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Disruptive Innovation in Automotive Retailing

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Abstract

Purpose: The paper explores the paradigm shift occurring in the automotive retailing industry since the advent of technological innovations and different solutions in mobility. Existing studies and literature focus on the specific aspects of this changing trend, which is why this paper concentrates on the holistic changes that include various approaches to the issue of disruptive innovation in automotive retailing.

Methodology: To answer the research questions, the article utilizes qualitative research approach in combination with inductive-interpretive analysis. Interviews with eight top-level professionals from the automotive industry reveal three different perspectives on the subject. The study analyzes interview results with coding methodology and MaxQDA software.

Findings: The findings center on two components of research: major trends and impacts. The trends include the changing approach towards usership rather than ownership and to clustered habitation in mega cities. What is evident is the stark impact of such trends as the rising popularity of battery electric vehicles, autonomous cars, and mobility as a service on the dealership model of retailing. The impacts include the falling need and demand for personal cars, the rise of large fleet services like car subscription or lower maintenance needs that are expected to drastically reduce the importance of dealership.

Limitations: To further understand the trends in automotive retailing, future researchers should focus on local trends in specific regions. Another limitation is linked with exclusive concentration on experienced professionals as sources of data.

Keywords: disruptive innovation, automotive retailing, usership in automotive, mobility as a service

JEL: L62, L81, L91

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Introduction

Automotive industry undergoes the biggest change in the of course of 130 years of its existence. The concept of retailing via dealerships stagnated. However, with the emergence of the digital industry, the automotive industry had to change. Ever since the explosion of the IT industry in the late 1990s, the automotive industry fell behind customer expectations (McKinsey and Co, 2016). Recently, this industry undergoes change and faces a paradigm shift. Many technologies and social changes impacted this discourse.

A study on the disruptive technologies of the future classifies autonomous cars and mobile technology as one of the twelve disruptors of the near future (Manyika et al., 2013). Disruptive innovation always was the key focus of companies. Christensen and Raynor (2003) suggest that the emergence of disruptors on the market challenges the success rate and status quo of many firms. A study by Markides proves that disruptive innovations are bound to change the market itself, thus ousting existing technologies and business models (Markides, 2006). This brings us to the need for understanding the current automotive market trends and their impacts.

Various studies extrapolate the possible trends in the automotive industry as a whole. McKinsey focuses on the impactors in the industry on the retailing of cars (McKinsey and Company, 2014). No study considered all the impactors and their impact on the holistic approach. The studies on individual technological ideas, concepts, and their probable existence pattern appeared in various papers, especially such concepts as car sharing or ride hailing (Shaheen and Cohen, 2012).

This study aims to understand the two basic research questions:

    1.   What are the future trends in the automotive industry that will shape retailing? and
    2.   How will these trends impact the automotive retail business?

The objective of this study is to qualitatively analyze the trends and their impacts on the automotive retailing business. To achieve this, this study applied exploratory method. Interviews were conducted with eight different eminent persons with various backgrounds in the automotive industry. This method was selected to understand the shared outlook of the industry and the possible evident trends.

The interviewees were selected with a method of triangulation. People from three different backgrounds were selected. They were categorized as observers, influencers,

and insiders. The observers were experts with various backgrounds such as consulting and teaching. The influencers were professionals from new mobility solutions, people who might be founders or key position holders in those influencing new mobility companies. Finally, the insiders were people from the existing automotive retail industry. The study gathered three observers, three insiders, and two influencers.

It transpired that all interviewees agree on a few common trends. These trends reflect the basic ideas that appear in the literature review. However, some do not appear the literature review but were important for the interviewees. The trends included customer and demographic trends on how much mobile technology agrees with the automotive industry, the low affinity of future customers towards owning cars, the importance of electric vehicles, the emergent new mobility solutions like sharing, subscription, and pooling, and the advent of autonomous cars as a fleet. Finally, the paper explicitly states the impacts these trends could pose on the retailing business in the automotive industry.

