Mikael Rissanen

Digitalization of automotive industry - Use of video services in the after sales market

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Author: Mikael Rissanen
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ABSTRACT:

The focus of this thesis is to study what is the current level of digitalization in the automotive industry and how digitalization has changed, especially, the after sales side of the automotive industry in Finland. Due to the continuously developing consumer expectations and needs, Original Equipment Manufacturers (OEMs) are pushing new technologies to the industry to gain better customer satisfaction and to increase the performance in the workshops. This thesis has chosen to focus on the use of video in car workshops, as it has been lately one of the biggest digital changes for the after sales side of the automotive industry.

The car dealers and workshops are often guided by OEM regulations, so this paper was conducted by interviewing both the car workshop managers and the OEMs regional aftersales managers to better understand the benefits and challenges that digitalization is bringing. This study exploits the qualitative method in order to better understand the reasons behind the challenges and benefits. The aim of this paper is to provide information on the digitalization of the automotive industry and give insights to why it is beneficial to digitalize the service side in the car workshops but also to what challenges is related to digitalization.

It is clear that digital tools have arrived in the automotive industry as well. The change to electronic vehicles (EVs) is boosting the digital transformation and dealers should at least be ready for the change and take it as part of their strategy. The digital tools can be dictated by the OEM or developed and adapted in house. Either way, communication is the key to success. Making sure that all employees know why these changes are coming and why new tools and technologies are adapted to work is the first step to a successful digital journey. Also, the communication between OEM and dealer plays a key role as a lot of the digital tools are coming from the OEM. This way the local manager can communicate to his or her team the upcoming change and make sure that all employees have the understanding and capability to use the new technology.

KEYWORDS: Digitalization, automotive industry, car after sales services, car repair shops, video as a service

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TIIVISTELMÄ:

Tämä tutkielma keskittyy selvittämään, mikä on digitalisaation nykyinen taso ja kuinka digitalisaatio on vaikuttanut ja muuttanut autoalan jälkimarkkinointi palveluita Suomessa. Kuluttajien toiveet ja tarpeet kehittyvät jatkuvasti, mistä johtuen autovalmistajat (OEM:t) lanseeraavat alalle uusia teknologioita parantaakseen asiakaskokemusta ja -tyytyväisyyttä, sekä korjaamoiden suoriutumista. Tässä tutkielmassa on päätetty keskittyä videoiden hyödyntämiseen korjaamoissa, sillä se on ollut yksi viime aikojen merkittävimmistä digitaalisista kehitysaskelista autoalalla.

OEM:t usein ohjaavat jälleenmyyjien, sekä korjaamoiden toimintaa, joten tätä tutkielmaa varten haastateltiin korjaamopäälliköitä sekä autovalmistajien jälkimarkkinoinnista vastaavia henkilöitä. Tällä tavoin saatiin laajemmin kartoitettua digitalisaation tuomia hyötyjä ja haasteita. Tutkielma on luonteeltaan laadullinen, koska sen tavoitteena on syvällisemmin ymmärtää syitä digitalisaation haasteiden ja etujen taustalla. Tutkielman tavoitteena on valaista digitalisaation nykytilaa autoalalla ja antaa näkemyksiä siitä, miksi jälkimarkkinointi palveluiden, kuten korjaamoiden, digitalisaatio kannattaa, mutta myös siitä mitä haasteita tämä osaltaan tuo.

On selvää, että digitaaliset työkalut ovat tänä päivänä käytössä myös autoalalla. Autojen sähköistyminen osaltaan kiihdyttää digitaalista transformaatiota. Jälleenmyyjien tulisi alkaa valmistautua tähän muutokseen ja huomioida se strategiassaan. Digitaalisia työkaluja voidaan kehittää organisaation sisällä tai niiden käyttöä voi sanella myös OEM:t. Olipa kumpi tahansa vaihtoehto kyseessä, kommunikaatio on avain onnistumiseen. On tärkeää varmistaa, että työntekijät ymmärtävät miksi asioita lähdetään muuttamaan ja miksi työkaluja ja teknologioita ollaan ottamassa käyttöön. Jälleenmyyjän ja OEM:n välinen kommunikaatio on myös erittäin tärkeää, sillä usein digitaaliset muutokset tulevat OEM:n sanelemana. Täten myös paikalliset päälliköt pystyvät kommunikoimaan tulevan muutoksen omille tiimiläisilleen ja voivat varmistaa, että heillä on tarvittava osaaminen uuden teknologian käyttämiseen.

AVAINSANAT: Digitalisaatio, autoteollisuus, autoalan jälkimarkkinointi palvelut, autokorjaamot, videointi palveluna

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Abbreviations

CAGR - Compound Annual Growth Rate

DMS - Dealer Management System

EV - Electric Vehicle

ICE - Internal Combustion Engine

ICT - Information Communication Technology

IT - Information Technology

OEM - Original Equipment Manufacturer

1 Introduction

This thesis studies the effects of digitalization in the automotive industry. More precisely it focuses on the automotive after sales market and the usage of video solutions on the customer surface. The first part of the thesis presents the background for the topic and the key findings from previous studies. Also the research questions and objectives as well as the structure of the thesis are presented.

1.1 Background of the study

Digitalization is transforming entire industries, customer behavior and expectations (Bacher & Manowicz, 2020). In fact, nowadays digitalization is one of the most important factors when it comes to creating competitive advantage over competitors. Digitalization has many ways of benefiting companies. It among other things helps companies to enter new markets and to expand their businesses in the current markets. Also, it is stated that digitalization has a positive impact when implementing innovative and new products. (Brazezinski & Warwick, 2022) It is also considered that those companies that are not capable of adapting to digitalization are at a higher risk of losing business in the future (Lidhoo, 2022).

The automotive industry is one of the best performing sectors globally and is a pivotal actor in repairing the world's economy. According to Laborda & Moral (2020) the world wide automotive industry is yearly worth more than 1 trillion dollars "with a current rate of more than 95 million yearly units, including cars and trucks". The digital change in the world is comprehensive and also affects the automotive industry (Bacher & Manowicz, 2020). The automotive industry is evolving faster than ever and more resources are allocated around digitalization (Lidhoo, 2022). There is a huge pressure on the automotive industry to transform due to technical developments of the automobile. Concepts like networking, electrification, autonomous driving, and new mobility concepts are shaping the future of the automobile. All the manufacturers in

the industry have taken into account these challenges and are coming up with new solutions and ways to operate to meet the constantly changing customer needs. The term “digitalization” is arguably on everyone’s lips. (Winkler, Meunzel & Schneider, 2017)

Just like the automotive industry as a whole, also the after sales service sector is affected by a radical increase in the amount of different vehicle models available, a wide range of different maintenance and service ideas, and the huge amounts of data flowing from the vehicles to the manufacturers. This causes customer service to become more complicated. It can be even stated that the concentration is increasingly more on the customer than the vehicle itself which can be seen as an important challenge to tackle. Other industries where digitalization and automation are already at a more advanced stage are setting the customer expectations also in the automotive industry. (Winkler et al., 2017)

According to Winkler et al. (2017), when considering the customer expectations, workshops are still encountering problems with “predominantly analog and rigid processes” which are not matching with the speed of change and development. Workshops are also in a way ignoring the fact that not all customers are the same but there are different customer groups with their own needs and preferences. However, there is also development when it comes to digitalization in service, like mobile tablet solutions and online bookings for maintenance appointments. Therefore, it can be stated that some of the process steps of service acceptance are from the customer’s point of view digitally mapped. (Winkler et al., 2017)

1.2 Research gap

The creation of digital innovations is changing the old business models in the automotive industry and that phenomenon is creating room for new services and innovations. As the market changes these openings in the market are exploited by the

creative and innovative market entrants. However, the existing studies and literature do not cover well what has been the effects of these new digital innovations and the new companies entering the industry. (Riasanow, Galic & Böhm, 2017)

The research gap of this new change in the industry can also be seen in the lack of literature concerning automotive companies strategies. According to Chanias & Hess (2016) companies have accepted digitalization and change as part of their strategy but there are not many studies or written literature about what the results have been. Most studies and literature available are concentrating on different industries and fields of business. (Chanias & Hess, 2016)

Moreover, in the automotive industry, there is one economic sector that has not received the attention it deserves in the light of both theoretical and empirical economic analyses. This is the aftermarket automotive services sector which is growing in relevance and importance. Car manufacturers themselves have realized its importance and are considering automotive after sales as an additional business unit. This is happening alongside the groundbreaking changes taking place in the ways customers repair their cars, purchase spare parts, and access services. These aforementioned changes are suggesting that car manufacturers as well as suppliers and retailers are taking into use "adopting new business models to increase and secure future revenues and customers". (Laborda & Moral, 2020)

1.3 Research questions and objectives

In order to better understand how digitalization has and will continue to impact the automotive industry and after sales service market, a qualitative study was conducted to shed light to the following research questions.

The main research question of this thesis is:

- *How has digitalization affected the automotive industry and specifically the car workshops?*

Additionally, the following sub-questions were formulated to support the main research question and to guide both the theoretical and empirical sections of the study.

- *What is the current level of digitalization in automotive industry in Finland*
- *What are the benefits and downsides of using videos in the car workshops?*

1.4 Structure of the study

This paper consists of five principal chapters, the first one being the introduction which introduces the topic to the reader and also presents its background and the existing research gap. In the first chapter also the research questions and objectives are presented. The second chapter is literature review which aims to present the already existing literature and prior research around the topic by breaking it down to sub-sections.

Third part of the study is “methodology” and it, in turn, introduces the methodological choices selected to be used in the study. In this part of the thesis research approach, philosophical assumptions, strategy of the research, data collection and analysis, and the reliability and validity of the study are considered and discussed. After that, in the fourth part of the thesis, the findings of the study are presented, analyzed, and discussed. Finally, the fifth chapter summarizes the findings of the study and elaborates the theoretical as well as the managerial contributions. Also, the paper’s limitations are considered and suggestions for future studies are given.

