or three-way financing are becoming increasingly popular with customers and already account for the majority of new registrations (Interview B and C, 2021; DAT, 2021).

Due to the greater need for flexible usage models and access-based consumption (Bardhi and Eckhard, 2021), new services have been developed. Existing usage models, such as leasing, have also been made more flexible and their contract term shortened (Interview A and B, 2021). This has also led to people in Germany keeping their cars for shorter periods (DAT, 2021). The time horizon for classic leasing is two to three years, for financing up to five years and for purchase around ten years. In contrast, the time horizon for a car subscription is between half a year and two years (Interview D, 2021). For customers, there is already hardly any difference

between the financing forms of leasing, financing or subscription; with all three forms, customers have constant access to the car (Interview C, 2021).

Currently, car subscriptions are mentioned rather in passing in the DAT Report, a leading industry report with the most important market insights. This may mean that they only play a niche role, but are already on the rise and could soon become mainstream (Interview D, 2021). Furthermore, various start-ups have managed to obtain new venture capital for the further development of their car subscription offer in the past year. This indicates that the subscription model is seen as having great potential (Interview D, 2021).

Before the global corona pandemic, car ownership in Germany was declining, especially in large cities. Due to the pandemic and the resulting increased caution, more and more people decided to turn to private motorised transport again. Used cars in particular were in high demand in 2020, which is why the supply became increasingly limited (Interview D, 2021; DAT, 2021). However, it can be assumed that the trend towards giving up the car will continue. This is partly due to policies enforced in cities to push cars out of cities and give people more space. Lack of parking spaces and congested roads already make people who live in cities find car ownership unattractive. This will continue to become increasingly prevalent.

5.2.4 Key uncertainties

It is unclear what exact role car subscriptions could play in the used car market. With about seven million new car registrations per year in Germany, this is also a large market. However, findings from used car leasing can facilitate the assessment here. Only about one per cent of these seven million vehicles are financed by leasing (Interview D, 2021). Over time, the residual value curve would decrease while repair cost increase. Therefore, with older cars, the risk for the provider of car subscriptions rises. (Interview D, 2021).

It is also unclear in which areas car subscriptions could be most interesting. Currently, subscription providers find customers mainly in big cities, but as with other technological trends in the past, these people could be first movers. This could mean that people in the countryside will follow suit strongly in the coming years and that the car subscription could thus become primarily a flexible mobility concept in the countryside (Interview C, 2021), where public transport is limited.

The exact customer group to be addressed by the car subscription is also uncertain. The typical car buyer in Germany is 53 years old, but new services are often first adopted by younger

people. Information from various providers indicates that even in this early phase of market penetration, a wide variety of customer groups are addressed (Interview D, 2021).

5.2.5 Scenario Building

Conservative scenario

Experts E and D estimate the share of car subscriptions in the private new car market at about 10% in 2030. With an average of about 3.5 million new registrations in Germany per year, of which about 35% are accounted for by private customers, this would mean that about 130,000 new cars would be registered through car subscriptions. Thus, sales through car subscriptions could roughly triple, assuming 40,000 new subscription vehicles in 2020 (Wittler, 2021). This would make car subscriptions the fourth largest business use case of the private new car market, and thus let them slightly leave their current niche role. Cash purchases, whose share is currently declining, will continue to be the first choice for certain customer groups in 2030. They have not dared to move from cash purchasing to financing or leasing in the past years, which is why it can be assumed that they will not switch to car subscription either (Interview E, 2021).

Leasing and financing will account for significantly larger shares than the car subscription in 2030. Flexibility, for example due to frequent model changes, is partly not in demand, which was also partly confirmed by the survey conducted in this thesis. As a result, customers might opt for longer-term contracts for leasing or financing, often for a lower price than switching to the subscription for a higher rate (Interview D and E, 2021).

From the supplier side, only a few companies would prevail here. These would probably include Cluno, which already has one of the largest subscription fleets. Through the acquisition by Cazoo, Cluno gains access to the necessary infrastructure for remarketing the subscription returns and fresh capital to scale its business (Interview C, 2021). Another company that could catch on is ViveLaCar. Their asset-light approach can be scaled quickly and target dealers across Germany (Interview D, 2021). Rental car companies, primarily SIXT, could establish themselves behind this as a third provider (Interview D and E, 2021) and offer the necessary infrastructure (Interview C, 2021).

Trend scenario

The assessment of experts A and B are used as the basis for the trend scenario. In their view, car subscriptions will account for about 20% of annual private new car sales in 2030, which would represent about 250,000 to 300,000 new registrations. This would mean that new registrations generated by subscriptions would increase about sevenfold over the next ten years. The car subscription would thus rise above the current level of cash purchase and hold about the same market share as leasing. Financing, by credit or as three-way financing, will remain the preferred form of purchase in the German market, although it might lose market share to the subscription. In addition to subscriptions, leasing offers will also become more flexible. Therefore, the boundary between leasing and the car subscription could become somewhat blurred. Together, flexible leasing offers, and the car subscription might account for about 40% of the private new car market.

In this scenario, certain fleet and car rental companies would presumably take care of the complex operations in the background and offer other companies a white label solution through which these companies can offer car subscriptions to their customers. It can be assumed that in this case, however, only the largest trade groups will adopt such a service, as economies of scale are decisive here as well. Only larger trade groups could sell a critical number of cars with this solution to make the effort worthwhile for them. Smaller companies, especially dealers, would be more likely to use a platform solution like ViveLaCar and thus, mainly, address regional customers.

Optimistic scenario

Expert C's assessment of the market potential of car subscription in the German market was different from that of the other experts. He assumed that car subscriptions will rapidly gain importance in the German market and will already account for more than 50% of new registrations in 2030. This would mean that car subscription registrations would approach the level of financed registrations in 2020, about 800,000. This might have a major impact on the other forms of financing. As described in the other scenarios, car subscription will have little impact on cash purchases, which are declining anyway (DAT, 2021). Due to the higher degree of flexibility, subscriptions would become a threat especially for leasing, but the market share of financing will also decline (Interview C, 2021).

In this scenario, there would be a large number of different providers. As described in the other scenarios, providers with asset heavy and asset light strategies will enter the market. Platforms can connect dealers to the market and thus give every dealer the opportunity to offer his inventory as a subscription. This will be contrasted by providers offering their own fleet for subscriptions. These companies will need to operate large operations, which they will build over the coming years or acquire from designated operations providers. These could include rental car companies or large fleet management companies that already have standardised processes for managing large fleets of vehicles and would need to adapt them for the subscription model.

Manufacturers will also add subscriptions to their portfolio in this scenario so that they do not lose touch with the customer in this high market share of car subscriptions. To do so, they would have to invest in their fleet management or, like new entrants, also rely on the expertise of car rental companies or fleet management companies. For the largest German car dealership groups, too, car subscription operations would become a costly affair. Therefore, they too will have to resort to operation providers. In addition, numerous white label solutions could also appear on the market, with trade groups buying in the front end as well as the operations (Interview C, 2021).