Background from the Literature

Disruptive Innovation

Disruptive innovation is a term coined by Clayton M. Christensen in his *The Innovators Dilemma*. Christensen describes disruptive innovation as a "process by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves up market, eventually displacing established competitors" (Christensen, 2013). He argues that the top grossing companies find it hard to stay on top when the technologies or market change. Whereas Danneels (2004) defines disruptive technology and innovation as "a technology that changes the bases of competition by changing the performance metrics along which firms compete." This is especially evident since the emergence of the digital industry. The authors continue that such situation usually occurs because the companies and managers find it difficult to adopt to the changing technologies and customer needs, previously non-existent (Bower and Christensen, 1995). A McKinsey study suggests that there are twelve different technologies that could be classified as disrupting technologies of the future (Manyika et al., 2013). They include: advanced genomics, mobile internet, and autonomous cars. It urges organizations to watch out for these disrupting technologies and incorporate them into their business models to find stability in the market that will otherwise be filled by the entrants. Nowiński and Kozma (2017) show that blockchain technology as disruptive innovation may affect diverse dimensions of business models in diverse industries. Disruptive innovation may stimulate also the internationalisation of firms, especially in high-tech industries (Wach, 2016).

According to Christensen and Bower, there are two distinctive elements that companies have in common. Firstly, they typically represent a different package of performance attributes that are not valued by the existing customers and, secondly, the performance attributes that are valued by existing customers can change rapidly with technology (Bower and Christensen, 1995). Govindarajan and Koppalle introduce another distinction, which is the difference between radical, disruptive, and merely radical innovations (Govindarajan and Kopalle, 2006). The authors state that radicalness is based on technological differences, while disruptiveness is a market-based concept. When this idea was initially envisioned, it was limited to technological innovations. But as time went on, Christensen included the idea of business model innovations into the scope of disruptive innovations (Markides, 2006). Markides continues to argue that the idea of mixing business-model and technological innovations under one umbrella of disruptive innovations is like comparing apples and oranges. These innovations occur in different scopes and have different effects.

In case of technological and product innovations, some raised a strong idea of the development of technologies such as rapid prototyping and digital transformation. These allows incumbents and entrants to equally explore and initiate disruptive innovations at lower costs and lower risks, thus fast bridging the gaps between the two (Hopp et al., 2018). Many case studies, like those of Hasselblad cameras (Sandström et al., 2009; Corsi and Minin, 2014), suggest a drawback in being an incumbent in the disruptive innovation framework. The pressure from investors – like UBS in the Hasselblad case – and the large size of the company usually deters the agile nature of technology and business models to compete with entrants. Noteworthy, this is just one of many causes why the incumbents fail in disruptive innovation environments. To counter the deterrents, larger corporations promote spin-offs or smaller self-propelling organizations that mimic an entrant (Corsi and Minin, 2014).

The important critique of disruptive innovations is the lack of strong evidence backing the predictive nature of studies on innovations (Hopp et al., 2018). Most of the research on disruptive innovations heavily relies on the predictive nature of the study and not much on testing their theories. Simultaneously, there appeared frameworks for making ex-ante predictions from ex-post predictions on these innovations (Govindarajan and Kopalle, 2006).

The Changing Customer

Future customers will have different tastes and preferences than today. Consumer expectations can be defined as the needs and desires of customers. Companies should

strive to meet these desires more while reducing their typical offers (Mitra and Fay, 2010). Generation Y (1977 to 1996; Valentine and Powers, 2013) and Generation Z (1996 and later; Priporas et al., 2017) are the future customers of mobility solutions. It is most difficult to meet the expectations of these two generations (Priporas et al., 2017). They tend to have tastes and preferences unknown among the previous generations. The members of Generation Y and Z are trustful, tolerant, and better travelled than the previous ones (Valentine and Powers, 2013). This makes them more open to disruptive changes.

The common trends of Generation Y and Generation Z may be simplified into four major ideas: 1) Interest in new technologies; 2) Insistence on the ease of use; 3) Desire for safety; and 4) Tendency to escape the realities they face (Priporas et al., 2017). Consumer psychologists in most developed countries referred to the strong bond of Generation Y with social media and the Internet as the "Second brain" or the "Third hand" (Zhang et al., 2017). Thus, Generation Y is always up-to-date and tends to constantly share information and opinions online. One of the beneficial factors described by Bolton et al. is that this trend develops a feeling of community among the members of Generation Y (Bolton et al., 2014).