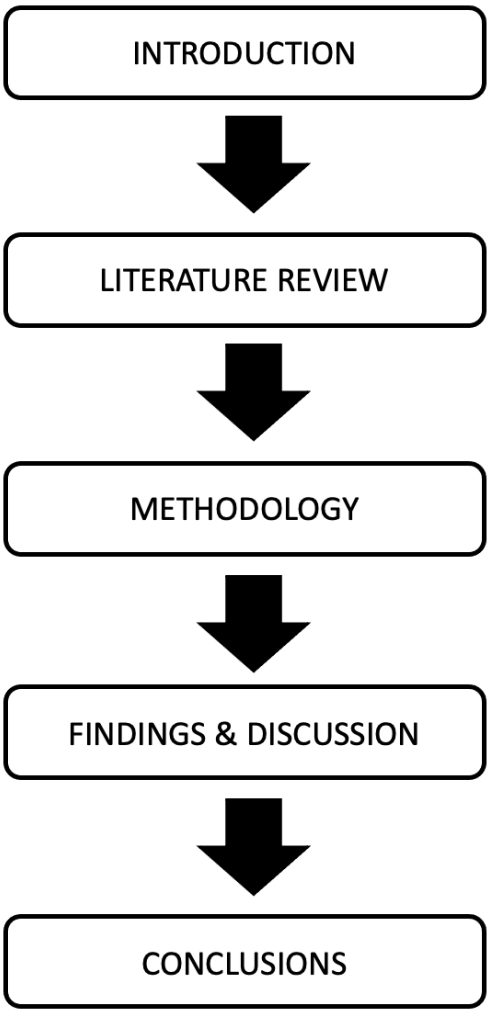

Figure 1. Structure of the study

2 Literature review

For it to be possible to answer the predefined research questions it is beneficial to first understand the theoretical base. In this chapter the topic of this paper is explored from a theoretical viewpoint which means presenting the most central observations from the already existing literature. First, the concept of digitalization is considered and defined. Thereafter the automotive industry, including the after sales side, is defined and explained. Finally, all these concepts are combined and discussed together.

2.1 Digitalization

World is changing in a fast phase and digitalization is a hot topic in almost every area of business. In the literature digitalization is usually seen in a positive light and it is considered in many cases to better our lives. Nyhlén & Lindblad-Gidlund (2022) argue in their study that nowadays the media gives us the impression that digitalization is meant to solve our problems for us. Digitalization will, among other things, create new job opportunities, increase efficiency, play a role in sustainable development, and create welfare. (Nyhlén & Lindblad-Gidlund, 2022.) Brüggeman (2021) agrees as he paints the same view in his study that there is a lot of positive hype around digitalization. Decision makers in the business world are provided with a lot of good examples of successful digital projects, which in some cases might drive them to force digital change in a not so optimal way. (Brüggeman, 2021.)

Nyhlén & Lindblad-Gidlund (2022) continue arguing that digitalization also improves the quality of lives in different ways. They explain that digitalization affects so fast and in so many ways that people might not even realize the change. It could be said that the change happens in the background and people are not even noticing when new digital ways are adapted. Nevertheless sometimes the effects are so concrete and the change so dramatic that the changes are easily noticed. (Nyhlén & Lindblad-Gidlund, 2022.)

Bacher & Manowicz (2020) continue to describe digitalization and its effects by saying that “digitalization is one of the most significant transformations still ongoing in today’s society”. According to them, due to the continuous emergence of new technologies, consumer behavior is radically changing and complete industries are going through transformation. They argue that digitalization is spreading to every aspect of life and is shaping it hardly. (Bacher & Manowicz, 2020)

The article called “The digitalization decision: The impact of digitalization on service innovation in the medical device manufacturing sector” (2021) links digitalization more closely to technological decisions. It defines digitalization as using and adapting new technical solutions such as cloud services, internet, artificial intelligence and big data. The article also ties the effectiveness and increasing efficiency as a big part of digitalization and claims that digitalization can give a big advantage in companies' operations. In the article’s definition digitalization is considered both in the service industry and in the manufacturing industry. In the service industry the benefits of digitalization are seen as creating longer customer relationships and increasing business revenue. In the manufacturing industry the benefits of digitalization are seen more related to increased profits with new innovations and increased efficiency. (The digitalization decision: The impact of digitalization on service innovation in the medical device manufacturing sector, 2021)

When considering digitalization on a more theoretical and conceptual level, it can be argued that there is no one general definition for it. Furthermore, it is stated that “there exists no established consensus framework within digitalization theory”. (Parviainen, Tihinen, Kääriäinen & Teppola 2017; Holand, Svadberg & Breunig, 2019) In fact, many researchers have defined digitalization from different viewpoints and perspectives. For example, one definition is where digitalization is described as the changes taking place in relation to the application of digital technology in every area of the society. (Udovita, 2020)

Parviainen et al. (2017) in turn, define digitalization as “changes in ways of working, roles, and business offering caused by adoption of digital technologies in an organization, or in the operation environment of the organization”. According to them these changes are happening on multiple levels: process level, organizational level, business domain level, and society level. Process level refers to the adaptation of new digital tools and to the reduction of manual steps by simplifying the processes. Organization level, in turn, means new service offerings and getting rid of out-of-date practices and offering the already existing services in modern ways. Business domain level refers to changing roles and value chains in ecosystems and finally the society level implies changing the structures of society, like the type of work or the ways to have an effect on decisions making. (Parviainen et al., 2017)

It is good to keep in mind that when talking about digitalization, the terms digitalization, digitization, digital transformation etc. are sometimes used as synonyms but that is not the case exactly. According to Colombari, Geuna, Helper, Martins, Paolucci, RIcci & Seamans (2023) digitization and digitalization are two separate concepts. They explain digitization as the process of transforming analog data to digital information while digitalization refers to the transformation of an organization’s processes with the help of enabling technologies and digital tools. (Colombari et al. 2023)

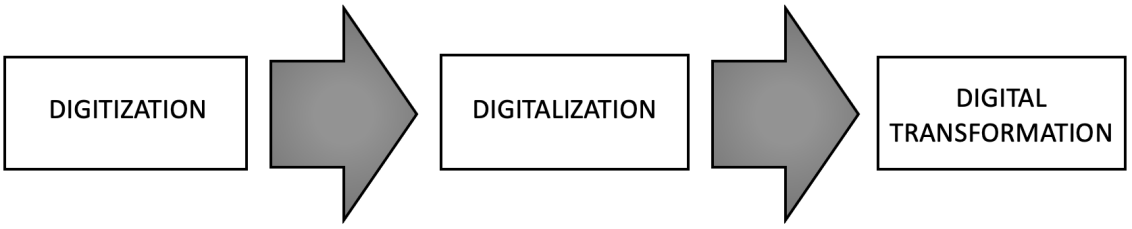

Figure 2. Framework for understanding digitalization (Adapted from Udovita, 2020)

Udovita (2020) agrees with Colombari et al. (2023) as also she highlights that it is important to make the separation between the three distinct terms: digitization, digitalization, and digital transformation. Udovita’s (2020) and Khan, Taqi & Saba’s

(2021) definitions of digitization comply with the one by Clombari et al. (2023) when they state that digitization means the transformation of information, like text, picture, and sound, from an analogue format to digital format. Udovita (2020) also adds that digitization also refers to the automatization process achieved through information communication technologies (ICTs). Digitization is argued to have resulted in considerable organizational improvements in the use of information technology (IT), implementation of IT strategies, and information processing abilities and know-how. Therefore it is justified to say that digitization sets the foundation for the wide digital transformation process which the union of different kinds of technologies, like social, mobile, and cloud technologies, as well as the constantly increasing need for big data applications, automation, and integration are driving. (Udovita, 2020)

Especially the terms digitalization and digital transformation are often used to mean the same thing. (Parviainen et al., 2017; Udovita, 2020; Khan et al., 2021) According to Udovita (2022), digitalization combines digitization processes with digital innovation and by doing so aims to better the existing products and services with advanced abilities. It is stated that digitalization explains the synchronization of organization's business and IT strategy as well as the fusion of IT into the business strategy. (Udovita, 2022) Lastly, according to Lopez-Vega & Moodysson (2023), "digital transformation is the outcome of introducing new creative processes to embed digital capabilities into objects as well as building new digital capabilities outside the main industry".

2.1.1 Digitalization maturity

In their study, Siedler, Dupont, Zavareh, Zeihsel, Ehemann, Sinnwell, Göbel, Zink & Aurich (2021) formulate a maturity model to determine the level of digitalization. (See Figure 3.) The model has four stages: explorer, beginner, intermediate, and expert. Explorer stage can be defined to include organizations that have limited digitalization while beginners can be seen to already have digitalization as a focus in some unlinked parts of the organization. Intermediate level, in turn, implies that digitalization is

embedded in the corporate culture and that digitalization is spread to most of the divisions in the company. These divisions are linked, both horizontally and vertically. The final level, expert, is reached when digitalization is fully implemented inside the company, meaning that all the divisions are fully linked and cooperating. In order to be able to call an organization to have reached an expert level, digitalization needs to be completely embedded in the company strategy and culture. (Siedler et al., 2020)

Increasing maturity level →

	Explorer	Beginner	Intermediate	Expert
Overall description of maturity levels	The company has limited digitalization.	Digitalization is the focus of only some company divisions and their linkage is rare.	Digitalization is the focus of most company divisions, which are mostly horizontally and vertically linked. The digitalization mindset is enshrined within the corporate culture.	Digitalization is fully implemented within the company. The divisions are all horizontally and vertically linked. Furthermore, digitalization is actively implemented and fully enshrined within the corporate culture and strategy.

Figure 3. Digitalization maturity levels (Adapted from Siedler et al., 2020)

Parviainen et al. (2017) have also studied the companies' maturity when it comes to digitalization. According to them, when the study participants were asked how they see their company's maturity for digital transformation, 26% of the companies placed themselves in the early stages of maturity, 45% of the respondents described their company's maturity to be on the developing stage, while 29% saw themselves as digitally mature organizations. Parviainen et al. (2017) describe mature organizations as ones who have a clear digital strategy as well as a collaborative culture and engaged leadership driving the transformation without being afraid to take risks. However, according to them, in many firms it was common that implementation of enterprise resource planning failed. It is argued that that is because of the old knowledge management systems. Digital transformation was not successful because companies kept the old processes and did not pay enough attention to changing mindsets and developing a culture that could support the change. Parviainen et al. (2017) further state that the main obstacles for digitalization are competing priorities, lack of a proper digitalization strategy, security concerns, as well as inadequate technical skills.