5.2.6 Evaluation of scenarios

Car subscriptions and other flexible forms of car use are on the rise in Germany. It can therefore be assumed that the car subscription will escape its current niche role. This development can be compared with the past development of leasing in the private customer market, where leasing has strongly gained market share in recent years (Interview B, 2021; DAT, 2021). The even more customer-focused character of car subscriptions offers further advantages for the customer compared to leasing, which is why it seems hard to imagine that customers will not opt for car subscriptions more often in the future. In addition, cash purchases will become less and less important and financing will also be affected by the car subscription. Thus, it can be assumed that the market share of 10% as it is mentioned in the conservative scenario is estimated too low. Therefore, the conservative scenario is considered to underestimate the potential impact of car subscriptions.

At the other end of the scale is the optimistic scenario, which assumes that the car subscription will become the favoured form of financing in the German market. This scenario assumes that more than 50% of new cars will be sold on the German market in 2030 through car subscriptions

and will thus acquire major shares of the other three forms of financing. As seen in other industries, be it with mobile phone contracts or in music and film subscriptions, the subscription could become the predominant form of financing in the car market (Interview C, 2021). This could completely transform automotive retail, with new entrants such as car rental companies and new entrants taking on important roles and displacing incumbents such as car dealers. However, the car dealership is still seen as the most important source of information when buying a car (DAT, 2021), which is why it seems rather unlikely that this enormous change will occur to this extent in the German market. Thus, it can be assumed that the estimate that more than 50% of new registrations will be played via car subscriptions appears to be overestimated. Therefore, the optimistic scenario is also considered too unlikely.

The trend scenario seems to be the most likely of the three scenarios. Due to the past development of leasing in the private customer business, there is already a reference to guide this assessment. The trend scenario assumes that car subscriptions will account for roughly the same market share of leasing today in 2030. This would mean that about 20% of all new cars registered in the market would be registered via car subscriptions. Presumably, subscriptions would take market share away from leasing in particular, as these two forms of financing are most similar, and the subscription has advantages. The current reluctance to take out a car subscription, as the survey showed, could be an indication that subscriptions will not become the most popular form of financing. However, they are already seen as more interesting than leasing, which is why it is likely that the market share will at least equal that of leasing. Furthermore, the barriers to buying cars online are still very high (Interview B, 2021), which could also indicate that customers would continue to see the dealer as the point of reference for car subscriptions in the future.

6 CONCLUSION

New car registrations in Germany have been stagnating for years and car ownership is becoming less interesting for many people due to lifestyle changes and other factors. This is why various companies in the automotive industry are looking for new ways to offer access-based products to retain customers. The car subscription is a new form of access-based mobility that has only recently been introduced to the market and therefore, its impact on automotive retail is yet to be discovered. Especially, the effects on other forms of financing such as cash purchase, credit

financing or leasing are currently still unclear and should therefore be analysed within the framework of this thesis.

The first aim of this thesis was to find out what influence the car subscription will have on the forms of purchasing already represented on the market. It became apparent that financing, credit financing or three-way financing, is currently used for 62% of newly registered cars in the private sector in Germany (DAT, 2021). Leasing accounts for 22%, while cash purchase only accounts for about 16% and is continuing to decline. The results of this thesis indicate that the car subscription will probably not affect cash purchases because people who still use cash to buy a car are focused on ownership and any form of access-based mobility is not interesting to them. The subscription will have a greater impact on the other forms of purchasing. However, the aim of credit or three-way financing is that the car becomes the customer's property at the end of the term, whereas leasing and subscription customers hand over the car to the provider at the end of the term. Thus, it can also be seen here that the impact on leasing will be the greatest. This is partly due to the fact that the contract terms are shorter with a subscription and at the same time insurance and service are included. The customer survey conducted as part of this thesis also showed that the car subscription was considered more interesting than leasing, which is why it could be deduced that customers will prefer subscriptions to leasing in the future. Thus, the assumption that car subscriptions will take approximately the market share of leasing, as described in the trend scenario, is quite reasonable. This assumption is also confirmed by the statements of experts A and B. A market share of about 20% in 2030, therefore, seems possible.

In addition, the thesis tried to show what effects a wide spread of car subscriptions would have on the German car market. It turned out through the various expert interviews that the flexibility of car subscriptions ensure that massive operations are needed, which is why small companies will hardly have the resources to offer a subscription on a large scale. The experts assumed that only a few large companies such as car rental companies or fleet management companies would be able to take on these operations. Due to economies of scale in purchasing, the conclusion of framework agreements and the disposition of the vehicle fleet, money will mainly be earned through operations. In the front end, there is already a strong price war and providers are trying to gain market share through their pricing, which is why the margins here are low. It is therefore assumed that in the event of the trend scenario occurring, a few companies will manage the operations in the background and besides possibly offer white label solutions that other companies can then acquire in order to offer car subscriptions themselves without having to set

up large operations. Alternatively, platform solutions such as ViveLaCar could be interesting for individual dealerships, as they can monetise their inventory of cars until they are finally sold.

This thesis thus shows that the car subscription is currently still in a niche role but will gain importance in the coming years. The interest of the various companies in the market is therefore justified. However, these companies will take different paths, as this thesis has shown that operations are crucial for success and economies of scale are decisive for profit generation. Leasing in particular would lose market share through the spread of subscription, which is why the assumption mentioned in the problem statement seems to be justified.

The results of this paper present how the car subscription is likely to develop in the German market. They close the gap between the knowledge about the effects of other MaaS services such as car-sharing and the lack of knowledge about the development of this new service. In this way, managers from affected companies are shown what opportunities a wide spread of car subscriptions could bring for them and what hurdles they should expect. For managers from smaller companies such as car dealerships, this work shows that due to the demands on operations, it is probably not desirable for them to set up their service here, but rather to fall back on platform solutions. For large companies such as manufacturers, the topic is more interesting, but it was shown that an internal conflict between customer retainment and financial risk arises here, which the respective companies must solve themselves. However, managers from rental car companies and fleet management companies are shown that they can build up operations for car subscription offers through their existing structures and thus attract new customer groups as well as create new services.

Limitations and potential for future research

240 people took part in the survey conducted as part of this thesis. Thus, the group of participants was quite small, which could have had an impact on the results. A larger group of participants could have probably lead to statistically significant results. In addition, mainly people younger than 35 years answered the survey, whereas the age of the average car buyer in Germany is 53 years. Thus, a survey of people in the over-50 age group could lead to different results. In addition, the majority of respondents said they came from rural areas. However, since the car subscription is currently mainly apparent in big cities, a survey with more participants from big cities could lead to varying results. Also, since only three participants had used car subscriptions in the past, satisfaction with this service could not be assessed.

The methodology of the semi structured expert interviews has limitations as well. On the one hand, it is difficult for them to make accurate predictions about future events. Furthermore, the statements are at least partly subjective opinions and could also be subject to bias. This makes it difficult to gather purely objective findings. This could be at least partially counteracted by a larger number of interviews, as this would allow more heterogeneous statements to be recorded. Nevertheless, after evaluating the five expert interviews, it became apparent that the statements regarding the potential of the car subscription diverged, which is why heterogeneity was achieved. The scenarios created within the scenario analysis are based on the aforementioned expert interviews and could vary if statements from other experts are included. Therefore, there is also the possibility of obtaining different results here.

