



**UNIVERSITY OF GOTHENBURG**  
**SCHOOL OF BUSINESS, ECONOMICS AND LAW**

# Scenario Planning Analysis of Subscriptions in the Automotive industry

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Future impact on profitability and loyalty

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# Abstract

The automotive industry is facing an ongoing transformation on many levels and the common denominator is the road to sustainability and zero greenhouse gas emissions. This has led to the developments of new drivetrains and the need for new business models has emerged. To be able to meet the requirements and challenges presented by the development of sustainable cars and usage of cars. This has introduced an openness to new ideas and innovations regarding business models and commercial operations. This change has led to a discussion of mobility rather than car ownership. This fundamental change has developed a discussion and an early attempt to sell cars through a subscription model and turn the commercial operations towards a more service-oriented business rather than wholesale.

This research investigates the outlook of the subscription model for OEMs in the automotive industry and emphasizes how these different futures will impact both the loyalty as well as the profitability aspects of an OEM. The research investigates and identifies the factors to consider when evaluating the next coming ten years for the subscription model and what aspects will have a larger impact on the different outcomes. These factors are identified through qualitative interviews with experts and people involved in the development of the subscription model in the automotive industry. These factors are then used to generate potential future scenarios and the identified major uncertainties will be bundled together to create two dimensions that are flexibility and customer engagement. These two dimensions are then used in a scenario matrix to generate four potential future scenarios of the subscription model in the automotive industry. The four scenarios are the following: Love to compete, Rise and shine subscription, The good old days, and steady subscription.

With the knowledge of these four scenarios, different strategic actions are identified as well as a core strategy to face the uncertain future of the subscription model and recommendations on how to navigate this unknown future. This knowledge is then used to present future impact on profitability as well as loyalty and how it will affect the future of the OEM. The research concludes that the OEM has to consider the large changes organizational-wise as a core focus and that either scenario that plays out the customer-centric approach as well as the online journey will have a large impact on the business and is well anchored within customer trends and demands. This will result in fundamental changes in profitability as well as how to meet and work with loyalty depending on what scenario that evolves. Therefore, is the aspect of being agile and prepared for different futures highly recommended and being able to adapt efficiently.

Keywords: Subscriptions, Subscription service model, Customer Loyalty, Profitability, Automotive industry, Scenario analysis, Business model

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## Abbreviations and definitions

**EV** - Electric vehicle

**ICE**- Internal combustion engine

**OEM** - Original equipment manufacturer

**RV** - Residual value

# 1. Introduction

*The introduction serves to explain the background of the automotive industry and how OEMs are facing challenges in the future. New business models to meet customer preferences are posing as threats forcing companies to innovate and re-think their operations. One model to capture new and keep existing customers is automotive subscriptions, which is the main area of study in this research. This chapter also presents the problem formulation and how this research aims to target the area of subscription's effect on customer loyalty and the implications it will have for OEMs' profitability. The chapter also presents the research questions, theoretical contribution, and limitations of the study.*

## 1.1 Background

Recent studies have shown that younger generations of automobile owners consider car ownership to be a burden rather than a status symbol (Deloitte, 2021). Hence, automotive companies have developed a new form of ownership called subscriptions (BCG, 2021). Subscribing to a car improves flexibility as the customers can choose the period by themselves and reduce or eliminate the risk associated with ownership (Deloitte, 2021). Subscriptions allow customers to subscribe for a car only when they need it, which could reduce the number of produced vehicles (BCG, 2021), something that OEMs need to keep in mind when predicting and planning for the future. Car sharing and mobility have also recently begun to find consumers and increase in popularity within the industry but can be seen more as a substitute for public transport rather than car ownership (Deloitte, 2021). Since the substitute to car ownership mentioned as subscriptions is already taking place with growing popularity in the industry, this study wants to examine the implications this will have for the automotive industry, more specifically for OEMs. It can also be observed that customers prefer flexibility and other solutions to enter into a long engagement of purchasing it (McKinsey, 2020). The automotive industry has long been dominated by a clear value chain, where OEMs serve as manufacturers and sell the vehicles to retailers, who sell the vehicles to the end customers. The subscription services discussed in this research are based on OEMs offering subscriptions directly to the end customers. This may impact customer relationships and how OEMs now need to consider customer loyalty to their subscription models.

Even since the first car was invented in 1885 (Daimler, 2022), a lot has changed in the automotive industry in terms of looks and features. Since then, vehicles have undergone many changes, for example when it comes to: range, emissions, safety, and financing solutions (A&E Television Networks, 2010). Today customers can choose between a variety of brands and models. The industry is currently facing a lot of disruptions forcing companies to innovate and reimagine their operations (McKinsey, 2020; Little, 2021). Historically, OEMs have been fighting for market shares with different techniques, mostly focusing on exterior looks and performance. The automotive industry is global, and operations are carried out all over the world. It is highly shaped by regions and areas and some companies operate in certain areas and others on a global scale. OEMs target different customer segments that all have different preferences for their cars. It is common for larger automotive manufacturers to have several brands that target different market segments or markets. Since the global market for car sales calls for large revenues (BCG, 2021) and customer preferences vary a lot in this industry, it has led to many OEMs being active and competing to increase their market shares. Companies in the automotive industry are currently facing the threat of business model innovations and declining revenues forcing them to innovate (Hofstätter et al., 2020).

Another ongoing and historical trend in the industry is for OEMs to meet sustainable goals (McKinsey, 2020). Up until recently, the automotive industry has been dominated by combustion engines powered by petrol or diesel (A&E Television Networks, 2010). When consumed in the engine to power the vehicle it releases carbon dioxide and other gasses, leading to global warming (Gohoungodji et al., 2020). Currently, companies within the industry are working on engines that will reduce or eliminate the release of greenhouse gasses (Hofstätter et al., 2020). It can also be observed that customers are demanding such engines since they want to be part of this sustainable journey to emission-free vehicles, mostly in the form of hybrid-engined vehicles or EVs. Policymaking in the automotive industry has a high impact on OEMs, forcing them to rethink their operations to cope with environmental policies. Even though OEMs may realize that future customers will demand environmentally-friendly vehicles such as electric vehicles, policymaking has enforced this change to come sooner and decreased or even eliminated the value of ICE vehicles in the future.

## 1.2 Problem formulation

As the automotive industry stands before a big industry transformation, OEMs will have to adapt to the upcoming industry climate (Little, 2020). The history of automotive manufacturers has long been influenced by resources, economies of scale, and price wars. To cope with the change, OEMs must go outside their previous knowledge base to meet the new market demands and challenges (Ibid). According to Capgemini (2022), the future outcomes of how the subscription model will impact OEMs and what implications it will have for their business models is difficult to foresee. It is the new normal to accept the concept of uncertainty and to act agile and adjust to the rapid changes in the changing environment (Ibid). However, many disruptions and forces have been identified, which are believed to impact the future of mobility. According to Deloitte (2021), the core value proposition of the subscription model is the digital experience, convenience, availability, simplicity, flexibility, and continuity. These areas are all straightforward in their essence, however, as the authors describe, implementing these changes is fundamentally changing the whole ecosystem of OEMs and impacts almost all aspects of the automotive manufacturer. Therefore, is this change highly uncertain and new types of business models and strategies are necessary to be able to navigate this future (Deloitte 2021).

To prepare for this change it is important to consider different types of outcomes, to be able to adapt efficiently and with ease. This unknown environment presents many challenges and opportunities, and it poses a great threat to OEM's future profitability, which is in the interest of shareholders, that OEMs manage to adapt their organizations related to what subscriptions will imply, in terms of new technologies, customer loyalty, and sustainability.

## 1.3 Purpose and Research questions

The purpose of this research is to examine the impact the subscription model will have on OEMs within the automotive industry in the next ten years. Since this type of phenomenon is relatively new within the industry, the aim is to firstly explore different development factors with a qualitative research method and later identify trends and uncertainties. The trends and uncertainties will set the groundwork for creating the future scenarios and the scenario planning framework will present four different potential scenarios. Which will assist, when generating recommendations for OEMs, on how they should navigate the upcoming industry transformation. The overall aim of this research is for it to be used as a framework for automotive manufacturers when facing this industry transformation. To give

an understanding of what potential future scenarios can take shape in the next ten years and how they will affect their future profitability and loyalty.

To be able to realize the purpose of this thesis and to generate recommendations for OEMs to navigate the future of subscriptions, the following research questions have been developed.

- *What major trends and uncertainties affect the subscription model in the automotive industry?*
- *What are the possible strategic actions and future scenarios for the subscription model in the automotive industry?*

## 1.5 Contributions and context

This study aims to contribute with literature and primary data in an area that has limited previous research. The contribution will therefore come from combining studies within the same area from literature and qualitative interviews. To extend the research on the subject as well as contribute with a mapping of the macro trends and uncertainties affecting the subscription model in the automotive industry. The context of the study is to provide a framework based on connecting the dots between the theories and to be seen as a practical guide for OEMs thinking about offering subscription services.

## 1.6 Delimitations

The automotive industry is a giant industry with thousands of companies involved in a network of sub-suppliers, suppliers, manufacturers, and dealer networks. Vehicles are sold all over the world and OEMs are in charge of the manufacturing processes. To give the greatest contribution to the literature and the practical contributions, this research is limited to subscriptions only. Even though a systematic literature review was conducted with several areas included for the readers to understand the whole picture, the scenario analysis was performed using the subscription segment only and had a scope within the next ten years. Hence, this research will not discuss in detail the meaning of mobility solutions such as car sharing, fleet management, or leasing contracts even though there are similarities as well as differences. Mobility networks and leasing agreements will rather be used as references to the subscription model to better explain its relevance.

## 1.7 Thesis disposition

The main purpose of this thesis is to investigate the future of the subscription model within the automotive industry. To investigate the future, the scenario planning framework has been used and it has been conducted throughout the research. As seen in *figure 1.1* some aspects of the research process differentiate from the traditional thesis elements. *Figure 1.1* illustrates the relationship between the scenario planning process and the traditional thesis elements, to describe this process further.

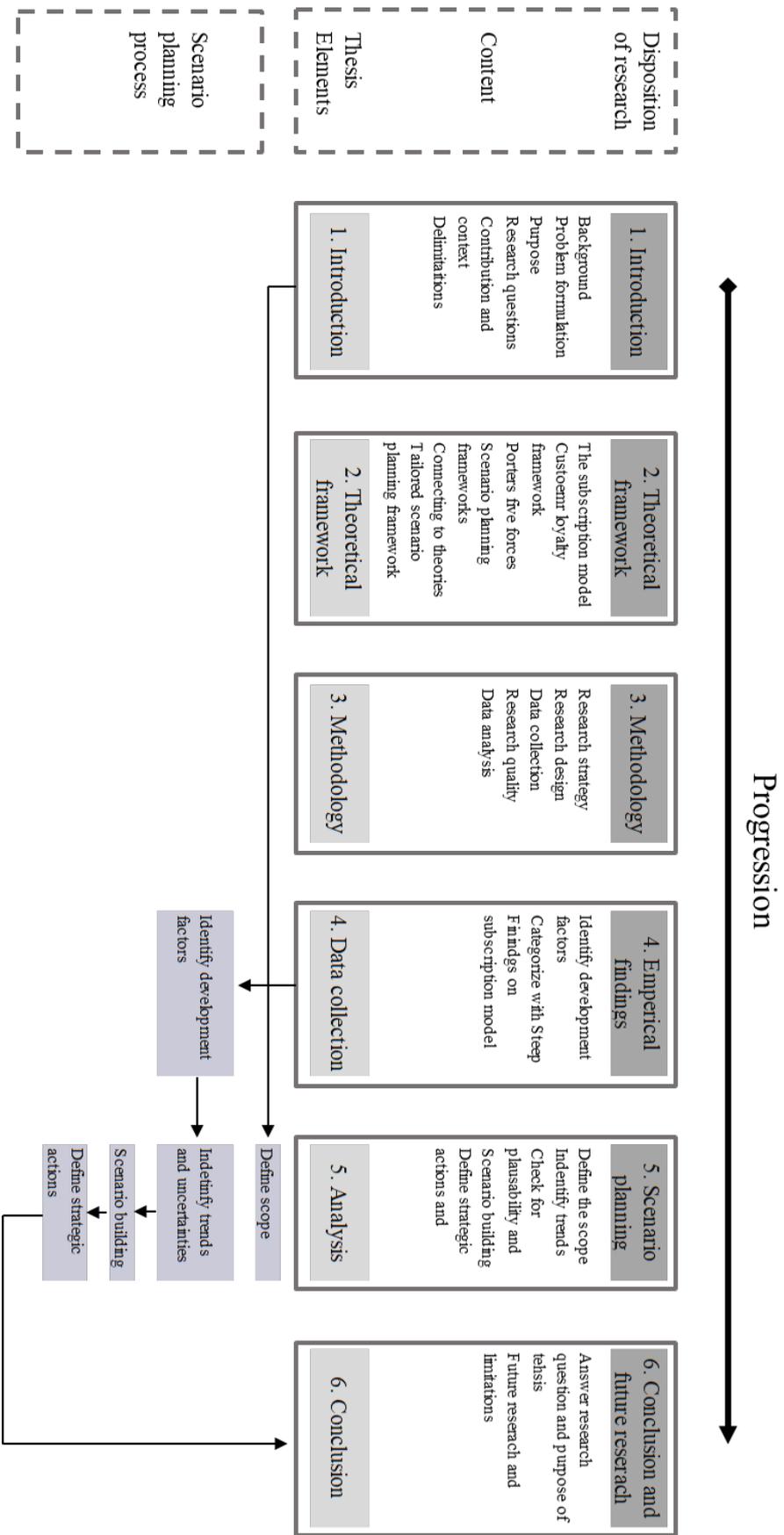


Figure 1.1 Thesis disposition

## 2. Theoretical framework

*The theoretical framework aims to provide the reader with the information necessary to understand the literature that set the ground for the research. In this chapter, relevant theories are presented that will later be connected to the findings in the analysis section. It starts by presenting the underlying information about subscriptions and the meaning it has in the automotive industry. It later presents Porter's five forces that explain competitive forces within industries and a framework for customer loyalty. Lastly, it presents the theories behind scenario planning as well as the tailored scenario planning framework, which is the ground for how the research and the main analysis are conducted. This section will set the groundwork for the analysis.*

### 2.1 The subscription model

Subscriptions are according to Deloitte (2021) a service model where a monthly fee is paid to receive access to a certain product or service, a trend that can be observed over several industries. Subscriptions have managed to grab substantial market shares within several technological service offers, such as online newspapers, music streaming, and mobility services. It has also been the dominant business model for cellular companies, charging customers monthly as a subscription (Deloitte, 2021). According to Bischof, Boettger & Rudolph (2020), the subscription model is widely used both in the service sector as well as the retail and physical product sector. The model emerged as up-and-coming phenomenon that enable e-commerce companies to automatically deliver recurring deliveries of consumer goods. As stated by Tzuo and Weisert (2018), turning customers into subscribers enables this feature. This has developed and emerged into a multibillion-dollar industry, yet the research on subscriptions has been lacking with its presence (Bischof et al., 2020). The subscription model is suggested by previous literature to have several beneficial aspects in terms of multi-loyal customers, creating long term relationships, and sustainable relationships, which will generate a closer relationship between retailers and customers (Bolton, Kannan, & Bramlett, 2000; Dwyer, 1997; Lewis, 2004; Meyer-Waarden, 2007).

Another aspect of the subscription model according to Reinartz and Kumar (2000) is its positive and easy measurement of customer lifetime value. The fact that an ongoing subscription provides a contractual setting that increases the knowledge about customer lifetime value and results shows that the customer lifetime and recurring purchases are rather constant over time (Reinartz & Kumar, 2000). This aspect is considered by McCarthy et al. (2017) to have the potential to increase the company valuations and deliver managerial benefits. The subscription model builds on the customer and according to Chen et al. (2018) it is an increasingly common way to buy products and services online and 49% of all purchases bought online according to their survey were through subscription services. People tend to have multiple subscriptions at the same time and more than half have more than two subscriptions active. The authors also mention how the customers want an experience rather than a subscription, experiences that do not deliver tend to be canceled. Something to think about was the rate of cancellation, which was up to almost 40% and the rates were similar in different industries. On the other hand, the customer acquisition is also higher which even it out a bit, however, an interesting aspect was that 45% of the people having a subscription, have had their subscription for over a year (Chen et al., 2018). Maechler et al. (2016) argue that it is important for companies to adopt a customer centric mindset independent of who the target customers are. In a competitive environment, this mindset will help to stand out against the competitors and a subscription is well in line with the customer centric mindset of companies.

## 2.2 The subscription model in the Automotive industry

In the automotive industry, this is considered a model between short-term car rental and full ownership, in addition to leasing contracts (BCG, 2021). Once the customers no longer have the need for the vehicle or the preferences have changed, they have the option to downgrade their vehicle to another one or terminate the contract. Deloitte (2021) describes car sharing as an alternative for car ownership but often fails to deliver availability during peak times and has relatively high costs for longer periods or trips. Car sharing can therefore be seen as a substitute for public transportation rather than car ownership (Ibid). Subscriptions have the potential to combine the best of both worlds, access to a personal vehicle without the burden of ownership (Ibid). Further, the trend is described as customers are currently seeking “one-stop-shops” solutions to give consumers peace of mind with total transparency and cost control in the purchase decision. The main point of subscription services is that they can be seen as risk-free for customers since fixed costs are included in the fee and the supplying company of the service carries the residual value.

Subscriptions can target a wide set of customers that have different preferences than traditional automotive customers, for companies to diversify their profit pools (BCG, 2021). It is argued that the market for car subscriptions easily could reach a market value of 30-40 billion USD and 15% of new car sales, which is why automotive manufacturers seek to target this market segment as well (Ibid). Deloitte (2021) argues that the market for subscriptions will grow to 8% of new vehicle registrations and 22 million Euros by 2025, which suppliers in this market segment can grab a share of. Other factors such as crises could make this segment grow to 10% of new vehicle registrations by 2025, a significant part of the total market for new vehicles (Ibid). Companies that fail to implement a service model to target this segment would therefore miss out on significant revenues and would also let competitors grab substantial market shares that later could spread to general automotive sales. Over the recent years, a vast amount of venture capital has been streaming in for this business model, especially in Europe (BCG, 2021).

The structure of a subscription in the automotive industry can vary a bit between different OEMs, but the main feature is that the monthly fee covers all costs except fuel- such as general maintenance, repairs, insurance, taxes and tire changes (BCG, 2021). In order to combat the threat of subscriptions posted to leasing companies, they have recently started to shorten their shortest contract period including insurance and maintenance costs. Another important role that OEMs need to consider when it comes to subscriptions is the psychological aspect. A study conducted on German households proved that households underestimated the total costs of car ownership by more than 50% (Ibid). It highlights a problem that customers might find subscriptions relatively expensive compared to buying since subscriptions include all costs that they otherwise would foresee or underestimate. Subscriptions eliminate the risk of asset depreciation for the customers, which is a risk that the OEMs instead will have to bear. Hence, when an OEM chooses to offer a subscription model to its customers, the offer has to be well thought out to reduce the risk.

Some automotive manufacturers offer premium subscription programs with the option of customers being able to swap cars without additional costs, something that according to BCG (2021) is not an important attribute for customers. It is further argued that the COVID-19 pandemic drove the development of subscription services, especially in the automotive sector where commuters were moving away from public transport to private transportation or shared mobility (BCG, 2021; Deloitte 2021). Interest in automotive subscriptions has also increased with younger generations who do not

consider car ownership as a status symbol and more like a burden (Ibid). Even though subscriptions might seem like a lucrative way to target automotive customers in another segment, several OEMs have both entered and thereafter suspended their subscription programs (BCG, 2021). It seems like the automotive manufacturers are having trouble with outlining their subscription programs using an efficient business model. Instead, other actors in the dealership and leasing market have tried to target the market segment, together with new market entrants who also want a share of the 700 million USD venture capital flowing in this market and segment since 2015 (BCG, 2021). As mentioned before, the subscription model is expected to capture at least 15% of new car sales, some forecasts even expect the number to be higher, Deloitte (2021) confirms this statement and describes this market segment to have strong growth potential. However, some subscriptions will likely be captured by car rentals and full-service leasing. It is further likely that this number will differ between different regions depending on the customer preferences, whereas BCG (2021) argues that Europe is likely to grab the largest subscription market.

For suppliers of automotive subscriptions, there are several business models to choose from, each one with different focuses and capital requirements. BCG (2021) has identified the different business models as an integrated provider, service-only provider, marketplace provider and software-as-a-service provider. It is important for the providers to acknowledge their own capabilities in order to assess which business model suits them best. The providers hence have to choose between an asset-light model or actual ownership of the carpool which is considered asset-heavy. The providers also have to choose between a single or multi-brand model and according to BCG (2021), OEMs have chosen the single-brand model as of now. OEMs have certain advantages such as cost advantage and control over the availability of subscription vehicles. The main issue for OEMs when offering subscriptions directly to the customers is to maintain the relationship with their dealers who are responsible for their traditional sales channel. Dealerships may find the subscription offer by OEMs to pose a threat to their business. Another reason to value the relationship with dealers is the brand recognition and customer relationships that the dealerships hold. The 5 steps of the value chain for subscriptions are described by BCG (2021) as:

1. Sourcing vehicles; Involves vehicle procurement and vehicle financing.
2. Building a tech platform; Involves building the core software and tools.
3. Acquiring and retaining customers; Involves marketing and sales.
4. Managing and operating the fleet; Involves delivery and logistics, customer service and operations such as maintenance repairs and cleaning.
5. Re-marketing vehicles; Involves the process of remarketing and selling the vehicles to secondary buyers.

The main difference between subscriptions and leasing is the reduced risk and increased flexibility for the customer, a feature that customers may value. The duration of the subscription period is everywhere between one month and longer periods, even though the main target is somewhere between 1 to 24 months (BCG, 2021; Deloitte, 2021). Some subscription programs may have certain commitment periods, and some may have no commitment with a one-month cancellation notice. To clarify, car rental targets shorter periods like days or weeks and will be a costly option for monthly use.

Car leasing on the other hand will have two-to-four-year contracts and may not include all expenses, but the main difference to subscriptions is the commitment period which will tie the customer to a contract that is very hard to get out of (BCG, 2021). There is also a difference between leasing and subscriptions when it comes to the sales channel and contract signing, where subscription is a digital

experience and the deal is made directly with the OEM. While leasing is usually made on sight with a retailer and a lot of paperwork and as mentioned earlier considered a burden by customers (BCG, 2021; Deloitte, 2021). For customers, subscription eliminates hybrid or electric vehicles' battery life risks and the costs of having to buy new batteries, which instead becomes a factor that OEMs have to consider in their offering. Subscriptions can also be seen as a risk-free option for customers to test vehicles and new models over a certain period, which may attract customers who would not otherwise consider car ownership (BCG, 2021). Deloitte has described the core values for customers regarding subscription models as:

Digital experience

- Convenience
- Availability
- Simplicity
- Flexibility
- Continuity

As described above, subscriptions in the automotive industry will pose challenges and opportunities for both suppliers and customers. The main factors that pose challenges for OEMs and their offering are: Product-market mismatch, limitation of a single-brand offering, competencies beyond their core, market constraints and sellers' risk aversion (BCG, 2021). One reason why some OEMs have decided to leave the subscription market is due to failing to meet ROE requirements by stakeholders.

Subscription is a process that requires relatively high investments in the early stages to pay off in the future. In order for subscriptions to reach market success, they must be a viable option for leasing or buying. The greatest opportunity for OEMs when launching and establishing a subscription model is the move closer to the customers and ongoing relationships with the customers (Ibid), which open new value chain opportunities. Deloitte (2021) expects that subscription models will be offered for vehicles in their second and third lifecycle as well, which OEMs need to decide whether it should be incorporated into their business model.

## 2.2 Customer loyalty framework

The fundamental aspects of loyalty have been defined by scholars in different ways over the years and the concept has grown and developed in the last couple of decades. Traditional loyalty research has its roots in three distinct approaches, starting from a behavioral perspective mentioned by Grahn (1969), building on the theory of loyalty that is based on the proportion of purchases, purchase sequence, probability of purchase and purchasing behavior. On the other side of the spectrum, there is attitudinal loyalty, which builds on the theory of brand recognition, feelings and attitudinal considerations (Jacoby & Chestnut, 1978). With these perspectives on each side of the spectrum, Dick and Basu (1994) created a conceptual framework that integrated both attitudinal and behavioral loyalty and is argued by several scholars to be the correct way of understanding the fundamental aspects of loyalty and identifying the key driving forces of loyalty. These theories are also mentioned in the book *Marketing* by Baines et al. (Page 587-591, 2017) who describe how the behavioral and attitudinal approaches alone are a non-working metric. As a combined metric, they give a suitable and thorough understanding of the concept of loyalty and how it affects different industries.

Dick and Basu (1994) developed a conceptual framework for customer loyalty from the theory of relative attitude towards an entity and patronage behavior. They describe their relationship and how the two aspects affect each other and the final loyalty of the product and entity. A relative attitude can be

described as the attitude towards an entity and its products. According to Dick and Basu (1994), the relative attitude can be divided into four conditions from the aspects of the *strength* and the *differentiation* of relative attitude, to describe this further see *figure 2.1*.

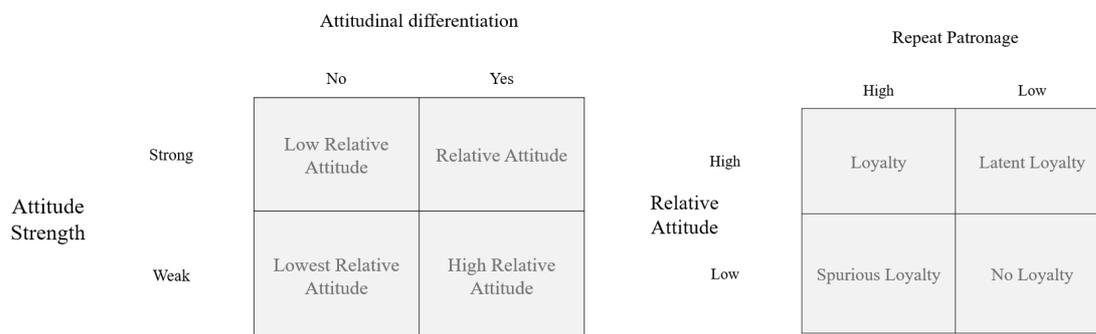
The result shows that the more a brand can differentiate itself from competitors and still remain an attitudinal strength will generate the highest relative attitude. On the other hand, a weak attitude strength and no differentiation will generate the lowest relative attitude (Dick & Basu, 1994). An example of this is the companies of Coke and Pepsi, which both have a strong attitude toward their customers, however, a smaller or almost non-differentiation. This generates a multi-brand loyalty and the position on the shelves or situational context are more likely to affect the purchases than the actual loyalty (Dick & Basu 1994). Thus, using this theory and then cross-classify this with the repeat patronage or “purchase behavior” will give a clearer picture of the type of loyalty that is established by the consumer (Ibid). The four types of loyalty conditions that are mentioned by Dick and Basu (1994) are True Loyalty, Latent Loyalty, Spurious Loyalty and No loyalty. These four outcomes are generated both using an attitudinal and behavioral point of view and the outcomes are described below and visualized in *figure 2.1*.

*No loyalty* - Occurs when a low relative attitude towards the brand together with a low repeated purchasing habit, generates an absence of loyalty. Low relative attitude can be described by new entrants to the market or difficulties to communicate advantages with the company and products (Dick & Basu, 1994).

*Spurious loyalty* - Occurs when a low relative attitude and high repeated patronage or purchase behavior happens. This type of loyalty could happen when there are small differentiations among brands, yet a larger demand for the products (Ibid).

