

Department of Business and Management - Master's Degree in Strategic Management  
Chair of Management Of Innovation

KEY FACTORS BEHIND THE APPROVAL OF THE DIRECT-SALES BUSINESS MODEL IN  
THE AUTOMOTIVE SECTOR: THE US CASE

Giovanni Valentini

---

SUPERVISOR

Francesca Di Pietro

---

CO-SUPERVISOR

Gianluca Grasso, 745581

---

CANDIDATE

Academic year 2022/2023



## Table of contents

1-	Introduction .....	4
2-	Literature review .....	7
2.1-	Innovation adoption process framework .....	7
2.2-	Direct-sales business model adoption .....	11
3-	The automotive industry .....	13
3.1-	The status-quo .....	13
3.1.1-	<i>Dealership Business Model</i> .....	13
3.2-	The future .....	14
3.2.1-	<i>The drivers of change</i> .....	14
3.2.2-	<i>OEMs' strategies for success in respond to change</i> .....	19
3.2.3-	<i>Direct-sales Business Model</i> .....	20
4-	Research methodology .....	23
4.1-	Statistical approach, data collection and analysis .....	23
4.1.1-	<i>Multiple linear regression method</i> .....	23
4.1.2-	<i>Dependent variable</i> .....	23
4.1.3-	<i>Independent variables</i> .....	24
5-	Results .....	27
5.1-	Research outcomes .....	27
5.1.1-	<i>Robustness check</i> .....	28
5.1.2-	<i>Bias check</i> .....	29
5.2-	Interpretation and discussion .....	30
5.2.1-	<i>Governor's party affiliation and direct-sales</i> .....	30
5.2.2-	<i>Charging stations and direct-sales</i> .....	30
6-	Conclusion, limitations and future research .....	32

## **Abstract**

Almost since the birth of the automotive industry, Original Equipment Manufacturers (OEMs) have been collaborating with dealers - independent entrepreneurs who take care of sales and after-sales services for them. Social changes and technological development are leading OEMs to be attracted by a new business model based on direct-to-consumer sales, but, in most states of America, its adoption is currently unlawful. In this context, the thesis aims to identify which factors are able to positively influence governments' choices in direct-sales matters. By setting up a database with more than 500 observations covering the 50 U.S. states over an 11-year period (2010-2020), a quantitative analysis was carried out by using a multiple linear regression model to investigate the correlations between 7 selected independent variables and the willingness of governments to open up to direct-sales. The main finding of this study is the positive correlation there is between the number of e-charging stations across the states and direct-sales or, more generally, the affiliation there is between e-mobility and the new business model. The result of this work, possibly confirmed and deepened by future studies, should lead OEMs to invest in e-mobility not only internally - as they are already doing - but also externally towards the interest of consumer communities, with the goal of accelerating the e-transition and thus making the decision of the approval of the new business model a necessary step to unlock their synergies.

# 1- Introduction

The new direct-sales business model in the automotive sector, which involves the break-up of the traditional dealer mechanism, is an option that is becoming increasingly attractive to Original Equipment Manufacturers (OEMs). The dealer network - relied upon in today's business model - has always been considered crucial by OEMs to reach their target territory, but the advent of online channels and the incredible efficiency of today's logistics networks make it not unreasonable to leverage a proprietary distribution channel.

But it is only in the long run that it will be possible to eliminate physical channels - and the dealer network - and that is when consumers will be ready for a totally virtual purchasing journey and when the technologies will allow it. Remaining more down-to-earth and thinking about the near future, the viable solution for OEMs is a hybrid version of the direct-sales business model characterized by:

- proprietary OEMs online channels supporting the local presence of dealers in order to provide the consumer with an omnichannel experience;
- a renewed relationship between OEMs and dealers who will now become sales agents.

This solution brings with it many consequences and changes and in fact the topic is still debated among industry experts. The potential of the new business model for OEMs, existing dealers and consumers, as well as its characteristics, will be addressed in the course of this thesis.

