

Louvain School of Management

Analysis of how the automotive sector can move towards a more sustainable economy with the leasing business model

What are the underlying opportunities and challenges of this transition?

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Abstract:

In an era of environmental crisis, the automotive sector is at the heart of many discussions. The traditional product selling model is known to be inefficient in terms of sustainability. Therefore, other business models such as Car sharing, Ride sharing, and leasing came into play. Thanks to the development of the regulatory aspect and circular economy tools in parallel with new models, the environmental impact of this sector is tending to be reduced, but nothing is yet won. The aim of this paper is to analyze how the automotive sector can move towards a more circular economy with the leasing business model and to discuss what opportunities and challenges are involved in this transition. It was found that leasing is in a growing market and has proved to be a successful model, with strong opportunities to promote greener vehicles. However, the lack of sustainable interest of both companies and consumers, and the lack of infrastructures seem to be jeopardizing this ecological transition.

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1. Introduction

In a world where the environmental crisis is no longer to be proven, the automotive sector is recognized as having a major role to play in it. The greenhouse gas emissions and the impact on health of this sector are no longer negligible. Regulations, technological advances, and mobility alternatives are all ways to reduce the impact of the sector. Nevertheless, the current effort is not sufficient in the face of the magnitude of the ecological situation.

Knowing that this issue affects every being on this planet and will impact the future of everyone, it was relevant to contribute to this knowledge in order to help making the world progress towards a more sustainable future. The contribution of this paper is to go further in the discovery of ideas and insights around the sustainable aspect of leasing, knowing that this model is becoming more and more prominent every year.

First, current literature will be established to understand the main issues and actors of this sustainable aspect. Different strategies and models and their underlying opportunities and challenges in the face of sustainability will be discussed.

In a second step, qualitative data will be used to analyze how the automotive sector can move towards a more sustainable economy with the leasing business model. The opportunities and challenges of adopting this model in a sustainable framework will be addressed. In order to conduct this analysis, the qualitative data will be obtained through semi-structured interviews with leasing specialists and leasing client companies.

As with any research, this paper faces difficulties and limits. Examples of difficulties encountered are as follows: having a sufficiently large sample given the fact that people are very busy and do not want to spend time being interviewed, the potential biases through the collection and interpretation of data and the generalization of the results which is not possible through qualitative research.

2. Literature review

2.1. Contextualization of the Sustainability and Circularity concepts

Before entering the topic of sustainability in the automotive sector, it is essential to approach the Sustainability and Circularity aspects as a whole. In this manner, aligning on the notions and stakes is a relevant starting point before analyzing the sector around these aspects.

With the growing awareness around global warming, Sustainability and Circularity are the focus of many debates and studies. Those concepts are sometimes used as synonyms but in reality, they are two distinct concepts that have their own implications and purposes. Of course, those concepts are closely related but while circularity initiatives contribute to sustainability, the opposite is not always true. Sustainable development is, in a sense, the aim of the Circular Economy (CE) (Barbu, Florea, Ogarcă & Barbu, 2018 ; Bauer, Zwolinski, Nasr & Mandil, 2020). Therefore, in this paper, circularity aspects will be considered as a part of the sustainability notion.

What is sustainable development all about? The European Commission (2022) defines this notion as “meeting the needs of the present whilst ensuring future generations can meet their own needs” (European Commission, 2022, para. 1). Three pillars can be identified to support and achieve the conquest of sustainable development: economical, environmental, and social. As pillars, they are interdependent and the focus cannot be given to only of them (European Commission, para. 2). Only the balance between those will allow economic performance, social inclusiveness, and environmental resilience (Geissdoerfer, Savaget, Bocken, & Hultink, 2017).

The Circular Economy, however, focuses on the materials, resources, and products themselves. The aim is to maintain their value over time for as long as possible while minimizing waste and use of resources (European Commission, 2022 ; Hedberg & Šipka, 2020). As a matter of fact, strategies at the heart of this concept allow less material to be extracted: repairing, reusing, maintaining, and recycling (Hedberg & Šipka, 2020). In this regard, the purpose is to close material and energy loops (Geissdoerfer et al., 2017). In parallel, redesigning and

innovating in terms of products and production processes are key in this circularity conquest (Bauer & al., 2020 ; European Commission, 2022).

As sustainability and circularity topics grow in interest, institutions and governments pass new laws and regulations, and organizations are created to spread awareness and provide guidelines. Nevertheless, the use of material resources is in constant increase (Milios & Matsumoto, 2019). Sustainability is a real challenge which induces considerable costs, efforts and a change of mindset (Agyemang et al., 2019 ; James, 2011). Those new policies are thus key for the transition to a circular economy and the adoption of a more sustainable lifestyle (Agyemang et al., 2019). For instance, it has been shown that the recycling of materials has increased since the implementation of new waste policies in Europe (Milios & Matsumoto, 2019). At the same time, the European Union is adopting strategic plans in line with circularity aims to decrease and improve resource consumption in the manufacturing industries (Milios & Matsumoto, 2019). As a follow-up to those directives, studies are conducted to better align with what is happening on the field. For instance, driving emissions are assessed, analysis are performed and new figures are recommended (European Commission, Joint Research Centre, Giechaskiel, Clairotte & Bonnel, 2018 ; European Commission, Joint Research Centre, Giechaskiel, Valverde & Clairotte, 2021). In this regard recent studies from the European Commission et al. (2021) show that not all vehicles are below the required emissions, there is still room for improvement.

As a response to the environmental crisis, intergovernmental organizations such as the United Nations (UN) take to a greater extent actions towards a sustainable and inclusive future (United Nations [UN], 2021). For this purpose, the UN engages with industries, sectors, investors, governments, or to put it simply, all stakeholders that can make the difference (UN, 2021). By engaging each one of them with a unique value proposition, enabling their respective ecosystems and setting targets such as the Sustainable Development Goals (SDGs), The United Nations have the ambition to “accelerate and scale global collective impact” (UN, 2021, p.5).

It is clear now that sustainability is an aspect that cannot be neglected anymore, both at the industry and consumer level. Business drivers are emphasizing the need to evolve. First, companies face environmental pressures, not only from recognized institutions but from

investors, media, and consumers (Uniyal, Mangla & Patil, 2020). Then, there are increasingly higher energy and material costs (Uniyal, Mangla & Patil, 2020). For that matter companies and consumers have observed the repercussions of the Russia-Ukraine war. Finally, there are societal expectations and owner aspirations as the awareness of the climate issue and the will to act greener is growing among the consumers (Uniyal, Mangla & Patil, 2020).

In order to pursue the Circular Economy dimension, relying on new Business models (BM) and responsible consumers is imperative (Hedberg & Šipka, 2020). This idea is supported by the fact that major changes in people's conception of consumption and in the way the industrial system is operating are the main aspects in the CE scenarios (Bauer et al., 2020). Regarding industrial systems, challenges do not lie only in the design of the products or the Business model itself, but also in the development of skills to support the Circular Economy strategies and new processes resulting from them (Bauer et al., 2020 ; Agyemang et al., 2019). In this manner, discontinuing the linear economic system "Take, make, dispose" in favor of the 3 Rs: "Reduce, Reuse, Recycle" is becoming a considerable element (EcoDesign Circle, 2017 ; Shao, Huang, Lemus-Aguilar & Ünal, 2020).

Long term sustainability is the key global issue, new actors and actions are taking part towards it. In the next sections, the automotive sector will be put under the light of this issue. At first, two major drivers of sustainability will be discussed, regulation and digitalization. Then, the existing Business models of this sector and their underlying Opportunities and Challenges will be identified.

2.2. The regulatory aspect as the main instrument of the transition

Before looking at the opportunities and challenges stemming from sustainability within the automotive sector, it is important to address the regulatory aspect. This aspect is considered the fundamental strength of the sector as well as the most important tool to advance the transition to a more sustainable future (Drago & Gatto, 2022).

As it will be seen, policies around the environmental impact of the automotive sector are solely performance-based regulations (Skeete, 2017). Skeete (2017) states that technological innovation is driven most favorably by performance standards and Bergek,

Berggren & KITE Research Group (2014) emphasize this statement as it is especially true when current technology is not able to meet the standards. Furthermore, those regulations act as economic instruments (Bergek, Berggren & KITE Research Group, 2014). This is reflected in the way they financially support the companies adopting low-emission technologies while penalizing the ones not complying with regulations (Bergek et al., 2014). It is worth mentioning that a study (Skeete, 2017) has shown that lax regulation and the abuse of the regulation flexibilities are the main ingredient to policy failures in the automotive sector. This was illustrated with the infamous dieselgate case. It is also worth noting that, in contradiction with what Baldassarre et al. (2022) reported about measures jeopardizing competitiveness of the market, CO2 emission reduction targets are stated to be competitively-neutral (European Commission, 2009 ; European Commission, 2021). In fact, entities from other regions of the world tend to take similar decisions, sometimes leading to a more advanced technology.

Whereas the regulation in this sector was for the most part around the security aspect in the first instance, it wasn't long before the first sustainability standards emerged. This is no surprise as 12% of total European Union (EU) CO2 emissions are caused by passenger cars (European Commission, 2021). Since the 90s, the EU has passed regulations and recommended or established CO2 emission performance standards, with the objective of making the automotive sector less polluting. This started with the approval of the United Nations Framework Convention in 1993 (European Commission, 2009). This convention was a means to foster the launch of initiatives with the aim to mitigate climate change by requiring member parties to set up and implement national or regional programs and measures (European Commission, 2009). Those standards, closely studied and reviewed, have evolved over time. This has helped the sector to improve in the environmental aspect in order to meet or at least get closer to the major environmental objectives that Europe and other regions of the world are pursuing. Obviously, making sure that the standards are respected is an important part of the transition, which is why the European Parliament has established a program since 2000 to monitor the average specific emissions of specific CO2 emissions from new passenger cars (European Commission, 2009).

While the European Commission rewards the design of zero and low emission vehicles, it also punishes those that do not meet the standards (European Commission, 2021). This penalty takes the form of a cost reflecting the gap with the standards. The greater the

gap, the more expensive it is for the manufacturer (European Commission, 2009 ; European Commission, 2021).

In terms of regulatory timeline, the European Commission first conducted a strategy in 1995 involving car makers in order to reduce GHG emissions and to promote transparency and the selling of cleaner cars (European Commission, 2009). This was followed in 1998 by the commitment of the European Automobile Manufacturers' Association (ACEA), the Japan Automobile Manufacturers Association (JAMA) and the Korea Automobile Manufacturers' Association (KAMA) to reduce new cars' emission to 140 g of CO₂ per km by 2008/2009.

In parallel to emission standards, the EU implemented recycling rates on vehicles in terms of weight and value, leaving the focus not only on the engines but also on the rest of the design. From 2015 on, more than 85% of cars must be recyclable (Schulz, 2016). This percentage is evaluated in weight recycled out of the total weight of the vehicle.

In 2020, new CO₂ emission performance standards were created (European Commission, 2021). This new regulation implies a more and more restrictive evolution in time of the targets of new passenger cars emission, starting from 2020 and reaching the highest standards by 2030. Before 2025, the emission standard for new cars is 95 g of CO₂ per km, the following targets are rather oriented as a percentage reduction of CO₂ emission in comparison to 2021 (European Commission, 2021).

Most recently, in June 2022, the European Parliament voted to support the sales prohibition of new gas-powered cars by 2035 (Popp & European Parliament, 2022). Later the same month, the European Council debated and made the decision to pass it into law. The 27 EU member states have approved the project, but some points are still to be discussed such as hybrid vehicles and niche markets. This is a major decision that could deal a fatal blow to polluting vehicles. As it will be seen in the next section, four fifths of particulate matter emissions could be avoided by allowing the circulation of EVs only (Requia et al., 2018). It remains only to wait and see how the manufacturers will manage to respect this new regulation and how the sector will evolve to implement those changes.

With penalties and rewards, the automotive sector has strongly evolved in order to comply with the targets set by the EU and reduce its environmental impact. It can be argued that without those challenging regulations, the sector would not have seen such a sharp decline in terms of greenhouse gas emission. ACEA's findings (2021) are as follows: between 2010 and 2020, the European Union has observed a decrease of a little more than 22% of average CO₂ emissions from new passenger cars, reaching 108.2g of CO₂ per km. Moreover, with the 2020 target mentioned above, Europe has observed a decrease of 12% of average new car CO₂ emissions in 2020 compared to the previous year (Directorate-General for Climate Action, 2021). It is important to mention that the electric car share has tripled over the same amount of time (Directorate-General for Climate Action, 2021).

2.3. Digitalization as an enabler of Sustainability

A second essential driver of sustainability is Digitalization. This tool is in constant evolution and so are the sustainable opportunities arising from it. Belleflamme (2020) presented three benefits of the use of digitalization: *“Improving knowledge, connections and information sharing”*, *“Making Business models, products and processes more circular”* and *“Strengthening the roles of citizens and consumers”* (Belleflamme, 2020, p.31). Of course, digitalization faces challenges and does not guarantee sustainability or circularity without putting in place the right means to achieve this objective (Hedberg & Šipka, 2020).

The first and third benefits allow awareness and influence towards people, driving them to act and choose more sustainable alternatives (Hedberg & Šipka, 2020). C-Ways' study (2022) showed that, in 2020, in France, one third of car buyers are willing to do the whole buying process online. Therefore, if digital platforms are developed in line with car manufacturer websites, circularity goals could be fostered by reaching the target audience that is the potential customers. Note that those platforms are a way to tackle one of the barriers to implementing a Circular Economy which is the lack of consumer interest and awareness (Milios & Matsumoto, 2019 ; Wang et al., 2020).

“Improving knowledge, connections and information sharing” (Hedberg & Šipka, 2020, p.23) is also described as improving the decision making for policies and regulations (Hedberg & Šipka, 2020). The studies led by the European Commission (2017 ; 2021) mentioned earlier

could go one step further in the analysis of the automotive sectors thanks to the improved management of data. In parallel, private scientific research, which tends to lack data in certain areas, could provide to a certain extent more accurate and advanced public knowledge by taking advantage of the development of digitalization.

Regarding the different Business models observed so far in this paper, digitalization seems to be an enabler of circularity for each one of them. On the manufacturers' side, it is a tool that can help the application of certain steps of the Circular Economy strategy explained in the next section such as: improving the design of products, enhancing processes of production, reuse, repair and recycle, and strengthen waste management (Belleflamme, 2020). On PSS models' side, which includes Car sharing, Ride sharing and Leasing, digitalization is recognized as a driver to the sustainable economic models thanks to the valuable feedback loops from this tool (Hedberg & Šipka, 2020). Especially within a platform, feedback loops are what makes it possible to have a continuous improvement of the service (Belleflamme, 2020).

2.4. The 10-R's: 10 strategies in the conquest of Circularity

The general strategies of a Circular Economy strategy are the following: Refuse, Rethink and Reduce, Reuse, Repurpose, Repair and Remanufacturing, Refurbish, Recycle and Recover (Belleflamme, 2020 ; Kirchherr, Reike & Hekkert, 2017). Those strategies are portrayed as the 10-R framework to progress towards the CE.

Refuse is the strategy of giving up a product whether it is to propose an alternative or to abandon it altogether (Kirchherr et al., 2017). In the automotive industry, this can be reflected in the offering of an alternative transport service or product rather than a car that would have the same function.

Rethink and Reduce are steps during which the way demand is met and the way resources are used in production are challenged (Belleflamme, 2020). This step is linked to the additional Redesign step proposed by Belleflamme (2020). The latter refers to redesigning products and processes in order to narrow resource flows and optimize resource efficiency (Shao et al., 2019). With this in mind, the following steps Reuse, Repair and Remanufacturing and

Recycling are to be considered in the redesigning in order to maximize their effectiveness (Belleflamme, 2020).

Reuse is the strategy to use a product or material once more for the same purpose as it was initially designed (Bauer et al., 2020). As a parallel strategy to this first one, the Repurposing strategy can be proposed. It involves using a material or product once again but for a different purpose, in contrast with the Reuse strategy (Bauer et al., 2020 ; Bechtold, Melnick, Prater & Vigil, 2020).

Repair and Remanufacturing involve restoring used products in order for them to continue to be used or to be reused, in reference to the previous step, and therefore delay their recycling or disposal (Bauer et al., 2020).

Bauer, Zwolinski, Nasr & Mandil (2020) propose one step further to Repair and Remanufacturing with the Upgrading strategy which implies to perform functional improvements to used products, still with a view to extending the life of the object. That one is equivalent to the Refurbish strategy that suggests restoring the product to keep it up to date (Kirchherr et al., 2017).

Finally Recycling and Recovering are both ineluctable steps of this framework (Belleflamme, 2020). This is due to the fact that, at some point, materials and products cannot be reused, repaired, or remanufactured anymore due to unavoidable wear and tear. Wear and tear may lead to broken or defective parts, which is the fatality of any material in the industrial systems (Bauer et al., 2020 ; Shao et al., 2019). That is why these strategies seek to recover some value out of those parts in terms of materials or energy (Kirchherr et al., 2017).

2.5. State of the art of the automotive sector with regards to Sustainability and Circularity

Now that the subject, tools, and strategies are established, the Business models of the automotive sector can be deep dived. Each one of them brings opportunities and faces

challenges with respect to convincing the consumers, to succeeding in being profitable and achieving sustainability to a certain degree.

At first, in this analysis of the sector, four Business models will be described and assessed to understand what is set up so far. All these models are related to the Product-service-system models.

Secondly, the emerging opportunities of the different models will be outlined. Opportunities are discussed in a broad sense, whether they are ways to help organizations be more sustainable or the benefits of the conquest towards sustainability. In that regard, each model will be evaluated through the 10 R's discussed earlier.

Thirdly, certain facets of sustainability within the automotive sector will be counterbalanced with challenges and complexities in a broad sense as well. As it will be seen in this paper, sustainability has been seen as a tool to circumvent not only environmental but also economic and social problems. However, many aspects are offset by challenges or side effects. Thus far, there is no doubt that nothing is achieved without effort, dealing with the environmental crisis is not an easy task.

2.5.1. Product selling model

Introduction to the model

First of all, there is the traditional linear and ownership-based model of product-selling. It consists of selling the goods in order for the buyer to be their sole owner, in our case the products are cars. The model is linear in a way that it leads to an unsustainable paradigm of production and consumption (Hedberg & Šipka, 2020). This product-selling model is known to be limited in terms of sustainable innovation (Huang, Qian, Soopramanien & Tyfield, 2021). It follows the process: take, make, dispose (Belleflamme, 2020).

In this type of model, the ownership is transferred from the selling company to the buyer who can be an end consumer (B2C) or another company (B2B). Research projects are mainly conducted around this type of Business models as they are believed to be the most pollutants

and they are the baseline for the other Business models that will be covered in this paper (Hedberg & Šipka, 2020).

In parallel to the main selling activity, services are offered as an added value. In regards to the eight types of Product-service-system (PSS) analyzed by Tukker (2004 ; 2015), this model refers to the Product-related service as the sale of a car often includes services such as warranty, roadside assistance or towing. However, those services are known to have little impact in the pursuit of sustainability with potentially better maintenance and other activities (Tukker, 2004 ; Tukker & Tischner, 2006). It is no surprise as having the biggest number of sales is the intended objective, which is limiting the potential development of improvements to extend the product's lifespan (Tukker 2015).

In spite of everything that is put in place to make the automotive manufacturing more circular, there is one point that must not be lost sight of and that is receiving increasing attention: non-exhaust particulate matters. Those particles are created through friction of tyres, brakes and road surface (Requia, Arain, Koutrakis & Dalumpines, 2018 ; Woo, Jang, Lim & Lee, 2022). In addition, even in the best case scenario in which the design and processes allow the manufacturing of car to be totally circular and the use of the car to be non-polluting, there is an important point to keep in mind shared by Hedberg & Šipka (2020): in Europe, vehicles are parked 92% of the time on average. In addition, for the 8% of the time during which those cars are being utilized, only one and a half seats are used on average, meaning that waste is not purely underlying the production and that the automotive mobility system itself is a source of structural waste (Hedberg & Šipka, 2020). This observation highlights the fact that the focus should not only be condensed on the manufacturing and design side, but also on the Business model and consumption pattern sides.