The traditional model of automotive retail revolves around the product and the trend implies its obsolescence and shift towards a service-oriented future (Andrew et al., 2016). The decision-making process is thus multifaceted. Lemon and Verhoef summarize the customer journey as three phase: Pre-purchase, Purchase, and Post-purchase (Lemon and Verhoef, 2016). The Pre-purchase phase includes all the brand interactions before the decision: need recognition, information search, and evaluation of alternatives. The Purchase phase deals with direct interactions with a brand or product: a visit to the dealer, physical observation, test driving, and the actual purchase or deference from purchasing. The Post-purchase phase includes the experience after product purchase, such as product usage, post-purchase engagement, and service requests. On the other hand, Shende (Shende, 2014) tries to adopt and define the car passenger customer journey in five phases similar to the pattern in product acquisition defined by Kotler (Kotler, 2000).

Many Original Equipment Manufacturers (OEMs) Mercedes-Benz, BMW, or Hyundai currently seek to shift from the idea of large volumes of product stockpiles into newer business models like made-to-order and personalization (Andrew et al., 2016). A study by EY states that, "[f]or dealers, the transformation is a significant opportunity to streamline their operations by shedding non-value-adding functions and unlocking capital from redundant infrastructure, while taking on a wider service portfolio that contributes to better margins" (EY, 2015). About 75% of new car buyers spend time online research-

ing the vehicles (Ashokkumar and Sethuraman, 2017) and about 72% of customers consider buying their car online (Capgemini Consulting, 2016).

The automotive industry has changed a lot in recent years. With the ever-congesting city traffic, insufficient number of parking spaces and the availability of digital solutions, there appear newer business models that are reshaping the automotive industry (Ashokkumar and Sethuraman, 2017). These changes are redefining the traditional product-based business of the automotive industry into a service-based industry (Morrissey et al., 2017). The type of consumers and the type of offers change as well.

Vehicle Technologies

Automotive technology has not changed in a long time. It has fallen into what Deloitte calls incremental changes quadrant (Andrew et al., 2016), in which the changes implemented in passenger cars were incremental to the basic offers. PwC describes the future automotive industry with five trends: Electrified, Autonomous, Shared, Connected, and Yearly updated (EASCY; Stürmer et al., 2017). Electric vehicles date back to the year 1835, when Thomas Davenport made his first electrically powered locomotive (SAE, 2016). The technology became popular in 2006, when Tesla introduced Tesla Roadster, an electric-powered sports car (SAE, 2016). Thanks to the low complexity and ease of maintenance of electric vehicles, one of the major activities of dealers could be eliminated in order to provide door-to-door on-demand service option to consumers. McKinsey (2016) estimates that by 2030 electric cars will take up a staggering share anywhere from 10% to 50% of new car sales. In 2017, this value was less than 2.5% globally (PwC, 2017).

Electric vehicles also increasingly become the growth platform for the next disruptive technology in automobile: connected and automated transportation. Autonomous vehicle technology is the inevitable future of transportation (PwC, 2017), whereas connected vehicles are a reality of the present as they quickly gain in popularity. BI intelligence report states that the connected cars market is growing 45% annually, which is ten times that of the entire automotive industry (Szmelter, 2017). The author goes on to claim from her research that by 2020, 75% of all cars would be connected. Figure 1 shows the growth and development of connected cars and autonomous cars by the year 2040 with various scenarios.

Autonomous cars pose a new challenge for conventional vehicle retailing. There are two different kinds of vehicles that appear in various studies and reports: 1) Privately owned autonomous vehicles (PAV); and 2) Shared autonomous vehicles (SAV; Habou-

cha et al., 2017; Andrew et al., 2016; PwC, 2017; Bernahart et al., 2014; PwC, 2017). PAVs are normal vehicles to be owned by individuals, operated only for the needs and wants of the owner, while SAV are to form fleets of vehicles owned by corporations or communities, which would cater to customers on demand (Bernahart et al., 2014; Haboucha et al., 2017). Another aspect of autonomous vehicles that impacts automotive retail is the life of vehicles (Anderson et al., 2016). Anderson et al. in their book *Autonomous Vehicle Technology: A Guide for Policymakers,* suggests that, due to the predictive nature of the drive, autonomous vehicles will be subject to lesser wear and tear. Moreover, their efficiency in energy usage will be higher than that of conventional vehicles by 10%. This implies that the average life of vehicles would extend, thereby reducing the replacement of vehicles by privately-owned customers (Anderson et al., 2016).