In this context, however, investigating only the OEMs' willingness or unwillingness to change would be reductive. In fact, in the USA - the territorial frame in which the study is set - almost all states prevent the adoption of direct-sales through dealer protection laws. This kind of Business Model innovation represents a great opportunity, but as long as the law prohibits its application in the majority of the US market, OEMs cannot freely invest in the new strategy and begin their own path of change. In the recent period this sensitive topic is being much discussed at the parliamentary level and OEMs are eagerly listening to see which state will reverse the policy and open up to direct-sales.

This study fits precisely into this context: its aim is to understand what factors influence the decision of states to allow or disallow direct-sales in the automotive sector. The formal research question - giving birth to this quantitative study - is the following one:

*(RQ) What factors influence a U.S. state's inclination to allow direct-to-consumer sales in the automotive sector?*

Being able to identify which variables are the ones responsible for the shift in favor of direct-sales, could have significant managerial implications for OEMs. In particular it could be possible:

1. To predict which states are most likely to open up to direct-sales in advance;

2. Under the best of circumstances, to indirectly influence the decisions of states by shaping those key variables.

In the first case, the advantages may be the one of being able to start moving strategically towards the adoption of the new business model at an early stage. This type of innovation requires a very high level of preparation before it can be applied and the change plan will necessarily be extended over time. For an OEMs preparing early would bring the significant advantage of being the first comer in a given market segment, having more time to refine the new knowledge required.

In the second case, which is more optimistic than the first, it sees the OEMs as indirectly involved in the decision and not as interested spectators. If it were possible to maneuver the variables identified by the study, OEMs would be able to accelerate the decisions of some US states, anticipate the future go-ahead date and enjoy the benefits of the previous scenario.

Since the above-mentioned research question is exploratory, in order to perform the quantitative study, there is the need to select the right variables that will be characterizing the database. To do so, an exercise was carried out: by looking at the context, the generic research question has been more specifically declined so as to imagine the "category" of variables which can be interesting to put into test and which can be eligible to be the answer to the objective of the thesis. Here we have 3 examples.

- Since we are talking about laws, it is to be expected that political dynamics may enter among the variables included in the decision-making process, and therefore the question becomes:

*To what extent do state-specific political dynamics affect the inclination to allow OEMs to engage in direct-to-consumer sales?*

- As we will see in more detail in the context chapter, e-mobility is perhaps the trend that is gaining most momentum in the market. In America, players such as tesla - which sells only electric cars - have already begun selling online directly to consumers<sup>1</sup>, and therefore the question becomes:

*To what extent do state-specific degree of uptake of electric cars affect the inclination to allow OEMs to engage in direct-to-consumer sales?*

- The size of the automotive market - and therefore its economic significance on the total economy of each state - can determine, in turn, how relevant the arguments are in the eyes of parliaments that must bring the direct-sales issue to light, and therefore the question becomes:

---

<sup>1</sup> Colias, M. (2022, March 11). Tesla set the model for selling EVs; Ford, VW and others want to follow. WSJ. <https://www.wsj.com/articles/tesla-set-the-model-for-selling-evs-ford-vw-and-others-want-to-follow-11647003781>

*To what extent do state-specific degree of relevance of automotive sector affect the inclination to allow OEMs to engage in direct-to-consumer sales?*

Having anticipated the logical reasoning behind the choice of variables with these three examples, the detailed analysis of those and the creation of the database will be addressed more carefully in the dedicated chapter of methodology.

## 2- Literature review

The evolution from an “Auto dealership” business model to a “direct-sales” one will be a game-changing innovation for the automotive sector, but as we already said, to the present day, OEMs are prevented almost everywhere in US from implementing it. But why? The reasons can basically be summarized in three points:

1. The current business model has been in place since the early days of the automotive industry and the dealer network has been a key part of its growth and development. Over the decades, it has become accepted that dealerships, locally owned and operated businesses, contribute to the creation of jobs and the development of the local economy, therefore the protection of their interests is to be considered as support for the economy;
2. Another reason is to promote consumer protection: dealerships are typically required to meet certain standards, including providing warranty service, handling recalls, and offering customer support. This ensures that consumers have a local point of contact for any issues with their vehicles.
3. Finally, car dealers and their associations have considerable political influence, both at state and federal level. They engage in lobbying and make campaign contributions to legislators who support their interests. This political influence has helped to maintain the status quo of the car dealership model.