*Latent loyalty* - A situation of high relative attitude, yet low repeat patronage or purchase behavior, which is the situation where marketing has malfunctioned, and even though the company and brand have a strong strength in attitude they still have not managed to create repeated purchases (Ibid).

*True loyalty* - This should be seen as the most preferred of the four conditions when the relative attitude can be seen as high and there is a high degree of repeated patronage or purchase behavior. (Ibid)



**Figure 2.1 - Relative attitude and Loyalty outcome by Dick and Basu (1994)**

## 2.2.1 Key drivers of loyalty

According to Dick and Basu (1994) loyalty is a complex phenomenon, and their research on multifaceted conceptualization has not been done before. Their framework suggests from a managerial perspective to take both attitudinal strength and attitudinal differentiation as equal importance and develop the concept of relative attitude (Ibid). The authors also point out the importance of situational influences and social norms as moderators of the relationships between relative attitudes and recurring purchases. Their work contributes to the general understanding of loyalty and broadens the understanding of loyalty, as well as describing the importance of long-term successful management of customer loyalty (Ibid).

The interest in loyalty has always been high among businesses and one reason could be its high association with profitability (Ngobo, 2016). The loyal customer tends to repeat its purchasing habits and acts as an unofficial ambassador for the brand, which generates income and becomes the backbone of the market position of the firm. According to Ngobo (2016) despite the importance of loyalty as a concept, the subject has as mentioned earlier in this report had many different interpretations. Moreover, Ngobo (2016) has tested the Dick and Basu (1994) framework and their findings suggest that even after the framework has been challenged, the main aspects of relative attitude and repeated patronage remain strong in categorizing and structuring the concept of loyalty. Ngobo (2016) would nonetheless suggest that the aspects considered and the aspects used in each analyzed area have to take industry factors and firm-specific factors into contribution when conducting an analysis. An example that is brought up is how spurious loyalty can be absent in a market such as the grocery industry and highly present in an industry such as the banking industry (Ibid).

With the knowledge that specific studies and empirical research on the subject of subscriptions within automotive and loyalty are almost non-existent today. This study will use the knowledge and cross analyze relevant literature that may include studies from other industries, where the subject of subscription and loyalty has been investigated further and for a longer time period. Further research on the subject showed that many aspects of loyalty remain the same on a theoretical level, however, the details affecting the more holistic parts are different. This could also be connected to how the framework of Dick and Basu (1994) will be applied. In several research studies within different industries, the major points that are affecting the customer loyalty overall can be summarized as (1) image (2) quality (3) price and (4) value (Dick & Basu, 1994; Ngobo, 2016; Saroha & Diwan, 2020). These aspects are constantly occurring within loyalty studies. The importance of these aspects and how to affect the image for example varies a lot from industry to industry and company to company.

In the article written by Saroha and Diwan (2020) they are focusing on subscriptions and loyalty in the telecommunication industry and they developed the following framework from their quantitative study to easier visualize and explain the different aspects of customer loyalty and how these aspects affect customer loyalty. Saroha and Diwan (2020) describe the customer touchpoints to have great importance within customer loyalty and have both a direct and indirect impact. The fact that price, quality and image are all considered to be the product of the customer touchpoints, shows that the customer touchpoints can be different, although the aspects that they affect are central in many types of industry settings. The conclusion is that no matter the industry, the price, quality and image will always be considered major factors affecting customer loyalty (Saroha & Diwan, 2020).

## 2.3 Porter's five forces

The forces described in the work by Porter in 1979 as Porter's five forces can be seen as what shape the structures of industry and competition (Porter, 1979; Dobbs, 2014). In 2008, Porter revisited his famous paper from 1980 to make sure the research was still up to date. It is also mentioned that when the concept was introduced the first time it revolutionized the strategy field (Porter, 2008). Even though industries have very different profitability, Porter found enough similarities using the five forces to describe the nature and intensity of competition (Ibid). The forces that were presented by Porter were:

- *Threat of new entrants*
- *Threat of substitute products or services*
- *Bargaining power of buyers*
- *Bargaining power of suppliers*
- *Rivalry among existing competitors*

Since these factors are vital for industry climates, they will be described in more detail individually. Porter's five forces are presented in his article and will be used as a reference to describe the different forces that shape competitive forces within an industry (Porter, 2008).

**Threat of new entrants.** Industries are always facing the threat of new entrants that could enter the market and grab a share of the market and the threat is depending on different circumstances (Porter, 2008). It is further described that industries with high barriers to entry will have a lower threat of entry since they may require high initial investments in plants and machinery. Not only do new entrants need the capital to finance product or service development but also marketing, distribution, and sales channels (Ibid). The automotive industry has long been an industry with high barriers to entry since each vehicle model requires a lot of R&D to meet safety standards and customer demands. It is also an industry that benefits from economies of scale to reduce the cost of each product produced. Other factors that affect the threat of new entrants are governmental and regulatory policies, like capital requirements or immaterial rights (Ibid).

**Threat of substitute products or services.** A substitute is described as a product or service that performs the same function or meets similar customer needs (Porter, 2008). They further provide information that companies sometimes fail to recognize the threat of newly developed offerings. One example that is brought up is how the railway industry fails to recognize the threat of the automotive and airline industries. In this report, substitutes in the automotive industry are described in *section 3.1 Subscriptions*. Customer decisions in this area are often related to price, switching costs and quality. Companies should therefore analyze threats from within and outside their industry (marketplace) to not overlook potential threats, including offers that to a greater or lesser extent meet customers' needs (Ibid).

**Bargaining power of buyers.** The power of a buyer is related to the number of buyers relative to the sales of the supplier (Porter, 2008). The smaller number of buyers the greater their purchasing/bargaining power is and hence in a better position to negotiate deals. It is also possible for buyers to conduct backward integration to increase the bargaining power, which essentially means including more steps in the value chain within the company (Ibid). In the subscription segment of the automotive industry, OEMs will have better bargaining power than pure service-oriented subscription services, since car manufacturing is integrated within the company, they are able to use economies of scale to reduce the cost of acquiring vehicles and to have better unit profit margins. Porter (2008)

mentioned that price-sensitive buyers are more likely to switch to different suppliers and be less loyal. Hence, companies have tried to include more to their offering, like after-sales service and product/service customization to reduce the buyers' price sensitivity (Ibid).

**Bargaining power of suppliers.** The force described as the bargaining power of suppliers is closely related to the power of buyers but in a reversed role. If the number of suppliers is relatively low, the bargaining power of suppliers increases (Porter, 2008). On the other hand, if the number of suppliers in an industry is high their bargaining power is relatively low to the customer. Another factor that affects the bargaining advantage is the uniqueness and complexity of the product or service that they are providing (Ibid). A supplier could also implement forward integration, which is the scenario where a manufacturer targets the end consumers directly, cutting out the middleman. Forward integration allows companies to hold better control over the entire supply chain and at the same time increase sales and profits (Ibid). Lastly, other factors that affect this force are high switching costs, which would increase the bargaining power of the supplier (Ibid).

**Rivalry among existing competitors.** To understand the relations between different competitors there are certain aspects to analyze. Market share can often be a good indication to determine the different actor's profitability and return on investment in an industry (Porter, 2008). To analyze an industry and its competitors, companies need to analyze the strengths and weaknesses, the strategic goals, and the competitive scope. A company needs to decide which market segment it should target (like choosing a niche) and how the competitors will respond. Companies must also assess their competitive advantage and brand positioning relative to their competitors (Ibid).

Porter's five forces is a commonly used concept in business analysis when looking into new opportunities. The subscription model is a service model targeting a new channel within an existing industry. Still, companies entering into this channel of the industry are likely to face a similar competitive environment as if entering into a new market. Since the forces presented by Porter are well established within business research it serves the purpose of this research greatly. Even though the research by Porter was presented relatively long ago, it is still considered highly relevant to use as a framework for this type of research and helps this study benchmark the research subject to previously conducted and future research. For example, Baines et al., (page 148-154, 2017) argue for why the different forces presented by Porter are still highly up to date in this type of research.

## 2.4 Scenario planning frameworks

The fact that the future is uncertain is a wide fundamental understanding among scholars, many aspects are to consider and many tools are used for strategic planning. According to van 't Klooster & van Asselt (2006) the future is more or less impossible to predict, the main factor to this is the dynamics of the unknown and unknowable. One concept of future strategic planning is the framework of scenario planning. According to Schoemaker (1995), scenario planning stands out compared to other strategic planning frameworks. Its ability to capture the whole range of possibilities and this with extensive detail. The tool itself is useful for firms facing high uncertainties and where industries are in ongoing transformations and larger changes appear (Ibid). According to MacKay and McKiernan (2010) there is a wide range of different scenario analysis tools both emphasizing the quantitative and qualitative research methods. The scenario planning process is highly beneficial and suitable for complex context rich and rapidly changing environments (MacKay and McKiernan, 2010; Strauss and Radnor 2004). Strauss and Radnor (2004) argue that the scenario planning process is a learning process both for the

individuals as well as the organization. The framework suggests considering options outside the traditional scope and comfort zone, to force a thinking outside of the box and preparations for the future outside of their assumptions (Strauss & Randor, 2004). This section will explain the fundamental aspects of scenario planning and deep dive into two highly used scenario frameworks.

### 2.4.1 Introduction to scenario planning

The fundamental aspect of scenario planning is a process for predicting future scenarios from a trend and uncertainty perspective (Schoemaker, 1995). The framework is sharing characteristics with many other planning methods such as contingency planning, sensitivity analysis and computer simulations. The scenario planning framework opens up more angles and aspects than the other mentioned frameworks. An example is how contingency planning tends to only look at one perspective, for example: “What will happen if we do not get the patent?”. While the scenario planning framework presented by Schoemaker (1995) and Schwenker and Wulf (2013) gives the opportunity to look at several trends and uncertainties at the same time which gives a more holistic view of the different future scenarios (Ibid). According to Schoemaker (1995), scenario planning helps the initiator manage all the amount of data available and transform this into a smaller sample of possible states, by following the outlined structure of constructing the scenarios.

The framework attempts to compensate for two common errors in business and decision making, underprediction and overprediction of change (Schoemaker, 1995). The first aspect of underpredicting change is something we all do and we have a tendency to believe that change will not happen at a quicker rate. However, overprediction is also something that is rather common, that we believe the future will be much different from what it is today. An example could be the believed development rate of AI or exploring space, space travel has been a discussion for over half a century, yet most of us are still earthbound (Ibid). This is where the scenario planning framework has its advantages, making sure to chart the middle ground between under and overprediction. Making sure to expand the range of possibilities and at the same time stay within the boundaries of our world (Ibid). The scenario planning process is useful on many levels in an organization and according to MacKay and McKiernan (2010) the scenario approach provides support for establishing predictions of a complex context and enables for preparations of early strategy work. The framework evaluates the impact of “unknown” variables, uniting the organization to the same goals in an early phase. The idea of scenario planning also generates an environment where new ideas and innovation can prosper (MacKay and McKiernan, 2010). The next section of this chapter will deep dive into two established and well-known scenario planning frameworks, both the ten-step process by Schoemaker (1995) as well as the six-step process by Schwenker & Wulf (2013). These two frameworks are both well-defined and would be seen as suitable for our research, Schoemaker (1995) with a more traditional view and will be seen as a bridge between theory and practice. While Schwenker & Wulf (2013) will be used as a more present theory and as their research has pointed out critics against earlier frameworks to be time-consuming and difficult to apply to real-world issues.

### 2.4.2 Constructing scenarios by Schoemaker's ten-step process

According to Schoemaker (1995), it is important to understand that the scenario framework is encouraging the use of both internal and external stakeholders and that the trends and uncertainties that are developed, are based on different scenarios of our society. It could be based on the change in the interest rate or political beliefs. Scenarios could be built on assumptions of high, medium and low-interest rates as an example. The importance of the scenario planning framework is to capture a holistic

view of certain possibilities rather than all possibilities (Ibid). When investigating the potential trends and uncertainties and developing the scenarios a 10-step process is suggested to be conducted to generate the scenarios (Ibid).

(1) *Define the scope.* Defining both the scope and the time frame of the analysis in terms of markets, geography, technology and products. The specific time frame can be product life cycle, political elections, or technological changes (Schoemaker, 1995). A suggestion could be to look at a time frame of 10 years ahead and then reflect on what has happened in the last 10 years to establish an understanding of the rate of change to be expected (Ibid).

(2) *Identify major stakeholders.* The question to be asked in this step is to figure out who will have an interest in this issue? Some clear stakeholders could include customers, suppliers, competitors, employees, shareholders and the government. In this step, it is important to take the stakeholders into consideration and figure out their role in the whole change (Schoemaker, 1995).

(3) *Identify basic trends.* What types of larger trends will affect the issues identified in the first step? How do political, economical, societal, technological or legal trends affect the future issues that have been discovered? For example, what is the environmental question in society, is it a democratic or conservative political party that is ruling? In this step, firm-specific trends are also interesting for the final product. (Schoemaker, 1995)

(4) *Identify key uncertainties.* What outcomes and events are uncertain? How will these uncertainties affect the issues lifted in the first step? Here a lot of the uncertainties can be correlated to the trends described in the previous step, for example, economic, environmental or political uncertainties. How will this affect the future of the firm, positive, negative or uncertain? Both for trends and uncertainties the author suggests the use of an influence diagram, to identify correlations and how it affects the firm. (Schoemaker, 1995)

(5) *Construct initial scenario themes.* As uncertainties and trends are the fundamentals of the scenarios, it is now possible to establish initial scenarios. A simple approach is to start by identifying the extreme worlds, putting them on each side of the spectra, and then identifying the worlds in between. Another way of approaching this initial construction of scenarios is to choose the two most important or largest uncertainties and cross them. (Schoemaker, 1995)

(6) *Check for consistency and plausibility.* This step helps the scenario builders to check for internal inconsistencies or lack of compelling storylines. In the framework presented there are at least three tests of internal consistency. (1) Are the trends compatible with the chosen time frame? (2) Do the uncertainties and the scenarios go together? (3) Are the major stakeholders in a position they do not like and can change? Can it evolve into a new scenario by putting them in this scenario? (Schoemaker, 1995)

(7) *Develop learning scenarios.* The simpler scenarios have now been checked for consistency and this should emerge different types of themes. The goal of this step is to take the themes that are relevant and strategically correct and then take the trends and outcomes and organize the scenarios around these relevant themes. (Schoemaker, 1995)

(8) *Identify research needs.* At this stage, there might be a need to investigate the identified uncertainties and trends further to get a better understanding. The learning scenarios in the previous step should help identify the blind spots of the scenarios and make clear what to research more. (Schoemaker, 1995)

(9) *Develop quantitative models.* When the additional research is conducted, the internal consistencies of the scenarios and evaluations of certain interactions need to be formalized by a quantitative model. These quantitative aspects could be areas such as inflation, interest rates, market share and other larger societal, economic or political aspects. (Schoemaker, 1995)

(10) *Evolve toward decision scenarios.* Are the scenarios good enough to test the current strategies and generate new ideas? If this is not the case, do the steps over again to make sure the scenarios connect with the mental map and concerns of the users (Management) (Schoemaker, 1995).

### 2.4.3 Constructing Scenarios by Schwenker's and Wulf's six-step process

In contrast to Shoemaker (1995), Schwenker and Wulf (2013) provide a rather shorter planning framework with time periods often shorter than five years and their framework consists of the following six steps (Schwenker & Wulf, 2013).

(1) *Definition of Scope.* The first step involves the work of defining the goals, time frame, stakeholders and participants involved in the project, and the scope of the project. A suggestion from the authors is to use the "framing checklist" that has been developed by Schwenker and Wulf (2013) to be able to organize and confirm that all aspects have been covered.

(2) *Perception Analysis.* Step two in this process consists of analyzing the internal and external stakeholders and their perception of the development of the industry. In this step, it is important to understand that the internal stakeholders are highly interested in knowing more about the opinions and expectations of the external stakeholders, which can question the internal stakeholders' views on the process. Here Schwenker and Wulf (2013) suggest using the "360 Stakeholder feedback" framework as a two-part survey asking questions both to the internal and external stakeholders. The result of this step is a list of development factors that could have a potential impact on the future of the industry. (Schwenker & Wulf, 2013)

(3) *Trend and Uncertainty Analysis.* This step could be seen as the third and fourth step in Schoemaker's (1995) process. This analysis helps structure and prioritize development factors identified in the first steps and identify key aspects that affect the future. These aspects will become the fundamentals for the two scenario dimensions that will be used in the scenario building step. In this step, Schwenker and Wulf (2013) suggest the use of their developed tool, "impact & uncertainty grid". This tool will help to position the trends and uncertainties in a systematic way based on how they will impact the firm itself and how uncertain the outcome will be.

(4) *Scenario Building.* The next step will be where the scenarios will be generated based on previously identified uncertainties and trends. The generated scenarios will explain the possible future outcomes and because the uncertainties are combined with other external trends and factors, four plausible and consistent scenarios are built. Schwenker and Wulf (2013) do provide a framework in this section as well, called the "scenario matrix". This framework uses the two dimensions that were identified previously along with the extreme values of these dimensions, generating four squares representing one scenario each. These scenarios are explained by using a framework called "influence diagram", on how the causes and effects of trends and uncertainties have led to this specific scenario.

(5) *Strategy Definition.* In this step, the development of strategies and possibilities for each of the four scenarios are generated. Here it is important to determine actual action plans, which makes it possible to generate strong strategies. When the strategy for each scenario is established, the common themes of

these strategies will be combined and generate a core strategy that is possible to implement no matter what changes that happens. This creates flexibility and a possibility to allocate resources efficiently. The other unique aspects of each scenario are used to develop the scenario-specific strategies instead.

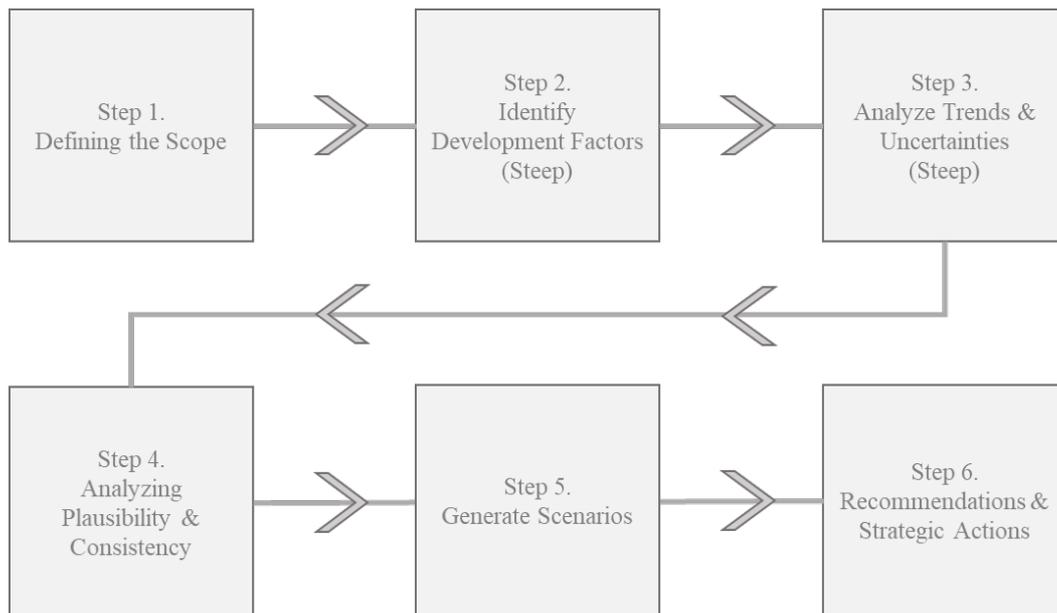
(6) *Monitoring*. The last step in Schwenker and Wulf's (2013) process is based on the fact that the strategies are defined, and it is the start of implementing the strategies in the firm. In this step, Schwenker & Wulf (2013) suggest the firm to monitor the surrounding aspects and external factors to be able to be as flexible as possible and know when to make changes or when to take action if necessary.

## 2.6 Connecting the theories

The presented literature has given a fundamental understanding of the different concepts of loyalty, Porter's five forces and the frameworks of scenario planning. The previous section is of high importance because it outlines the theories and factors that will be taken into consideration in this research. Both for the analysis as well as the development of the future scenarios. The presented scenario planning frameworks will be interpreted to later lay the ground for the creation of a tailored scenario planning framework that is adaptable to this specific research and will suit both research questions and time frame. This is to be able to identify the major trends and uncertainties that are shaping the future of subscription models in the automotive industry. The framework will allow for identifying correlations between the future of subscription models in the automotive industry towards Porter's five forces as well as how the model affects customer loyalty and profitability. The possibility to integrate Porter's five forces and customer loyalty with the tailored scenario planning framework will allow for the identification of what aspects will be most critical for the future of subscription models in the automotive industry. It was done to lay a foundation and guide the strategic incentives for the generated future scenarios.

## 2.7 Tailored scenario planning framework

Because of the circumstances of this research a tailored scenario planning framework was seen as appropriate. Being able to combine the presented frameworks by Schwenker & Wulf (2013) as well as Schoemakers (1995) and use the parts of them that is most suitable for this research. This generates a thorough and well-created framework that will suit the demands of this research and will enable high-quality results (Schwenker & Wulf, 2013). Because of the structure and purpose of this research, some of the steps presented by Schwenker and Wulf (2013) as well as Schoemaker (1995) could be seen as irrelevant for this report. The tailored framework will use some of the steps and elements from both frameworks to integrate these and develop a framework that suits this research in the best way and will generate the best results. The fundamental aspect of the tailored scenario planning framework is that this report contributes to both academia and to industry practice, therefore is a tailored framework suitable since it will allow for adjustments. Some steps have been considered not a fit for this tailored model and some aspects have been merged together to make the process as efficient as possible. However, one key aspect that is changed is how the identification of development factors has changed. In this process, the identification of development factors will be part of the empirical findings and be generated through a thematic analysis of the interviews. Another important aspect is how this tailored framework will not cover the steps of implementing and monitoring, because of the more external perspective and the lack of internal knowledge and time. This tailored framework will instead end with suggestions and strategic recommendations on how to take action on the future of subscription models in the automotive industry. The tailored scenario planning framework is presented below in *figure 2.2* to illustrate the different steps in the process for this study.



**Figure 2.2 - Tailored scenario planning framework**

### **Step 1 - Defining the Scope**

The first step of the tailored scenario planning process is a combination of both Schwenker and Wulf (2013) and Schoemaker (1995). Defining the scope is a critical and important step for the whole process of scenario planning. It will give a clear perspective on what to include in the scenario planning process and to state the general purpose of the scenario planning (Schoemaker, 1995; Schwenker & Wulf, 2013). When defining the scope, five areas have been identified from both frameworks and will be used in this tailored framework, the following areas are presented below.

- Purpose of Scenario Planning
- Strategic level of analysis
- Definition of stakeholders
- Definition of time-frame
- Definition of participation

Creating goals and purpose is a critical part of defining the scope and has a large impact on the final product. Schwenker and Wulf (2013) describe goal setting as critical because it affects the whole scope of the scenario planning. They also highlight the importance of the strategic level of analysis of the scope and that it often will be determined from the perspective of the investigated firm or industry. Another important aspect in defining the scope is identifying the stakeholders, both internal and external stakeholders. One aspect is to identify who is interested in the project and who will be affected by the result (Schoemaker, 1995). In this research, the stakeholders will be both internal and external, which will make the focus on both parties and not one side of the spectrum, which is important to have in mind when reading the rest of the report.

The last two aspects of defining the scope are the time frame and participants in the research. According to Schwenker and Wulf (2013), the time frame is a crucial aspect in predicting realistic future scenarios. Shoemaker (1995) emphasizes how important it is to have the past as well as the present in mind when

evaluating how the development has been over the last decade. To then evaluate what is a relevant time frame for the scenario planning (Schoemaker, 1995). The time frame was chosen as 10 years, which is seen as a medium to long-term perspective, suitable for scenario planning for the future. The last aspect to consider in the step of defining the scope is the aspect of participants. These are the people contributing to the research with crucial and valuable insight helping to identify possible trends and uncertainties. The participants in this research will be both external and internal parties and according to Schwenker and Wulf (2013), this will make the identified future scenarios more precise and increase the reliability of the outcomes. The majority of respondents will be internal since it is more available, which means that they are operating within OEMs.

## **Step 2 - Identify development factors and conduct STEEP Analysis**

Step two consists of identifying the development factors conducted through our interviews and research, to establish a foundation of specific factors mentioned and discussed. This step structure is outside of the original framework of both Schwenker & Wulf (2013) as well as Schoemaker (1995) and is necessary with regards to this research to structure and analyze the interviews in an efficient way. The focus of this step is to transcribe the interviews and analyze our research with the help of thematic analysis, coding the results to identify the major development factors. As mentioned in previous sections, thematic analysis is an approach used in qualitative research, helping to categorize the discussions and interviews into codes and themes, making the conducted data structured and identifying both correlations and differences between the responses (Bell et. al., 2018). The themes and codes are identified from repetitive subjects, metaphors, transitions and similarities or differences in the data (Ibid). The identified development factors will be presented in the empirical findings (*section 4*) with help of thematic analysis. When the research gets to step two, the development factors will already be sorted within the perspective of the research. The next step will be using the structured codes to categorize these by using the STEEP elements presented by Fisher, Wisneski and Bakker (2020). They describe the purpose of their model as a macro-environmental analysis tool helping businesses understand and forecast what might happen in the environment where the business operates. We will not do their analysis, although we will use their framework as a structure to categorize our development factors in an efficient way. The STEEP structure stands for social, technical, economic, ecological and political (Fisher, Et al., 2020). Further description of each category and inclusion criteria can be found in *appendix D*.

## **Step 3 - Identifying trends and uncertainty**

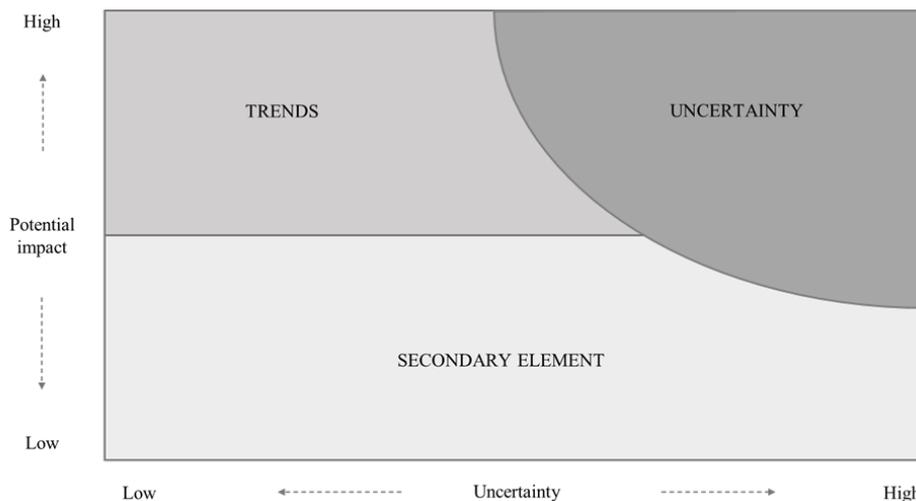
The third step has a high degree of correlation to Schwenker and Wulf's (2013) and to Schoemaker's (1995) scenario planning process. The decision of combining trends and uncertainty into one step is rooted in the knowledge that they are highly correlated, and it will increase the efficiency of the analysis. In this step, the development factors identified through our interviews and research are analyzed from the perspective of the research and will lead to the identification of trends and uncertainties connected to the purpose of this research (Ibid). However, all identified development factors generated will not be used and some will be seen as irrelevant to the scope. It is important that the development factors can fit within the time frame and have a large impact on subscription models, to be considered and used to develop trends and uncertainties. The development factors that do not fit will be excluded from the research, below is an explanation of the trend and uncertainty inclusion criteria see *table 2.1*.