Opportunities

Then, the focus will be moved to the opportunities of the car manufacturing industry on its own as it is the starting point of the other Business models in the automotive industry discussed thus far, whether it is the companies or the users themselves that have to own the cars to enable underlying services. It is the first area that can have a positive impact on the environment and potentially provide benefits. James (2011) underlines the fact that leaders of

the automotive sector recognized the environmental issues as a key issue for their success in the future. This statement is confirmed today with the evolution of supply chain issues, regulations, market expectations and consumers' mindset.

In terms of supply chain and regulation, reducing Greenhouse gas (GHG) emissions and raw material consumption is a growing concern for the environment as well as for profitability and compliance. That Requires new strategies and reinventing the industrial system (Bauer et al., 2020 ; Schulz, 2016). To this day, globalization has pushed the sector to have long supply chains and thus benefit from lower production costs. In fact, the prevailing tendency is to obtain economies of scale by outsourcing and shipping large quantities from all over the world (Xia & Tang, 2011). This puts the supply chain in the face of uncertainty, perturbation and risks and leads to tons of CO₂ emitted (Xia & Tang, 2011). Adding to that there are growing tensions on supply and shortage risks of raw materials (Geissdoerfer, Savaget, Bocken & Hultink, 2017 ; Schulz, 2016). As a matter of fact, the crisis, strikes, wars, natural disasters and difficulties in supply make the price of raw materials skyrocket which can be constraining for companies (Schulz, 2016). This can be illustrated by the war in ukraine, or the suez canal that was stuck for several days, and which had great economic consequences for companies. Lastly, the market competitiveness and the adoption of new policies and regulations at the local and international level put pressure on the manufacturing companies (Bauer et al., 2020 ; Shao et al., 2019).

With all that mentioned above, companies must undoubtedly be circular to survive. Implementing CE strategies is a way to get around these increasingly restrictive problems and, to a certain extent, improve the financial aspect. Shao, Huang, Lemus-Aguilar & Ünal (2019) supports that statement as it was observed in a European study that the economic stakes were the predominant reason for companies to embrace circularity in their processes. Baldassarre et al. (2022) add that the cost-saving aspect is the main reason for car makers to demand recycled materials. Making the supply chain circular means that it is either no longer dependent on an external source or that it involves a lower manufacturing cost. That can lead companies to decrease their carbon emission by just avoiding shipping materials overseas (Uniyal, Mangla & Patil, 2020). Moreover, the material recovery and other CE strategies are a way to decrease the Cost of goods sold (COGS) (de Jesus Pacheco et al., 2022 ; Drohomieretski, Gouvea da Costa, Pinheiro de Lima & Rodrigues de Oliveira Neves, 2015 ;

Milios & Matsumoto, 2019 ; Shao et al., 2019). However, the financial aspect tends to be in contradiction with other literature such as one from Pallaro, Subramanian, Abdulrahman & Liu (2015) which states the potential absence of financial benefits given the uncertainty and volatility of those operations. It makes its impact questionable whether it will be positive or negative according to the context, what is put in place and the efficiency of the supply chain and processes.

In terms of market expectations and consumer's mindset, sustainability is becoming a selling argument (Pallaro, Subramanian, Abdulrahman & Liu, 2015). While Pallaro et al. (2015) state that consumer awareness around sustainability and health will grow in the coming years, Shao et al. (2019) as well as Milios and Matsumoto (2019) identified consumer awareness as a current barrier for consumers to buy remanufactured products. Yet, price is a selling argument that can tip the balance for uncertain consumers, as one of the benefits of remanufactured products is a potential lower production cost and thus a potential lower selling price of products (Bauer et al., 2020 ; Pallaro et al., 2015 ; Milios & Matsumoto, 2019 ; Shao et al., 2019).

With the growing number of scrapped vehicles every year, the industries can exploit a lot of resources with the purpose of bringing economic, environmental and risk avoidance opportunities (Schulz, 2016 ; Shao et al., 2020). It is thus important to see how the linear model can utilize the 10 R's.

First, Remanufacturing allows to lower the use of material and thus bypass component shortages which are making supply chains very uncertain (Milios & Matsumoto, 2019). In fact, certain components such as the car alternators can be reused or remanufactured (Bauer et al., 2020). However, other components are more difficult to involve in remanufacturing and reusing processes as they might involve too much effort and cost to be a real advantage. Still, those processes are considered a strong lever towards Circular Economy and can lead to important cost savings, energy savings and reduced GHG emissions (Pallaro et al., 2015 ; Shao et al., 2020).

Regarding the Redesign strategy, the main driver is the compliance with the CO₂ emission and recycling standards, as it was discussed in the regulatory section (Agyemang et al., 2019).

The redesigning of the engines is an effective strategy to reduce the GHG emissions. As a matter of fact, it brings a new selling point with the fact that consumers can get more fuel-efficient vehicles thanks to more optimized engines.

Then, recycling activities are a way to save oil and energy from refining raw materials. The thing is some materials are more easily recycled than others and recycling rates vary (Schulz, 2016). Hence, the Redesign strategy is a means to optimize material choice and maximize recycling rates (Schulz, 2016). In the automotive sector, the portion of cars produced by recycling is still minimal compared to the increase of recycled parts, it is in development for some brands but needs to be further developed. Theoretically, the need of steel in the bodywork-assembly plants could entirely be covered if this material was reused instead of wasted (Schulz, 2016). Moreover, Baldassarre et al. (2022) argue that plastic recycling opportunities are arising with the increase in plastic waste of many sectors.

Finally, the Repurposing strategy has been the focus of recent studies for the EV batteries. This focus is relevant as EVs are the future of the automotive sector with the new regulations, which will involve new challenges related to the batteries. Haram et al. (2021) and Bauer et al. (2020) identified repurposing opportunities for those components as they can offer economic and environmental benefits. This strategy can be a source of revenue and get a second life to components instead that would have been disposed of. While consumers and companies will not bear the risk of having used batteries in their cars, other activities may do.

It is clear that every aspect of business that can benefit from sustainability faces challenges in return. Every point that is discussed must be taken with caution, all is not rosy when addressing sustainability and circularity as there is no free lunch.

Challenges

On the challenge side for car manufacturing, being more circular is not a simple transition. The barrier to CE can be the supply chain itself. Pallaro et al. (2015) identifies the lack of infrastructure as a main issue. There is a need for space to apply the new processes that may imply large investments. While linear models exploit supply chains in a unique direction, circular models require reverse logistics networks (Shao et al., 2019). The supply

chain design has to be remodeled with precision in order to offer efficient perspectives in terms of circularity in the supply processes and especially in terms of returns on investments, and therefore allow the transition to a Circular Economy (Shao et al., 2019). The risk underlying remanufacturing is the instability in terms of timing, quantity, and quality of the recycled material (Milios & Matsumoto, 2019). Baldassarre et al. (2022) add that recycled plastic availability suffers great variations, influencing its price and making the supply uncertain. Considering that quantity and quality of the materials can vary greatly, that might create a potential bottleneck within the production process which can cause a delay in production. It goes without saying that delaying the production and thus the distribution imply great financial losses. Of course, car makers could also outsource the recycling but that still involves a financial cost unfavorable for the competitive market and the supply risks (Pallaro et al., 2015 ; Xia & Tang, 2011). In addition, Pallaro et al. (2015) and Shao et al. (2019) mention the difficulty and the lack of support from the suppliers in relation to sustainable and circular practices that does not motivate companies to take this kind of initiative.

The second obstacle that is frequently mentioned is technology. The shift cannot happen with a lack of innovation in the processes or engineering (Pallaro et al., 2015). Certain operations, such as chemical recycling, need considerable research and development (R&D) in the first place in order to be valuable and thus implemented (Baldassarre et al., 2022). Obviously, in order to adopt circularity, cost effective operations have to be put in place but this is not an easy assignment. First, recovering materials can be costly if the strategy is not well designed (Milios & Matsumoto, 2019). With globalization and the complex design of supply chains, optimization can be difficult to achieve. Then, efficient remanufacturing processes are one of the keys to sustainability but are hard to achieve with very diversified products that complicates the disassembly and assembly processes (Milios & Matsumoto, 2019). In the opportunities, it was observed that remanufacturing was a tool to reduce costs, however, Shao et al. (2019) emphasizes the absence of competitive advantage caused by the difficulty to recycle today, especially in this sector. Even if bodywork-assembly plant inputs can entirely be covered by recycled material as stated before, the current situation does not support it. The robustness of the processes and technology is thus a main difficulty restraining the transition.

Following the second obstacle, the third one is around expertise and skills. New technologies and processes require technical knowledge and human capital. Those new processes are

known to be labor intensive (Agyemang et al., 2019 ; Milios & Matsumoto, 2019). Since the latter are additional to the usual production operations, it takes additional resources and capabilities to perform them. Obtaining those resources can slow down the transition to a CE (Pallaro et al., 2015). In addition, they need to have skill in this field of expertise which makes them costly (Agyemang et al., 2019 ; Milios & Matsumoto, 2019 ; Uniyal et al., 2020). The barrier to adopting a Circular Economy is thus often due to a lack of skilled capital or a lack of budgeting (Milios & Matsumoto, 2019).

Moving on to the fourth obstacle: the customers and market. The current era is one of mass consumption and price war obstructing the transition to a sustainable world (Pallaro et al., 2015). The environmental challenge does not lie only in manufacturer hands but also in consumers' lifestyle. Price, reliability and convenience have a greater interest even for consumers for whom sustainability has an important weight in their decision (James, 2011). Changing their mindset is thus crucial given that lack of interest and awareness around CE and remanufactured products as outlined before (Milios & Matsumoto, 2019 ; Shao et al., 2019). This idea is emphasized by Milios and Matsumoto (2019), who say that it is critical for the industry that consumers have a positive view of remanufactured products and that there is a demand for them. Adding to that, Pallaro et al. (2015) state that a short-term vision and reluctant culture from the companies can arguably slow down the transition and fail to convince potential clients. Fortunately, this aspect tends to be improving with the UN, with other intergovernmental initiatives or with the expanding digitalization. Support is key for organizations and customers to face those challenges and embrace the green transition.

The last obstacle observed is around the governmental and legislative aspects (Milios & Matsumoto, 2019 ; Pallaro et al., 2015 ; Shao et al., 2019). The governmental support is considered to be insufficient to the size of the environmental matter (Pallaro et al., 2015 ; Shao et al., 2019). While Agyemang et al. (2019) and Pallaro et al. (2015) point out the legislation and policies to be a driver to CE, Shao et al. (2019) state that they are too poor or ineffective in certain areas. In addition, it is highlighted that policies are evolving rapidly and in different directions, which has an adverse effect on the remanufacturing activities up to now (Shao et al., 2019). In fact, distinct governments and organizations offer distinct opinions, even within the same institution, thus making the evolution of the regulations uncertain and creating a regulatory barrier to the transition (Baldassarre et al., 2022). Lastly, it

is clear that there are differences in terms of regulation depending on the region, decisions are not always aligned all over the world. Those differences may jeopardize the competitiveness that EU car makers have with respect to US manufacturers and to the rest of the world (Baldassarre et al., 2022).

2.5.2. Car sharing & Ride sharing models

Introduction to the models

Firstly, now that the linear model has been analyzed, the sharing Business model “Car sharing” can be emphasized. Making vehicles available for reservation and paying for its actual use is the way Car sharing works (Service public de Wallonie (SPW), 2022). The latter is part of the large family of the Product-service-system models, more particularly of the Product renting or sharing category (Tukker, 2004). This category of PSS model consists of offering goods as a service rather than as a product to own which is characterized as a use-oriented service (Tukker, 2015). One of the aims of this type of models is to address the unsustainable consumption paradigm tightly attached to modern society’s mindset by optimizing resource utilization (de Jesus Pacheco, ten Caten, Jung, Pergher & Hunt, 2022 ; Moro, Cauchick-Miguel & de Sousa Mendes, 2022).

Furthermore, not only this Business model is related to the Product-Service-Systems models, but it is also linked to the Sharing Economy concept and is a part of the Circular Economy aspect by the way that it enables a collaborative consumption model (Barbu, Florea, Ogarcă & Barbu, 2018). This shared consumerism induces more efficiency and sustainability in terms of product utilization and could, to a certain extent, overcome the structural waste issue of the mobility system observed above (Barbu et al., 2018 ; Hedberg & Šlpka, 2020). However, and as it will be addressed in the Challenges, this model faces reluctance. Its success relies heavily on consumer preferences and consumption patterns and companies therefore need a good understanding of the evolution of the consumer’s mindset to predict his decision factors (Barbu et al., 2018 ; Moro et al., 2022).

Within this kind of model, there is no transfer of ownership, the customers are paying for use instead of owning the goods (Belleflamme, 2020). There is a shift from product to service

meaning that the focus is no longer on consumption (Xia & Tang, 2011). The company offering its services owns the fleet of cars and keeps the ownership throughout its contracts with its customers. Therefore, the company has a strong interest to maintain vehicles at their highest utility and value at all times to continue to make profit out of them, which is in line with the Circular Economy principles. Moreover, the Car sharing model is believed to have potentially a significant impact in terms of emission and material use reduction (Wang, Mitake, Tsutsui, Alfarisi & Shimomura, 2022). The implication of having such an impact is the challenge regarding management which will be tackled in the challenges section. Furthermore, other literature (de Jesus Pacheco et al., 2022) demonstrates, in some instances, a positive economic impact at the expense of a small reduction in environmental impact with regards to this Business model, which will depend on the company's vision and goals and if the sustainability aspect is at the heart of its business.

Secondly, the attention will be oriented towards Ride sharing. This model, in parallel to Car sharing, is a Business model which is found under the PPS models family as well as the Sharing Economy (Wang, Wang, Wang, Wei & Wang, 2020). Ride sharing enables consumers moving to nearby destinations to use the same car and thus share transportation related costs (Zhang & Liu, 2022). In this regard, it is related to the Product pooling category of the use-oriented PSS models in the way it facilitates a simultaneous use of the product (Tukker, 2004). This model also aims at fighting the structural waste but under another aspect: while Car sharing counteracts the fact that cars spend most of their time parked, Ride sharing acts against the low utilization rate of car seats by increasing their occupancy. It is thus a tool that can substantially decrease the environmental impact of the automotive sector and reduce traffic congestion (Mitropoulos, Kortsari & Ayfantopoulou, 2021 ; Wang et al., 2020).

As well as the Car sharing model, the Ride sharing model implies no ownership of goods for the customer. The difference is that the company does not have to own a fleet of cars. Nevertheless, the company has to own a tool for individuals to match their demand and supply, on request. This tool is mainly represented as a platform, on one side can be found the drivers offering their seats and on the other side of the platform can be found passengers who need a ride (Mitropoulos et al., 2021). While Car sharing models allow a single car to be

driven by multiple users, Ride sharing models allow a single car ride to be exploited by multiple users.

Opportunities

Analyzing the opportunities of the two Sharing Economy Business models seen heretofore together is more relevant as Car and Ride sharing models share most benefits. It is not a surprise as both models are known to positively impact life aspects for city residents and offer better living standards while contributing to a sustainable economic growth (Bonciu & Bâlgar, 2016).

The Car sharing model in itself is the outcome of the Rethink strategy. This Business model makes the use of the product more intensive by allowing it to be shared by multiple users (de Jesus Pacheco et al., 2022 ; Moro et al., 2022 ; Tukker & Tischner, 2006). In addition, it is a service that involves Repair strategy. An accidented car, except in the case of too expensive repairs, will be repaired by the company in order to prolong its use as per the Repair strategy. Furthermore, in certain instances, it allows Reuse strategy for the whole car. It is known that car sharing vehicles are used longer and may even be from the secondhand market (Lagadic et al., 2019).

Ride sharing, by proposing a dematerialized service, is making use of the Refuse strategy. In fact, instead of offering new or secondhand products, this BM proposes to amplify the use of existing products and thus refuse that more products are produced (Lin et al., 2021). In addition, it allows an increased product utilization, as per de Rethink strategy.

Since those two models do not involve manufacturing or recycling processes, the other R's cannot really be implemented. Still, the environmental impact of the two R's discussed, Rethink for both models and Refuse for Ride sharing, is not neglectable. With this in mind, the benefits brought by those models will be described in the following paragraphs.

On the one hand, those models observe an increased resource utilization and resource optimization (de Jesus Pacheco et al., 2022 ; Moro et al., 2022 ; Tukker & Tischner, 2006). That leads to a decreased number of cars on roads, meaning fewer parking spaces are

necessary and more public space should be available (Bonciu & Bâlgar, 2016 ; Harris, Mata, Plepys & Katzeff, 2021 ; Lagadic, Verloes & Louvet, 2019). Naturally, having fewer cars on the roads is an effective way to reduce the environmental impact of traffic by reducing GHG emission and easing urban transportation congestion (Harris et al., 2021 ; Wang et al., 2020). Zhang & Liu (2022) shared that Ride sharing on its own could improve by almost one quarter vehicle utilization leading to a reduction of more than 7 million tons of carbon emitted on a yearly basis. Besides, not only the GHG emissions are reduced because less cars are on the road, but also the car production as fewer cars are needed (Harris et al., 2021). One last point, Harris, Mata, Plepys & Katzeff (2021) observed that public transport finds itself in increase with those models, leading to even further decreased pollution and congestion. However, in contrast, Ramos, Bergstad, Chicco & Diana (2020) observed that prior research states a potential rebound effect of Car sharing is the decrease in the use of public transportation. Therefore, the impact is yet to be determined around traffic congestion and public transportation. In order to be sustainably effective, the target audience should avoid including public transport users. Public transport and other greener means of transportation should remain the most attractive option.

On the other hand, the strength of Circular Economy oriented Business models is the improved relation with customers which allows a better understanding of their behaviors (Shao et al., 2019). In addition, key factors when adopting those BMs are the feeling of belonging and social experience in a perceived sustainable context (Barbu et al., 2018). These factors could conceivably ensure the retention and loyalty of customers.

As mentioned before, Car sharing and Ride sharing counteracts the low utilization rate of cars and their low seat occupancy, is it possible to combine the two? This is an area that future studies could cover. In the meantime, a collaboration between leasing and Ride sharing companies has been studied. In addition to being a potential combination of services that foster sustainability, it seems to be profitable to combine both (Lin, Sun, Cao, Zhou & Chen, 2021). Lin, Sun, Cao, Zhou & Chen's study (2021) observed that profitability and users surplus increase with the level of cooperation between Car rental and Ride sharing companies. Based on the idea that Ride sharing allows less traffic congestion and that Car rental makes available fewer polluting cars while being profitable, this collaboration is an ambitious option that deserves further investigation.

Challenges

On the Product-Service-Systems side, more precisely the one of Car sharing and Ride sharing models, many challenges are arising. The main barrier to a more sustainable consumption is the consumer reluctance to adopt this type of model. That is due to the complexity in managing supply to match demand and also to the fact that not owning the goods may be convenient for the consumers in some situations, but it can be very inconvenient in others. Lastly, the adoption of those models can lead to unintended adverse effects.

To begin with, the focus will be on Car sharing challenges. While many benefits have been identified for Car sharing and the fact that the user avoids many inconveniences, there are also disadvantages hindering its adoption. As a matter of fact, in the PSS models, Product renting and sharing implies for the user to take time and effort in order to access and enjoy the product (Tukker, 2004). That is due to the access to the goods being shared across the users, meaning that the service can be limited, even saturated, and less close in terms of distance.

One of the potential drawbacks of people not owning the product is the way they are going to use it. Enjoying the cars at disposal without being the owner may lead to uncaredful use and therefore increase wear and tear of the vehicles (de Jesus Pacheco et al., 2022 ; Tukker, 2015). Consumers are not paying for the maintenance or repairs meaning that using brakes carelessly, wearing out the tires or pushing the engine to its limits is not any of their concern. As seen earlier, the impact of non-exhaust emission is not neglectable (Requia et al., 2018 ; Woo et al., 2022). Increased wear and tear means increased non-exhaust pollution. Therefore, the challenge is also to convince consumers to adopt a more sustainable consumption, especially in the way they use the goods when it comes to use-oriented services (Moro et al., 2022).

