



UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

Exploring servitization practices in the European Automotive industry:
Cross-country case study between France and Sweden
A multiple case study

Nathan Lambert & Kajsa Lindström

Spring 2023

Master of Science in International Business and Trade

Supervisor: Martin Henning

Graduate School

Abstract

This thesis contributes to the existing literature on servitization through a qualitative cross-country case study investigating the phenomenon in the automotive industry, focusing on the experiences of firms in France and Sweden. The current conceptualisation of servitization is limited in its ability to fully capture the complexity of the phenomena observed. This thesis emphasises the importance of population density and geography as salient factors for service-dominant businesses. The drivers and barriers for servitization encompass a complex interplay of internal and external factors, which pose challenges in establishing a singular model. Two dynamics coexist, with new companies adopting the service-dominant logic and embracing mobility as a service, while traditional manufacturers overcome their inflexibility with a progressive approach. Nevertheless, all manufacturers in the study engaged in some degree of servitization, albeit not reaching full potential. Lastly, the analysis underscores the substantial influence of the external environment on the success of a servitized business model. The interplay between industry phase, institutions, global environment, culture, technology, market demands, and customer expectations shaped the manufacturers' strategies and outcomes.

Keywords: servitization, automotive industry, mobility as a service, qualitative analysis, service-dominant business logic, technology, traditional manufacturers, external environment.

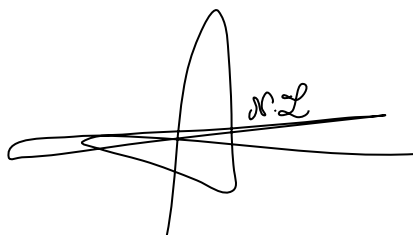
Acknowledgments

Our supervisor, Professor Martin Henning, has been the light allowing us to sail through turbid waters. Considering his academic excellence and his pedagogic competence we could not be luckier to be supervised by him. We are very grateful for all the guidance and support for this academic paper, and for sharing his knowledge and goodwill throughout this study.

We would like to thank all the companies and respondents for their willingness to participate in this study. Without their time and insights, this thesis would not have been possible.

Finally, we would like to express our heartfelt gratitude to all those who have crossed paths with us during our time at the School of Business, Economics and Law at the University of Gothenburg. Thank you for investing your time and effort, making our educational journey here truly special.

Gothenburg, May 25th, 2023

A handwritten signature in black ink, featuring a large, stylized 'N' and 'L' that are intertwined. The signature is written on a white background.

Nathan Lambert

A handwritten signature in black ink, featuring a large, stylized 'K' and 'L' that are intertwined. The signature is written on a white background.

Kajsa Lindström

List of abbreviations

B2B- Business-to-Business

B2C- Business-to-Customer

EV-Electric Vehicle

MaaS- Mobility as a Service

SDL - Service-Dominant Logic

List of tables

Table 1 - Conceptual framework	28
Table 2 - Research process	34
Table 3 - Characteristics of respondents	37
Table 4 - Summary of the findings	56

Table of contents

1. INTRODUCTION	1
1.1. Background	1
1.2 Problem discussion	3
1.3 Purpose and research question	6
1.4. Delimitations	6
2. LITERATURE REVIEW	7
2.1 Business model	7
2.2 Business model innovation	7
2.3 The service-dominant logic	8
2.4 The concept of servitization	9
2.4.1 Servitization in the automotive industry	10
2.4.2 Servitization Paradox	11
2.4.3 Level of servitization	11
2.4.4 Internal or external servitization	12
2.4.5 Strategic pivots	12
2.5 Internal environment drivers and barriers for servitization	13
2.5.1 Marketing & strategy	13
2.5.2 Resource limitations	13
2.5.3 Organisational change	14
2.6 External environment drivers and barriers for servitization	15
2.6.1 Institutions and servitization	15
2.6.2 Political sentiments and servitization	16
2.6.3 Economic and competitive implications for servitization	16
2.6.4 Infrastructure	17
2.6.5 Technological matureness and digitalisation	18
2.6.6 Unveiling the influence of culture and society on servitization	19
2.6.7 Consumers	19
2.7 Conceptual framework	20

3. METHODOLOGY	22
3.1 Research approach	22
3.2 Research design	22
3.3 Data collection	23
3.3.1 Data sampling	24
3.3.2 Interview process	25
3.4 Analysis of the data	25
3.5 Research quality	27
3.6 Ethical considerations	28
3.7 Data introduction	30
4. EMPIRICAL FINDINGS	31
4.1 Company 1	31
4.2 Company 2	34
4.3 Citiz France	37
4.4 Virtuo	40
4.5 Renault	43
4.6 Company 3	44
4.7 Summary of the results	48
5. ANALYSIS	50
5.1 Servitization in the automotive industry	50
5.2. Drivers and barriers of servitization	53
5.2.1. Internal environment	53
5.2.2. External environment	55
6. CONCLUSION	60
6.1 Theoretical contributions	62
6.2 Managerial implications	63
6.3 Limitations and recommendations for future research	63
References	65
Appendix	74

1. INTRODUCTION

1.1. Background

In recent years, the concept of servitization has gained increasing attention in the automotive industry. Servitization refers to the transformation whereby traditional manufacturers evolve into providers of integrated solutions combining services and products. These changes in business models respond to shifts in customer demand, expecting hassle-free experiences from products (Baines et al., 2017). In addition, the next generation of buyers, Generation Z, comes with new challenges for car manufacturers. Questioning the ownership model, while being born digital, they are likely to shift the demand and require rapid incremental innovation from automakers (The Economist, 2023). The automotive industry is in metamorphosis; despite being one of the oldest in activity, globalisation has continuously reshaped it (Stone, 1976). Industry life cycles are distinct stages of business characterised by specific levels of innovation, investment, technological advancement, and competition (Fisher, 1969). Disclosed by profits levels and margin rates, the automobile industry passed the phases of introduction, growth, maturity, and saturation, leading to two potential outcomes: declining or dematurating, meaning, getting back to growth (MacDuffie & Fujimoto, 2010; Fujimoto's 2014). Mature transitioning is a phase prone to innovation characterised by an unusually high level of investment in research and development, restructuring, and new business model, thereby fertile to servitization.

Initially, servitization was found in the B2C segment before sprawling into consumer products. Traditional manufacturers embraced servitization to incorporate the profits from digitalization into their business models. In essence, companies are striving to transition from a product-centric approach to a service-centric perspective, creating novel value propositions for their customers. This often involves integrating their products into comprehensive service packages (Baines et al., 2017).

Despite this, the "servitization paradox"—a debate about whether the concept has improved outcomes and increased company performance—has been raised. It implies that the process entails great complexity and difficulties, making the transition for traditional

manufacturers a complicated strategy, which is one explanation of why a predominant majority of the manufacturers still rely on their traditional business models (Luoto et al., 2017; Brax et al., 2021).

Researchers have highlighted servitization as a critical innovation of product strategy (Bustinza et al., 2020). At the same time, the academic research on the subject is mostly practical and has solely focused on investigating the phenomenon within national boundaries, leading to a knowledge gap in the literature. Many have been trying to fill in the blank, basing their work on well-established management theories, but few brought an international scope to the concept (Bustinza et al., 2020). Moreover, servitization is not a concept perfectly defined by the literature, varying between industries or approach angles. Then, servitization is present in many markets globally and, as with any business model, must be impacted by the features of international business. With a cross-country comparison, this thesis intends to address an unstudied area of international business literature, emphasising business models and business model innovation in two different national contexts.

The automotive industry is a key sector of the global economy, especially strong in Europe. At the heart of technological, political, environmental, and social changes, the once-conservative car industry is in mutation (Carrier, 2023). Consequently, servitization is taking off with the first actors involved, offering all included packages aiming to reduce the cost and burden of ownership. Nonetheless, markets can exhibit variations in their responses to trends, necessitating the adoption of an international perspective to comprehensively study the subject. France and Sweden are both countries that serve as the origins of medium-sized automakers. Their follower stance imposes them to be ahead of tomorrow's trend to keep up with stronger market actors. At this stage, the legal framework has already been identified as a potential export barrier for the servitization business model in the automotive industry (Nicholas, 2021). For this reason, it is of interest to investigate the differences in the application and the consequences of the servitization wave in those countries.

Furthermore, servitization should also arouse curiosity as it also belongs to the field of sustainability. Scientists agree on the necessity to reduce the emission of carbon dioxide, thereby, by emphasising the added value of services out of products, servitized business

models tend to reduce the importance of goods production, which contributes most to global warming (Buberger et al., 2022).

By providing a comprehensive analysis of the challenges and opportunities associated with servitization, this paper assesses the country-specific differences which can transform the way automakers can approach the trend. Moreover, by enlightening the context and factors of success, a contribution to the international business literature could be made, on a relatively new and unstudied subject.

1.2 Problem discussion

Extensive research has been conducted on the concept of servitization and its impact on companies' business models. Thus, to sustain their competitiveness in the global market, businesses must modify their traditional business models to respond to an ever-changing market (Genzlinger et al., 2020). The concept of servitization has been debated for several decades, with initial discussions by Vandermerwe and Rada (1988). Since its inception, the concept has led to a growing body of research and is characterised by the shift of a product-based manufacturer towards providing business solutions and value-added services to consumers (Baines et al., 2009a; Lightfoot et al., 2013; Kamal et al., 2020). Globally, this trend has been prevalent across most industries, with an increasing number of companies utilising the concept to add value to their core corporate offerings through services. According to Mahut et al. (2017), automotive companies are undergoing a significant shift towards servitization due to deregulation, technological advances, globalisation, social evolutions, and intense competitive pressure. Furthermore, competitiveness is essential in the market economy paradigm, and as such, it is imperative for businesses to improve their activities by pursuing excellence and developing new offerings.

In modern times, technological advancements have led to significant changes in how people access and interact with goods. These changes have infused the widespread growth of the sharing economy, which encompasses commercial practices focused on sharing of resources and consumption of goods and services (Matofska & Sheinwald, 2019). Today, the consumer tends to pay less importance to the owner's status and rather more to the quality of the service (Botsman & Rogers, 2010).

Lessig (2008) suggests the idea of using services for exchange without ownership. The growth of the sharing economy has been facilitated by technological advancements, giving rise to new business models for exchanging goods and services. As a result, the values of the sharing community have been revitalised (Botsman & Rogers, 2010; Belk, 2014). Sharing activities can occur within B2C or in a B2B context and involves a range of exchange processes that encompass the shared usage of tangible products or intangible assets, as well as practices of redistribution and collaboration (Bardhi & Eckhardt, 2012; Milanova & MaaS 2017; Fritze et al., 2018). Thereby, consumption patterns have evolved from traditional goods-based transactions to a greater emphasis on service-related transactions, which has been accelerated by new technological advancements and innovative business models that offer consumers access to material products through services, without the need for ownership. According to Fritze et al. (2018), these revolutionary sharing models hold the potential to transform consumers' relationships with material products.

The emergence of servitization has led to a notable shift in focus for manufacturing organisations from product delivery to the creation of value-added services (Lightfoot et al., 2013). To address the challenges posed by the intensely competitive global business environment and the complex omnichannel supply chain landscape, there is a growing need for a transformative shift towards offering integrated services utilising innovative technologies (Chester et al., 2018). Besides, technological developments have changed the form of consumption and communication. Apart from changes in customer demand and behaviour, the shift towards value-added services is also influenced by various factors such as globalisation of the manufacturing sector, market saturation, and the spread of innovative products and services (Dimache & Roche, 2013; Opresnik & Taisch, 2015; Aminoff & Hakanen, 2018).

The automotive industry has traditionally been a major sector for producing physical goods, with a primary focus on product development. Previously, alternative transportation did not pose a significant threat to the sector due to the unique combination of convenience and individual freedom provided by no other form of mobility. Additionally, the industry has predominantly pursued linear development, where the

primary approach to address competition has been to enhance product offerings through innovation (Genzlinger et al., 2020).

The rise of new customer behaviours and demand has opened opportunities to create new innovative mobility options. As of today, according to Jong and van Dijk (2015) and Simpson et al. (2019), customers view vehicle ownership as less appealing due to the high costs, an indication of a shift in the perception of mobility as a service. Abraham et al. (2017) demonstrates the intention of new transportation alternatives, being that ride-hailing and carsharing are the most considered alternatives, especially among millennials. Although, the movement towards mobility as a service necessitates a shift for traditional companies from a product-centric strategy, towards a customer-driven one (Genzlinger et al., 2020). Consequently, the traditional business models are no longer aligned with the evolving consumer and market demands, hence, implying that new business models should be developed. This poses a significant challenge for companies in the automotive industry as implementing changes in the business model can be challenging, including, for example, significant investments and risks, organisational changes, as well as lack of necessary expertise to identify and implement new business models (Markides, 2006; Chesbrough, 2010; Teece, 2010).

Furthermore, the economic landscape has evolved over time and is today highly globalised, where cultural and market heterogeneity is a pervasive feature (Gupta & Govindarajan, 2002). As a global industry, the automotive sector requires companies to consider and understand how a diverse international environment can impact their business operations. One should consider economic, political, legal, social, and cultural factors, as these differences can present unique opportunities and challenges for firms operating in various international markets (Buckley et al., 2018). Moreover, these factors can impact the drivers and barriers of servitization-oriented business models in the automotive industry. Therefore, by investigating possible drivers and barriers to the shift, this thesis intends to enhance comprehension of how the implementation of servitization in business models may differ in the international automotive industry.

Sweden and France, both members of the European Union, are nonetheless distinct markets. When it comes to servitization, the phenomenon does not encounter the same popularity. Highly urbanised, the two countries do not have the same demographic

repartition, nor do their population have the same relationship with their car. From an international business point of view, approaching these markets requires careful consideration due to potential challenges that may arise. The servitization phenomenon is older in France than in Sweden. The first wave of servitization struck the hexagon nearly fifteen years ago, while the Swedish automotive industry only began its mutation in the past three years (Crozet & Millet, 2017).

1.3 Purpose and research question

The purpose of this thesis is to investigate the concept of servitization in the automotive industry and explore how companies engage with servitization by transforming their business model in an international context.

Based on the background and purpose of the thesis, the following research questions are proposed:

- *How do companies engage in servitization within the automotive industry?*
- *What are the main drivers and barriers to the implementation of servitization within the automotive industry, and how do these vary across different international environments?*

1.4. Delimitations

This thesis focuses on the automotive industry in Sweden and France and has a qualitative angle. Therefore, the results of this work are not made to be generalised but to depict a phenomenon. Further studies on the subject would be required, with a welcomed quantitative lens. The research questions outline limitations of the plural and not the consensual definition of servitization. Indeed, the field of study is rather nascent thus prone to scientific controversy. The reader should bear in mind the recent increase in the gradual adoption of servitization in the automotive industry, as this field is expected to undergo further evolution in the near future. The study is designed as a multiple case study between France and Sweden, therefore might give country-specific results that would infirm other country-specific papers. Lastly, in this thesis, the automotive industry is defined as a spectrum of activities related to the design, development, manufacture, and sale of vehicles. It further includes different sectors such as car manufacturers, suppliers, dealers, and aftermarket services.

2. LITERATURE REVIEW

2.1 Business model

Since the 1990s, the definition of the term “business model” has evolved yet the literature widely agrees on it as the logic behind how an organisation generates, delivers, and captures value, with an emphasis on aligning the firm resources with a strategic goal (Porter, 1985; Linder & Cantrell, 2000; Osterwalder & Pigneur, 2013). A successful business model, according to Porter (1985), emphasises a well-defined value proposition, efficient cost management, and a strong competitive advantage aiming to sustain revenue streams. Christensen et al., (2008) argue that a business model can be conceptualised as a tool that comprises a set of interrelated elements, enabling a specific firm to articulate its underlying business logic.

Teece’s (2010) perspective suggests that successful business models enable companies to capture a larger share of the value they create. The concept of business model is therefore intrinsically theoretical, aiming to schematise the processes constituting a company’s revenue stream. In the body of literature, the concept is broadly categorised into a value proposition, value creation, value delivery, and value capture; these dimensions aim to elucidate companies’ operations, as well as how their activities generate value (Porter 1985; Christensen et al., 2008; Teece, 2010; Osterwalder & Pigneur, 2013; Clauss, 2017). A successful long-term business model requires firms to balance innovation and exploitation, meaning that they must simultaneously explore new opportunities while also leveraging existing assets and capabilities (Teece, 2010). emphasises that this balance is critical for sustaining long-term success, as companies must continuously adapt and evolve their business models to remain competitive in a rapidly changing marketplace with changing market conditions, and technological innovations.