Although a number of US states have recently started to get their hands on statutes to allow - more or less freely - the direct sale of cars to consumers, it is questionable whether OEMs are ready for such a radical change. The adoption of significant change brings with it many opportunities alongside new challenges, risks, and investments, so firms may not be ready at all or may not be ready all at the same time.

It would be interesting to understand, from a theoretical point of view, what factors contribute to OEMs' adoption of business model innovation and to identify those business specifics that might determine who will implement it first. To do so, the following chapter aims to review the literature on diffusion and adoption of innovations that can provide useful insights into the argumentation of the thesis

### 2.1- Innovation adoption process framework

Through the analysis of the literature on business innovation - and in particular focusing on Magdalena Pichlak's study<sup>2</sup> - we can observe which are the top-most determinants influencing the adoption of

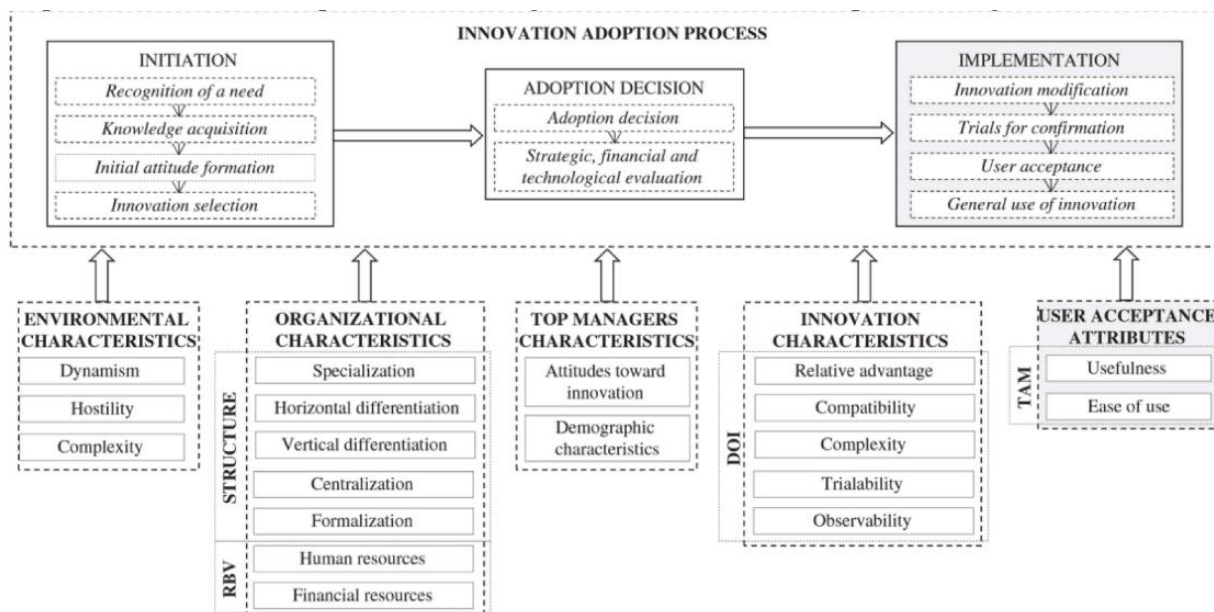
---

<sup>2</sup> Pichlak, M. (2015). *The innovation adoption process: A multidimensional approach*. *Journal of Management & Organization*, 22(4), 476–494. <https://doi.org/10.1017/jmo.2015.52>



innovations on the various stages of the innovation adoption process, everything synthesized into a conceptual framework.

**Figure 1 - Conceptual framework for the determinants of the innovation adoption process**



The most frequent view of the innovation adoption process (Lewin 1952) is the “unitary sequence model” and it is divided into three more general phases: initiation, adoption decision and implementation.