Another potential rebound effect is the decreasing public transport demand (Ramos, Bergstad, Chicco & Diana, 2020). Car sharing could, to some extent, increase the traffic congestion instead of decreasing it by making public transport less attractive. That will depend upon the audience reached and so will the effect whether it will be positive or negative for traffic.

A last unfavorable point for Car sharing is the profitability. Lagadic, Verloes & Louvet (2019) suggest that this Business model may not be a profitable one. This has been illustrated with DriveNow and Car2go. Those two major brands withdrew their activities from major cities in the first place, then merged, and finally were sold all this for the sake of profitability. At some point, DriveNow, founded by BMW, ceased its operations in Brussels and London. At another time, Car2go, the former Car sharing brand of Mercedes, left many cities in big North American hubs. Both brands ended up merging and became ShareNow but still left the whole of North America for financial purposes and focused on European markets only. Even though the brand had the status of European leader, that did not allow it to be profitable which led to the takeover by Stellantis in 2022 (Automotive News Europe, 2022). In fact, the profitability challenge can be explained with the difficulty and costs resulting from coordinating the needs and trusts of the potential users (Belleflamme, 2020). The size of the fleet of cars and its location are crucial aspects as well. Of course, it should be kept in mind that as the user base grows, so should the fleet size or it will result in difficulties for users to meet their needs (Lagadic et al., 2019).

Then, moving to the challenges of the Ride sharing model. This model is considered to be a disadvantage for consumers in terms of flexibility and enjoyment. As well as for the Car sharing, users have to plan their trip in advance which harms the convenience of the Ride sharing service (Mitropoulos et al., 2021 ; Tukker, 2004). Lagadic et al. (2019) and Poltimäe, Rehema, Raun & Poom (2022) however, say that the evolution of tech tools is easing the use of those services, allowing more flexibility. Still, using Ride sharing services often means longer travel time (Zhang & Liu, 2022). This is due to the waste of time locating, driving to the passengers, and picking them up. In highly populated cities where traffic is congested, the travel time can be undesirably lengthened (Zhang & Liu, 2022).

The problem also lies within the emotional feeling towards Ride sharing. Mitropoulos, Kortsari & Ayfantopoulou (2021) and Wang, Wang, Wang, Wei & Wang (2020) add that driving with strangers can be a source of insecurity, uncomfortability or awkwardness which can be constraining for the users. The security risk can be avoided to a certain point with feedback loops that platform and applications are enabling (Hedberg & Šipka, 2020). Nevertheless, the privacy risk is harder to deal with. With those numerous challenges related

to the customers, the concern is to alleviate those difficulties and make the services more enjoyable with the intention to push more people to use these greener services.

Since Ride sharing models are necessarily linked to platforms, there is the cost linked to coordination of needs as well (Belleflamme, 2020). The matching must be sophisticated enough to make the service efficient and valuable. That can be a business barrier as the service might not be efficient and as a result not profitable enough (Mitropoulos et al., 2021). Another weakness of this model is the geographical coverage (Mitropoulos et al., 2021). Not every city could implement this model. As a matter of fact, if it is difficult to make the matching effective, it might be even more complex in the countryside.

2.5.3. Leasing and Car rental models

Introduction to the models

Lastly, there is the leasing or renting Business model, underlying the family of use-oriented Product-Service-System as well, involved in the Product lease category (Tukker, 2004). Along with both previous models, leasing and renting models involve no ownership on the consumer side. The leasing and renting companies, however, have to own a fleet of cars in order to offer its leasing and renting services in contrast to Ride sharing and in parallel to Car sharing model. The profitability for this type of business relies upon the purchase cost and value at disposal of the car fleet (Seay & Narsing, 2013). The difference between leasing and renting is the duration of the contract as they respectively refer to longer-term and shorter-term contracts (Kuo, Chiu, Hsu & Tseng, 2019). In the scope of this paper, both terms will be used synonymously as the services that the models offer are closely related.

Since the customer is the sole beneficiary of the good while he is renting it, leasing seems to act partially against low utilization of cars, it should last only as long as needed. However, it is common for leasing companies to offer buy-back deals at the end of the contract. Traffic congestion or other concerns mentioned beforehand might therefore not be improved. Still, this BM is also considered part of the Sharing Economy as the value proposition can differ from the traditional ownership-based linear model and propose additional value in terms of social, environmental, and economic aspects (Huang et al., 2021). In addition, a combination

of leasing and Ride sharing models could be a counter to the lower utilization and even be more profitable for everyone, as it will be seen in the opportunities section and in the analysis.

Opportunities

Regarding the leasing BM, the main opportunities are access and cost related. As the commitment is lower in a Car rental decision, this kind of company can tip the balance towards less polluting vehicles (Gulzari, Wang & Prybutok, 2022).

Those vehicles, which are usually more expensive to buy and to maintain, and would generally be unaffordable for an average person, can be a favorable option to be aligned with the growing environmental engagement of individuals (Huang et al., 2021 ; Queirós & Oliveira, 2021). Queirós & Oliveira (2021) observe that decreasing profit of a Car rental business by around 15% could lead to a decrease by more than 60% the CO2 emissions of this business. At the same time, Requia, Arain, Koutrakis & Dalumpines (2018) show in their study that having only EVs on roads lead to a decrease of more than 80% of particulate matter emissions caused by exhaust systems, the rest is due to non-exhaust emission. The favorable point of this leasing model is that it does away with apprehension towards costs related to the repair and maintenance of these more expensive vehicles (Gulzari et al., 2022 ; Huang et al., 2021).

Furthermore, it eliminates the concern of the rapid loss of value of vehicles, especially electric ones, and of the replacement cost of batteries for EVs. In fact, EVs batteries must be replaced when they fall below 80% total capacity (Haram et al., 2021). As the EV market is growing with evolution of regulatory trends, implementing CE strategies in leasing, such as Repurposing, can be profitable. Haram et al. (2021) prove this point in a study, concluding that repurposing EV batteries lead to significant benefits in terms of economic and environmental aspects.

In terms of the 10 R's, the leasing Business model does not bring many opportunities. leasing, as the Car sharing model, implies the Repair strategy to extend the life of the vehicle in case of an accident. While consumers may not take care of their cars, leading to premature

wear and tear, leasing has an important incentive to keep the vehicle at its maximum value. As said above, the Repurposing strategy can be another added value. However, the model does not fit with other strategies since it does not deal with the manufacturing nor the disposal. Nevertheless, collaboration with other companies can, to some extent, facilitate the take-back and recycling of vehicles, allowing Remanufacture, Repurpose, Recycling and Recovering strategies to come into play.

Challenges

On the leasing and Car rental side, key issues are the capacity to meet demand. In conjunction with the Car sharing model, the main challenge is to optimize the size fleet and the mix of cars (Queirós & Oliveira, 2021). Since the fleet is very variable with the great rotation of cars throughout the year, managing it carefully is critical to ensure success and profit (Seay & Narsing, 2013). Then, predicting the highly volatile demand and optimizing the price in the face of very price-sensitive consumers is what makes this model difficult to manage (Queirós & Oliveira, 2021). In addition to this, it is necessary for this type of model to differentiate itself from competition, making it complex not to leave the ecological stakes in the background (Queirós & Oliveira, 2021).

In parallel to the Car sharing model, leasing is not an ownership-based model which means that it can lead, to a certain extent, to the equivalent rebound effect of less careful use of the cars and thus increasing the emissions of micro particles (de Jesus Pacheco et al., 2022 ; Tukker, 2004 ; Tukker, 2015).

At last, whether it is the Product-selling, the leasing, the Car sharing or even the Ride sharing models, they all share one PSS challenge: managing the communication and alignment in order to develop and share consistent corporate goals with the shareholders (Li, Huang, Sun & Zhi, 2022). Otherwise, misalignment can impact and lessen the importance of the sustainability aspect due to a lack of investor support (Li et al., 2022).

2.6. Gap in the literature

This literature review is a means to better understand and identify the current trend in the automotive sector around the sustainability topic. Acceptance of more sustainable Business models in line with the adoption of circular economy strategies on the car manufacturers side seems to be the current trends of this sector. Nevertheless, whereas the appeal to leasing is growing and the market share of this BM in the automotive sector is increasing, it was observed that the literature around this subject in the glance of sustainability is poor.

Among the 4 Product-service system models of the automotive sector discussed thus far, the linear product-selling model is the least favorable in terms of circularity, especially in B2C business. Whereas B2B car-selling can be the intermediary to more sustainable models, B2C car-selling is the least favorable for car utilization. On Car sharing and Ride sharing sides, there are concerns in terms of adoption in some instances and in terms of profitability in some others. Tukker (2015) highlights the fact that consumers value owning the products and being the only person to be able to enjoy them. As a result, the added value of products can be limited by the lack of ownership (Tukker, 2015). The leasing model, on the other hand, has seen its adoption rate steadily increasing for several years. It seems to be the compromise that other models fail to find. Companies have a real economic benefit to turn to leasing and therefore make it their main choice. In addition, it is supporting the adoption of greener vehicles, especially in the context that the sale of gas vehicles will soon not be allowed anymore. While waiting for EVs to be more affordable, leasing allows progressive access to this solution for the more reluctant population by removing certain constraints or fears.

In Europe, it is more common to hear about leasing than the other Sharing Economy models analyzed earlier in this paper. It is no surprise since it is progressing in recent years with companies wanting to offer company cars to their employees. For instance, the car leasing in Belgium and France in 2020 accounted respectively for one third and 42% of new car registrations (C-Ways, 2021 ; Fédération Belge de l'Automobile & du Cycle [FEBIAC], 2021). It is worth noting that out of 10 new EVs registered, 9 are registered by a company or freelance (FEBIAC, 2022).

In summary, there is an interest to broaden the research around sustainability within leasing and Car rental in order to discover new ideas and thoughts around the opportunities and challenges of this Business model and better understand the sustainable added value that it can contribute. The question that arises is therefore: how the automotive sector can move towards a more sustainable economy with the leasing business model? What are the underlying opportunities and challenges of this transition? The empirical part of this paper seeks to answer these questions using qualitative data.

3. Empirical research

In view of the gap identified in the literature, the aim of this empirical study is to contribute to the discovery of new ideas around the leasing in the glance of sustainability. The research topic is thus the following: How can the automotive sector move towards a more sustainable economy with the leasing business model? What are the underlying opportunities and challenges of this transition?

In view of the research topic, which is based on the discovery of new insights, the most relevant type of research is the exploratory research. It allows to meet this investigative purpose and it is flexible enough to cover multiple aspects, consider several angles and thus enrich the knowledge on this subject. By improving the public knowledge and by finding the blocking points of this model it will be easier to find solutions and areas to further develop.

3.1. Methodology

In terms of data collection, this will be done through interviews of 30 to 45 minutes. Given that this is exploratory research, qualitative inputs are required to gain a deep understanding of the topic rather than quantitative inputs that would be used to generalize results. The semi-structured interview fits perfectly with the situation. That allows the questionnaire to be enriched by the inputs of the different speakers and the knowledge to be deepened to obtain a more focused exploration. Moreover, it allows flexibility in the discussion. All this encourages comparative and cumulative analysis strategies among respondents and allows the interview guide to be broaden with new ideas.

The questions of the interview guide are cascaded from a more general theme to a more specific theme: Introduction of the interviewee and the company, General questions on the sustainability topic, Deep dive on the subject and Deepening. The introduction of interviewees and company will not be covered in the analysis but will be reflected in the sampling section and in the tables with the interviewees' profiles found in the appendices. Also included in the appendices are the transcripts of the interviews and the analysis matrix

The analysis will be done through each question to bring out recurring themes. The analysis matrix will be key to highlight the latter. In this regard, it will be a horizontal analysis by cross-cutting themes to identify the most important topics among all the speakers. Verbatims will be used to support the analysis. Finally, the similarities or discrepancies with the theory will be synthesized and the findings not discussed in the literature so far will be highlighted.

3.2. Sampling

Field of research

The field of research is quite broad. The diversity in the sample has the purpose of considering several angles as mentioned before.

In a first instance, the focus will be on leasing companies with B2B or B2C customers, whether they are large or small. It can be a company specialized in leasing or a dealership offering leasing services. Therefore, it will possibly come out different opinions, points of view and challenges.

In a second instance, the focus will be on leasing client companies that manage a fleet of vehicles in order to offer company cars to their employees. This gives a different perspective on the ins and outs of the environmental concern in regard to leasing.

Selection of the sample

In order to strengthen the sample, the diversity of position of the speakers was desired. In this sample, there are speakers from different backgrounds, with more strategic or more operational positions, thus allowing to encompass potentially different opinions. Interviewing them allows a better understanding of the challenges and difficulties of this Business model in the context of sustainability. It is also relevant to get to know their possible fears and doubts about the uncertain future of the automotive sector.

In the first instance, speakers from leasing companies, there is a sample of 5 interviewees:

- Camille Branquart, Marketing Analyst at LIZY
- Sylvie Roussel, Lease Manager at Banque PSA Finance
- An anonymous Business Controller at LeasePlan
- William Mal, Salesman & Administrative Manager at Bouvy Motor
- An anonymous Data Analyst at Alphabet

In the second instance, speakers from leasing client companies, there is a sample of 3 interviewees:

- Quentin Colmant, CEO and Co-founder of Qover
Fleet size: 30 vehicles
- Christine Rillaerts, Co-owner and Project Manager at Buroconcept
Fleet size: 8 vehicles
- Eric Thore, Shared Services and Service Parts Manager at Solar Turbines
Fleet size: 50 vehicles

It is important to mention that these people are in no way spokespersons for their company but rather people who wish to contribute to the knowledge with their opinion and expertise on the subject.

3.3. Analysis

3.3.1. Barriers to the electric transition

The main point that came out of the interviews was the lack of incentives and infrastructures towards the electric transition. The interviews revealed that more government support is needed to promote this sustainable transition. Each of the people interviewed expressed the need of more support in terms of incentives to improve current infrastructure and to support individuals and businesses in implementing electric vehicles in their daily lives. In addition, current technology is not sufficiently advanced enough to not be restrictive in everyday life.

The state subsidies tend to decrease with time while this is the very beginning of the transition. *“There are incentives, but they are insufficient.”* (William Mal, Salesman & Administrative Manager at Bouvy Motor). *“...there is the difficulty for people to acquire EVs. That could be compensated with vehicle purchase incentives, but then these should depend on income.”* (Sylvie Roussel, Lease Manager at Banque PSA Finance). *“[More support from the government is necessary] to support the infrastructure. Because asking to have only EVs ok, but the company need the infrastructure to accommodate these vehicles.”* (Eric Thore, Shared Services & Service Parts Manager at Solar Turbines).

Then, current infrastructure has been identified to be insufficient. Respondents agree that the infrastructure is lacking, and that the feasibility of the latter is questionable. Camille Branquart, Marketing Analyst at LIZY states *“...a great deal remains to be done. If I want to have an EV to go to work, there are only two charging stations for the parking lot”*. In the meantime, there will always be reluctance to adopt these new vehicles, hindering the transition. *“...the transition towards EVs because it is not done overnight. If you give EVs to somebody living in a flat in Brussels, he might not have or be able to access charging stations.”* (Camille Branquart, Marketing Analyst at LIZY). Regarding the feasibility of the transition, Christine Rillaerts, Co-owner & Project Manager at Buroconcept, shares *“I discussed with somebody from Elia (Belgian's Electricity System Operator), as we had a*

project with them, and what came out is that the electrical network will not follow the transition if everybody drives EVs”.

I have a big problem with EVs because it works well for the guy who has a villa outside Brussels. For the guy who has a villa outside Brussels, he has a garage where he can park and charge his car. 80% of my employees are people who lives in a flat in Brussels or Liège. If tomorrow they have an electric car, they are not able to charge it, they can only charge it in public charging stations. That does not work. So, we have a big problem as an employer. (Quentin Colmant, CEO and Co-Founder of Qover)

I think that the current structure does not really allow improvements to make the sector greener. With the growing number of EVs it becomes necessary to implement the infrastructure to support the transition. All that is very expensive for the moment. I guess punishing is one thing, but rewarding should be there as well. Increasing the incentives to make greener choices and implement what is needed for the transition. (Business controller at LeasePlan)

In parallel to the lack of infrastructure, there is the lack space in certain cities. Putting in place the infrastructure to allow the electric transition is one thing but having the room to do so is another concern. Doubts are therefore expressed about the electric transition. Christine Rillaerts, Co-owner & Project Manager at Buroconcept, mentions *“It generates other problems, and in our sector as well. Today, firefighters don’t want charging stations underground because it can cause fires”*. She adds *“Even in our projects, our clients want to include those charging stations but in fact there is a minority of building that can welcome many charging stations because they must be outside”*. Possibly, the structure will not allow the full implementation of this kind of solution, potentially pushing the main actors to rethink mobility.

And in the end, there is a demand to charge those cars at work, but I don't know if you are aware but when you have a company in Brussels, the city of Brussels has started to reduce the parking spaces for companies. So, I don't recall what the ratio is, but it is like one parking space for 50 employees. So, if you are allowed to have only 20 parking spaces and people want to charge their car, if there are not enough places already, this is a real concern. (Quentin Colmant, CEO and Co-Founder of Qover)

Lastly, there are technological progress concerns. EVs face challenges and constraints that are still not sufficiently managed today. Whereas charging stations do not cover a sufficiently large geographical area for the scale of the transition, EVs range seems to be insufficient. “[EVs are] not advanced enough to replace thermic cars. Their range is not good enough. It is not useful enough in terms of autonomy to totally replace a thermic car.” (William Mal, Salesman & Administrative Manager at Bouvy Motor).

For the moment I see a mileage constraint and charging time. If we charge our EV at home, it is ok but for somebody going on vacation and that must stop at the highway to recharge I think that it is quite expensive. Anyway, there are not enough charging stations. When I see all the people going to the north of France if they have to use EVs... the time it will take them to get there. Clearly, there are many constraints for the moment. (Sylvie Rousse, Lease Manager at Banque PSA Finance)

EVs might not be convenient for everybody. Current technologies and infrastructure make the transition constraining according to the lifestyle of the user. There is still progress to be made before these constraints disappear completely. EVs are one solution but not the unique solution to push for to reach sustainability, meaning that optimizing the structure will remain a concern in the automotive sector and that further initiatives should be investigated.

3.3.2. Access to better technologies

The second element to which much attention has been paid is the sustainable opportunity of leasing in terms of technology. All the leasing company respondents agree that leasing services have the power to highlight EVs and cars with better technologies. Sylvie Roussel, Lease manager at Banque PSA Finance mentions that *“The conditions are more advantageous for the EVs than thermic vehicles”*. Whether it is electric, hybrid or just thermic, leasing companies tend to provide vehicles which integrate the latest technology. This technology thus is supposed to be more efficient in terms of consumption.

In addition, with current regulations, those new vehicles have to be up to the latest standards in terms of greenhouse gas emissions, therefore minimizing their environmental impact. *“We of course offer electric cars solutions and our support to make the transition very smooth. Regarding thermic cars we invest in cleaner technologies.”* (Data Analyst at Alphabet). *“Regarding thermic vehicles, we tend to choose nearly new cars with the latest technologies so that their environmental impact is minimal [...] This way the vehicles are up to the latest standards...”* (Business controller at LeasePlan). Therefore, for people not ready to make the transition to electric vehicles, they are able to adopt greener cars to a certain extent. This point is supported by leasing client companies. *“The fleet is continuously renewed which means that you will always get the new technologies. It is indeed a means to bring new technologies.”* (Eric Thore, Shared Services & Service Parts Manager at Solar Turbines).

3.3.3. Improved affordability & management

Those cars, while being more affordable and accessible, do not require a significant commitment on the consumer side. A Business Controller at LeasePlan outlines *“Well as I just said the leasing makes them more affordable. We remove the constraints that prevent people from making the transition”*. With flexible leasing contracts, it is possible to get a taste of the electric transition without taking great risks. He adds *“Also, our contracts are very flexible, it allows our customers not to commit for too long periods of time”*. Leasing can thus help consumers take a step forward while eliminating their fears. *“Giving a company car is not something common, because it is a real risk and financial commitment.”* (Quentin Colmant, CEO and Co-Founder of Qover).