**Table 2.1 Inclusion criteria**

Inclusion criterias	
Trends	Uncertainty
Major Imapct on OEMs	Major Imapct on OEMs
Within the time frame	Within the time frame
Significant presence in interviews	Significant presence in interviews
Outcome is certain	Outcome is uncertain

As shown in the presented inclusion criteria above, there are three aspects that are the same for all development factors. The last criteria decides if the outcome is certain or not and hence, decides if the development factor is considered to be a trend or uncertainty. This inclusion framework will be used as guidance when evaluating and analyzing the development factors within the industry. All four criteria of either the trend or uncertainty have to be met to be able to be included in the research and considered as a trend or uncertainty affecting the outcome of this research.

The next step in the process will be to explain each and every trend and uncertainty and briefly describe how the development factors fulfill the criteria for a trend or uncertainty (Schoemaker, 1995). According to Schoemaker (1995), uncertainties build the foundation of the scenarios and for every uncertainty are two extreme outcomes identified. With the help of Schwenker and Wulf's (2013) "impact/uncertainty grid" will the trends and uncertainties be visualized and presented in a way of how much impact they have as well as how uncertain the outcomes are. The identified development factors will be sorted on the aspect of impact and uncertainty in the "impact and uncertainty grid", see figure 2.3. The grid is divided up into three sections, the bottom section is trends and uncertainties that have a minor impact on the OEMs and will be called secondary elements. The development factors that end up in this section will be excluded from the research and scenario process. The upper right section presents the uncertainties, and the upper left will present the trends (Schwenker & Wulf, 2013).



**Figure 2.3 - Impact/uncertainty grid by Schwenker and Wulf (2013)**

#### Step 4 - Check for plausibility & consistency

This step is influenced by the sixth step of Schoemaker’s (1995) which is checking for plausibility and consistency within the trends and uncertainties. The fact that checking for correlations and differences among the trends and uncertainties are necessary to establish a fundamental validity of the established scenarios. Uncertainties or trends could both correlate, contradict or be mutually exclusive to each other; all these aspects affect the final plausibility of the different scenarios. Finding correlations and interconnections among uncertainties are highly relevant when building the scenarios (Ibid). Schoemaker (1995) suggests the use of the correlation matrix when determining the correlations. The matrix shows a simple way of determining how the different uncertainties are affecting each other. An example could be how the occurrence of uncertainty 1 (U1) will affect the occurrence of uncertainty 3 (U3). If there is an increase in occurrence it is a positive correlation (+) and if there is a decrease in occurrence there is a negative correlation (-) and if there is an unchanged occurrence it is neutral (0). In some situations, it is difficult to determine the impact and if the effect is impossible to determine, it will become unknown/uncertain (?).

**Table 2.2 - Correlation matrix by Schwenker and Wulf (2013)**

Correlation Matrix						
	U1	U2	U3	U4	U5	U6
U1		?	+	-	-	+
U2			-	0	+	?
U3				?	-	0
U4					0	-
U5						?
U6						

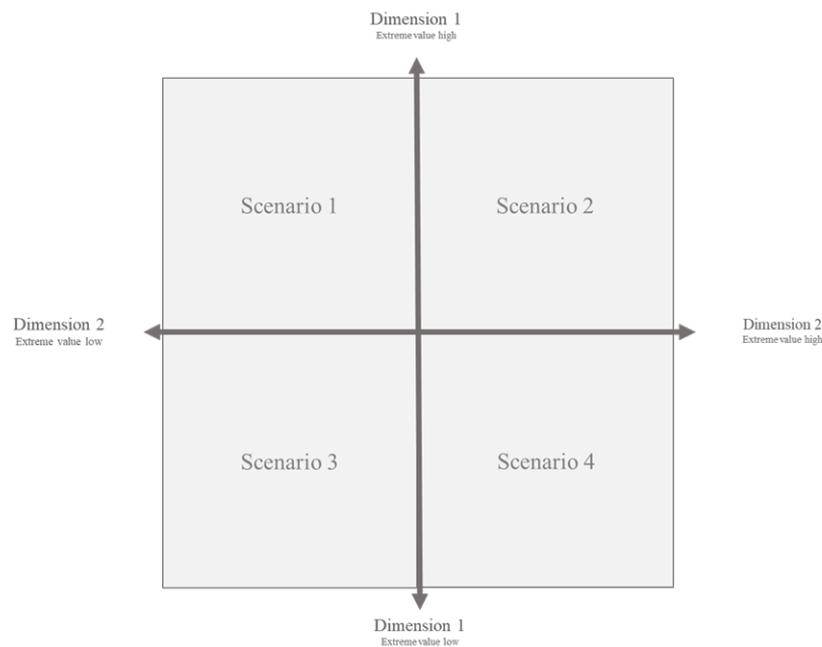
Within the fourth step of this tailored framework, a trend impact analysis is included as well. Schoemaker (1995) is including this in his third step of the process. However, as the trends are affecting the uncertainties, this analysis is conducted after the uncertainty analysis is made. This is because the trends will happen regardless of how the scenarios and uncertainties emerge. This approach will result in investigations of how trends influence other trends as well as uncertainties. This will generate a higher consistency and, in the end, result in stronger plausibility. These interconnections will be visualized in the scenario influence diagrams in *appendix D* and described in the storylines.

#### Step 5 - Generate Scenarios

This step is where the different puzzle pieces are collected and put together to generate complete scenarios. This step is both influenced by Schwenker and Wulf’s (2013) and Schoemaker (1995) and there are three common ways of generating scenarios, intuitively, heuristically and statistically (Schoemaker, 1995). For this research, the heuristic model is used, because of its appropriateness to this report and how this report is structured. The heuristic model for generating scenarios is based on the two most important and critical uncertainties discovered throughout the interviews. This is to establish a common ground to where the analysis will have its starting point. In the case of this report, the two dimensions identified will follow the following two criteria; the uncertainty has to be highly correlated to the OEM and have a significant impact on the industry as a whole and within the desired time frame

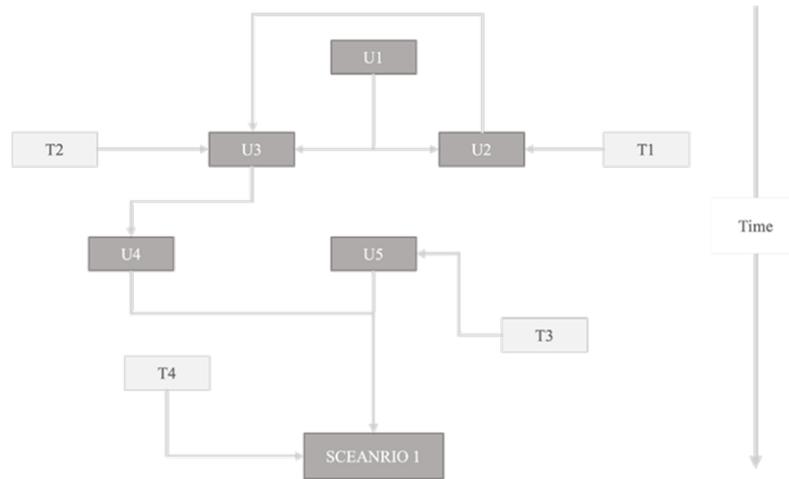
of 10 years. The uncertainties also have to be able to correlate to each other and be able to categorize them together within the same dimension (Schwenker & Wulf, 2013). The identified key uncertainties will create two dimensions creating a scenario matrix, consisting of four different quadrants and two dimensions on each axis with their extreme values. The potential scenarios and the uncertainties have to be able to bundle together and correlate to the two key uncertainties that were identified and turned into two dimensions to be considered to be used in the right way. According to Van 't Klooster & Van Asselt (2006) the scenario matrix was first introduced by Kees van der Heijden in the 1970's and could be seen as the backbone of scenario development. The authors argue that this axis approach gives the right fundamental environment to develop scenarios in a structured manner (ibid).

This approach and model were first introduced by Kees van der Heijden in the 1970's (van 't Klooster & van Asselt, 2006) and described as a useful tool to develop future scenarios by Schwenker & Wulf (2013), the scenario matrix is visualized in *figure 2.4* below, to illustrate this heuristic approach in a more holistic way and show how the four scenarios will be presented (ibid).



**Figure 2.4 - Scenario matrix by Schwenker and Wulf (2013)**

The quadrants of scenarios are both taking uncertainties and trends into account and each scenario will have a well-formulated narrative describing the situation and position an OEM and a consumer have in the different scenarios. These four narratives will then describe the aspects of porter's five forces, loyalty, and profitability, and how these aspects are affected. Except for the narrative, each scenario will be visualized with the help of an influence diagram (Schoemaker, 1995; Schwenker & Wulf, 2013). The influence diagram consists of uncertainties and trends and how these are interacting with each other and affect the final scenario. The influence diagram is presented below in *figure 3.5*.



**Figure 2.5 - Influence diagram by Schwenker & Wulf (2013)**

### **Step 6 - Recommendation & Strategic Actions**

The final step of the tailored scenario planning process is to present recommendations and strategic actions based on the future scenarios. This step is similar to Schwenker and Wulf's (2013) last step and the arguments for the strategic action will be strengthened by the presented theory of a customer loyalty framework and porter's five forces. Presenting a holistic view of what factors will affect the outcomes of the scenarios. Based on the fundamentals of loyalty and porter's five forces, each scenario will present different aspects and strategies for the future of OEMs.

According to Schwenker and Wulf (2013), the four strategies generated for the four scenarios will have certain aspects in common. These correlations will together generate what Schwenker and Wulf (2013) say is a core strategy. The core strategy will present recommendations and a strategy for an OEM to be better prepared for future changes and maintain adaptability and make sure to be able to adjust to the future. The sixth step is as mentioned the last step and when this step is finalized the scenario planning process is finished. The process has generated four potential scenarios visualizing how the future might develop regarding subscription-based business models in the automotive industry. This together with the strategic actions and recommendations that have been developed on the most affected aspects of the firm. With the help of the different scenarios and their strategies, a core strategy will be developed, giving the opportunity for an OEM to navigate through the unknown future and adapt to the situation in a better and more efficient way.

## 3. Methodology

*This section aims to present the research method that was used to study the subject of the thesis. It presents the research design, quality measures and the strategy of the study. It also presents how the process of data collection was conducted and the relationship between primary and secondary data. The methodology for this research is based on qualitative research study methods.*

### 3.1 Research strategy

Because of the decided research questions, a qualitative approach was determined as the most suitable approach for this research study and was therefore used as a research strategy. According to Bryman and Bell (2011), the qualitative method makes the research extensive and makes it possible to answer the research question in depth. This method will favor both the data collection as well as the analysis for this type of research. Since the strategy is based on interviews and existing literature, the strategy itself helped to gather a deeper understanding of the subject (Ibid). This research project had a primary focus on collecting qualitative data, adding knowledge and value to the final product, with an iterative approach, meaning that the research is going back and forth between theory and data (Ibid).

The qualitative strategy is focusing on emphasizing words rather than numbers and is a suitable approach when discovering and exploring topics with high uncertainties and a high degree of interpretations of unstructured data (Bryman & Bell, 2011). The alternative quantitative strategy, on the other hand, has a focus on numerical values and quantification of both the collection and analysis of data, the result shows a view of social reality as an external objective reality (Ibid). The qualitative strategy is building up theory rather than explaining the theory and is usually associated with an inductive research approach compared to the quantitative strategy where the deductive approach is more common (Ibid). A deductive approach is an approach where the research study is connected directly to the theory and the research question is focused on challenging this theory. While an inductive approach is an approach focusing on building a new theory by analyzing the surroundings (Ibid). This research project will have an abductive approach for the data collection and was chosen because it is the most suitable approach to answer the research question. The abductive method is an approach building on observations developing theory rather than generating theory and the outcome is the best prediction rather than a complete conclusion (Dubois & Gadde, 2002).

Bryman and Bell (2011) describe the qualitative strategy that it usually builds on assumptions related to both constructivism and interpretivism. This means that the focus of the research is mainly focused on people and how to make sense of the social world (Bryman & Bell, 2011). This usually leads to a consequence that researchers applying a qualitative strategy only study a smaller sample of objects or people. The quantitative strategy in this sense builds their assumptions related to positivism and objectivism. This means that the focus is often on what can be objectively observed, and this leads to more standardized data that can create more general conclusions on the hypothesis (Ibid). The qualitative strategy will be used to evaluate and investigate the development and futuristic aspects of the subscription model in the automotive industry, where interpretation and emphasis on words and interviews are of significant importance. This part of the research was conducted not only to receive information but also to find the explanations for the development and circumstances that affect the potential future scenarios within the automotive industry. The qualitative method creates an abductive approach and research strategy that is covering a wider range of aspects and will help to validate and add more value to the final product and could be seen as filling the gaps within the research field and

area of investigation (Dubois & Gadde, 2002). It generates a more thorough and well-developed answer to the research question.

## 3.2 Research design

According to Bryman and Bell (2011) research design and research method is crucial to construct before the study is conducted. The research design is used to set up a framework for the management of the data collected and analyzed in the study. When constructing the research design the researcher needs to generalize groups greater than the subjects investigated in the study and have an appreciation of the social phenomena and the interconnections (Ibid). The research method on the other hand refers to the techniques of collecting data for the study. The research design can hence be seen as a guideline for how the research method was conducted. For this study, the research design was constructed to provide a suitable framework that made sure data collection and analysis were done accurately. Since the research was done with the use of an abductive approach, the research design had to be exploratory and open to findings. It started off with research on the subject of subscription models in the automotive industry to get an understanding of the current environment in the industry. This part of the research could then be used to put more depth and understanding on the later part of the research. Thereafter the structure was to conduct qualitative interviews with different stakeholders within the automotive industry to get insights into potential implications that subscription will have. The next part of the study then provided a framework for the automotive companies, to have different perspectives and action plans in mind depending on the scenarios.

As understood by the background literature, many different factors are affected when the industry moves in this direction. The companies need to consider the effect it may have on their business and sales model. The effects can be both positive and negative. The aim of the study is to also analyze the effects on customer loyalty and profitability when implementing a subscription model. Because of the exploratory characteristics of this study, factors were selected after the thematic analysis was conducted. The aim was to set up a clear framework that could generate scenarios and recommendations for OEMs. The research design was also constructed to incorporate challenges, threats and opportunities that the OEMs may face. The scenario planning framework will be kept in mind when collecting qualitative data and later also for analyzing the data. When constructing the research design there are certain aspects or criteria that need to be taken into consideration. Criteria that the researcher needs to take into account in the research is reliability, replication and validity (Bryman & Bell, 2011).

As mentioned, a tailored scenario planning framework influenced by Schwenker & Wulf (2014) as well as Schoemaker (1995) will be used and are described more in detail in *section 2.7*. Although, the methodology aspects of each step will be described below, to give a better understanding of the process. The scenario planning process will consist of a total of six steps, from defining the scope to generate strategic actions and recommendations for OEMs within the automotive industry. The first step is to define the scope of the scenario process, this is done together with our partnering company and lay the foundation for what should be achieved with the scenario planning. The second step consists of identifying development factors from participants, using qualitative interviews to investigate the areas that are affecting the future of subscriptions in the automotive industry. This step creates a foundation for the next step, which is step three, analyzing trends and uncertainties. This step investigates the development factors that has been identified and categorize them as either trends, uncertainties or secondary elements.

The next step will be step four and this step consists of analyzing the trends and uncertainties for consistency and plausibility to strengthen the argument and being able to understand which uncertainties and trends that have the most impact and correlates among each other. After this, step five will generate two dimensions of bundled together uncertainties to develop the scenario matrix and the four different scenarios. In this step the scenarios will be presented using both storylines as well as the influence diagrams. The last step of the process step six will consist of mapping out the strategic actions for each scenario as well as a core strategy and give recommendations for OEMs to adapt to the future scenarios. In this step the authors will combine their findings to the theories presented in *section 2*, to get a better and more fundamental understanding as well as strengthening their arguments for why the OEM should position themselves or take the recommendations presented. The scenario planning framework creates a structure to tighten the data collection and make it more efficient as well as making the process of determine an unknown future more realistic and makes it more predictable.

### 3.3 Data collection

One of the most critical and fundamental aspects of research is the data collection, the fundamental driver of the data collection is the research question and how this data can be used to answer the research question (Bryman & Bell, 2011). The data collection can be divided into two types of data, primary data, as well as secondary data, and in this research project, both aspects were considered. Yet a larger emphasis and weight on the primary data generated empirical understanding and had a large part in the analysis. Primary and secondary data combined created a critical view of the identified data, which will strengthen the external validity in the process. The primary data consisted of qualitative interviews with experts and parties involved in subscription models within the automotive industry. While the secondary data on the other hand will consist of reports and articles to support or contradict the primary data. However, the primary data was the key source of data in this research study.

#### 3.4.1 Primary data

The main data collection of primary data was gathered through qualitative interviews. Interviews were seen as a preferable choice of data collection, because of the flexibility and elaboration possibilities for the respondents when answering questions on the subject (Bryman & Bell, 2011). Because of the futuristic scope and the purpose of capturing future possible scenarios for this research, the importance of getting the respondents' own elaborations and own thoughts of the future were of high essence when collecting the primary data. The format of qualitative interviewing generated open-ended views on the research and made it possible to both gather detailed answers as well as different perspectives from the respondents (Ibid). This type of data collection comes with both advantages and disadvantages, one disadvantage in the process of doing qualitative interviews is the time-consuming activities of transcribing and analyzing the result (Ibid). Yet the advantage of this approach gives a deeper knowledge of the subject and respondents' thoughts and therefore was valued higher than the disadvantages.

##### 3.4.1.1 Interviews

The qualitative interview approach that was used in this research study, could have been conducted in three ways: structured, unstructured and semi-structured interviews (Bryman & Bell, 2011). For this research, the semi-structured approach was the chosen alternative to be used. It was considered preferable since the focus lies on a specific concept and an area of expertise. The semi-structured interview lets the research focus on the area investigated, yet also lets the respondents freely elaborate

on their thoughts within this specific area of investigation (Ibid). An interview guide is recommended to establish a good foundation for the semi-structured interviews (Ibid). Hence, an interview guide was created with a list of questions and subjects to follow and investigate further during the interviews. The creation and design of the interview guide made sure the interviewer stayed on track and that the area of investigation was covered to be able to answer research questions. The interview guide was therefore structured by the areas of investigation. However, the order of the questions, revision together with adding questions were accepted throughout the interview. It was done to allow for flexibility and added value to the final product (Bryman & Bell, 2011). The questions were generated as open-ended questions, because of the suitability to encourage the respondents to reply freely and in their own thoughts and words, describing the area of investigation. It helps to gather less generalized answers and reduce contradictory answers (Ibid). The contradictory data will not be seen as an issue in this research, because the research goal is to identify various scenarios for the future. This will create more objective answers, which will lead to less risk of only receiving confirming evidence (Schoemaker, 1995).

#### 3.4.1.2 Selection of respondents

When choosing the sample size and selection of respondents for this research, it was important to keep in mind that it was an exploratory and investigative research study, focusing on a specific area of investigation. For the qualitative interviews, the selection of respondents was done through the purposive-sampling method, an example of non-probability sampling. It implies that the sample is not randomly chosen from any population, it is rather a strategically chosen group of objects or people that the researchers have chosen on purpose, to get the best possible answer to the hypothesis in an efficient way (Bryman & Bell, 2011). The research also included the snowball sampling method in the qualitative interviews to be able to gather as many relevant respondents as possible. Snowball sampling is a sampling method used to allow the chosen respondents to suggest additional relevant respondents to the research study (Ibid). This approach was suitable for this research because the respondents themselves were experts or people highly involved within the research area. Each respondent had a large network that the researchers could benefit from.

The sampling was highly related to the result and analysis of the research study, which made the process of avoiding biases a highly important aspect when selecting the respondents (Bryman & Bell, 2011). Understanding the purpose and research question is of high value when choosing a sample, the research question had a high implication for which respondents were selected for the interviews (Ibid). It was important to have respondents that could contribute to the future scenario building and give qualified assumptions and insights into the process of subscription models in the automotive industry. The respondents were mainly chosen by their expertise, meaning their expert knowledge, as well as their general knowledge of the subject, was taken into consideration. It helped generate a deeper understanding of the research subject. The reason for doing so was because their expertise is connected and the discussions could overlap. Because of the snowball-sampling method, it was possible for the researchers to be introduced to more experts within their network and reach further into the social network of subscription experts. In line with the criteria above, the respondents were chosen and are presented below in *table 3.1*. The number of interviews was determined, when the researchers experienced saturation on the subject and the interviews did not lead to any more aspects to consider, this resulted in ten interviews from two companies and one expert. According to Bryman & Bell (2011) there is little point in continuing with the interviews when a saturated state has been reached and the data collection should halt.

**Table 3.1 - List of respondents**

<b>Sector</b>	<b>Name</b>	<b>Organization</b>	<b>Position</b>	<b>Channel</b>	<b>Date</b>	<b>Length</b>
<i>Loyalty</i>	Robert Broström	Volvo Cars	User Experience	Remote	2022-03-22	35:20
<i>Loyalty</i>	Marcus Åslund	Volvo Cars	Consumer Experience	Remote	2022-04-06	53:41
<i>Market</i>	Sara Sundström	Lynk&Co	Customer Experience	Remote	2022-03-25	35:41
<i>Market</i>	Daniel Larsson	Volvo Cars	Marketing	Remote	2022-03-29	27:38
<i>Finance</i>	Magnus Axner	Volvo Cars	Business controller	Face-to-face	2022-03-17	54:27
<i>Finance</i>	Jonas Rybrand	Volvo Cars	Product controller	Face-to-face	2022-03-15	51:19
<i>Finance</i>	Henrik Ohlsson	Volvo Cars	RV Risk	Remote	2022-03-31	55:37
<i>Commercial</i>	David Green	Lynk&Co	CTO	Remote	2022-04-08	1:00:26
<i>Commercial</i>	Fredrik Sandberg	Volvo Cars	Operations	Remote	2022-03-15	58:24
<i>Expert</i>	Mikael Wickelgren	University of Skövde	Professor	Face-to-face	2022-03-11	1:03:01

### 3.4.2 Secondary data

The main data collection was conducted using qualitative interviews in a semi-structured approach; however, this research study included secondary data as well. This is to be able to contradict and strengthen the arguments conducted through the interviews. Secondary data is a way of quantifying the data collected in a time-saving and less costly manner (Bryman & Bell, 2011). Secondary data could be found in both the qualitative and quantitative nature of research and this research study used both to establish a deeper understanding of the phenomena and as mentioned earlier strengthen or contradict some of the findings in the qualitative interviews. This focus is important to be able to establish applicable and possible future scenarios for the subscription-based financing model within the automotive industry. The use of secondary data assists in adding knowledge to the hypothesis and scenario planning process and improves the reliability of the research by generating more objective findings and identifying factors (Schwenker & Wulf, 2013).

The secondary data was collected through internet searches of mainly large databases. The collection of data included articles, reports, press releases and numerical databases adding value to the developed future scenarios. To ensure the quality of the data, the articles that were retrieved from large databases had to be peer-reviewed, to make sure it has the desired quality. The reports and press releases were all collected from consultancy companies or general well-known companies within the automotive industry. The quality of the reports and press releases was ensured by using well-known sources, in addition to cross-checking different sources. The secondary data was collected throughout the whole

process and had to be collected prior to interviews, to be able to gather a deeper understanding of the questions and subjects discussed in the qualitative interviews. Thus, to determine what was known and already investigated and where there were potential gaps was filled, with the primary data. The secondary data was also of help to both strengthen and contradict the primary data conducted and ensured a higher quality of the final product (Bryman & Bell, 2011).

### 3.5 Data analysis

The data analysis conducted approached the collected data with one goal, to manage, understand and structure the collected data. Data analysis has a fundamental part in how the data is interpreted and understood and ensures the validity of the research (Bryman & Bell, 2011). Therefore, the analysis and its structure were of essence to the final product (Ibid). Data analysis had an essential part in both understanding and structuring the qualitative data. The collected data was thereafter analyzed to be able to look at different potential future scenarios and help answer the overall research question.

When analyzing the qualitative data that was collected, it was important to understand that there is a lot of information and usually information that is rather unstructured (Bryman & Bell, 2011). The interviews collected were recorded and transcribed to be able to get all information saved for later analysis. The method that was chosen to structure and analyze the unstructured data generated was thematic analysis. Thematic analysis is a strategy approaching qualitative data by categorizing the discussions and interviews into codes and themes, making the data structured, and making sure the aspects correlating are analyzed as well as the difference in a systematic way (Bell et al., 2018). The themes and codes are generated mostly from repetitive subjects, metaphors, transitions and similarities or differences in the data (Ibid). The main advantage of this method was that it was applicable to almost all qualitative data and approaches, rather simple to understand, and was closely related to more rigorous methods such as the ground theory (Ibid). The main disadvantage of the method was that it reduced the data, which could have created a loss of context and that some data or variables are left out. There was also an issue of being subjective when coding, which is why more than one person coded the data, to then compare and see if there are any differences (Ibid). This procedure helped increase the internal reliability of the overall research project.

### 3.6 Research quality

*This section aims to present the research quality that was used to check for plausibility for the thesis. It presents the research quality characteristics mentioned by Bryman and Bell (2011) reliability, replication and validity. It presents how the aspect of research quality has been considered throughout the research project and how the researchers have evaluated how and what they have been doing in terms of research and data quality.*

#### 3.6.1 Reliability

When performing this research, it was important to separate external and internal reliability (Bryman & Bell, 2011). The term external reliability refers to the ability to repeat the study, receiving similar results. In its essence, that means how consistent the results would be if the research were done again using the same method (Ibid). Thus, consistency is important for research to be reliable, and measures need to be stable, which is particularly important when conducting quantitative research. To improve external reliability, it is important to make sure that respondents are truthful (Ibid). One way of reducing the risk of respondents not being truthful is to publish information about them. Still, there is always a

risk of receiving biased answers that do not represent reality (Ibid). The term internal reliability is mainly used for qualitative research methods and refers to how consistent the researchers are in the data collection (Ibid).

### 3.6.2 Replication

The term replication is closely related to reliability and refers to the ability of a study to be replicated by other researchers (Bryman & Bell, 2011). The reason for why this criterion is important was that research is sometimes replicated by other researchers with a different problem formulation. Hence, if the method is not described in great detail, it makes it impossible for other researchers to replicate. Replication can give lower status to research and is therefore quite uncommon (Ibid). It is still a factor that needs to be considered and is argued as especially important for quantitative research, which will not be used in this research.

### 3.6.3 Validity

Bryman and Bell (2011) further argue that validity is the most important criterion when conducting research. It mainly relates to how conclusions are being drawn from the research and the integrity that connects them (Ibid). It can be separated into different categories that are: measurement validity, internal validity, external validity and ecological validity (Ibid). Measurement validity is mainly a concern in quantitative research and refers to the connection between concepts provided with the concepts in question. If a measure is unstable, it would then mean that it is not providing a valid measure of the concept in question (Ibid). It is important that measures are reliable in the research. When it comes to internal validity it describes the relationship between theories and findings. External validity describes how well the conducted research can be generalized. In quantitative research, the method for choosing the sample is seen as important since the researcher wants the study to be applicable to the whole population, not just to the chosen sample. Lastly, ecological validity is argued by Bryman and Bell (2011) as if the findings are applicable to the natural settings of people. For the ecological validity to hold the researcher needs to find samples that allow the findings to hold true in the natural settings of humans.