Due to time and space restrictions, this thesis dealt exclusively with the topic of car subscriptions concerning the private customer market in Germany. However, this new business model is also interesting for the commercial customer market, as was shown in the various interviews, among other things, because the flexibility here could satisfy short-term mobility needs of companies. Therefore, it would be interesting to find out to what extent companies would value the higher costs for the subscription compared to the gain in flexibility. Rental cars are also interesting for commercial customers who want to satisfy short-term mobility needs. Therefore, it might be interesting to analyse to what extent car subscriptions could influence the rental business.

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APPENDICES

Appendix I: Customer survey questionnaire

First part of the survey: questions on mobility behaviour and car ownership

Q#	Question	Possible answers
<p>In the first part of this survey we would like to collect information about your mobility behaviour and your car ownership. Please answer the following questions as good as you can.</p>		
Q1	How many cars are there in your household?	<ul style="list-style-type: none"> - 0 - 1 - 2 - 3 or more
Q2	To which vehicle classes do the cars in your household belong?	<ul style="list-style-type: none"> - Mini/small car - Compact class - Middle class - Upper class - SUV/off-road vehicle - Sports car/convertible - Van/bus - I (currently) do not own a car
Q3	Which engines do your cars have?	<ul style="list-style-type: none"> - Petrol - Diesel - NPG/LPG - Hybrid - Electric - I (currently) do not own a car
Q4	From which region(s) do(es) the brand(s) of your car(s) come from?	<ul style="list-style-type: none"> - Germany - Europe (except Germany) - Asia - North America - I (currently) do not own a car
Q5	How often do you use a car?	<ul style="list-style-type: none"> - Daily - Several times per week - Once a week - Several times a month - Once a month - Rarely - Never
Q6	How many kilometres do you cover with your car per month?	<ul style="list-style-type: none"> - I (currently) do not own a car - Less than 500km - 501km to 1,000km - 1,001km to 1,500km - 1,501km to 2,000km - More than 2,001km

Q7	Which financing models do you currently use for the vehicles in your household? (multiple selections possible)	<ul style="list-style-type: none"> - I (currently) do not own a car - Cash purchase (ownership) - Financing (ownership after last instalment) - Private leasing - Business leasing/company car - Rental car - Car subscription
Q8	In what condition did you acquire your current vehicles? (multiple selections possible)	<ul style="list-style-type: none"> - I (currently) do not own a car - New car - Day licence - One-year-old-car/employee car - Manufacturer-certified used car - Used car
Q9	How important is car ownership for you? (NPS scale 0 to 10)	<ul style="list-style-type: none"> - (Very important, rather important, neutral, rather unimportant, unimportant)

Second part of the survey: questions on car subscription

Q#	Question	Possible answers
Q10	Are you familiar with so-called car subscriptions?	<ul style="list-style-type: none"> - Yes, I have already used a car subscription - Yes, I am familiar with how car subscriptions work - Yes, I have heard of car subscriptions, but I do not know how they work - No, I do not know car subscriptions - I am unsure
<p>Car subscriptions are a new form of car use. Customers have the possibility to get access to a car for a monthly fee. All costs such as insurance, repairs or taxes are already included in the fee. Only the fuel costs need to be paid extra. The contract is often concluded online and can be terminated at short notice. It is also possible to change vehicles during the contract period.</p>		
Q11	On a scale of 0 to 10, how would you rate car subscriptions? (NPS)	<ul style="list-style-type: none"> - Rating from 1 to 10, 10 is the best - 10 = Car subscriptions have clear advantages - 1 = Car subscriptions have clear disadvantages
Q12	What conditions would car subscriptions have to meet for you to be interested? (multiple selections possible)	<ul style="list-style-type: none"> - Low monthly fees - Possibility of frequent model changes - Availability of desired models - Wide range of models - Short minimum terms

		<ul style="list-style-type: none"> - Possibility of termination at short notice - High degree of personalisation of the equipment - Providers in the immediate vicinity - Access to electric cars or hybrid vehicles - Suitable mileage packages for my needs - Replacement car for maintenance or repair - Delivery of the vehicle to your home - Others:
Q13	What concerns do you have about car subscriptions? (multiple selections possible)	<ul style="list-style-type: none"> - I prefer ownership - I do not have sufficient information yet - I do not (yet) trust new offers such as car subscriptions - Hidden costs - Possible additional costs for returning the vehicle - The possibility of personalisation is limited - Small selection of models - No provider in the vicinity - My dealer does not offer a subscription - No concerns - I do not need a car
Q14	For which one of your future cars would you consider a car subscription	<ul style="list-style-type: none"> - Primary car - Secondary car - Tertiary car - Not at all
Q15	Which providers would you consider for subscribing to a car? (multiple selections possible)	<ul style="list-style-type: none"> - Manufacturer - Authorised dealer - Independent dealer - Start-up - Car rental companies - I would not subscribe to a car

Third part of the survey: Car subscriptions compared to purchase, financing and leasing

Q#	Question	Possible answers
Please rank your preferences when purchasing different vehicle classes below.		
Q16	Assuming that the total costs over the lifetime of the car are the same for	<ul style="list-style-type: none"> - Cash purchase - Financing - Private leasing

	cash purchase, financing, leasing and subscription, which of these options would you choose when acquiring a small or compact car? Please rank the following options.	<ul style="list-style-type: none"> - Car subscription
Q17	And when buying a middle-class car ?	<ul style="list-style-type: none"> - Cash purchase - Financing - Private leasing - Car subscription
Q18	And when buying an SUV/off-road vehicle ?	<ul style="list-style-type: none"> - Cash purchase - Financing - Private leasing - Car subscription
Q19	And when buying a convertible or sports car ?	<ul style="list-style-type: none"> - Cash purchase - Financing - Private leasing - Car subscription
Q20	And when buying an electric car ?	<ul style="list-style-type: none"> - Cash purchase - Financing - Private leasing - Car subscription

Fourth part of the survey: general questions about the person

Q#	Question	Possible answers
Finally, we need some personal information about you.		
Q21	Please enter your gender	<ul style="list-style-type: none"> - Male - Female - Divers - Not specified
Q22	Please enter your age	<ul style="list-style-type: none"> - Under 18 - 18-24 - 25-34 - 35-44 - 45-54 - 55-64 - 65 and above
Q23	Please indicate your marital status	<ul style="list-style-type: none"> - Single - In a relationship - Married - Divorced - Widowed

Q24	How many people live in your household?	<ul style="list-style-type: none"> - 1 - 2 - 3 - 4 - 5 - 6 or more
Q25	Is your main residence in Germany?	<ul style="list-style-type: none"> - Yes - No - Not specified
Q26	In which of the following residential areas do you live?	<ul style="list-style-type: none"> - Rural municipality (up to 5,000 inhabitants), with a medium-sized town in the immediate vicinity - Rural municipality (up to 5,000 inhabitants), without a medium-sized town in the immediate vicinity - Small town (population 5,000 or more) - Medium-sized town (population 20,000 or more) - Small big city (100,000 inhabitants or more) - Large city (500,000 or more inhabitants)
Q27	What is the highest degree you have obtained?	<ul style="list-style-type: none"> - No degree - Secondary school certificate - Highschool diploma - Training - Master craftsmen - Bachelor - Master - Diploma - Doctorate
Q28	What is your current profession?	<ul style="list-style-type: none"> - Pupil - Trainee - Student - Employee - Self-employed - Entrepreneur - Retiree - Unemployed
Q29	Please indicate the monthly net income of your household	<ul style="list-style-type: none"> - 0-1,000€ - 1,001-2,000€ - 2,001-3,000€ - 3,001-4,000€ - 4,001-5,000€ - 5,001€ or more