More affordable, less committal, no investment in the vehicle required, no surprise in the budget, eradicate the risk related to the repairs or residual value in case of resale, administrative simplification. In the end you get way more than if you buy the car. (Data Analyst at Alphabet)

The second argument that came up frequently is the one of easier management and administration. *“You have one very flexible contract that covers everything, you have a guarantee, services, and support.”* (Business Controller at Alphabet). In this regard, piece of mind, easier management and foreseeable costs compensate the potential concerns of leasing those new vehicles. *“With leasing services, you have a price that includes everything. You know what it will cost every year. If you have to buy and maintain cars yourself, you don’t really know how much it will cost. So, in order to better budget, the leasing is better.”* (Eric Thore, Shared Services & Service Parts Manager at Solar Turbines).

What I see as a practical interest in leasing is that everything is included. I don't really want an employee to have to deal with a garage, a breakdown service, an invoice, etc. when he has a crash or a broken-down vehicle. When you have a leasing agreement, you have a warning light that lights up, you stop at the first garage, and you know that it will be solved and covered by the leasing. It's not so much for the economy but for the convenience of our team. Everything is in the same contract and it's an administrative ease. (Christine Rillaerts, Co-owner & Project Manager at Buroconcept)

Moreover, leasing companies accompany customers in the electric transition, making it easier for them to adapt and acquire the necessary infrastructure. *“We of course offer electric cars solutions and our support to make the transition very smooth”* (Data Analyst at Alphabet). It is important to remember that 80% of cars emissions could be eliminated by having only EVs on the roads (Requia et al., 2018). *“[...] regarding the particles, EVs make sense to remove*

the negative effect on health in the cities.” (Eric Thore, Shared Services & Service Parts Manager at Solar Turbines). Leasing companies can thus stimulate this transition.

We are teaching what is required to make the switch in the future, ensure that the infrastructure can be put in place directly. We are posting articles about companies that are putting in place the infrastructure, how much it costs and how difficult it is. We are proposing content to help companies make the transition. (Camille Branquart, Marketing Analyst at LIZY)

Regarding B2B leasing contracts, the advantage is that EVs are incentivized by the government, especially when it comes to leasing. *“The TCO gives an incentive to the employee to go to an electric or hybrid vehicle. [...] as an employer, a hybrid or electric vehicle there is the deductibility that is interesting”* (Quentin Colmant, CEO and Co-Founder of Qover). William Mal, Salesman & Administrative Manager at Bouvy Motor mentions *“Deductibility for the companies (B2B)”*. Camille Branquarts, Marketing Analyst at LIZY, adds *“The BIK (Benefit in kind) is much lower, inducing lower taxation”*. That makes the service even more affordable. Client companies and their employees have thus real economic interest to lease those greener vehicles which fosters the transition.

3.3.4. Give a second life to the vehicles

Another circular opportunity of leasing raised by the 5 leasing companies interviewed is the fact that leasing companies are now offering used car lease services. It is an opportunity to extend the life of the products. This is no surprise as with components shortages, order times for new vehicles are increasing, which can jeopardize the business. Sylvie Roussel, Lease manager at Banque PSA Finance states that *“Given the state of the current market, we allow used vehicles whereas before it wasn’t the case. Given the shortage of vehicles it is difficult to refuse second-hand”*. Those used car lease services are favored by the leasing client companies as this induces less delay, less cost and therefore less risk. Christine Rillaerts, Co-owner & Project Manager at Buroconcept, reports *“These vehicles are more or less recent, with a remaining period, and you can get them directly at a more interesting price”*.

For people who wants a company car we turned to [second-hand leasing company] because we find it absurd to offer new cars. You know that an employee stays on average two years or three years. So, you offer him a new car, he stays 2 to 3 years then you give it to somebody else. Moreover, today you have up to 12 months delays because there are a lot of problems in the car manufacturing lines. (Quentin Colmant, CEO and Co-Founder of Qover)

However, it is necessary to remain critical of this aspect. While all leasing companies said that they lease second-hand vehicles, they also specified that those used vehicles are not so used, they are almost new. Leasing companies do not want to take the risk to lease a car that is too old, knowing that they are responsible for repairs and maintenance.

New car leasing is more common. Second-hand vehicles have more conditions. Secondhand cars cannot be more than 7 years old when the leasing contract reaches its end. This is for profit purposes. Having a car older than 7 years is risky and the bank will not bear the risk. In fact, instead of leasing people prefer to buy the secondhand cars. Regarding the companies, in general, they configure the cars so those are new cars. Sometimes companies have guidelines regarding the configuration of cars to get a good residual value. (William Mal, Salesman & Administrative manager at Bouvy Motor)

In addition, another unfavorable aspect of this type of service identified by the leasing client companies is the competition to hire. The company car is now a criterion studied very closely by the candidates, slowing down the possibilities for employers to offer used vehicles. Quentin Colmant, CEO and Co-Founder of Qover, shares “*The problem is that it is not me, it is my employees. When it comes to company cars, everyone wants his own comfort and his own options*”.

The only obstacle, and this is linked to human resources, is that the company car is like a tool that you gift to your employees. That means that I don't want to take the risk to lose an employee or a potential employee, because you know the job market is competitive. There is a balance between our values and the reality, if we have a candidate who has the expertise that we look for but does not want the car we are proposing him this is a problem. (Christine Rillaerts, Co-owner & Project Manager at Buroconcept)

3.3.5. Extend leasing contracts

The potential to lease again vehicles that are returned to the leasing company was raised. Camille Branquart, Marketing Analyst at LIZY, specifies that *“Either the lease customer buys the vehicle that is what we call the “Lease purchase contract”, or we lease the vehicle again if it is sufficiently new”*. However, it is something uncommon as, most of time, the car would be sold to the leaser or on the secondhand markets for residual value and profitability purposes.

But as I told you [getting a car back] is very uncommon because if we get the car back there is already an expertise. All costs, body damage or whatever, are charged to the customer. When we see the residual value for a renting is between 16 to 20%, it is better for the company to buy it and then sell it later than giving it back to us. (Sylvie Roussel, Lease Manager at Banque PSA Finance)

It was expressed that increasing leasing time should be something to push for to extend the life of the product. The risk leasing companies would take can be offset by the environmental advantage and could to a certain extent even be incentivized by the government. According to William Mal, Salesman & Administrative Manager at Bouvy Motor, keeping cars for longer periods of time should be emphasized, especially in leasing companies: *“Not manufacturing cars unnecessarily. So, utilize cars till their end of life, focusing on*

secondhand market". He also adds *"Increase leasing time and do not take the residual value into consideration, eventually they will be able to lease more second-hand vehicles"*. Christine Rillaerts and Eric Thore are positive on this subject: *"We sometimes extend the leasing contract if the vehicle is still driving fine. So, that costs us less and we do not participate in the over consumerism system."* (Christine Rillaerts, Co-owner & Project Manager at Buroconcept), *"What we do also, inside the Caterpillar group, we try to extend our leasing contracts. So, our contracts last 4 years 30.000km but if the car is fine, we extend it"* (Eric Thore, Shared Services & Service Parts Manager at Solar Turbines). That leaves room for improvement in terms of sustainability since the risk the leasing company would take by leasing older cars can be smaller in comparison to the benefit for the environment. By pushing leasing companies to make longer contracts, this will extend the life of the product which is a pillar of circularity. This consumerism paradigm could be narrowed with regulation.

3.3.6. Regulation: barrier and driver of sustainability

Regulation is a subject that has come up for all leasing company representatives, but their opinions differ. What has been mentioned the interviewees and which corroborates what was discussed is that regulation is a tool but also a barrier to sustainability. *"In the end, regulation is the main point. Many people say that the government is annoying but otherwise nothing would change."* (Camille Branquart, Marketing Analyst at LIZY). A Business Controller at LeasePlan describes regulation as their main driver to sustainability: *"Regulation is the main aspect"*. Nevertheless, its tendency to vary over time and its unpredictability seems to slow down the sustainable transition, at least this is the idea that has been studied in the literature and that is observed in these interviews. Christine Rillaerts, Co-owner & Project Manager at Buroconcept, shares *"I have the impression that each time we change government we start over"*.

I think that the problems are regarding the government, I mean it changes a lot. We need clearer decisions and more stable overtime. For instance, in Wallonia, they decided to change the taxes on the vehicles, but not in Brussels. It's constantly changing and there are no stable guidelines. Also, in terms of benefits in kind we

don't know it will be in the future, that has a role to play as well. For people with company car, how will those cars be taxed in 2 years? Nobody knows. They talk about taxing more and more company cars, but will they still be interesting, or will people choose a salary increase instead? I think that this aspect is slowing down leasing companies. (Sylvie Roussel, Lease Manager at Banque PSA finance)

You also have regulations around tax because it varies every year. We have to be the first to understand and to explain to our clients the new tax laws as we accompany our customers. Being able to compute the BIK and Cost of Ownership which also changes quite often, this is a pain. In order to reach other markets, taking into account different regulations is also difficult, this varies greatly from country to country, it has already delayed us. (Camille Branquart, Marketing Analyst at LIZY)

This uncertainty weakens the expertise of leasing companies and prevents them from committing to launching certain initiatives. Yet, it is necessary for them to master the subject and to accompany the client. Nevertheless, regulation is also the main driver of the transition as the impact in case of non-compliance is too great to ignore. Not following the transition would undermine the competitiveness of leasing companies. As Sylvie Roussel, Lease Manager at Banque PSA Finance states, *“Of course, we have also to comply to new regulations, we have no choice, otherwise it has financial consequences”*.

3.3.7. Customer interest and awareness as an obstacle to sustainability

That is where the trouble is. The 5 speakers from leasing companies do not recognize sustainability as an argument of interest for the consumer. Instead, the price is a selling point. *“Sustainability is one of the main aspects that we emphasize but still, this is not the reason why customers will choose greener solutions. Price and convenience are the real arguments.”* (Business Controller at LeasePlan). *“The first thing that comes is the cost related advantage, the price for running and maintaining the vehicle are lower.”* (Data Analyst at Alphabet).

What pushes the leasing companies to put forward greener vehicles is above all the regulation and the economic interest in line with the consumer interest.

So far, economic interest is the main argument for sustainability. Customers are only looking for lower prices. The demand for EVs is increasing not because it is sustainable but because it is convenient, or you pay less tax. (Camille Branquart, Marketing Analyst at LIZY)

It seems that there is a lack of interest in the environment, both on consumer and companies' side. Due to the lack of interest and awareness of the consumers in the environmental matters, focusing on sustainability might not be something that can bring profit to leasing companies. It was identified that profitability is a challenge for sustainability in leasing. *"Sustainable initiatives have to be profitable to be supported. Also, consumers have to be interested."* (Data Analyst at Alphabet). *"Remain profitable while proposing more sustainable solutions."* (William Mal, Salesman & Administrative Manager at Bouvy Motor).

I think that companies try to show themselves as green actors. The reality is that it is the economical point of view the main argument. The reality with those cleaner vehicles is that the TCO is decreasing. On the outside they want to be green but in the inside this not the case if it costs more. (Eric Thore, Shared Services & Service Parts Manager at Solar Turbines)

If sustainable initiatives only lead to a smaller profit, leasing and client leasing companies are obviously not incentivized to pursue them. *"[...] adding a layer of sustainability is time consuming and costly and we don't necessarily have the means to do it"* (Quentin Colmant, CEO and Co-Founder of Qover). It is clear that, in general, both companies and consumers act towards their own interest, which is profit, especially if the primary objective is not to be sustainable. However, as Queirós & Oliveira (2021) observed, more than 60% of CO₂ emissions could be eliminated by decreasing the profit of the leasing Business model by 15%, except that companies do not want to lose profit. As highlighted earlier, regulation acts on this

dimension so society's actors incorporate, without necessarily wanting it, the environmental aspect in their actions.

3.3.8. Lack of interest of individuals in leasing

In addition to a lack of awareness and interest in sustainability within the automotive sector, it was observed that individuals are less inclined to adopt these services, hindering the development of this Business model. “[...] B2C is more uncommon as people like to own cars.” (William Mal, Salesman & Administrative Manager at Bouvy Motor). However, the current consumerism paradigm conflicts with the sustainable values that initiatives are trying to develop.

“People that refuse leasing tend to prefer being the owner of the car. So, I guess the main challenge is breaking the need for ownership. The second thing is the awareness for the customer, in general if people are not aware of the benefits of leasing they will not turn to this solution. That’s why we need to educate and brag about the good things.” (Business Controller at LeasePlan)

William Mal, Salesman & Administrative Manager at Bouvy Motor also mentions the need for the leasing companies of *“Having a clearer offer. Clearer and simpler offer. Maybe having a more attractive offer thanks to government incentives to cover the installation of charging stations for instance”*. As most interviewees implied, companies know better the benefits of leasing than the individuals do. Individuals may not be aware of what a leasing service involves and that there are buy-back options. In addition, companies have much more incentives to lease not only for the service itself but also for deductibility purposes. That explains why all leasing companies interviewed in this paper put more effort into B2B than B2C leasing. This is no surprise as it was observed in the literature that the registrations of new leasing vehicles are mainly conducted for companies. If we consider that leasing is a means to promote greener vehicles, a possible improvement path is to convince individuals to adopt these services or other mobility alternatives. “[...] pushing the use of car rather than the ownership, with car sharing initiatives etc.” (Sylvie Roussel, Lease Manager at Banque PSA Finance).

3.3.9. Leasing as a means to offer remanufactured products

The next most discussed topic is around offering remanufactured products in leasing services. No constraints were observed to propose this service in the event that the risk is not too high. This is totally in line with the circularity concept. In the scrapyard, some of the cars observe limited damage, leaving remanufacturing opportunities.

We just need to be sure that we are not taking any risks with the health of the vehicle.

It must remain profitable, if it is profitable and the risk is limited, it is perfectly feasible. We could then put forward the argument of the price. (Business Controller at LeasePlan)

As price is one of the main selling points, offering second-hand or remanufactured products should be feasible. In case the car has a problem, the clients know that the leasing company will take care of that. (Camille Branquart, Marketing Analyst at LIZY)

Pushing for remanufacturing is thus relevant points of interest that deserves further research regarding the feasibility and profitability of the model. The reason leasing companies think it would work is that they would be able to propose a smaller price. As discussed earlier in the analysis, price is the selling argument that can tip the balance towards those remanufactured vehicles, while leasing companies can reduce clients' fears.

William Mal, Salesman & Administrative Manager at Bouvy Motor, added that, in parallel to pushing for remanufactured products, reducing manufacturing is also an element to consider.

Not manufacturing cars unnecessarily. So, utilize cars till their end of life, focusing on secondhand market. Force a reduced stock, only manufacture in line with the orders. Of course, stock for the showroom etc. but not more than those exceptions. Redirect to secondhand cars if the need is immediate, as they will not have stock,

otherwise manufacture according to the order. Certainly, that implies less profit but in terms of sustainability it is way better. Let's be honest they will never do it as it is constraining, and the financial aspect is impacted but that's an idealist vision of course. (William Mal, Salesman & Administrative Manager at Bouvy Motor)

Today, manufacturers and dealers have a lot of vehicles sitting around for nothing. The idea would then be that leasing companies push for remanufactured and second-hand vehicles in order to foster sustainability. Camille Branquart, Marketing Analyst at LIZY, supports this idea: *"[...] I think that the market would benefit from focusing more second-hand cars because there is still a lot of new cars today even though it is not sustainable"*. Quentin Colmant, CEO and Co-Founder of Qover, endorses that as well: *"[...] we find it absurd to offer new cars. [...] Finally, having second-hand cars, this is a circular economy which allows to avoid manufacturing new cars"*

3.3.10. Digitalization as a tool to support sustainability

First, digitalization allows companies to dematerialize paperwork. With the platforms, websites and applications, the need to have paper has faded over time. Sylvie Roussel, Lease Manager at Banque PSA Finance states *"This makes it possible to dematerialize all that is paperwork"*. It is a convenience that is beneficial to the environment.

Second, optimizing contracts and offering parallel services are fostered with digitalization. A Data Analyst at Alphabet raises that *"Digitalization is key to conduct our eco driver trainings and to operate our fleet management system. Without it, it would not be possible for us to propose those services"*. The main services enhancing sustainability are the Eco driving trainings and fleet management systems. Eco driving training allow individuals to optimize their driver with sustainability at the heart of the purpose. Fleet management systems are a tool to optimize a whole fleet of car in the aim of reducing the carbon footprint and costs.

Collecting data allows us to adapt contracts and to offer parallel services. If we notice that the car is driving less than expected, we can propose to optimize the

contract according to the use of the car. And as said earlier, we can propose eco-driving lessons. (Sylvie Roussel, Lease Manager at Banque PSA Finance)

Then, that allows us to optimize the contracts and our offer. Align with people's needs and do not offer more than necessary. In fact, we have a fleet management system, services and tools that are useful to reduce the CO2 footprint of our client. A good example is to keep the tire pressure at the right level, this will extend the life of the tire and consume less fuel. In parallel having a view of the condition of the vehicles and whether maintenance is required can help to reduce the carbon footprint. Eco driving is also an important aspect that digitalization tends to improve. That allows our clients to give driving recommendations for instance. (Business Controller at LeasePlan)

Finally, it was mentioned that with the development of this tool, it is easier to advertise to think greener. To the question “How can digitalization offer sustainability opportunities?”, William Mal, Salesman & Administrative Manager at Bouvy Motor, states “*In the advertising, show thought path for customers to adopt it*”. As a matter of fact, the responsibility is also on the side of the consumer to make greener choices.

3.3.11. Ride sharing associated with leasing

Regarding Ride sharing, the opinion is divided. While most of the interviewees from leasing companies think that combining car lease and Ride sharing is totally feasible, two of them think that this is private initiatives who should take the lead on this additional service. “*I think it is more feasible inside the companies of our clients than us offering this service*” (William Mal, Salesman & Administrative Manager at Bouvy Motor). Whether it is a private initiative or developed by the leasing companies, promoting Ride sharing within a B2B leasing contract is an element to consider. Employees have the same destination if they work in the same company, making the service and the matching easier to manage. “*...developing a Ride sharing system can be considered. As I mentioned before we are developing other*

mobility solutions such as car sharing.” (Data Analyst at Alphabet). There is a real added value that demands to be investigated as the sustainability aspect could be easily improved.

According to the leasing client companies, Ride sharing has become something harder to put in place with current situation. *“Life changed a lot, we have many people teleworking, who come one or two days a week. They do not have the same working hours. This is becoming very difficult.”* (Eric Thore, Shared Services & Service Parts Manager at Solar Turbines). Teleworking plays a big role in many companies today, making it more difficult to implement this solution, especially when people want their freedom and the ability to leave in case of emergency.

The reality is that on a logistic point of view that cannot work for us. People at our workplace do not arrive at 9am and leave at 4pm. People come when they want to and leave when they want to. Teleworking strengthens the fact that people are not coming on the same days. (Quentin Colmant, CEO and Co-Founder of Qover)

3.3.12. SUVs, the least green option

It was raised that SUV is the most recurrent type of vehicle that employees will choose. William Mal, Salesman & Administrative Manager at Bouvy Motor mentions that, in general, it is because they need room for their family: *“Employees tend to prefer SUVs as they might have a family and children... For companies that do not imply intervention or manual work it will be more SUVs or sedans”*. A Business Controller at LeasePlan supports this *“Our clients tend to like SUVs over other types of vehicles but to be honest it depends”*.

Regarding the sustainability aspect, SUV is the least favorable option to choose from. Besides having slightly more room, this type of vehicle is known to be heavier with sizes and shapes that make it non-aerodynamic. Therefore, SUVs emit more CO₂ particles with their higher fuel consumption. Making SUVs more affordable is a bad thing for the environment. Where leasing can improve is to no longer promote this type of vehicle in favor of vehicles that still offer space but would be greener. The thing is that they don't really have the interest to do it, so educating the consumer is a point to consider.