2.2 Business model innovation

To achieve continuous growth and development, even though successful, maintaining the same business model might become an outdated market change (Abrahamsson et al., 2019). Business model innovation is the process of modifying a company's existing business model to effectively address the changing market. With this, companies can effectively leverage new ideas and technologies through their business model, which is

vital to achieve as it involves identifying and implementing new ways to create, deliver, and capture value (Chesbrough, 2010). Further, Demil and Lecocq (2010) contend that the business model innovation process is triggered by external factors, necessitating a reactive response from companies.

According to Foss and Saebi (2018), business model innovation involves changing the basic logic of how a company creates and captures value, rather than simply introducing new products or services. Furthermore, a differentiation exists between incremental and radical business model innovation. In contrast to incremental business model innovation, which involves minor or gradual changes made to an existing business model, radical business model innovation refers to a significant overhaul of the current business model, leading to new value propositions, income streams, and customer segments. Due to its potential to disrupt existing markets and develop new ones, radical business model innovation is more likely to result in major changes to industry structure and firm performance. Yet, the process is fraught with different challenges in different parts of the business model, stemming from its inherent uncertainty and complexity, the necessity of reconciling conflicting demands, and the reluctance of established firms to embrace change (Chesbrough, 2010; Teece, 2010; Markides, 2006; Foss & Saebi, 2018). Bohnsack et al. (2014) further highlight that established companies may encounter challenges in evaluating and modifying their business models, in contrast to new entrants, which show high flexibility in adopting models that are more radical.

2.3 The service-dominant logic

The service-dominant logic is a conceptual framework that emphasises the centrality of service in economic exchange in opposition to the traditional good/product-dominant logic (Vargo & Lusch, 2008). Value is then, only the fruit of an exchange between service providers and customers and the product of a distribution mechanism. The concept underlines the integration of tangible and intangible resources to create value propositions addressing the customers' aspirations. The model pledges in favour of technological integration, as well as the use of information, and knowledge to enable personalised service experiences. Digital platforms, data analytics, and customer insights are perceived as leverage to adapt business models based on customer feedback and changing market conditions. Finally, thanks to a more customer-oriented approach, the service-dominant logic aims to improve customer loyalty (Vargo & Lusch, 2008).

2.4 The concept of servitization

Servitization is arguably part of the greater concept of service-dominant logic (SDL) within manufacturing firms (Ren & Gregory, 2007) and has become a distinguishing feature for innovative manufacturing firms seeking to compete strategically through service provision. In recent years, there has been a growing interest in the role of services in sustaining the competitiveness of manufacturers. Within the manufacturing industry, a “product” is typically defined as a physical object, whereas the term “service” is ambiguously defined by its negative. In this paper, Baines et al.'s (2009a p.554) definition of service has been utilised and formulated as: “*an economic activity that does not result in ownership of a tangible asset*”. Further, the concept of servitization in this thesis is employed and described as “*a trend in which manufacturing firms adopt more and more service components in their offerings*” (Baines et al., 2009a p.555). This definition offers a consensual scope largely agreed on by scholars researching the field as Vandermerwe and Rada (1988), Ren and Gregory (2007), and Robinson et al. (2002).

Vandermerwe and Rada (1988) noted that, at first, manufacturers largely considered themselves operating exclusively in either goods or service industries, a view expanded by Mont (2000). Tukker (2004) further proposes: pure product and pure service manufacturers as two extremes on a continuum. Over time, companies began offering a combination of products with related services such as maintenance or support, ultimately increasing the customer focus with combinations of goods, services, support, self-service, and knowledge (Baines et al., 2009a).

Global competition made servitization prevalent in nearly all industries, driving added values (Vandermerwe & Rada, 1988). This strategy entails moving closer to the end customer and diversifying into more lucrative product-related services (Baines et al., 2009a). By implementing servitization to their core business model, manufacturers can create hardly replicable added value, while meeting the evolving needs of their customers. The role of services for businesses has progressed into a deliberate and explicit strategy, where services become a key differentiator in a fully integrated product-service offering. The current value proposition emphasises services as essential value-adding activities (Vandermerwe & Rada, 1988; Gebauer et al., 2006), with products no longer considered

the primary source of value to customers, but rather an accompaniment to the service provided (Oliva & Kallenberg, 2003; Gebauer et al., 2006).

2.4.1 Servitization in the automotive industry

Like many other industries, the automotive industry faces a transformation of its activities, pulled by technological and social evolutions. New customer demands, advanced technologies, and digitalisation have enabled the emergence of novel mobility services. Mobility-as-a-service (MaaS) represents a paradigm shift in the way individuals and businesses view mobility, moving away from the traditional model of vehicle ownership towards a service-oriented approach (Rodriguez et al., 2019). The continuous evolution of technology has reached smartphones, enabling the introduction of new actors in the mobility market, resulting in a significant shift in how people travel within large urban areas (Mahut et al., 2017). Enoch (2015) further asserts that conventional transportation models are undergoing a paradigm shift because of technological advancements and evolving demand factors, leading to the emergence of a collaborative transportation market.

Lenz and Fraedrich (2016) observed novel mobility concepts typically involve shared utilisation of vehicles through P2P or B2C models. They further noted that the evolution of these concepts mainly revolves around the growth of car sharing, and ridesharing models focused on convenience. Other authors (Shaheen & Chan, 2016), have highlighted the rapid expansion of shared mobility in major cities as a primary solution for first and last-mile transportation needs, complementing traditional public transport routes. The high cost associated with owning a vehicle has been identified as a motivator for the rise of the shared mobility market (Rodriguez et al., 2019). Genzlinger et al. (2020) state that the value of the vehicle as a product has substantially declined, primarily due to the fall of automobiles as a status symbol. In a sustainable logic, the newer generation of mobility customers is transitioning from car ownership to car usage, preferring to enjoy individual mobility without incurring the associated expenses of ownership, such as parking fees and insurance (Kamal et al., 2020).

Although some firms manage to convert their service strategies into lucrative outcomes, others experience underwhelming performance (Brax, 2005; Brax et al., 2021). Kamal et al. (2020) have expressed scepticism about the implementation of the servitization

strategy, highlighting that significant investments in services may lead to increased service supply and rising costs, without the expected returns. Although servitization is a significant phenomenon, the theoretical concepts raise doubts about the manufacturer's abilities to successfully navigate the shift from product to service-centric manufacturing (Gebauer et al., 2005; Kamal et al. 2020).

2.4.2 Servitization Paradox

"Servitization paradox" refers to the difficulty manufacturing companies face when transitioning from product-based offerings to service-based offerings. Previous empirical research has yielded conflicting results regarding the link between servitization and firm performance. While Crozet and Millet (2017) have observed a positive effect of servitization on manufacturers, Benedettini et al. (2015) have demonstrated a negative impact of servitization on firm performance. The initial literature on servitization assumed that a higher degree of servitization would strengthen the financial performance of manufacturing firms. This was because it was believed that services could provide manufacturers with stable revenue streams in a situation where the market is unstable, competition is increasing and margins are decreasing (Luoto et al, 2017; Brax et al., 2021). As the research literature evolves, empirical studies reveal the complexity of servitization. It demonstrates that the innovation and development of services required to bring about a competitive change entail significant costs, in addition to the increased expenditure resulting from enhanced internal organisational policies and external cooperation efforts (Brax et al., 2021).

2.4.3 Level of servitization

As aforementioned, the concept of servitization is not clearly defined due to its gradual nature and attempts to identify distinct stages in the process have not resulted in a consensus among researchers. Furthermore, the elements determining the magnitude of servitization can vary greatly between industries. However, three models have been identified as particularly relevant to the automobile industry. Porter and Heppelman's (2014) typology encompass three degrees of servitization: product with after-sales services, connected products, and autonomous solutions. This typology is advantageous in that it considers digital and AI innovation, which are major challenges in the automotive industry. Brax and Visintin's (2017) eight-stage model emphasise the strengthening of the product-service relationship. In the crescent order of commitment,

the stages are: products with limited support, installed and supported products, complementary services, product-oriented solutions, system leasing, operating services, managed services solutions, and total solutions. Finally, the last model introduced by Tukker (2004), offers the best representative model of what appears happening in the automotive industry with three levels of nomenclature; Product-oriented services (servicing or logistics), use-oriented services (lease, sharing, etc.), and result-oriented services (active maintenance, pay per units consumed, result services, etc.). As many companies are involved in servitization to a certain extent, this typology can give a better understanding of the reality regarding servitization in the automotive industry.

2.4.4 Internal or external servitization

The internal structure of a company's organisation nearly decides its capability to implement servitization. Three alignments are possible; reviewing the structure by integrating direct services into the core business, setting up a subsidiary to extend the portfolio of services, or outsourcing (Alghisi & Saccani, 2015). Outsourcing is the most adaptive and less exposed strategy, yet it can hinder the creation of knowledge, limiting further advancement toward the SDL and hampering the manufacturer value proposition coherency (Lambert & Cooper, 2000). Fortunately, servitization's transactional nature fosters communication and exchange amongst network partners (Alghisi & Saccani, 2015). Some authors pledge for a hybrid network concentrating the core functions (managerial, financial, and strategic) internally while utilising partners to fill existing gaps in capabilities (Raja & Frandsen, 2017).

2.4.5 Strategic pivots

For Cusumano et al. (2015) the automotive industry is in a transition phase from a ferment to a mature sector. This further implies that established firms can renew their business model solely by doing a strategic pivot, meaning a substantial shift in the strategic framework of a business model and a transformation in the primary source of revenue. Heritage would therefore be a burden for centennial firms. According to Pillai et al. (2020), those conditions are favourable to independent economic experimentations within the firm's structure and its environment, materialised in subsidiaries, joint ventures, new brands, etc. However, the strategic pivot can threaten the firm's stability, inducing an irreversible investment of resources that forbids any return (Gans et al., 2019).

2.5 Internal environment drivers and barriers for servitization

Automobile manufacturers have faced the need to integrate services for a long time. Although the pressure can be mainly attributed to outside forces, some saw servitization as a way to increase profits, create added value and customer engagement. Whilst, the incentives are primarily external, several drivers and barriers toward servitization can be found inside the company.

2.5.1 Marketing & strategy

Creating customer loyalty is always an acclaimed approach in marketing theory, however, manufacturers tend to struggle to connect with their demand (Davies, 2004). The lack of manufacturer and customer relationships is caused by a product-oriented approach that allows for limited personalization. Servitization is an opportunity for manufacturers to engage in a new strategy, developing both a unique competitive advantage, and a comprehensive marketing strategy (Gebauer et al., 2006).

By having a customer-oriented approach, manufacturers can generate more value for each customer and increase their retention rate. Moreover, by providing integrated services to the customer, there is positive feedback between products and services, albeit in the opposite direction, meaning that the services offered have a positive impact on product sales (Baines et al., 2009). In addition, by achieving a higher degree of servitization, firms can expect to develop competitive advantages by encompassing a large array of activities around a specific product. This leads to more sustainable profits, more labour-dependent activities, and less imitable offers (Gebauer et al., 2006).

2.5.2 Resource limitations

According to Lombardi et al. (2022), the servitization of manufacturing activities requires dedicated resources, making it costly, thus posing the primary barrier to its implementation. Most firms do not have the required financial, or human resources to incorporate services in their business model. As the automotive industry is thrusted by large multinational corporations, one can doubt the relevance of this argument for manufacturers. Nevertheless, the industry's larger manufacturers tend to utilise suppliers from smaller firms, which could impact the industry more largely. To reap the benefits of a servitized business model, a certain level of activity must be ensured. Otherwise, the

additional efforts and costs invested in the business model may not yield significant returns. Further, smaller firms are then less likely to meet the minimal target in order to drive successful servitization.

Not immediately apparent, there are a few adverse effects driven by servitization. Firstly, the increase in profit is non-linear. Whilst an initial small-scale gain occurs during the implementation of the first services, the profitability grapples to overcome a certain ceiling before scale economies can restore the earnings (Visnjic & Van Looy, 2014). This implies that only firms with an appropriate volume are able to make a profit out of higher servitization degrees, but at the same time, smaller firms can successfully integrate a low level of servitization with potential profit raises. If the business model of the service is only an add-on to a product and not a complete alteration of the original sale strategy, the potential benefit from servitization will be limited, or the risk to be negative (Visnjic & Van Looy, 2014).

2.5.3 Organisational change

As stated by Lombardi et al. (2022), the attitude toward servitization is also emphasised as a significant impediment to its implementation in the business model. Professionals are either unaware of or unwilling to make the change needed. First, it is challenging to scale the supplemental services at a sufficient rate, and second, it necessitates greater internal coordination, potentially increasing operational complexity. Kamal et al. (2020) also observes that adopting a service-centred strategy can be characterised by a poor service culture and the absence of support from managers, as disruptions and discomfort can be experienced.

The implementation of servitization by a traditional manufacturer, according to Baines et al. (2009a), offers challenges for the service design, the organisational strategy, and the organisational transformation. The authors further assert that it is difficult for businesses to migrate to a service-centred business model, as the adoption permeates and changes the entire business, including aligning it with company culture, marketing, and production. Additionally, a successful transition also necessitates high investment resources. Martinez et al. (2010) further highlight the embedded product-service culture, which refers to the mindset that employees must adopt and develop into enthusiasm for service in order to exceed customer expectations. Yet, when introducing new types of

offerings to customers, misunderstanding may arise for the provider, but also for the customer, resulting in an imbalance of expectations between the two parties. This could for example imply that the customer is expecting a certain level of service, which the company cannot deliver. Martinez et al. (2010) further stress the importance of establishing coherence between the employees' mindset and understanding of the new service provision. Additionally, a greater level of collaboration between the service provider and its supporting network is necessary, as new forms of cooperation will be required.

2.6 External environment drivers and barriers for servitization

2.6.1 *Institutions and servitization*

Impacting the firm's ability to internationalise its servitization effort, the formal institutional environment takes the form of subsidies, protectionist barriers, or quotas, by opposition to tacit institutions (Buckley et al., 2018). As per Henisz and Delios (2000), firms need to adapt to a regulatory environment that can interfere with the initial product or service offer. In a dedicated chapter, Dicken (2011) depicts the automotive environment as highly regulated, notably because of environmental and safety concerns. Yet, product-focused tariffs are outstandingly used as political leverages in the industry, along with administrative procedures purposely complex to avoid new entrances (Dixon & Rimmer, 2010). Long-term service innovations are proven to be fostered by stable institutions protecting intellectual property protection and the European Union offers an ideal framework for its members to be early adopters of innovations (Manca et al., 2011; Kirca et al., 2012). Supported by historical findings, innovation adoption rates are influenced by their institutional environment and must be understood in a broader politico-historical context to assess their viability (Dahmen, 1988). Strong institutions leverage service innovation levels by promoting investment and supporting the creation of manufacturing clusters (Lee et al., 2021). Because it creates a safe business environment, the institutionalisation of transparent rules improves the communication between the firm and its subsidiaries, as with its partner (Park & Alenezi, 2018). As part of urbanisation politics, new mobilities, such as car-sharing and car-pooling, have been promoted by authorities by being strongly legally framed in Western countries. MaaS is viewed as a complement to public transport and therefore highly correlated with the related public policies e.g., public transport subsidiary allowance, tax reduction for the

driver, or parking spot legislation (Akyelken et al., 2018). The SDL is fostered by increasingly car-free city policies like road taxes, raising the cost of individual car ownership (Hartl & Hofmann, 2022).

2.6.2 Political sentiments and servitization

Companies shall evaluate the risk associated with a country's political regime because it could affect the institutional and business environment e.g., obtaining intellectual property rights, stopping business, seizing assets, or affecting security (Dicken, 2011; Lee et al., 2021) The automotive industry, due to its substantial influence and close relationship with political entities, often finds itself embroiled in political conflicts. Governments closely examine the impact of automotive manufacturers on the national economy, resulting in the shaping of institutional frameworks. This reflects collusion between industrial actors and political forces, leading to a state of political turmoil within the industry (Dicken, 2011; Buckley et al., 2018). Issuing protectionist measures or incentives, politics are salient actors of the automotive industry. As per Turunen and Finne (2014), creating legal frameworks within the industry can either facilitate or impede companies' SDL. As a result of Uberisation, which involves the incorporation of technology-driven, on-demand, and platform-centric business models, MaaS resonates within the European political sphere. This phenomenon signifies transformation in the transportation industry, leading to a restructuring of the current labour market, making any effort to servitized the industry liable to receive political scrutiny (Nurvala, 2015). European governments ensure a minimum living standard for their population, leading to relatively high labour costs for companies, a barrier to the services-oriented firms' profitability. With prompt servitization, governments drive innovation in the automotive industry to promote technological development or public benefits (Villareal, 2011).