2.1.2 Benefits and challenges of digitalization

It can be argued that the possible benefits of digitalization are considerable. According to Parviainen et al. (2017) it is possible to cut costs almost by 90% and to improve turnaround times by several orders just by digitizing information-intensive processes. They continue that by reducing paper and manual processes and replacing them with software gives organizations the possibility to gather data automatically. This data can then be analyzed and explored to better understand what is going on in the organization. The existence of real-time reports and dashboards on digital process performance makes it possible for the key actors in organizations to react quicker and take care of emerging problems before they become business critical. Digitalization acts as a source of economic growth as it is argued that countries that have achieved digitalization maturity extract 20% more economic benefit than countries on the lowest maturity levels. Furthermore, it is justified to state that digitalizations plays a role in decreasing unemployment, bettering the quality of life, and improving the access to public services. (Parviainen et al., 2017)

Even though the world knows how important digitalization is, organizations are still many times struggling to really understand its potential impact, opportunities, and benefits. In fact, organizations face many practical challenges and obstacles on their road to digital transformation. The process of digital transformation affects an organization as a whole. In order to support the business model transformation, digital capabilities need to be implemented. In order for the transformation to be successful the old habits and ways of working need to be changed. (Parviainen et al., 2017)

Like already discussed in this paper, digitalization is linked closely to technological decisions. Digitalization can be defined as using and adapting new technical solutions such as cloud services, internet, artificial intelligence and big data. (The digitalization decision: The impact of digitalization on service innovation in the medical device manufacturing sector, 2021) According to Legner, Hess & Matt (2017), it is the end-users who are driving digitalization today. Consumers and customers nowadays

want to use continuously more mature and advanced digital products and services. These high expectations are putting a lot of stress and pressure on the decision makers in the organizations but also create considerable opportunities for disruptive startups. (Legner et al. 2017) However, It is important to take into consideration also the people driving the digital transformation and the challenges rising from their end. Quickly happening changes and the big magnitude of options and choices available can be overwhelming and stressful for the managers and therefore can cause damage to the manager's well-being. (Zeike, Choi, Lindert & Pfaff, 2019)

When considering the employees and workers in organizations, resistance towards the digital transformation can occur from their side as well. Digital transformation principally causes changes in the ways of working. Resistance to change stems from factors like "new responsibilities, lack of trust and conceptual training, increased job complexity, and perceived threat to status and power". (Frick, Mirbabaie, Stieglitz & Salomon, 2021) Albukhitan (2020) agrees as he states that in manufacturing organizations employees are so used to doing things in a certain way that when change occurs they resist. This kind of resistance rising from the people's side can be seen as a huge risk for business as it means that an organization is not being able to adapt to the changing business environment because employees are reluctant to change business models and core operations. (Mugge, Abbu, Michaelis, Kwiatkowski & Gudergan, 2020)

In addition to resistance to change, Albukhitan (2020) lists also other main challenges faced on the digital transformation journey:

- **Traditional processes** - Digitalization requires companies to give up on the manual and time-consuming processes
- **Legacy business mode** - Organizations tend to be very comfortable with their legacy systems and not so eager to move away from them
- **Limited automation** - Still many tasks that are repetitive and time-consuming are executed manually, which results in high man-hours and costs

- **Budget restrictions** - Digital transformation can be costly and therefore requires considerable investments
- **Absence of relevant knowledge** - Acquiring new technologies alone does not work but it is important to make sure the employees' knowledge is also enhanced
- **Inflexible company structure** - It it essential for organizations to have new technologies and business models in order for them to function properly but the implementation is not always flexible
- **Security** - As digital transformation means exposing the operation network and systems to the internet, cybersecurity also rises as one of the concerns

2.2 Automotive industry

As already mentioned, the automotive industry is one of the best performing sectors worldwide and is also a pivotal actor in bringing the growth back to the world's economy. The automotive industry's global worth is more than 1 trillion USD. (Laborda & Moral, 2020.)

Paunov (2019) describes the structure of the automobile industry through its value chain (See Figure 4). According to her the value chain consists of upstream and downstream actors that are participating in the process on different stages. The three stages of the value chain are: manufacturing of vehicles, distribution and sales, and aftermarket services. (Paunov, 2019.) Silver (2016) explains that dealers are companies that sell vehicles. They can be considered as physical retail locations and it is good to keep in mind that one company can own many dealership locations. Also one important thing to understand is that dealers are distinct and independent actors from the vehicle manufactures. "Dealerships are really good at customer service, understanding the needs of their specific geography and customer base, and vehicle maintenance and repair." (Silver, 2016)

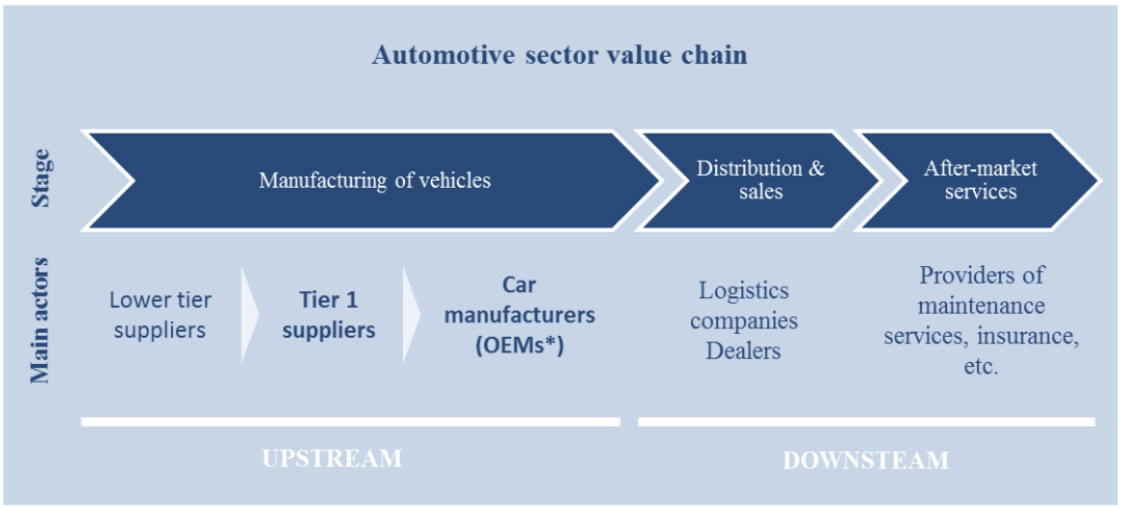

Figure 4. Automotive industry value chain: stages and main actors (Paunov, 2019)

Vehicle manufacturers, in turn, are brands that are familiar to almost everyone. These brands are among others Ford, Toyota, and BMW. These companies are also called as original equipment manufacturers (OEMs), which can be a bit misleading. The confusion comes from the fact that even though OEMs produce some original equipment, their core strengths lie elsewhere. OEMs are experts in designing and marketing vehicles, ordering parts from the supplier network, and assembling the final product. (Silver, 2016) In their study, Khan et al. (2021) describe the roles a bit differently as they talk about manufactures and OEMs as separate actors. According to them a manufacturer is the automaker while OEM is the authentic producer of component parts. (Khan et al. 2021)

In the manufacturing of vehicle -stage, Paunov (2019) divides the suppliers into tier 1 and lower tier suppliers. According to Silver (2016), tier 1 suppliers are companies that provide parts or systems to OEMs, like Bosch and Continental. These kinds of tier 1 suppliers specialize in the “automotive-grade” hardware. This refers to hardware that endure the durability, motion, and temperature needs of OEMS. Tier 1 companies are usually doing business with multiple different automobile companies at the same time but are often strongly associated with one or two OEMS and have not so tight relationships with the others. (Silver, 2016)

While Paunov (2019) groups the rest of the suppliers into lower tier suppliers, Silver (2016) also separates tier 2 and 3 suppliers as distinct groups. According to him tier 2 companies supply parts that end up in vehicles but are not directly selling them to OEMs. These companies can be seen as experts in their own fields but as most of the companies they support are not operating in the automotive industry, they do not possess the will or capabilities to produce automotive-grade parts. One good example of a tier 2 company is the computer chip manufacturer Intel. Finally tier 3 actors can be described as suppliers of raw and close-to-raw materials. As OEMs, tier 1, and tier 2 companies all need raw materials, like metal or plastic, tier 3 companies can be seen to supply to all levels. (Silver, 2016)

As OEMs are strongly involved in this paper it is beneficial to also dive deeper into their operations and structure. One way to illustrate the structure is through the different business segments of the OEM. According to Schiller, Kummer, Berdichevskiy, Weidenbach & Sadoun (2020) OEMs generate revenues in five different business segments. The three more traditional segments are vehicle sales, after sales, and financial services. (See Figure 5.) (Schiller et al., 2020)

Vehicle sales can be divided into new car and used car sales. After sales segment deals with parts trade, end of life services, and repair shops, while financial services can be either asset-based or service-based. In addition to these three traditional business segments, Schiller et al. (2020) identify two newer segments: mobility as a service and car as a platform. Mobility as a service -sector includes topics like fleet, infrastructure, and mobility services. Car as platform -segment, in turn, deals with things like vehicle and user data, platform accesses, and connected services sales. (Schiller et al., 2020.) In this paper the concentration is on the after sales segment and more precisely on the repair shops.

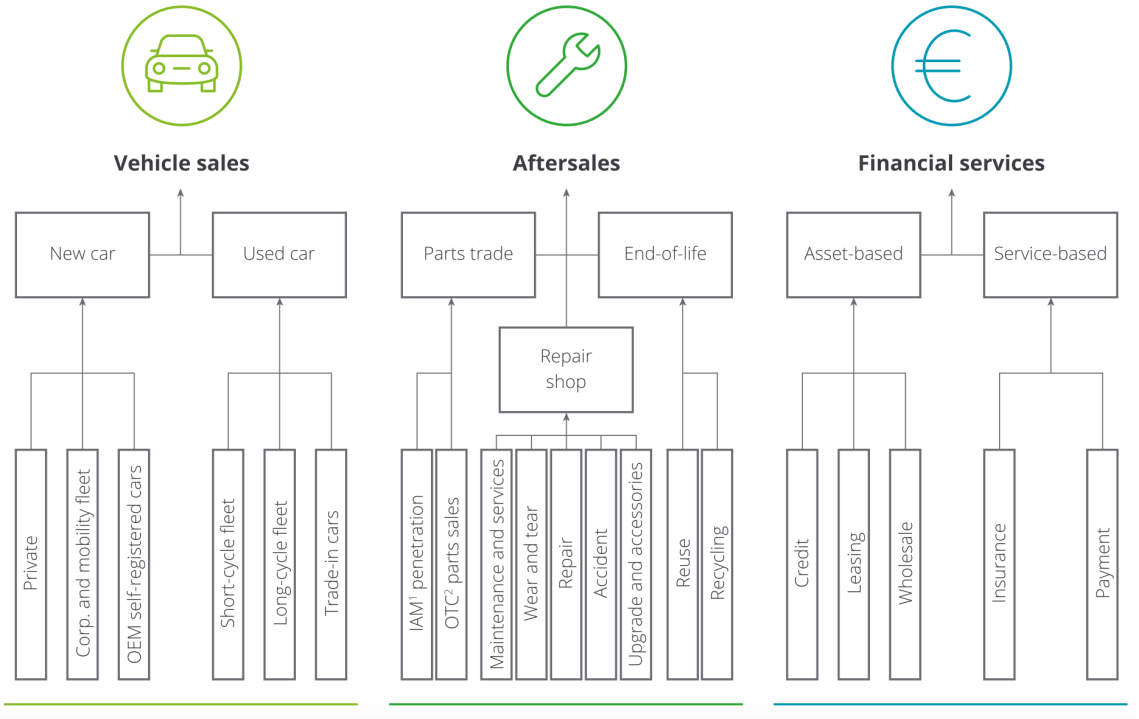

Figure 5. OEM revenue tree (Schiller et al. 2020)

For the past couple of years the automotive industry has been in the news almost weekly due to all kinds of changes taking place. For example, OEMs are launching new electric vehicle (EV) models and are trying to solve the problem concerning the scarcity of raw materials to keep the production lines going. Hensley, Laczkowski, Möller & Schwedhelm (2022) describe these new changes to be the largest ones since Ford launched the Model T in the early 1900s. (Hensley et al., 2022).