1. The initiation (pre-adoption) stage reflects the activities associated with recognizing a need, seeking answers, gaining information, or understanding of current innovation, adopting an initial attitude toward it, and proposing innovation for acceptance.
2. The adoption decision stage entails deciding whether or not to accept the presented proposal by evaluating the desired solution from a practical, strategic, financial, and/or technological standpoint and allocating resources for its acquisition. At this level, top executives broaden their perspectives of an innovation to determine whether it will aid in the development of organizational goals and objectives.
3. The implementation (post-adoption) stage deals with the tasks associated with adapting the innovation, preparing the organization for its broad usage, conducting a trial for confirmation, and giving acceptance of an innovation by an organization and its personnel.

For each stage of the innovation process just described, the study listed the determinants that may have the most powerful impact on each of them. Results from the Delphi survey conducted among 264 experts shows only those that are actually considered to be impacting the phases in practice:

*Figure 2 - Factors influencing each of the phase of the innovation adoption process<sup>3</sup>*

Initiation			Adoption decision			Implementation		
Factors	Round		Factors	Round		Factors	Round	
	Round 1	2		Round 1	2		Round 1	2
Complexity in the environment	4.5	4.2	Dynamism in the environment	3.6	3.4	Dynamism in the environment	4.0	3.8
Specialization	3.8	3.4	Hostility in the environment	3.9	4.0	Hostility in the environment	3.7	3.4
Horizontal differentiation	2.8	3.1	Centralization	3.8	3.8	Centralization	3.9	3.8
Human resources	4.9	5.0	Human resources	4.0	4.2	Formalization	3.3	3.2
Top managers attitude towards innovation	4.1	4.3	Financial resources	4.1	4.4	Human resources	4.1	4.4
Innovation complexity	3.6	3.3	Top managers attitude towards innovation	3.9	4.0	Financial resources	4.8	5.0
			Relative advantage	4.4	4.1	Top managers attitude towards innovation	4.0	4.4
			Innovation compatibility	3.9	3.6	Innovation compatibility	3.9	3.8
			Innovation complexity	3.8	3.8	Innovation complexity	3.9	3.9
						Innovation trialability	4.1	3.9
						Ease of use	4.0	4.2

- a) Environmental dynamism and hostility, contrary to what one might expect, do not have a significant impact on the first stage: with high dynamism and competitiveness it is preferable to keep a conservative attitude toward innovations and focus on making the operations and the use of resources more efficient. Instead, these factors mainly have an impact on both the adoption decision and implementation stage. This is because once an innovation shows potential, it becomes a market standard, and everyone must align to stay competitive.
- b) Environmental complexity mainly insists on the first stage: the greater the heterogeneity in the market, the greater the need and motivation to seek new solutions. This is because there is no established "way of operating," and what makes the difference is precisely new ideas and innovations.

<sup>3</sup> Source: Pichlak, M. (2015). *The Innovation adoption process: A multidimensional approach*. *Journal of Management & Organization*, 22(4), 476–494. <https://doi.org/10.1017/jmo.2015.52>

- c) The two indicators of organizations' complexity, specialization and horizontal differentiation, insist on the first stage. The richness and diversity of the knowledge base, as well as mixing ideas, promote creativity, raise awareness of new solutions, and encourage innovative suggestions. More complex companies have greater access to information and knowledge about various breakthroughs and are hence more likely to identify them.
- d) Organizational centralization, typically associated with efficiency in decision process strongly determines in a negative way the second and third stage of the innovation adoption process. It may weaken organizational members' involvement and commitment by limiting their locus of authority and decision-making rights.
- e) Human resources and top managers attitude towards innovation are conducive to all the stages: the number of qualified employees as well as top management support proved crucial for the entire process over time. Qualified personnel deliver benefits in the form of inventive solutions and additional benefits from greater resource utilization in response to perceived specific difficulties. During the beginning stage, top managers modulate the process of scanning the environment, and they have the required influence and authority to complete innovation implementation.
- f) Financial resources influence only adoption decision and implementation stage. Funding is one of the key elements in the decision-making process: if there are no resources, implementation and even earlier adoption is unthinkable. The first stage is often not resource dependent as not all innovations require dedicated R&D funds, only knowledge and creativity.
- g) Compatibility, that is, the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of the receivers, is connected with the second and third stage. If an innovation requires a huge lifestyle change or if the user must acquire additional products to make your innovation work, then it is more likely to fail. Innovations meet with the greatest success when users are able to seamlessly adopt them and when they replace an existing product or idea, for the better.
- h) Trialability and ease of use heavily affect the post-adoption activities. Having the possibility to give the innovation a test run before committing along with the perception of easiness of use are able to raise customer ratings encouraging adoption.
- i) Relative advantage, how improved an innovation is over a competing option or the previous generation of a product, is crucial for the adoption decision stage. Obviously, the higher the relative advantage, the more chance there is that the innovation will be disruptive, that there will be high adoption by current consumers and that many others will be attracted as well.