3.3.13. Potential ways forward

The last topic discussed in this analysis is the way forward for the sector. It is about idealistic ideas that could make the automotive sector greener.

The first recurring theme was the development of greener mobility alternatives such as Car sharing. As seen in the literature, until now, this type of business model was not very successful but demands to be developed and improved in order to be more attractive and to succeed in the future. *“We are building car sharing and other mobility solutions that are greener. I think it should evolve towards those greener solutions, developing them and making them more attractive”* (Data Analyst at Alphabet). There is no other choice in the aim of reducing the number of cars on the road and decrease traffic congestion. It should also be mentioned that leasing does not reduce the number of cars on the road, but it does allow, to a certain extent, to offer greener vehicles.

Of course, a commercial or somebody who lives at a place where there is no public transport of course he might need a car. For somebody for who this is not the case, nothing justifies that he gets a car, and so the focus should be on alternative mobility solutions. [...] As far as I'm concerned, in general, I think that a global rethinking of mobility should be done and I'm not totally in favor of the idea that we give company cars in all directions, to any employees, it is completely aberrant in our society.

(Quentin Colmant, CEO and Co-Founder of Qover)

The second idea was focus on second-hand cars. Today, the production is known to be ineffective in terms of circularity, even if strategies are adopted to try being efficient. A solution is just to avoid this production by focusing on what is already produced. By focusing on this segment, these products will have in theory a longer lifespan which is good for the environment and for circularity purposes.

Not manufacturing cars unnecessarily. So, utilize cars till their end of life, focusing on secondhand market. Force a reduced stock, only manufacture in line with the orders. Of course, stock for the showroom etc. but not more than those exceptions. Redirect to secondhand cars if the need is immediate, as they will not have stock, otherwise manufacture according to the order. Certainly, that implies less profit but in terms of sustainability it is way better. Let's be honest they will never do it as it is constraining, and the financial aspect is impacted but that's an idealist vision of course. (William Mal, Salesman & Administrative Manager at Bouvy Motor)

Lastly, recent events have proven that telecommuting can work. *“Life changed a lot, we have many people teleworking, who come one or two days a week”* (Eric Thore, Shared Services & Service Parts Manager at Solar Turbines). As stated by Quentin Colmant, CEO and Co-Founder of Qover, *“The best mobility is ultimately non-mobility”*. Establishing teleworking policies in companies where it is feasible could be a way to reduce traffic congestion and the CO2 emissions. He adds *“[...] nowadays there is a strong proposition to work from home. We realize that teleworking is becoming very important for the employees and that reduces the potential company car needs”*.

3.4. Comparison of the empirical study with the literature

3.4.1. Similarities

Strengths of the Business model

Affordability, accessibility, and limited commitment on the consumer side are elements that came out of the interviews. *“More affordable, less committal, no investment in the vehicle required, no surprise in the budget, eradicate the risk related to the repairs or residual value in case of resale, administrative simplification”* (Data Analyst at Alphabet). This observation goes in line with the statement of Gulzari, Wang & Prybutok (2022).

What also corroborates what these authors have shared is the fact that this Business model can tip the balance towards less polluting vehicles. *“We depend on the manufacturing companies so the only thing we can do is try promoting cleaner cars”* (Business Controller at LeasePlan).

As I said earlier, regulations, incentives and environmental matters force us to emphasize this type of vehicle. Of course, it will not be convenient for everyone but if it is, we will redirect to these. We emphasize the pleasure of driving. Generally electric and hybrid vehicles are quieter and make driving smoother. There is also the affordability through leasing, for the same budget you can access more premium cars. (Business Controller at LeasePlan)

In fact, the apprehension of repair and maintenance costs of those vehicles is eliminated, as mentioned by Gulzari et al (2022) and Huang et al. (2021) and as confirmed with the interviews. *“With leasing services, you have a price that includes everything. You know what it will cost every year. [...] in order to better budget, the leasing is better”* (Eric Thore, Shared Services & Service Parts Manager at Solar Turbines).

With what was discussed in this section, it can be argued that this Business model proposes additional value in terms of social, environmental, and economic aspects compared to a traditional linear model, in line with what Huang et al. (2021) stated. As highlighted, leasing simplifies running and maintaining a car, it can highlight cleaner vehicles and make them more affordable.

Regulation and governmental support

During the interviews, it was observed that the regulation aspect was the main tool of the transition. *“Regulation is the main aspect.”* (Business Controller at LeasePlan). That goes in the same direction as Drago & Gatto (2022) who identified the regulatory aspect as the main medium to advance the sustainable transition.

Then, the governmental support has been highlighted to be insufficient in regards of the transition which is consistent with the literature. As Pallaro et al. (2015) and Shao et al. (2019) shared, in the face of the size of the environmental matter, this support is said to be lacking. *“There are incentives, but they are insufficient.”* (William Mal, Salesman & Administrative Manager at Bouvy Motor).

Finally, the volatility of regulation promoted by the government was identified as a barrier to the transition by Baldassarre et al. (2022). This element also emerged from the discussions in the way this volatility creates uncertainty and prevents sustainable initiatives. *“I think that the problems are regarding the government, I mean it changes a lot. We need clearer decisions and more stable overtime. [...] It's constantly changing and there are no stable guidelines.”* (Sylvie Roussel, Lease Manager at Banque PSA finance).

Limited potential for circular initiatives

Another topic that was discussed in the literature, leasing companies have a limited potential to undertake circular strategies. During the analysis of the leasing Business model through the 10 Rs, it was observed that most leasing companies do not have the control over the manufacturing neither the recycling etc. This is a point that corroborates with the element that was raised that those business have a limited potential to conduct circular initiatives. *“We*

can't really change the products. We depend on the manufacturing companies so the only thing we can do is try promoting cleaner cars and support customers in making greener choices.” (Business Controller at LeasePlan).

According to Li et al. (2022), it is important to share consistent corporate goals with the shareholders through communication in order to pursue sustainability. This was reflected in the discussions, the objectives of the companies are not always shared by all stakeholders, thus further limiting the sustainability potential. Individual opportunities are obviously less strong than as a group. Eric Thore, Shared Services & Service Parts Manager at Solar Turbines, shares regarding greener mobility *“Today, there is no push from the company. It is just a personal value, a personal objective to be greener, not a company objective”*.

Awareness as a barrier and driver of sustainability

According to what have been discussed in the literature, awareness has been identified to be both a barrier and driver of sustainability (Milios & Matsumoto, 2019 ; Wang et al., 2020). As a matter of fact, it is a barrier if it is lacking but it can be a driver if it is well spread. It seems that this statement is confirmed with what was raised by the speakers. *“Sustainable initiatives have to be profitable to be supported. Also, consumers have to be interested.”* (Data Analyst at Alphabet). This also supports Hedberg & Šipka’s idea (2020) that Circular Economy relies not only on new Business models, but also on consumer responsibility.

The thing is, even for consumers with great sustainability interest, James (2011) outlines price and convenience as the main interests. It also goes in line with what was discussed in the interviews. For instance, second-hand leasing was not favored for sustainable purposes but mainly for delay and price purposes, and to reduce the financial risk if the employee resigned prematurely. *“[...] these vehicles are more or less recent, with a remaining period, and you can get them directly at a more interesting price. So, the last two vehicles we took was this way, for practical reasons.”* (Christine Rillaerts, Co-owner & Project Manager at Buroconcept). Sustainability was something additional justification of turning to this service. In addition, Quentin Colmant, CEO and Co-Founder of Qover mentions *“[...] when you look at all the costs that are involved from a regulatory, legal, administrative point of view, adding*

a layer of sustainability is time consuming and costly and we don't necessarily have the means to do it”.

Digitalization opportunities

Digitalization came out as a medium to optimize contracts and to offer parallel services as shared by Sylvie Roussel, Lease Manager at Banque PSA Finance, *“Collecting data allows us to adapt contracts and to offer parallel services”*. This supports what was discussed in the literature that digitalization is a tool to improve knowledge, connections, and information sharing which allows the improvement and development of parallel services (Belleflamme, 2020). *“Digitalization is key to conduct our eco driver trainings and to operate our fleet management system. Without it, it would not be possible for us to propose those services.”* (Data Analyst at Alphabet).

Digitalization is also a means to advertise greener. As William Mal, Salesman & Administrative Manager at Bouvy Motor, shared *“[Digitalization offers sustainability opportunities] in the advertising, show thought path for customers to adopt it”*. This reinforces the idea from Hedberg & Šipka (2020) that one of the benefits of digitalization is to drive consumers to have more sustainable preferences with the purpose to strengthen their role in the environmental crises.

3.4.2. Discrepancies

Consequences of non-ownership

It was discussed in the literature that companies with Product-service system models had a strong interest to keep utility and value of their products to continue making profit out of those. However, the interviews revealed that it is rare that vehicles are leased again, and it is even quite common that vehicles are sold at the end of the contract. *“We don’t always get the cars back as our clients can buy them at the end of the contract but in the case, they don’t buy the cars we sell them on the second-hand market.”* (Data Analyst at Alphabet). This raises the question: do leasing companies really have the interest to put a lot of effort to maintain the

vehicle at its best utility in the case of a contract with a buy-back option? It is therefore a point that can be distinguished from the literature and further studied.

A second point from the literature that is questionable is around the potential rebound effect of less careful use of the cars which could lead to an increase of micro particles emissions (de Jesus Pacheco et al., 2022 ; Tukker, 2004 ; Tukker, 2015). Again, regarding a buy-back contract, it is likely that the client will not use the vehicle without paying attention to its wear and tear with a view to buying it back later, meaning that the rebound effect has no reason to exist.

3.4.3. Findings

In this section, for the sake of consistency and in order not to make the reading more cumbersome, the quotes from the interviews will not be cited again as they have already been cited in the analysis.

Opportunities

Leasing reinforces the idea that running a car is not a concern anymore. The fact that easier management is highlighted, the interest is growing, especially for companies. With that in mind, leasing companies are supporting the electric transition, making it easier for consumers to adapt to changes. Currently, leasing greener vehicles is incentivized by the government, meaning that this model is likely to have a positive impact on the environment. At a minimum, leasing companies make better technologies available, even for gas cars, which is beneficial to the environment.

Extending the lifespan of the products with second-hand and remanufactured vehicles is another significant opportunity. With price on the foreground of consumers' selling point, it is possible to offer this kind of vehicles. It is part of the circular economy and has a positive impact on the environment.

Challenges

The main challenge of this Business model identified was the lack of infrastructures for the implementation of hybrid and electric vehicles. Not only charging stations do not currently cover a sufficiently large geographical area but also it seems that the feasibility to implement them in certain cities is questionable. On the one hand, the electrical network must support this transition, and on the other hand, there must be enough room in the cities. Because, it is true, a gas station can cover the needs of many thermal vehicles, but this is not necessarily the case for a charging station. In the end, the structure itself is challenging the transition.

Current technological progress is a hindrance to the transition. Those greener vehicles are constraining for a great deal of the population because technology is not advanced enough to fit all lifestyles. They are not suitable for long journeys, and even less for living in an apartment.

Another obstacle of the transition is the lack of environmental concern. As discussed, most people want his own car and comfort, very rarely switching to more sustainable models or vehicles. Regarding companies, the lack of profitability makes potential more sustainable initiatives lacking.

While leasing is developing on a large scale in companies due to its economic advantage and convenience, this is not necessarily the case on an individual scale. With the objective of promoting more sustainable vehicles, this lack of interest of individuals in leasing is a barrier to the model itself.

Finally, it was interesting to explore the potential of Ride sharing. However, it was identified that with the increasing level of telecommuting in companies, it becomes difficult to promote such initiatives within the same company. Still, the leasing companies have no constraint to allow this kind of model with their vehicles, exploring this one more broadly may be relevant.

4. Limits

As every research paper, this work observes limits. Research is never perfect and always has room for improvement.

The first limit is the fact that this paper uses qualitative data. Qualitative data is known not to offer generalizable results. Instead, it is a means to discover new ideas and thoughts. The insights that came out of this qualitative data are just elements that help gain a better understanding of the ins and outs of the topic and that help pointing out aspects which could be further studied.

A second limit is the geographical limit. In this paper, most interviewees are from companies based in Belgium and thus offer a Belgian perspective. It could be interesting to conduct research at the European level to offer a broader view of the situation.

The interviews are non-exhaustive. Even if diversity was observed in the sample, there is still room for improvement in order to try having other perspectives. Having for instance bigger client leasing companies with larger fleets could have been relevant.

The limited number of participants is another limitation to this work. The current work world implies that people have very busy schedules and don't necessarily want to spend time on interviews. Therefore, a total of 5 leasing companies and 3 leasing client companies entered the scope of this paper.

Finally, with all qualitative or quantitative research comes potential biases. Biases may appear in the questionnaire, in people's answers and in the interpretation of these answers. Knowing that the names of the companies are mentioned, it is possible that a commercial bias appears as well.

5. Conclusion

Throughout this work, it was observed that the leasing Business model had sustainable opportunities and advantages that other models did not manage to reach in the automotive sector. Nevertheless, as for the other Business models, leasing has its own challenges and difficulties that tend to jeopardize the development of its sustainable aspect.

On one side, management ease, convenience and affordability make leasing a favorable option in the view of promoting greener vehicles and transitioning to EVs. This is incentivized by the government. Leasing has succeeded in erasing the constraints and fears of consumers, where other models tend to fail. Therefore, this model makes it possible to offer second-hand or remanufactured vehicles or at least greener vehicles, an important aspect of the Circular Economy.

On the other side, the structure and the sustainable interest of consumers and companies seem to be blocking points of the transition, limiting the development of sustainable initiatives. The infrastructures are designated as insufficient and may never be sufficient if the electrical network and the structure of the cities do not allow it. Awareness has been identified as a key issue in achieving a more sustainable economy. Consumer and business choices, although influenced by the regulatory aspect, are not sufficiently green in view of the size environmental crisis. Regarding regulation, it is recognized as a major instrument of the transition. This tool must give real guidelines and guide society towards a more sustainable world without leaving uncertainty about the future of the automotive industry which can limit sustainable initiatives.

It remains to be seen how regulation and governmental support will evolve in relation to this sector. If the infrastructure is sufficient and that electric vehicles are incentivized by the government, what will prevent consumers and companies from committing to those greener vehicles? As discussed, the leasing business model can foster the electric shift and the transition to a more sustainable economy.

Obviously, leasing should not be a way to increase car production and the number of cars on the road, this is against the sustainable principle. On the contrary, this model should make it possible to promote greener vehicles or to extend the life of vehicles already produced. It is critical for final consumers to accept and demand used and remanufactured products. The danger of this model is if it makes the car too accessible, which would then become a favored means of transportation compared to greener alternatives.

Regarding further research, it could be relevant to conduct quantitative research in order to support the results obtained in this paper. As discussed in the limits, qualitative data is not meant to be generalized. Other areas to investigate are the consumer's point of view, lifestyle, and preferences towards the adoption of these greener vehicles. Finally, research could be conducted around the profitability and risks in case of extension of the leasing contracts duration.

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7. Appendices

7.1. Interview guides

7.1.1. Questionnaire for leasing companies

Introduction

Presentation of the research subject, request for permission to record, request agreement that the name of the company and the person be mentioned in the paper.

Introduction of the interviewee and company

Can you introduce yourself? What are your responsibilities in your company? How long have you been working there? Is your main business B2B or B2C? What type of vehicles do you lease the most? Do you lease new or second-hand vehicles? When you get a car back, what do you do with it?

General questions on the sustainability topic

How do you think the sector should evolve to be more sustainable?

What do you think of EVs? To what extent can it be a long-term solution?

What is your opinion of the ban on gas cars for 2035? Is it feasible? Is it the solution?

If you could decide the adoption of one law, which one would it be?

Do you think more support from the government is necessary to make the sector greener?

Deep dive on the research subject

What is put in place in your company to be greener? (Repairing, maintenance, greener vehicles?)

How can leasing companies go a step further in sustainability and circularity?

To what extent can leasing companies highlight EVs/Hybrid vehicles?

Do you have any advantages in providing EVs/Hybrid vehicles?

To what extent can leasing make EVs/Hybrid vehicles more attractive for the consumers?

What are the benefits for consumers to adopt an EV/Hybrid instead of gas cars? (In terms of daily use and in terms of leasing contract)

What are the drivers that push your company towards sustainability? (Regulation, consumer interest, economic value, shareholders, other stakeholders?)

To what extent is sustainability a selling proposition?

What are your arguments to convince a potential consumer to lease instead of own?

What are the challenges of sustainability in a leasing company?

What prevents you from taking a step closer to a circular economy? (Profitability, interest, company culture, regulation?)

What are the challenges to attract more customers to move from ownership to leasing?

Deepening

How can digitalization offer sustainability opportunities?

How could leasing companies offer remanufactured products?

Could your company potentially collaborate with Ride sharing companies?

What can leasing companies bring to Ride sharing platforms in order to reach a higher level of sustainability? Do you see any advantage conducting this collaboration?

Closure

Summary of the findings, clarifications and acknowledgements.

7.1.2. Questionnaire for leasing client companies

Introduction

Presentation of the research subject, request for permission to record, request agreement that the name of the company and the person be mentioned in the paper.

Introduction of the interviewee and company

Can you introduce yourself? What are your responsibilities in your company? How long have you been working there? What type of vehicles do you lease the most? Do you lease new or second-hand vehicles? Which leasing company are you working with? Do you buy the vehicles at the end of your leasing contracts?

General questions on the sustainability topic

How do you think the sector should evolve to be more sustainable?

What do you think of EVs? To what extent can it be a long-term solution?

What is your opinion of the ban on gas cars for 2035? Is it feasible? Is it the solution?

If you could decide the adoption of one law, which one would it be?

Do you think more support from the government is necessary to make the sector greener?

Deep dive on the research subject

What is put in place in your company to be greener in terms of mobility?

How do you select your fleet of cars? How many cars in your fleet do you have?

Do you use a fleet management system? How can this service improve sustainability aspects?

How can leasing companies go a step further in sustainability and circularity?

To what extent is the leasing a source of better technology and vehicles?

To what extent can leasing companies highlight EVs/Hybrid vehicles?

Do you have any advantages in leasing EVs/Hybrid vehicles?

To what extent can leasing make EVs/Hybrid vehicles more attractive for you?

What are the benefits of adopting an EV/Hybrid instead of gas cars? (In terms of daily use and in terms of leasing contract)

What are the drivers that push your company towards sustainability? (Regulation, consumer interest, economic value, shareholders, other stakeholders?)

To what extent is sustainability a selling proposition?

What are the reasons for your company to lease instead of own?

What are the disadvantages of leasing instead of owning for your company?

What are the challenges of sustainability in a leasing company?

What prevents you from taking a step closer to a circular economy? (Profitability, interest, company culture, regulation?)

Deepening

How can digitalization offer sustainability opportunities?

Would you accept remanufactured products? What would be the main reason?

Do you have any form of Ride sharing in your company?

Could your company be interested in Ride sharing services in parallel or not to leasing services?

What is your opinion on Eco-driving trainings?

Closure

Summary of the findings, clarifications and acknowledgements.

7.2. Profiles of the experts

7.2.1. Leasing companies' profiles

	Interview 1	Interview 2	Interview 3	Interview 4	Interview 5
Name	Camille Branquart	Sylvie Roussel	Anonymous	William Mal	Anonymous
Current position	Marketing Analyst	Lease Manager	Business Controller	Salesman & Administrative Manager	Data Analyst
Company	LIZY	Free2Move Lease (previous) Banque PSA Finance (current)	LeasePlan	Garage De Ro (previous) Bouvy Motor (current)	Alphabet
Interview Date	29 June 2022	6 July 2022	8 July 2022	17 July 2022	18 July 2022
Meeting Location	Google Meet	Microsoft Teams	Google Meet	Charleroi (face-to-face)	Google Meet

7.2.2. Leasing client companies' profiles

	Interview 6	Interview 7	Interview 8
Name	Quentin Colmant	Christine Rillaerts	Eric Thore
Current position	CEO and Co-founder	Co-owner and Project Manager	Shared Services and Service Parts Manager
Company	Qover	Buroconcept	Solar Turbines
Interview Date	1 August 2022	3 August 2022	3 August 2022
Meeting Location	WhatsApp	Microsoft Teams	Microsoft Teams

7.3. Transcription of the interviews

7.3.1. Interview 1 – Camille Branquart, Marketing Analyst at LIZY

Introduction

Is your main business B2B or B2C?