Appendix II: Overview of interviews

Interview ID	Role of interviewee	Company type	Reason for interview
Interview A	Working student (recommended by CEO of company)	Automotive trade group/corporate start-up	Obtain an assessment of car subscriptions from the perspective of trade groups; record expertise in operations
Interview B	Key Account Manager Digital Services	German automotive manufacturer	Obtain an assessment of car subscriptions from the perspective of manufacturers; record their insights on the threat of subscriptions
Interview C	Director Sales and Business Development	Start-up, offering marketing platform for new and used car purchase	Obtain an assessment of car subscriptions from the perspective of start-ups; record their agile market entry and expectations
Interview D	Senior Business Development Manager	Large automotive classifieds platform	Obtain an assessment of car subscriptions from the perspective of a player in the used car market
Interview E	Co-Director and Partner/Teaching Profesor	Automotive research institute/University	Obtain an assessment of car subscriptions influence on the German automotive retail market; record opinions on market share expectation

Appendix III: Expert interview A

Questionnaire:

Please describe the current state of car subscription in the German market.

- **How has the market developed in recent years?**
- **Which companies would you list as market leaders?**

- The majority of providers are "shouting loudly", which means that they are doing strong marketing, but the market share is still very small.
- The expert sees an incredible growth potential in car subscriptions, the market is developing strongly with high growth rates.
- Customer demand is very high, which can be seen, among other things, in the increasing Google search queries.
- Long-term leasing of at least 24 months is becoming less and less of an option, as the current situation brings with it a lot of uncertainty and therefore demands flexibility.
- Cluno is described as a pioneer and market leader. The company was sold to Cazoo in 2021 and is now looking to expand across Europe.
- Volvo with Care by Volvo is also considered a market leader. They operate on a par with Cluno.
- SIXT, with its core competence in the car rental business, can also be seen as the market leader, although they entered the subscription business at a later stage
- Because dealers offer subscriptions online, customers can be reached nationwide. This means that the competition between trade groups is no longer so tangible.

Concrete figures on the current market share of car subscription compared to cash purchase, financing or leasing are hard to find. As an expert, how would you estimate the current market share (in contracts signed, cars sold per year or percentage)?

- **How might this market share change in the next five and ten years?**
- **A study assumes that 40% of new cars in the private customer sector will be sold via car subscriptions in 2030. How realistic is this figure for you?**

- No exact figures are communicated on the number of contracts concluded per year. The expert estimates that Cluno sells about 5,000 vehicles per year via the

subscription, Volvo about 12,000 vehicles. The other providers are in the low four-digit range.

- All in all, he estimates that about 80,000 vehicles are sold annually via car subscriptions. This is an optimistic estimate. This would mean that the market share in the private customer business is currently about 6.5%.
- Especially short-term rentals, which are very popular in the commercial customer business, could be realised via subscription for commercial customers. Rental car providers are responsible for about 400,000 new registrations.
- He suspects that car subscriptions could take customers away from the rental business and leasing in particular.
- He sees the subscription merely as a generic term for flexible usage models. This would also include more flexible forms of leasing.
- Currently, only a few banks are active in the subscription business. These include Bank11 and VW Financial Services. The term subscription could change, but it would mean the same thing.
- He assumes that there will be strong growth in car subscriptions until 2025. Leasing will gain slightly, especially through more flexible forms. He sees purchasing and financing as the losers in the expansion of car subscription.
- He sees the 40% figure from the CAR Institute study as realistic, but this 40% is not represented by car subscriptions alone, but also by flexible leasing models

An expansion of car subscription on the German market would influence the other forms of financing such as cash purchase, leasing or financing. Which of these forms of financing will be most affected by a growing market share of car subscriptions? Why?

○ **Which of these forms of financing will be least influenced? Why?**

- In the long term, the market share of cash purchases and financing will decrease.
- He cannot say whether this will be due to car subscriptions in particular. Lack of flexibility and other circumstances can also lead to this development.
- The classic leasing with fixed terms will, however, lose importance due to the lack of flexibility.

Currently, a wide variety of players (manufacturers, start-ups, car trade groups, car rental companies) offer car subscriptions. What advantages and disadvantages do you see in car trade groups compared to the other providers?

- **What role will these car trade groups play in the spread of car subscription?**
- **How could the market develop on the provider side in the next ten years? What do you base your statement on?**

- All vehicles sold through car subscriptions return to the provider as used cars at the end of the contract. These are then usually remarketed by the providers and sold as young used cars. Here, the residual value is decisive
- In the case of vehicles that are not in great demand on the used car market, this has an effect on the subscription.
- This is the case with electric cars, among others. Since the residual value of electric cars is quite low, the monthly rates are sometimes significantly higher than for comparable models with conventional drives.
- However, e-cars run well on subscriptions because they give customers the opportunity to test the drive in everyday life
- The advantages of trade groups: The remarketing of used cars is part of the daily business and is a core competence. The corresponding processes as well as the trained personnel are already in place.
- Likewise, these trade groups already have a wide network of dealers who can serve customers locally. Start-ups first have to enter into cooperations with dealers or logistics companies for vehicle dispatching.
- The main disadvantage is the residual value. This plays a decisive role in whether dealers will take up the topic of car subscription.
- For banks, car subscriptions could become a problem if leasing customers switch. Therefore, the expert suspects, banks will increasingly enter the subscription business and position themselves as financing partners.
- Manufacturers will increasingly move towards online direct sales. This is where the car subscription can be useful, as it may lower customers' inhibitions to buy online.
- The expert sees the task of offering subscriptions primarily with the dealer, who will offer subscriptions here together with the manufacturer.
- He sees Cluno in particular as a direct competitor for trade groups

Some providers pursue an asset-heavy strategy and offer vehicles owned by you for car subscriptions, while other providers pursue an asset-light strategy and, for example, grant car dealers access to your platform. Which of these strategies do you think will prevail?

- Both strategies could be equally successful. Here he cannot make a definitive decision.
- Interest is borne by the dealers in the asset-light approach, and by the provider in the asset-heavy approach. Services such as ViveLaCar's can be integrated on the dealer's own platform, allowing the dealer to become a subscription provider with low input.

Could car subscriptions enable dealers and manufacturers to move as far as possible from selling to offering mobility services? If so, why?

- **What would be the arguments against such a development?**

- Subscription can be a driver here.
- Car sharing can also drive the trend, but during the corona pandemic it was already apparent that owning your own car was becoming more important. The subscription is closer to ownership than car sharing.

New car sales in Germany have been stagnating for years, the market seems to be saturated. Do you think that the number of new registrations could grow again through car subscriptions in the private customer business? Why?