## 2.2- Direct-sales business model adoption

From the general explanation of the theoretical factors, it is possible to decline some of them in the automotive context so as to have practical feedback on the adoption process of our specific innovation: the direct-sales business model.

- *Environmental dynamism and hostility:* The market is mature and therefore not very dynamic, but in the last period several trends have emerged. We will describe them more specifically in the next chapter, but in general, for now, it can be said that the high competition between OEMs in a market that is now saturated - in combination with a renewed dynamism - are pushing towards the adoption of the new business model.
- *Environmental complexity:* the automotive sector is not a heterogeneous environment. The market value chain no longer has any secrets: the operational processes that characterize the daily activities of OEMs are well known and common to all. The focus in companies of this type is often on making their resources and activities more efficient and, in the case of the automotive industry, innovations are often imported from other markets (e.g. tech)
- *Specialization and horizontal differentiation:* OEMs are very large companies operating in almost all parts of the world and therefore their organizational structure is commonly divided into geographically and product distinct business units. This means that tasks within the same functions may vary from one business unit to another and that specialization is high. Within the same business units, especially when we consider functions such as production and warehousing, horizontal differentiation is the main organizational component: this allows the development of environments with deep knowledge of their subject capable of identifying potential innovations.
- *Compatibility:* The new model does not disrupt the customer journey, but mainly affects the other two players: the OEM and the dealer. In fact, for the consumer, the implementation of the innovation will be very smooth and will not see major differences. In the buying experience that characterizes the hybrid version of the direct-sales model, the classic dealer figure to interface with will still be central, a "lifestyle change" will not be required, but - as we will see in the next chapter - the presence of multiple online channels will allow the consumer to experience a modernized process.
- *Trialability and ease of use:* The new model does not disrupt the customer journey but primarily impacts the other two players: the OEM and the dealer. In fact, the consumer will not need to test before adoption as if we were dealing with a technological innovation, but will simply see new channels implemented (for an omnichannel experience), transparent pricing, and other innovations addressed in the next chapter that are designed to make the shopping experience intuitive and with as little stress as possible.

- Relative advantage: It is about the challenge between the current dealership business model vs. the one with direct-sales. From studying the two models, it is possible to trace the new advantages and disadvantages inherent in innovation that are able to ultimately establish the level of relative advantage. As a small foreshadowing of the next chapter, where advantages and disadvantages will be punctually analyzed, it is precisely consumer preferences - a key factor in adoption - that push toward the new business model.

These factors - common to all players in the automotive industry and therefore affecting everyone with the same intensity - are meant to explain why the adoption of business model innovation may be the central topic of all OEMs' strategic operations in the years to come. Once it is recognized that the innovation has a great chance of being adopted, however, there is the question of whether all actors are equally ready. Organizational centralization, human resources, top managers and financial resources - the remaining factors that are specific and characterizing to each OEM and not strictly related to the common automotive environment - are those that should be held responsible for the greatest/minor market responsiveness and will decide the identity of the incumbents and followers.

In our context, in addition to consumers and leading enterprises, there is an additional actor that plays a key role in the success of the innovation shift: governments. In fact, as we have already seen at the beginning of this chapter, in many states in the USA the implementation of the direct-sales model is prohibited and companies cannot take the initiative. From theory, it has been possible to understand the views of companies and identify the factors that drive adoption, but upstream government intervention is needed to give the green light to strategic operations. Some governments have moved in recent years in favor of the new business model, but to understand their point of view - and the factors influencing them - theory is not enough. The proposed quantitative study has precisely this purpose: to understand which characteristics/factors inherent in American states influence the decision to open/not to open direct-sales.