Figure 1. Growth and development of autonomous cars
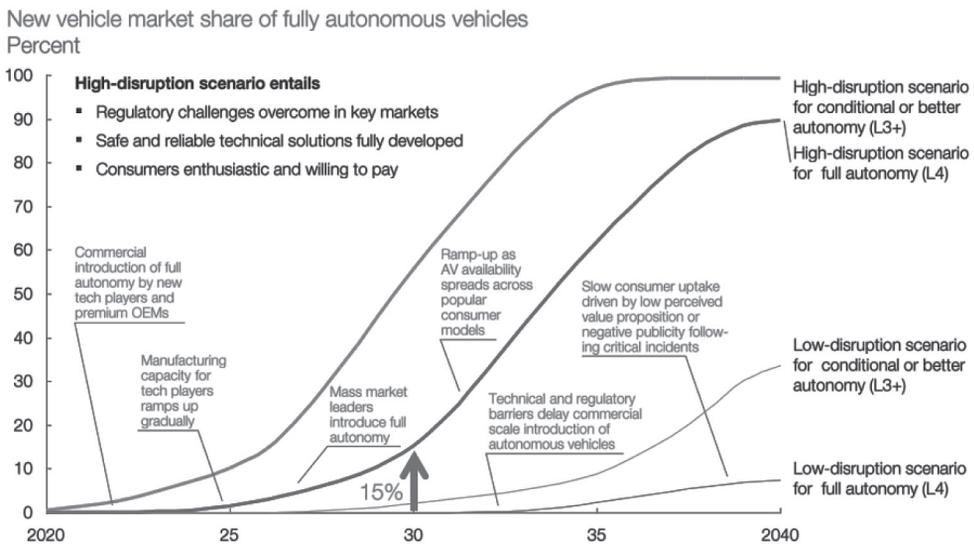
Source: McKinsey and Co (2016).

Business Disruptions

Demand responsive transit (DRT) is defined as the idea of "an object of transport for autonomous travel unhindered by the timetables or capacity of others" (Featherstone, 2004). DRT or on-demand mobility perfectly fit the idea of shared mobility, privately-owned cars excluded (Shaheen and Cohen, 2012). Technological development is the main driving factor for the development of DRTs. There are two main types of DRTs: Peer to Peer (P2P) and Commercial Operations. P2P services have developed and expanded

into many different business models in recent years. Below, please see a table extracted from a paper by S. Shaheen and A. Cohen (2012).

Table 1. Business models in car sharing.

Business Model	Description
Neighborhood	Vehicle placed in an apartment neighborhood for the usage of members. Pick up and return point is one and the same.
Business	Employees in a business share the company-owned vehicle.
University/ Campus	Vehicle is available for hire for the students/ employees in the university/ neighborhood.
Government/ Institutional Fleet	Members of departments/ office share the vehicle owned partially or wholly by the government.
Public Transit	Preferably kept at public stations for last mile/ first mile usage.
One Way	Pick up and drop are at different locations, giving freedom to members for independent travel.
Classical P2P	The owners of the car share the vehicle/ seats in the vehicle for a particular time or route.

Source: Shaheen and Cohen (2012).

Commercial on-demand mobility has been in the mobility scenario for a long time now. The early seventeenth century saw horse-drawn carriages rented out on a rent-per-ride basis (Kent and Dowling, 2016). On one end of the traditional spectrum is the traditional taxi business, leasing, and renting, which fall under commercial on-demand services. On the other end, there is the e-hailing and per hour renting (Johnson et al., 1998). Commercial decentralized car-based passenger services dispatched by online requests started the concept of e-hailing (Kent and Dowling, 2016). These services work on the principle of crowd-sharing. Alex Felstiner (2011) describes crowdsourcing as the "process of taking a task and distributing it into large pool of open workers online." In this case, drivers of service providers like Uber act as middlemen in the process of crowdsourcing (Leiren, 2016). PwC's study on the future of the mobility sector points out that ride-hailing and e-taxi services are a buffer into the future of autonomous shared personal transport services (PwC, 2017). These services will grow until the dawn of level four autonomous vehicles (Stürmer et al., 2017). The markets for decentralized ride hailing/ e-hailing are currently less regulated and many papers call for a stronger regulation of e-hailing economy as it replaces traditional taxi industry (Kent and Dowling, 2016).