- **In your opinion, what role will car subscriptions play in the used car market?**

- New car sales will not grow through the spread of car subscriptions, the market is saturated. More cars should not be sold only through subscriptions

A large part of new car sales in Germany is attributable to commercial registrations. What role would you expect car leases to play in the commercial market?

- **How do you think this could affect full-service leasing?**

- Leasing will become more flexible, shorter terms, partly also during the year, will become more and more established.

- Leasing offers will include more service components. However, these will continue to be handled as classic leasing and not as a car subscription.
- Full-service leasing will become more flexible. This will make it a direct competitor

Younger people in cities in particular are increasingly giving up car ownership and the car as a means of transport. How do you think the spread of car subscriptions could affect this trend?

- **Do people from big cities in particular currently use car subscription services? How do you think this could change in the next ten years?**

- Corona has spurred a return to car ownership and motorised private transport. Public transport suffers and is unattractive. The danger for users is less if they use a car.
- The subscription could become especially important for people from big cities
- Rural areas will follow suit, difference between big cities and countryside equalises in use, subscription could become relevant, but development in the countryside will probably be weaker

Which vehicle category is particularly interesting for car subscriptions?

- **Could car subscriptions offer an opportunity to promote the spread of alternative drives? Why?**

- Alternative drives: Subscriptions could play a major role here, as they only tie customers to the vehicle for a short time and reduce the risks. Use over a few months enables a better test experience. The expert reports that many customers were positively surprised and bought an electric car (e.g. via leasing or purchase) after the end of use. The subscription can therefore be seen as a driver here.
- Customers increasingly test cheaper brands. The expert reports that his company refers customers of premium brands to car subscriptions that include Opel vehicles.

Appendix IV: Expert interview B

Questionnaire:

Please describe the current state of car subscription in the German market.

- **How has the market developed in recent years?**
- **Which companies would you list as market leaders?**

- Many different providers are dedicated to the topic of car subscriptions
- Mainly manufacturers, start-ups and aggregators (meaning car rental companies)
- Marketing level was specifically addressed. Most providers are investing heavily marketing right now.
- However, we are still at the very beginning of market penetration and the providers are hoping for rapid growth through massive marketing measures.
- The expert assumes that currently about 3-4% of new registrations in the private customer market are due to car subscriptions. This would correspond to about 48,000 new registrations per year (rough estimate).
- OEM: Volvo with Care by Volvo is named as pioneer and market leader. VW is also named as a leader. It was also pointed out that these manufacturers advertise their car subscriptions a lot
- Car rental companies: SIXT is cited here with its car subscription SIXT+. These companies already have infrastructure and processes in place through their car rental business to help them introduce car subscriptions. SIXT is the car rental market leader
- Startups have been instrumental in getting the car subscription off the ground. Here Cluno is listed as a pioneer. Likewise, finn.auto is considered the market leader.

Concrete figures on the current market share of car subscription compared to cash purchase, financing or leasing are hard to find. As an expert, how would you estimate the current market share (in contracts signed, cars sold per year or percentage)?

- **How might this market share change in the next five and ten years?**
- **A study assumes that 40% of new cars in the private customer sector will be sold via car subscriptions in 2030. How realistic is this figure for you?**

- Leasing has seen a strong market share increase in Germany over the last ten years. The expert suspects that it could be similar for car subscriptions.
- The car subscription is well compatible with the new lifestyles that crave flexibility.
- The expert estimates that in 2030, about 20% of new registrations in the private customer market will be due to car subscriptions
- He does not see 40% market share in the private customer business as unrealistic in principle, but he doubts that manufacturers will be able to meet this demand. If manufacturers do not invest in the distribution network and online sales and do not produce the necessary infrastructure, then 40% is too high.

An expansion of car subscription on the German market would influence the other forms of financing such as cash purchase, leasing or financing. Which of these forms of financing will be most affected by a growing market share of car subscriptions? Why?

○ **Which of these forms of financing will be least influenced? Why?**

- Share of cash purchases in new registrations declines sharply. Therefore car subscriptions will not have a particular impact here. They will probably have more of an impact on leasing and financing.
- Customers today also keep their vehicles for a much shorter time than 10 to 20 years ago. Car subscriptions could benefit from this.
- Leasing for 24 months is still the standard, but changes can also be seen here. Shorter leasing periods, sometimes even during the year, are currently gaining in popularity.
- Accordingly, leasing and financing will be most affected. There could be a 1:1 shift here, with subscription partly replacing leasing

Currently, various players are offering car subscriptions and manufacturers such as Mercedes-Benz, MINI or Volvo are getting involved. What advantages and disadvantages do you see with these companies compared to the other providers?

- **What role will car manufacturers play in the spread of car subscription?**
- **How could the market develop on the provider side in the next ten years? What do you base your statement on?**

- Online sales are becoming more important and manufacturers will continue to introduce new services in this area.
- Manufacturers have set themselves ambitious sales targets, which are to be achieved, among other things, through online sales.
- Car subscriptions are an important lever to drive online sales. The customer is given a complete package. This approach is intended to lower the inhibition threshold for customers to buy online.
- Subscriptions are seen as lucrative, especially for premium vehicles (compared to financing).
- OEMs already offer the individual components that are part of the subscription in other forms (insurance, maintenance offers, hardware).
- The manufacturers are in a favourable position. The OEM can exert pressure on other suppliers and, for example, exclude certain models.
- OEMs could also bring preferred partners on board and offer online sales or car subscriptions for certain models together with them.

Some providers pursue an asset-heavy strategy and offer vehicles owned by you for car subscriptions, while other providers pursue an asset-light strategy and, for example, grant car dealers access to your platform. Which of these strategies do you think will prevail? Why?

- Personal fan of platform solutions, as these models have been successfully established
- Platform solutions or asset-light solutions can be scaled more with less financial effort. Reduces the risk. Accordingly, this solution could prevail.
- Capital input for asset-heavy strategy very large, but remarketing of used subscription vehicles can be profitable.
- For the customer side, it does not matter whether the provider is also the owner of car

Could car subscriptions enable dealers and manufacturers to move as far as possible from selling to offering mobility services? If so, why?

○ **What would be the arguments against such a development?**

- There are already different currents in automotive retail when talking about MaaS

- OEMs are looking for holistic mobility solutions for cities
- Subscriptions are only a small component if the OEM is concerned with being a mobility service provider.
- Corona has driven this development, as fewer people use public transport.

New car sales in Germany have been stagnating for years, the market seems to be saturated. Do you think that the number of new registrations could grow again through car subscriptions in the private customer business? Why?

○ **In your opinion, what role will car subscriptions play in the used car market?**

- Demand for individual mobility has increased during Corona as fewer people want to use public transport. More vehicles were sold in the Corona year 2020 than expected
- Corporate fleet in particular will change. Employees are given mobility budgets and have the flexibility to decide whether to use it for a car or a public transport ticket.
- New registrations could therefore continue to stagnate and will not increase.
- The used car market will only be influenced by the subscription to a limited extent, online purchases of used cars are increasing strongly. Customers are increasingly purchasing vehicles without having seen them in person beforehand. The inhibition threshold to buy online is falling.

A large part of new car sales in Germany is attributable to commercial registrations. What role would you expect car leases to play in the commercial market?