2.6.3 Economic and competitive implications for servitization

The economic dimension adds a layer of complexity to international business. Macroeconomic variables affect all types of firms and can hinder the development of innovations (Dahmen, 1988). Amongst the most prominent variables, exchange rates, interest rates, living standards, GDP per capita, level of infrastructure, or industrialisation of the economy will be risk assessment and pertinence challenges for firms (Buckley et al., 2018). These economic metrics will strongly influence a company's environment,

affecting its likelihood of thriving in a determined country. Managers must bear in mind the economic peculiarities amongst countries in order to adapt their offer to a responsive audience (Dicken, 2011).

The country's competitive environment influences companies' willingness to pursue servitization. Indeed, a highly competitive environment will push companies to differentiate by adopting an SDL stance better securing long-term customer relationships (Hou & Robinson, 2006). Competitive environments push firms to invest in research and drop prices to reach the solicited customer, which fosters the democratisation of innovations (Li et al., 2016).

2.6.4 Infrastructure

Infrastructures affect the firm's ability to combine manufacturing and services activities by reducing the cost and uncertainty of operations both between and within countries (Hernandez et al., 2021; Lee et al., 2021). Infrastructures have a dual impact on firms' servitization. On one hand, well-developed infrastructure helps reduce logistical costs and facilitate the adoption of greener mobilities, e.g., car-sharing spots, superchargers, and seamless integration with public transportation systems. On the other hand, a deficient city road network can lead to increased congestion, thereby enhancing the attractiveness of alternative mobility options (Hartl & Hoftmann, 2022). By providing special driveways, parking, and charging places for companies engaged in servitization, urban planning can actively support service-oriented firms in their servitization endeavours. Still, low population density ensues in limited infrastructure development excluding new mobilities from rural areas. This poses challenges for the expansion of new mobility services beyond urban centres. Further, this discrepancy in infrastructure availability highlights the need for equitable development, ensuring that all areas have access to the necessary infrastructure in order to foster servitization initiatives. Moreover, the distribution of the population within the country will have an impact on the feasibility of implementing servitization. In regions with high population density and growth rate, the demand for services is likely to be greater. Another important geo-demographic factor to consider is urbanisation, which provides opportunities due to the concentration of both businesses and consumers in urban areas (Akyelken et al., 2018).

2.6.5 Technological matureness and digitalisation

Technology should be understood in a geographical and temporal context (Dahmen, 1988). From an international business perspective, technology varies greatly between locations due to some geographies being simply not as advanced as others. Moreover, different markets enjoy various competitive environments which in essence leads to a properly innovative environment (Dicken, 2011). Tushman and Anderson (1986) posit that technology advances gradually through incremental changes and abrupt breakthroughs, which can either bolster or undermine the competitiveness of market leaders. The automotive market is currently experiencing a significant shift in paradigm as a result of sudden and ground-breaking advancements in technology (Enoch, 2015). This evolution enables the introduction of new servitized business models, emergent due to technological breakthroughs. As a result, the landscape of the automotive market is evolving rapidly, influenced by the convergence of these disruptive technologies (Mahut et al., 2017).

The automotive industry, by its capital-intensive nature, did not manage to capture the added value of the digitalisation era, which goes hand in hand with servitization (Knobbe & Proff, 2020). Most of the automotive industry is concerned by digitalisation as a discontinuous change leading to market instability, but when put in a greater context, digitalisation is not perceived as a major threat to the industry. The largest modification of the market dynamic due to digitalisation was captured by the supplier, which mostly integrated the phenomenon into their offerings (Knobbe & Proff, 2020). The digital paradox is omnipresent amongst manufacturers of all branches, meaning that their investments in digitalisation do not materialise any additional value. To create value out of digitalisation, firms must understand and integrate servitization, which has generally not received the needed investment (Kohtamäki et al., 2020). Manufacturer managers under-value the digitalisation potential in both creating new revenue streams and decreasing production costs (Tortorella et al, 2023). The relationship between the level of servitization, the degree of investigation, and the profit are under-studied, nevertheless, the first study lets us think about a non-linear relationship between the level of digitalisation, servitization, and profit. As a matter of general rules, digitalisation is more profitable for manufacturers if they are able to integrate adequate services (Kohtamäki et al., 2020).

2.6.6 Unveiling the influence of culture and society on servitization

The changing demands, cultural dynamics, and societal influences have a profound impact on businesses, compelling them to adapt in order to thrive (Buckley et al., 2018). Engaging in servitization, managers must comprehend society, especially considering the higher share of services. Culture drives customers' consumption patterns because of its psychological anchorage in the consumer thinking process (Jadon et al., 2020). Moreover, some cultures with lower risk perception are more prone to change acceptance, driving early adopters (Waarts & Van Everdingen, 2005). Pursuant to Jones et al., (2020), innovation adoption rates are higher in Western and Anglo-Saxon cultures, impregnated by a positive spirit toward entrepreneurship and innovation and even stronger in countries with a high level of cultural diversity. In some cultures, vehicle ownership is a symbol of status, which may decrease the demand for services-based offerings like car-sharing (Enoch, 2015). Then, servitization involves trust, influencing customers' willingness to enjoy service-based offerings (Fronteli & Pacheco Paladini, 2023). MaaS forces people to rethink relationships with individual vehicles, inducing a social dilemma where trust mechanisms and social ties are central (Hartl & Hofmann, 2022).

2.6.7 Consumers

Traditional manufacturing operations have a transactional nature, limiting direct interaction with end customers, and driving a focus on internal operational efficiency rather than customer relationships (Baines et al., 2009b). Servitization shuffles the former equilibrium because it is largely driven by the consumers, whereas the focus is paid to the added value for the customers themselves (Roos, 2015; Kamal et al., 2020). Specifying that the SLD originates from consumer demand helps firms to sustain a competitive advantage by improving the lifetime value and driving revenue yields (Brax et al, 2017; Heinonen & Strandvik, 2015). Gebauer et al. (2006) posit that services have transformed into a purposeful and evident strategy, serving as a critical differentiating factor within a fully integrated product-service offering. This shift in perspective highlights the enhanced value proposition, where products are no longer solely viewed as the primary source of value for customers. Instead, the inclusion of services plays a pivotal role in distinguishing businesses and delivering comprehensive solutions that cater to customer needs. By prioritising services alongside products, companies can create a unique competitive advantage and offer a more comprehensive value proposition to their target.

Further, the rise of digitalisation has rebalanced the information asymmetry fostering customer awareness and its ability to express new needs that firms can capture (Oliva & Kallenberg, 2003; Baines et al., 2009b). Paradoxically, brands with an established good reputation of quality could struggle to persuade customers of the necessity of buying support services without undermining their image. However, adopting a progressive approach can help mitigate unforeseen downturns and address this issue effectively (Lei et al., 2004).

2.7 Conceptual framework

Servitization describes the shift of a product-oriented manufacturer to a services-oriented one. This vague definition raises concerns about the relevance to classify a concept as wide as manufacturing itself. A precocious analysis of the literature displayed a gap of knowledge within the combined field of international business and servitization.

Servitization is firstly a matter of business model innovation, in which the concept of strategic pivot, a sharp change of business model that requires significant resources and commitment, is central. Nonetheless, managers appear to be reticent to change paradigms, fearing to affect the organisation's culture, the brand image or to betray a heritage. This leads the traditional manufacturer to slowly engage in mobility as a service, which is the transcription of servitization in the automotive industry, a step-by-step approach benefiting new players.

Scholars argue that the automakers, like most manufacturers, have struggled to capture the enhanced value brought by digitalisation. Similarly, they are expected to face challenges in seizing the opportunities presented by servitization, with suppliers likely to be the ones benefiting instead. Yet, the automotive industry is a special one and as no sector is an island, it must be understood in a wider context. Table 1 below views the most influential factors of how servitization is implemented in the automotive industry. The companies' business model stands as a pivotal factor, while the external and internal environment play a defining role in shaping its implementation. These aspects are likely to have a significant impact on the potential success of servitization at a particular place and time.

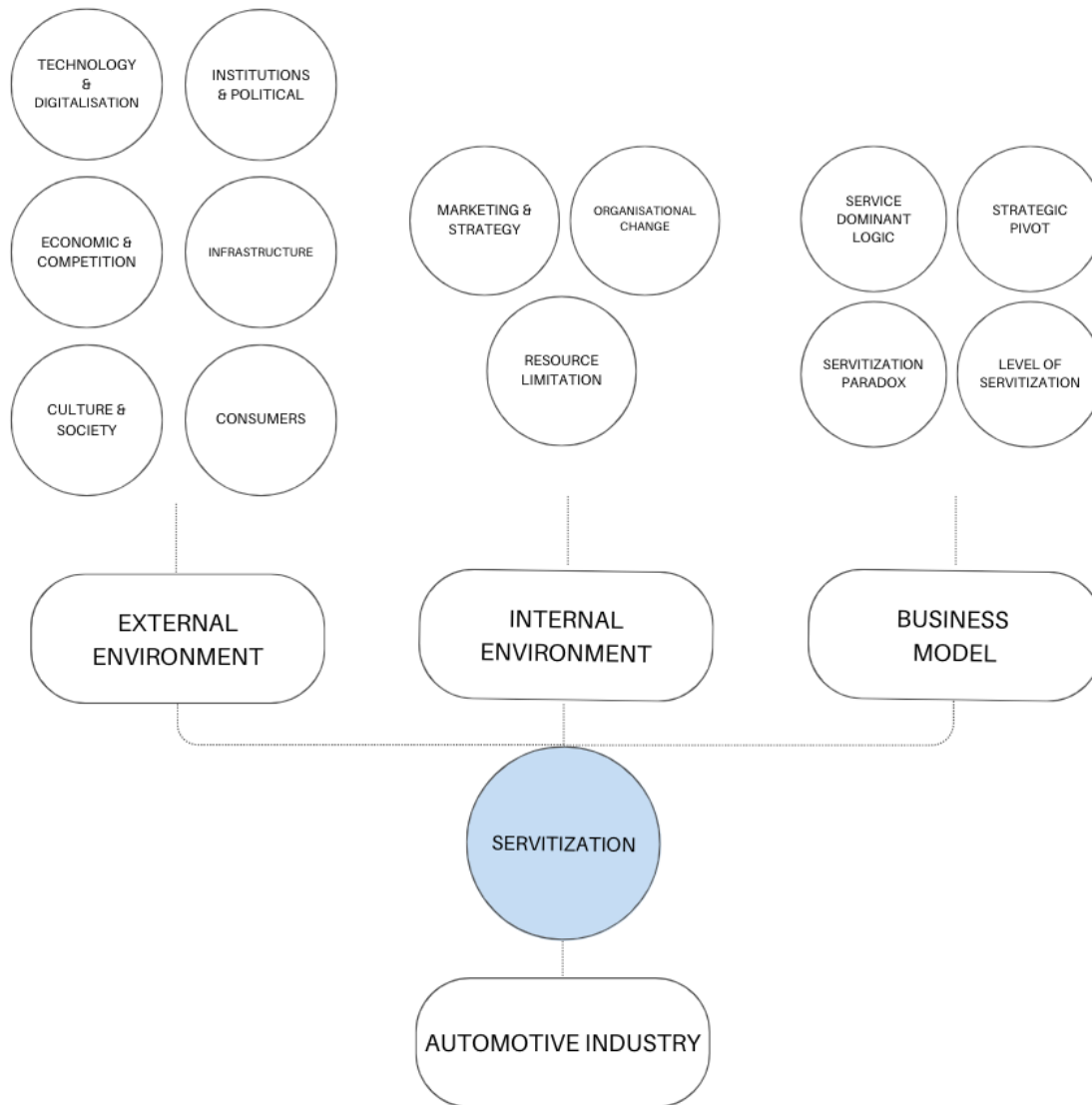


Table.1. Conceptual framework, compiled by the authors

3. METHODOLOGY

3.1 Research approach

This research process was initiated by observing the inadequacy of product-oriented business models with sustainable goals in a transformative industry. Moreover, a qualitative method was chosen for this study as it intends to provide a more extensive understanding of the investigated phenomenon and its characteristics. This approach facilitates an in-depth investigation and identification of potential recurring patterns (Merriam, 1998), while it is also suitable for gaining a comprehensive understanding of complex issues (Marschan-Piekkari & Welch, 2004). The qualitative approach was believed to enable the flexibility required by an innovative subject while supporting our analysis with tangible data, especially since the aspects of such a phenomenon are various and cannot all be investigated. Additionally, Eriksson and Kovalainen (2008) argue that a qualitative research design is most applicable when the research questions begin with 'how', 'who', and 'why', which is the premise of the research questions in this study.

A literature review uncovered a theoretical debate concerning the automotive industry, its traditional business models, and the trend toward the concept of servitization. It further revealed a lack of an international perspective on the phenomenon, and the existence of a research gap was exploited. Moreover, to understand the implementation and its potential drivers and barriers, a conceptual framework was developed based on the review of relevant literature to comprehend the central concepts and variables of the study. Building upon the literature review, an interview guide was established (see Appendix) to filter the primary data gathered through interviews. This data was later analysed using the conceptual framework to arrive at conclusions on how the phenomena align with the theory within the context of servitization and to discover new understandings of the topic.

3.2 Research design

Considering the qualitative research approach adopted for this thesis, with an attempt to increase the understanding of how the automotive industry is shifting, and what drives and barriers this transition in an international environment, a case study design was deemed appropriate. Having defined two geographic areas, the thesis will follow the model of a multiple case study, aiming to provide the reader with a deeper understanding

of a phenomenon, rather than generalising a concept (Bell et al., 2022). This approach was further chosen to facilitate a wider perspective and a more nuanced understanding of the topic. As per Yin (2009), a multiple-case study design has the potential to provide greater analytical benefits compared to a single-case study. Additionally, as a knowledge gap has been discovered in the literature review, adopting a multiple-case study can facilitate theory-building (Bell et al., 2022). Also, according to Eisenhardt (1989), a case-study design is particularly suitable for investigating novel areas of research. Given that a conceptual framework was created through an in-depth literature review, which facilitated an analytical focus to interpret the results, a case study design was applied in this thesis in an attempt at theory testing.

Willing to build a theory on a relatively new and unstudied subject, the inductive approach appears to be the most adapted (Bell et al., 2022). The inductive approach seeks to ascertain the compatibility between theory and observed reality. Observations are made through research and subsequently subjected to generalisation in order to evaluate the potential for developing a new theory. In this thesis, the authors found the usage of generating new theories based on the observations made with qualitative research, aiming to identify patterns and trends. Furthermore, the inductive approach is often useful in exploratory studies where little is known about the research topic, which in this thesis is relevant (Bell et al., 2022).

3.3 Data collection

The empirical data in this study was obtained from two main means of information, primary and secondary data. The primary data were collected during March and April 2023 and comprised 13 semi-structured interviews, which served as the primary means of data collection. The utilisation of interviews as a primary data collection method is widely prevalent in qualitative research due to its inherent flexibility (Bell et al., 2022). The questionnaire for the primary data collection was designed to be modifiable, aiming to allow the emergence of truly new ideas that have not yet been viewed in the literature. As per Yin's (2009) perspective, employing case studies can ensure robust validity by triangulating multiple sources of data and evidence. Moreover, Bell et al., (2022) recognized the adequacy of such methods when treating specific subjects, because it is prone to the expression of the respondent beyond the original frame of the study, along

with, giving an insider position on a phenomenon. The interviews were conducted through various means in formal and informal meetings, phone calls, and video calls. In order to reduce the interviewee bias, interviews were mostly conducted by the two writers at the same time altering questions and notes. Although the interview audios were recorded, notes were taken during the interview to grasp the first impressions of the students and highlight any misunderstandings or biases that could have emerged during the process. To ensure the overall quality of the data by enhancing validity and reliability, multiple data collection methods were employed (Merriam, 1998). The secondary data comprised company-specific information obtained from Renault, which was unable to partake in an interview due to resource constraints, but nevertheless furnished valuable material.

3.3.1 Data sampling

The automotive industry, particularly in Europe, is among the largest industries globally. What could be considered an oligopoly, tends to make some actors more relevant than others. Automaker executives tend to work in large corporations, making them hardly reachable to students. As a perfectly random sample cannot be obtained, nor created, we have opted for a convenience survey. According to Bell et al. (2022), convenience surveys are commonly utilised in scientific research to enable researchers to conduct interviews within a limited timeframe. As an important matter of fact for the reader, both of the authors have a working position in the automotive industry. That being stated, personnel relationships were used to enter contact with the respondent, which could bias the survey. Nevertheless, being aware of the bias lying in our work, respondents outside of the researchers' social network were contacted via email.

The process was marked by a low rate of response. Indeed, out of the 31 companies operating in the automotive industry in the Swedish and French markets, contacted by at least two emails separated by a week, only four answered the request, and one company accepted the interview. Phoning was decided in a second phase to palliate the low response rate and appeared to be way more successful, as four companies were willing to be interviewed. The number of respondents also grew organically thanks to previous respondents' recommendations.