Eventhoug there are many changes happening, the most dramatic one in the market is the ongoing transition to EVs. According to Hensley et al. (2022) the automotive industry has traditionally relied its growth on cars with internal combustion engines (ICE). Nevertheless, the current trend is that EVs are accompanying the change to the market. This change is visible, when looking at how the automotive companies have invested their money since 2010. Out of the 280 billion dollars invested into the industry, approximately from 115 to 120 billion dollars has been invested around EVs. Cornet, Concede, Schaufuss, Schenk & Tschiesner (2021) provide even more recent

information about the investments in the EV market. In their study they claim that there has been around 100 billion dollars invested in EVs from the beginning of 2020. Correa (2022) shows the same results in a bit different light as his research is taking into consideration the compound annual growth rate (CAGR). His study shows that of the global market, the electric segment will have a CAGR increase of 15,1% from the year 2021 to 2031. (Correa, 2022)

Looking at the most recent literature it is relatively safe to say that the automotive industry is moving fast towards EVs from the more traditional ICEs, while at the same time the rapidness and reasons behind the change are more discussed. Cornet et al. (2021) explain that there are also different reasons in different markets. In Europe the market is changing mostly due to strong regulation and high subsidies. At the same time, China's reasons have been more related to consumer behavior. In China the demand for EVs has come more from the consumers than from the governmental regulations. The United States in turn is seen as a slow market all in all. In the US the customer demand is growing relatively slow and the US government has not been so active in the matter lately. When comparing the markets, the European market will be the leading market in the change, because it has both customer demand and high regulations. (Cornet et al., 2021)

Rapidly growing EV market also brings challenges to the industry. To keep EV change in fast motion and the market in balance (Hensley et al., 2022) lists three challenges that need to be addressed in the future:

- Shortage of raw materials for batteries (nickel, cobalt and lithium)
- Shortage of gigafactories which are producing the batteries and low productivity of current gigafactories
- Public charging infrastructure have to keep up with the amount of new EVs produced

Cornet et al. (2021) share the same concerns which need to be addressed. They claim that just for the batteries Europe needs to build approximately 24 new gigafactories. Their study also mentions the need to grow the charging infrastructure and maintain it as one of the important challenges to be addressed in the automotive industry. (Cornet et al., 2021)

2.2.1 After sales service market

Verstrepen, Deschoolmeester & Van den Berg (1999) explain that, overall, the service after sales process includes all the activities that are linked to making it possible for existing customers to easily locate, contact, and utilize "the supplier's resources that are needed in order to create satisfactory product-related services, answers to inquiries or solutions to problems". According to them it is possible to name four main business processes that exist in every enterprise: development and innovation, customer contact, order processing and fulfillment, and service after sales. Development and innovation process refers to the development of new products and services as an answer to the forever changing needs of customers. Verstrepen et al. (1999) describe the customer contact process as "development of commercial leads through marketing or sales efforts, prospection and responding to customer inquiries". Order processing and fulfillment consist of things like order entry, logistics, manufacturing, and delivery. Finally, service after sales can be described as all the activities taking place after the initial sales transactions, like installation, repair, maintenance, etc. (Verstrepen et al., 1999)

Like already mentioned in this paper and when comparing to the other three main business processes, the service after sales has not received as much attention in the literature than the others. It can be argued that traditionally theory and practice of marketing has concentrated on the attraction of new customers through means like advertising and selling. Instead the focus should rather be also on how to retain already existing customers through caring for them after the initial sales transaction. Retaining

and keeping the current customers happy is equally as important as attracting new ones. One solution for this is the creation of post-sales relationships with customers. That gives the opportunity to strengthen customer connections as well as to gather precious customer information. (Verstrepen et al., 1991)

The automotive service and repair market in 2021 generated 789.8 billion dollars and the estimation for the market size in 2031 is 1,656.21 billion dollars. Expected compound annual growth rate for the market is 7.6%. Drivers that cause the aftersales market increase are estimated to have originated from the general increase in the standard of living and the surge in automobile sales. Correa (2022) lists also what could hinder the estimated growth for the market. His research shows that the market could be smaller than estimated either because of volatility in prices of raw materials or increase in demand for shared mobility. It is also calculated that passenger car accessories aftermarket will grow 8.5% compound annual growth rate (CAGR) by 2026, and automotive aftermarket industry will grow 6.2% CAGR by 2031. (Correa, 2022)

In order to better understand the ongoing changes and future estimations Correa (2022) divides the whole market into different segments and market areas. He defines the Asia-Pacific market as the largest one, and according to the study it will remain to be the biggest market also in 2031. The LAMEA market Correa (2022) predicts to be the fastest growing one with a compound annual rate of 9%. When considering the different car segments the research shows that the passenger car segment had the largest market share in 2021. It is expected to also be the largest market in 2031 as it currently is covering over two thirds of the whole market. The fastest growing segment in the future according to the study is going to be the heavy commercial vehicles as it is expected to increase CAGR 11%.

According to Laborda & Moral (2020), today's consumers are keeping their cars for a longer period of time than in the past. That is at least partly due to the fact that consumers are nowadays taking better care of their vehicles and understand the

importance of preventive care in ensuring a longer lifetime value of their cars. This kind of behavior creates an increasing need for aftermarket parts and services which in turn causes new openings and opportunities for the companies operating in the automotive industry. (Laborda & Moral, 2020)

In recent years OEMs have invested considerable amounts of money to the after sales businesses which has caused customer satisfaction and service quality to go up. Furthermore, according to Brandt & Springer (2015) many actors in the automotive industry have expanded their offerings into new areas in the hopes of increasing their share of after sales business with existing customers. The continuous development of connectivity technology has given the OEMs and their service networks leverage over the competing independent aftermarket actors. However, Brandt & Springer (2015) predict that despite all these advantages there are multiple challenges the OEMs and dealers will encounter in the after sales market.

First challenge Brandt & Springer (2015) mention is the declining service demand per car due to the improvements in the quality of cars and the active warranty cost management. They also point out that connected vehicles enable remote services which will make OEMs and dealerships to some extent lose service and parts revenue. Also customer retention in many OEMs will continue to go down, mostly among customers who have older cars as they often seek independent service providers to get cheaper service. Current and new intermediaries also attempt to “steal” service business from the OEMs’ workshops to independent service stations with lower prices. Finally, companies like Ebay, Amazon, and Alibaba are causing declined margins as they have entered the spare parts business. (Brandt & Springer, 2015)

One of the biggest challenges worth mentioning has been the COVID-19 pandemic. Pandemic caused lockdowns all over the world meaning that factories and manufacturing facilities were closed and this caused the market to go down. As the sales of new cars went down it naturally ment that also the need for repairs and

services were decreased. Correa (2022) states in his research that many shops and dealers had to be closed down because of the government restrictions on social distances.

2.3 Digitalization in automotive industry

Riasanow et al. (2019) describe in their paper that “new technologies accelerate digital innovations, which fundamentally transform the daily lives of consumers, companies and the structure of entire ecosystems”. They continue claiming that digital transformation can be seen to have changed the value creation of industries, even in industries where value is created principally through physical matter. A good example of this is the automotive industry, which has been fundamentally transformed due to the digital innovations, like self-driving cars, connectivity, and big data. It is crucial that companies understand the disruptive nature of these technologies and are able to adjust themselves accordingly. (Riasanow et al. 2019)

Khan et al. (2021) state that multiple automotive companies have started to digitize their core business areas but that is not enough to succeed in the long run. They claim that OEMs that do not manage digitize themselves are likely to lose 15% of existing profitability and a great amount of future opportunities. (Khan et al. 2021)

According to Winkler et al. (2017) the whole aftersales business in the automotive industry is going through digitalization. There has been a lot of focus in the creation of more flexible services for the aftersales. Dealers have created a variety of services in regards to e.g. how the customer can leave their car for service without actually visiting the dealer. At the same time new customers are expecting more flexible and informative service. In other words, customers want to spend less time in the dealership but still want to know what the service includes. Manufacturers and dealers have created different solutions to provide the service experience in a way that is

informative for the customer but at the same time is more time efficient for them. (Winkler et al., 2017)

Winkler et al. (2017) claim that when considering the requirements coming from the customers, it can be argued that car workshops are still struggling with mainly analog and inflexible processes that are not yet able to adapt to the continuously developing requirements. Additionally, workshops are not concentrating enough on customer segmentation as not all customers fit the same mold. Still, digitization is already present in service in some places. The usage of mobile tablets in workshops is a good example. Mobile tablets and their solutions assist “creating orders and advising customers during vehicle acceptance”. Nowaday customers can also book their vehicle maintenance appointments online. (Winkler et al., 2017)

One of the hottest topics in the automotive industry, both in the vehicle sales and aftersales segments, is arguably the usage of video services. This is a topic that has not been studied enough and the literature on it is scarce. In the Finnish media the topic has already gained some attention. For example, newspaper *Talous Taito* published an article already in 2017 about how Ford launched a VideoCheck Service in its repair shops, which improves customer service and makes the whole maintenance process more transparent. The idea of the service is that a mechanic films the vehicle brought in for maintenance and simultaneously explains the condition of the car. Thereafter the customer is sent a link through which he can watch the video either on a smartphone, tablet or computer. Along with the video link, the recipient receives information about the necessary work and a cost estimate, which he can accept or reject via the link. (Partanen, 2017)

After Ford, many other automotive companies have also started to exploit videos in their day to day business. For example, Hedin Automotive (formerly Laakkonen) started to use videos in their workshops as they wanted to offer their customers more transparent repair service and to tell in a new way what is happening during the

maintenance. According to them the combination of video and audio is an unbeatable way to share the information to the customer. (Apu, 2020) The market leading automotive solutions provider, CitNow Group, states in their industry research report that “whilst the industry has been focusing on digitizing processes, the focus should now shift towards building improved customer experiences, harnessing technology as the key enabler”. (Citnow, n.d.)