○ **How do you think this could affect full-service leasing?**

- Commercial fleets are a major cost driver for companies, every euro is turned over three times. Soft factors (e.g. trust in OEMs) are also important, but costs are much more important.
- Subscriptions are only considered if money is saved. Flexibility seems to be less important here. Cannot imagine that subscription will play a role
- Alternative: car rentals as flexible alternative

Younger people in cities in particular are increasingly giving up car ownership and the car as a means of transport. How do you think the spread of car subscriptions could affect this trend?

- **Do people from big cities in particular currently use car subscription services? How do you think this could change in the next ten years?**

- Students/apprentices: Even if there is a need for motorised individual transport, the prices of car subscriptions are too high, used cars are more interesting here.
- Young professionals: Very interesting during the year because they are very flexible, vehicles or vehicle ownership can be tried out without committing for a long time.
- Subscriptions will mainly remain relevant in urban areas. Cities exert pressure (due to lack of space), cars are no longer preferred as the main mean of transport.
- The already existing mindset of young people towards more flexibility will be strongly increased by this.

Car subscription users do not have to worry about insurance, garage visits and other car-related issues thanks to the all-inclusive approach. So what impact could a widespread roll-out of car-sharing have on the stakeholders concerned?

- With leasing, similarly strong interlocking of stakeholders
- Subscription will lead to even stronger interlinking
- Customers can freely choose insurance for leasing. Manufacturers will benefit, as customers have less freedom of choice

Which vehicle category is particularly interesting for car subscriptions?

- **Could car subscriptions offer an opportunity to promote the spread of alternative drives? Why?**

- Customers are more likely to subscribe according to the situation.
- For many, an opportunity to engage with alternative drives. This could eliminate inhibitions and concerns
- Opportunity for alternative drives is definitely there

Appendix V: Expert interview C

Questionnaire:

Please describe the current state of car subscription in the German market.

- **How has the market developed in recent years?**
- **Which companies would you list as market leaders?**

- Car subscriptions are currently being hyped very strongly. There is a lot of marketing, but the total volume of contracts is limited.
- Cluno, ViveLaCar and finn.auto are named as pioneers in the car subscription sector. In the case of Cluno, it is pointed out that the company was sold to Cazoo, but before that was one of the largest providers in the German market. ViveLaCar offers a very dealer-friendly solution (dealers can also offer car subscriptions for used cars).
- Cluno is listed as the largest provider. For the last two years, the contract portfolio is estimated at about 10,000 contracts, about 5,000 of which were concluded in 2020,
- The expert is certain that car subscriptions have a very large potential and will significantly shape the market in the future.
- For the consumer, subscriptions are very good because they bring transparency about costs and other offers, require less effort and are flexible. Providers are strongly oriented towards customer needs.
- The subscription was primarily developed for the private market, but at the beginning it received a lot of support from small companies that depend on flexible mobility. However, the potential in the private customer market is considered to be greater.
- Care by Volvo as market leader among manufacturers

Concrete figures on the current market share of car subscription compared to cash purchase, financing or leasing are hard to find. As an expert, how would you estimate the current market share (in contracts signed, cars sold per year or percentage)?

- **How might this market share change in the next five and ten years?**
- **A study assumes that 40% of new cars in the private customer sector will be sold via car subscriptions in 2030. How realistic is this figure for you?**

- The market share is currently estimated to be minimal.

- The private market comprises about 1.2 million new registrations per year. Cluno, which is described as the market leader, concluded about 4,000 to 5,000 contracts according to expert estimates, ViveLaCar and finn.auto probably a low four-digit number of contracts each. The manufacturers also only concluded a small number of contracts, probably only Volvo was in the four-digit range.
- Accordingly, the expert estimates that car subscriptions account for a maximum of 1% of the cars sold last year.
- However, he attributes a very large growth potential to the subscription. The share will rise to 50% of registrations in the private sector in the next 5-7 years
- In itself, the car subscription is a flexible full-service leasing
- Manufacturers have recognised this, are focusing more on customer needs and are launching more subscription business models on the market. Attractive for manufacturers, as they retain customers and do not have to be recruited separately for insurance and service offers.
- Profitability results from purchasing, margins in sales are low, competition for customers is strong in the case of subscriptions, price war already exists in this early phase of market penetration.
- Complete package creates price pressure. Transparency is also created (all customers receive the same conditions).
- Through omnichannel margin management, manufacturers have earned well because they have offered individual prices to each customer. Subscription price, however, is always the same.
- Profit is not made in the foreground (B2C) but in the background (B2B). With increasing fleet size, there are economies of scale for subscription providers when concluding service and insurance framework agreements and costs can be reduced.
- More than 50% market share in 2030, 40% already in 5-7 years

An expansion of car subscription on the German market would influence the other forms of financing such as cash purchase, leasing or financing. Which of these forms of financing will be most affected by a growing market share of car subscriptions? Why?

- **Which of these forms of financing will be least influenced? Why?**

- Leasing will be influenced the most (strong growth in leasing can be seen in recent years). Subscription will lose market share from leasing due to more flexible contracts. Financing will also be affected, cash purchases are declining anyway.
- Cash purchase no longer pays off today. Manufacturers prefer to use limited means of distribution to retain customers, which is difficult with cash purchases.
- 3-way financing: car belongs to customer who borrows money, manufacturer gives promise of return, quasi-leasing) VW in particular has gone this way (do not inflate balance sheet as vehicles are not owned by the company)
- Effects on balance sheet must also be taken into account with subscription (manufacturer does not want to bear the entire risk)
- Assuming 50% registrations via subscription p.a. 600k vehicles, which are additionally carried on the manufacturer's balance sheet, great risk.

Currently, a wide variety of players (manufacturers, start-ups, car trade groups, car rental companies) offer car subscriptions. What advantages and disadvantages do you see in start-ups compared to the other providers?

- **What role will these start-ups play in the spread of car subscription?**
- **How could the market develop on the provider side in the next ten years? What do you base your statement on?**

- Distinguish between providers (Cluno) and marketing providers
- SIXT will play a very big role. Operations will determine the success of the provider. Know-how in process control, costs... already given by car rental companies (requires comparatively little bureaucratic effort for scaling).
- Cluno and other designated subscription providers must conclude contracts with partners (insurance companies, garages, banks...). Operations and partner networking very time-consuming
- Offering subscriptions alone will no longer be a differentiating factor, rather operations in the background.
- There will be a few dominant providers, some of them manufacturer shops and some independents. Independents will make up the bulk.
- There will probably be about 10 players as operational experts (B2B, service, repair, insurance management).

- However, there will be significantly more subscription brands that will rely on the corresponding experts for operations.
- Currently 150 providers in DE dealing with car purchase and car-related topics such as insurance and service planning. In the coming years, a number of providers will be screened out
- There will be companies that will offer a quasi SaaS solution. White label solutions will then be used by various brands (see Fleetpool with the B2C brands CONQAR (SEAT), KintoFlex (Toyota) and like2drive (cross-brand) as well as B2B brands. 14,000 vehicles sold in 2020, but unclear how many of these are B2C)
- High costs for providers if they set up and operate operations completely independently, therefore cooperation with operations experts.
- SIXT Leasing (belongs to Santander and Hyundai Kapital) subscription offer to be developed, Sixt as operational partner

New car sales in Germany have been stagnating for years, the market seems to be saturated. Do you think that the number of new registrations could grow again through car subscriptions in the private customer business? Why?