An advantage of having a former relationship with the respondent is that it tends to make interviews more comfortable and committed to sharing knowledge (Bell et al., 2022). In some of the interviews, this was a reality, as it was conducted with people who already had an existing connection. Nevertheless, with this in mind, recording the interactions with the respondent's consent was considered a way to reduce bias and enable consultation of the conversation afterwards. Moreover, both interviewers were present during the data collection when conducted in English, aiming to balance the interviewer bias.

3.3.2 Interview process

Semi-structured interviews were chosen in the study, using a questionnaire to explore various aspects of servitization in the automotive industry and obtain insights into the respondents' perspectives on the subject. The questionnaire (see Appendix) was sent prior to the interview, allowing the respondent the opportunity to become acquainted with the topic and questions. Before initiating the interview, the interviewee was given the option to be anonymous and choose whether to be recorded or not, as suggested by Bell et al. (2022) in order to assure the accuracy and impartiality of the subsequent transcription. The purpose of the study was then explained, and the respondents' consent was taken.

Swedish respondents were approached in both Swedish and English, and their interviews were driven in English because one of the researchers was not familiar enough with Swedish. However, because of the cultural difference, French respondents were approached in French and English but were most often willing to drive the interview in French. In that case, only one researcher was able to conduct the interview, although transcripts were translated to ensure that both researchers understood the data.

To avoid any interview bias during the translation, the interviews were translated as literally as the researcher could, albeit the process surely opened a door for interpretation. The recorded interviews were transcribed, and notes were taken during every interview in order to improve reliability, as advised by Bell et al. (2022).

3.4 Analysis of the data

For analysing the data, the recorded interviews were transcribed. This process, as indicated by Bell et al. (2022), enables concentration on the respondent during the interviews and facilitates the addition of quotes from the interviews to the thesis. This, in

turn, contributes to enhancing the perceived trustworthiness of the study and augmenting its comprehensiveness. Additionally, emergent themes were captured through notetaking during the interview, as well as ensuring that the questions remained aligned with the intended themes, thereby easing content analysis at a later stage.

Following the transcription of the interviews, the resulting text was subjected to coding, facilitating its division into sub-groups, ultimately generating the identified and emerging themes. This coding process was supported by the conceptual framework and interview questions. The selection of a thematic analysis approach was considered appropriate as it allowed for the systematic organisation of data in a structured and detailed manner, as outlined by Braun and Clark (2006). Although, this process has been challenged by Bell et al. (2022) as argumentation whether the definition of the analysis method is lacking. Yet, Braun and Clark (2006) have delineated a set of steps to guide the process of conducting thematic analysis as they have proposed a six-step process for conducting thematic analysis. This method includes familiarisation, code generation, theme identification, theme review, naming and defining themes, and lastly, constructing a narrative of the data.

To conduct the thematic analysis, the recorded interviews were transcribed and read multiple times to allow immersion in the data and a deeper understanding of the research question. Next, initial codes were generated from the data. For instance, codes such as "changes in customer demand," "differentiation," and "product-oriented" were identified and then grouped into broader categories, which were later categorised into broader themes and patterns that captured the essence of the data. Once the themes were identified, they were assessed to ensure they were coherent, distinct, and relevant to the research question.

After validating the themes, each one was named and defined. For example, the themes that emerged from the data included "Infrastructure", and "Political sentiments and servitization". Finally, each theme was used as a headline to write up the coded data, constructing a narrative of the data that answered the research question. This process aimed to gain a deeper understanding of the research question through a systematic analysis of the data. By adhering to the six steps of the thematic analysis, the researchers engaged in an iterative process that involved revisiting each step multiple times to

facilitate comprehension of the data and ensure the validity of the analysis. This allowed for the development of a deep and nuanced understanding of the data and enabled the identification and exploration of the key themes and patterns that emerged from the data (Braun & Clark, 2006). Table 2, presented below, illustrates the comprehensive research process undertaken in this study.

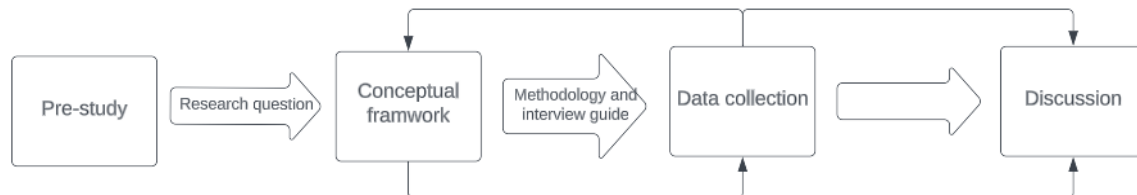


Table.2. Research Process, compiled by authors

3.5 Research quality

Bell et al. (2022) emphasises the importance of confirming and evaluating the quality of research at every stage of the research process. This stresses the importance of maintaining rigorous standards in research methodology. In terms of research, reliability pertains to the consistency of the study's results, the representativeness of these results to the population under investigation, and the feasibility of replicating the study. However, as this study intends to capture personal views and perceptions, the foundation for a qualitative study, it is not feasible to extrapolate that the outcomes would remain consistent when employing different interview participants. Disagreements arise about whether a qualitative study can be conducted according to the criteria of validity and reliability (Golafshani, 2003). Therefore, Bell et al (2022) and Lincoln and Guba (1985) suggest using the criterion of trustworthiness and authenticity instead.

Lincoln and Guba (1985) proposed that the concept of credibility, transferability, dependability, and confirmability should replace the traditional concepts of reliability and validity to assess the quality of qualitative research. These criteria are aimed at ensuring the rigour and trustworthiness of the research, and they reflect the unique nature and characteristics of qualitative research. In order to ensure the credibility of the research, respondent validation has been provided to the interviewee. This was done by emailing the respondents their answers, and quotes, allowing them to revise any misinterpretations

or biases. This further provides a means of confirming the validity of individual accounts. By proposing this, the power imbalance between the two parties can be redressed as involvement, as well as the authority of the research findings can be affected (Bell et al., 2022).

To establish dependability and confirmability in a qualitative study, it is essential to maintain comprehensive records of all research phases and to remain mindful of personal values or theoretical inclinations that may introduce biases, which were done through recordings, transcriptions, and notes. Through these practices, the researcher can ensure that the study is dependable, and the findings are confirmable, and grounded in the data, rather than influenced by personal biases (Bell et al., 2022).

Bell et al. (2022) and Golafshani (2003) assert that ensuring reliability is a prerequisite for meeting the fundamental criteria for validity. Validity is a critical consideration in the thesis methodology, encompassing the degree to which the research successfully investigates its intended subject matter, remains objective, and can be generalised to other contexts (Golafshani, 2003; Bell et al., 2022). In order to enhance the validity of the research, interview questions were developed based on the conceptual framework, and numerous consistent responses were obtained, providing confirmation of the findings. Moreover, the thesis endeavours to enhance validity by conducting interviews with various stakeholders across two countries within the automotive industry, thereby presenting a diverse and representative overview of the subject matter (Whittemore et al., 2001; Morse et al., 2002). This was accomplished by selecting a sample that comprised both traditional manufacturers and new innovative companies.

3.6 Ethical considerations

In order to enhance the quality of the research, ethical considerations were systematically incorporated throughout the research process, including obtaining informed consent from all interviewees. To address this, a detailed explanation of the study's objectives, methods used during the interview, and the anticipated duration of the interview were provided to participants in advance, as recommended by Bell et al. (2022). Interviewees were also informed that the collected data would be publicly disseminated, and how it would be used in the study. By establishing clear communication and transparency about the

handling of the data, trust could be fostered between the researchers and participants, ultimately enhancing the reliability and validity of the collected data.

As an additional measure, interviewees were asked for their consent to record the interviews, whereas all respondents agreed to this arrangement. Furthermore, the respondents were given the option to remain anonymous, which eight individuals opted for. Moreover, participants were informed that they had the right to refuse to answer any questions they did not feel comfortable with. Despite this, no interviewee chose to exercise this option, which further strengthened the trustworthiness of the study.

In addition, interviewees were informed that the recordings would be deleted once the interviews had been transcribed. Furthermore, after analysing the data, participants were provided with their individual statements and quotes, which allowed them to verify the accuracy of their responses. This practice, known as respondent validation (Bell et al. 2022), helped to strengthen the quality of the study. As a result, the quality of the study was improved, with no edits made during the process.

3.7 Data introduction

Table 3 presented below provides the characteristics of each respondent who participated in the study, which serves to enhance the reliability and validity of the study. The data are presented by company and not by theme because some require anonymity, complicating greatly the display.

Organisation	Country of operation	Title/sector	Language of the interview	Date of interview
Virtuo	France	Executive IT employee	French	28/03/2023 30/03/2023
Citiz	France	CEO Operation Sales	French	16/04/2023 12/04/2023 12/04/2023
Company 1	Sweden	Sales Operation	English	13/04/2023 13/04/2023
Company 2	Sweden	Sales	English	14/04/2023
Company 3	France and Sweden	Operation Operation Logistic Brand Awareness	English	18/04/2023 18/04/2023 4/04/2023 12/ 04/2023

Table 3. Characteristics of respondents, compiled by the authors

4. EMPIRICAL FINDINGS

4.1 Company 1

Company 1 was founded in the early 1900s as a premium brand specialising in the design, production, and distribution of high-performance vehicles. The company is today a worldwide brand known for its quality, engineering, and design.

Business model

The company's business model is based on a customer-centric approach with a focus on delivering exceptional experiences to its customers. Impregnated by a legacy of car racing, the company has a luxury positioning, manufacturing sport, and touring cars best known for their excellent reliability and handling. The value is created through its engineering and design expertise, which allows the company to produce high-performance cars that are innovative, reliable, and desirable. The company further creates value through its brand, as it signifies quality and performance, as well as they are at the forefront of automotive technology.

In previous years, Company 1 has initiated to expand its services and offerings beyond its core products, focusing on digitalisation, sustainability, and customer convenience. The organisation has created an array of digital applications and services that enable clients to obtain vehicle data, monitor performance indicators, and schedule maintenance appointments. As stated by the respondent, like most of the manufacturers from the last twenty years, a leasing solution is proposed to its customers with the possibility of purchasing the car for the residual value at the end of the contract. This solution comes with complete servicing, including tires and drivetrain which are often excluded. It is worth noticing that for the respondent, this financing scheme is not common in the luxury segment.

In addition, new business units have been initiated devoted to sustainable mobility offerings, including electric vehicle charging and energy management, as well as subscription-based services have been initiated in certain countries, yet not in Sweden. By offering these additional services, the company is enhancing the ownership experience and providing customers with value beyond the initial purchase of a vehicle, which can also help to build and strengthen customer loyalty.

To provide these new services into their offerings, the company utilises suppliers, consisting of dealerships and service centres. These partners, in turn, can cooperate with additional third-party providers to offer additional value-added services to the customers. These services have made a progressive integration into the company's business model and are now integrated significantly. As Company 1 focuses on building long-term relationships with its customers and enhancing the customer experience, value-added services are highly important, which according to the company, this is achieved through their offered services.

Internal environment

The pursuit of differentiation from its competitors has further been viewed as an opportunity. By developing innovative and valuable services, the company can establish its position as a provider of exceptional value for its customers, beyond the scope of its core products. Furthermore, through the provision of value-added services to its customers, the company aims to achieve a deeper integration into customers' lives and establish itself as a trusted partner, which can further create a competitive advantage, leading to sustainable growth and stronger long-term customer relationships.

“To introduce servitization into our business model, we had to develop a different set of capabilities, which meant investment in developing the necessary expertise and infrastructure...”

Also mentioned was the difficulty of balancing cost and pricing, as services can be costly to develop and deliver, often facing an issue of cost scaling. Therefore, finding the right balance between offering a competitive price and ensuring profitability has been a challenge in implementing services. Also mentioned was that the customers may find it challenging to assess the value of the offering, leading to uncertainty in determining the pricing.

“Another challenge for us is to ensure quality, we have built a reputation for delivering high-quality products implying that our services need to keep up with our product”.

As several services are delivered through third-party providers across the country, maintaining quality can be challenging. The company means that maintaining product

quality is comparatively easier, and service providers often struggle with ensuring consistency in their offerings.

External environment

During the interview, it was mentioned that the company must adhere to Swedish regulations when implementing servitization. The strict environmental regulations in the country have pushed the company to move towards more sustainable business operations, which include implementing services in their offerings. Nevertheless, because of the small population and large distances of the country, it is unprofitable for the brand to offer a complete solution, as is the case in the United States. Indeed, overseas, Company 1 proposes a completely integrated subscription model, in which the customer is able to have a car for as little as one day, offering the possibility to have a touring and a race car for a single price without bearing the ownership cost.

Moreover, as norms and values differ between the countries in which they operate, the company has adapted to local market conditions and customer preferences. In Sweden, it is not solely the regulatory framework concerning sustainability that drives the company to deploy servitization, the customers' focus on sustainability is also highly considered. The respondents gave two valuable examples; the pro-EVs regulatory framework that drove a surge in electric car sales until November, and the tendency of Swedes to be early adopters of new technology making the country a good place to test innovations. Moreover, the macro-economics of Sweden impacts the firm's perception of the country, indeed, the interviewee shared that Sweden is the home to a large population with high income, making its relatively small population an important market. Therefore, the company has developed, and adapted services related to both the special demand and the regulatory framework, in which power chargers and their digital energy management system have been implemented in an attempt to respond to the customers' demand.

“We need to ensure that our services are designed to be environmentally friendly, such as by using sustainable materials when servicing the cars”

Additionally, the decision to utilise servitization has been influenced by several factors. Changes in customer demands and expectations have been a vital driver to implementing

services in their offerings, as the customers have become more focused on the overall ownership experience which goes beyond the product itself.

“The customers of today seek greater convenience and support, and we have recognised the need to offer a wider range of services to meet these demands.”

The company can provide services more efficiently by leveraging digital technology. Hence, digitalisation has been a vital driver to utilise servitization, facilitating a wider offering of value-added services and solutions to meet evolving customer needs.

4.2 Company 2

Also established in the early 1900s, Company 2 is recognised as a multinational enterprise specialising in the design and production of vehicles and engines. The company has a history of innovation, technology, and excellence and has been established as a brand known for premium quality and performance.

Business model

The company’s business model revolves around offering customers an exceptional and premium experience through their high quality, performance, and innovative products. Furthermore, the business aims to continue meeting the needs of the customers and has introduced several changes in its traditional business model, shifting the focus from solely supplying products, to including additional offerings. The company has ventured into the MaaS market, with particular emphasis on car-sharing and ride-hailing offerings, targeting customers who do not want vehicle ownership, although they require mobility solutions. Yet, these services are not available in Sweden. Additionally, the company has diversified its digital services portfolio, providing customers with real-time traffic updates, emergency call centres, remote vehicle management, as well as personified content options.

The firm engages closely with a network of suppliers to offer additional services. For example, to develop and deliver digital technologies, Company 2 cooperates with suppliers to deliver solutions that enhance the experience for the customers. In several markets, the offered services have been implemented to a significant degree in the business model. Although in Sweden, the implementation has not been as extensive.

However, on the Swedish market, except for digital services, the company is engaged in aftermarket services including maintenance, repair, warranties, and adaptation of the products.

Internal environment

Integrating services into their offerings allows them to differentiate themselves from their competitors and strengthen the customer relationship as they offer solutions meeting the new demand. The company also recognised the opportunity to increase market share by offering a wider range of services added to the products, which in turn may result in attracting new customers while retaining existing ones.

“It has been difficult for us to shift our mindset from selling products to including solutions and services...”

It is evident that integrating services in the business model does not come without challenges. This requires a shift in mindset, as well as integrating new capabilities to offer novel solutions to the customers. Respondents evoked the country of origin as a factor of conservatism in the perception of cars. For them, the car is a mark of social status and not a mere object that you can share with everyone. The interviewee talked about the rather old-school perception of the business, still mostly focused on specs and products. Changing the company culture, and the way in which the company operates has been a challenge that requires a significant shift in business model and operations. It has further required innovative technologies, systems, and learning, while also trying to navigate towards the same new direction.

“Ensuring that all stakeholders are aligned and working towards the same goal has been a challenge...”

According to the respondent, implementing these new capabilities can be costly and it could be hard for the company to stand against smaller actors that do not have to carry a brand image and a heritage. The Swedish market for new mobilities is being submerged by start-ups, leasing cars from traditional manufacturers. The company sees an opportunity to develop partnerships at low costs, driving up sales while allowing to gain experience in this new market. Therefore, the company needs to carefully balance the costs versus the gained benefits to ensure the investments were profitable to adopt into the business model.