2.4 Summary of the literature review

Automotive industry is one of the key actors in the world’s economy and considered as a key actor in bringing the growth back to the economy. There are different ways to describe the automotive industry, and one of them is to divide it into three stages: manufacturing of vehicles, distribution and sales, and the after sales services. Starting from the beginning of the value stream, first there are the suppliers who are delivering the materials, parts, and components to the OEM’s, like Ford and BMW, who are also called as car manufacturers. On the next stage the pivotal actors are the dealers who are responsible for the distribution and sales of the vehicles. Finally there is the stage of after sales services where one of the main actors are the repair shops.

After sales services can be described to include all the activities happening after the initial sales transactions, like installation, repair, maintenance, etc. Nowadays it is not enough anymore for the service providers to concentrate only on attracting new customers but it is crucial to be able to also retain the already existing ones. Therefore, there has been a lot of investing in the after sales side of the business, which has caused the service quality and customer satisfaction to go up. One big enabler for that has been the continuous development of connectivity technology.

Today, digitalization is present basically everywhere, also in the automotive industry, and its benefits are widely acknowledged. There exists no universal definition for the term and sometimes it is mixed with other similar terms, like digitization. However, it

can be stated that digitalization is highly linked to technical decisions and that today's drivers of digitalization are the end-users and their needs. Today's consumers and customers want to use more and more mature and advanced digital products and services. That is the case also with the customers in the automotive industry.

Digitalization has brought many new opportunities to the industry and to its different segments. Also the aftersales business is going through digitalization and there has been a lot of focus in the creation of more flexible services for the aftersales. One example of this is the introduction of video solutions in the after sales services. For example in repair shops, videos have improved customer service and made the whole maintenance process more transparent. However, even though there are many benefits and opportunities related to digitalization, there are also many challenges to still tackle.

3 Methodology

This section of the study aims to present the techniques and means utilized when identifying, selecting, processing, and analyzing information about the topic of the thesis. This part should answer and clarify how the data was gathered and further analyzed. Additionally, after this section it should be possible to evaluate the validity and reliability of the thesis.

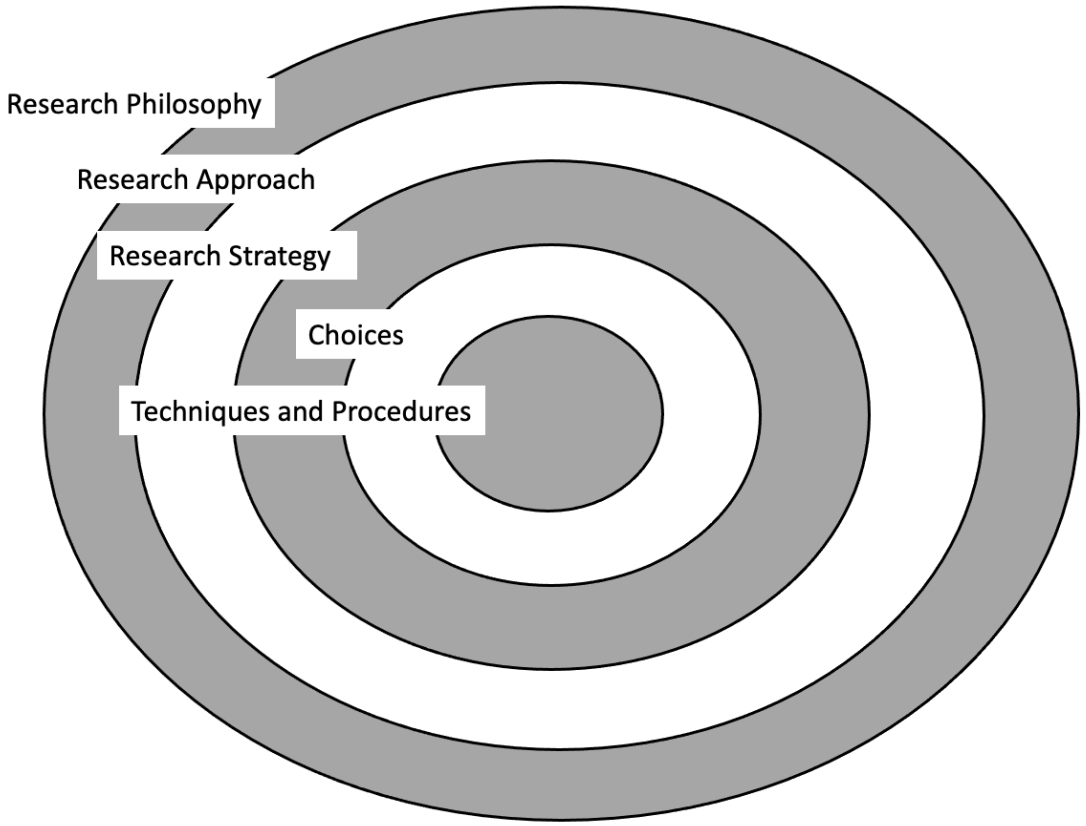

Figure 6. Research onion (Adapted from Saunders, Lewis & Thornhill, 2019)

3.2 Research approach

When defining what research approach means, one often used definition is by Creswell (2014). He describes research approach as “plans and procedures for research that

span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation". According to him, it is possible to identify three approaches: qualitative, quantitative, and mixed methods. Qualitative research is an approach where the aim is to understand and explore the meaning people, both individuals and groups, apply to a human or social problem. (Creswell, 2014) Eriksson & Kovalainen (2016) agree as they explain that qualitative approaches are more about interpreting and understanding. According to them, in these approaches the collection and analysis of data is highly connected to the social context and they are aiming for a full understanding of the topic at hand. (Eriksson & Kovalainen, 2016) Bell, Bryman & Harley (2019) state that qualitative research is more concerned about words than numbers. Furthermore, qualitative research can, according to them, be identified based on the following four features:

1. The view of the relationship between theory and research is inductive, meaning that theory is generated out of research.
2. The epistemological position is described as interpretivist, which means that the goal is to understand the social world through its participants and their interpretations.
3. The ontological position is defined as constructionist. This means that social properties are seen as results of the interactions between individuals instead of the outcomes of phenomena and distinct from those involved in their construction.
4. The emphasis is on naturalism. Naturalism indicates that "people attribute meaning to behavior and are active creators of their social world, rather than passive subjects". (Bell et al., 2019)

Compared to the qualitative approach, quantitative research has always been a more used option in business research (Creswell, 2014; Eriksson & Kovalainen, 2016). It can be said that quantitative research is about testing theories by studying the connections between differ variables. Creswell (2014) explains that these variables are usually

measured by using instruments that give numbered data which is then analyzed through different statistical means and procedures. (Creswell, 2014) Finally, mixed methods approach, in turn, refers to a research approach where both qualitative and quantitative data is utilized. It is argued that mixing both quantitative and qualitative approaches results in a better and more comprehensive understanding of the researched topic. (Creswell, 2014)

In this study the aim is to really understand how digitalization has affected the automotive industry and more precisely the after sales services in the sector. As the paper pursues to do so by interpreting the attitudes, experiences, and opinions of the actors in the field, qualitative research approach is justified.

3.3 Philosophical assumptions

Philosophical assumptions are part of a research approach. These assumptions stay normally in the background in the research but have an effect on the practice. (Creswell, 2014) According to Saunders, Lewis & Thornhill (2009) there are three main ways of thinking about research philosophy: ontology, epistemology, and axiology. All of these ways include clear differences that have an effect on the way people see and think about the research process. (Saunders et al., 2009) First of all, ontology "is concerned with the nature of social phenomena as entities" while epistemology deals with questions like what constitutes acceptable knowledge in a field of study. Axiology, on the other hand, studies judgements of value. (Saunders et al., 2009)

Ontology links to the beliefs about the relationships between individuals, society, and the world. Often when discussing ontology, the terms objectivism and subjectivism are mentioned. This division refers to the different opinions and ideas on how the social world is understood. According to objectivism the social world exists as a separate actor from people while subjectivism believes that the social reality is strongly linked to social interaction. (Eriksson & Kovalainen, 2016) The existing literature states that in a

qualitative research approach the ontological position is often described as constructionist (subjectivist) (Bell et al., 2019). When considering the aim of this study, it is valid to state that this paper is leaning more towards subjectivism.

Epistemology is connected to ontology. Just like ontology, also epistemology can be divided into objectivist and subjectivist views. In the case of epistemology objectivism refers to ideas that there is a world which is external and theory neutral. Subjectivism in turn believes that “no access to the external world beyond our own observations and interpretations is possible”. (Eriksson & Kovalainen, 2016) According to Bell et al. (2019) in qualitative research the epistemological position can be seen as subjectivist. As this study follows the qualitative research approach, it can be argued that the epistemological position of this paper is subjectivist. Finally, axiology (i.e. methodology) thinks how valid knowledge can be acquired (Aliyu et al., 2015).

3.4 Research strategy

Research strategy means, according to Hirsjärvi, Remes & Sajavaara (2007), the collection of methodological means utilized in a study. Both the purpose of the research and research problems affect the selection of a research strategy. In the literature there are three research strategies that most often are present: experimental studies, surveys, and case studies. Experimental study usually takes place in a controlled environment where it is possible to control the conditions in a planned and intended way. In summary it studies one variable’s effect on another variable. Experimental studies are normally measured numerically. Surveys, on the other hand, collect information about a sample of individuals in a standardized way. The most common ways to collect the information are questionnaires and structured interviews. Unlike in experimental studies, the measuring is more qualitative as the collected information is in the end used to describe, and figure out the occurrence at hand. Finally, the case study is used when the aim is to get detailed and comprehensive

information on one individual case or a small group of connected cases. Case studies tend to utilize multiple different methods simultaneously. (Hirsjärvi et al., 2007)

Figure 7. Main qualitative research strategies (The Open University, n.d.)

In addition to the three traditional research strategies mentioned above, there is also one widely used strategy: qualitative interviews. It is arguably the most commonly used way to collect data. One reason for this is the fact that interviews allow access to many-sided information. Interviews take time as they need to be carefully planned. Aspects like structure development, interviewee selection, recording and analyzing etc. need to be considered. It is also good to note that interviews set expectations for the one conducting them. It can be argued that interviewers need many skills, like good social, listening, and communication skills. (The Open University, n.d.)

This study aims to solve what is the status of digitalization in car workshops in Finland and what have been the effects of bringing new digital tools, like videos, into

workshops. Therefore, the most suitable form of research strategy is the qualitative interviews. To better understand the level of digitalization in the automotive industry and its after sales markets, this study aims to get viewpoints and thoughts from the representatives of different car brands and workshops located in different cities in Finland. To even further deepen the understanding of the current status and occurring changes this study also includes the OEM perspective. In the automotive industry the change to digitalization is often guided or dictated by OEM´s depending on the car brand. OEM´s are launching new models and introducing new ways to better serve their customers. These changes are often dictated also to the workshops and car dealers.