○ **In your opinion, what role will car subscriptions play in the used car market?**

- Formally, it will mean an increase in the new customer market
- Total registrations will not increase, but rather fall (lack of space, measures taken by cities, political efforts).
- Predatory competition in the used car market. Will level off. Large part of the market will be limited to a few established players (currently 30 brands with more than 1% market share in Germany), marketing effort will be too great for some brands with small market shares.
- Subscriptions for young used cars could become interesting, pricing will become more confusing for customers. When buying a new car today, sometimes better deals than for used cars.
- Digital efficiency will become much more important as margins will continue to shrink. Sales costs are currently between 30 and 50% of the price of a new car; digital technologies must be used to counteract this.

Younger people in cities in particular are increasingly giving up car ownership and the car as a means of transport. How do you think the spread of car subscriptions could affect this trend?

- **Do people from big cities in particular currently use car subscription services? How do you think this could change in the next ten years?**

- Car subscription tends to be a topic for cities. However, the expert assumes that subscriptions are currently more popular in cities, as many digital-savvy first movers live there. However, subscriptions will gain in importance especially in rural areas (already today, a large proportion of new car buyers use leasing or financing instead of cash purchase, so there are no great inhibitions about switching)
- Corona pandemic leads to increase in motorised private transport in cities, but decline in ownership will continue in the long term
- Sharing will not survive in cities (expensive and not profitable), ride-hailing or ride-pooling will become more common in cities, but subscriptions will not.
- Own vehicle will remain important in rural areas, which is why subscriptions are particularly interesting here. First mover in cities, development in the countryside will take place later. Rural dealers can be the big beneficiaries here and become personal contacts for subscriptions.
- The user feels no difference between leasing, financing or subscription, he has full access to the car in each case.
- Subscription will group with leasing and financing

Is there anything else we haven't talked about yet but you think is important?

- Customer Centricity is becoming more and more important for manufacturers, car subscriptions come in handy here. OEMs have always put cars or the product in the centre, handed everything over to sales and they should then sell. In the agile approach, the customer is the starting point
- Multi-staggered purchase (over-the-air updates for certain functions), much easier to realise in subscription, small decision morsels for customers instead of one big payment

Appendix VI: Expert interview D

Questionnaire:

Please describe the current state of car subscription in the German market.

- How has the market developed in recent years?
- Which companies would you list as market leaders?

- Car subscriptions are currently still a niche topic, the business model was only recently introduced to the market (around 2017).
- They represent the fourth form of financing (in addition to cash purchase, leasing, credit/three-way financing).
- Leasing and subscription will compete most strongly with each other
- Leasing was the third form introduced in the private market after cash purchase and financing. Leasing plays no role in the used car market (1% of all used car sales)
- The DAT Report mentions car subscriptions only in passing, which may indicate that they have not yet reached the mainstream.
- However subscriptions have great potential. The market is developing very fast, but the total volume is rather limited
- The various start-ups have been able to raise new venture capital in the past year, subscriptions will probably become mainstream
- Cluno, ViveLaCar and Sixt are mentioned as perceived market leaders.
- Exit of Cluno (sold to Cazoo, IPO planned) shows that there is great interest in the business model
- Market leadership can be separated into two to four categories
 - Asset heavy/light: Does the provider have its own fleet (Cluno, finn.auto) or does it use the dealers' fleet (ViveLaCar, Faaren)
 - Inventory focus: Subscription for new or used cars or both?
- SIXT could be mentioned as a hidden giant. Active in B2B and B2C business with car subscriptions. A lot of experience in the car rental business (largest vehicle fleet, standard processes and crucial competences are given, operational experience is worth a lot).

- SIXT could distribute vehicles (depending on technical requirements) between its services (car sharing, rental, subscription) at short notice. In principle, the subscription is a basically a long-term rental and thus very familiar for SIXT.
- More and more manufacturers are entering the subscription market (sign that there is potential).
- Audi has been operating car subscription in Silicon Valley and Sweden for some time, in the German market only from 2022.
- Lynk & Co., the first car brand developed specifically for the subscription model (based on the Volvo XC40), belongs to Geely.
- Several questions arise for manufacturers. Normally selling cars to dealers who have to distribute these cars. Through subscription, the manufacturer would retain cars which would normally be sold (subscription similar to car sharing a learning opportunity for manufacturers).
- For dealers, the concept of ViveLaCar would be interesting to monetise inventory..

Concrete figures on the current market share of car subscription compared to cash purchase, financing or leasing are hard to find. As an expert, how would you estimate the current market share (in contracts signed, cars sold per year or percentage)?

- **How might this market share change in the next five and ten years?**
- **A study assumes that 40% of new cars in the private customer sector will be sold via car subscriptions in 2030. How realistic is this figure for you?**

- Subscriptions will conquer different customer segments in the next five years, and it remains exciting to see which ones they will be.
- It seems that the subscription is well received across all generations (somewhat contrary to the expectation that younger customer groups in particular would show interest). Increased comfort (insurance... included) is well received
- Customers want to have total choice and not have to worry about anything. Flexibility is also an advantage, but cars will probably not be changed often but kept for a relatively long time.
- Study predicts 40% market share / 1 million contracts. Subscription would have to replace leasing completely (private and commercial market), which is rather unlikely. Out of 3.5mn new car registration, 35% are private = 1.3mn. Thus, 1mn contracts

unlikely to come only from private. The 1.3mn are spread 16% cash, 62% financed, 22% and subscription would need to surpass leasing and challenge financing to achieve the 40% for the private market share. (DAT, KBA)

- Strong competition with leasing in the commercial market (taxation also plays a role here). In the case of a large commercial fleet, own insurance might also be cheaper than the insurance included in the subscription.
- In the private customer market, subscriptions will probably account for 10-15% of the market. Leasing will have a similar market share

An expansion of car subscription on the German market would influence the other forms of financing such as cash purchase, leasing or financing. Which of these forms of financing will be most affected by a growing market share of car subscriptions? Why?

○ **Which of these forms of financing will be least influenced? Why?**

- In the private customer market, the subscription will primarily have an impact on leasing. There will be an increasingly fluid transition here
- In the case of financing, some customers may also be lured away
- The time horizons will be decisive and switches will occur where time horizons of models overlap (subscription: about 0.5 to 2 years, financing: 4 to 5 years, leasing: 2 to 4 years). What are the costs over the same period for all forms?
- Customers will probably not be taken away from the cash purchases which has the longest time horizon.

Currently, a wide variety of players (manufacturers, start-ups, car trade groups, car rental companies) offer car subscriptions. What advantages and disadvantages do you see in these individual competitors?

- **What role will these start-ups play in the spread of car subscription?**
- **How could the market develop on the provider side in the next ten years? What do you base your statement on?**

- Car rental companies have distinct advantages, they already manage large fleets, operations are designed for the subscription model, only need to adjust to different maintenance (compared to car rental model) when offering subscriptions.