External environment

“The strong focus on sustainability has influenced us to provide services related to our electric vehicles...”

As stated by the interviewee, there has been a growing interest in electric vehicles in the country, whereas the company has developed a range of services supporting the use of these cars, such as charging solutions notably a subscription model and maintenance services. For the respondent, this drive for electrification has been initially pushed by the financial incentive offered by the government and then by the customer value itself, accordingly willing to be more ecological. In Sweden, the customers were relatively more concerned about safety than in other countries, this pushed the company to integrate emergency services to its vehicles.

“During winter you have to switch tires by law so at that time we send requests to our customer...”

“The introduction of the carsharing app has been discussed for Sweden, but I think the managers are waiting to see how it goes in larger markets...”

The respondent also declares that digitalisation has played a significant role in implementing servitization in their business model. This driver has enabled the company to respond to the changing customer needs and preferences, as well as promote more sustainable mobility solutions. As the automotive industry has evolved, customers have become more interested in flexible and personalised mobility solutions as they today expect more from their vehicles than just transportation.

To develop extended mobility services in Sweden, the company would need to rely both on existing and potential future infrastructures. As expressed by the respondent, cars are large objects that do not involve the same logistics as any other goods. Moreover, vehicles are generally durable high-value goods needing special care when transported. Finally, cars must be fuelled, registered, and insured implying additional operations and administrative complexity with on-demand services. Those factors implement costly solutions, and their success is highly dependent on the legislation, the administrative complexity, and the existing infrastructures or the possibility to develop new ones.

Finally, the interviewee mentioned the ease of synchronising digital tools in Sweden and Scandinavia. Indeed, setting up an integrated service like car sharing foist to increase the number of suppliers of services. Doing this creates a need for monitoring activities, together with knowledge and data transfer, mostly done through digital tools. According to the respondent, communication with other companies is widely facilitated in Sweden by an established compatibility of software used by the actors of the automobile industry. This effect is amplified by the normalised use of English as a working language in the sector, facilitating communication with European partners.

4.3 Citiz France

Citiz is a French Limited profit company that operates in the car-pooling industry. Founded in 2002 and based in the north of France, the company has expanded for 21 years all over France. It is indirectly owned by Keolis, a large MNC specialised in public transport. The company utilises an inclusive business model aiming to provide mobility solutions to people without having to own a vehicle. The company works closely with municipalities to improve the liveability and mobility offer of French cities.

Business model

The company's business model offers alternative mobility solutions by renting out vehicles for various durations. The firm's main competitive advantage is to offer services priced by duration, length of travel, and subscription, making short-term renting economically beneficial for customers.

As it was founded as a service company on the side of traditional automakers, Citiz have maintained the same business model over time. The company is aiming to offer an alternative option to urban people with limited daily mobility needs and palliates the lack of public transport for punctual needs. Public transport does not respond to everyone's needs for transportation even though the customers are mainly urban. As explained by the executive:

“We have a large array of vehicles that can be used for various activities. Most often our customers use public transport and we do have a lot of customers that dropped their private cars for the benefit of public transport. However, public transport is imperfect and often very uncompetitive

pricewise, especially when you travel far or have a family, Citiz is therefore there to offer an alternative when needed, helping people to drop their cars!”

Internal Environment

The SME is owned by a large conglomerate and supported by state incentives which have allowed the company to absorb eight years of losses without going bankrupt. According to a Citiz employee, when innovating the business model, automakers must be prepared to face a long period of losses because the adoption rate of new mobility solutions is slow. Profitability is a barrier to services, making financial backup vital to cope with the first years of losses. However, once the customers are conquered the fidelity rate is high and marked by a good retention rate over time.

Born before the democratisation of digital technologies, integrated digital solutions were not an issue at first. Nevertheless, the newer generations of customers are willing to have fully transparent experiences. Developing the software and connecting it with the hardware was a complicated task for the small teams. Indeed, Citiz was unable to employ an informatic engineer full-time for punctual needs, meaning that it had to outsource the development and maintenance of the digital portal and the app. This was done in collaboration with Citiz’s owner which has its IT department. According to a respondent, the main issues with this organisational structure can be a lack of communication, leading the team to be uneasy with the changing system or the slow responsiveness in case of system failure.

Due to the novelty of the concept and the legal status of the company with limited profits, management teams find it difficult to attract and retain talent. The company cannot afford competitive salaries and tried to compensate with others' benefits, however, a respondent assumed that the company is not as attractive as traditional automakers which are still widely viewed as prestigious employers.

External environment

The company must deal with a French consumer base. This has direct consequences on its way of doing business. According to an employee:

“Our service works well because of the political and cultural mix in which urban people live nowadays. Indeed, our concept began in Lille, the

surroundings of the city are poorly deserved by public transport especially if you decide to travel far from a big city, but the city is fine.”[...]“When we began people were not ready to drop their cars, but with the “Yellow Jacket movement”, the drop in living conditions and the raising awareness for global warming, our customers are now ready to consider us as a real alternative to private vehicles”

The acceptance rate of new transportation alternatives is therefore rather slow and dependent on external factors such as political environment, societal beliefs, economic variables, and climate change awareness.

The legal environment was a great factor in the success when setting up the business. Indeed, as explained by the Lille office’s director, there was no legal framework in France around carpooling. The company then had to work with the local authority and the municipality to design the regulation around the practice of carpooling, especially the requirement for adapted parking slots and liability in case of accidents.

“The municipality of Lille decided that outdoor parking lots would be attributed after a formal public call for tender, in which the notion of public benefit was central. Profit-oriented firms have therefore a disadvantage and struggle to obtain free parking lots for their cars, making them uncompetitive”.

Citiz works with partners, notably to offer services that they cannot internalise like insurance packages, fuel, or a hotline around the clock. Those services are additional to the carsharing and require proper competencies, investment, or resources, they are therefore additional services that come to completing the original business model. Even though Citiz tries to internalise as many activities as possible to have better control over its operation, working with partners allows them to enlarge the array of services while keeping the costs down. Moreover, partners can compensate for a lack of competencies or know-how. Citiz’s website and app have been developed externally due to a lack of internal knowledge.

Citiz works with traditional automakers' notably as suppliers for its vehicles, indeed, the firm is not willing to build it nor has the resources for it. In subsequent interviews, we discussed their relationship with servitization in the French market which is still very

nascent. Traditional automakers tried to offer an alternative to traditional ownership in reaction to a new customer's demand, but none managed to impose its model on the market.

For Citiz this is primarily because of the rentability problem, sharing a car is highly operation intensive as it implies a lot of transport maintenance and servicing. To be profitable, the service needs to be highly utilised, which implies having a large customer base or a high average basket. Traditional automakers need to develop their own network and ties with cities but even when doing so, most attempts end up in failure. As a Citiz executive told us about the Boloré group:

“When Autolib began in Paris, it was subsidised by the municipality but after two or three years into the business, it went bankrupt and asked the public authority to put 120 million euros into the venture. The municipality refused [...] the company turned off the lights. The cost of operating shared electric cars was at the time high, moreover, Boloré developed its vehicle just for the project and never managed to get its investment back because the volume of the vehicle produced was simply too small. On top of that, the project happened to be at a time when global warming was not a concern as large as today and people paid very little care to the car because they were not there, leading to a high servicing cost.”

They offer an online platform but also a physical agency, allowing customers of every age to enjoy the services. Indeed, a service too integrated digitally has been highlighted as a potential barrier to touching a large population:

“We offer a non-digital service along with our app because a lot of elderly people do not have access to a smartphone [...] a lot of people still come to our agency or rent a car through the phone”.

4.4 Virtuo

Business model

Virtuo is a French start-up based in Paris with a business model focused on on-demand cars. With the emergence of Uberization, Virtuo saw an opportunity to disrupt the traditional car rental system by offering one-click car rental in major cities with a

maximum waiting time of two hours. The firm did not change its business model over time and is consistently applying the same recipe. The ultimate target of the brand is to completely replace the car ownership scheme with a more flexible and environmentally friendly alternative, without necessarily lowering its customer average spending on transportation. Presently, the company has established partnerships with prominent automakers in the industry. This arrangement, where automakers entrust the implementation of their new business model to start-ups or small and medium-sized enterprises, is considered a distinctive characteristic within the automotive industry. As explained by a Virtuo employee:

“Traditional automakers are falling behind when it comes to innovation. The industry can appear as one of the most innovative and perpetually changing but the reality is that except for Tesla’s electric cars that set a new tempo, there has not been any disruption since the end of WWII. With Virtuo, we want to revolutionise the relationship between cars and people, because we believe our generation will expect more from the industry.”

Servitized business model tends to rest a lot on suppliers, Virtuo utilised suppliers for insurances, and car servicing but tried to internalise most of its activities to stay cost-efficient.

Internal Environment

Virtuo’s main barrier setting up its model was financial. Although the start-up has been founded by successful entrepreneurs, finding the financing to develop the model without a prior record of similar business model was difficult. Moreover, finding the human resources necessary to develop tech solutions has been highlighted as a possible barrier to servitized business models. As explained during the interview:

“The first wave of funding was quite simple and was enough to employ an IT team, purchase the vehicle and the hardware as well as cover a first year of activity. The problem came in the following round, some investors began to worry about the high level of debt although we had a good cash flow and growth perspective. In the end, we managed to find enough investors to pursue the venture but that could have been the end of our adventure. [...] without

contact and the investors' confidence that must have been impossible, it's simply required too much capital..."

Internally, Virtuo encounters major IT and hardware problems related to the development of its integrated solution. Indeed, the company had to develop a system directly connected to the car software and therefore compatible. At first, the system was unreliable because it was prone to disconnection that would turn off the car. For safety reasons, the first fifty cars were driven every day for months by test drivers to collect data on the integrated system, representing a high cost for the company.

External Environment

Virtuo began with two realisations, the average age of the car buyer is high, and younger generations are not considering cars as much as their parents. The company targets urban high middle-class to rich customers living in populous congested large urban areas. This repartition is mainly due to the high costs of operating that must be flattened on a large consumer base. Moreover, dense cities offer short distances between car compounds and customers reducing the cost of transport and the operation cost overall.

Younger generations seem to be more inclined to adopt Virtuo than others, indeed for one of the respondents, the concept of Virtuo has evolved due to their own observations. The young Parisians do not have a car and do not want to get one because of the utilisation of public transport. The need for a car for the millennium living in major urban centres is punctual only and is not worth the commitment of buying one. Virtuo aims to fill this gap. As expressed by one of the founders:

"When I lived in the US, I realised that I never needed a car in Paris, [...] the average age of their (a German carmaker) customers is above 50, they will have to reinvent themselves if they want to survive".

The French legal environment is favourable to start-ups, this is a clear driver of implementing more services in the automotive industry. As the industry is a major employer and has a great impact on the country's economy it benefits from goods incentives. Moreover, the state tried to create the *Start-ups' Nation* to help entrepreneurs to develop their own businesses. The state offers tax reductions on the first years in business as well as incentives to employ people by reducing the employer charges, two

years of unemployment protection allow entrepreneurs to make a living out of a yet unprofitable company. In addition, multiple competencies are offered by the Chamber of Commerce to help small businesses to grow.

“Once you figure your way in the bureaucratic maze, plenty of measures are taken to help people create their own business, even if the tax burden is high at last you (entrepreneur) are quite helped to create and export your business”

Exporting servitized business models need more adaptation to local taste than exporting a mere product. This is because the customer experience is built around contact rather than measurable specifications. The company was looking to internationalise its business model and started in London due to the personnel connection of the executive teams with the place.

“We wanted to export the concept from the beginning but were limited by a lack of resources. We were unsure if it would take off abroad because of local tastes. For example, we knew the German market would be the hardest to penetrate because Germans have a special relationship with their car, they have higher standards we must be extra careful”

Although the brand proposes the same services over all its market, the products around which those take place are different. For example, in Spain Virtuo proposes small thermic hatchbacks while in Germany it has mainly EVs with the highest features.

4.5 Renault

Although Renault declined an interview demand for the French market, the firm has been willing to provide us with pieces of information about its contribution toward a more services-oriented industry.

Renault is a French automaker, best known for manufacturing small hatchbacks and city cars at low prices with a brand image built around a notion of family and sharing. Since its creation in 1899, Renault has tried to be the car of the people, a French counterpart to the German Volkswagen. The business model of Renault has been typical of an

automotive manufacturer until recently, selling products with some discreet add-on services like servicing or leasing, nevertheless, the firm is innovating its business model.

Indeed, Renault is currently trying to develop its shared mobility solution focusing on small electric vehicles, Renault Motability. The service allegedly aims to reduce the “burden of ownership”, providing short-term renting, carpooling, and car sharing solutions. The business motivations beneath are not disclosed, but the brand markets itself as the provider of a green and sustainable mobility provider, and “not just a manufacturer”. The service, focused on electric cars, should offer the possibility to rent a vehicle for as short as an hour and offers a solution integrating insurance, servicing, maintenance, and setting the charging point for a given price. Finally, by subscribing to Renault Motability, the customer should be able to rent vehicles from private individuals on a car-pooling base.

The challenges raised by the solution are multiple, a legal framework for the usage of public parking lots must be designed with the local authority. Renault managed to sign free parking zone agreements with some localities in France, Netherlands, and Spain in exchange for public benefit. As stated in the document, the rentability of the model is not guaranteed and will be one of the largest barriers to the project to last. Nevertheless, the services are costly to develop and often the fruit of a collaboration between the brand and municipalities as it requires defining a legal ground for using the chargers and other public infrastructures. It is worth noticing that Mercedes was at the beginning part of the Motability offer before quitting due to a shortage of available cars.

The services offered by the firm are perceived as an add-on to their traditional business model, which is still product oriented.

4.6 Company 3

Business model

Company 3 has a business model on three axes. It has been active in Europe for a short period of time only, although it was active in China previously. It promotes a subscription-based offer, replacing the traditional leasing scheme, it allows the customer to have a car without down payment and engagement. Secondly, the car comes with a sharing app, which permits private to private carpooling. Thirdly the company also offers a traditional automakers proposition with premium cutting-edge technology and design.

The company currently operates in Europe and China. The company slightly changed its business model over time to propose a more traditional offer too, where customers buy the car as any traditional automaker. This shift has been induced by financial results and customer demand. This servitized business model is the consequence of marketing decisions and an assumed choice from the board to reduce the customer's commitment. The strategy aims to increase the adoption rate of new market actors, which in the durable goods market, tends to be oriented toward security.

Internal Environment

The company externalised a large part of its activity's notability for cost and adaptability reasons along with a lack of expertise in certain areas. The operations are standing on suppliers ranging from transportation to legal advisory activities. Automakers rely heavily on suppliers; in the industry they are often taking the role of assembler rather than producer. For servitizing a business model, it is often easier to delegate the task to the supplier and keep the organisation of the operation in-house. Indeed, as described by an interviewee:

“It is often easier to go through with suppliers rather than setting up our operations ourselves. [...] (transportation activities) require a lot of volume to be profitable and if you cannot ensure a certain volume of delivery it does not make sense to make the investment in the machine and the human resources. [...] It's always a question of cost-benefit but in a period of change you tend to favour adaptability”.

For Company 3, servitization is a part of its expansion and development strategy. Indeed, proposing services is not viewed as a way to generate profit, but to generate cash flow, and improve brand awareness. By taking the ownership away, the firm expects to improve its brand image and ultimately drive traditional sales that are financially more certain. Subscription models are hard to make profitable because as explained by an interviewee:

“The rentability of a subscription model is quite hard to assess as it will depend on the length for which the customer will rent the car for, [...] we have few visibilities on how long our customer will stay with us but we expect some to buy the car or lease it”

Moreover, the subscription model is becoming increasingly common, the prices are tight, and the margin is low. As in the case of traditional leasing, the company also must deal with the residual value of the car which enhances the uncertainty and complexifies the operation. In sum, for Company 3, servitization is driven by strategic and marketing decisions rather than financial incentives.

Setting up the carpooling services implies developing dedicated software interlinking the car and the digital interface. The resources necessary to the development of integrated services can be underestimated, which in the case of Company 3 led to a temporary reduction of the service offer. Moreover, respondents underlined that digital interfaces linking cars and users are complex to design which complexifies the recruitment process for the IT department. Indeed, in the European automotive industry, few candidates are at ease with their technical skills or have experience.

External Environment

The company evolved in an international environment and offered its services across seven different markets, its external environment is therefore varied, whereas the following part will focus on the Swedish and French markets. The automotive industry is a mature and competitive one. The demand is not increasing much in Europe while the number of manufacturers is growing, especially with the entrance of new players from China. To differentiate itself from the concurrent business, the firm proposes a new business model that can help create a frenzy around a brand. This is the main reason why Company 3 decided to enter the European market with a servitized business model. Moreover, servitized business models are argued by the interviewees to be perceived as more sustainable by the customers than traditional manufacturers. This perspective aims to mitigate any potential negative associations that the brand image of a company could have in Europe based on its country of origin.