### 3- The automotive industry

Before going in depth with the objective of the thesis, it is necessary to explore the automotive industry to get an overview of the current situation. This chapter aims to analyze the current business model and compare it with the direct-sales model, considering advantages, disadvantages and all the factors of change that will revolutionize the future of mobility.

#### 3.1- The status-quo

##### 3.1.1- Dealership Business Model

One thing has stayed largely consistent in more than 135 years since the invention of the automobile: the dealership sales model. In this system, auto manufacturers enter into agreements with independent concessionaries who act as middlemen between the manufacturer and the final customers. This is the conventional wholesale model that makes the extensive presence in the national territory of Points of Sales the main advantage for producers, consumers, and dealers. In America, the annual report of the National Automobile Dealers association (NADA) states that the number of active dealers in 2022 is roughly 17,000 spreads throughout the country, who collectively contributed \$1205 billion to the economy.<sup>4</sup> The advantage we are talking about translates into the ability of:

- OEMs to reach a large market through a strategically positioned dealer network, without the requirement for real estate investment.
- Consumers to gain value from post-sale assistance, technical support, and the opportunity to test drive vehicles in person in their neighborhood.
- Dealers to manage their business independently in their own area, having the chance to build customer loyalty.

To fully understand how this business model works, we need to investigate the activities of its key player: the Dealer. In particular, four macro-categories of activities can be identified:

- Vehicle Sales, marketing, and promotion: As it is widely known, dealers' principal function is to sell vehicles to consumers. Sales representatives are the ones trained to assist customers in picking the appropriate vehicle based on their preferences, needs, and budget and with the help of physical showroom they let potential purchasers look over and test-drive in order to make considered decisions. Of course, when a consumer decides to buy a vehicle, the dealer handles all of the paperwork and financial processes. In order to attract potential buyers, dealers frequently run commercials, participate in local events, and provide special bargains and incentives.

---

<sup>4</sup> NADA Home Page | NADA. (n.d.). <https://www.nada.org/>

- Vehicle Inventory: Dealerships obtain their inventory from manufacturers in bulk purchases or from the manufacturer's distribution hubs. Customers who want to sell their old vehicles when purchasing a new one can also trade them in. Dealers meticulously maintain and manage their inventory in order to provide potential purchasers with a broad range of vehicles.
- Financing: Finance departments at automotive dealerships frequently assist consumers in obtaining auto loans and financing options for their vehicle purchases. They collaborate with multiple banks, credit unions, and financial institutions to provide customers with affordable lending rates and flexible payment options.
- After-Sales Service: Most dealerships have service centers that offers high-level customer service and assistance during the ownership of a vehicle (e.g. maintenance and repairs). Excellent after-sales customer care increases client loyalty, improves the dealership's reputation and boosts sales.

## 3.2- The future

### 3.2.1- The drivers of change

The automotive industry, and mobility as a whole, is undoubtedly undergoing a process of deep change in social, economic, and technological terms. The stability that has reigned in the industry for over a century is being crumbled, and only those who can fully understand the impact and timing of disruption and seize the correct new opportunities are likely to win.

The following factors are the main drivers of change that are leading towards the adoption of new forms of mobility. They have been clearly distinguished for the sake of clarity but, in reality, they are mutually reinforcing and go along with each other.

- Population growth, urbanization and congestions:

As of today, about 56% of the world's population - 4.4 billion people - live in urban centers. Urbanization is a trend that is already set to grow by itself but combined with the increase in world population, which will double by 2050, its growth is estimated to be even more significant: in fact, by that time, nearly 7 out of 10 people will live in cities<sup>5</sup>.