## 4. Empirical findings

*This section will cover the empirical findings from the data collection using thematic analysis. It primarily consists of data collected from the conducted interviews. The presented findings on the subscription model serve as a benchmark to clearly illustrate the concept of subscriptions. Thereafter the development factors that have been identified from the thematic analysis are presented, which originate from the interviews. The development factors are sorted using the STEEP structure: Sociological, Technological, Economical, Environmental and Political & Legal. This is to take advantage of the framework when we analyze trends and uncertainties in the scenario planning as well as get our findings categorized in an efficient manner.*

### 4.1 Findings on the subscription model

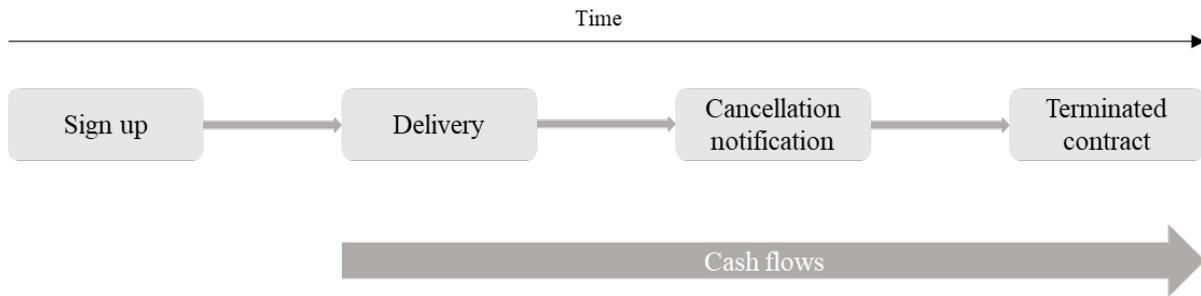
The subscription model is a relatively juvenile and innovative way of doing business, it is in many industries still in a trial-and-error phase. The respondents made sure to express that a subscription model builds on a service rather than a product and that the way of thinking about the product has to fundamentally change to be able to adapt to the model completely.

*“For us, the focus has always been to do things differently. Finding the customer needs and making sure our business model around the month-to-month offer is built from removing pain points in the customer journey” (...) “From a customer perspective this increases the simplicity and hassle freeness and the worryness about the car will disappear and instead increase the time for experiencing life and everything else that is going on.” - Sundström*

The interviews have provided information that the subscription model is causing a shift in the industry, and it is not just about what product you sell anymore, but it is also about what outcome that product gives to the customer. It was mentioned that the whole approach of introducing subscriptions moves the company and customer closer together and generates a customer-centric view.

*“There are both opportunities and challenges with the subscription model and the largest is that the consumers are rather using a car than owning a car. This will change how the OEM should position themselves towards their customers and it partly changes the focus from the product to the service” - Wickelgren*

The interviews provided information on how OEMs go about the model and which parts separate it from other ownership models within the industry. The respondents mentioned that there are two main subscription models that are offered, the fixed and the flexible contracts and they will be explained deeper later in *section 4*. The fixed contract has a fixed period where the customers are bound to the contract and hence, considered more secure by OEMs (Sandberg). He states that it has more similarities with leasing contracts and the main difference is that fixed subscription contracts include more services to it. However, Sandberg explains that the flexible subscription model does not have a fixed contract time and the customers can cancel the contract with a short notice period, usually between one to three months. Flexible subscription contracts are the main focal subject for this research, as their characteristics are considered new in the industry and hold more similarities with car rentals. OEMs that offer this service have several factors to consider, which will be discussed later in this chapter. To illustrate the model that the respondents described, visualization is made below in figure 4.1.



**Figure 4.1 - Anticipated simplified figure to describe subscription model with flexible contract**

From the interviews, the flexible model was described as having the steps of sign up, delivery, cancellation notification and termination of the contract. That means the time of cash flow is unknown. Sandberg discusses the flexibility that is offered in the contract and that the total time period for the contract is uncertain. Hence, the OEMs do not know beforehand how long the contract will be held by the customers and this can vary a lot from customer to customer (Sandberg).

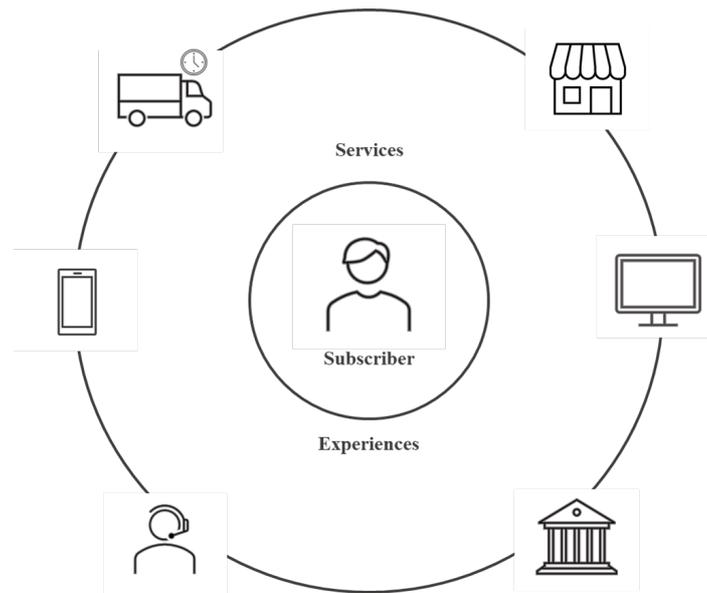
*“We have been able to observe customers that have the contract from a couple of months up to several years with the flexible contract.” - Sandberg*

The cancellation notice time secures some payments for the company, but other than that it is challenging to estimate the total cash flow and hence the total value of each subscription (Axner). Axner describes how the time from the cancellation notice until the contract is terminated can be used by the OEM to either market the vehicle on the second-hand market or reallocate it to a new subscriber, if that kind of subscription program is available. Unless there is a sign-up fee, cash flows are not received by OEMs until the vehicle is delivered to the customer. By reducing the time to delivery, cash flows occur earlier and profits should be higher, based on that the customer ends the contract at a preferred time in the future (Axner). Both Axner and Ohlsson mentioned that there are a lot of uncertainties in the model that OEMs do not know beforehand, and when evaluating the model and determining price and terms the OEM will have to do major estimations and risk adjustments.

The respondents discussed that the move towards a subscription model leads to changes in the value chain for OEMs. As seen below, the two figures that are presented illustrate the respondents' descriptions of the traditional value chain and how the value chain will change to a more circular value cluster if the subscription model grabs a greater share of total sales volume. OEMs mostly offer subscriptions directly to the end customers. If retailers were previously in charge of the sales process, test driving, service and customer contact, OEMs will likely take over the role of the sales process and customer contact (Wickelgren).



**Figure 4.2 - Simplified model of the value chain in the traditional automotive industry as described by respondents**



**Figure 4.3 - Value chain for subscription service in the automotive industry as anticipated by respondents and literature**

Figure 4.1 and 4.2 illustrate the changes that the subscription service will lead to in the industry. Figure 4.1 presents the value chain that was present with the traditional sales model for OEMs, as it has been described by respondents. The value chain was quite simple with clear tasks and responsibilities for each part of the value chain. As presented in figure 4.3, Sandberg described the evolution of the subscription model as a circular value cluster where relationships between OEMs and the end customers or “Subscribers”, are ongoing (Sandberg). OEMs that fail to phase out the role that retailers previously had will have profits “*Slim to none*”- (Green). In order to meet the flexible needs of subscribers, the value chain might change to become more circular and meet shorter waiting times (Rybrand). OEMs are looking to control the value chain and integrate parts that were previously outsourced to other actors (Rybrand). Since OEMs will directly target the end customers, it calls for implementing their own customer services (Sandberg). Several respondents discussed subscriptions and direct contact with the customers as something new that OEMs were not previously involved in; it calls for broader organizational skills. Axner discusses how OEMs are moving away from just working with their core business of being automotive manufacturers and creating a greater organization that will have challenges, such as dealing with credit and terminal value risk (Axner). These challenges are presented further in the next section but will also lay the groundwork for recommendations presented at the end of this report.

## 4.2 Sociological development factors

*This section aims to present the empirical findings within the sociological aspect of the steep framework affecting the subscription model and the OEMs in the automotive industry. Focusing on areas such as culture, customer relationships, society, and values at large. Some areas that will be brought up in this section is the customer centric view, customer journey, values and customer loyalty.*

### 4.2.1 The customer-centric view

The global change in how customers consume products and services has changed in the last couple of years and was frequently mentioned by our respondents. This is because of fundamental changes in

technological developments as well as awareness of sustainability issues (Rybrand). Therefore new innovative ways of producing and consuming products have arisen and phenomena such as circular economies and subscription models have increased (Wickelgren). The change towards more customer-centric companies and subscription-based business models affects the automotive industry and is something that has been discussed by all respondents and is considered a fundamental change in the industry.

This development is coming from a larger change in society, where other industries have already adapted and created a much more engaging customer journey and customer relationship (Åslund). According to Sandberg, the automotive industry is relatively late on this aspect compared to other industries. However, the majority of respondents believe this to be a large part of the future for the automotive industry and that the change comes with both potential benefits and challenges. Rybrand mentions that the transformation will affect the whole company in one way or another, meaning capabilities and resources have to be moved or converted. Also, the importance in understanding the shift from a product-specific mindset to a service-oriented mindset where the value is in the service rather than the product. The change goes from the traditional way of selling cars to dealers and not having any direct contact with the customers, to becoming the direct contact with the customers (Rybrand).

*“On the commercial side, we strive to establish direct contact with the customers. In a data-driven world, it is important to pay attention to details and hence have direct contact with customers. The customer journey will change from being physical to online experiences” - Sandberg*

According to Sandberg, will the shift towards a direct-to-consumer approach impact everything from marketing incentives to customer service and financing operations. Sandberg discussed this change as critical and an important part of an OEMs future success, being able to manage these aspects as well and become more customer-centric (Sandberg). Several respondents mentioned the fact that the subscription model could be seen as a springboard for adapting to this situation and change and have an important function in this transition of becoming more customer centric. The subscription model and platform is an efficient way of both engaging customers as well as generating online shopping habits that could lead to more online sales of cars in the future, both subscriptions and traditional sales (Sandberg).

*“We landed in the subscription model because it was a great way to reach customers online. We think it would be tough for customers to commit and pay for a car upfront online in the living room for the large price that cars have. The subscription model was seen as a great way to reach those customers.” - Sandberg*

The change towards a closer relationship with the customers is something that the majority of the respondents mention as critical for the coming change in the automotive industry, and it will have a large impact on the future of the OEM. Sandberg mentions the opportunities of using the subscription-based model as a great way of implementing the customer-centric view and could be seen as an effective way of getting the customers to adjust to the new normal (Sandberg).

#### 4.2.2 Customer Journey

With the change towards a more customer-centric approach, the aspects of the customer journey get into focus and are discussed by several respondents. When a business acts in a customer-centric

environment, the customer journey is of high value to the overall success (Åslund). Both Rybrand and Sandberg mentioned the importance of having an integrated and well-functioned customer experience and that it is important to succeed in this modern environment. Especially in a business environment of subscription, where the customer journey is a large part of the whole “business” (Sandberg; Rybrand). Both Wickelgren and Sandberg mentioned that the subscription model is more of selling a service rather than a product. Which makes the way of selling the car completely different from the traditional way, and other aspects have to be considered by the OEM (Wickelgren; Sandberg). Wickelgren mentioned the importance of a trouble-free customer journey and that customers will most likely choose a car brand from the shopping experience and customer journey rather than the horsepower and sound systems. Customers will reflect more on trouble-free and easier “ownership” or user experience, less risk and an easier day-to-day life (Wickelgren).

*“The idea is that everything will be bundled in and that you do not have anything to worry about. The insurance is there. If something breaks it will be fixed. If a new car comes around, you can change it. All of that made the idea unbeatable.” - Green*

All respondents agreed that this fundamentally changes how an OEM should position themselves towards competitors and how subscription has a large part in implementing this customer experience. Respondents discussed how the customer experience will be different from before and the subscription model is a starting point for this change. The subscription model and the direct connection with the customers will prepare for future business incentives such as car-sharing and autonomous vehicles according to several respondents. According to Green, the subscription model is more suitable for a car-sharing or fleet management product than the actual one car per customer solution. Therefore, the subscription solution could be argued to prepare the customers for new ways of having a car rather than owning a car (Green). The customer experience is something that is highly relevant in today's society and something that is highly correlated with success (Green). The subscription model is new to the car industry. Although, the model itself has been around for a longer time and people subscribe to everything from electric scooters to coffee and music streaming (Green). What they all have in common is that the service or subscription is easy, available and risk-free with a high amount of flexibility, and the customer journey pain points are removed (Sundström). This development has had a large impact on the customers and the standards have changed and so have the expectations on customer experience (Wickelgren). As described in the previous section by Sandberg, the customer journey will move more towards an online experience with the introduction of the subscription model. As presented in the statement below, Larsson emphasizes the importance of being present where the customers actually are and showing presence during that whole journey.

*“It is important to have a strong brand so that you are credible when you sell something that is so expensive, right? There is true merit to having a strong brand behind you. Our brand has been properly established in many markets, such as a safe and good brand, but it takes time to build the credibility that is needed. You also have to observe what the customer journey looks like today for any purchase. If you ask Google, they say that it always starts with a search. I will buy a car later so then you have to be positioned there. Then you have to be positioned during the whole trip by showing it in the environments where the customers actually are.” - Larsson*

As explained by Larsson, the brand is very important when selling such an expensive product, especially online. But Sandberg highlighted how the subscription model is suitable to reduce the initial costs for the customers and hence, better suitable for the online customer journey in this industry.

### 4.2.3 Flexibility & Bargaining power of consumers

Another development factor discussed by our respondents is the shift in society towards more flexibility and less locked value over time. Sundström explained that people are favoring flexible solutions that will make everyday life easier. This has been discussed by our respondents, how the industry is trying to adapt to this change and especially develop an offer that would attract in a flexible and no strings attached environment. Sandberg mentioned that the whole idea of the subscription model is based on this change in society and a way to meet this demand. The change toward total flexibility has not yet been completely tested and is still in a novel state (Sandberg). However, both Sandberg and Rybrand mentioned that there is a value created by being flexible. They can see that the model itself attracts new customers and generates income. Even so, what is discussed and still uncertain is the magnitude of this offer and the general habits of the consumers (Sandberg; Rybrand). Questions that need to be dealt with according to several respondents are: What is the frequency of returning vehicles? Risk considerations and profitability calculations when offering flexible products? The fact that flexibility is here to stay is something a majority of the respondents agree upon. Another aspect that has been discussed by our respondents within the area of flexibility, is how the shift in bargaining power has changed and how the market is favorable for the customers in a flexible environment.

*“Because at the same time as we want a stronger and stronger relationship with the customers, we increase the flexibility for the customer so they can leave us at any time. This increases the power of the customer, but at the same time the requirement for us to constantly prove ourselves against the customer. If there is something better on the market, the customer will move.” - Åslund*

This aspect mentioned by Åslund above is something that a majority of the respondents have discussed in one way or another and is a clear change in how the bargaining power has shifted and will shift in the next coming years. An OEM is basically going from being a wholesaler company to a modern tech direct-to-consumer player, ranked on their customer experience and effortlessness, rather than the product itself. This is according to all respondents the largest fundamental change in this magnitude of changes.

### 4.2.4 Fundamental values as a decision-maker

One development factor that was mentioned by several respondents was the fact that we are becoming more and more driven by values and ideological thoughts than before. This is part of the continuous change that the world is undergoing. Several respondents mentioned how we have changed our shopping habits and how we use and consume products and services today. Rybrand discusses the most recent changes in how customers consume products and services, as highly related to technological advancements and awareness of environmental issues that have increased. Therefore, the ideological and fundamental values of a company have a large impact on the actions taken by the consumers (Rybrand). Sandberg & Rybrand both mentioned the importance of taking in sociological aspects to a larger extent than they have done before. This will have a large effect on how to manage businesses and how important it is to communicate what a company stands for and believes in. They both believe this to be an important aspect of the future of business (Sandberg; Rybrand). Sandberg argued also that the subscription model is a modern and flexible tool that will improve the relationship between an OEM and its customer alongside creating a community to communicate the fundamental values in a better and more efficient way. It is also a way to come closer to the customer which helps the engagement, and the OEM will have more knowledge about how to attract and retain more customers.

*“The customer expects a more interactive environment where they have a relationship with the company and know what is happening. This will help us get closer to the customer and communicate our beliefs and values” - Åslund*

Another aspect discussed by the respondents is how the idea of a subscription model in the automotive industry could be seen as innovative. Which will in many cases also communicate values and beliefs from the company, that the company is most likely to adapt to future changes and innovations. Sandberg discusses many benefits of the subscription model, where one is the aspect of communication and generating a closer relationship. Which consequently could help the company to easier communicate its incentives and beliefs. It will have a larger impact on the business than it has had before (Sandberg).

#### 4.2.5 Customer loyalty

Another development factor that was discussed during the interviews was customer loyalty and how it will be affected by subscriptions. Respondents described how OEMs have previously been in charge of the brand and the product offers and the retailers have been in charge of customer contacts, sales, marketing and other customer touchpoints. Åslund discussed the subscription model as a way to incorporate more parts of the traditional value chain within the OEM and as mentioned earlier, opens up for partnering ongoing circular relationships. The subscription model puts a lot of emphasis on the customer experience and customer journey and will play a large role in the building of future competitive advantage (Åslund). The relationship and effortlessness are in many aspects of higher value than the actual product because the customer has this type of service to free up time and get fewer headaches (Åslund). Once again, the importance of coming closer to the customer and understanding the needs of the customers in a better way is a fundamental aspect of customer loyalty (Åslund).

*“Effortless is the keyword, is it easy to have a relationship with Volvo Cars? This is a very strong loyalty driver that we look at and a key aspect in this new subscription environment.” - Åslund*

Sundström and Wickelgren both mentioned the fact that the subscription model incentive was based on avoiding many of the pain points of the customer journey (Sundström; Wickelgren). Statistics say that people tend to dislike or avoid the car buying process as much as possible because it is complicated and feels like you always get tricked (Wickelgren). Åslund mentions effortlessness as a key driver in the subscription model and why the model was invented in the first place. Therefore, will the effortless customer journey increase customer loyalty and act as a key driver of loyalty in this segment (Åslund). Another aspect that was discussed by the respondents was the customer-centric view, which enables OEMs to work closer to customers and increase customer relationships which will make the OEM more aware of what the customers like and dislike which will in the end lead to a better product and more satisfied customers, which will lead to a potential higher customer loyalty (Åslund).

### 4.3 Technological development factors

*This section aims to present the empirical findings within the technological aspect of the steep framework affecting the subscription model and the OEMs in the automotive industry. Focusing on areas within technological developments and changes within the industry. Development factors such as electric vehicles, autonomous vehicles, connectivity and soft offers among other aspects are discussed.*

### 4.3.1 Electrical Vehicles

One of the greatest development factors currently observed in the automotive industry is the change toward electrical vehicles (EVs). This change is confirmed and discussed by all respondents and historically, OEMs have been developing vehicles that were using combustion engines. As these engines have been proven to cause harm to the environment, the industry was looking for alternatives that are better for the environment. Wickelgren discussed how many alternatives have been considered to reduce environmental impact and currently, the main alternative is electric engines, which release zero emissions. All respondents argued that fully electric vehicles are considered the future of the automotive industry.

*“There are several trends but the two main ones are electric vehicles and autonomous cars. The one that is closest in time is electric cars. Autonomous cars are still in a developing phase and will probably be the future of mobility.” - Rybrand*

Wickelgren argues that EVs are more expensive than ICE-vehicles in terms of the wholesale price today. However, electricity is cheaper than petrol or diesel and EVs require less maintenance, which can reduce service costs and activities (Wickelgren). Rybrand discussed the aspect of expectations within the industry that all the money that goes into R&D, will reduce the costs for this technology, especially for the batteries and battery packs. Due to the fact that EVs consume a lot of electricity, it is vital that batteries increase in performance and decrease production costs for the overall performance of the vehicles and purchasing price to become a good choice for customers (Rybrand). Both Sandberg and Rybrand mentioned how the switch to EVs can have an effect on the subscription model in an early phase. The fact that many customers are unsure about the future residual value of EVs will make them prefer a subscription solution to reduce the risk exposure and be able to return the vehicle if they are not satisfied. Both Rybrand and Sandberg believe that the subscription model has a positive effect on the sales of electrical vehicles and opens doors to more customers.

### 4.3.2 Autonomous driving

Another development factor within the area of technology is the development of self-driven vehicles or autonomous vehicles. It has long been the subject of the future but yet failed to be truly adopted in the industry and society.

*“Autonomous driving has serious potential to just break everything” - Green*

With his comment, Green means that autonomous driven vehicles might change how the entire industry operates. When vehicles can drive themselves, the need for having access to your own vehicle disappears (Green). If cars are used 5 % of the time, a network of self-driven cars in a subscription-based service model has the potential to lead to 95 % fewer cars on the roads (Green). Rybrand points out that Tesla made the news first among OEMs to introduce a feature that enables cars to drive themselves, although still with the need for human supervision. Tesla is also the company that other OEMs benchmark themselves against (Rybrand).

Broström considers the legal aspects and the main issue is that the technology lacks legal support as the driver is still responsible for the actions caused by the vehicle. That means, that even though the technology may be sophisticated enough to be introduced in traffic, it is not possible to implement it (Broström). Many OEMs have introduced a speed control feature so that the vehicle can stay within the

lines of the road. It can also follow the speed of the cars in front and break if any obstacles turn up in front of the vehicle (Broström). This is also discussed in an article written by Pattinson, Chen and Basu (2020), from a technical and legal point of view, the most difficult aspect for autonomous cars is how to interact with other traffic in certain situations or areas. According to Broström, we are likely to see vehicles with autonomous features within the next 10 years but the vehicles are likely to need some kind of attention from the driver. He argues that it will take even longer until we find vehicles that do not need any manual control and passengers are able to just plot in the address and the vehicle takes the passengers there. Even so, he is quite certain that completely autonomous vehicles will exist sometime in the future, it is just a matter of time.

*“Much like cars have become electric, autonomous cars will enable the car to become an alternative to a room. People can both work, sleep and have free time in the car. I think the car will be an extension of the home and that it becomes a small room or office that you transport yourself in.” -  
Broström*

What Broström essentially means is that the most fundamental value that autonomous driving creates is for the driver to be able to conduct other activities while the vehicle is moving. The vehicle can then be seen as a room or an extension of the customers' homes (Broström). It would lead to a more efficient society (Broström). Autonomous driving in regards to the subscription model is discussed by our respondents as not correlated in the short term. However, the two correlate in the long term when autonomous mobility is fully integrated. Green described the subscription model as highly relevant for car sharing and fleet management, which could be more common in a world of autonomous vehicles.

### 4.3.3 Computerized & Connectivity

One technological development that was discussed by our respondents is how vehicles are becoming computerized. Currently, all vehicles are produced with one or more computers that control all features (Broström). It can be everything from the multimedia system, to contact with the support center and remote control over the heating or air conditioning system (Broström). Rybrand discussed this change as a possibility to provide more services than before and can yield value outside of the actual driving experience. These features are called “Soft offers”, which essentially means the services provided except for the powertrain. As discussed before these features can be remotely controlled, and these services are becoming more and more sophisticated (Rybrand). Soft offers add value to the customer and may affect the purchasing decisions. Soft offers have also become a way for OEMs to diversify their offerings against competitors (Rybrand).

*“Lastly, it is important to consider the software sales or software offer. There are two options, either selling the vehicles customized for each customer or each car equal and changing the offer with software optimizations.” - Rybrand*

Furthermore, Broström demonstrates that technological advancements within the vehicle improve value to the vehicle as a whole and help OEMs to differentiate their value offer. At first, advanced computers were seen as complementary but are currently something that customers expect to some degree when purchasing or subscribing to a vehicle (Broström). Lastly, it opened the door for OEMs to be able to contact drivers and provide the necessary information, such as if the car needs service it can suggest the closest service station. It can also provide information on where the closest restaurant or refueling/recharging stations are (Broström).

The move toward electric engines makes vehicles less mechanical, electric engines have fewer parts and require less maintenance (Wickelgren). The engine itself requires less space as well which will make the vehicles more spacious (Rybrand). Sandberg argues that this change itself will affect the service process significantly, where service retailers may hold a different role. He also argues that the move towards more services and soft offers will force OEMs to find what customers value to a higher degree (Sandberg). Broström added to this that it also makes it possible to use the features for a long time while the vehicle is standing still, since keeping an electric engine on does not release any emissions (Broström). For example, a customer may stay in the car when it is parked to have a digital meeting and not have to worry about using the functions (Broström). The main reason for having access to a personal vehicle is the availability of being able to move freely at any time, reducing the need for service will hence better meet that requirement (Broström). A customer that subscribes to a vehicle for a certain period would want to use it for that time and not be limited by maintenance needs (Green).

Broström mentions how technological development has enabled vehicles to connect in different ways. Vehicles may connect to other vehicles on the road and connect to service centers or OEMs in case of emergencies or when facing issues (Broström). This benefits both the customers and OEMs as they may have a closer relationship and makes ownership easier than it was before. In a world where almost everything is connected and internet availability is seen as essential, customers want the same features in their vehicles (Broström).

*“If, for example, you take basic stuff like how tall you are. The easiest thing is for the chair to adjust itself so that you sit well. Another thing is that your settings follow, that your Spotify account starts immediately or your navigation history for any previous rides is included when you drive your subscribed car (...) I bought a new Apple TV because I thought the first one worked very well and when I start with the new Apple TV it works as well as the old one, a little better even and I avoid all these startup steps and it logs into the network and everything is almost set up by itself.” - Broström*

In the statement by Broström presented above, he presents several aspects of connectivity. If the vehicle is connected it can adjust to your previous settings, even though the vehicle is subscribed. He further argues that it can be seen as a crucial factor for the success of subscriptions and car mobility.

## 4.4 Economical development factors

*This section aims to present the empirical findings within the economical aspect of the steep framework affecting the subscription model and the OEMs in the automotive industry. Focusing on areas within economical changes and new types of risks and financing options. Development factors such as terms and conditions, residual value, price sensitivity and manufacturing costs among other aspects are discussed.*

### 4.4.1 Terms & Conditions

The economic aspect is of high importance for OEMs when offering vehicles using a subscription model. The company needs to be able to explain to shareholders why this model is used along with or instead of the traditional sales model. OEMs, therefore, need to provide evidence that the model will be profitable and generate positive cash flows in the future (Sandberg). Green explains the two offerings presented within the subscription model fixed and flexible subscriptions. The fixed model is based on customers that sign up for longer periods of time, usually either 24 or 36 months, which is more similar to a traditional lease (Green). This is considered the safest option for OEMs, as the contract is binding

and cash flows during that period are secured (credit risk excluded) (Axner). The other model is the flexible offer in which the customers are able to cancel the contracts at any time, most similar to the traditional way of looking at a subscription service model (Green). There is usually a notification time to cancel the contract and it may be anywhere between one to three months (Sandberg). When it comes to the flexible model, it is hard to predict the time that the customers will hold the contract (Ohlsson). Which contracts are offered and the relationship between them will have a high impact on OEMs. It will be discussed deeper in the upcoming three areas of residual value, financing options and price. According to Sundström, the long-term effects will be the same for OEMs, as illustrated in the statement below.