3.5 Data collection

According to Hirsjärvi & Hurme (2001) the most important criteria to take into account when considering how to collect the data are factors like efficiency, economy, accuracy, and reliability. Tuomi & Sarajärvi (2009) list interviews, observations, surveys, and information from different documents as the most used ways to collect data. These aforementioned methods can be utilized on their own or together.

When it comes to business research case studies, Eriksson & Kovalainen (2016) argue that the main source of data are the in-depth interviews. In most cases interviews are selected as the data collection method because they underline the role of people as active, meaning creating, subjects. Also, if the researched topic is rather little researched and unknown, interviews allow an unspecified direction of responses and answers. This means that interviews can bring to the table things that the researcher did not even think about beforehand. (Hirsjärvi et al., 2007) It is also said that interviews make it possible to observe the perceptions and experiences of an individual. This is arguably because an interview can be seen as a discussion that contains communication that can be both verbal and non-verbal and therefore it also

brings forward things like ideas, thoughts, opinions, feelings, and attitudes. (Hirsjärvi & Hurme, 2001)

Interviews can be categorized into three groups: standardized survey interviews, semi-structured interviews, and unstructured interviews. In standardized survey interviews the predefined interview questions are always asked in the same order and in the same format. In semi-structured interviews the topics and questions are decided in advance but less organized and formatted. It can be stated that in semi-structured interviews the order of topics and questions is led by the interviewee. Lastly the unstructured interviews are very loosely formatted or not formatted at all. Unstructured interviews tend to resemble everyday discussions and are participant-led so it is very likely that no pre-formatted interview guide exists. (Roulston & Choi, 2018) In this study, semi-structured interviews are conducted for the participants.

A qualitative research, which this paper also exploits, aims to explain and describe a certain phenomenon, read and understand behaviors, and offer a theoretically significant interpretation for something that has happened. So, instead of thinking only about the amount of material, it is important to think about the quality of the material. In other words, this means that it is important for the researcher to ensure that the people the inputs are collected from are qualified enough. The interviewees must have enough knowledge and experience about the topic at hand. (Tuomi & Sarajärvi, 2009)

For this thesis 6 people were interviewed online. All of these people have experience and knowledge of digitalization in the automotive industry and about the use of video services in the after sales services. Interviews were built around guiding questions, but the aim was to enable discussion throughout the interviews. All interviews with more detailed information are listed in the table below and the guiding questions for the semi-structured interviews are found at the end of the paper. (See Appendix 1.)

# Respondent	Position of the respondent	Car brand(s)	Language
1	Aftersales Manager	Toyota, Ford & Multibrand	Finnish
2	Aftersales Manager	Jaguar, Land Rover, Volvo & Mercedes-Benz	Finnish
3	Aftersales Manager	BMW	Finnish
4	Regional Aftersales Manager (OEM)	Ford	Finnish
5	Aftersales Manager (OEM)	Ford	Finnish
6	Aftersales Manager (OEM)	Ford	Finnish

Table 1 . Interview details

3.6 Data analysis

After the data is collected the natural next step is analyzing it. This is seen as the most important part of the process when conducting a research. (Hirsjärvi et al., 2007) According to Tuomi & Sarajärvi (2009) content analysis is a method that can be used in almost all traditional qualitative studies and all other methods are to some extent based on the content analysis. Krippendorff (2019) defines content analysis as “a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use”. In addition to written documents the data used for the content analysis can also be in the form of e.g. audio recordings,

pictures, or videos (Eriksson & Kovalainen, 2016). In this study the interviews were recorded and saved as video/audio files.

When it comes to deciphering the data, there are two main ways to do it. Firstly, the researcher can transcribe the data into text, either completely or partly. If the researcher ends up transcribing the data only partially it means that irrelevant things can be left out from the transcription. It is also possible to make interpretations directly from the data itself, like interview recordings. This is a suitable way to proceed when there is only a small portion of interviews and they are timewise short. (Hirsjärvi et al., 2007) In this paper the main method was the latter.

Finally, once the data is in the desired format ready to be analyzed, the analysis practices can be assigned to three categories: data-driven analysis, theory-driven analysis, and theory-bonded analysis. Data-driven analysis tries to create a theoretical entity based on only empirical data. Theory-driven analysis, in turn, takes into account prior theories and models as they usually form the framework for the study. Lastly, theory-bonded analysis is a mix of these two aforementioned approaches. (Tuomi & Sarajärvi, 2009) It can be summarized that in this thesis data analysis is executed through a theory-bonded content analysis.

3.7 Reliability and validity of the study

When talking about the reliability of the study, it refers to research's ability to give non-random results. So in a way reliability measures how repeatable the study is. Validity thinks about the usability and practicability of the selected research methods and instruments. Validity links strongly to the question "how well the chosen instruments and methods are measuring what they are supposed to?". (Hirsjärvi et al., 2007)

Both of these terms are originating from quantitative research and they are not fully transferable to qualitative research as such. Even though reliability and validity as concepts are sometimes even avoided in qualitative studies it does not mean trustworthiness and proficiency should not be evaluated also in qualitative research. Way to strengthen the reliability in qualitative study is to be open and explanatory about how the study was conducted each step of the way. (Hirsjärvi et al., 2007) This thesis aims to increase the reliability by explaining and reasoning the choices of methodology, research strategy, data collection, and data analysis.

4 Findings and discussion

This part of the study gathers and presents the empirical study findings from the interviews conducted for the representatives of the different automotive companies. Like earlier mentioned companies are chosen to represent both the views of OEMs and local dealers. The car brands and locations are also chosen in a way that they would represent the whole Finnish market as well as possible. Even though this thesis mostly concentrates on the Finnish market, views on other European markets are also presented here and compared to Finland.

4.1 Current level of digitalization in workshops in Finland

As already mentioned in the previous part of the thesis, digitalization has been one of the key interests in the automotive industry in the last decade. It can be argued, based on the interviews conducted, that Finnish workshops and car dealers are not an exception to this as they have been focusing on digital change as well. In fact, most of the interviewed company representatives see the current state as just a beginning for the digitalization journey.

> "*The digitalization journey in the automotive industry has taken a giant leap in the last few years. Our customers are already expecting more flexible service and we have used enormous amounts of resources and manpower trying to provide that to them.*"

When the interview participants were asked about the level of digitalization, two of the aftersales managers mentioned that nowadays it is a standard for mechanics to use either smartphones or tablets in their daily work, when 6 years ago mechanics mainly used more traditional tools and phones were not even allowed in the workshops. All aftersales managers saw digitalization as a really important focus point now and also for the future. However, digitalization is seen both in a good and bad light. Aftersales

managers saw it as a necessary factor for surviving in the market, but also as a good way to gain a competitive edge over competitors. The problem is, however, that everyone is focusing on digital tools and services, and there are many different solutions, so it can be hard to find and select the right ones.

One of the aftersales managers had a slightly different view on the level of digitalization. When most of the interviewees considered that in the future there will be more digital services and software, he gave an alternative opinion that the amount of services and apps does not necessarily grow but instead digital service can change and be more integrated with one another. In fact, the amount of new services and apps that are mandatory was one of the mentioned challenges that car dealers and workshops face when it comes to the digitalization journey.

> *"The future of digitalization needs to be more simple. There can not be dozens of new digital tools, otherwise we will destroy the same effectiveness that we are trying to build through them. I believe that the new digital tools will melt together and we will have only a few portals where we operate everything. Every single extra press of a button which doesn't bring us revenue is a waste of time."*

As earlier mentioned a lot of the new digital tools and services are provided or guided by OEMs. This means that most of the solutions are the same for everyone all over the world. The interviewees were also asked how well has Finland adapted to digitalization compared to other markets. When the digital journey of Finnish car workshops was discussed in comparison with other European markets, most of the interviewees saw that Finland is seen as a frontrunner when adapting new digital methods and tools.

> *"When we compare Finland to other European markets, we are seen as the frontrunner on the digital path. For example Finland was the first market to roll out the fully online dealer management system (DMS)"*

Interviewees discussed different reasons why Finland is considered to be able to adapt to new technologies and methods rapidly. One important factor is the motivation and willingness to change the methods and processes. Also, the general level of digitalization in Finland was brought up and discussed. One of the regional managers stated his opinion that it is easier to roll out new technologies when the customers have the general knowledge of internet and online services. It was also stated that most of the customers nowadays have the capabilities to use these new tools which eases things. Even though Finland is seen as the top class of the European market when it comes to digitalization, one of the interviewees brought up that the differences are not necessarily big.

> "*When we launched our new application where customers can track their car and do all kinds of online services, Finland was one of the best countries to launch the application. Even though we are doing quite well compared to other countries, the margins are still quite small. When we launch something new, all countries are playing by the same rules and have the same time schedule.*"

One aftersales manager brought up that even though Finland is generally at a good level when it comes to digitalization, there are still some areas where their workshops and brand struggles. He mentioned that upselling through digital channels is something that their brand is struggling with when compared to other Nordic or Baltic countries.

4.2 New digital tools in workshops

Adapting new digital tools into workshops is an important part of the future according to the interviewees. Like mentioned earlier there has been a change towards a more digital way of working in the workshops. When the interview participants were asked about how and why these changes have happened there is a certain trend in the answers. Like also earlier mentioned, there are two main reasons why these changes are happening in the aftersales side of the automotive industry. Firstly, the local dealer

or dealer group wants to gain competitive advantage over the local competitors. Secondly, the OEMs decide on behalf of the dealer to roll out a new technology or service to their dealer network.

When the participants were asked about where these changes are focusing and why the workshops are moving towards a more digital way of working, the answers were similar to one another. The discussed reasons can be divided under two different categories. First reasons are related to increasing the performance in the workshop. The new digital solution is more effective or less time consuming than the older method.

> *"Over the last few years we have moved to using only electronic service manuals instead of papers. The biggest reason behind this was the fact that it was really inconvenient using only paper manuals. Cars that changed owners a lot, had those papers missing really often. Nowadays it is much easier when the manual is online and both us and customers can have access to it all the time."*

The second reason is related to the customers and more specifically around customer satisfaction. The dealers and OEMs are trying to push out more online services and applications to enhance the customer experience. One mentioned example of OEM based digital tools are the car brands' own applications where customers can see data from their car, track the car, or book the next service. Sometimes these apps can be beneficial for both customers and the workshop.