Presently, used car markets gain popularity. China is a huge market that contributes approximately 52% of the total growth of global car sales (Gao, 2017). The major reasons for used car purchases in China include the potential to get a better brand at the same or lower cost and value for money. Gao's study (2017) states that Chinese concerns over buying a used car reduced dramatically from 2016 to 2017. Due to the high cost of ownership, the automotive industry also assumes many existing business models, uncommon for other consumer products like renting or sharing. As evaluated by Sabine Moeller and Kristina Wittkowski (2010), this trend appears not only in the automotive sector but also in other industries like fashion. Some of the reasons for the trend of non-ownership can be attributed to 1) the rising demand for up-to-date products, 2) the increasing demand for experiences, and 3) the rising levels of environmental awareness (Moeller and Wittkowski, 2010).

By various small-scale changes that happen rapidly across the globe, the automotive industry is also evolving to preserve retailing. One such change is the retailing model of Tesla, where the dealer network is by-passed to pursue direct distribution, which according to Tesla is a means to accelerate the sustainable transportation (Augustine and Nava, 2016). Another one is the generic online sale of cars on web portals like Alibaba, eBay, or Carpal.com. A major threat for the OEMs in dealer retailing is the growth of third-party online sellers of these vehicles. Roland Berger estimates that there are more than 35 independent online resellers of automobiles (Deuring et al., 2016).

Methodology

This study uses qualitative research rather than quantitative- numerical data based research. Qualitative research presents multiple truths and perspectives (Leppink, 2016). The qualitative method best allows for the analysis and deeper understanding of a social phenomenon (Maxwell, 2000), which is the primary contribution of this study. The downside as argued by some of the scholars on qualitative research is that it loses meaning due to its the interpretive nature, relying on the generalization of a particular events, thereafter applying the results to a wider spectrum (Gall et al., 2007;Hennick, 2007). The key feature of interpretive research is the understanding of various perspectives explained by the individuals. According to Henderson (1993), explanation does not differ much from understanding, because explaining factors that influence an issue informs the understanding. Hence, interpretive methods emphasize the idea of utilizing subjective experiences and ideas to craft an explanation of the matter (Lukka, 2014).

Interviews were the best available method to obtain primary data for the research below. The selection of interviewees in a convergent interviewing method focused not on the similarities between them but on the differences (Jepsen and Rodwell, 2008). A total of eight experts were interviewed in the process. The selection of experts was done so that they fit in the three groups: Observers, Influencers, and Insiders. The below figure represents different perspectives towards the same issue from various areas of the automotive ecosystem. Thus, the different perspectives in this figure have a common pattern that suggests the future shape of the industry. Triangulation is a strategy utilized mostly in qualitative research to incorporate the idea of trustworthiness (Given, 2008). The list of interviewees is represented in the table below (Table 2) with a categorization and a background brief.

Figure 2. Triangulation of sources in own elaboration
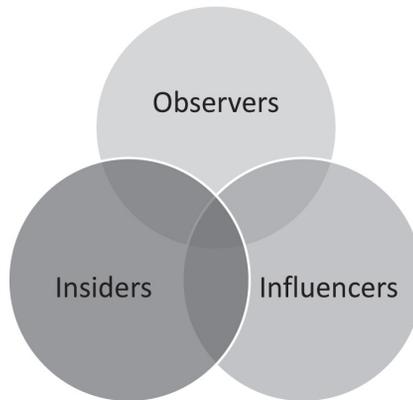
Source: own elaboration.

Table 2. Interviewees and their categorization

No	Category	Background
1		*Professor of Marketing, Director Research Area Automotive and Mobility, EBS Universitat, Germany*
2	**Observers**	*Executive Vice President, Capgemini*
3		*Professor, Sustainable Transportation and Research Director, UC Berkley*
4	**Insiders**	*Head of Re-Marketing and Financial programs, Wielton*
5		*Head of Global Sales, Unu Motors*

6		*VP Business Development, Wunder*
7	**Influencers**	*Founder and CEO, Free2Move*
8		*CEO and Founder, Carpal*

According to Creswell, coding is the best method to perform qualitative analysis; "during this process of describing, classifying and interpreting, qualitative researchers develop codes or categories to sort text or visual images into categories." (Cresswell, 2007). Hence, a lean code was used to interpret and deduce the transcript from every interview into logical outcomes (Cresswell, 2007). The data was analyzed using MaxQDA software and then exported to Microsoft Excel for further reference.