*“It is important that we further add value so that the customer wants to stay in the contract. Customers could resign in a month, a completely different risk will of course be present to the company compared to if you lock the contracts for 3 years. But in the long run, if customers have completed 3 years and the offer was lousy, they will still not continue to subscribe. So you have the same risk, although it will only be delayed time-wise.” - Sundström*

Sundström argues that even though the customers are offered the flexibility to cancel the contract, it should not make a difference in the long run. She further argues that the goal for OEMs is to keep the customers and generate customer loyalty so that they subscribe to the service for a longer time than two or three years. The ultimate goal is that they continue to subscribe for as long as they are in need of a vehicle (Sundström). However, Broström argued that customers that prefer the flexible contract may change their vehicle more often and might switch to offers provided by competitors if considered a better option. Still, Sundström emphasizes clearly that for their OEM, it is of massive importance to constantly provide an offer that yields value to the customer.

#### 4.4.2 Residual value

According to the respondents, historically the main idea in the automotive industry has been for the customers to bear the risk of the residual value. Essentially, residual value means the value the vehicle holds if re-sold to the market. In the traditional sales model, the customer bears the risk of what the vehicle is worth when selling it (Ohlsson). If the customer had a leasing agreement, the customer still carried the risk of what the vehicle was worth when the agreement was due, often with the help of a target value (Green). When introducing subscriptions, this will change dramatically, because the idea behind subscriptions is that they should be seen as hassle-free (Green). If the subscribed cars stay on the balance sheet of the OEM, it means that the OEM will carry the risk of the residual value, essentially what is worth when the contract ends or is canceled (Ohlsson). Hence, there is a big difference between fixed and flexible contracts when offering this service. If there is a fixed contract, the residual value will be calculated using estimations (Ohlsson). When it comes to the flexible contract it is much harder to know when the residual value will be realized, since it is uncertain beforehand when the contract will be canceled (Ohlsson). Hence, this will be reflected in the pricing offer.

*“Residual values go through everything we do.” – Green*

Green explains that the residual value is what the whole industry revolves around, independent of which revenue model is used. He further explains that it is the underlying factor for evaluation of the subscription model and all of its underlying factors such as pricing, maintenance, quality, and insurance. Residual values are highly affected by brand image and quality, which are the indirect influencers of residual values (Green). To carry the residual value risk is a new phenomenon for OEMs and if the

number of total contracts grows large means a potential financial risk (Ohlsson). OEMs might therefore feel the need to balance fixed and flexible contracts or find other financial solutions to mitigate this risk (Sandberg).

#### 4.4.3 Financing options

There are several financing options available for OEMs when offering subscriptions. As mentioned earlier, carrying these contracts on the balance sheet of the OEM is a possible solution but may potentially be a risk (Ohlsson). Working with third parties is something that is considered, to partner up and explore the possibility of financing options releasing the vehicles from the balance sheet (Axner). This may however lead to a decreased connection to customers and lower profitability. As Green described it, if OEMs decide to sell the contracts to a third party the profits will be “Slim to none”.

When it comes to the two different contracts, fixed or flexible, even though Sundström argues that the long-term effects will be similar for the OEM, they have different characteristics to them. Leasing companies or banks, for example, may find it interesting to purchase fixed contracts since they have a clear contract length with cash flows coming in (Axner). The characteristics of fixed contracts enable debt financing, whereas flexible contracts are too uncertain and will have to be financed by equity or other risk-taking financial actors (Sandberg). It will then be tough for OEMs to find other actors that would like to take over the flexible contracts (Axner). As mentioned by most respondents, flexible contracts have a high risk since they can be canceled with short notice, and that increased risk has to be reflected in the price.

#### 4.4.4 Price sensitivity and willingness to pay

Pricing subscription offers are one of the toughest challenges for OEMs, and finding a sustainable financial model behind it is equally as tough (Green). Generally speaking, vehicles have high production costs and hence, the price will be relatively high compared to other products. In the automotive industry, there are many actors that provide financial options such as car loans or leasing agreements for customers to be able to afford vehicles (Axner). The subscription offer includes, as discussed previously, a lot of extra service offers. In some cases all costs are associated with ownership except refueling or recharging, which is what separates it from a leasing model (Green). The respondents argued that the price cannot be too high so that customers are not able to afford the service. It is therefore a balance for OEMs to find the correct price and not take on too great risks. Rybrand mentioned that OEMs are able to make good predictions on the residual value, service and maintenance cost on fixed contracts, and other costs that will occur during the contract lengths. The tricky part is how to predict these costs on a flexible offer with the uncertain contract length, hence estimating service and maintenance costs and the residual value is impossible. Therefore, will customers pay an extra premium for the flexibility of being able to cancel the contract (Rybrand). As Sandberg describes, it all hangs on that customers should think they want flexibility but not actually using it. Customers that on average use their contracts too shortly will not be profitable for OEMs, even though the price is a bit higher. Canceled contracts mean a lot of work and uncertainty for OEMs, the vehicle has to be collected and thereafter remarketed. A potential future challenge is calculating the risk of returning vehicles and how this is affected by the macroeconomic trends and how to mitigate these risks (Sandberg). One possible solution that has been discussed by the respondents is to mitigate this risk by developing a subscription model for used cars that still remains relatively new. Still, this model has some practical challenges to solve for it to work out and be profitable. The main benefit for OEMs to offer subscriptions directly to customers is that they are able to control the price themselves (Sandberg).

*“We don't know where it ends up. We have built the building box. Until other companies can cut the middleman out they cannot compete with us. In other words, going directly to the consumers, they can't compete with us. They are always defleeting their wholesale price. If we do retail prices, we are ahead of the market.” - Green*

Green described that the traditional model when selling vehicles through a retailer to the end customer prevented OEMs from controlling the exact price. The subscription model is, therefore, more flexible when it comes to setting the price. But targeting the customers directly has, according to Green, more benefits to it. For Lynk&Co, their model is based on cutting out the middle man, which in this case is the retailers, to be able to provide a more competitive price. According to Green, since they are a new entrant without a history of the traditional sales channels, they are ahead of the market and the competitors.

*“It all comes down to who owns the car and when the OEM gets paid. This will of course also affect our retailers. They might not sell as many cars as before because more people are willing to buy or subscribe directly from our webpage and that will affect their margins. Perhaps there need to be some changes in how they get paid as well. They will probably still be part of the purchasing process, just not the actual purchase, that will go through the website. Their role will be more to provide test drives and showrooms and less of retailers. Part of this is to be able to control the prices and be the face towards the customer, but also to become more customer-centric and be in the center of what is happening.” - Axner*

The same changes in the industry are described by Axner and how the role of existing retailers might change in order for OEMs to be able to control the price and provide a competitive pricing offer. As the respondents have described, subscriptions open the door for a risk-free “ownership” for customers. Since the customers do not carry the residual value risk and most costs associated with car ownership are included, it can be seen as a big change for customers (Ohlsson). Still, moving the risk from the customer to another party comes with a cost (Ohlsson), and the monthly price will be higher than in a leasing model. It has to be stated that customers are different and willingness to pay differs as well. As stated earlier in this report, customers often fail to acknowledge all the costs associated with car ownership and tend to underestimate it by over 50% (Deloitte, 2021). The willingness to pay for subscription services is highly correlated with the price that OEMs can charge for it (Ohlsson). That means that there has to be a balance between price and willingness to pay. This is in line with pricing strategies in other industries as well, where pricing has been moving from being based on costs with an extra margin and more towards the value that it creates (Axner).

#### 4.4.5 Manufacturing costs for OEMs

The interviews presented clear evidence that there is a correlation between price and willingness to pay in the automotive industry. The price cannot exceed the willingness to pay, a scenario that would lead to limited or non-existent customer demand. Manufacturing costs are of great importance when pricing a product or service (Ohlsson).

*“Then there is also very different profitability on different car products that make them more or less suitable for a subscription. We make a small selection of what to offer to get one sharp offer and that is where the residual value effect is very important. When you look at it, for example, you have one product with a high manufacturing cost and a low residual value. Then it will be very difficult to put*

*together a subscription service offer. We ask ourselves: Is it profitable at a realistic price level?" - Ohlsson*

That means that manufacturing costs have to be lower than the willingness to pay. Manufacturing costs will affect the margins on each subscription that is supplied and decreased production costs enables a more competitive pricing offer (Ohlsson). Historically, OEMs have been using economies of scale and new technologies to decrease costs (Rybrand). As subscription customers may demand a quicker process and avoid long waiting times it may be tough for OEMs to use their traditional models for this purpose. It is also highly affected by the current technology shift from combustion to electric engines (Green). In order to stay competitive, OEMs have to adapt their production processes to flexible customers and in return reduce the number of offers (Ohlsson; Sandberg). This part is especially important if OEMs decide to introduce remarketing of previously subscribed vehicles (Sandberg; Green).

## 4.5 Environmental development factors

*This section aims to present the empirical findings within the environmental aspect of the steep framework and how they are affecting the development of the subscription model and the OEMs in the automotive industry. Focusing on areas within environmental changes and new ways of becoming sustainable as well as meeting the requirements of the future. Development factors such as environmental awareness and user and resource efficiency are discussed.*

### 4.5.1 Environmental awareness

The development factor of environmental awareness was discussed by several respondents. Rybrand says it to be a critical subject in today's society and takes a large part in customers' decision-making process. People tend to be more aware of their own environmental footprint and have a strong demand for sustainable and environmentally friendly products and services. That generates a larger liability on how companies handle their sustainability commitments and if they act sustainably (Rybrand). The majority of the respondents mentioned how sustainability has been an important part of the automotive industry for many years. However, the shift where it has gone from governmental actions to customer demands has increased in the last couple of years.

*"I believe that sustainability is and will continue to be an important part and will create loyal customers if you can offer it. So I believe in our company's vision of freedom to move in a personal, sustainable and safe way." - Broström*

Wickelgren says that the aspects of sustainability commitments go from how the production and suppliers are handling the production of the product, to how the cars are being used in a sustainable way. Axner and Rybrand both said that this will have a direct impact on the sales and success of future OEMs. This change is mentioned by our respondents as a critical aspect in both branding as well as the actual future of our planet. Rybrand mentioned that the automotive industry can see several indications that people put more and more emphasis on sustainability questions and commitments. Rybrand also described the weight and importance this aspect has for customers and how it has increased in the last couple of years. People would like to be part of something that is favoring and improving our planet. Wickelgren mentioned how sustainability should remain the main focus in all decisions taken by an OEM. Potential new business models and sales channels generate innovative thinking and enable new ways of using the car, which will improve car ownership in regard to sustainability (Wickelgren). The

subscription model could also generate a wider and more accessible car usage and be part of a transformation journey in how we use our cars in the future (Sandberg). It could further make them available to more people in all types of social and economical situations (Sandberg).

#### 4.5.1 User and resource efficiency

The respondents discussed environmental and sustainable work as of high importance and are taken into consideration in all decisions taken in the automotive industry. The subscription model is not an exception and the model comes with many new opportunities as well as challenges in the perspective of sustainability. The fundamental thought of offering a subscription model is based on the move toward a sharing economy (Green). The subscription service in the automotive industry focuses on giving the customer or user a convenient, flexible and minimal-commitment car “ownership” (Green). Sandberg mentions how the subscription model opens up for new and more customers than before and how the customers should be seen as a user rather than the traditional automotive customers (Sandberg). This is something that Sundström mentions as well, that a flexible contract could limit the time a car is standing still and people might only subscribe to it when they actually need it, for example, three months in the summer or a few months in the autumn. Sundström describes the subscription model as a starting point in a closer and more extensive customer relationship and prepares the customers for more flexibility and new ways of buying and using cars.

*“It depends a bit on how much car you need. In a monthly subscription, there is a limit on the number of kilometers that you are allowed to drive. If you drive more it might be financially good to actually buy it. No matter if you subscribe or buy a car you will be able to rent it out to others and if you do not have a car you will be able to rent someone else's. It is the new way of mobility” - Sundström*

The subscription model comes with both opportunities and challenges within the sustainability area, one negative aspect that was discussed with respondents was how the subscription model can increase consumption. People could hypothetically order cars and subscribe only for a couple of months to try them out and then return them, which could generate a lot of cars standing still at the OEM plant instead of being used by customers. However, this aspect is as mentioned by both Sandberg and Rybrand a scenario that is not likely to happen and especially not in the automotive industry we have today, where there is a shortage of vehicles (Sandberg; Rybrand). Nonetheless, this is something that has to be taken into consideration when looking at the environmental aspects of subscriptions and how they will affect consumption. Sandberg clarifies that the incentive of subscriptions is to make sure less cars are standing still and more people get hold of a car when they need one. The goal, according to Sandberg, is to have all cars produced either sold or subscribed to and the time it takes to cancel the subscription, will be used to find a new user for the car. The initial thought is to capture new customers, minimize the car standing by offering a more flexible alternative and make sure one car can benefit several people's demands instead of standing still (Sandberg).

## 4.6 Policy & Legal development factors

*This section aims to present the empirical findings within the Policy and legal aspect of the steep framework and how it is affecting the development of the subscription model and the OEMs in the automotive industry. Focusing on areas within policy and legal and new types of risks and requirements to consider. Development factors such as policy impact, economic sensitivity and the impact of subsidies are discussed.*

### 4.6.1 Policy impact

The automotive industry is a global industry and many aspects are controlled or regulated through policies and legal commitments. Respondents described the automotive industry as both secure as well as limited at the same time. The legal aspects have a high degree of impact on the industry and affect all types of decisions. This development factor was mentioned by Sandberg as something that was not a direct issue for the subscription model. However, it will likely impact all decisions taken by an OEM. Respondents also argued that policies could have a potentially large impact on the industry in general. Which makes it difficult for competitors to advance fast and makes the whole industry rather slow and it takes a lot of time from decision to implementation. Therefore could the potential of being among the first in a new segment be seen as a competitive advantage (Sandberg). This creates an opportunity to formulate and adopt the new segment more and be able to adapt faster (Sandberg). Another important aspect that was discussed by respondents was the legal aspect of the switch towards a direct-to-consumer approach. Green mentioned tricky laws, that say that OEMs are not allowed to sell directly to the end consumers in the USA, and could have issues with setting prices in Europe, because of anti-cartel laws in the European Union (Practical Law Competition, 2022). It is an important aspect to consider and have in mind for future development within the segment (Green).

*“To make it work well, you have to sell the cars directly to the consumer. If you sell subscriptions through retailers, you are either missing out on profits or that the month-to-month price has to be higher. Then it will be more expensive than a lease.” - Green*

Another aspect that has to be considered regarding policy impact and the sale channel of subscription is that it might not have a direct impact on regulations. Many aspects such as zero-emission goals and sustainability policies affect every single decision on how to develop an OEM (Wickelgren). It will most certainly impact the incentives and decisions taken regarding subscriptions. Another factor that was mentioned by Broström is the fact that a subscription platform will enable a large knowledge about the customers and their habits. Which provides the OEM with valuable insight, when creating new offers etc. Broström also mentioned how many legal aspects in this matter are slowing down the process and making it difficult to use the data that is available. Examples of regulations and policies that affect this are the GDPR, and how to handle digital personal information, in the European Union (Broström).

### 4.6.2 Economic sensitivity

The world economic situation has always had a major role in the progress of the manufacturing industry and especially in the car industry. Sandberg discussed the subscription model as something that could both be very economically sensitive, as well as perhaps a way to mitigate some risk. There is a risk that many flexible contracts will be canceled at the same time and this risk is something the traditional OEM takes into account when they calculate the price for the flexible contracts (Sandberg).

*“The risk can be affected by external indirect factors that are difficult to predict and unknown macroeconomic fluctuations could interrupt the progress. The automotive manufacturer can lose a lot of money if the economy shrinks and it is difficult to sell the asset portfolios.” - Ohlsson*

Something that was discussed both by Sandberg and Rybrand was how the impact of the world economy will have on the subscription model in general. It could both increase the risk of returned vehicles if the economy is in bad shape. The fact that the flexibility could potentially make people continue their subscriptions because they know that they can cancel it at any time could be reassuring from a customer point of view (Sandberg; Rybrand).

#### 4.6.3 Subsidies impact

The majority of respondents mentioned how subsidies and governmental care packages could and will impact an ongoing change in the industry. Something that was mentioned by Rybrand and Sandberg was how these care packages for electrical vehicles have impacted the sales performance of these types of vehicles in recent times.

*“Currently we have governmental incentives favoring the purchasing of EVs in Sweden and in other European countries.” - Rybrand*

As described by Rybrand, does this type of governmental incentive have a distinct impact on the automotive industry and it could be difficult to predict. Several respondents discussed how it will have an impact on the subscription model itself in the future. Sandberg described how the subscription model has already been affected by this type of governmental incentive and how customers favor the subscription model for purchases of electrical vehicles. There are two reasons for this trend: it is affordable thanks to government aid packages and it is flexible, which makes it possible for the customer to cancel the subscription if the person is not satisfied with the new innovative technology (Sandberg).

## 5. Discussion - Scenario planning

*In this section the scenario planning analysis steps are conducted in a step-by-step process. This section follows the six steps according to the tailored scenario planning framework presented in section 2.6. The trends and uncertainties are presented in section 5.3 and are divided according to the steep elements to structure the discussion. The later steps include connections to the findings that were presented in the previous chapter.*

### 5.1 Step 1 - Defining the scope

Defining the scope is the first step in the process of scenario planning for all scenario frameworks. The process of defining the scope is important to be able to ensure the purpose and goal of the scenario planning and that it is decided and aligned with its stakeholders. The purpose and goal of this scenario planning scope have been decided together with the partnering company, to be able to define and navigate through the unknown future of subscription-based services within the automotive industry. The goal of this scenario planning is to be able to generate different plausible scenarios within the timeframe. It is also to be able to give OEMs a tool for strategic decision making and to navigate the unknown future of subscriptions in a structured and informed way.

The theoretical frameworks of customer loyalty and porter's five forces will assist the analysis of the scenarios to be able to predict where and how funding should be positioned and how strategic decisions should be adopted throughout the process. To ensure the quality of the scope, it is important to identify the major stakeholders in the process to generate larger reliability of both the process and the future scenarios generated. For this study, the major stakeholders are academic contributions and recommendations for OEMs, where the authors act as intermediaries ensuring the connection between changes in the industry to academic research.

When identifying future trends and uncertainties for this study, it was important to ensure the time frame is both relevant and within the scope of relatively precise predictions. As described previously, a too long time horizon could make the scenarios difficult to predict. A too short time frame could imply that nothing will happen because the change cycles are longer than the decided timeframe which will result in no to little change. The aspect of subscription-based services is in an early stage in the automotive industry and in discussions with our partnering company, a 10-year time frame was most suitable for this scope. This is because the other corporate goals within the automotive industry usually have a time horizon of 10 years and it seemed reasonable for this scope. The aspect of participants within the scope of this scenario planning is experts within the area of automotive and subscriptions as well as their expertise within this segment. The segments are divided into five categories under the STEEP elements.

### 5.2 Step 2 - Identify development factors

The second step of scenario planning is to identify the development factors within the industry and society, potentially affecting the future outcome of the subscription-based services within the automotive industry. The identified development factors are found in *section 4.2* under empirical findings and described more in detail. The development factors have been identified through qualitative research interviews with experts as well as through literature research. The development factors have been selected and categorized based on five key areas that can be linked to the Steep structure. These identified development factors will then be processed through four relevance criteria that will decide if

the development factors could be seen as trends or uncertainties and what impact they have on the subscription service in the automotive industry.

### 5.3 Step 3 - Trends and uncertainties analysis

Third step in the tailored scenario planning is to identify trends and uncertainties from the identified development factors in the previous step. This step is to ensure that the development factors used for generating scenarios are determined to be predictable or uncertain combined with relevant for the process of generating future outcomes. As mentioned in *section 2.6*, the inclusion criteria for both uncertainties and trends have to be met to be able to be categorized as a primary factor that will be considered when generating the scenarios. All identified development factors will not be seen as relevant for the scenario planning. The first three criteria remain the same for both trends and uncertainties while the fourth criteria are the criteria that decide if the development factor is considered a trend or uncertainty. The first three criteria are the following:

- Is the development factor within the decided time frame?
- Does the development factor have a significant impact on the subscription service within the automotive industry?
- Does the development factor have a significant presence in the interviews and literature?

When the development factors have been analyzed and categorized in trends and uncertainties, this will be visualized with the help of an impact and uncertainty grid. It is considered the fourth criteria to show the impact of each development factor and if it is considered a trend or uncertainty. By the development factors that were identified, trends, uncertainties, and secondary elements were confirmed. These are presented and structured below with the help of the STEEP elements.

#### 5.3.1 Trends and uncertainties within sociological factors

For the trends and uncertainties within the sociological factors there are a majority of trends as seen in *figure 5.1* the impact/uncertainty grid. It can be observed that most of them have a high degree of impact on OEMs and there are also two uncertainties within this area.

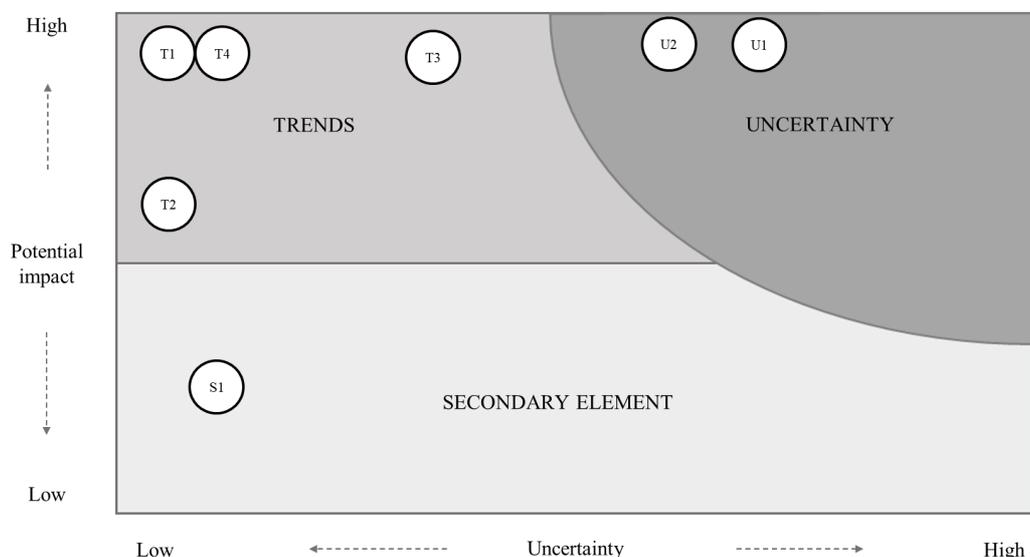


Figure 5.1 - Impact/ uncertainty grid for sociological factors

### **Trend 1 - OEMs are adapting to an online customer journey (T1)**

The online customer journey is something that the respondents discussed as having a certain outcome and that is that the online experience is the way forward and the findings show a clear trend that it is already occurring. The interviews gave insight into how the customers consider an online experience as more or less a requirement to be considered relevant in today's environment. The process of adopting an online customer journey is certain despite the many challenges that need to be handled. It will impact the fundamental way of doing business as an OEM. The change will impact the whole organization in one way or another and to be able to succeed in this new environment, new capabilities and competencies have to be acquired. OEMs have to restructure and understand the environment in the next ten years to meet the demand of online customer journeys.

### **Trend 2 - Values, a decision-maker in the future (T2)**

The degree of values and sustainable based thinking was mentioned by the respondents as something that could potentially affect the future of business in the automotive industry. Insight from all our interviews shows a clear majority that values and beliefs will impact the decision-making process in the future. Consumers benchmark products and brands to find products that they would like to be associated with and that do less harm to our planet. It is a global trend and a higher degree of awareness in society compared to before. This will have an impact on OEMs because the industry could be seen as the center of attention regarding sustainability work and the journey to net-zero emissions is underway. The outcome of this is determined as certain and OEMs have to provide a clear message. They also have to position themselves in a way that makes consumers understand what they stand for and what they believe in and will have an impact on the future of OEM operations.

### **Trend 3 - Increased flexibility-demand among customers (T3)**

The focus on flexibility and convenience has increased in the last couple of years and the focus on flexibility in the automotive industry is not an exception. The interviews gave insight into the change in habits among consumers and saw this as a new potential sales channel. The subscription model is in the center of this attention and part of the transition into a more flexible offering to customers. With the help of subscriptions and a short cancellation policy, flexibility is achieved and the outcome of more flexible solutions is certain. Nonetheless, these flexible solutions come with many challenges and risks. OEMs have to try and readjust themselves to better suit a flexible solution and still be profitable in the next ten-year period.

### **Trend 4 - Customer-centric view, the new way of doing business (T4)**

The OEMs are changing their way to do business by offering a direct-to-consumer approach through their online sales. This leads to a closer relationship with their customers and lays the fundament for a customer-centric approach, where the majority of the bargaining power will be with the customer. The subscription model will have a large part in this work to both onboard the customers to the online sales channels as well as improve the OEM's knowledge about their customers. This is a large change since OEMs have never had direct contact before and need to start from scratch from that aspect. The collected data shows that the trend of customer-centric views is certain. It will have a big impact on both OEMs along with the commercial aspect of structuring a subscription model.

### **Uncertainty 1 - What will the demand for subscriptions look like? (U1)**

The fact that subscriptions have been around for a while does not necessarily mean that it will mean a large demand for subscriptions. The collected data shows a high uncertainty in how the demand for

subscriptions in the automotive industry will look like and what the customers actually expect. As mentioned by the respondents, the demand for subscriptions has been high since its launch a couple of years ago. High demand for leasing solutions points that a monthly payment is likable among customers. The whole concept of flexibility and bundling everything together has not been tested fully yet. The current macro environment affects the supply of cars which has turned the second-hand market hot, used car prices have for the first time in history increased over time. It is therefore difficult to exactly know where the subscription product will position itself because of the current shortage of vehicles. Hence, consumers are currently doing a lot to get their hands on a car. Thus, the demand for subscriptions in the automotive industry is hard to predict in the current environment.

*Outcome 1: The demand for subscriptions will increase in the upcoming 10 years.*

*Outcome 2: The demand for subscriptions will decrease in the upcoming 10 years.*

### **Uncertainty 2 - Customer loyalty (U2)**

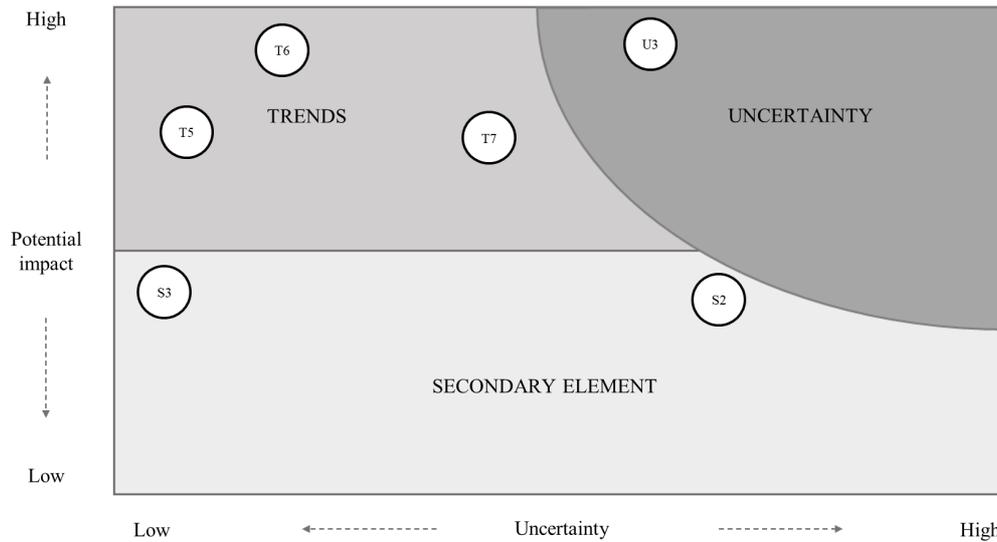
Another uncertainty that was identified through this research is how the customers' loyalty will be affected by the move towards a customer-centric view. It is also uncertain how the subscription model will affect customer loyalty. One aspect that was identified in this area was how the introduction of subscriptions has put a lot more focus on other factors than the product. In that sense, OEMs never had to consider loyalty in more than the product itself and its functions. Now the loyalty will be more extensive than before and the new approach will include more of the customer's feelings and thoughts. With this information, OEMs are uncertain how this will affect them and how the subscription model will affect customer loyalty. OEMs will offer a more integrated and well-functioned experience and customer journey and they will also increase the customers' flexibility. The respondents also mentioned the price war that is going on in the leasing business and most agreed that this will also be the norm for the subscription model, which could make customer relations volatile or flighty.