> *"With the latest digital tools we can have remote access to the car and diagnose what is wrong with it online. This helps a lot because now we can fix some problems remotely and if the car is far away we can already order the spare parts in advance. It is convenient also for the customer because in many cases the customer does not need to bring the car to the workshop."*

The remote access to the car saves time for the workshop as well because already before the car comes to service they are able to know what needs to be done. One of the aftersales managers mentioned that they have built their online booking system so that it is integrated to their DMS. Therefore, the systems can automatically order the right service and right amount of time from the mechanic. This has increased the efficiency in the workshops.

4.3 The challenges and benefits of using digital tools in workshops

As mentioned in the previous chapters, the reasons for using new digital tools and methods balances between better performance and better customer experience but sometimes these two things can be contradicting. Creating the best customer experience usually means taking an extra step for the customer and this can be time consuming. Sometimes these extra steps are also hard for the workshop staff to roll out. Mechanics and service advisors do not necessarily see the benefits of the new tool, especially if the focus is on customer satisfaction instead of making their work faster or easier.

> "*We have had similar problems with many of these new digital tools. Managers and dealer principals are excited because they can see the potential which these tools and services create, but at the same time the mechanics and service advisors see only the change.*"

According to the interviews, implementing new digital services and tools creates resistances in the staff at the beginning. The success of the project is mentioned to be strictly related to the ability to have a motivated dealer principal and aftersales manager. The struggles mentioned in the interviews are related to mechanics and service advisors not using the new service or tool. The resistance not to use new technology can be for many reasons. Some of the reasons that were mentioned in the interviews are mechanics' unwillingness to change their working style or their

insecurity to learn new tools and methods. These obstacles can be resolved by good change management and communication in the dealerships. One OEM's regional aftersales managers summarizes the struggles in their dealer network as follows

> *"When we bring in new methods and services to dealers it is understandable that there is resistance in the beginning. We have launched so many new services and requirements and actually never taken anything away, so the workload always increases. Usually in the beginning it feels for them that this is just another extra work we need to do. But when it is properly communicated they end up seeing the benefits and everything improves."*

When asked from the dealers what are the biggest challenges when implementing new digital tools and services, they see them as follows. When there are too many different tools to be used, managers do not have enough time to study these new tools and methods. This means that sometimes they are not sure what value the new method brings for the company or what are the benefits. If the manager has the time to get to know the new product or method, he or she is more likely to buy the idea and convince his or her team.

> *"The launching of a new tool for our workshop took a lot of time but nowadays everyone is really committed to using the tool. I am not saying that our dealership is a perfect example but we see that we have made a great improvement since the beginning. One of the most important things is to believe in the service that we provide and the tools we use. I am confident to say that currently we have it. Now that I know the product and believe in the project myself it is much easier to coach my team everyday and provide the support they need."*

4.4 OEM`s role in pushing the digital tools to the market

Like earlier mentioned, the role of the OEM is really important, when trying to understand the automotive industry. In the Finnish market the supply chain is constructed in a way that there is a Finnish importer who represents OEM´s affairs in Finland. It also operates as a middleman between the dealer and OEM. To gain the best understanding of what is happening in the market it is crucial to also perceive the importer's side of things. Importers are compared and evaluated between countries so they have a good understanding of what is happening in other markets as well. Importers or OEM representatives also manage the local country and supervise that their brand, products, and services are in line with how the OEM wants them to be.

When asked about the positive and negative aspects of importers' and OEMs' role of pushing new digital tools and methods to market, all the interviewed persons agreed that it is a positive factor when OEMs are guiding the change. Importers feel it is important to show support to the dealers and to show that OEMs are helping the dealers through the changes. This is seen as very important from the dealer side as well. If the OEM is just pushing the change or new methods without giving guidance to the dealers it is seen in a negative light. On the other hand, if the project is well guided and the dealers are given enough support the project is more likely to be successful. One Finnish regional manager representing a large American car brand summarizes the OEM´s role in their last digital project as follows.

> *"On our last digital project, even though we used a third party to train and roll out the technology, we decided to learn the new technology by ourselves before the project, so that we were able to give support if needed. It shows that we are part of the change and willing to support our dealers"*

According to the interviews, even though it is seen as a generally positive factor that the OEMs are helping the dealers, there were some challenges as well. Many of the Finnish car dealers are multi brand dealers, meaning that they have many car brands

that they are providing services for. This can create challenges for the workshops as they are trying simultaneously to develop their own online services as well as to fulfill the demands of one or more OEMs.

> *"We are focusing a lot on our own digital workshop tools and online services. At the same time the OEMs are pushing customers to use their online services, which is okay as long as they are integrated well enough, so that it does not take too much of our time."*

4.5 Using video in the workshop

All the interviewed companies have used video as part of their business for at least 5 years. For example, on the OEMs side Ford has a mandatory video policy on the European level. All the interviewees said that they see videos as a really important part of the service nowadays. One of the after sales managers further emphasized that nowadays when EV´s are becoming more and more common, it is important to do the vehicle's electronic health check with video, because it is mandatory to show the condition of the battery to the customer. The OEM side shares the same view as they say that customers have an assumption that there is not so much work involved when conducting a service for an EV. In fact, workshops and brands worry that customers are not willing to pay the same amount for EV service as they would for a regular car.

> *"Many customers have the assumption that there is no work to be done in EV service. Video is a great way to show them the parts which are under stronger pressure and are more worn out. I actually think that videos can be more useful with EVs than with the internal combustion engine cars"*

In general all of the interviewees agreed that using videos has given them great results. Most of the customers are merely happy that they can see how their own car looks from underneath, but there are definitely also other concrete benefits when providing

videos of the services. The key reason for creating videos for customers is to provide more transparency and trust to the service. Workshops have had a reputation in the past for not being transparent enough about the service and especially about the upselling that they do. One of the after sales managers said that being transparent to their customer is one of the key goals they have in their workshop.

> *"I want to personally bring the message to our customers that we have nothing to hide here. If it were up to me, we would have all the walls made out of class and would have ten cameras filming what we are doing here."*

It can be argued that among the customers the amount of repair work and services that customers do themselves has gone down. This is opening an opportunity for the workshops to involve customers more in the service and provide unique experience for those who are interested about the vehicles.

> *"When I summarize the customer feedback. It has all been positive. But what has been a big surprise for me is the level of our customers' knowledge. I have seen cars and car services almost daily throughout my whole career but I have never stopped to consider how much customers know about their own vehicles. It feels like customers see the car similar to the electronics they use daily. If there is an issue they just bring it to the shop and someone unknown takes care of it and fixes the problem. Nowadays I read everyday customer feedback concerning the videos about how nice it is to see under the car and to see what the brake pads or brake discs look like."*

One more hidden benefit of using videos that was mentioned during the interviews relates to the fact that, when a dealership is communicating with customers through video, the person doing the communication is a mechanic and not a service advisor. This is something the customers wanted, even before the videos were introduced, as

they sometimes actually went to the mechanic's workspace to see the service and to interview the mechanic about the condition of their vehicle.

> *"We can also see the increase of transparency as customers are satisfied that they get the service report from the person who is actually conducting it."*

Like mentioned before, digital tools can be a good way to gain competitive advantage over competitors and using videos as a part of service is no exception. The competition is not only about gaining new customers, but there is also a challenge to retain customers. One of the OEM aftersales managers mentioned that the competition is getting harder and harder and some customers are choosing unauthorized workshops instead of the brands own authorized workshops.

> *"The world has changed in a way that there is more competition for car services than ever before. The better image from the service you can give to the customer the more likely you are able to keep them as a customer in the future. It used to be so that authorized dealers could enjoy the status of authorized workshops and just wait for the customers to come through the front door. Nowadays customers are expecting better customer service from the authorized dealers and car workshops."*

All interviews provided the same conclusion that taking video as a part of service has been a great decision. Nevertheless, it also has some negative sides as well. None of the interviewed dealers are charging customers for the video. This means that all the time it takes from mechanics and service advisors needs to be covered. Usually the benefits from the video cover the lost time, but sometimes when there is a mistake in the video, the customer does not receive the video, or the customer is not appreciating the video the time loss is not covered. In cases like this the dealership just loses time and money. Another challenge that arose based on the interviews is that sometimes it has been a real struggle for the mechanics to create the video and have the confidence

to speak to the customer. One of the after sales managers mentioned that some mechanics have even gone so far that they have a doctor's certificate that they are not capable of speaking in the video. This example is an extreme. Furthermore, if one of the mechanics is given special treatment or he or she is not following the rules and filming their work, it causes jealousy in others and then they tend to follow the example and stop filming the videos as well.

5 Conclusions

The purpose of this study is to find and examine how digitalization has changed the car industry and especially the after sales side of the business. Furthermore, the aim is to create a good understanding of how customers and workshop staff have reacted to these new technologies and services. Using videos as part of the service has gotten special attention in this study because it has arguably been one of the biggest digital changes in the after sales side of the business in recent years. This last part of the thesis summarizes and shows the results from the key findings of the study and brings forward the theoretical and managerial contributions. Lastly in this part of this thesis the limitations of the thesis are considered and the future research suggestions are given.

5.1 Key findings of the study

All the companies interviewed for this thesis have started to digitalize their workshop processes during the last five to ten years. The reasons for adapting new digital tools and methods are either to gain better customer satisfaction or to increase the performance of the workshop. This is in line with Parviainen et al.'s (2017) study where they claim that digitalization tends to help with processes and performance. All of the companies involved felt that rolling out new digital technologies and services had, in the end, increased either their performance or customer experience. When comparing this to the Siedler et al.´s (2021) maturity model, it would position Finnish car workshops mostly to the intermediate level. This can be stated as all the interviewed companies have focused on digital tools and services in their operations. Nevertheless, many interviewed companies still struggle with resistance to change. This would suggest that companies included in this study are still at the early stage of the intermediate level. Chanias & Hess (2016) agree when they state that digitalization has arrived to the automotive industry but has not yet found its way to companies' strategies.

The study at hand shows that the amount of used digital tools in these companies will either grow or they will integrate together improving the efficiency and user friendliness. Furthermore, the study indicates that even though the pace of digitalization in the automotive industry has been rapid for the past few years, it is most likely that it will continue to be even faster and new digital tools and services will be adapted to workshops. This could mean that in the near future some of these companies can reach the last, expert level of maturity, where digitalization is actively implemented in corporate culture and strategy. (Siedler et al.´s 2021)

When comparing Finland to other European markets on how far along Finland is in the digital journey, this study argues that Finnish car dealers and workshops have adapted well to new digital tools and services compared to other European markets. The reasons for Finland's success in digitalization can be argued to be due to many factors, but the research indicates that at least the good general level of digitization and positive attitude towards change and digital knowledge among the Finnish car workshop customers has had a positive effect on adapting new technologies and digital tools. The average Finnish car workshop customer is familiar with online services and is able and keen to use new applications and services, which creates a good foundation for the dealers to start providing these services to their customers.