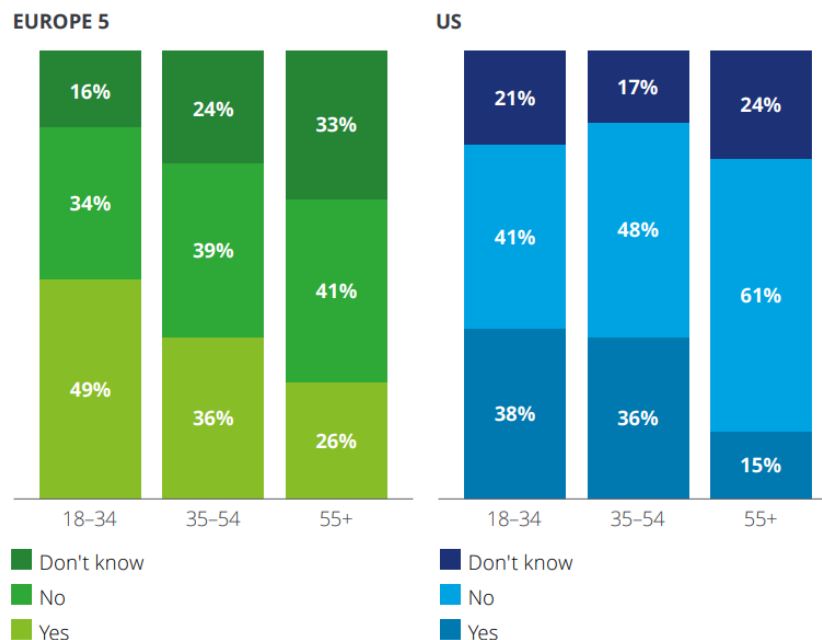
Every large urban area allows its inhabitants the fulfillment of social, cultural, and economic activities that inevitably require mobility. And it is precisely by talking about moving from A to B that each one of us wants the trip to be fast, cheap, and comfortable. For the majority of citizens, the private vehicle is the way to go but, at the same time, if most feel the same way, the congestion of roads - given their non-infinite capacity - makes the same journey from A to B not so fast, cheap and comfortable anymore. A transition from car dominated travel to less space-intensive modalities such as public transport could solve the "space-challenge".

---

<sup>5</sup> Overview. (n.d.). World Bank. <https://www.worldbank.org/en/topic/urbandevelopment/overview#1>

For automakers, this trend is highly relevant: the culture of the proprietary car could potentially falter, leading to both risks and opportunities.

**Figure 3 - Percentage of consumers by age group who question whether they need to own a vehicle because of their use of shared transportation options<sup>6</sup>**



- Environmental concerns:

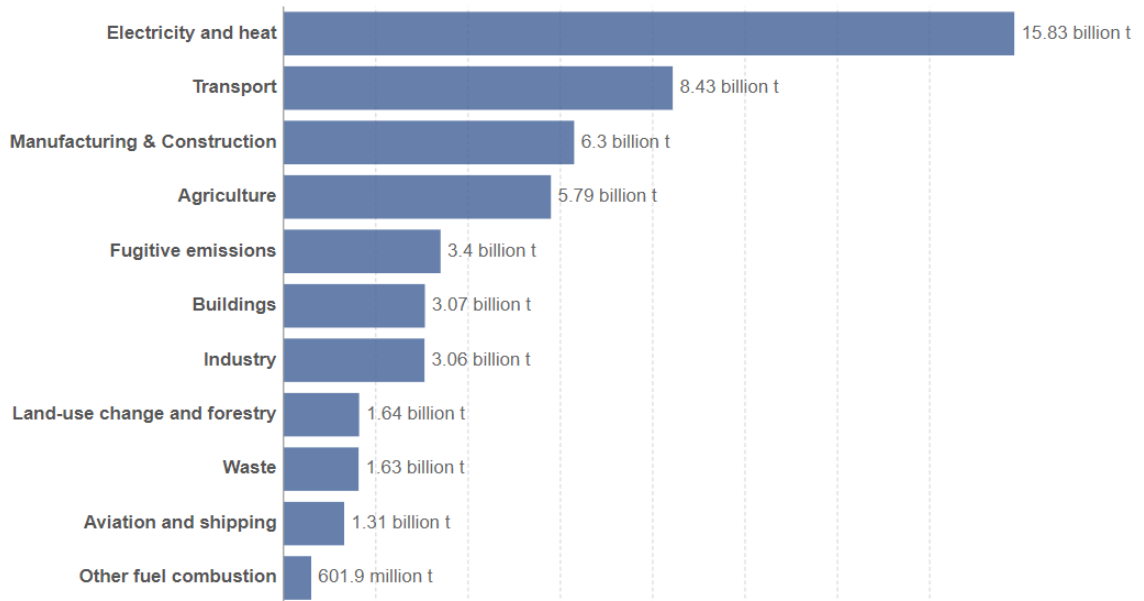
When it comes to the environment and its preservation, greenhouse gas emission is one of the most prominent topic. Taking the global transportation sector into consideration - excluding manufacturing - it contributes for the 16.2% on the total emission value<sup>7</sup>, which is why many government initiatives around the world are trying to address it.