*Outcome 1: Customer loyalty will increase and become more important in the subscription environment.*

*Outcome 2: Customer loyalty will be less relevant and it will come down to the best price, most flexibility and effortlessness in the solution itself.*

### **5.3.2 Trends and uncertainties within technological factors**

For the trends and uncertainties within the technological factors both trends, uncertainties and secondary elements can be identified. All aspects are presented in the uncertainty/impact grid and can be observed to have a relatively high impact on OEMs. The factors are presented below in *figure 5.2*.



**Figure 5.2 - Impact/ uncertainty grid for technological factors**

**Trend 5 - Electrical Vehicles and Electrification (T5)**

EVs or electric vehicles are on the rise and could be considered the future drivetrain of cars and many other types of equipment. This trend has not only started but it has also already been realized in many aspects and many EVs are already on the road. However, the technology is still in a novel state and is developing rapidly. This trend has of course a great impact on all aspects of an OEM and it has changed everything from how they produce the vehicles to how they service the vehicles and the society and infrastructure around them. It is likely to continue to develop with the importance of new charging infrastructure and how to consider safety aspects and more new features. This could be considered a certain trend in the automotive industry and has already had a great impact on how OEMs are conducting business and manufacturing vehicles.

**Trend 6 - Core Computer & Connectivity (T6)**

The fact that technology is constantly evolving is true for most industries. The current technological developments in the automotive industry is more or less revolutionizing the industry. The data collected points out that the new technology of core computers will be vital for success. The same goes for vehicles that will be constantly connected to both the manufacturer and its owner/user is the new normal and something that is seen as the trend going forward. This development is in an early phase and we will see even more features and developments in this area. This will affect everything from how the consumers use the vehicle to how it is maintained by workshops. This change is also an enabler in the development of subscription products. Since it opens doors to new types of services and revenue streams for OEMs it will have a large impact on the industry. This change is considered certain and can therefore be categorized as a trend and will affect how OEMs operate in the future.

**Trend 7 - Software as a service (T7)**

From connectivity and core computer technology new possibilities will arise and as mentioned above, there is a possibility to generate new types of services and revenue streams for OEMs. It makes it possible to build vehicles where the functions can be switched on and off via cloud services. It also makes it possible for functions to be available for customers when they need them by subscription instead of a high upfront cost when the car is manufactured. This will have a significant impact on the subscription model itself and be a large part of its future profitability. Software services in vehicles add value to the customers and current margins could be seen as low, without these extensive services.

### Uncertainty 3 - Technological developments (U3)

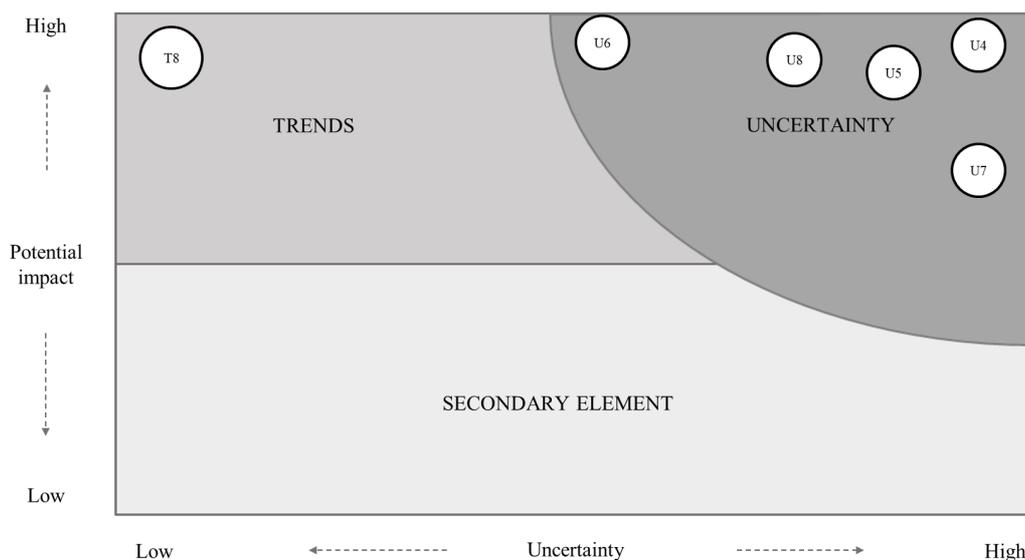
The area of technological development is in many ways certain and could be considered a trend. However, the fact that we are constantly developing new technology, makes the technological aspects also uncertain. There could potentially come new technologies that were not expected or other factors that would affect how we use and develop the new technologies. The fact that one technology is relevant today will not mean that that specific technology will be relevant forever. Hence, technological developments are considered uncertain in this research and have two potential future outcomes for the OEMs.

*Outcome 1: Technological developments are high and undermine existing technology.*

*Outcome 2: Technological developments are low and existing technologies maintain their value.*

### 5.3.3 Trends and uncertainties within economical factors

For the economical factors, the trends and uncertainties are all considered to have a high potential impact on OEMs. In *figure 5.3* they have been inserted into the impact/ uncertainty grid and most factors have been deemed to be uncertainties.



**Figure 5.3 - Impact/ uncertainty grid for economical factors**

### Trend 8 - Terms and Conditions (T8)

Data has proven that a great trend in society is that customers are demanding more and more flexibility and transparency in their life to be able to focus on activities that they enjoy in life. A certain trend that has been identified through the interviews is the way terms and conditions are changing. More and more terms and conditions are transparent and straightforward. This is to develop trust among customers as well as make it easy for customers to understand what they are paying for. The subscription model is an example of this, where the flexibility and transparency is easy to understand and where the bargaining power has shifted towards the customer. This trend has had its effect already in the automotive industry. However, the subscription model has to acknowledge this change towards more transparency and flexibility to be able to survive in this new environment.

#### **Uncertainty 4 - Residual values (U4)**

When offering a subscription service model in the automotive industry, the respondents explained that OEMs are taking the risk of residual values instead of the customers. This leads to a massive shift in the risk that OEMs are undertaking. The profitability of OEMs that offer subscriptions will be highly determined by the residual values of their vehicles when offloaded from their balance sheets. It is uncertain whether the aftermarket values will continue to rise since one major contribution to this observation is the shortages of vehicles and disturbances in manufacturing processes. It is likely that residual values will decrease once the shortages no longer are present, although it is uncertain when that will happen. Current predictions, with a pandemic and ongoing war in Europe, suggest that the shortage will stay for at least a couple of years.

*Outcome 1: Residual values will continue to increase or remain on the same levels.*

*Outcome 2: Residual values will decrease.*

#### **Uncertainty 5 - Financing options to support subscription models (U5)**

Carrying the vehicles in the subscription model on the balance sheet of OEMs has been proven as a great risk, linked to what was stated about residual values. Hence, OEMs will look for financing options to reduce that risk. This could be done through different options but will require a financial solution that reduces the risk for OEMs. For the subscription model to be a viable option, it has to be done without eliminating the profits of the OEM. The question is then who would like to carry this risk without proper financial compensation for it. The main uncertainty is whether it is a sustainable offer for OEMs if the current state of carrying the business does not work. The subscription model, therefore, relies on finding financing options that make it possible to offer the subscription model on a wide scale. Since it is currently unknown if any other party of financial service would like to undertake this commitment, it is considered an uncertainty with two possible outcomes.

*Outcome 1: Financing options for subscription models will be available and OEMs can remove the vehicles from their balance sheets.*

*Outcome 2: OEMs will not be able to find third-party financing options for their subscription models and the vehicles stay on the balance sheets.*

#### **Uncertainty 6 - Willingness to pay (U6)**

The subscription model is highly dependent on the monthly fee that is supposed to cover all associated costs for customers. OEMs need to make sure that the price makes the model profitable while still offering a competitive pricing offer. Hence, customers have to be willing to pay the monthly fee to the OEM for this service. As long as customers are willing to pay the fee for the subscription service and OEMs have made sure the price is enough to cover costs and the margins for profits, customers are willing to subscribe. As soon as there is a discrepancy between OEMs' and customers' offers and willingness to pay, the model will lose its ground and interest.

*Outcome 1: Customers are willing to pay sufficient enough for subscriptions to be profitable for OEMs.*

*Outcome 2: Customers are not willing to pay sufficient for subscriptions and OEMs will make losses if providing the subscription model.*

#### **Uncertainty 7 - Subscription models become the major sales channel (U7)**

Since the subscription model is relatively new in the automotive industry, it has mostly just been introduced by OEM as an alternative to the traditional sales model. However, it is currently uncertain

to which degree the subscription channel will replace the old model. Compared to other industries, subscription models have managed to become the largest sales channel. If the same trend happens in the automotive industry, it will have a substantial impact on OEMs. To what degree it will grab is determined by customers and how well OEMs can design its subscription service offer.

*Outcome 1: Subscription will become the only offered sales channel by OEMs.*

*Outcome 2: Subscriptions will fail to grab popularity from customers and hence will not be an available sales channel.*

### Uncertainty 8 - Risk of returning vehicles (U8)

The profitability of the subscription model is highly determined by the degree to which vehicles are returned, or what it essentially means is customers canceling their contracts. It is not financially sustainable with existing subscription models if the degree is high and vehicles are regularly returned to the OEMs. Calculations for the pricing offer are based on estimations of the rate of returned vehicles. That means that OEMs have an anticipated return rate and predicting it incorrectly will cause issues for the model. The greatest challenge with this uncertainty is for the flexible model when it is impossible to know beforehand the contract period.

*Outcome 1: The customers are returning the vehicles less often than anticipated.*

*Outcome 2: The customers are returning the vehicles more frequently than anticipated.*

### 5.3.4 Trends and uncertainties within environmental factors

Figure 5.4 illustrates where the trends and uncertainties in the category of environmental factors are placed in the impact/uncertainty grid. In this category, all factors were determined as trends rather than uncertainties because of the low uncertainty characteristics of the factors. Each trend is described in more detail below.

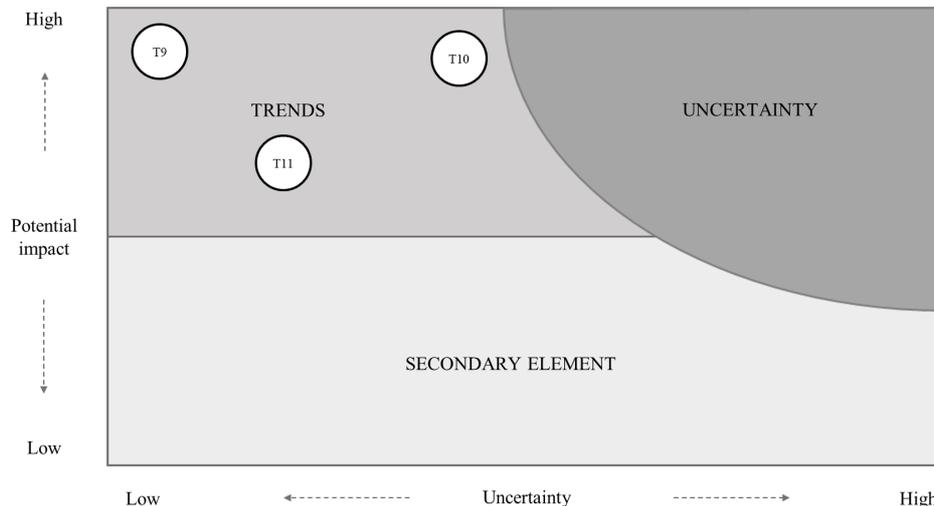


Figure 5.4 - Impact/ uncertainty grid for environmental factors

#### Trend 9 - Sharing economy (T9)

One trend that can be observed in many industries is the move towards a sharing economy. Sharing economies allocate resources better than a traditional economy and require less produced products. Instead, the sharing feature allows products to be shared between customers. Sharing economies are often related to subscription models since it becomes natural for a group of individuals who want to share a product to subscribe to it and pay for it when they use it. Sharing economies share most of their

characteristics with mobility services in the automotive industry but if several cycles are introduced to the subscription model it moves closer to a sharing economy. It is certain that when society moves more toward a sharing economy it favors the subscription model, independent of whether several cycles are introduced or not. Sharing economies can have great benefits for the environment since it requires less produced units and is therefore characterized as having a high potential impact.

#### **Trend 10 - Circular economy (T10)**

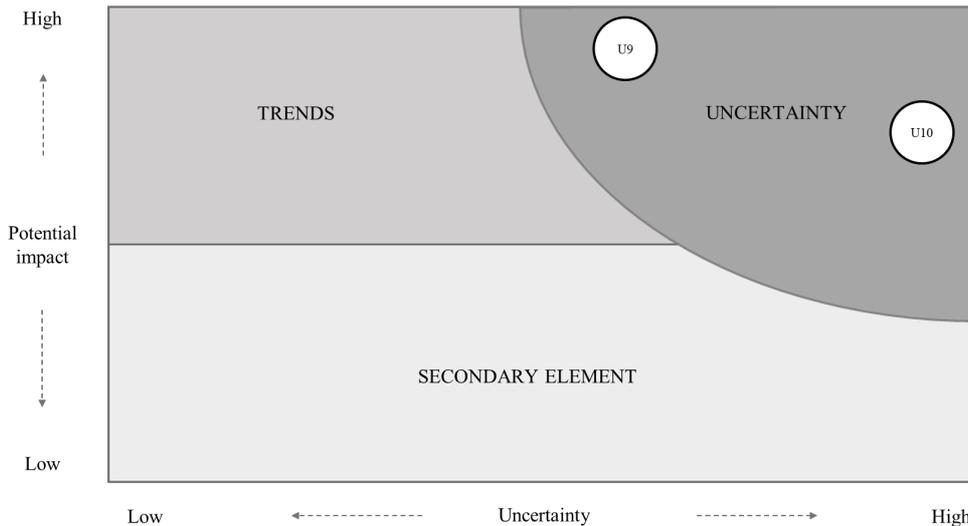
Historically, companies in different industries have acted as resources are not finite and that there are unlimited supplies. This, however, is of course not true on our planet. Therefore, recent years have given rise to a trend of circular economies. What it essentially means is that value chains are looked at more like circles, where materials and resources are reused in production. Not all materials are suitable to reuse, but the ones that are should therefore be used over and over again instead of being tossed away. Historically, it was seen as a costly process but in recent years customers have begun to value this feature of reused resources and hence, customers might be willing to pay more for these products or even disregard products that do not have it. Circular economies are considered a trend since it can be observed that it is gaining popularity across several industries, including the automotive industry. OEMs will have to incorporate this into their business model to maintain a competitive advantage. It is still in the early stages in the industry and just a partition of the resources are currently reused, which is most certainly going to change in the future.

#### **Trend 11 - Environmental awareness (T11)**

The last trend observed from the interviews in regards to environmental factors has been determined as environmental awareness, which covers the area of environmental sustainability in a more general sense. Since the automotive industry has been considered the main contributor to environmental degradation, pressure from policymakers and customers has forced OEMs to reconsider their products to become more environmentally friendly. The main issue was the release of greenhouse gasses, which is the reason for the conversion towards EVs and electrification. It is a bit more uncertain than the other trends within this area how it will affect the subscription model. What is certain is that it is gaining momentum in all industries and in most areas of the world and will therefore have a high impact on OEMs. It is something that OEMs have to keep in mind when developing their subscription model. The trend within this factor going forwards is for OEMs to be the driving force behind the change toward more environmentally friendly products. The respondents mentioned that it is important to be a driver of this change to meet customer demands and to get loyal customers.

### **5.3.5 Trends and uncertainties within policy and legal factors**

Within the area of policy and legal factors all aspects are considered uncertainties and as seen in *figure 5.5*, with a relevant high impact on OEMs.



**Figure 5.5 - Impact/ uncertainty grid for policy and legal factors**

### **Uncertainty 9 - Policy impact affecting the subscription model (U9)**

As the automotive industry is a large and global industry, regulations and political impact have a high degree of presence in the industry. One uncertainty that was identified through the interviews is how the political regulations and decisions will impact the automotive industry in the future. It is especially uncertain how it will affect the subscription model and its profitability and availability for customers. There is a high degree of uncertainty within this area because of the lack of knowledge and experience, however, the data collected describes the change as manageable as long as the subscription model is in line with other regulations and political decisions such as environmental laws, sustainability thinking and consumer laws.

*Outcome 1: Policy decisions are made that favor the subscription model.*

*Outcome 2: Policy decisions are made that disfavor the subscription model.*

### **Uncertainty 10 - Macroeconomic situation (U10)**

The macroeconomic environment will always have an impact on the automotive industry. A more flexible and on-demand solution as the subscription model could make the OEMs even more vulnerable to macroeconomic impacts than before. That is due to the fact that customers have the possibility to return vehicles and end their subscriptions within a rather short time frame. However, as mentioned in the data collected, this also makes the consumers perhaps more calm in the case of a crisis. It was stated that it is relatively easier for the OEM to perhaps sell a membership for 500 euros a month compared to selling a car for 70 000 euros when times are bad. This is a constant discussion and a large uncertainty for the future for OEMs and how this will impact their future business. Because of the size of corporations and the magnitude of the macroeconomic impact, this could be extremely important as a decision-maker if the subscription model is worth pursuing or not.

*Outcome 1: The OEM and the subscription model are affected by the macroeconomic trends negatively and the subscription model increases their sensibility to macroeconomic outcomes.*

*Outcome 2: The OEM and the subscription model are affected by the macroeconomic trends positively and the subscription model decreases their sensibility to macroeconomic outcomes.*

## 5.4 Step 4 - Analyzing consistency and plausibility

The fourth step in the scenario planning framework aims to check for consistency and plausibility for the identified trends and uncertainties. It starts with the process of checking how the uncertainties are correlated with each other. It also includes an analysis of the identified trends. The two analyses are presented in *sections 5.4.1* and *section 5.4.2*.

### 5.4.1 Correlation analysis of uncertainties

This section covers the analysis of the identified uncertainties and how each uncertainty correlates with each other. The correlations are presented in *table 5.1*, and the correlations with outcomes that are either positive (+), or negative (-), are described in more detail. The uncertainties that are considered to have no correlation (0) or uncertain correlation (?) are not described in more detail as they do not provide value for the discussion, scenarios or for the conclusions.

**Table 5.1 - Correlation matrix**

Correlation Matrix									
	U2	U3	U4	U5	U6	U7	U8	U9	U10
U1	?	+	0	?	+	+	?	+	?
U2		0	?	0	+	0	-	0	?
U3			-	0	+	0	+	?	?
U4				+	?	+	?	?	+
U5					0	+	?	?	0
U6						?	-	0	+
U7							+	0	?
U8								0	-
U9									?

The uncertainties that have been deemed to correlate with each other are described below. The correlation can be either positive or negative and the correlation will be described.

**U1 Demand for subscription and U3 Technological developments (+).** The demand for subscriptions is positively correlated with technological developments in general. This is because the U1 is rooted in effortlessness and risk-free “ownership/usage” and U3 could be considered a risk when buying a current car and potential new technology is around the corner. This could impact the residual value and make it drop significantly. Therefore customers do tend to be drawn to less risky environments and therefore will the demand for subscriptions and technological developments be positively correlated.

**U1 Demand for subscription and U6 Willingness to pay (+).** U1 and U6 are positively correlated because, if the demand for subscriptions increases, it will lead to a higher willingness to pay by customers. It is considered as general market logic that if there is demand more people want it and people tend to be able to pay more for the product or service. If willingness to pay increases, that will also lead to greater demand for subscriptions.

**U1 Demand for subscription and U7 Subscription model as the major sales channel (+).** The discussions about how the subscription model will become the only sales channel have been discussed and it seems uncertain, even though a hybrid version is implemented in today's business. U1 and U7 are positively correlated because when the demand for subscriptions rises the subscription sales channel

will automatically become a larger part of the sales channels. In the end, it might become the only sales channel. This has the opposite effect if the demand goes down, therefore is the correlation considered to be positive.

**U1 Demand for subscription and U9 Policy impact affecting the subscription model (+).** Increased demand for subscriptions could potentially lead to more policies affecting the subscription model overall. Depending on the evolution of the subscription model the policies can both be to regulate the market from unauthorized actors and policies favoring the usage of subscriptions. Therefore, the correlation has been set to positive because the demand for subscriptions can both result in favorable policies as well as policies regulating the market and act as a brake for the development, depending on if the demand increases or decreases.

**U2 Customer loyalty and U6 Willingness to pay (+).** The correlation between U2 and U6 is clearly visible and shows a positive correlation. If there is a higher customer loyalty the willingness to pay will increase as well. They will move hand in hand for future developments.

**U2 Customer loyalty and U8 Risk of returning vehicles (-).** The risk of returning vehicles has been mentioned as one of many risk aspects to take into consideration when moving towards a larger subscription-based sales channel. The U2 and U8 do correlate negatively because if there is a high customer loyalty the risk of returning vehicles will be significantly lower than if it was the other way around.

**U3 Technological developments and U4 Residual values (-).** The technological developments are highly difficult to foresee in many cases, the larger trends and the next couple of years might seem clear. However other aspects are difficult to incorporate, therefore the technological developments and residual value correlate negatively. If there is a high degree of technological development, the value of the current technology will decrease since it is not relevant or up to date anymore, which means residual values decrease.

**U3 Technological developments and U6 Willingness to pay (+).** Another aspect considered is how technological developments are positively correlated to the willingness to pay. Because new technologies that will enable new luxurious features and a less effortful life will increase the consumers' willingness to pay. An increase in technological developments, therefore, increases the willingness to pay in many aspects.

**U3 Technological developments and U8 Risk of returning vehicles (+).** The risk of returning vehicles is correlated positively to technological developments, because the risk of returning vehicles is based on what is supplied in the subscription model and if there are high technology developments the risk that the old ones are being returned is high as well. Therefore is the correlation considered to be positive in this case.

**U4 Residual values and U5 Financing options to support subscription models (+).** Another aspect correlated with the residual value is the different financing options that support the subscription model. The findings show a positive correlation and an increase in residual value will increase the number of supportive financing options.

**U4 Residual values and U7 Subscription model as the major sales channel (+).** The residual value will be a denominator in the profitability of the subscription model and something that has been mentioned as a key aspect of the profitability by the respondents. Higher residual values would increase the subscription model as a major sales channel because it will be a more profitable model. That is why the correlation between the two is seen as positive.

**U4 Residual values and U10 Macroeconomic situation (+).** The residual value is a value based on the secondhand market and what the customers are willing to pay for an older product. This is highly correlated to the macroeconomic shifts in society and will therefore be positively correlated. If the macroeconomic environment is unstable it will affect the residual value and make the residual value unstable. Therefore would these two uncertainties follow each other, however, the changes will not be limited to each other.

**U5 Financing options to support subscription models and U7 Subscription model as the major sales channel (+).** To figure out what type of financing options should be considered by an OEM in a world of subscriptions is difficult. Maybe the solution is not yet invented or fully developed. However, something that can be considered is how the financing options will increase as the subscription becomes more and more the primary sales channel and the other way around. U5 and U7 could be considered to be positively correlated to each other.

**U6 Willingness to pay and U8 Risk of returning vehicles (-).** Finding the balance between how much a customer is willing to pay is extremely important for the outcome of subscriptions. The data collected shows a negative correlation between the willingness to pay and the risk of returning vehicles. Because if the willingness is low to pay there is a higher degree of risk that the cars will be returned.

**U6 Willingness to pay and U10 Macroeconomic situation (+).** The macroeconomic sensitivity has been discussed extensively in the interviews, however, there is no clear answer if subscriptions will increase or decrease the macroeconomic sensitivity within an OEM. Something that could be considered is that the willingness to pay is generally lower when there is a recession compared to an economic boom and therefore, the correlation is considered to be positively correlated.

**U7 Subscription model as the major sales channel and U8 Risk of returning vehicles (+).** Moving towards a complete subscription-based sales channel will impact all parts of the OEM and the subscription model is built on someone else owning the vehicles than the customer. As it is now, it seems difficult to let other parties than the OEMs take on such risk, and therefore the risk of returning vehicles increases the more subscriptions an OEM has. This is of course if the OEM is owning the cars themselves and have the risk on their own balance sheet. Therefore, the correlation between the two is positive.

**U8 Risk of returning vehicles and U10 Macroeconomic situation (-).** Another aspect to consider is how the risk of returning vehicles will be sensitive to macroeconomic factors. However, it does not necessarily mean that the cars are being returned. If there is an ongoing recession it is a larger risk that people will return their vehicles than if it is an economic boom. When the economic environment goes up the risk of returning vehicles will become lower. This is why the correlation between the two is considered negative.

## 5.4.2 Trend analysis

As the correlation between all uncertainties has now been mapped out, a similar process will be done for the identified trends. It serves to investigate how each trend will impact the automotive industry together with the uncertainty within each trend. Something that is important to remember is that the trends will happen anyways regarding the outcome of the uncertainties. Below is a description of how each trend will impact the different uncertainties and the automotive industry in general.

The trend of OEMs adopting an online customer journey (T1) has the potential to change the customer experience and demand in a longer perspective. It will change the sales channels and the perception of how to buy or subscribe to a car. This trend will most certainly affect how the demand for subscriptions (U1) will look and it will probably have a positive effect, especially since the price for subscriptions is considered to be better suited for online sales than a full-priced wholesale. It will also increase the possibility of a closer customer relationship which will also favor the subscription model in the long run. The trend has also an impact on (U2) customer loyalty because the online customer journey will definitely impact the customer loyalty and it could both increase as well as decrease depending on how well the transition and online journey are established.

The next trend considered is how customer values will be part of the decision-making process to a larger extent (T2), this influences uncertainties as customer loyalty (U2) because a large aspect of loyalty is built on the perception of a brand or product. It will be impacted by the values and beliefs that the company is standing for. This trend does also affect the uncertainty of willingness to pay (U6) because the trend anticipates that if the company is doing something extraordinary that is in line with the consumers' values and beliefs they could potentially be able to pay more for a product. One example is ecological food, which generally speaking is more expensive and targets a certain set of customers.

The trend of more flexibility (T3) has been around for quite some time in various industries, however new to others. Something that was clear from the interviews was that the customers are expecting a more flexible environment and especially the younger generation. The automotive industry is expecting an increased demand for flexibility and therefore trying to adjust for it. This trend will directly influence the outcomes of uncertainties as demand for subscriptions (U1) because it has a correlation and direct impact. The demand for subscriptions will be affected positively by this trend because the solution itself is suitable for more flexible usage. The trend will also impact the uncertainty of willingness to pay (U6), if an OEM is able to deliver on the flexible terms the willingness to pay for this solution will be higher because there is a demand for this type of service. However, opening the door to more flexibility also led to a previously unknown phenomenon for OEMs, the risk of returning vehicles (U8). It is highly correlated with the uncertainty of the residual value (U4) at that point in time, which impacts the revenue for OEMs with a subscription offering.