We are doing B2B only.

What type of vehicles do you lease the most?

There is not really a kind of vehicle that we lease more than another, but we lease mainly Audi and Volkswagen.

When you get a car back, what do you do with it?

Either the lease customer buys the vehicle that is what we call the “Lease purchase contract”, or we lease the vehicle again if it is sufficiently new. What can also happen is that the vehicle is sold to a dealership. In fact, we are working with dealerships, we have the vehicles on our website, but we don’t buy them before clients request to lease them. In case we get back the vehicle we can sell it back. The cars might in the end return to the second-hand market.

General questions on the sustainability topic

How do you think the sector should evolve to be more sustainable?

There are two things that come to my mind. First, vehicle electrification, we have no choice since in 2023 there are some regulations that change, then in 2026 company cars can only be electric in case you want to get an economic benefit. We realize that it is still difficult to have offers of electric vehicles and since we only buy second-hand vehicles it is even harder to get them. Combining the two makes it difficult for us. Second, I think that the market would

benefit from focusing more second-hand cars because there is still a lot of new cars today even though it is not sustainable.

To what extent can EVs be a long-term solution?

If sufficient infrastructure is put in place, yes but a great deal remains to be done. If I want to have an EV to go to work, there are only two charging stations for the parking lot.

If you could decide the adoption of one law, which one would it be?

The idea that comes to me is not to be able to use the car for small trips, like less than 3 km. The thing making it difficult of course is to make sure people are complying.

Do you think more support from the government is necessary to make the sector greener?

I think that could be improved. I know that there are some subsidies in order to get charging stations, but this support will end in 2024 when we will need them the most. The second thing is, there could be more public charging stations. In fact, we would even need them everywhere. It feels a little bit like the government pass laws but beside that says to us "you manage".

Deep dive on the subject

What is put in place in your company to be greener?

The main aspect is that we lease second-hand vehicles instead of new ones which is better for the environment. What I notice however is that this is not the reason why customers are choosing us rather than another company. The thing is that it is cheaper. We say that it is second-hand, but the focus is more oriented towards the price, whether it is for the consumer or for us. Still, we choose recent vehicles with better technologies which is an additional benefit. Another point is that we are a 100% digital company, we print nothing at all. So, in the end, the environmental impact is not taken too much into account. It's a pity, I think this is something that is lacking in our company.

How can leasing companies go a step further in sustainability and circularity?

The first rather general focus that companies could have is more on everything that is waste sorting and avoiding waste. In terms of leasing company, we still don't have that many EVs, but as I told you it is difficult to get them for the moment, it is not because we don't want to as we are looking for them. In the future, the demand for EVs will grow as company cars will be mainly that kind.

To what extent can leasing companies highlight EVs/Hybrid vehicles?

We are not really highlighting EVs in our company. However, we have a filter to find EVs more easily and in our newsletter, we have a section where we redirect to certain cars that are often hybrid or electric.

The first thing we do is to educate around the new regulations and tax changes, even though many people are aware now. In our side we are creating guides and e-book in order to teach how to make the transition towards EVs because it is not done overnight. If you give EVs to somebody living in a flat in Brussels, he might not have or be able to access charging stations. We are teaching what is required to make the switch in the future, ensure that the infrastructure can be put in place directly. We are posting articles about companies that are putting in place the infrastructure, how much it costs and how difficult it is. We are proposing content to help companies make the transition.

Do you have any advantages in providing EVs/Hybrid vehicles?

There are standards on the mobility budget. Certain vehicles are accepted in this budget, such as those that have less than 95g of CO2 per km, that is why we have a filter in our catalog to finds them easily. Those vehicles are mainly hybrid and EVs. But still, government is more pushing the demand side than the supply side, so the advantages are more for our customers.

The BIK (Benefit in kind) is much lower, inducing lower taxation. For the employee the BIK is like the revenue that you would get instead of having a leasing car. The BIK is thus lower

as it is based on the CO2 emission of the vehicle, so of course hybrid and electric vehicles are much more interesting.

What are the drivers that push your company towards sustainability?

So far, economic interest is the main argument for sustainability. Customers are only looking for lower prices. The demand for EVs is increasing not because it is sustainable but because it is convenient, or you pay less tax. In the end, regulation is the main point. Many people say that the government is annoying but otherwise nothing would change.

What are your arguments to convince a potential consumer to lease instead of own?

To smooth out its costs, in particular for a company, and for peace of mind. It is very convenient, when you have a car maintenance you just go to the appointment and everything administrative is already managed. People are happy with the fact that it makes their life easier, in case of questions or concerns the leasing company can take care of it. The fact that they do not have to maintain and repair the car is an argument to push for leasing in general, not for EVs as they require less maintenance.

Second-hand leasing allows customers to get higher end vehicles, for the same budget you have a better car. The total Cost of Ownership is reduced.

What are the challenges of sustainability in a leasing company?

Regulations. On the one hand you have regulations around EVs that make us reconsider our offer to take that into account. Operations had to change their approach to get new types of vehicles. You have also regulations around tax, because it varies every year. We have to be the first to understand and to explain to our clients the new tax laws as we accompany our customers. Being able to compute the BIK and Cost of Ownership which also changes quite often, this is a pain. In order to reach other markets, taking into account different regulations is also difficult, this varies greatly from country to country, it has already delayed us.

On the other hand, finding second-hand EVs as discussed earlier. I guess it is easier for leasing of new cars.

Deepening

How could leasing companies offer remanufactured products?

As price is one of the main selling points, offering second-hand or remanufactured products should be feasible. In case the car has a problem, the clients know that the leasing company will take care of that.

In our case, even if this is second-hand vehicles, they are almost new. These can be showroom vehicles, employee vehicles etc. It is because we want to offer premium vehicles, and because it requires less maintenance.

Could your company potentially collaborate with Ride sharing companies?

This is not on the table, but I think this is feasible. There is no constraint in the conceptualization, we just need to make profit out of it.

7.3.2. Interview 2 – Sylvie Roussel, Lease Manager at Banque PSA Finance

Introduction

Is your main business B2B or B2C?

I manage the B2B side, we have a renting offer and a leasing offer with a fixed and signed buyback proposal at the beginning of the contract. We have also private lease that is B2C, but this is only car rental without buyback option. In fact, there is always a way to buy back the vehicle but then it is via the dealership, which is responsible for reselling the vehicle and offers its warranty and passes the vehicle to the technical control. This is a legal obligation because you have to give a guarantee because it is a rental, the garage gives that guarantee.

When you get a car back, what do you do with it?

This is very very uncommon. But in case they don't buy back the vehicle it is taken back by the VO department. But as I told you this is very uncommon because if we get the car back there is already an expertise. All costs, body damage or whatever, are charged to the customer. When we see the residual value for a renting is between 16 to 20%, it is better for the company to buy it and then sell it later than giving it back to us.

Regarding leasing offers without buyback proposal, they go to the used car department. In fact, in private lease there is two types of contracts, either the dealership buy the car back or it is our internal used car department.

What type of vehicles do you lease the most?

There is a bit of everything. We emphasize EVs but there is not really one type of vehicles that is most leased.

Do you lease new or second-hand vehicles?

New cars or used vehicle almost new. Given the state of the current market, we allow used vehicles whereas before it wasn't the case. Given the shortage of vehicles it is difficult to refuse second-hand. So, used vehicle almost new, like less than 1 year, we accept.

General questions on the sustainability topic

How do you think the sector should evolve to be more sustainable?

With current regulations we are forced to push for cleaner vehicles otherwise there are penalties. But I don't think that it is sufficient for the moment.

The other thing is that we are pushing the use of car rather than the ownership, with car sharing initiatives etc.

What do you think of EVs? To what extent can it be a long-term solution?

For the moment I see a mileage constraint and charging time. If we charge our EV at home, it is ok but for somebody going on vacation and that must stop at the highway to recharge I think that it is quite expensive. Anyway, there are not enough charging stations. When I see all the people going to the north of France if they have to use EVs... the time it will take them to get there. Clearly, there are many constraints for the moment.

What is your opinion of the ban on gas cars for 2035? Is it feasible? Is it the solution?

For me prohibiting is not the solution. Because today, somebody who has to buy a vehicle what will he look for? Knowing that pure electric cars imply many constraints for the moment and that there is the price constraint. I mean not everybody is able to buy an EV. This is still an important constraint. And even now with the norms in Brussels, the person who drives an old car because he cannot do otherwise, he will no longer be able to go to Brussels or he will have to pay a day ticket. I find this discriminatory for the most disadvantaged families. Of course, for Brussels there is public transport that is well developed but still.

I think also that the information is not well managed and provided, in general it lacks transparency. For me it isn't very clear, and information is hard to find sometimes.

If you could decide the adoption of one law, which one would it be?

It's a toughie... First, I would make the presence of charging stations in all gas stations mandatory because it is still uncommon. So yes, promote the installation of electrical terminals so that we can find them more easily. In that way, that would reduce the constraints when adopting EVs.

Do you think more support from the government is necessary to make the sector greener?

Regarding the investments for implementing the charging stations yes.

Maybe also, regarding what I said earlier, there is the difficulty for people to acquire EVs. That could be compensated with vehicle purchase incentives, but then these should depend on income. Not everyone can afford it but some time we'll have to. So yeah, give a fixed budget for the purchase of an electric vehicle and the necessary facilities, but in proportion to the income.

Deep dive on the subject

What is put in place in your company to be greener?

The conditions are more advantageous for the EVs than thermic vehicles.

To what extent can leasing companies highlight EVs/Hybrid vehicles?

In our case we don't. We look at the client's needs and see if it is feasible and within their budget to have this type of cars. If this is the case, we will propose an electric or hybrid vehicle of course. Obviously, it must be suitable for the customer because EVs do not suit everybody, if this is a manager who travel for long distances, we will of course not propose

him EVs for instance. It is not going to work. We have to make sure he can charge the car at some moment of the day, if he can charge at home, at work. There are many parameters to consider, it has to be coherent according to the use and charging opportunities.

How can leasing companies go a step further in sustainability and circularity?

As I said earlier, developing car sharing models, promoting eco-driving etc. This is something that is emphasized in our group today.

What are the drivers that push your company towards sustainability?

It is an economic value-added, but it is also in the interest of the consumers. It is useful to collect information that can be useful to us, but it is also useful for the fleet manager to see "this one has a driving that consumes a lot of fuel/electricity", we can give him a driving course for example. This can be used to reduce the customer's costs and it allows us to offer other services.

Of course, we have also to comply to new regulations, we have no choice, otherwise it has financial consequences.

What are your arguments to convince a potential consumer to lease instead of own?

You know in advance the costs related to the vehicles. There are no surprises. Then, everything can be done at the same time, we receive an invoice with everything in it, tires, insurance, maintenance. There is no accounting or control to do afterwards, waiting each person gives his maintenance invoice. It is a question of much easier management, no encoding of invoices etc. All possible services can be put into the leasing.

What prevents you from taking a step closer to a circular economy?

I think that the problems are regarding the government, I mean it changes a lot. We need clearer decisions and more stable overtime. For instance, in Wallonia, they decided to change the taxes on the vehicles, but not in Brussels. It's constantly changing and there are no stable

guidelines. Also, in terms of benefits in kind we don't know it will be in the future, that has a role to play as well. For people with company car, how will those cars be taxed in 2 years? Nobody knows. They talk about taxing more and more company cars, but will they still be interesting, or will people choose a salary increase instead? I think that this aspect is slowing down leasing companies.

Deepening

How can digitalization offer sustainability opportunities?

This makes it possible to dematerialize all that is paperwork.

Collecting data allows us to adapt contracts and to offer parallel services. If we notice that the car is driving less than expected, we can propose to optimize the contract according to the use of the car. And as said earlier, we can propose eco-driving lessons.

Could your company potentially collaborate with Ride sharing companies?

I think it is private initiatives that do this.

7.3.3. Interview 3 – Business Controller at LeasePlan

Introduction

Is your main business B2B or B2C?

We do both. We have business lease and private lease offers.

What type of vehicles do you lease the most?

Our clients tend to like SUVs over other types of vehicles but to be honest it depends.

Do you lease new or second-hand vehicles?

We lease mainly new vehicles, but we also have used car lease offers for business.

When you get a car back, what do you do with it?

There are multiple options. Either it is a contract with a buy-back option and the client just buys the car at the end of the contract, or the client returns the car. Vehicles that are returned to our company can be included in the offer range of used car lease if its mileage is not too high, otherwise we have a used car sales department, so they put it on sale.

General questions on the sustainability topic

How do you think the sector should evolve to be more sustainable?

EVs are a first step to sustainability, but still, I think it should evolve to have less vehicles on the road, with the many alternatives that currently exist there are ways to reduce the production of all these cars. Plus, when we see all the cars that end up in the scrapyard, having less cars on the road could lead to having less accidents and to have so much production wasted. I dare to hope that autonomous vehicles could lead the sector to be greener.

What do you think of EVs? To what extent can it be a long-term solution?

As I told you, it is a first step. It can reduce the environmental impact of the sector, but it will not be easy to manage with all the constraints it implies. I guess in the long-term the solution is still to have less cars on the road, currently the system is far from being optimized and those EVs still have to be produced with the growing population. We can't imagine producing more and more cars endlessly.

What is your opinion of the ban on gas cars for 2035? Is it feasible? Is it the solution?

My opinion is what I told you for the previous question, it is a solution but not the solution. It is feasible but the means will have to be put in place. Current infrastructures will of course not allow this transition. In the end it could push people to keep their thermic vehicles longer and to maintain them better, it remains to be seen.

If you could decide the adoption of one law, which one would it be?

Uh, it's a tough one... I would say forcing to some extent the remanufacturing of cars. It's disappointing to see fields of cars abandoned because of the lack of interest from the manufacturers. It is something that is developing but is still not widespread.

Do you think more support from the government is necessary to make the sector greener?

I think that the current structure does not really allow improvements to make the sector greener. With the growing number of EVs it becomes necessary to implement the infrastructure to support the transition. All that is very expensive for the moment. I guess punishing is one thing, but rewarding should be there as well. Increasing the incentives to make greener choices and implement what is needed for the transition.

Deep dive on the research subject

What is put in place in your company to be greener?

First thing, we are promoting EVs. We think that with the regulations, incentives, and the current environmental crisis, going for an EV over a thermic vehicle is the best choice to make right now.

Regarding thermic vehicles, we tend to choose nearly new cars with the latest technologies so that their environmental impact is minimal. Maintaining them well, changing the tires regularly, etc., also help to reduce their impact. This way the vehicles are up to the latest standards and do not have a higher consumption caused by the wear of one or the other thing.

How can leasing companies go a step further in sustainability and circularity?

I think that accompanying customers towards the electric transition is what we should focus on. The supply is here but the demand is still transitioning.

To what extent can leasing companies highlight EVs/Hybrid vehicles?

As I said earlier, regulations, incentives and environmental matters force us to emphasize this type of vehicle. Of course, it will not be convenient for everyone but if it is, we will redirect to these. We emphasize the pleasure of driving. Generally electric and hybrid vehicles are quieter and make driving smoother. There is also the affordability through leasing, for the same budget you can access more premium cars. There are plenty of reasons why adopting those vehicles is enjoyable.

To what extent can leasing make EVs/Hybrid vehicles more attractive for the consumers?

Well as I just said the leasing makes them more affordable. We remove the constraints that prevent people from making the transition.

Also, our contracts are very flexible, it allows our customers not to commit for too long periods of time.

What are the benefits for consumers to adopt an EV/Hybrid instead of gas cars?

Pleasantness of the trip, Improved air quality, Cheaper to drive as electricity is cheaper than fuel, Cheaper in terms of taxes, Access to low-emission zones in some big cities such as Brussels. And in the end, you don't have to worry anymore if you will be able to use your current car in the future, we know that new regulations are discussed every year, so the future is quite uncertain for thermic cars.

What are the drivers that push your company towards sustainability?

Regulation is the main aspect. Consumer interest comes second as well as the economic aspect.

Is sustainability a selling proposition?

Sustainability is one of the main aspects that we emphasize but still, this is not the reason why customers will choose greener solutions. Price and convenience are the real arguments.

What are your arguments to convince a potential consumer to lease instead of own?

Tranquility. It's a lot less worrying in regard to documentation, all the different costs that possessing a car implies etc. You have one very flexible contract that covers everything, you have a guarantee, services, and support. In the end that reduces the total cost of ownership and the risks especially for companies. We make lives easier and help the companies and our private lease clients to make the best choices.

What are the challenges of sustainability in a leasing company?

We can't really change the products. We depend on the manufacturing companies so the only thing we can do is try promoting cleaner cars and support customers in making greener choices.

What prevents you from taking a step closer to a circular economy?

The demand. We could only offer EVs, but we will not have sufficient demand. The infrastructures are not sufficient yet. We do not have the power nor the economic interest to push only for this type of vehicle for the moment.

What are the challenges to attract more customers to move from ownership to leasing?

People that refuse leasing tend to prefer being the owner of the car. So, I guess the main challenge is breaking the need for ownership.

The second thing is the awareness for the customer, in general if people are not aware of the benefits of leasing they will not turn to this solution. That's why we need to educate and brag about the good things.

Deepening

How can digitalization offer sustainability opportunities?

Obviously paperless administration. Then, that allows us to optimize the contracts and our offer. Align with people's needs and do not offer more than necessary. In fact, we have a fleet management system, services and tools that are useful to reduce the CO2 footprint of our client. A good example is to keep the tire pressure at the right level, this will extend the life of the tire and consume less fuel. In parallel having a view of the condition of the vehicles and whether maintenance is required can help to reduce the carbon footprint.

Eco driving is also an important aspect that digitalization tends to improve. That allows our clients to give driving recommendations for instance.

How could leasing companies offer remanufactured products?

We just need to be sure that we are not taking any risks with the health of the vehicle. It must remain profitable, if it is profitable and the risk is limited, it is perfectly feasible. We could then put forward the argument of the price.

Could your company potentially collaborate with Ride sharing companies?

That is perfectly feasible as well. Considering that we have a fleet management system, designing a ride sharing interface is quite feasible. Especially when we know that ride sharing is developing within the companies of our customers.

What can leasing companies bring to Ride sharing platforms in order to reach a higher level of sustainability? Do you see any advantage conducting this collaboration?

I think that this is a service that we should offer rather than via a collaboration.

7.3.4. Interview 4 – William Mal, Salesman & Administrative Manager at Bouvy Motor

Introduction

Is your main business B2B or B2C?

Mainly B2B because the interest is bigger for companies and they are aware of that, B2C is more uncommon as people like to own cars. People are not really aware that there are buy-back options with leasing.

What type of vehicles do you lease the most?

Utility vehicles and SUVs. Employees tend to prefer SUVs as they might have a family and children. The third one would be sedans. When it is a big order for companies such as Proximus or Thomas & Pierrot, most of the park is small utility vehicles as those are intervention vehicles. For companies that do not imply intervention or manual work it will be more SUVs or sedans.

Do you lease new or second-hand vehicles?

Both. But New car leasing is more common. Second-hand vehicles have more conditions. Secondhand cars cannot be more than 7 years old when the leasing contract reaches its end. This is for profit purposes. Having a car older than 7 years is risky and the bank will not bear the risk. In fact, instead of leasing people prefer to buy the secondhand cars. Regarding the companies, in general, they configure the cars so those are new cars. Sometimes companies have guidelines regarding the configuration of cars to get a good residual value.

When you get a car back, what do you do with it?

The car returns to our dealership. We look at the damage etc. In general, you return the car to get a new one. Either our dealership takes the car back if it is interesting or the ownership returns to the main dealership and the car is posted on the global platform. The car remains in

our dealership, but we do not own the car. That decreases the risk for the dealership as we don't have to buy back the car first, we can just wait that somebody is interested before buying the car back from the main dealership and selling it to the client.