The following categories were used in the coding structure.

- Technology infrastructure
- Automotive technology
  - Organic development
  - Electric vehicles
  - Technology socialism
  - Autonomous cars
    - Hurdles to Autonomy
- Changing Demographics
  - Infrastructure hurdles
  - Market expectations
    - Customer needs
    - Ecology
  - Geographical differences
- Ownership
  - Usage
  - Asset perception
  - Pay for use
  - Non-private ownership
  - Private ownership
    - Traditional users
- Manufacture perception
  - Manufacturer dilemma
- Dealer issues
  - Traditional issues
  - New challenges

- • Positive signs for dealerships
  - ▪ Other Impactors

Findings and Conclusion

The aim of this research was to identify and understand the foreseeable trends in the automotive industry and find their possible impacts on automotive retailing. The following trends were identified by the exploratory approach towards identifying the major trends discussed in literature and in interviews with experts.

Customer Trends

- ▪ *Highly cohesive to the easiness and on the go features of mobile technology*
  Future customers will mostly rely on internet-based services. They will expect everything from purchasing a car to using combined mobility solutions via a mobile phone/device.
- ▪ *Low affinity to the possession of high value material assets*
  Customers tend to have lesser and lesser affinity to owning cars. They tend to overlook the intangible value of cars as a status symbol. Customers are more inclined towards efficient access to mobility rather than the possession of high value assets.
- ▪ *Migration into larger cities and attracted to travel*
  As time passes, more people will move to the cities. People will not spend time and effort to maintain cars. They will always be on the move and will expect access to mobility wherever they are, pointing towards a subscription-based model of mobility. Moreover, the congestion and population density of cities will make it difficult to afford and maintain cars.
- ▪ *Special concern over ecology and efficiency*
  Growing concern over ecology and the efficient use of assets is driving the customers away from the traditional model of owning cars. Customers are looking for an effective access to mobility at a justifiable rate according to their class. Customers are looking for smarter solutions.

Technology Trends

- ▪ *Electric vehicle*
  Growing concern for ecology and regulators' pressures bring the electric vehicle technology to the forefront of product development in the automotive industry.

We can expect the majority of cars sold in the future to be electric, ranging from 30%–50% by 2030.

■ *Connected and autonomous vehicles*

Connected cars will be immediately popular from 2021. This would be an answer to the needs of better customer experience, the safety and efficiency needs of the customers. Autonomous cars would derive from connected cars and should be commercialized in 2027–2030, even though it might be technologically possible to implement them earlier. This is set to dramatically change the way mobility is perceived.

Business Trends

■ *Shared, subscription, and pooling*

Shared, subscription, and pooling economies will thrive in the market owing to the advancement of mobile technologies. Until approximately 2025, there will be many more solutions. But beyond 2025, there is no clarity which solutions will be viable and profitable.

■ *Autonomous fleets*

The advent of driverless cars would bring huge possibilities in the market. Many solutions will merge into one like car sharing or ride-hailing. There will appear large companies that offer different classes of vehicles and services. The retailing of cars will be heavily impacted with the abovementioned trends. The following are the possible impacts on retailing.

■ *Reduction in individual ownership of cars*

The growing demand for shared services in mobility undermines the need for owning a car. Immediate solutions like subscription and long-term solutions like DRT will diminish the current retailing numbers. Nevertheless, private ownership will still exist, and the finding should not be misinterpreted as the complete phase out of individual ownership.

■ *Major threat to the dealership model of sales*

The dealership model of sales is becoming outdated with the growing importance and convenience of online sales. The dealership system is plagued by low margins on sales and the push from manufacturers to sell cars online. Moreover, customers prefer online purchases. There will occur a merger of online-offline or the elimination of offline as a different channel.

■ *Threat of fleets on retailing*

The growing importance of mobility as a service will bring business models with asset heavy companies. With large bargaining power, these companies

will question the need for retailing through dealership. What will drive company preferences will be not to hassle over ownership.

■ *Dealership transformation into maintenance and refurbishment hubs*
With increasingly better cars on road every day and the expected reduction in individual sales, dealerships will become restricted to service centers, the bread-winning service in the current dealership model. More cars in fleets and the higher usage of such cars will imply the need for the extension of their lifecycle, hence the need for refurbishment centers.

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