One major trend that was brought up in previous sections is how OEMs are moving towards a customer-centric view (T4). It essentially means targeting customers directly, which has certain implications. The trend can be observed in several industries and the automotive industry is the foundation behind the subscription service model. OEMs that introduce the change towards a customer-centric view are also under the influence of several uncertainties. It is highly affected by what degree customers will demand this new model (U1). Since it requires more capabilities across the organization, it will also be related to subscriptions becoming the major sales channel (U7). Depending on what degree of total sales the subscription model manages to grab, will have direct impacts on OEMs and their organizations. Lastly,

the customer-centric view is highly dependent on customer loyalty (U2). OEMs will through their customer-centric approach be able to target customers directly and hence, directly work with and try to achieve customer loyalty.

Electrical vehicles (T5) is what the whole automotive industry is talking about and the respondents made clear that it is the future drivetrain and where resources are put down. This trend has a significant impact on the industry both technological as well as commercial. This trend will impact several of the uncertainties presented. However, previously mentioned uncertainties are technological developments (U3) and residual value (U4). They are both connected to the major technological shift and the uncertainties of what type of technology we have in the future and how we use cars for example. This will impact the residual value of both new and old cars and this trend or development will lower the residual value of ICE vehicles and short-range electric vehicles.

Vehicles are becoming more and more dependent on their computer's ability to connect (T6). The vehicles we can observe today are very advanced when it comes to technology and hence, the vehicles are highly affected by technological advancements (U3). In order to provide a competitive subscription offer, vehicles need to be technologically advanced compared to their competitors. If vehicles do not have a core computer and connectivity offer that are competitive, it is easy for customers to cancel the contracts and switch. OEMs that are looking for loyal customers (U2), have to make sure that their technology offer is adding value to the customers. Another aspect that was brought up by respondents is how data policies are restricting OEMs' ability to take full potential of their core computers and ability to connect. T6 is therefore highly affected by policy decisions (U9) that could harm or benefit the subscription offer.

The trend of software as a service (T7) is wide in society and is taking part in the future of automotive vehicles. So-called soft offers will be developed to give the “owners/users” more value for the money and also be able to subscribe to services when they need them and perhaps not all the time. This will open to many new thoughts and services, even outside of the traditional services. It will give the OEMs possibilities to incorporate new ways of using the car. This trend has especially impact on the uncertainty technological developments (U3) and subscription (U7) as the major sales channel, because the technological developments will increase rapidly within this environment, and the software as a service is built on a subscription model which will impact the amount of revenue that the OEMs are generating from a subscription model over time. This trend will also have a smaller impact on demand for subscriptions (U1), customer loyalty (U2), and willingness to pay (U6) because it could positively make the cars more attractive. It can also be used to create ecosystems where these services can only be reached through a specific car and therefore increase both the willingness to pay and the customer loyalty to that brand. The solution itself will generate consumer groups that are more used to a subscription model and therefore also influence the demand for subscriptions.

In order to provide a service offer that customers find attractive it is necessary to have terms and conditions (T8) that customers agree with. Even though the subscription model provides more flexibility for customers, the terms and conditions must be transparent for customers to stay with the service for longer periods. If the terms and conditions are clear for customers it can affect their willingness to pay (U6). What it essentially means is that customers that feel that they have nothing to worry about and their risks are mitigated through the contract, will have a high willingness to pay for that service. Transparency in the terms and conditions can also limit the risk of returning vehicles (U8) for OEMs since customers know better beforehand what kind of contract they are entering. The macroeconomic

situation (U10) should also have less impact on the subscription model if the terms and conditions are clear to the customer. Flexible contracts give the customers the opportunity to cancel the contracts, which can lead to customers entering into new contracts in uncertain economic times, a situation where customers would not have bought a new vehicle in a traditional sales model.

The trend of a sharing economy (T9) is mentioned by several respondents as a trend that is affecting the automotive industry and has an impact on the decisions taken. The trend will have an impact on several uncertainties, especially demand for subscriptions (U1) and financing options supporting subscriptions (U5). The sharing economy is basically based on an environment where ownership is not necessary. Therefore, the demand for subscriptions increases and is seen as a suitable solution. This would also change the way the subscription model would be financed in several ways and could make it easier to sell more expensive subscriptions which would affect willingness to pay (U6). Another uncertainty that this trend could impact is the risk of returning vehicles (U8), in a sharing economy the risk would decrease because more people can use the same car which would potentially lower the price per month and customers would share the subscription costs.

Another trend widely discussed is how to become circular (T10) and reuse the raw materials that already are produced. This is something that has been mentioned as something the automotive industry is aiming for, to be more resource-efficient and sustainable. This trend will, of course, sooner or later affect almost all aspects of the business, however, for now, it will have a direct impact on uncertainties as demand for subscriptions (U1), because it would be a suitable model to use if the cars were to be returned and remade. The circular thinking will also affect technological developments (U3), because all technologies developed have to be engineered so that they could be reused or re-engineered for future cars to be made.

Customers are becoming more and more aware of the environmental impact of their decisions, especially in western countries. Environmental awareness (T11) is a well-known phenomenon in the automotive industry and will impact OEMs that want to provide a competitive offer to their customers. Technological developments (U3) will have a significant impact on the offer that OEMs provide in the subscription model to come up with more and more environmentally friendly products. Policies (U9) will also affect how quickly OEMs are able to make products that meet all demands of environmentally aware customers. It is also likely that customer loyalty (U2) is linked to environmental progress since customers often identify through brands. OEMs that are able to, through their brand, signal environmental awareness are likely to gain loyalty, even through an online subscription offer.

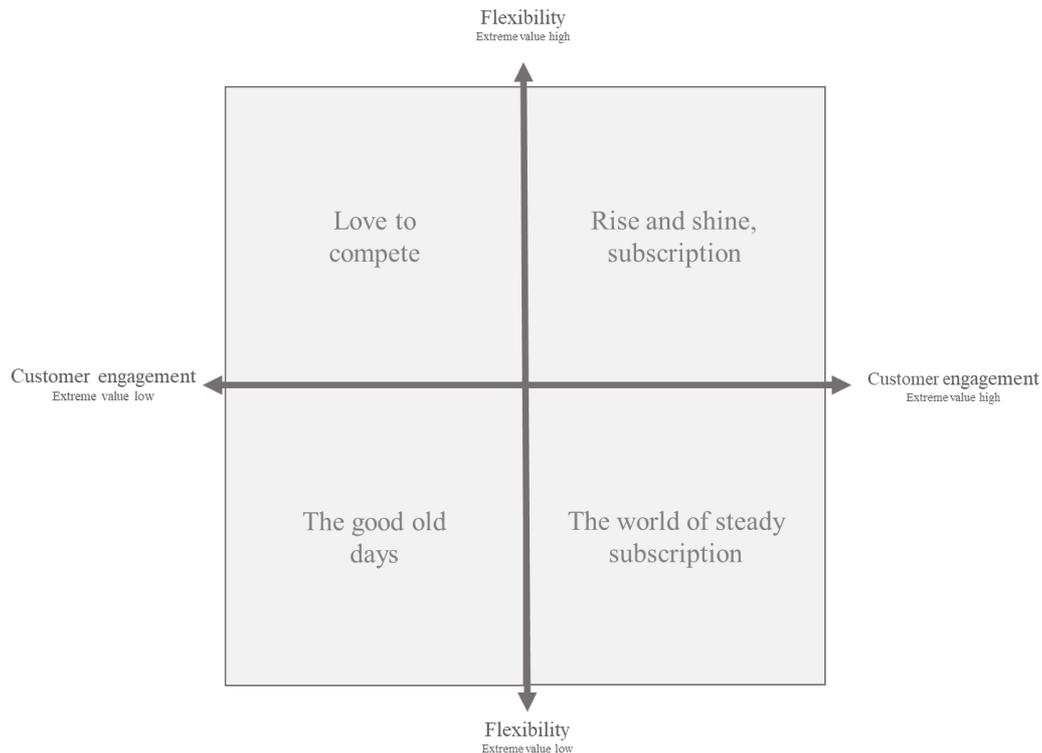
## 5.5 Step 5 - Generate scenarios

The fifth step in the tailored scenario planning framework is to use the identified and analyzed trends and uncertainties, that are presented in *section 3 & 4* to help generate the different future scenarios. The trends are used as a base to connect the different uncertainties but since trends are connected to events that OEMs can affect, the scenario dimensions are based on uncertainties.

### 5.5.1 Scenario matrix and dimensions

In order to provide the different possible scenarios for the subscription model in the upcoming 10 years, the scenario matrix framework was used, developed in the 1970's by Kees van der Heijden (van 't Klooster & van Asselt, 2006). The scenario matrix exists of two extreme values on each dimension and the scenario matrix consists of four quadrants, which will reflect four potential future scenarios (Ibid).

The two dimensions have to be determined as the most influential to the subscription model in the next coming 10 years. The dimensions were also chosen as areas that cover the most mentioned uncertainties. In *figure 5.6* below, the dimensions and their extreme values are presented on the axis's. The two dimensions that were chosen based on previous sections, were flexibility and customer engagement. Both of them are highly important to the changes that the industry is undergoing and when introducing a subscription service model. To the two determining dimensions, 8 of the 10 identified uncertainties could be connected as having a high impact on these dimensions. The uncertainties linked to flexibility were deemed as U1, U4, U7 and U9. The uncertainties linked to customer engagement were U2, U3, U6 and U8. The connection between the dimensions and uncertainties is described in more detail below.



**Figure 5.6 - Scenario matrix for analysis**

### **Dimension 1- Flexibility High/low**

The first dimension is related to the flexibility that OEMs offer the customers when introducing a subscription model. The subscription model offers worry-free ownership, and a flexible subscription model offers almost maximum flexibility for customers. Flexibility has been determined as the main difference compared to the traditional sales model and is linked to several identified uncertainties which are: Demand for subscriptions (U1), residual values (U4), subscription model as a major sales channel (U7), policy impact affecting the subscription model (U9). The demand for subscription services will to a great extent shape the degree to which OEMs will have to adapt their organization to the new business model. If the demand for subscriptions is high, it requires great effort for OEMs to adapt and create an organization with capabilities in more fields than earlier. On the other hand, if the demand for subscriptions is low, OEMs can carry on with business as usual, since subscriptions will be a complement to the traditional sales model. The demand by customers for subscription services will also determine whether subscription will become the only sales channel. As mentioned before, that has a great impact on how they interact with the customers. If OEMs launch a subscription model, especially with flexible contracts, they increase the risk in the company since the produced vehicles stay on their

balance sheet. Hence, residual values will to a high degree determine revenues and profits. Compared to the traditional sales channels of OEMs, subscriptions lead to more flexibility for customers but at the same time enhance the risk within the company. Lastly, flexibility within the subscription model is affected by policies that can impact how the offer is structured toward the customers and the revenue and profits for the model as a whole.

### **Dimension 2- Customer engagement High/low**

The second dimension deemed as suitable to describe the implications of a subscription model in the automotive industry was customer engagement. As presented in this study, introducing a subscription model means OEMs can target customers directly. Moving towards targeting customers directly leads to several uncertainties for OEMs, which have been identified as: Customer loyalty (U2), technological developments (U3), willingness to pay (U6) and risk of returning vehicles (U8). Customer loyalty will determine what the relationship between customers and OEMs will look like. It can also decide if customers decide to continue to subscribe and will affect the decision-making process for customers. Technological developments can enable OEMs to engage with customers in new ways. The engagement from customers in terms of brand recognition also helps OEMs in communicating newly developed technologies. If customer engagement is high the willingness to pay will be large and vice versa. When customers are engaged with OEMs and their brands it will reduce the risk of returning the vehicle in their subscription. It is also linked to customer loyalty where loyal customers will have less risk of returning their vehicle and changing to another brand or service.

### **5.5.2 Storylines for scenarios**

In this section the storylines for each developed scenario will be outlined and explained to give insight into what potential changes that could occur and how the different realities will look like. The scenarios are based on the four quadrants that are presented in *figure 5.6*, the storylines are both based on the uncertainties and trends. As Schoemaker (1995) states the trends have different weight and impact on the different scenarios. This is described below and also visualized with the help of one influence diagram per scenario, to present the relationship between the trends, uncertainties and final outcomes, this could be found in *Appendix E*.

## Scenario 1

### **Love to compete**

In the year 2032, the subscription model is thriving and has become a major sales channel for OEMs and other operators around the globe. There is an environment of high competitiveness where customers tend to turn their wallets by the wind. The automotive industry has evolved into an industry with many new actors and the fight for customers is tougher than ever. The bargaining power of customers is high and switching costs are considered low, because of a macro environment where mobility has been taken for granted and how you transport yourself is not as important as it once was. Customers are more aware of price and flexibility, and less interested in the importance of brand, technological developments and horsepower's. Customers are evaluating their mobility from how easy and price-efficient they can transport themselves both for daily activities as well as traveling longer distances.

Because of the lower switching costs and lower barriers to entrance, more actors will become part of the mobility world and OEMs will have more competitors to take into account. The customer journey will be online and agile and have a large importance in the customer acquisition process. The customer journey will not be important for the customer engagement in that sense, but for the service itself. To generate a competitive advantage in this future is difficult, OEMs have to evaluate effortlessness and price as two major aspects that have to be taken into account to become successful. There will be little to no loyalty and an OEM will most likely earn its customers by being as little in the way as possible and making the customer journey as easy as possible. Retailers will most likely be scarce and only showrooms will be available, because of the low margins and high competitiveness the OEMs have to twist and turn every dime to be appealing to customers yet profitable. Because of the high customer bargaining power and low switching cost, customers expect more from the products without putting emphasis on the personal aspect of the brand. Technological developments such as software as a service will be highly important and could tip the scales, favoring the business. Because subscriptions are the major sales channel, the risks of residual value will play a higher role in the profitability calculations for the OEMs. Another increased risk in this environment is the risk of returning vehicles because more cars are on the road and more people are on flexible contracts. Because of the tight margins and high competitiveness will the financing options for the subscription model become more difficult to solve and fewer options will be available.

Sustainability will be less relevant in the sense that people tend to not make their decision on values and beliefs and are more disconnected from the company. However, because of the sustainability trends in 2022, will sustainable initiatives be part of the market, both from a customer perspective as well as from a legal aspect. An OEM will not be able to operate if they do not live up to certain laws, regulations and expectations from a sustainability perspective. Policies will be affecting the market from a sustainability perspective and the highly competitive environment. Policies are correlated to regulations to steer the markets and relationships between OEMs and other actors have to be established to get a well-functioning and fair market.

## Scenario 2

### **Rise and shine, subscriptions**

Customers are now really looking for flexibility and the subscription model has managed to grab a large market share and more vehicles are being subscribed than purchased from OEMs. The investment in an interactive subscription model really paid off. OEMs that did not invest in a subscription model have lost a lot of their market shares. Since customers are looking for flexibility, the flexible subscription model has greater popularity than the fixed subscription model. That has made it hard for OEMs to predict how long customers will hold the contracts and therefore it is important to have a strong brand. OEMs, therefore, consider customer loyalty as truly important and try to achieve true customer loyalty. One way to find competitive advantages and customer loyalty has been to develop batteries that have low weight and a great power since almost all new vehicles are electric vehicles. There are still some hybrid vehicles that are offered but their value is low since customers are looking for emission-free vehicles. Technological developments help OEMs gain an advantage over competitors and vehicles are technologically advanced. Environmentally friendly products are seen as a basic need by customers.

The customer journey is mostly directed towards an online experience where customers can see the experience of the offered vehicles in a virtual reality environment. Since customers are highly engaged, it is important for OEMs to provide an online experience in line with customer brand expectations. The role of retailers is to provide test drives for customers that are still looking for more of the traditional experiences. Still, most of the customers only connect with OEMs through the online experience and only contact retailers for service and maintenance. Retailers will lose the role of selling vehicles and will have lower revenues than before. Since subscriptions are the most popular choice and most of them are with flexible contracts, vehicles are under the balance sheet of OEMs. That implies a great economic risk for OEMs. Residual values are therefore highly correlated with the profitability of OEMs. OEMs will therefore only use retailers of their own choice for services and maintenance. It also serves the purpose to deliver vehicles of great quality to keep maintenance costs low and keep the brand image high. Since customers are looking for a worry-free ownership model they do not want to be limited by a vehicle that restricts their ability to move whenever they want.

The industry climate is highly shaped by OEMs that provide subscription offers directly to customers. There are other actors that provide subscription offers directly to customers with several brands within their offer for OEMs that fail to provide this service by themselves. The threat of new entrants is relatively low since the cost of launching a new automotive brand requires high initial investment costs. There are historical examples of this and the threat cannot be foreseen, especially since a lot of the power now is in the hands of battery manufacturers. The threat of new substitute services is however higher since customers are looking for flexibility which can be found in new mobility services. It is therefore important for OEMs to have a clear strategic plan for how their offer targets different customer groups and make sure that their subscription offer is competitive. The greatest threat comes from existing competitors and their brand image and technological developments. The bargaining power of customers is high since the customers can switch subscription providers at any time. The profitability of OEMs will be determined by brand image and product offering since that is how firms find new subscribers and keep existing ones. Since the traditional sales model is less common, the price for a subscription is higher than before for OEMs to be able to cover all costs such as R&D, marketing and customer service. In this scenario, OEMs need to make sure customer relationships and loyalty are strong and long to make sure that they keep their contracts and continue to subscribe. That also makes sure that customers are willing to pay for the service.

## Scenario 3

### **The good old days**

In this scenario, the automotive industry will go back more to the traditional sales model where OEMs act as manufacturers and retailers play a big role in the sales process. Retailers are also in charge of offering leasing service models to customers. Since customers are not looking for flexibility, subscription services fail to grab popularity. Hence, OEMs do not find it important to offer this service as the most money is earned by selling the vehicles to retailers and keeping the organization smaller and more streamlined. In terms of the value chain, it still consists of different tiers of suppliers, with a clear value chain to the end customer in line with *figure 4.2*. Since customer engagement is low, the competition is high between OEMs and the industry is highly shaped by fighting for market shares. Willingness to pay is more linked to the product and its features rather than the mobility benefits that it actually provides. OEMs also have a clear target of which segment in the industry to target to reach customers. The most difficult aspect for OEMs is to adapt their business model to balance the online experience that customers value, while still using retailers for the actual purchases.

Customer loyalty is low and, in some cases, there is no customer loyalty toward each brand which gives buyers high bargaining power towards the OEMs. Technological developments play a big role in gaining advantages over competitors, while still keeping costs down to provide attractive offers to customers. The importance of electric vehicles is lower than what was anticipated a few years ago since customers will carry the risk of the residual value. If a new technology comes along, for example, better-performing batteries, residual values of existing EVs will decrease. Customers are therefore likely to be less open to EVs coming from the fear of better technology. Policymakers will therefore hold a lot of power, since incentives or regulations may force customers in certain directions. The threat of new entrants in the industry is relatively low because of the low customer engagement. Since customers are not looking for the flexibility, it essentially means that the threat of new products or services is relatively low. OEMs gain the greatest benefits in this scenario from the high switching costs for customers, since they themselves are owning the cars. The process of switching to another vehicle or brand requires the process of selling the old vehicle and searching for a new one. However, in this case, retailers hold a strong position since they may offer to offset this process and take care of the whole process.

This is not an optimal scenario for OEMs since competition is high and it is hard to separate the offer from other offers. OEMs are comfortable in this situation because it is how it has traditionally been. OEMs act with constant projects to reduce costs within the organization and keep manufacturing costs low. The risk is also relatively low since the produced vehicles are sold and do not stay on the balance sheet as if the subscription model was popular. There are also many financing options available for OEMs since financial actors are comfortable with this way of operating. In terms of macroeconomic risks, OEMs are heavily exposed to recessions and other crises since cash flows are directly linked to sales. If customers are afraid of purchasing new vehicles, retailers will no longer buy vehicles from OEMs and hence, production will have to decrease in that situation.

OEMs that previously thought that subscriptions were likely to succeed will have a hard time competing in this industry. They have spent a lot of investments into developing their business model suit for offering subscriptions to customers, thus having a lot of sunk costs. That means that their organization has undergone changes that are unsustainable to compete with other OEMs that have kept their value chain to suit this sales model and industry climate.

## Scenario 4

### **The world of steady subscriptions**

Subscription is considered a tool for increased customer engagement and embracing a customer-centric view, the importance of ecosystems is higher than ever in 2032. The solution of fixed subscriptions is thriving, and the solution is relatively close to the leasing solution that existed in 2022. However, with more interconnected customers and a wider range of services offered to the customers. People tend to have less interest in flexibility and a 36-month contract is more suitable for the majority of the customers. It is a steadier environment for the OEMs and less risk in terms of flexibility and residual values. Customers are highly engaged in the products and the customer journey and are expecting the OEMs to be both personal, effortless and price efficient. Offering a solution that offers an active membership is key for customer acquisition and the customers are considering their values and beliefs in all decisions taken.

The competitive environment is fairly similar to 2022 and threats of new entrants and other actors are not considered a large threat. People tend to value what brand they have, what that brand stands for, and what it signals to its surroundings. Loyalty is seen as highly valued, and customers are loyal to their brands and products. Together with the increased switching cost, makes new customer acquisition more difficult and therefore is it more difficult for new entrants to enter the market. The aspect of less flexibility is considered favorable both for the consumer along with the OEMs. Consumers will be able to negotiate or get better offers by locking themselves in for a period of time and in return OEMs will have the possibility to mitigate the risk of returning vehicles as well as the difficulties of acquiring new customers. It is important to still have a well-developed customer journey and customer experience to use these fixed members to become ambassadors for the brand and products. The customer journey will be online and in an agile environment, where effortlessness and customer engagement is the key aspect considered. Because of the steadier environment, retailers are still a large part of the process, and showrooms are established to a larger extent to support the buying process.

The willingness to pay is well balanced between the fact that customers are willing to pay for the brand they are loyal to, however, that they are able to get a long-term contract for a cheaper price than if it was more focused on flexibility. This service with a majority of customers on a fixed contract gives leeway to more financing options and the risks are easier to mitigate and prepare for. The OEMs will be less impacted by macroeconomic trends in that sense because many people are locked in for a certain number of months and are not able to cancel directly. The environmental and sustainable agenda is of real value to the company and a large denominator for customers when they choose what brand to support and buy their mobility from. Customers will expect a lot of engagement from the company itself and how they are treated and how the company is treating others and our planet will have a large impact on the customers' decisions.

## 5.6 Step 6 - Recommendations and strategic actions

The last step of scenario planning is to develop the strategic actions and recommendations for each scenario as well as the overall strategic intent forward. In this section will the scenario planning be connected with the theoretical framework of loyalty together with porter's five forces to establish strategic intents forward for an OEM and how to tackle the future scenarios of the subscription model.

### **Scenario 1 - Love to compete**

The subscription model is thriving and could be considered the major sales channel for OEMs. Customer engagement is seen as unnecessary from a customer perspective and the market for subscriptions is highly competitive. Customers have less interest in the brand and more interest in prices, flexibility and effortlessness. The customers will still demand mobility, however not a specific product or brand. The business environment lacks loyalty and the attitude towards the brand is considered insignificant. This scenario describes an environment as Dick and Basu (1998) describe as “no loyalty” and is usually identified in a highly competitive and price-sensitive market, where new entrants and price wars are ongoing (Dick & Basu, 1994). The five competitive forces described by Porter (2008) will map the business environment further. The most significant forces to consider is the increase of new entrants in the market as well as the increased bargaining power of buyers, which will both put constraints on the OEMs and make the business environment highly competitive and sensitive (Porter, 2008). This will lead to less leeway in the demanding aspects of effortlessness and function, and the customers will most likely move quickly if something is not suiting their needs. The strategic actions of this scenario will therefore be to focus the activities on cost efficiency, technology and product development to increase the range of services and make it as easy as possible for the customers to navigate the digital landscape and use a car. This environment is highly sensitive and critical in many aspects and therefore it is important to focus the attention on the core and deliver easy and highly efficient solutions for a cheaper price. Remove the extras in the sense of the customer and present flexibility, effortlessness and value directly to the customer.

### **Scenario 2 - Rise and shine, Subscriptions**

When flexibility is increasing for customers and switching costs become very low, it is important to find loyalty. As stated by Ngobo (2016), loyalty is highly related to repeated purchases and profitability. In order for OEMs to make the flexible subscription model in this scenario profitable, it is important that the customers stay with the contracts, i.e. are loyal and continue to subscribe. The goal for OEMs is to just offer new subscriptions to the customers to continue to receive steady revenue flows. It is also important, because of the low switching costs and high flexibility, for OEMs to stay alert to potential threats. In this scenario, customers are engaged in the different brands and value creation for the offer is important. OEMs need to make sure that each customer extracts value from the offer. This can in return mitigate the risks that are present. Since the experiences are online, brand recognition is linked to customer loyalty. In terms of the STEEP elements, OEMs must make sure that they live up to customers' expectations on each element. As Porter (2008) explained in terms of competitive forces that shape the environment, the bargaining power of suppliers is relatively low but OEMs need to make sure that relationships are strong to secure speed in manufacturing processes to meet customer demand in terms of flexibility. The other forces that shape the industry (Ibid) are also relatively low, except for the bargaining power of buyers since the customers are engaged and have certain expectations. Since the customers are targeted directly, OEMs hold the power within their own control and are able to control the supply and the prices. The most important aspect to consider in this scenario is to provide continuous value and technological developments and make sure that brand recognition factors live up to customer

expectations, to achieve a profitable level of willingness to pay. Since the organization is bigger than before, it is also important to have a dynamic organization that holds competence and the ability to adapt itself to a changing environment.

### **Scenario 3 - The good old days**

The automotive industry has not adopted the subscription model since customers are not looking for flexibility and are not engaged in OEM operations. That means that customer loyalty is very low and can in some cases be zero, a situation that Dick & Basu (1998) describes as no loyalty. This situation leads to a price war between the OEMs, and it is hard to diversify the product offer to compete. In terms of forces that shape the industry (Porter, 2008), the threat of new entrants is low because of the price war situation. Threat from competitors is high because each actor is looking for technological improvements that can decrease manufacturing costs and therefore also their pricing offer. Since switching costs for customers is also high it means that buyers are losing control and will look for low prices. In this case, the threat of substitute products mentioned by Porter (2008) is high because of the high competition that is present and new solutions could generate a lot of customers from the automotive industry. Since the value chain is long and pressured by decreasing cost incentives, OEMs have little control over the market and act as price takers. Strategy-wise, OEMs need to have a clear purpose for their actions and make sure to target a certain market segment of the customer group. They also need to have a cost-efficient organization.

### **Scenario 4 - The world of steady subscriptions**

Flexibility is not the center of attention and customers value a longer contract for a lower price and a steadier commitment. Customer engagement is considered significant and the customer journey and interaction with both the brand and products are highly valued in the decision-making process among customers. The ecosystem is important for both the service itself as well as for the customer, where a higher usage generates valuable insight and where customers and OEMs work closely together to generate a win-win solution. This scenario could be correlated to the environment that is according to Dick & Basu (1998) seen as a latent loyalty, the customers are loyal and have a high relative attitude towards the brand. However, the repeated patronage is fairly low because of the terms and conditions of fixed subscriptions. Keeping the customers engaged and updated will most likely generate a true loyalty scenario (Dick & Basu, 1998). The developments within this scenario would according to Porter's (2008) five forces increase the bargaining power of consumers. The relationship between the OEM and customer is mutual and both will benefit from a good relationship. There is a relatively low threat of new entrants in the sense that the relationship between OEMs and customers is highly valued, which puts a lot of bargaining power at the OEM towards competitors. There will though be more competitiveness among existing competitors and the customer acquisition will often be for the long haul. Therefore, the strategic action for this scenario is to focus on the key capabilities to generate an easy, trustworthy digital platform that would both take care of the engagement of customers as well as ease and effortlessness. There will be less focus on flexibility in that sense and less focus on the price. Building an ecosystem where interactions between OEMs and customers are developed and in it for the long term.