General questions on the sustainability topic

How do you think the sector should evolve to be more sustainable?

Redirect to secondhand vehicles. That avoids manufacturing and conceptualizing new cars. There is the electric, but in the end producing a EVs pollutes a lot too. The problem is that EVs is constraining, say you have to travel long distances. EVs are expensive and in the end EVs polluted as much. In fact, the CO₂ emitted during the production of an EV is as much as a diesel vehicle manufactured and that has driven 90.000km. So yeah, it is idealist but reducing new cars and focusing on second hand is how it should evolve. Of course, it will not happen as it is profitable to manufacture new cars instead.

What do you think of EVs? To what extent can it be a long-term solution?

Not advanced enough to replace thermic cars. Their range is not good enough. It is not useful enough in terms of autonomy to totally replace a thermic car. In ten years, it might work. In any case government will not leave the choice.

What is your opinion of the ban on gas cars for 2035? Is it feasible? Is it the solution?

Objectively, people will still need big and thermic vehicles. Trucks cannot be electric. 100% of the car park will never be electric for 2035. I don't have any other solution that might keep the comfort of people. This is a solution but not the solution. Of course, developing public transport etc. is another thing but will not keep the same comfort for people. And in any case, not everybody can afford other solutions.

At some point we won't be able to keep producing thermic cars so it's a good thing to start the transition. I'm kind of mad as a like thermic cars but I think we cannot afford to do otherwise.

If you could decide the adoption of one law, which one would it be?

Not manufacturing cars unnecessarily. So, utilize cars till their end of life, focusing on secondhand market. Force a reduced stock, only manufacture in line with the orders. Of course, stock for the showroom etc. but not more than those exceptions. Redirect to secondhand cars if the need is immediate, as they will not have stock, otherwise manufacture according to the order. Certainly, that implies less profit but in terms of sustainability it is way better. Let's be honest they will never do it as it is constraining, and the financial aspect is impacted but that's an idealist vision of course.

Do you think more support from the government is necessary to make the sector greener?

More incentives for consumers. For instance, you have to pay for electricity and for a charging station. Solar panel is taxed and expensive. In terms of investment, it is not interesting enough for people to do the transition to electric. There are incentives but they are insufficient. For people with solar panel already installed it is easier.

Deep dive on the research subject

What is put in place in your company to be greener?

EVs but we know it's to reduce CO2 Credits and sell more thermic cars. It is not profitable to take greener initiatives.

How can leasing companies go a step further in sustainability and circularity?

Increase leasing time and do not take the residual value into consideration, eventually they will be able to lease more second-hand vehicles.

To what extent can leasing companies highlight EVs/Hybrid vehicles?

Not that much but they can include the charging station in the leasing contract. There is little maintenance on EVs. They could make contracts for pieces that wear out or for the tires.

Do you have any advantages in providing EVs/Hybrid vehicles?

Deductibility for the companies (B2B). Leasing companies do not have any advantages, whether it is a thermic or electric car this is a car in the end. Supply for the demand and that is all.

To what extent can leasing make EVs/Hybrid vehicles more attractive for the consumers?

More affordable cars.

What are the drivers that push your company towards sustainability?

Regulation and consumer interest. This is more a requirement.

Is sustainability a selling proposition?

No. Price and resell price. People really interested in sustainability when they want to get a car are minimal. People do not really care they care more about their own interest.

What are your arguments to convince a potential consumer to lease instead of own?

The offers in leasing are more interesting than buying, they cover everything.

What are the challenges of sustainability in a leasing company?

Remain profitable while proposing more sustainable solutions.

What prevents you from taking a step closer to a circular economy?

Profitability.

What are the challenges to attract more customers to move from ownership to leasing?

Having a clearer offer. Clearer and simpler offer. Maybe having a more attractive offer thanks to government incentives to cover the installation of charging stations for instance.

Deepening

How can digitalization offer sustainability opportunities?

In the advertising, show thought path for customers to adopt it.

How could leasing companies offer remanufactured products?

In the second-hand market yes, I think it is feasible but not in leasing.

Could your company potentially collaborate with Ride sharing companies?

Yes, but I don't think they will. I think it is more feasible inside the companies of our clients than us offering this service.

What can leasing companies bring to Ride sharing platforms in order to reach a higher level of sustainability?

I have no idea.

Do you see any advantage conducting this collaboration?

Reducing the number of vehicles on the road.

7.3.5. Interview 5 – Data Analyst at Alphabet

Introduction

Is your main business B2B or B2C?

Our main business is B2B, but we still do B2C.

Do you lease new or second-hand vehicles?

We have new and second-hand vehicles available for lease.

When you get a car back, what do you do with it?

We don't always get the cars back as our clients can buy them at the end of the contract but in the case, they don't buy the cars we sell them on the second-hand market.

General questions on the sustainability topic

How do you think the sector should evolve to be more sustainable?

We are building car sharing and other mobility solutions that are greener. I think it should evolve towards those greener solutions, developing them and making them more attractive.

What do you think of EVs? To what extent can it be a long-term solution?

It is a good solution, but it should not be the only solution. We still have too many cars on the road.

What is your opinion of the ban on gas cars for 2035? Is it feasible? Is it the solution?

It's not an easy decision that will involve a lot of effort but it will also accelerate the transition, so I think it's a good thing.

If you could decide the adoption of one law, which one would it be?

Having to keep their cars longer. Changing cars like changing clothes is really not a good thing.

Do you think more support from the government is necessary to make the sector greener?

Yes. Promoting awareness and providing more incentives is not too much to ask.

Deep dive on the research subject

What is put in place in your company to be greener?

We bring services for our clients to reduce their carbon footprint. We have pool management that can to some optimize their deployment. We have also eco driver training courses to teach and provide our customers with awareness around the impact of their driving habits.

Then we promote have energy-saving policies in all the offices we have.

We of course offer electric cars solutions and our support to make the transition very smooth. Regarding thermic cars we invest in cleaner technologies.

How can leasing companies go a step further in sustainability and circularity?

I think what should be great is to lease cars for longer periods of time.

To what extent can leasing companies highlight EVs/Hybrid vehicles?

Especially EVs with their low running cost, improved carbon footprint and tax incentives.

Do you have any advantages in providing EVs/Hybrid vehicles?

Yes, we can provide more services to support and improve the transition.

To what extent can leasing make EVs/Hybrid vehicles more attractive for the consumers?

We have mobility services that include all aspects of the implementation of electric or hybrid vehicles. Whether it's charging solutions or choosing the type of vehicles that best fit the profile of the employees.

What are the drivers that push your company towards sustainability?

Climate change awareness.

Is sustainability a selling proposition?

Hum not really. The first thing that comes is the cost related advantage, the price for running and maintaining the vehicle are lower.

What are your arguments to convince a potential consumer to lease instead of own?

More affordable, less committal, no investment in the vehicle required, no surprise in the budget, eradicate the risk related to the repairs or residual value in case of resale, administrative simplification. In the end you get way more than if you buy the car.

What are the challenges of sustainability in a leasing company?

Sustainable initiatives have to be profitable to be supported. Also, consumers have to be interested.

What is bothering me also is the regulation. We don't really know where we are going and even when we know, it is not clear enough.

What are the challenges to attract more customers to move from ownership to leasing?

When it comes to leasing for individuals, people don't really realize the benefits of leasing. I honestly think that leasing would have a bigger share if this was not the case.

Deepening

How can digitalization offer sustainability opportunities?

Digitalization is key to conduct our eco driver trainings and to operate our fleet management system. Without it, it would not be possible for us to propose those services.

How could leasing companies offer remanufactured products?

It will all depend on profitability and if it is not too risky to run this kind of vehicles.

Could your company potentially collaborate with Ride sharing companies?

Collaborating I don't know but developing a Ride sharing system can be considered. As I mentioned before we are developing other mobility solutions such as car sharing.

7.3.6. Interview 6 – Quentin Colmant, CEO and Co-Founder of Qover

Introduction

What type of vehicles do you lease the most?

We try to standardize the car brands that we are leasing. Why? Because it is important to keep in mind that if somebody has an Audi A3 and that tomorrow he is fired, we, as a company, have a leased vehicle on our hands. I don't know if you are aware but if you want to stop a leasing contract you have to pay 35% of the remaining balance due to the leasing company. If you get a 5 five-year leasing contract, and the new employee leaves after one month, you should pay 35% of the five remaining years of the contract to stop it or keep the car. Us, as a company, giving a company car is not something common, because it is a real risk and financial commitment. We have to give freedom to the employees to choose their company car, nevertheless it has to be "standard" so that if the person leaves the company or we fire him we want to be sure to be able to give the car leased to somebody else. The only way to give it to somebody else, nobody wants the car of somebody else, everyone wants his own car. So, to answer your question we standardized on certain brands, we do not lease French vehicles, but there is this concern to standardize for the recovery of the vehicles.

Do you buy the vehicles at the end of your leasing contracts?

No, never.

General questions on the sustainability topic

How do you think the sector should evolve to be more sustainable?

For me it is very simple, I'm somebody who loves his car and freedom, nevertheless I ride my bike to work. As far as I'm concerned, in general, I think that a global rethinking of mobility should be done and I'm not totally in favor of the idea that we give company cars in all directions, to any employees, it is completely aberrant in our society. So, for me I think that tomorrow should involve mobility budgets where cars are the least important part. Today we talk about a mobility budget, but cars are the most important part and so typically, at Qover

we encourage two things, in what we call the “Mobility policy”. First, people who come to work regularly by bike we buy them a bike up to 80% of the purchase value up to 3000€ max. We do it even though it costs us 3000€ we get nothing out of it, to encourage people to do so. Secondly, for people who wants a company car we turned to LIZY (second-hand leasing company) because we find it absurd to offer new cars. You know that an employee stays on average two years or three years. So, you offer him a new car, he stays 2 to 3 years then you give it to somebody else. Moreover, today you have up to 12 months delays because there are a lot of problems in the car manufacturing lines. So finally, having second-hand cars, this is a circular economy which allows to avoid manufacturing new cars. Of course, there is the debate that new cars are more recent and pollute less, comply with the new norms etc. but the manufacturing cost has to be taken into account. So, going to LIZY with a circular economy and 2 to 3 years old cars max is a good thing. My vision is to encourage greener mobility. All in addition to the fact that, nowadays there is a strong proposition to work from home. We realize that teleworking is becoming very important for the employees and that reduces the potential company car needs.

What do you think of EVs? To what extent can it be a long-term solution?

There are two points of view, intellectual and economic. The economical and pragmatic point of view, I have a big problem with EVs because it works well for the guy who has a villa outside Brussels. For the guy who has a villa outside Brussels, he has a garage where he can park and charge his car. 80% of my employees are people who lives in a flat in Brussels or Liège. If tomorrow they have an electric car, they are not able to charge it, they can only charge it in public charging stations. That does not work. So, we have a big problem as an employer. As I told you if an employee is leaving the company, we have a problem with his leasing, if we have to stop it, we have to pay the 35% of the remaining amount. Well, if let's say I want to give a Tesla to another employee and the guy says “I am living in a HLM in Anderlecht I can't charge it”. In fact, there is a big problem in the reality because the infrastructure is not ready, especially in apartment living. So that's the pragmatic side as an employer. The other problematic side as an employer is that those EVs require the installation of electrical terminals in the houses of people. That means that as an employer if somebody asks me to install the infrastructure, I pay 2000€ but once again if the guy leaves my company what do I do? Should I go take it back? So, I paid 2000€, in the end does he really charge only

his company car? Or also his wife's car, his second car? Maybe there are ways to verify that but well. And in the end, there is a demand to charge those cars at work, but I don't know if you are aware but when you have a company in Brussels, the city of Brussels has started to reduce the parking spaces for companies. So, I don't recall what the ratio is, but it is like one parking space for 50 employees. So, if you are allowed to have only 20 parking spaces and people want to charge their car, if there are not enough places already, this is a real concern.

So that was the economic concern. Now the intellectual point of view is the energy conversion to electric energy problem. So, if you produce energy with diesel or fuel oil or with gas plants to reconvert it into electrical energy is a bit silly. For me there is a real intellectual question if we really manage to produce energy in a green way. I am optimistic to go this way but there is still improvement to make, there are infrastructure constraints in terms of parking, mobility, charging and energy production but we have to start somewhere. I think that, as far as I am concerned, I have a hybrid vehicle 200kgs heavier, for small trips it is ok but when I go to southern France I have to refuel twice instead of once. Fiscally on the other hand, as an employer, a hybrid or electric vehicle there is the deductibility that is interesting. Of course, it's like everything, in the technological advances nothing is perfect on the first day. I am not against, but I am not too enthusiast, this is a good way, but there are still a lot of concerns to focus on before it becomes interesting.

What is your opinion of the ban on gas cars for 2035? Is it feasible? Is it the solution?

I think that this is a good step in general, I say good not excellent because the problematic is to see where the pollution sources in the world are. If you ban gas cars in Europe but eventually in other parts of the world the number of cars increases sharply in the next 10 years, then finally you don't resolve the problem at global level. But as I said this is a first step.

The second problem is if the production of the energy is based on gas or oil or other non-environmentally friendly technologies.

Thirdly there is the question of the geopolitical cost. If the price of the energy substantially increases in Europe, then the industries that use that energy will be penalized, such as

chemical, metallurgic industries and others. It is necessary to ask the question of the repercussions of this ban, on the reality, on the pollution, on many things, on the global aspect. So, as I told you it is good thing, but this is not the solution. You could go much further in the sanctions to penalize the rest of the world, to also force this energy transition.

If you could decide the adoption of one law, which one would it be?

The law I would pass is to limit the manufacturing of new vehicles on a yearly basis. So, having a quota of vehicles. But also limiting and be very strict on the emissions to force the improvements of the vehicles to make them more sustainable and foster technologies to reduce the pollution.

Or, but it would be a social bloodbath, the gasoline at 20 euros per liter. The problem is that I want it to be fair. The problem is for the small worker who works in a factory 40km away from his home where there is no public transport and who is forced to take a car. Nevertheless, you will force people to rethink the concept of where I live, where I work, how I go to work. There will surely be billions of yellow vests, but I think that this forces everyone to rethink the society around that. So, we pay the real price. When I see that in July, we are already in credit on the resources of the planet earth, it means that we should consume twice less, and maybe double the price of everything. And I think these are the right measures. Ryan Air flights at 19 euros a flight doesn't make sense. Mind you, I travel quite a bit too, but you have to find the right balance. So that it reflects the environmental cost. And next to that, free public transportation. Empowering people is to make them pay the right price.

Do you think more support from the government is necessary to make the sector greener?

For me I think we should just ban company cars. Because, and I like my car and I travel a lot, but we should pay the right price. I think that plane tickets are not expensive enough. I would be happy to pay 5000€ my plane ticket. I have no problem paying 5000€ a plane ticket because at this point, I would only take the plane when I really need to and I think that the democratization of all that is polluting in the chain of manufacture is an absolute offense and giving a company car gives a right to the employee or a semblance that "hold, the car is free". And so, in fact we are in the process of leasing, or at least with the policy in Belgium, we give

a car, a gas card etc... “Well, I use my car a lot”. And in fact, it's totally stupid in an environmental vision. In reality the best way to protect the environment is to make people pay the real price and this is not the case. As far as I'm concerned, I ride my bike to work 80% of the time, I live 16km away from work and this is very easy. Today, the policy should be to stop this leasing because this is non-sense. Of course, a commercial or somebody who lives at a place where there is no public transport of course he might need a car. For somebody for who this is not the case, nothing justifies that he gets a car, and so the focus should be on alternative mobility solutions.

Deep dive on the research subject

What is put in place in your company to be greener in terms of mobility?

There are multiple parts. So, firstly, in order to reduce this mobility feeling we have our teleworking policy, we ask people to work 40% of time at work plus one month when they can stay entirely at home. So, to the extreme, you come to work at Brussels 40% of the time for 11 months and the 12th months you can stay at home. This is a first manner to encourage a reduced mobility. Nevertheless, we still want to encourage people to come to work because we notice that going to work enables positive interactions. So, we have our policy that everyone commits to come to work 40% of the time. And for this 40%, if the persons come by bike, we intervene in the purchase of the bike up to 80% of the purchase price, max 3000€.

The second thing, we told people that they can get a company car, a new or second-hand one. The difference is that the employee wants to get a second-hand car from LIZY we offer 50€ of additional budget per month. Be careful, when I say second-hand, I am not talking about a car that is 10 years old that is not working properly, I talk about a 2 to 3 years old car. So, if you have the budget for a new Audi A3 then you have the budget for a second-hand Audi A4, it is almost the same budget. Thanks to the additional 50€ budget that almost allows to get an Audi A6 whereas in a classical new car budget you would just get an Audi A3. And so, we strongly encourage employees to go to LIZY for the circular economy, to get cars that are used and to avoid manufacturing. We will always impose the TCO (Total Cost of Ownership), that allows to make sure that the loan on the salary will reflect the pollution of the car.

We also set up the obligation, if someone wants a company car, he has to take for 6 months a car that we have in stock. It's a bit of a promise, to take less risk if the person leaves. It prevents us from buying a car again. Today it's very difficult because as an employer and as a start-up you have a lot of people coming in and saying "look, I need my car". And so today we are a bit trapped. If tomorrow I wanted to ban company cars, well, I have a lot of people I couldn't hire because they wouldn't want to come to my company.

We also encouraged people to come with public transport, we would pay for the train pass or ticker for instance. At the very beginning of Qover we offered the first-class train pass but nowadays because of the budget cuts we don't do it anymore. But these are interesting things.

Also, we created a Strava group, that's a sport app, so we share every week our achievements to incentive people to download Strava and to run or take their bike to work.

How many cars in your fleet do you have?

I would say 30. We are 120 and I would say one quarter.

Do you use a fleet management system? How can this service improve sustainability aspects?

No, not at all. We are a start-up, so we don't use that on our scale. It is not relevant to use this type of tools. We use excel to track the cars, to whom they are assigned, TCOs, km traveled, the use of the gas card etc. We don't analyze the driving of people or their consumption. The real way to be sustainable is not to have a car.

What are the benefits of adopting an EV/Hybrid instead of gas cars?

The TCO gives an incentive to the employee to go to an electric or hybrid vehicle. But today, as an employer there is no real advantage apart from the fiscal advantage. We have in reality a minority of electric cars. EVs work well for independent or people with a house outside Brussels with a garage but that cannot work for people living in a flat who cannot charge his car. So, this is the problematic. In the end the only incentive is the TCO for the employee and

so that's it, but I have no incentive as an employer. I have even a harder time to give it to somebody else if the employee leaves the company.

Is sustainability a selling proposition?

Yes 100% but second-hand vehicles are just a “bandage”, the real solution is no cars. So, we should rethink mobility in a broad way, we should rethink many things and pay the right price. I am fundamentally convinced that we have a societal mission as a company, we have an environmental mission as a company. And so, my environmental mission is not only leasing companies that I look at to reduce my environmental footprint, but it is transport, leasing, energy that we use. This is our manner to treat our clients, the real sustainability is to minimize, to reduce the company cars. But this is difficult for a start-up to get talents because people are used to getting company cars.

What prevents you from taking a step closer to a circular economy?

I think it is the role of the state, the state must correct the negative externalities. And today the negative externalities are the competition to the hiring linked to the leasing cars. The state should do something or prevent that. So that's our problem.

Another problem is that we like what is new. And when you look at all the costs that are involved from a regulatory, legal, administrative point of view, adding a layer of sustainability is time consuming and costly and we don't necessarily have the means to do it. But we do our best for mobility.

Deepening

How can digitalization offer sustainability opportunities?

You can imagine tools to analyze the driving and giving a scoring to encourage a more ecological driving. But once again, this is not preventing the problem but putting a bandage on a wound. I think google maps is a good tool, it can help you to go from a point A to a point B, it allows you to go by foot, by bike, by Uber, by public transport or other. Technology can

help you get around better. It has shown that telecommuting can work very well. It's also an aspect of technology that allows for better mobility, or non-mobility. The best mobility is ultimately non-mobility. Or also other mobility solutions such as car sharing services, that has an interest. In the end an idealist world is where there are no personal cars, there are autonomous cars to get around and that's it. It would really be the technology in practice.