The infrastructure and geographical distribution of the country are amongst the main factors of success for a servitized business model in the automotive industry. Indeed, such business models are highly resource intensive, especially transport-wise, therefore distances can greatly impact the costs. As exposed by an interviewee:

“A subscription model imposes [...] a lot of back and forth, some customers will just use the car for a month or two.” “We would need nearly an infinite number of physical touch points if we were to provide a true on-demand (brand name) experience. To do that we have to train our supplier driver to our standard.”

The geography of the country plays a central role in the profitability of servitized business models, driving companies to adapt their offer depending on the location of the end customers. Therefore, servitized business models in the automotive industry have to be understood in a geographical context. In addition, because of the predominance of transport services and the emergence of EVs, one cannot ignore the importance of road and charging infrastructure as a key factor of success. When asked about the geographical repartition of the customers an interviewee exposed the problem as follows:

“In Sweden and in France we had to restrain our service offer to densely populated areas, in the empty diagonal or in northern Sweden we cannot offer home delivery or wherever you want delivery, it's not profitable.”

“Most of our customers live in cities, the supercharger networks are better which makes the use of EVs easier”.

Differences in national law are at risk for servitized business models because of the operation's complexity which is likely to generate legal issues. Those issues can be related to the ownership situation, as well as being purely bureaucratic like registration of new models. With international business perspective situations driven by a servitized business model can seem distant as they are inscribed into local environments. An example given by the respondent is the challenges raised by carsharing which do not have a defined legal framework everywhere in Europe. To overcome these challenges, the company had to consult advisor partners for expertise when internationalising. In addition, car manufacturers can have a special legal status which can complicate administrative procedures. For Company 3, the legal complications did not have a direct impact on their service offers, nor were they a barrier to their business model. Being a traditional car manufacturer too, the company must consider local subsidies before entering a new country, indeed, some products are subject to additional pollution compensation taxes, or subsidies for being clean, making their products uncompetitive in some markets.

4.7 Summary of the results

Table 4 below summarises the empirical findings and thus provides a basis for the analysis chapter. As viewed in Table 4, the traditional manufacturers engage in servitization with a product-oriented approach, while the new innovative entrants have adopted a user-oriented strategy. The most common external driver, mentioned by almost all companies, is customer demand, while infrastructure and geo-demography are viewed as a great barrier. Further, branding and strategy emerge as the primary internal motivators for altering the business model, whereas investments and resistance to altering the brand image are perceived as frequent obstacles.

	Company 1	Company 2	Citiz	Virtuo	Company 3	Renault	
Established	Early 1900s	Early 1900s	2002	2016	2016	1899	
Country	Sweden	Sweden	France	France	Sweden & France	France	
Level of servitization	Product-oriented	Product-oriented	User-oriented	User-oriented	User-oriented	Product oriented / User-oriented	
Involvement of suppliers	Yes	Yes	Yes	Yes	Yes	Yes	
Internal Environment	Drivers	-Differentiation -Deeper integration with customers	- Differentiation -Increase market share -Strengthen customer relationship	-Ownership situation - Juridic stance	-Profit -Altering the market -Experience with servitization	-Strategy marketing -Profits	-Strategy & marketing -New revenue streams -Enlarging the mobility offer -Sustainable value
	Barriers	-Develop new capabilities -Finance -Quality consistency -Assessing the value	-Shift in mindset -Ensuring alignment -Finance -Company culture -Misalignment with the brand image	-Finance -Human resources	-Development of IT -Hardware	-Finance -Rentability -International regulation	-Cost -Rentability -Human resources -Stocks
External Environment	Drivers	-Regulations -Customer demand -Digitalisation -Macroeconomic	-Financial incentives -Customer demand -Digitalisation -Safety	-Customer demand -Discrepancy in public transport offer	-Lack of competitors -Customer demand - Technology	-Competitive landscape -Customer reticence toward new brand	-Municipality -Customer demand -Taxes incentives
	Barriers	-Customer habit -Repartition of the population -Brand image	-Infrastructure -Cost	-Digitalisation -Legal -Infrastructure	-Infrastructure -Geo-demography	-Infrastructure -Legal & political -Geo-demography	-Infrastructure -Geo-demography

Table 4. Summary of the findings, compiled by the authors

5. ANALYSIS

5.1 Servitization in the automotive industry

Servitization has been an opportunity to strategically compete in the automotive industry and has become an important dimension for companies to sustain competitiveness (Baines et al., 2009a). The firms have utilised servitization to create value via added services, aiming to meet evolving customer demands. This strategy is now an integral part of the industry's stagnant business model, which confirms the existing literature (Vandermerwe & Rada, 1988; Robinson et al. 2002; Ren & Gregory 2007). The industry is significantly drifting to a service-oriented one, though the mean and the extent vary amongst segments. Fostered by the concurrence of the customers and its environment, the redefinition of the ownership paradigm appears to be central to this transition, pushing automakers' business model to integrate the notion of mobility-as-a-service (Lenz & Friedrich, 2016).

Firms are expected to do more than sell cars, they must provide financial services to lever entry fees, ensure servicing, connect their product with the digital world, and review urban mobilities. This disruptive period allows new market entrants, and increased cash flow, while not directly affecting the traditional revenue streams of manufacturers. Yet, start-ups and suppliers with a proactive approach are creating new business models around this transition, capturing the additional revenue streams without the production constraints. These business models are completely services-oriented, relying on human resources to meet the evolving urban demand for MaaS with a user-centric approach. Traditional automakers have been reactive and reluctant to implement changes, adopting a product-centrist approach with additional services (Teece, 2010; Kamal et al., 2020). This leads to the coexistence of two simultaneous business models, with one focused on cars and the other on mobility. Interestingly, one new automaker has had to drift away from its services-oriented approach to the same dual approach former actor's bear.

External factors contribute mainly to business model transformations (Demil & Lecocq, 2010; Genzlinger et al. 2020), yet internal factors play a significant role as a limiter. In fact, external factors are driving the industry to be greener and more adaptive to the new hyper-urban lifestyle, while premium brands are moved by specs, heritage, and social

distinction. Naturally, they are more sceptical toward servitization which will ultimately reduce the number of cars produced. Although, whether their inability to capture added value flows from this attitude is impossible to assess with the data, though it could be done by peeling financial reports. Renault displays more enthusiasm toward MaaS. The firm's popular positioning, focusing on product usage rather than its specificities, makes its business model less conflictual with the idea of mobilities.

The servitization paradox

The servitization paradox has been confirmed by our respondents (Benedettini et al, 2015; Crozet & Millet, 2017). Firms tend to see their profits plummet or stagnate while their expenses surge when engaging toward servitization, explaining why automakers keep a product-oriented approach. The cost of new services adds to the already high cost of products, without capturing the extra-cash flow. Luoto et al. 's (2017) and Brax et al.'s (2021) assumption that a higher degree of servitization will strengthen the financial performance of manufacturing firms, has not been verified in this paper but could be true because this degree leads to a greater value. In the automotive industry, the servitization paradox may arise due to the manufacturer's incapacity to integrate the new value propositions, or because the associated cost of integrated solutions exceeds what customers are willing to pay.

Small ventures have not been subjected to this effect, yet they are not engaged in car production. Thereby, their business model represents innovation on an industry level by developing a service-oriented business model with low fixed costs. Premium positioning seems to bring revenue quicker than mid-positioning, which could explain Virtuo's success. Nonetheless, those results are not confirming the applicability of the servitization paradox for historical firms, since the research of financial profit is not the only incentive for them to develop their range of services. Once again, the gradual and blurry nature of the servitization concept makes it impossible to determine which degree of servitization is prone to the servitization paradox, as predicted by Benedettini et al., (2015). New entrants' flexibility is a determining criterion to capture services revenue and balance them with limited costs (Bohnsack et al., 2014).

Strategic Pivot

The results claimed three distinctive methods to achieve servitization: strategic pivot, incremental approach, or newborns, contradicting the literature (Cusumano et al., 2015). Premium traditional firms follow an incremental approach internally and a strategic pivot via dedicated subsidiaries. Strategic pivot appears to occur in peculiar conditions when the brand image and productive activities are not threatened. Such a statement based on the denial of past activities is too polarised to appreciate the diversity of the servitization concept, leaving the literature incapable of observing slower but gradual changes, bringing nonetheless substantial evolutions to a century-old industry (Gans et al., 2019). Denying a heritage risk to cancel any past effort to create a brand image and tie with customers, which is only possible for new ventures having none of it. Moreover, a sharp change in automakers' business model would mean risking all current revenues for hypothetical ones, which would be nearly impossible and unethical considering the weight they have in their respective economies. The adaptability of strategic pivot theory to the automotive industry is therefore questionable because its resource-intensive nature prevents sharp change from happening.

Level and process of servitization

As MaaS is leading the servitization in the automotive industry Tukker's (2004) nomenclature gains in relevance. The gradualness of the scale appreciates the different degrees of servitization while allowing a categorisation of the business model. Thanks to this scale we can establish that premium automakers keep a product-oriented business model with add-on services while adopting a dual stance through subsidiaries in a risk avoidance logic. The use of subsidiaries is identified to pursue continuity of the value proposition (Alghisi & Sacconi, 2015). A similar strategy is also followed by mid-range automakers because it allows them to secure product profit while experimenting with the immature MaaS. The simultaneous pursuit of two business models through different entities is a new concept to the literature, which could be due to the supplier angles taken by previous studies.

However, the relative unprofitability of this MaaS tends to hinder in-house development, leading to widespread reliance on partnerships. Suppliers are generally more experienced in managing services and are able to capture a greater share of the value whereas producers are restricted by high costs (Raja & Frandsen, 2017). The omnipresence of

partners in the servitization process suggests that collaboration is inherent to the transition. Thanks to a limited size, new ventures end up being at the forefront of larger manufacturers' services-dominant strategy. Finally, with the near omnipresence of servitization in manufacturing and its imprecise definition, the concept's relevance can be questioned once again.

5.2. Drivers and barriers of servitization

5.2.1. Internal environment

Marketing and strategy

While the literature expects servitization to take place to increase retention metrics, the automotive industry reveals, once again its singularity (Davies, 2004). Indeed, manufacturers engage in servitization in response to new consumer demand, expecting to leverage a unique competitive advantage on the segment (Gebauer et al., 2006). Studied carmakers all see servitization as a way to create a bond with their customers, notwithstanding, the competitive advantage pursued differ. Premium brands use services to improve prestige while mid-range actors and start-ups focus on easing the ownership experience, as what begins to look like a segmentation strategy within MaaS. In addition, a consumer centrist logic displays firms' willingness to further extend their customer life cycle by overcoming the transactional nature of their manufacturing activities (Davies, 2004). Given the substantial commitment associated with car purchases and to some extent durable goods, the SDL strategy is likely to be followed by market entrants willing to decrease the ownership barrier (Baines et al., 2009a).

Add-on services have been implemented by the manufacturer willing to keep a product centrist view and to magnify the customer experience with related services, like financing options or servicing packages. The positive side effect of a customer-centric approach is the relatively better retention rate. By transforming their approach to services, firms anticipate direct revenue streams from these services, as well as a positive feedback loop where the services foster customer loyalty and drive new sales by cultivating personal attachment.

Resources limitations

Financial resources appear to be one of the most common barriers to pursuing a shift from product-dominant to service-dominant logic (Brax 2005; Lombardi et al., 2022). Indeed, the investments required to develop new capabilities are sensibly prohibitive to the prospect of small returns. The small returns of servitization are not a matter of fate but lie in the slow adoption rate (Baines et al., 2009a). As displayed by Citiz and Virtuo, firms must be resilient to face substantial losses and should not expect returns before the relationship solidifies with the customers. This makes the non-profit status as relevant as a highly capitalised start-up, imposing to the first a slow pace of development and the second committed investors. Growth pace management is crucial to maximising profit, both in terms of geographic coverage and panel of service offerings. Servitized business models appear to drive strong ties, as they lead to behavioural changes. Established companies with a strong brand and customer base face greater challenges when transitioning from a product-oriented to a service-centric mindset, as it requires the customer to integrate new norms and behaviours associated with MaaS. This shift in mindset can be met with resistance, particularly among customers who have long-standing relationships with status brands.

For new firms, the lack of knowledge or technical capacity is vanquished thanks to suppliers, which underlines the networks importance. Since small firms and start-ups depict success with limited financial and human resources, resource limitation does not seem to be a central barrier to the new paradigm. Thereby, suppliers can compensate automakers' limited resources but risk not capturing additional revenues (Visnjic & Van Looy, 2014).

Heritage and brand image

The literature body and the respondents agreed that managerial attitude and resistance to change are identified to be considerable barriers to servitization, because of a reluctance to conflict with organisational culture and brand image (Kamal et al., 2020; Lombardi et al., 2022). Historic manufacturers are afraid to betray their heritage, increasing the add-on services instead of reviewing their brand image to match the SDL. Managers misunderstanding SDL and the potential threats for automakers business, struggle to switch their mindset from selling products to services, as well as aligning all stakeholders in the same direction (Baines et al. 2009a; Martinez et al., 2010).

Nevertheless, traditional automakers' executives are not ignoring the need for a paradigm change, since all are engaging in the path, yet they fumble on the strategy to adopt. The more reluctant approaches are to introduce the mobility concept to its core buyer on the most advanced markets while maximising the utilisation of suppliers through subsidy. Doing so un-able the brand to capture any potential added value. There is a strong divergence on how to pursue SDL, on the one hand, historical manufacturers rather servitize through partners and subsidiaries to protect their original branding, and on the other hand, the absence of a strong heritage allows new market actors to innovate their core business model to answer the need for new mobilities. This view has also sustained small companies, claiming to be experimenting with external servitization strategies for traditional manufacturers reluctant to absorb extensive losses and expose their brand image.

5.2.2. External environment

Political and institutional environment

In theory, politics have the power to change a legal framework to privilege or forbid some practices, having an impact on business (Henisz & Delios, 2000; Buckley et al., 2018). Designing a legal framework for parking sharing and carpooling, Citiz had to discuss with politicians and institutions to oversee the practice, highlighting the lack of legal framework surrendering car-pooling and to some extent mobilities. For new mobilities and services, the national and local levels of political decision appear to both have a direct impact on the automotive industry, albeit the local level might be more decisive for the service offerings. Undeniably, national levels will have a repercussion on automakers servitization to a broader extent, accelerating or breaking the transition by following ideological goals (Dicken, 2011; Buckley et al., 2018). However, as observed in the Swedish market, it will mainly be about the car specification or the country's infrastructure rather than the process of servicing itself (Dixon & Rimmer, 2010).

Carpooling and car-sharing initiatives are pushed by local governments and communities to improve the mobility offered in their cities. Although the country's infrastructure is accountable for the success of some services (energy supply, digitalisation etc), local governments have more leverage than states on the ones affecting servitization. Moreover, such services are allegedly part of a certain conception of urban design. This

perception of the role that the automotive industry will play in future urban mobility is undoubtedly dependent on the country, though the study has not found sensible differences between Sweden and France on that stance. This could be attributed to both being part of the European Union and being a Western country, offering a common framework in order to facilitate new innovative companies entering the market (Manca et al., 2011; Kirca et al., 2012; Akyelken et al., 2018; Lee et al., 2021). Further, limited-profit companies aiming for public benefit are more likely to obtain the favour of politicians than a traditional firm. Undoubtedly, this form of companies is advantageous when innovating in a not-yet profitable business model (Akyelken et al., 2018). Government support for sustainable measures and specifically new mobility is thus a great driver for servitization.

Technology and digitalisation

The appearance of Maas has been feasible by digital development. Since the charging network must be connected to the customer, it is arguably supporting the enlargement of the EVs market. Whereas the industry has always been a technological showcase without questioning its business model, the emergence of digitalisation has been a sweeping change pushing restructuration, maximising the competition, and the number of new entries (Llopis-Albert et al., 2021). The value added by servitization has been captured by both suppliers and traditional automakers, although suppliers have much more benefit from the transition. Because of reluctant managerial strategies, traditional automakers have been hesitant to invest in digitalisation, failing to leverage the full potential of the technology (Kohtamäki et al., 2020; Tortorella et al, 2023).

The technological environment must be viewed in a temporal and geographical context (Dahmen, 1988), which for our respondent appears to be sensibly similar between France and Sweden. The technological environment is driving servitization, although, the principal difference was about the charging network development, which is more extended in Sweden. This stems from political choices and market attractiveness rather than the technological development of the countries. In addition, the shortage of qualified workforce within IT is reducing firms' abilities to integrate their product in a software network, although the survey underlines an industry tendency rather than a country-based difference.