It is hard to predict which of the scenarios will be present in 10 years' time since many different uncertainties are present. The most probable thought is that the future automotive industry will be a mix of the different scenarios. However, the observed trends tell us that the industry is going to be different than it is today. The clearest trend is the move toward electrification and electric vehicles, influenced by factors under the environmental and technological elements. There are also factors in the sociological

element that tells us that OEMs will work to become more customer-centric oriented, regardless of the implementation of a subscription model. It has been proven that the subscription model is suitable for OEMs to be customer-centric, but there might come other solutions along the way that meet the same goals. The subscription model serves a great purpose to meet customers that want ownership to be effortless. It is also suitable for providing a clear offer to customers without worries and hidden fees. Furthermore, it serves as suitable for online sales processes where customers commit to less and acts as simpler than a traditional purchase.

## 6. Conclusions

*This section serves as a summary of the study and for the authors of this report to highlight their own thoughts on the findings and the discussion. It starts with a section to answer the research questions that were set up in the first part of the study. This chapter ends with a presentation of concluding remarks and thoughts on potential future research and limitations.*

### 6.1 Answering research questions

The research questions were set up to get an understanding of how profitability will change when introducing a subscription model for OEMs in the automotive industry. In the scenarios that were previously outlined, the focus was more on potential risks and threats in line with the competitive forces outlined by Porter (2008), with less focus on profitability. The monetary aspect is always of great importance when valuing projects and the future. The future outcomes of the subscription model are influenced by both trends and uncertainties. It is therefore important to incorporate both aspects to assess profitability. In order to answer the main research question, the two sub-questions assist that process. The two sub-questions are answered below, and the main research question is answered thereafter.

*What major trends and uncertainties affect the subscription model in the automotive industry?*

Since trends are categorized as having a certain characteristic, OEMs can count on that this will happen regardless of their own actions. However, the mentioned trends are still important to consider when outlining the subscription offer to fit future customer demands. In terms of trends related to the customer journey, we can observe that customers are looking for an online journey and avoiding unpleasant negotiations with dealers. Moving the customer journey online can save costs for OEMs when reducing showrooms and changing agreements with dealers. It can also be observed that the subscription model leads to a more customer-centric view for OEMs with direct relationships. It will have a significant impact on OEMs' business model since they are able to control the price and offer. It also calls for new departments within the organization such as customer service and billing services which increase costs. Although, customer service may also increase sales of other offers as vehicles are becoming more sophisticated and more focus are on the software, related also to core computer and connectivity. If OEMs can make sure that more value is provided to the customers, they should also be able to get paid more and increase revenues. Therefore, the introduction of customer service may not implicitly mean decreased profitability.

Another trend is electrification in the industry, which can have several aspects for OEMs and the subscription model. Not only is the development of EVs linked to the uncertainties of technological developments and residual value but also to the demand for subscription services. As new technologies arise and batteries are performing better, it risks undermining the values of current vehicles. Hence, customers may find subscription services better in terms of eliminating the risk of carrying the residual values. The success of the subscription model in the automotive industry is therefore linked to all these aspects. It was also found that the demand for subscription services should increase the willingness to pay. Residual values will play a crucial role in the structure of providing a subscription model as it carries a huge risk for OEMs. To summarize, most of the identified trends and uncertainties have either direct or indirect effects on OEMs when launching a subscription model. The extent to which subscriptions become the source of revenue will determine which factors are more important to consider. The greatest challenge when launching a subscription model is to balance the size and complexity of the organization in order to facilitate the factors that the subscription incorporates. Even

if the subscription model fails to grab popularity among the customers, the identified trends will still be present when using the traditional sales model.

*What are the possible strategic actions and future scenarios for the subscription model in the automotive industry?*

As described in the analysis, four future potential scenarios have been developed to give a holistic view of the future of the subscription model in the automotive industry. The major dimensions and uncertainties that were created to establish these four scenarios were the customer engagement in regard to the industry in addition to flexibility. With the help of the extreme aspects of these dimensions were the four scenarios developed, with all different characteristics and areas of emphasis. The scenarios range from a completely flexible and highly customer engaged industry to a less flexible and less customer engaged industry. These scenarios have all been explained in detail and helped to build a holistic view of the future of subscription models in the automotive industry in addition to how to strategically navigate this environment. The major strategic actions that were found and could be seen as the core strategies to take into account regardless of the future, is being able to create a platform or ecosystem, with online experience and short lead times. Where data-driven approaches and a more customer-centric view are adopted. Being able to be closer to the customer is needed, either to engage customers or to simplify the process. It has to be more effortless to buy or subscribe to the car, no matter what scenario plays out, this aspect is seen as critical to reaching the customer either way and is considered a major strategic incentive for the future.

The analysis also suggests that the OEM should take more or less the same customer-centric organizational changes into account regardless of the scenarios that play out. It is clear that many changes that are connected to the subscription model, are more or less necessary either if the subscription model becomes a large sales channel or just remains a part of different sales channels. The fact that the trends in society are certain to happen, but a lot of emphasis on the aspect of customer-centric companies, making it effortless and available for customers, needs shorter purchasing processes and online customer journeys are here to stay. From an OEM perspective will the needs of customers mean that even if the customer subscribes or buy the car, the need for easy mobility will remain the same and organizational changes such as inhouse customer service, sending invoices and other customer-related work functions will help the OEM to understand their customers better and being able to be more adaptable to this changing environment. With this said, it is important to have in mind that being flexible and prepared for change is the key to success in this type of innovative environment and is one of the main contributions of the scenario analysis. To understand what potential futures there could be and how to adapt to this changing environment as fast as possible.

## 6.2 Concluding remarks

The aim of this study was to analyze the effects and implications for OEMs when launching and implementing a subscription model. The subscription model has different characteristics than the traditional model. Identifying the trends and uncertainties connected to the model helped the process of presenting tools for OEMs. The scenario planning framework serves the purpose of planning for the future and includes a broad perspective to better understand potential outcomes.

The subscription model will have a significant impact on the whole ecosystem of OEMs and the automotive industry in general. There are certain aspects that will affect the profitability of OEMs more than others. The scenarios generated present worlds where the subscription model is thriving and worlds

that are more or less the same as today with regards to the sales channel. These aspects do have a large impact on the profitability and risks for OEMs. The major aspects affecting this change in profitability are (1) Residual values, (2) new types of financing options, (3) Revenue stream over time and (4) increased inhouse costs. The first aspect, residual value, will have a direct impact on profitability because, in a world of subscription, the residual value will become extremely important for the OEM. In previous market conditions, the residual value was taken care of by the end customers or financial partners that have taken on the risk. This will completely change if the subscription model becomes large and dominant and the changes come from the aspect that the subscription terms are flexible and a customer could return or cancel the subscription at any time. This aspect is correlated with the (2) aspect affecting profitability, which is the need for a new type of financing option for OEMs, the burden of having a lot of cars on the balance sheet is considered an issue, and a new option has to be discovered to make this new type of financing possible. This could potentially make it difficult for OEMs to keep down the prices and at the same time have adequate margins, because a third party taking on the risk, is taking out a larger premium.

The third aspect considered to affect the future profitability is the change of going from a clean sale of the product to a service-based business model, generating revenue over time. This aspect will definitely affect the profitability and could potentially increase the profitability, however, it could also harm if the needs of the customers are not met and people start to return vehicles instead of continuing the subscription. This is why it is important for OEMs to develop solutions that will get closer to the customers, understand them better, and be able to give them what they want on a monthly basis instead. The last major aspect affecting future profitability is the increased upfront costs of implementing a more customer-centric organization, where new functions and more in-house operations are necessary. This will be a major investment for OEMs and could be considered a fundamental change in the organization. This cost will be heavy and therefore most likely increase the barriers to entrance, and could if done correctly be well-invested money that will increase the profitability of an OEM. Although, doing this change and then failing to navigate these waters of subscriptions and mainly customer-centric thinking, could mean that the profitability will go down and new organizational changes have to be done if the OEM survives.

The other major aspect that this research was investigating was how the subscription model will impact the customer loyalty aspects of an OEM. Customer loyalty plays a central role in both customer acquisition and retention in the world of subscriptions. The result shows that the future of subscriptions is somewhat uncertain and different types of scenarios have to be considered as well as different aspects of customer loyalty to be able to answer the question. The scenarios generated have developed a holistic view of potential futures for the subscription model within the automotive industry. These different scenarios do generate different types of loyalty aspects and implications affecting the profitability of the subscription model. The identified trends and uncertainties are clearly showing a pattern of a more customer-centric view and where the OEMs come closer to the end customer. This calls for the ability to nurture relationships between the two and understand the customer needs outside of the product itself. It is important to understand that the subscription model means there is a switch from being product-focused to becoming service-focused and this will also affect how an OEM should consider their loyalty approach.

All loyalty aspects should be considered from a service point of view and with regard to the market and to take actions on what is most suitable for the current environment. In the event of a less customer-engaged environment, there will be a lack of true loyalty, although there will be loyalty to consider. In

this environment, an OEM should still consider a platform that could make the usage of a car simple and price sensitive. On the other hand in an environment of high customer engagement, the OEM has to consider a platform that is still easy to use, however, also gives the customers more value than mobility. The loyalty approach will increase among OEMs and the key to success in loyalty work is to know what the customers think of the customer touchpoints and how these touchpoints affect the overall image, price and quality of the service. As automotive companies become closer to the customer, loyalty will play a larger role in that sense and the OEM will have the possibility to use this as an advantage to understand the customer better and could therefore position themselves within loyalty so that it will suit their customers needs better.

If an OEM decides to carry both the traditional sales channel and a subscription model, it has several organizational challenges. Not only does the organization need more functions if it provides a subscription model, but it requires new ways of thinking and operating to manage direct relationships with end customers. OEMs need to incorporate the trends when building the subscription model and managing the organizational changes. They also need to create structures that can adapt depending on the outcomes of the uncertainties. Lastly, introducing a subscription model has many benefits and opportunities for OEMs. It is well in line with changes and trends that can be observed in several industries and is likely to gain more popularity with the passage of time. The upcoming 10 years for the automotive industry is likely to present many differences compared to before for OEMs, which cannot be overlooked. This study emphasizes that launching a subscription model in line with what this study presented will be vital for the future success of OEMs.

### 6.3 Future research & Limitations

This conducted research investigated the subscription model within the automotive industry from an external point of view and how the OEMs' profitability and loyalty work could be affected by implementing a subscription model. The trends and uncertainties identified and analyzed are based on major macroeconomic factors affecting the subscription environment and the profitability of an OEM. This research suggests strategic actions and recommendations that meet the future demand for subscription models and how to act in this unknown environment. A factor to take into account for future use and implementation of the suggested strategic actions is to also investigate the internal perspective, making sure the strategic actions suggested could be implemented and would have an organizational fit within the OEM. This is something that is only touched upon and has to be investigated further to confirm how to use and implement the suggested strategic actions in an efficient way.

The research is as discussed above, from the perspective of an OEM and external macroeconomic factors affecting the environment of subscriptions and OEMs. To navigate this future environment and have an even clearer path, future research has to be made from the customer's perspective. A major part of the subscription model is customer-centric, and it is therefore highly relevant to understand the customers' needs and demands in a deeper way. Therefore, is future research suggested within the field, to truly understand the customers and develop probabilities of the outcomes in a more certain way. The research also touches upon the economic aspects and how financing options and residual values will impact an OEM in the future of subscriptions. These aspects are discussed with a holistic approach in this research and future research is suggested, because of the significant impact it will have on the future profitability of an OEM. Therefore, is it suggested to investigate this further, to get a better understanding of how to handle these risks in a more effective way and get a deeper understanding of

what alternatives there are. It can also be of interest to investigate how to meet this new type of financial environment within the subscription model. Other aspects to take into consideration for future research are to investigate other and more companies to get an even broader view on the subject.

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# Appendices

## Appendix A- Interview guide

### Interview guide

#### 1. Present the research

We are two students, Daniel and Elof, conducting our thesis project in innovation and industrial management. We are conducting research about subscriptions in the automotive industry for personal vehicles and how it will affect the business models of OEMs. Our main point of interest is how the profitability for an OEM will change, by investigating the underlying factors and drivers of revenues and costs. This will be done by constructing different scenarios for potential outcomes for the upcoming 10 years. The interview will take around 45-60 minutes.

#### 2. Overview of respondents- Introduction

- Is it okay if we record the interview?
- Tell us about yourself and your background
- How long have you been working in the automotive industry?
- What different roles have you had in your career?
- What is your current role at your company or organization?
- Are we allowed to publish your name and role in the final thesis?

#### 3. General questions

##### **Automotive industry**

- How do you perceive the automotive industry today?
- Are there any specific forces that are more driving than others?
- In what direction do you think the industry will head in the next ten years in terms of suppliers' roles and customer relations?
- What different trends do you see in the industry that will have a large potential impact the upcoming 10 years?
- For whom are these implications the biggest? (OEMs, suppliers, customers, the society)

##### **Subscriptions**

- Describe your view on subscriptions in the automotive industry
- How do you think subscriptions will affect the automotive industry in terms of OEMs, suppliers, customers and society?
- Which trends do you see for subscriptions in the upcoming 10 years?
- What challenges will subscription models face in the market?

#### 4. Deeper questions in area of investigation

##### **OEMs**

- Which main challenges or threats are OEMs facing in terms of the subscription model?
- What opportunities can be observed for OEMs?
- What main industry trends can be observed by OEMs in terms of the subscription model?
- What are the main threats that can be observed by competitors?
- What are the main threats that can be observed by substitute products?

- How exposed are OEMs to decisions in the industry by policy makers?
- What financing challenges or opportunities for OEMs when it comes to introducing the subscription model?
- How will OEMs adopt the manufacturing to meet subscription demands?
- How will the supply chain be affected for OEMs?
- How are OEMs incorporating sustainability goals in the business model?

### **Customers/ Market/Loyalty**

- What trends/uncertainties do you see within user experience regarding subscription models?
  - How will customer relations be affected?
  - Will the subscription model impact customer loyalty and if so, how?
  - Does user experience have an impact on customer loyalty and especially within the subscription model?
  - How will price and quality offer impact customers in the subscription model?
  - What importance will brand recognition have for the subscription model?
- What different scenarios are there for which market share subscriptions will grab of the total market share in the automotive industry? Do you think there are regional differences?
- What are your thoughts on subscriptions impact on sustainability and how exposed is the automotive industry when customers are demanding sustainable solutions?

### **Revenues/ Costs/ Profits**

- What trends and uncertainties can currently be observed in the automotive industry in terms of revenues? How will that change in the upcoming 10 years?
  - What trends and uncertainties can currently be observed in the automotive industry in terms of cost (manufacturing, customer onboarding, marketing etc)? How will that change in the upcoming 10 years?
- What are the key drivers of profitability in this industry?
- How will the move from automotive sales to the subscription model affect the whole supply and value chain?

## **5. Final questions**

- Is there anything you would like to add or think that we should investigate further?

## Appendix B- E-mail template

Hi {Name},

We are two students from The School of business economics and law at Gothenburg university studying the masters programme of Innovation and Industrial Management. We are currently conducting our master's thesis where we have chosen to study the area of how OEMs will be affected by subscriptions in the automotive industry.

### Background of Thesis

The automotive industry is currently undergoing many changes when it comes to the product and features but we can also observe new business models to capture different customers. In our thesis we are studying how subscriptions will affect automotive manufacturers in terms of the business model, revenue streams and customer loyalty. The aim is to determine the trends and uncertainties of the implications this will have for OEMs. It is likely that these current changes will shape the future of the automotive industry and the competitive environment. We also aim to identify the key drivers of this change and the trajectory of the industry. The thesis will mainly be about identifying and quantifying the trends with the highest impact to the industry and look into how it will affect and shape the industry in the coming 10 years. One of the identified trends currently identified is the customer preferences of ownership and how new ownership models open the door for new segments and markets.

We believe you have valuable insights on the subject and we would highly regard your opinions and thoughts. Do you have the possibility to participate in an interview regarding overall trends in the automotive industry and also discuss it related to profitability and customer loyalty?

The interview will take around 30-60 minutes. Preferably we want to conduct the interview in the coming month, but the sooner the better. It would be highly appreciated if you had the possibility to participate in this study. Please feel free to suggest a time of your choice as we are flexible. The interview questions will be sent a couple of days before the scheduled interview to make sure you have the opportunity to prepare yourself for it.

If you do not have the possibility or time to participate, it would be highly appreciated if you could suggest anyone else within your organization who holds interesting insights into our studied subject. Please feel free to share our contact information to them if that is the case.

We look forward to your response!

Best regards,

Elof Hallin and Daniel Isaksson

## Appendix C - STEEP Categories

**Table C1 - STEEP analysis by Fischer et al. (2020)**

<b>Factors</b>	<b>Description</b>	<b>Considerations</b>
<i>Sociocultural Factors</i>	Culture, norms, societies, beliefs and behaviors as well as demographic changes in population distribution.	Ideological issues & concerns, Lifestyle & fashion trends, Population growth and segmentation, Age distribution, Media views and influence
<i>Technological Factors</i>	Technological changes and trajectories, including new technologies that may disrupt the firm or industry.	Tech maturity, Emergent tech development, Pace of technological change, Research funding and focus, Licensing and patenting norms and regulations
<i>Economical Factors</i>	Economic factors stand for shifts in economic indicators and trends, and the impact of those indicators and trends on a firm and industry.	Gross domestic product growth rate, Interest rates, Employment levels, Price stability, currency changes, income distribution.
<i>Ecological Factors</i>	Ecological factors are the factors connected to the environment, global warming and sustainable economic growth.	Consumer preferences and demands for sustainable products, Environmental regulation and incentives, Access to sustainable resources.
<i>Political and legal factors</i>	Political and legal factors that are considered for the process and actions of government and for change in relevant laws, regulation, policies and incentives.	Industry laws and regulations, Political party policies and power distribution, Ability to influence political decisions, Voting rates and trends, Power and focus of regulatory agencies

## Appendix D - Influence Diagrammes

### Scenario 1

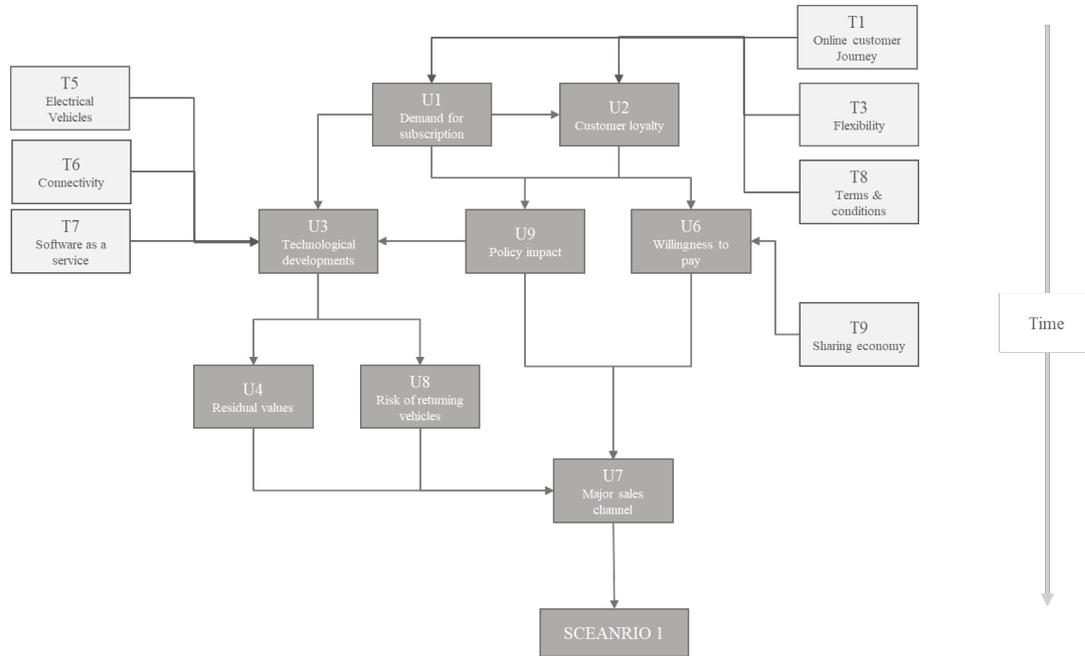


Figure D1 - Influence Diagram Scenario 1

### Scenario 2

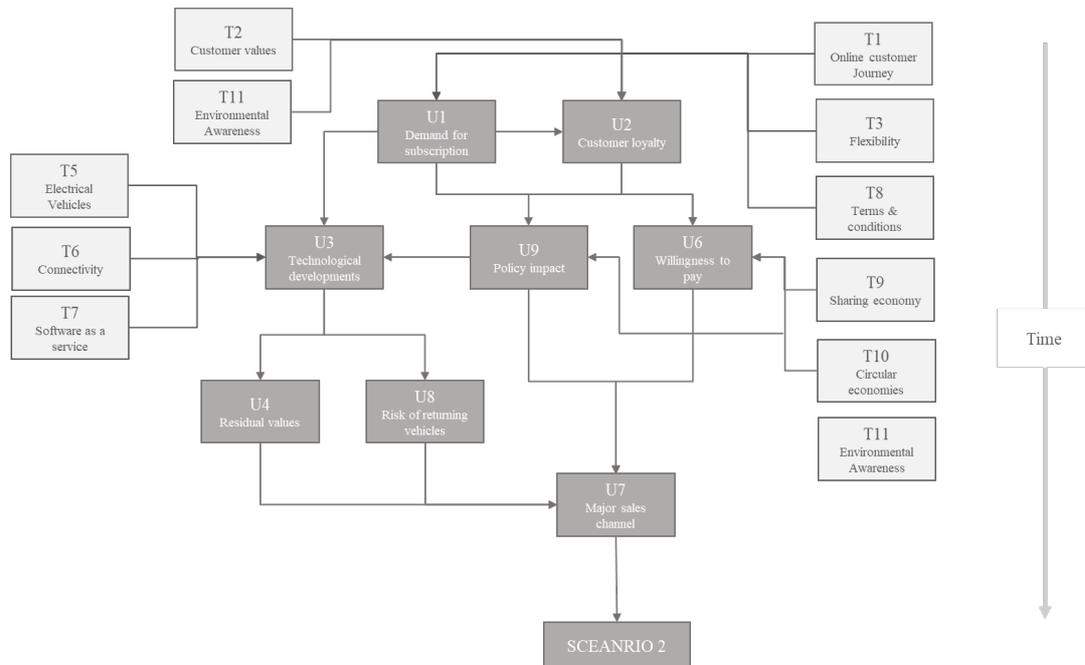


Figure D2 - Influence Diagram for Scenario 2

### Scenario 3

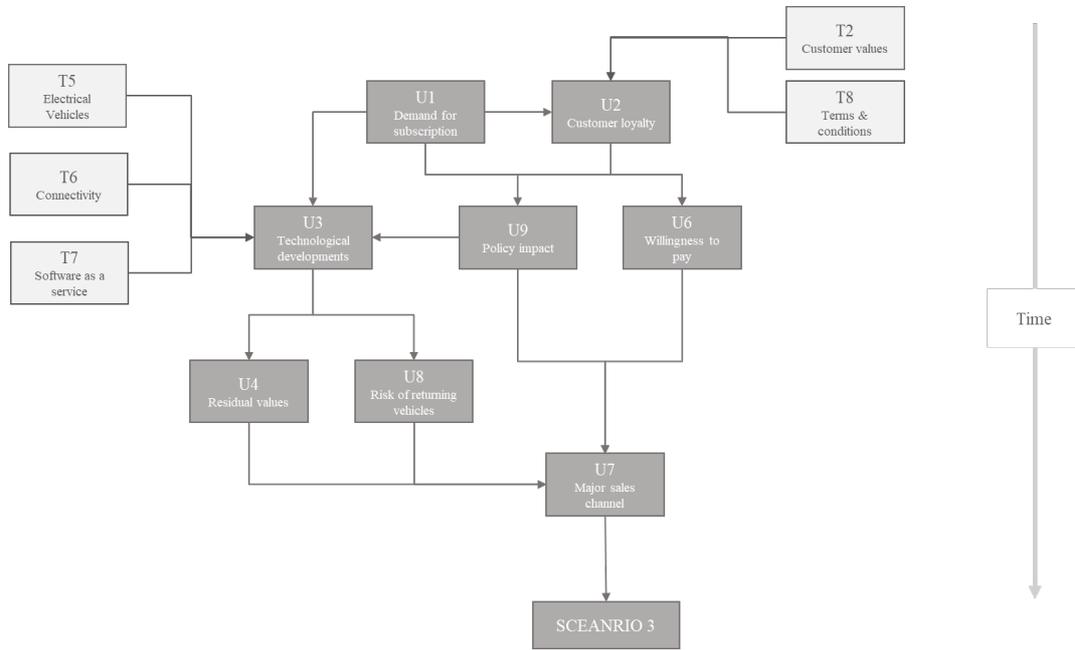


Figure D3 - Influence Diagram for Scenario 3

### Scenario 4

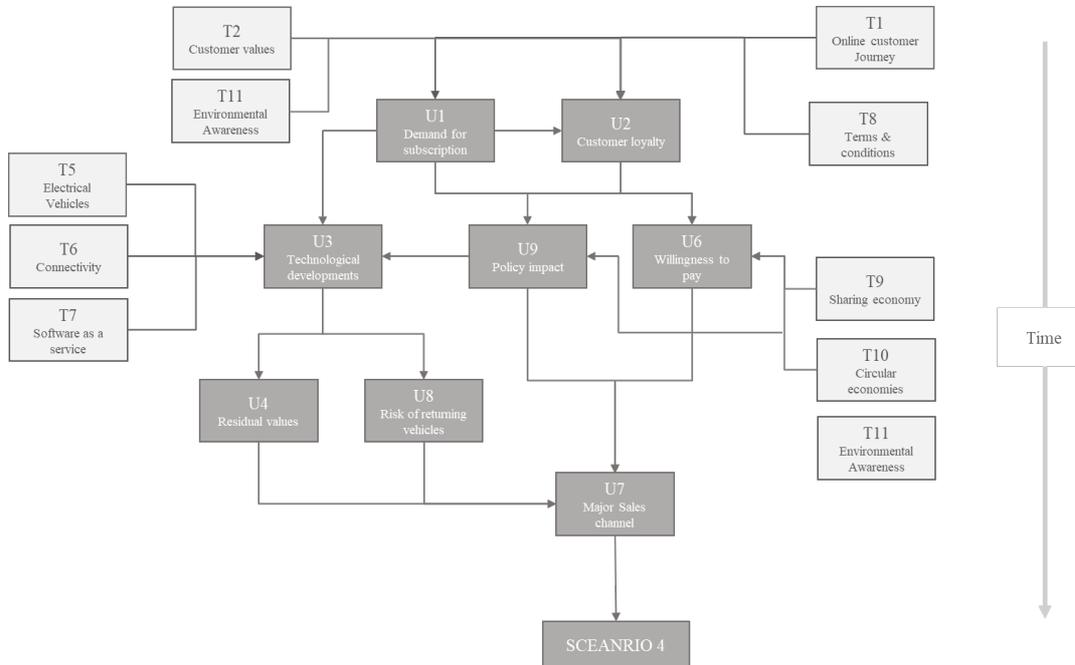


Figure D4 - Influence Diagram for Scenario 4