The challenges related to digital tools, which arise in this study, mostly concern the roll out phase of a digital tool and the lack of communication during the early stages of product and service usage. Lack of communication between OEMs and dealers is the first communicational challenge. If there is no proper communication between the two parties then the idea and methods are not implemented at the dealers' end and the dealers are using the product or service only because it is demanded by the OEM. Some OEMs and OEM representatives have tried to tackle this challenge by taking time to properly plan the roll out and by learning the product or tool beforehand, so they can provide the necessary support to their network if and when needed. The second communicational challenge rises when the dealer principal or after sales manager does

not communicate with his or her team. This can create unhappiness and feelings of inequality among the mechanics and service advisors. This thesis suggests that these problems are usually avoided if the after sales manager communicates and argues the idea behind the new tool or service and understands how the new technology works. The same challenges are discussed in Parviainen et al.'s (2017) study where they state that companies will face challenges in digitalization if there is no proper strategy for digitalization and the technical skills are not on the right level. The same ways as the OEM can provide support to the dealers, the after sales managers and dealers should provide the support and help for mechanics and service advisors.

This thesis focuses also on the role of OEMs and importers in the digital transformation journey in the automotive industry. When in many cases the change is demanded by customers, it would seem that in this case it is the OEMs who are demanding change and pushing new technologies to market. The role of OEMs or OEM representatives appears to be crucial for digitalization in general. Based on the research conducted in this thesis it is safe to assume that even though individual dealers are developing their own performance and starting to use new digital tools, the changes are often small and only affecting their own dealerships. Nevertheless, Brandt & Springer (2015) see that even though dealers and OEMs are working together and bringing new tools to the market there are still many challenges that need to be cleared.

It seems that usually the decision to make bigger changes with digital tools and services comes from the OEM. It can be argued, according to the interviews, that the automotive industry follows the normal digitalisation path discussed by Legner et al. (2017) where end-users are driving the change. Nevertheless, the end-users might not be from the local market, and this can be confusing for the dealers as they have to act based on feedback from different markets and customers. Also, the OEMs play a great role in launching and supervising the use of these tools. They can provide best market practices and also bring best practices from other markets. The same principle can be found from Parviainen et al.'s (2017) study where they state that there is a resistance

towards digital change, but it can be helped by supporting the digital implementation. The negative aspect of OEMs pushing new tools and services in the Finnish market comes from the fact that most of the dealers are multi-brand dealers and they can have different projects, rules, and guidelines coming from different car brands. Adapting to all the distinct strategies from the OEMs can be challenging and create confusion among the staff. Also, the dealer usually does not have a say on the projects, but they have to do exactly what is demanded by the OEM.

Using videos as part of the service seemed to be important for all companies involved in the study. All of them have used videos for at least five years. For some of the dealers the reason behind the implementation was the fact that it was demanded by the OEM, but some had taken it because they saw the possible benefits of involving customers more and by doing so providing better customer experience. It is seen from the results that video is a really important part of the service nowadays and the benefits are seen especially in the EV services. As Hensley et al. (2022) mention in their study, EVs are steam rolling to the market. It is safe to assume that as the market is moving more towards EVs, also the importance of the video in the services will increase.

One key aspect which can be concluded from both the conducted interviews and previous research is the importance of keeping current customers happy. As the usage of video focuses on creating excellent customer experience, which is also listed by Verstrepen et al. (1991) as one of the key aspects, it is easy to understand why all the interviewees agreed on video being an important part of their business. However, like Brandt & Springer (2015) state their study some customers are seeking lower prices and are not using the brands authorized workshops in hopes of cheaper service. This is exactly what one of the OEMs regional aftersales managers was afraid of.

According to the interviews, using video as a part of service has the same implementation challenges as other digital tools. Videos also bring other challenges to

the dealer. Using videos means that mechanics need to learn how to use the tools and furthermore how to make the videos. It requires courage, skills, and willingness to film a video presenting the service of the car.

5.2 Theoretical contributions

This thesis contributes to the existing research and literature in the automotive industry. The two main aspects that are combined together with the automotive industry are digitalization and after sales. Like earlier stated, these aspects have been studied, but there is limited research where all these topics are combined. Chanias & Hess (2016) mention in their study that digitalization has entered the automotive industry, but it is still at such an early stage that it has not yet gained a place in automotive companies' strategies. Based on the interviews conducted in this thesis, a good understanding of the level of digital tools in the Finnish workshops and the benefits and challenges related to using and implementing these new technologies was obtained. Based on the findings from the research this thesis provides a good basic understanding why these new digital services are used and how to avoid and solve the challenges they can cause.

The findings from previous research explain that the automotive market has adapted new digital tools and according to Siedler et al´s (2021) digital maturity tool, it can be argued that the market is at an intermediate level, which means that there is a focus on digitalization but it has not yet been implemented to the organizations' cultures and strategies. The results from the interviews comply with the same view as all of the automotive companies who were agreeing that they are focusing on digitalization, had still some challenges in implementation and were facing some resistance towards the digital change.

When trying to find previous research conducted on usage of videos as part of automotive after sales services, a very limited amount of literature is available. Written

literature is mostly brand advertisement and commercial news. Therefore it can be argued that this paper contributes to the research and literature on video usage in the automotive industry, especially in the after sales service side. Furthermore, this paper also sheds light to what is the level of digitalization and service video usage in the Finnish automotive industry compared to other European markets.

5.3 Managerial implications

As this paper is not focusing on a single case company but instead tries to give a better understanding of the automotive industry and the level of digitalisation in the after sales, the implications are on a more general level. The most important learning that this paper presents is that digitalization has already arrived to the automotive industry and it is being really beneficial, when adapted correctly.

The challenges are that there are many different solutions available and as mentioned there are some solutions that the workshops cannot decide on themselves. If the solutions and new technology are dictated from the OEM level the best option is to discuss with the OEM why these new tools are coming and how they should be used. This way the dealer can handle the implementation challenges in the best way possible. If the local after sales manager is not familiar with the new technology and the reason why this new tool is used, it can be really hard to implement the technology to the daily work of mechanics and service advisors.

Most of the challenges found in this paper are related to communication either between management and staff or between workshops and OEM´s. The natural solution for preventing these challenges is to increase communication between the parties included. With proper communication the reason behind the challenges can be found quicker and it is easier to solve them. Usually the problems are also related to technical skills and knowledge, meaning the users are not able to fully use the new product or service. In these cases the solution is to provide more technical training for

the staff. Another reason why implementation can fail is the fear of change. It is also possible that the staff is not comfortable using new solutions. The latter reasons are harder to overcome but good communication and encouragement can help.

5.4 Limitations of the study and suggestions for future research

One of the most obvious limitations for this thesis is the decision to utilize qualitative research method as by doing so the number of interviews is limited to a small number of people. This means that it creates limitations around car brands, geographical areas, and people. Additionally, the interviewees selected as participants to the study are in quite high positions within the automotive companies. Therefore, the study results do not take into account the viewpoints and opinions of the employees in lower positions. One suggestion for future study could be to broaden the study to also include the mechanics etc. and compare how the results differ between the different employee groups.

Another limitation of the study is also the fact that the study was conducted by interviewing only the representative of the Finnish market. Like mentioned earlier in the paper, OEMs tend to roll out these new technologies all over the world. Therefore it could be beneficial and interesting for the future to research how well different countries have been able to adapt to new digital tools and technologies and do a comparison between different countries and regions. Also, as shown in the research gap chapter there is not much data from the success of new digital projects, so it would be beneficial to compare successful and unsuccessful launches of new digital tools in the automotive industry.

One really interesting phenomenon in the automotive industry, which is still at a quite speculative level, is the new agent model, where manufacturers are moving from a more traditional wholesale model to a more direct-to-consumer model. This change is still at an early stage as just a few car manufacturers have given vague predictions that

this will happen in the future. According to Holtgrave, Schmidt & Trenka (2021) this is possible partly due to the digitalization which enables customers to purchase new models online directly from the manufacturers. Digitalization also enables manufacturers to collect data straight from the customers. This new model is nowadays used only by the Tesla motor company and others are still in a planning phase. It could be compared how well Tesla's agency model compares to other, more traditional, models.

Also, in the future it would be beneficial to compare how those manufacturers that are transmissioning to agency models are able to do the transmission. Companies that have officially given statements that they will be transferring to an agency model are Daimler, Smart, and Volvo. There are different models on how the agency model is built and what is the role of dealers in it. Therefore it would be beneficial to compare the models and understand how they work and which models are the best ones for both dealers and manufacturers. Also, like mentioned already the EVs are starting to take over the market from more traditional internal combustion engines. This has created a challenge for the aftersales side of the business and it would be interesting and important to study on how car workshops are able to adapt to this change and where the upselling potential is seen.

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Appendices

Appendix 1. Guiding questions for the interviews

- What is your view on digitalization and its status at car dealers and especially in the repair shops? / Miten näet, että millaisessa vauhdissa digitalisaatio on autoliikkeissä ja etenkin huollon puolella?
- How would you describe the current level of digitalization in car repair shops? / Millainen mielestäsi on digitalisaation taso korjaamoissa tällä hetkellä?
- What kind of digital services have you taken into use in your shops during the past five years? / Millaisia erilaisia digitaalisia palveluita liikkeissänne on otettu käyttöön viimeisen viiden vuoden aikana?
- Have these new services and systems been taken into use in order to better the efficiency of repair shops or are they concentrating more on the client interface? / Onko uudet palvelut ja järjestelmät otettu käyttöön korjaamon tehokkuuden parantamiseksi vai keskittyvätkö ne enemmän asiakasrajapintaan ja onko ne tarkoitettu enemmän asiakkaille?
- How and to what direction you see digitalization is heading? / Miten ja mihin suuntaan digitalisaatio on mielestäsi menossa?
- What is the speed of digital development in Finland when compared to other European countries? / Onko Suomi millaisessa vauhdissa verraten muihin Euroopan maihin?
- What kind of effects the introduction of different digital services. Have there been negative effect or have everything been positive? / Millaisia vaikutuksia erilaisten digitaalisten palveluiden käyttöönotto on aiheuttanut? Onko ollut negatiivisia vaikutuksia vai onko kaikki ollut positiivista?

- How have the video services affected the repair shops? / Miten videointi on vaikuttanut huoltoon?
- What have been the negative effects of video usage on the repair shop operations? / Mitkä ovat olleet videoinnin negatiiviset vaikutukset korjaamon toimintaan?
- What have been the positive effects of video usage on the repair shop operations? / Mitkä ovat olleet videoinnin positiiviset vaikutukset korjaamon toimintaa?