So, how would the digitalization helps is by not having personal cars but rather 100% autonomous vehicles. If you want to move around, you keep the freedom to go anywhere whenever you want. The freedom to be alone or with family, by train or any other means to go from A to B.

Would you accept remanufactured products? What would be the main reason?

I have no problem with that. The problem is that it is not me, it is my employees. When it comes to company cars, everyone wants his own comfort and his own options.

Do you have any form of Ride sharing in your company?

No, not at all. The reality is that on a logistic point of view that cannot work for us. People at our workplace do not arrive at 9am and leave at 4pm. People come when they want to and leave when they want to. Teleworking strengthens the fact that people are not coming on the same days. And so, for Ride sharing, it's anecdotal and it can't work.

What is your opinion on Eco-driving trainings?

I'm sure it's an artifact to promote their services, the real problem is the leasing. Yes, it's good to have eco-driving but after three months you don't pay attention anymore.

7.3.7. Interview 7 – Christine Rillaerts, Co-owner & Project Manager at Buroconcept

Introduction

What type of vehicles do you lease the most?

We don't really have a car policy. There was a car policy when we were part of a larger group, and so the person managing the leased vehicles had like 1000 cars, and so there was three leasing companies. When I had to lease vehicles myself when I took over the responsibility, I worked with D'Ieteren Lease. At that moment I was ok with their offer, with VW and Audi it is alright, everyone should be pleased. So, we are working with D'Ieteren, we have only those two brands VW and Audi, and in those brands, we have a bit of everything. The smallest was a golf and the biggest a Q3. Then, well I was not so pleased and didn't have much time to manage it as it was an additional responsibility to my Project Manager responsibilities, but the main problem was delivery times that are even worse for hybrid vehicles than for classical vehicles... In this regard, the two last vehicles we leased are hybrids, we installed a charging station on our parking lot. And so, when you sign a leasing contract and that you order a car, during the waiting period, you must rent a car. And at D'Ieteren, it was expensive, and we had some troubles with damages on the body of the car. So, in the end, we turned to ALD. They have the "second life" offer, a stock of vehicles for which the leasing contracts were interrupted. So, these vehicles are more or less recent, with a remaining period, and you can get them directly at a more interesting price. So, the last two vehicles we took was this way, for practical reasons. If you hire someone or promote someone, because it is from a certain rank that a car is given, you can directly get the car in 3 days on your parking lot because they are already registered. But the problem that we have been confronted with is that in this stock there are no hybrid vehicles. For that, it's a pity because we have to renounce on values towards which we try to go. Today, this is still the case. Regarding our environmental and managerial objectives, you have to make compromise because the system does not allow it. In today's society there is a gap between the evolution that we want to have in the environmental point of view and the fact that it is possible in reality.

Do you buy the vehicles at the end of your leasing contracts?

No, we just lease we don't buy them at the end. This is not at all in our contracts. However, we sometimes extend the leasing contract if the vehicle is still driving fine. So, that costs us less and we do not participate in the over consumerism system.

General questions on the sustainability topic

How do you think the sector should evolve to be more sustainable?

Revisit mobility or technologies. As long as teleportation does not exist, our professional reality is that we have no other solution than the car in our case. Of course, if it is in the center of Brussels, we can take the subway, but we don't have projects only there. It depends on the location and the timing to reach it, if it is planned alright but if it an emergency or unexpected. Another thing is that sometimes we have to transport things.

What do you think of EVs? To what extent can it be a long-term solution?

We just designed the offices for Stellantis and Alcomotive so we are in contact with people in this sector. Sometimes, of course, we discuss about things outside the scope of the project. What makes me a little nervous is this trend of electric and hybrid vehicles. As far as I know, we don't know how it will evolve, if it will last in time and if it will not create more waste with the batteries etc. It generates other problems, and in our sector as well. Today, firefighters don't want charging stations underground because it can cause fires. Even in our projects, our clients want to include those charging stations but in fact there is a minority of building that can welcome many charging stations because they must be outside. So, there are consequences.

So, yeah, we are in a B Corp approach, we think about the sustainability of the buildings etc., we would like not to worsen the situation with our vehicles, but the reality is that I don't know what the long-term solution is. We are told that those electric and hybrid vehicles are a good solution, so we follow that, but that is not my field of expertise. I mean, we hear people saying that it will not work. I discussed with somebody from Elia (Belgian's Electricity

System Operator), as we had a project with them, and what came out is that the electrical network will not follow the transition if everybody drives EVs.

If you could decide the adoption of one law, which one would it be?

The problem is that I don't know which solutions are the right ones at the moment. Overall, we need to be more realistic, and not greenwash. We have to make sure that it is progressive, realistic with the reality. And not just propose things from a political point of view

Do you think more support from the government is necessary to make the sector greener?

In regard of companies, yes, because they must remain profitable. Taxing without proposing solutions, without asking the right questions, that's not enough. I have the impression that each time we change government we start over. We must do things which take into account the reality of the companies. Each company is different.

Deep dive on the research subject

What is put in place in your company to be greener in terms of mobility?

So, the hybrid vehicles we leased with the installation of charging stations. Some employees have a train pass to allow them to come by train at work. We are also putting in place a leasing formula for bikes and there are financial incentives. And that's it, but we don't have a mobility manager.

How many cars in your fleet do you have?

The company cars, unlike other companies, for us it is really a tool. That is to say that we are often at the customer's place, and we have worksites. Managing worksites without vehicles, or at least without mobility options that allow to go quickly or unexpectedly on sites, is not possible. So, we are 10 and we have 8 company cars.

Do you use a fleet management system? How can this service improve sustainability aspects?

No, I just manage myself.

What are the reasons for your company to lease instead of own?

What I see as a practical interest in leasing is that everything is included. I don't really want an employee to have to deal with a garage, a breakdown service, an invoice, etc. when he has a crash or a broken-down vehicle. When you have a leasing agreement, you have a warning light that lights up, you stop at the first garage, and you know that it will be solved and covered by the leasing. It's not so much for the economy but for the convenience of our team. Everything is in the same contract and it's an administrative ease.

What are the benefits of adopting an EV/Hybrid instead of gas cars?

The impact, hoping to pollute less. Because it is a bit more expensive, but it is more deductible, so this is an environmental choice. In the end according to our accountant what we pay more is compensated by the deductibility but in the future those advantages might disappear.

The thing is the state is removing this advantage because those company cars are like a disguised salary. In our company, this is not the case. As I told you in the beginning, for us cars are here because we cannot exercise our profession if we can't move quickly anywhere. I think this is pity that a distinction is not made in the legislation and regulations. We might pay more and that is not something that we can remove. Even if we don't give a company car but a bigger salary that is the same, they will still need a car.

What are the drivers that push your company towards sustainability?

That is our DNA, our values.

Is sustainability a selling proposition?

Yes. We are involved in a lot of sustainability projects, so this is the citizen's side not the commercial's side that influences us.

Deepening

How can digitalization offer sustainability opportunities?

It is easier to move around with apps like Waze etc. and to find other means of transport.

Would you accept remanufactured products? What would be the main reason?

Why not, this is a bit like the second life. The only obstacle, and this is linked to human resources, is that the company car is like a tool that you gift to your employees. That means that I don't want to take the risk to lose an employee or a potential employee, because you know the job market is competitive. There is a balance between our values and the reality, if we have a candidate who has the expertise that we look for but does not want the car we are proposing him this is a problem.

What is your opinion on Eco-driving trainings?

I think that in order to do something that will last in time it would be better if the driving schools for instance train people as soon as they learn to drive. If you train them once they learn it could remain a habit. For people driving for a long time, I don't know.

7.3.8. Interview 8 – Eric Thore, Shared Services & Service Parts Manager at Solar Turbines

Introduction

What type of vehicles do you lease the most?

The norm for people who go on the field is a Skoda Octavia. For management, people can choose what they want. Today, what I look at is the TCO (Total Cost of Ownership) and so as soon as the TCO is ok I am ok, but they can choose.

Do you buy the vehicles at the end of your leasing contracts?

No. Sometimes users ask for an offer to buy the car, but they do it as a private initiative, that's not the company who will buy the car.

General questions on the sustainability topic

How do you think the sector should evolve to be more sustainable?

There are multiple things. Today there is the possibility to go for greener cars, with lower CO2 emissions. That is true that in the past we didn't pay much attention to that detail. In the past, we pushed people to have a diesel car because it was cheaper but today, we have a different approach with the TCO. Now we authorize any vehicle, and we promote hybrid or electric vehicles, and we see in our last orders that we are going that direction.

What we do also, inside the Caterpillar group, we try to extend our leasing contracts. So, our contracts last 4 years 30.000km but if the car is fine, we extend it. Not automatically lease a new car. What I notice is that people are paying more attention to what they pay for the cars. I take an example, somebody who had at 5-series BMW 2L diesel easily reaching 500€ gross per month of BIK today will look for hybrid instead to reduce this amount.

What do you think of EVs? To what extent can it be a long-term solution?

Hybrid vehicles today is a financial benefit, but the environmental benefit is very questionable. Plug-in hybrid is very good for people who do small trips, like 60km a day. But for people in our company who must go to clients like 400km away this is nonsense because your consumption will be worse. So, for me it's a financial benefit but regarding sustainability I have doubts.

Regarding EVs this make sense, but they must do 140.000km in the lifespan of the car, but when you look at the real mileage EVs are doing today there is hardly any EV doing more than 140.000km. When you look at the CO2 emitted to produce the car and batteries, its whole cycle, you need to drive it 140.000km before it reaches an equal situation with a gas car. Few people drive so many kilometers with the new electric cars, it really becomes an exception.

However, regarding the particles, EVs make sense to remove the negative effect on health in the cities. The CO2 aspect, we need to drive it 140.000km, the health aspect, it makes sense.

What is your opinion of the ban on gas cars for 2035? Is it feasible? Is it the solution?

We need to change the culture of people. People who can charge their car at home, that could make sense. There is a lot of people living in cities who do not have this opportunity. A structure needs to be put in place, an infrastructure allowing to charge a large number of cars quickly, as would do gas station. I see very little effort to increase those charging stations. Either we start a no ownership of car philosophy, we will rent or lease only when needed, or co-ownership of cars with multiple users, or any other formula. But if we stay in the current trend, and I don't see much change to be honest, for me it is utopian to think that for 2035 you can stop gas car manufacturing. For me the infrastructure is not here today to support that, there are still a lot of years left but I don't see sufficient effort.

If you could decide the adoption of one law, which one would it be?

The biggest problem we have today are fine particles. I think that this is the biggest problem. For 2027, company cars will have to be electric and that I think is a good law. It will lead to

many problems for the infrastructure, but we need a law or regulations to support this infrastructure. So, yeah, the law would be to support the transition and infrastructure.

Do you think more support from the government is necessary to make the sector greener?

Yes, to support the infrastructure. Because asking to have only EVs ok, but the company need the infrastructure to accommodate these vehicles.

Deep dive on the research subject

What is put in place in your company to be greener in terms of mobility?

Officially, if we look at the internal Solar Turbines specifications, there is nothing that pushes in that direction.

Locally, yes. I push for electric and hybrid vehicles when it makes sense for the user. Not for deductibility purposes but for the sustainable side. As soon as the TCO is ok we go for greener vehicles.

How many cars in your fleet do you have?

In Belgium we have 17 cars. We also have cars in other countries, so in total we have 50 company cars. The company's philosophy was that a leasing is an expense. For 3 years now, American rules have changed, a leased car is a capital investment, that becomes an asset. Since the company is judged based on the Return on asset, they do not like to have cars. So, the idea is to reduce the number of company cars. As soon as there is business sense, they will still give a car because giving a car is cheaper than paying for the km for instance. So, that's a financial computation.

To what extend is the leasing a source of better technology and vehicles?

In some ways yes. Leasing is limited in time. The fleet is continuously renewed which means that you will always get the new technologies. It is indeed a means to bring new technologies.

Do you use a fleet management system? How can this service improve sustainability aspects?

Yes, I have systems available but that does not necessarily help me improve the sustainability aspect. However, I have a table with the CO2 emissions of the cars that I try to bring it to lower levels.

What are the reasons for your company to lease instead of own?

In the past it was really an expense. It was not a capital asset. Today, it is a capital asset, but the company likes to know how much it will cost overall. With leasing services, you have a price that includes everything. You know what it will cost every year. If you have to buy and maintain cars yourself, you don't really know how much it will cost. So, in order to better budget, the leasing is better.

What are the benefits of adopting an EV/Hybrid instead of gas cars?

An electric car is more enjoyable to ride. So, compared to a gas car, you don't have any sound, you have power directly available. The daily use is very pleasing. For somebody who tried the electric cars I think he does not go back. That needs less maintenance as you don't have all those oil systems.

What are the drivers that push your company towards sustainability?

Today, no. Today, there is no push from the company. It is just a personal value, a personal objective to be greener, not a company objective.

Is sustainability a selling proposition?

I think that companies try to show themselves as green actors. The reality is that it is the economical point of view the main argument. The reality with those cleaner vehicles is that the TCO is decreasing. On the outside they want to be green but in the inside this not the case if it costs more.

Deepening

How can digitalization offer sustainability opportunities?

Many reporting and simulation opportunities that did not exist in the past and that allow us to make better choices.

Would you accept remanufactured products? What would be the main reason?

Yes, this is an option. Since the delays are long, this can be a solution. However, at user level, if they can choose, they will always choose a new car instead. If it is much cheaper, it could be very interesting.

Do you have any form of Ride sharing in your company?

No. Life changed a lot, we have many people teleworking, who come one or two days a week. They do not have the same working hours. This is becoming very difficult.

What is your opinion on Eco-driving trainings?

I think this a good thing. That makes people think about the way they drive etc. It opens the mind. This is something that has to be done once in a while to avoid losing sight of it. In fact, this is the case for every training.

7.4. Analysis matrix

Topic	Interview 1	Interview 2	Interview 3	Interview 4	Interview 5
Business	B2B	B2B & B2C	B2B & B2C	B2B & B2C	B2B & B2C
Most leased vehicle	None	None	SUVs	Utility vehicles and SUVs	/
New/Second-hand	Second-hand	New and used cars (almost new)	Mainly new cars Used car lease	Mainly New cars Used car lease less common	New and used cars
End of lease car use	Leased again or sold (to leaser or on the used car market)	Sold to leaser or used car market	Leased again or sold (to leaser or on the used car market)	Sold to the leaser or sold on the used car market	Sold to the leaser or sold on the used car market
Ideal evolution	Electrification Focus on second-hand	Push for use instead of own Mobility alternatives	Decrease cars on roads Mobility alternatives	Focus on second-hand Decrease cars on roads	Greener mobility alternatives Decrease cars on roads
Opinion on EVs	Insufficient infrastructures	Constraining Insufficient infrastructures	Not THE solution Insufficient infrastructures	Not advanced enough	Not THE solution
Opinion on gas cars ban	/	Prohibiting not the solution	One solution Insufficient infrastructures	One solution Not 100% feasible	Will accelerate the transition

Ideal law	No cars for small trips	Charging stations at every gas station	Push for remanufacturing	Reduce manufacturing Redirect to second-hand cars	Keep cars for longer periods of time
Government support	Yes, more subsidies and infrastructures	Yes, more subsidies and infrastructures	Yes, more subsidies and infrastructures	Yes, more subsidies and infrastructures	Yes, more incentives and awareness
Current green practices	Second-hand leasing Cars with better technologies Digital company (no paper)	More advantageous conditions for EVs	Promotion of EVs Cars with better technologies	Promotion of EVs	Green services Energy-saving policies Promotion of EVs Cars with better technologies
Potential sustainable practices	Focus on EVs Avoiding and sorting waste	Car sharing, eco-driving	Push for electric transition	Increase leasing time Lease used cars	Increase leasing time
Electric/hybrid highlight	Educate and guide	None if inconvenient	Pleasure of driving, affordability through leasing	Include charging stations in the contract	/
Electric/hybrid benefits (for the leasing company)	None	/	/	None	Promotion of parallel services
Electric/hybrid advantage through leasing	Economic interest, demand, and regulation	/	Affordability Flexibility	More affordable	Mobility services to implement

Electric/hybrid benefits (for the leaser)	Convenient Tax	/	Pleasure Air quality Cheaper running cost Compliance Eradicate the uncertainty for thermic cars	Deductibility (Tax)	Low running cost, improved carbon footprint Tax incentives
Sustainability drivers	/	Economic value-added, Consumer interest, Regulation	Regulation, Consumer interest and Economic value	Regulation and Consumer interest	Climate change awareness
Sustainability, selling proposition?	No	No	No, price and convenience are	No, price and resell price are	No, price
Arguments to lease	Costs, peace of mind, convenience, better vehicles	Easier management, foreseeable costs	Tranquility, Costs, less risk	Cheaper offers, cover everything	Affordability, less committal, foreseeable costs, less risks
Barrier to sustainability	Regulations Access to EVs	Regulation	Limited potential initiatives Demand and profitability	Remain profitable	Remain profitable Demand and consumer interest Regulation
Barrier to leasing	/	Interest of ownership	Interest of ownership Awareness	Clearer, simpler and more attractive offer Awareness	Clearer offer, Awareness

Digitalization, tool to support sustainability?	Dematerialize paperwork	Dematerialize paperwork Offer parallel services (eco- driving lessons)	Dematerialize paperwork Fleet management system. Eco-driving	Advertise to think greener	Offer parallel services (eco driver trainings, fleet management system)
Remanufactured car lease	Yes, price is the argument	/	Yes, price is the argument, and it depends on the risk	No, rather selling them in second- hand market	Yes, price is the argument, and it depends on the risk
Ride sharing?	Feasible if profitable	Rather private initiatives	Feasible	Feasible but rather private initiatives	Feasible

Topic	Interview 6	Interview 7	Interview 8
Fleet size and type	30	8	17 in Belgium, 50 in Europe
Most leased vehicle	Try to standardize brands	/	Skoda Octavia for the field, otherwise depends on TCO
New/Second- hand	New & Second-hand	New & Second-hand	New
End of lease buyback	No	No, but extend contracts	No, private initiatives
Ideal evolution	Mobility redesign No more company cars Focus on second-hand	Revisit mobility and technologies	Cleaner cars Extend leasing contracts
Opinion on EVs	Insufficient infrastructures and technological	Real solution? Insufficient infrastructures,	Real solution? Insufficient infrastructure and efforts

	advancements, constraining Energy conversion concern	constraining, feasibility	
Opinion on gas cars ban	Great if problem is not somewhere else	/	Not enough effort today
Ideal law	Limiting manufacturing Making pollutant means of transport more expensive	Make things progressive and realistic	Regulation to support transition
Government support	Regulation should change Focus on alternative mobility solutions Regulate negative externalities	Yes, support companies	Yes, support companies and infrastructure
Current green practices	Teleworking, second-hand vehicles and bikes/public transports	Hybrid vehicles Train and bikes	Push for electric/hybrid vehicles locally
Fleet management system	No, irrelevant	No	Yes, does not improve sustainability
Better technologies?	Pollute less, comply with new norms	/	New technologies
Electric/hybrid benefits	Economic benefit for employees	Economic benefit Environmental impact	EVs enjoyable to drive Less maintenance
Sustainability drivers	/	Values, company DNA	Personal values
Sustainability, selling proposition?	Yes	Yes	No, economy main argument
Arguments to lease	/	Convenience	Convenience, foreseeable costs
Barrier to sustainability	Profitability Job market competition	Government	Economic interest

Digitalization, tool to support sustainability?	Eco-driving Mobility alternatives thank to tech Teleworking Autonomous vehicles	Mobility alternatives	Reporting and simulation to make better choices
Remanufactured car lease?	Yes, problem is the employees' willingness	Yes, problem is the employees' willingness	Yes, problem is the employees' willingness
Ride sharing?	No, irrelevant	No, irrelevant	No, irrelevant
Eco-driving trainings?	Yes, but effectiveness?	Yes, but trained as early as possible	Yes, but training to be redone