Car manufacturers displayed their capacity to evolve and modify their environment by building and commercialising their own charging networks, nonetheless, authorities are still needed to fix market failures. Thanks to their revenue streaming from products, their financial capacity might make them indispensable suppliers to the servitization transformation. Nonetheless, this activity is highly country-dependent because it relies on market attractiveness as well as, the previous ties between the companies and the authorities e.g., Renault developed a charging offer in France, but not in Sweden.

Prior technological advancements in the car industry and smartphones wide spreading paved the way for new mobility services (Mahut et al., 2017; Rodriguez et al., 2019). The increasing accessibility of the transportation market is evident as users now have the option to forego the high costs associated with car ownership by utilising technological solutions. When examining the Swedish and French markets, there are no notable disparities in terms of technology accessibility, however, Citiz highlighted technology-culture entanglement arguing that older French were not as equipped with smartphones as their Swedish counterparts. Too high-tech services could be a barrier to servitization if it is not understood in a wider cultural context. For all companies under investigation, digitalisation has played a pivotal role in enabling expansion in their range of value-added services and solutions, catering to the changing demands of their customers.

Economy, geography, and infrastructure

The macroeconomic difference between countries has a consequential impact on firms' businesses. Indeed, variables like GDP per capita, population age, density, or size can determine a business's success. Sweden and France both enjoy the same stage of technological development, have direct sea access, are industrial nations, and are part of the Schengen treaty, leading to a comparable macro-economic environment. According to the respondents, the average income is slightly higher in Sweden and the road infrastructure is better in France, impacting respectively sales and related logistic costs.

The competitive environment in a country is another factor influencing the adoption of servitized business model, as it will pursue companies to adopt SDL in their offerings (Hou & Robinson, 2006). As perceived by the respondents, enterprises in both markets recognize competition as a driving force. Hence, they stressed the significance of

differentiation to stand out of the competition and emphasised the importance of increasing market shares as a key objective.

Although the automotive industry servitization process can appear similar between France and Sweden, there are salient divergences shaping the industry's landscape. First, companies in the Swedish market noted the small size of the population, making services-scaling more complex, thus less attractive to servitization. This accounts for the impossibility of offshore service-linked labour, which tends to reinforce the importance of the country's environment for the sector. All firms have agreed that a high density of population is a prerequisite to servitization in the automotive industry since it scales services costs and reduces the relative logistic burden. Automotive's SDL is highly logistic intensive, the country's geo-demography and infrastructure level are salient factors of a servitized business model success (Akyelken et al., 2018; Hernandez et al., 2021; Lee et al., 2021; Hartl & Hoftmann, 2022). Infrastructures tend to drive consumption patterns, indeed according to Company 3, Swedes are more inclined to purchase EVs than the French, because of the developed supercharging network. This demonstrates the entanglement of infrastructure and consumer culture.

Culture and society

Culture is a country differentiator affecting customers' sensibility to change and innovation, thus adoption rates (Buckley et al., 2018; Waarts & Van Everdingen, 2005). The Western culture is known to be prone to adopt innovation, but Swedes are specifically early adopters, making the country a competitive market for testing innovative solutions (Jones et al., 2020). Both French start-ups have successfully implemented servitization, yielding favourable outcomes, which refrain from drawing any significant variation of attitude between both markets.

Changes in customer demand, particularly the questioning of ownership, is a significant driver for the adoption of servitization in the automotive industry. The urban demand is shifting away from the traditional vehicle ownership model, motivated by sustainability, underutilisation of vehicles, the associated cost, and a diminishing perception of cars as symbols of status (Rodriguez et al., 2019). Four out of the six firms have aligned their offerings in that direction, driven by a desire to cultivate a more environmentally friendly brand image. Swedes have a more conservative statutory approach to their car which

negatively impacts the expansion of MaaS. Evidence shows the opposite for Frenchs who are more likely to give up ownership for convenience. However, the survey displayed a cultural difference, with Frenchs favouring the “whenever-you-want” aspect, and Swedes the financial one. Therefore, there is a notable contrast in the perception of ownership between the two markets.

6. CONCLUSION

The dual nature of servitization in the automotive industry demands traditional automakers' interest as they might face, in the near future, the consequences of poor investments. With politics and institutions pushing for greener transportation in both France and Sweden, the ownership model will inevitably give room for novel mobility. Small adventurous start-ups menace to pierce through an undervalued market and outperform former actors. Although there is awareness of this shift, large organisations tend to move at a slower pace, potentially missing out on the wave of change. Yet, the magnitude of the phenomenon will determine whether newcomers have overestimated the speed, risking resource exhaustion when the time has come. Nevertheless, one should not overestimate the magnitude of servitization either. Because services have more variable costs than products, scaling is only possible in metropolis areas with a high concentration of population and infrastructure. Given that France has more metropolises than Sweden, servitization is more likely to sprawl faster and further there.

For the car industry to drastically reshape mobility in the coming years, politically stable countries with a sustainable agenda are a prerequisite, because of both legislation and infrastructure. Politics play a central role in MaaS, filling the market imperfections with legislation or fostering greener mobilities, notability unprofitable but publicly beneficial matters. In the long run, public investments might allow servitization in rural areas which is unprofitable for private actors. France and Sweden are then expected to transition at a similar pace since they both ruled under the European Union and have high levels of public spending. Consequently, we can expect a service-oriented shift to be costly and take place mainly in the developed regions. With Western markets at maturity, automakers could find more profitable ways to pursue their traditional product-oriented business model in the developing world where growth figures are more important. The product will still be salient even in a service-oriented business model, yet we can expect car dealerships to be the most impacted, whose business could be cut off by giving away ownership.

With very few signs that revenue of servitization is captured by automakers, the beneficiaries are undoubtedly the suppliers, which could drain an industry's

depolarisation away from large firms, opening large opportunities for new entrants with limited costs as we saw with start-ups flourishing. Traditional manufacturers could try to secure their profit by integrating their supply chain and then, improve cost efficiency and control. Yet, resource limitation is largely exceeded in criticality by managerial attitude, reluctant to abandon their main sources of revenue, although this is related to the headquarters location rather than the host country. Still, with the rise of EVs, the service-dominant approach will be needed to be competitive with their combustion engine counterparts. The driver and the charging network must be connected in real-time to be consistent with past offers. Regarding the current degree of servitization in the premium segment, electrical vehicles' higher prices must be tackled by financing options.

Servitization describes an incremental transition happening in every industry. A greater definition of the concept's boundaries would allow a greater perception of its amplitude, supporting both researchers and managers in their understanding of the industry forces. The current nomenclature is too polar, lacking graduation to improve accuracy. The different steps of MaaS are pertinent base indicators for the automotive sector. Indeed, the concept describes a transition from a traditional ownership model to shared mobilities including public transport, inscribing the car in a greater mobility scheme. Coupled with digital integration, those two components shall be able to capture servitization in the automotive industry and allow comparison in and out of the sector. Nevertheless, Swedes being more at ease than French with digital technologies, MaaS transition could be quicker in the north. The inherent durability of the product means we cannot expect major changes to occur within a few years, making a gradual approach more realistic. In Sweden, cars are much more sign of social status than in France, but the weakness of the relationship difference makes it too trivial to foresee the countries' SDL adoption rate.

Ultimately and to answer the research question, quantifying servitization drivers and barriers between France and Sweden would be hardly pertinent. Both countries have relatively similar external environments with rather subtle differences. However, understanding the industry forces on the SDL is key to apprehending the phenomenon and being ahead of tomorrow's market dynamics.

6.1 Theoretical contributions

The literature body on servitization is more than developed, yet the automotive industry is mainly left unstudied, and few do focus on suppliers. Our paper is the first to approach the subject with a dual supplier automaker angle, bringing an all-new perspective to the concept. Indeed, we have been able to highlight the supplier-manufacturer dynamic. By pursuing servitization, manufacturers create a cash flow then captured by suppliers, without absorbing significant revenue. Our cross-country approach is amongst the first to bear an international contextualisation, permitting us to distinguish the environmental effects from the industry tendencies.

The firm's internal environment has a mid-importance in servitization. Our findings highlight the SDL as universally understood and followed by the industry within the countries we have investigated, which negates some of the theory. Nevertheless, we were able to confirm some theoretical points, notably concerning the positive correlation between the managers' attitudes and the degree of servitization. Moreover, we discovered that in an international context, the location of the headquarters matters more than the local environment in influencing servitization policies.

The external environment implications in servitization are our greatest findings. Fundamentally the automotive industry cannot be appreciated as any other because of the durability and the sentimental relationship customers have with their cars. Indeed, we have emphasised the importance of demand, geo-demographic, and politico-institutional variables in automotive SDL success. We can then prospect our work to have theoretical implications outside of the two investigated countries. Immature markets could be less sensitive to servitization because the lower ownership burden would not drive the same demand. Countries with unstable governments, weaker institutions or following environmentally unsustainable politics are expected to be less successful in servitization.

Ultimately, we discussed the relevance of the servitization concept and its applicability to the automotive industry. Servitization is defined as a shift from a product-oriented to a services-oriented industry. Albeit, many have tried to offer a consistent categorisation, allowing one to grasp a certain degree of servitization, the concept itself is too broad to effectively describe the tendency. This inaccuracy has two critical implications, first, it

hinders quantitative studies, leaving the field near exempt from them. Secondly, it is nearly indistinguishable from other fields of study like digitalisation.

6.2 Managerial implications

With limited growth opportunities in mature markets, servitization will soon be crucial to maintain profit in Western markets. Managers must be aware of the demand disparity, outstanding in cities due to a greater ownership burden. Fortunately, allowing scaling on logistics, cities are more profitable to servitized and must retain managers' attention. Local managers must bear in mind the potential stakeholders' reticence to change their mindset from a product to a service-oriented one, arguing that convenience is steadily taking over a product's characteristics. This tendency risks being accentuated by the popularisation of electric vehicles, inherently more services-intensive to operate. Hence, we advise recruiters to hold an inclusive policy for marketing and strategy posts to bring in industry outsiders and moderate the car perception within the firm.

For companies to benefit from transitioning to a service centrist logic, they must integrate service activities into their core business. Firms must invest the necessary resources to gain the required competencies to then capture value otherwise lost to suppliers. One could recommend large automakers acquire a part of their supply chain, speeding up their transition while avoiding concurrent to externalise. In addition, they should weigh the importance of servitization with their actual business model to adopt the right speed of development without over or under-committing.

6.3 Limitations and recommendations for future research

Although the thesis has made theoretical contributions and highlighted managerial implications, it is crucial to recognise its inherent limitations. Expanding the scope to include a larger number of companies would likely result in a broader and more generalisable analysis. In that sense, the authors would recommend studying the United States, China, Germany, and South-East Asian countries, for their unique environments and relationship to car ownership. Similarly, focusing on a typology of firms, such as car-pooling companies, would have provided a more in-depth exploration of the environment, removing the business model influence. Given the changes in customer demand are the

primary drivers for transformation, delving into customers' motivations will extend our understanding of the phenomenon.

Mobilities are part of the larger sustainability concept which increasingly attracts scholars' interest. The automotive industry being the first emitter of the transportation sector, is itself the primary source of pollution in developed economies, the concept of servitization should gain scholarly interest within sustainability, transportation, or greening industries. In addition, the spread of servitization is driven by changing consumer demand and tends to display a transformation of ownership importance. This topic would be worth investigating from a behavioural and societal point of view.

References

- Abraham, H., Lee, C., Brady, S., Fitzgerald, C., Mehler, B., Reimer, B. and Coughlin, J.F. (2017) 'Autonomous vehicles, trust, and driving alternatives: a survey of consumer preferences', in Transportation Research Board 96th Annual Meeting, Washington, DC, January, p.812.
- Abrahamsson, J., Boter, H., & Vanyushyn, V. (2019). Business model innovation of international new ventures: An empirical study in a Swedish context. *Journal of International Entrepreneurship*, 17, 75-102.
- Akyelken, N., Givoni, M., Salo, M., Plepys, A., Judl, J., Anderton, K., & Koskela, S. (2018). The importance of institutions and policy settings for car sharing – Evidence from the UK, Israel, Sweden and Finland. *European Journal of Transport and Infrastructure Research*, 18(4), 340.
- Alghisi, A., & Saccani, N. (2015). Internal and external alignment in the servitization journey - overcoming the challenges. *Production Planning & Control*, 26(14-15), 1219-1232.
- Aminoff, A., & Hakanen, T. (2018). Implications of product centric servitization for global distribution channels of manufacturing companies. *International Journal of Physical Distribution & Logistics Management*, 48(10), 1020-1038.
- Baden-Fuller, C., & Haefliger, S. (2013). Business Models and Technological Innovation. *Long Range Planning*, 46(6), 419-426.
- Baines, T., Lightfoot, H., Benedettini, O., & Kay, J. (2009a). The servitization of manufacturing: A review of literature and reflection on future challenges. *Journal of Manufacturing Technology Management*, 20(5), 547-567.
- Baines, T., Lightfoot, H., Peppard, J., Johnson, M., Tiwari, A., Shehab, E., & Swink, M. (2009b). Towards an operations strategy for product-centric servitization. *International Journal of Operations & Production Management*, 29(5), 494-519.
- Baines, T., Ziaee Bigdeli, A., Bustinza, O.F., Shi, V.G., Baldwin, J. and Ridgway, K. (2017). Servitization: revisiting the state-of-the-art and research priorities. *International Journal of Operations & Production Management*, 37(2), pp.256–278. doi:<https://doi.org/10.1108/ijopm-06-2015-0312>.
- Bardhi, F. & Eckhardt, G.M. (2012). Access-based consumption: the case of car sharing, *Journal of Consumer Research*, 39(4), 881–898.
- Brax, S. (2005). A manufacturer becoming service provider—challenges and a paradox. *Managing Service Quality: An International Journal*, 15(2), 142-155.

Belk, R. (2014). You are what you can access: sharing and col-laborative consumption online, *Journal of Business Research*, 67 (8), 1595–1600

Bell, E., Bryman, A., & Harley, B. (2022). *Business research methods*. Oxford university press.

Benedettini, O., Neely, A. and Swink, M. (2015), “Why do servitized firms fail? A risk-based explanation”, *International Journal of Operations and Production Management*, Vol. 35 No. 6, pp. 946-979, doi: 10.1108/IJOPM-02-2014-0052.

Bohnsack, R., Pinkse, J. and Kolk, A. (2014) ‘Business models for sustainable technologies: exploring business model evolution in the case of electric vehicles’, *Research Policy*, Vol. 43, No. 2, pp.284–300.

Botsman, R. & Rogers, R. (2011). *What’s Mine is Yours: How Col-laborative Consumption is Changing the Way We Live*, London, UK, Collins.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101

Brax, S.. (2005), “A manufacturer becoming a service provider – challenges and a paradox”, *Managing Service Quality*, Vol. 15 No. 2, pp. 142-155, doi: 10.1108/09604520510585334.

Brax, S., & Visintin, F. (2017). Meta-model of servitization: The integrative profiling approach. *Industrial Marketing Management*, 60, 17-32.

Brax, S. A., Calabrese, A., Levialedi Ghiron, N., Tiburzi, L., & Grönroos, C. (2021). Explaining the servitization paradox: a configurational theory and a performance measurement framework. *International Journal of Operations & Production Management*, 41(5), 517-546.

Buckley, P.J., Enderwick, P. and Cross, A.R. (2018). *International business*. Oxford Oxford University Press.

Buberger, J., Kersten, A., Kuder, M., Eckerle, R., Weyh, T. and Thiringer, T. (2022). Total CO₂-equivalent life-cycle emissions from commercially available passenger cars. *Renewable and Sustainable Energy Reviews*, [online] 159, p.112158. doi:<https://doi.org/10.1016/j.rser.2022.112158>.

Bustinza, O.F., Vendrell-Herrero, F. and Gomes, E. (2020), “Unpacking the effect of strategic ambidexterity on performance: a cross-country comparison of MMNEs developing product-service innovation”, *International Business Review*, Vol. 29 No. 6, pp. 101569-101581.

Carlier, M.. (2023.). *EU-27: motor vehicle manufacturing employees 2014-2018*. Statista [online] Available at: <https://www.statista.com/statistics/690552/automotive-employment-branch-europe-eu/> [Accessed 27 Jan. 2023].

Chesbrough, H. (2010). Business Model Innovation: Opportunities and Barriers. *Long Range Planning*, 43(2), 354-363.

Chester Goduscheit, R., & Faullant, R. (2018). Paths toward radical service innovation in manufacturing companies—a service-dominant logic perspective. *Journal of Product Innovation Management*, 35(5), 701-719.