- In addition, car rental companies can play well with fleets and flexibly move cars back and forth between offers.
- Start-ups have to decide between offering a platform (ViveLaCar) or becoming a fleet provider (Cluno). The latter, however, would be very time-consuming, complex and capital-intensive but allows full control over operations. Quality problems could hit platform start-ups hard if operations and/or partners do not deliver the quality promised to the consumer.
- Start-ups would differentiate themselves as fleet providers from car rental companies by focusing more on customers and rethinking the concept and operations from the ground up.
- Start-ups could also partner with trade groups and take care of the front-end (tailored to the customers' needs) while trade groups take care of the operations in the background (car sourcing, maintenance handling, insurance handling...).
- Trade groups can approach the issue by having the frontend built. However, trade groups traditionally do not have the same focus on customer needs as start-ups.
- Manufacturers already have their own fleet company (e.g. BMW with Alphabet), but would have to look in-house at how they could set up car subscriptions. For example, they could offer the subscription directly through branches or large dealers.
- Trade groups, start-ups and car rental companies can offer the subscription for various brands, manufacturers only for their own brands.
- Internal conflicts for manufacturers. Manufacturers can gain proximity to customers through car subscriptions, but a conflict arises with sales (1 subscription = 1 fewer new car sold), sales targets are decisive here.

Some providers pursue an asset-heavy strategy and offer vehicles owned by you for car subscriptions, while other providers pursue an asset-light strategy and, for example, grant car dealers access to your platform. Which of these strategies do you think will prevail? Why?

- Difficult to answer
- Asset-light has greater potential for scaling.
- Car subscriptions, however, are highly dependent on operations, which is why scaling would happen more slowly with an asset-heavy strategy.

- Which economies of scale are more decisive? Coverage of a large proportion of car dealerships or quality of own operations in the background (but at large capital requirements)?
- Expert assumes that the asset-light approach is more likely to prevail as scaling is easier. However, examples from the past indicate that a change to an asset-heavy strategy is initiated at a certain size (e.g. Thermondo, Ben Fleet Services).

What role do you think car subscriptions will play in the used car market?

- Similar to leasing, only a marginal role and only for young used cars (remarketing of leasing returns).
- 1% leasing in the case of owner-occupied registrations
- The residual value curve decreases over time, while the repair curve increases. Thus, as the vehicle ages, more and more risk has to be factored in. Thus the subscription rate increases, used car rate will be on par with new car rate, making car subscriptions with used cars unattractive to the customer

Younger people in cities in particular are increasingly giving up car ownership and the car as a means of transport. How do you think the spread of car subscriptions could affect this trend?

- o **Do people from big cities in particular currently use car subscription services? How do you think this could change in the next ten years?**

- In large cities, young people switched from public transport to cars due to Corona.
- Used car sales have increased in Germany as a result, sourcing of used cars has become increasingly difficult for dealers.
- With the high monthly instalments and the lack of demand (public transport is more practical), subscriptions do not play a role in cities, car sharing is much more attractive here and even more flexible (subscription about 3x the price of monthly car sharing spending of expert)
- Expert estimates that in rural areas it is mainly used cars with low values that are bought. Younger people take out insurance through their parents to save costs. This makes subscriptions comparatively expensive and unattractive.

Appendix VII: Expert interview E

Questionnaire:

Please describe the current state of car subscription in the German market.

- **How has the market developed in recent years?**
- **Which companies would you list as market leaders?**

- - Car subscriptions are a new phenomenon
- - Are seen as an alternative to buying a new car
- - Cluno and ViveLaCar mentioned as pioneers
- - Attracted many imitators, including OEMs, Care by Volvo and Porsche Subscription are mentioned here.
- - Cadillac tried subscription in Munich, but have withdrawn from the German market.
- - Audi has announced to offer a subscription in Germany
- - Before ViveLaCar, car subscription was not an issue, only gained importance with the establishment of ViveLaCar and Cluno.
- - OEMs are trying to enter the market and experiment, as with other mobility services
- - More and more free providers will enter the market

Concrete figures on the current market share of car subscription compared to cash purchase, financing or leasing are hard to find. As an expert, how would you estimate the current market share (in contracts signed, cars sold per year or percentage)?

- **How might this market share change in the next five and ten years?**
- **A study assumes that 40% of new cars in the private customer sector will be sold via car subscriptions in 2030. How realistic is this figure for you?**

- - Subscription providers see the future very rosy and overestimate the future demand for car subscriptions
- - Expert takes a much more cautious view

- - DAT Report 2021 states that only 1% have intensively looked into car subscriptions. This would mean that the market in Germany currently accounts for a maximum of 1% of new registrations.
- - However, car subscriptions will become the fourth pillar of car purchases.
- - Market share in 2030 will be below 20%, more likely between 5% and 15%.
- - Does not believe that half of new registrations will be sold through car subscriptions
- - Currently, subscription models are too expensive (main drawback)
- - Certain segments prefer to buy (will continue to do so). Different attitudes to the car are still very important in the decision-making process
- - Customers and dealers have reservations about car subscription because it is a new offer
- - Manufacturers push cars into the market through discounts past subscriptions, could be more attractive for customers after all

An expansion of car subscription on the German market would influence the other forms of financing such as cash purchase, leasing or financing. Which of these forms of financing will be most affected by a growing market share of car subscriptions? Why?

- **Which of these forms of financing will be least influenced? Why?**

- - Cash buyers need to be seen separately, they will not switch to subscription, they are self-sufficient and ownership is still very important to them
- - Leasing customers will switch to subscription (biggest share will pull car subscription from leasing)
- - 3-way financing has car ownership as a goal, car subscriptions are probably also uninteresting for these customers
- - Commercial market: subscriptions are interesting especially in commercial business, increases employer attractiveness, can be exciting to cushion peak demand, short-term employee needs can partly be served by subscriptions (besides leasing)
- - TCO, however, in the middle, leasing offers with lower prices. Companies not willing to pay more for subscriptions than for leasing, flexibility unimportant.

Currently, a wide variety of players (manufacturers, start-ups, car trade groups, car rental companies) offer car subscriptions. What advantages and disadvantages do you see in these individual competitors?

- **What role will these start-ups play in the spread of car subscription?**
- **How could the market develop on the provider side in the next ten years? What do you base your statement on?**

- - Manufacturers: Can manufacturers offer mobility services? Currently rather detaching from services (cumbersome structures, services not profitable), Maybe Volvo will succeed (online direct sales for EVs, subscription here interesting for Volvo).
- - Dealers have to be huge to make the subscription worthwhile for them. It is often not worthwhile to build up structures (logistics, provision, delivery, return, processing). High personnel and time costs
- - Convertibles stand around in winter... inventory is not monetised
- - 15% existing customers are also cannibalised away
- - Costs for subscription are higher internally than for leasing
- - Start-ups
- - Remarketing? All the same cars in the inventory are difficult to market
- - Cluno and Vive La Car with different concepts can manage to establish themselves in the market (asset light and heavy)
- - Car rental companies: SIXT has shown potential to establish new services in the past.
- - Expert trusts SIXT to offer subscription services. They have the branch network to serve customers locally.
- - SIXT with experience in leasing. But are not perceived as aggressively as Cluno (marketing).