Clauss, T. (2017). Measuring business model innovation: conceptualization, scale development, and proof of performance. *R&d Management*, 47(3), 385-403.

Crozet, M. and Milet, E. (2017), “Should everybody be in service? The effect of servitization on manufacturing firm performance”, *Journal of Economics and Management Strategy*, Vol. 26 No. 4, pp. 820-841, doi: 10.1111/jems.12211.

Cusumano, M.A., Kahl, S.J. and Suarez, F.F. (2015), “Services, industry evolution, and the competitive strategies of product firms”, *Strategic Management Journal*, Vol. 36 No. 4, pp.559-575.

Dahmén, E. (1988). ‘Development blocks’ in industrial economics. *Scandinavian Economic History Review*, 36(1), 3-14.

Davies, A. (2004), “Moving base into high-value integrated solutions: a value stream approach”, *Industrial and Corporate Change*, Vol. 13 No. 5, pp. 727-56.

Demil, B., & Lecocq, X. (2010). Business model evolution: In search of dynamic consistency. *Long range planning*, 43(2-3), 227-246.

Desmet, S., van Dierdonck, R. and van Looy, B. (2003), “Servitization: or why services management is relevant for manufacturing environments”, in van Looy, B., Gemmel, P. and van Dierdonck, R. (Eds), *Services Management: An Integrated Approach*, Pearson Education, Harlow.

Dicken, P. (2011). *Global shift : mapping the changing contours of the world economy*. 6th ed. Los Angeles (California): Sage.

Dimache, & Roche (2013). A decision methodology to support servitization of manufacturing. *International Journal of Operations & Production Management*, 33(11/12), 1435-1457.

Dixon, P., & Rimmer, M. (2010). Optimal Tariffs: Should Australia Cut Automotive Tariffs Unilaterally? *The Economic Record*, 86(273), 143-161.

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of management review*, 14(4), 532-550.

Enoch, M.P. (2015) 'How a rapid modal convergence into a universal automated taxi service could be the future for local passenger transport', *Technology Analysis & Strategic Management*, Vol. 27, No. 8, pp.910–924.

Eriksson, P., & Kovalainen, A. (2008). *Introducing Qualitative Methods: Qualitative methods in business research*. London: SAGE Publications Ltd. doi, 10, 9780857028044.

Fisher, L. (1969). *Industrial Marketing: An analytical approach to planning and execution*. Random House Business Books.

Foss, N., & Saebi, T. (2018). Business models and business model innovation: Between wicked and paradigmatic problems. *Long Range Planning*, 51(1), 9-21.

Fritze, M., Urmeter, F., Khan, G., Sarstedt, M., Neely, A., & Schäfers, T. (2018). From Goods to Services Consumption: A Social Network Analysis on Sharing Economy and Servitization Research. *Journal of Service Management Research*, 2(3), 3-16.

Fronteli, M. H., & Pacheco Paladini, E. (2023). Trends, Enablers, and Barriers for Car Ownership. *Transportation Research Record*, 2677(1), 1290-1310.

Fujimoto, T. (2014). The Long Tail of the Auto Industry Life Cycle. *The Journal of Product Innovation Management*, 31(1), 8-16.

Gans, J.S., Stern, S. and Wu, J. (2019), "Foundations of entrepreneurial strategy", *Strategic Management Journal*, Vol. 40 No. 5, pp. 736-756.

Gebauer, H., Fleisch, E., & Friedli, T. (2005). Overcoming the service paradox in manufacturing companies. *European management journal*, 23(1), 14-26.

Gebauer, H., Friedli, T. and Fleisch, E. (2006), "Success factors for achieving high service revenues in manufacturing companies", *Benchmarking: An International Journal*, Vol. 13 No. 3, pp. 374-86.

Genzlinger, F., Zejnilovic, L. and Bustinza, O.F. (2020). Servitization in the automotive industry: How car manufacturers become mobility service providers. *Strategic Change*, 29(2), pp.215–226. doi:https://doi.org/10.1002/jsc.2322.

Golafshani, N. (2003). Understanding reliability and validity in qualitative research. *The qualitative report*, 8(4), 597-607.

Gupta, A., & Govindarajan, V. (2002). Cultivating a Global Mindset. *Academy of Management Perspectives*, 16(1), 116-126.

Hartl, B., & Hofmann, E. (2022). The social dilemma of car sharing - The impact of power and the role of trust in community car sharing. *International Journal of Sustainable Transportation*, 16(6), 526-540.

Heinonen, K., & Strandvik, T. (2015). Customer-dominant logic: Foundations and implications. *The Journal of Services Marketing*, 29(6/7), 472-484.

Henisz, W. J., & Delios, A. (2000). Learning about the institutional environment. In *The new institutionalism in strategic management* (Vol. 19, pp. 339-372). Emerald Group Publishing Limited.

Hernández V, Nieto MJ, Rodríguez A (2021) Home country institutions and exports of firms in transition economies: does innovation matter? *Long Range Plan.* <https://doi-org.ezproxy.ub.gu.se/10.1016/j.lrp.2021.102087>

Hou K, Robinson DT (2006) Industry concentration and average stock returns. *J Financ* 61(4):1927–1956. <https://doi-org.ezproxy.ub.gu.se/10.1111/j.1540-6261.2006.00893.x>

Stone, M. (1976). The Product Life Cycle. *Product Planning*, pp.45–62. doi:https://doi.org/10.1007/978-1-349-02250-2_4.

Jones, G., Chirino Chace, B. and Wright, J. (2020). Cultural diversity drives innovation: empowering teams for success. *International Journal of Innovation Science*, [online] 12(3), pp.323–343. doi:<https://doi.org/10.1108/ijis-04-2020-0042>.

Christensen, C., Johnson, M., & Kagermann, H. (2008). Reinventing your business model. *Harvard Business Review*, 86(12), 50-129.

Jong, M. and van Dijk, M. (2015) ‘Disrupting beliefs: a new business-model innovation’, *McKinsey Quarterly*, July, pp.1–10

Kamal, M., Sivarajah, U., Bigdeli, A., Missi, F., & Koliouisis, Y. (2020). Servitization implementation in the manufacturing organisations: Classification of strategies, definitions, benefits and challenges. *International Journal of Information Management*, 55, 102206.

Kirca AH, Hult GTM, Deligonul S, Perry MZ, Cavusgil ST (2012) A multilevel examination of the drivers of firm multinationality: a meta-analysis. *J Manag* 38(2):502–530. <https://doi-org.ezproxy.ub.gu.se/10.1177/0149206310369177>

Kohtamäki, Marko, Vinit Parida, Pankaj Patel, and Heiko Gebauer. (2020) "*The Relationship between Digitalization and Servitization: The Role of Servitization in Capturing the Financial Potential of Digitalization.*" *Technological Forecasting & Social Change* 151 : 119804. Web.

Kohtamäki., Parida, Patel, and Gebauer, (2020). The relationship between digitalization and servitization: The role of servitization in capturing the financial potential of

digitalization. *Technological Forecasting and Social Change*, 151, p.119804. doi:<https://doi.org/10.1016/j.techfore.2019.119804>.

Lambert, D.M. and Cooper, M.C. (2000), “Issues in supply chain management”, *Industrial Marketing Management*, Vol. 29 No. 1, pp. 65-83.

Lee, J., Shin, H.-D. and Hong, S. (2021). Servitization of Global Manufacturing Business. *Journal of Industry, Competition and Trade*, 21(4), pp.565–584. doi:<https://doi.org/10.1007/s10842-021-00367-3>.

Lei, Jing, Roger Pruppers, Hans Ouwersloot, and Jos Lemmink. 2004. “Service Intensiveness and Brand Extension Evaluations.” *Journal of Service Research* 6 (3): 243–255. [10.1177/1094670503259381](https://doi.org/10.1177/1094670503259381)

Lenz, B. and Fraedrich, E. (2016) ‘New mobility concepts and autonomous driving: the potential for change’, in Maurer, M., Gerdes, J.C., Lenz, B. and Winner, H. (Eds.): *Autonomous Driving: Technical, Legal and Social Aspects*, pp.173–191, Springer, Berlin, Heidelberg [online] [10.1007/978-3-662-48847-8](https://doi.org/10.1007/978-3-662-48847-8).

Lessig, L. (2008). *Remix: Making Art and Commerce Thrive in the Hybrid Economy*, New York, NY, Penguin.

Li, M., Nguyen, B., & Yu, X. (2016). Competition vs. collaboration in the generation and adoption of a sequence of new technologies: A game theory approach. *Technology Analysis & Strategic Management*, 28(3), 348-379.

Lightfoot, H., Baines, T., & Smart, P. (2013). The servitization of manufacturing: A systematic literature review of interdependent trends. *International Journal of Operations & Production Management*, 33(11), 1408-1434.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. sage.

Linder, J., & Cantrell, S. (2000). Changing business models: Surveying the landscape.

Llopis-Albert, C., Rubio, F., & Valero, F. (2021). Impact of digital transformation on the automotive industry. *Technological forecasting and social change*, 162, 120343.

Lombardi, S., Santini, E., & Vecciolini, C. (2022). Drivers of territorial servitization: An empirical analysis of manufacturing productivity in local value chains. *International Journal of Production Economics*, 253, 108607.

Luoto, S., Brax, S.A. and Kohtamäki, M. (2017), “Critical meta-analysis of servitization research: Constructing a model-narrative to reveal paradigmatic assumptions”, *Industrial Marketing Management*, Vol. 60, pp. 89-100, doi: [10.1016/j.indmarman.2016.04.008](https://doi.org/10.1016/j.indmarman.2016.04.008).

MacDuffie, J. P., & Fujimoto, T. (2010). Why dinosaurs will keep ruling the auto industry. *Harvard Business Review*, 88(6), 23-25.

Mahut, F., Daaboul, J., Bricogne, M., & Eynard, B. (2017). Product-Service Systems for servitization of the automotive industry: A literature review. *International Journal of Production Research*, 55(7), 2102-2120.

Manca, F., Moreno, R., & Suriñach, J. (2011). The Role of the EU Internal Market in the Adoption of Innovation. *European Planning Studies*, 19(6), 1091-1116.

Matofska, B., & Sheinwald, S. (2019). Generation Share : The change-makers building the sharing economy.

Markides, C. (2006). Disruptive Innovation: In Need of Better Theory. *The Journal of Product Innovation Management*, 23(1), 19-25.

Marschan-Piekkari, R., & Welch, C. (Eds.). (2004). *Handbook of qualitative research methods for international business* (pp. 5-24). Cheltenham: Edward Elgar.

Martinez, V., Bastl, M., Kingston, J., & Evans, S. (2010). Challenges in transforming manufacturing organisations into product-service providers. *Journal of manufacturing technology management*, 21(4), 449-469.

Merriam, S. B. (1998). *Qualitative Research and Case Study Applications in Education. Revised and Expanded from " Case Study Research in Education."*. Jossey-Bass Publishers, 350 Sansome St, San Francisco, CA 94104.

Milanova, V. & Maas, P. (2017). Sharing intangibles: uncovering individual motives for engagement in a sharing servicesetting, *Journal of Business Research*, 75, 159–171

Mont, O. (2000), “Product service-systems”, Final Report for IIIIEE, Lund University, Lund.

Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International journal of qualitative methods*, 1(2), 13-22.

Nicholas, K. (2021). *Under the sky we make : how to be human in a warming world*. New York: G.P. Putnam’s Sons.

Nurvala, J.-P. (2015). ‘Uberisation’ Is the Future of the Digitalised Labour Market. *European View*, 14(2), pp.231–239. doi:<https://doi.org/10.1007/s12290-015-0378-y>.

Oliva, R. and Kallenberg, R. (2003), “Managing the transition from products to services”, *International Journal of service Industry Management*, Vol. 14 No. 2, pp. 1-10.

Opresnik, D., & Taisch, M. (2015). The value of Big Data in servitization. *International Journal of Production Economics*, 165, 174-184.

Park Y-E, Alenezi M (2018) Predicting the popularity of Saudi multinational enterprises using a data mining technique. *J Manag Inf Decis Sci* 21(1):1–14

Pillai, S.D., Goldfarb, B. and Kirsch, D.A. (2020), “The origins of firm strategy: learning by economic experimentation and strategic pivots in the early automobile industry”, *Strategic Management Journal*, Vol. 41 No. 3, pp. 369-399.

Porter, M. (1985). *Competitive advantage : Creating and sustaining superior performance*

Porter, M.E. and Heppelmann, J.E. (2014), “How smart, connected products are transforming competition”, *Harvard Business Review*, Vol. 92 No. 11, pp. 64-88.

Raja, J., & Frandsen, T. (2017). Exploring servitization in China. *International Journal of Operations & Production Management*, 37(11), 1654-1682.

Ren, G. and Gregory, M. (2007), “Servitization in manufacturing companies”, paper presented at 16th Frontiers in Service Conference, San Francisco, CA.

Robinson, T., Clarke-Hill, C.M. and Clarkson, R. (2002), “Differentiation through service: a perspective from the commodity chemicals sector”, *Service Industries Journal*, Vol. 22 No. 3, pp. 149-66.

Rodriguez, D., De Souza, T., Lasmar Júnior, E., Gandia, R., & Sugano, J. (2019). New business models and the sharing economy: Impacts and challenges for the traditional automotive industry. *International Journal of Automotive Technology and Management*, 19(3/4), 301.

Roos, G. (2015). Servitization as innovation in manufacturing—A review of the literature. *The handbook of service innovation*, 403-435.

Simpson, C., Ataii E., Kemp, E., & Zhang, Y. (2019) *Mobility 2030: Transforming the mobility landscape*. KPMG.

Shaheen, S. and Chan, N. (2016) ‘Mobility and the sharing economy: potential to facilitate the firstand last-mile public transit connections’, *Built Environment*, Vol. 42, No. 4, pp.573–588

Teece, D. (2010). Business Models, Business Strategy and Innovation. *Long Range Planning*, 43(2), 172-194.

Tortorella, G., Prashar, A., Antony, J., Mac Cawley, A., Vassolo, R., & Sony, M. (2023). Role of leadership in the digitalisation of manufacturing organisations. *Journal of Manufacturing Technology Management*, 34(2), 315-336

Tukker, A. (2004), "Eight types of product service system: eight ways to sustainability? Experiences from SusProNet", *Business Strategy and the Environment*, Vol. 13, pp. 246-60.

Turunen, T., & Finne, M. (2014). The organisational environment's impact on the servitization of manufacturers. *European Management Journal*, 32(4), 603-615.

The Economist. (2023.). *How the young spend their money*. [online] Available at: <https://www.economist.com/business/2023/01/16/how-the-young-spend-their-money>.

Visnjic, I. and Van Looy, B. (2014). Servitization: Disentangling the Impact of Service Business Model Innovation on Manufacturing Firm Performance. SSRN Electronic Journal. doi:<https://doi.org/10.2139/ssrn.2407380>.

Vandermerwe, S. and Rada, J. (1988), "Servitization of business: adding value by adding services", *European Management Journal*, Vol. 6 No. 4.

Villareal, A. (2011). The social construction of the market for electric cars in France: politics coming to the aid of economics. *International Journal of Automotive Technology and Management*, 11(4), p.326. doi:<https://doi.org/10.1504/ijatm.2011.043165>.

Waarts, E. and Van Everdingen, Y. (2005). The Influence of National Culture on the Adoption Status of Innovations: *European Management Journal*, 23(6), pp.601–610. doi:<https://doi.org/10.1016/j.emj.2005.10.007>.

Whittemore, R., Chase, S. K., & Mandle, C. L. (2001). Validity in qualitative research. *Qualitative health research*, 11(4), 522-537.

Yin, R. K. (2009). *Case study research: Design and methods* (Vol. 5). sage.

Appendix

Interview guide

Formality questions

I- Ask about **recording/ anonymity/reconnection/potential validation**

Business model & Business model innovation:

1- With your perspective, what would most differentiate your company from your competitors?

2- Have you maintained the same business model over time?

Servitization

3- Are you familiar with the term servitization?

4- Do you use suppliers to offer additional services to your customers?

5- To which degree are services implemented into your business model?

International Environment

6- Does your country's environment influence the way you can implement services (Legal, economic, politic, technologic, cultural)?

7- If you were to internationalise your business, what would you think would be the main factor of success or failure?

Drivers and Barriers

8- What pushed your company to add services to your offer?

9- Have digitalisation or sustainability been a driver to develop more services?

10- Was your company pushed to be included by the concurrency or earn market shares?

11- Which challenges did your company encounter to create related services?

12- Would it make sense for you to add new services to your offers?

13- Is there anything you would like to talk about or that we might have forgotten?