<sup>6</sup> The future of automotive mobility to 2035 / Deloitte Global. (2023). Deloitte. <https://www.deloitte.com/global/en/Industries/automotive/analysis/future-of-automotive-mobility-study.html>

<sup>7</sup> Ritchie, H. (2020, May 11). CO<sub>2</sub> and Greenhouse Gas Emissions. Our World in Data. <https://ourworldindata.org/emissions-by-sector>



Figure 4 - Greenhouse gas emission by sector, World 2019<sup>8</sup>



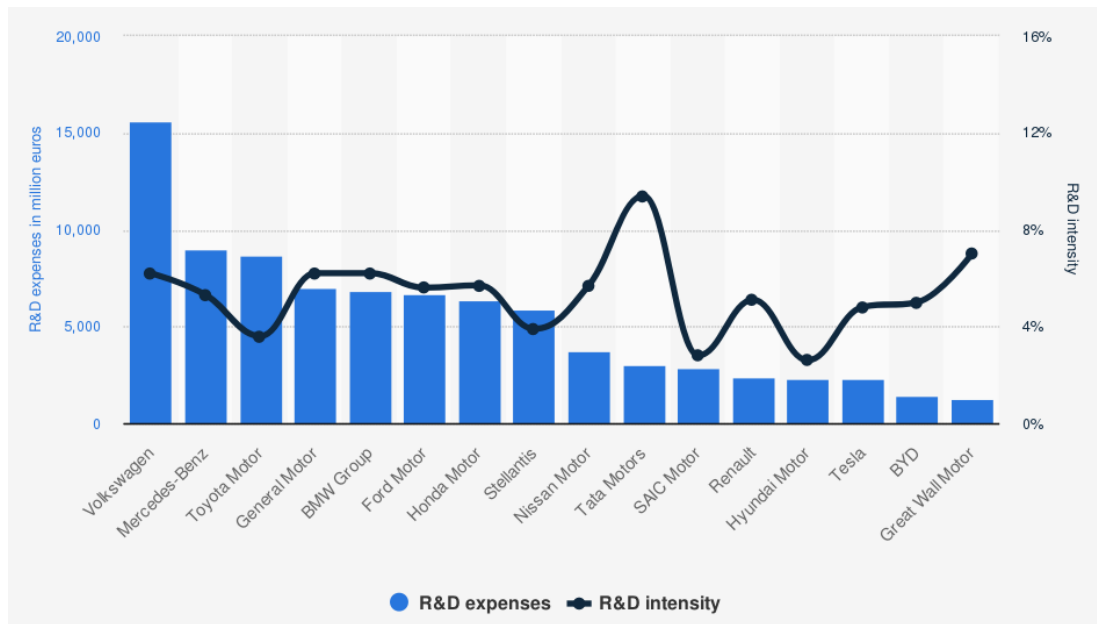
The total emissions of a mode of transportation is a function of the "emission factor" and the activity level. Manufacturers, having no control over the latter variable, are challenged to make attractive and sell vehicles with a better "emission factor" – vehicles without internal combustion engines.

- Technological advancements:

The advent of new emerging technologies is altering many elements of the vehicles offering, leading to a revolution of the driving experience as a whole. OEMs are heavily investing on R&D since the convergence of these technologies, and their development, is key to the creation of next-generation vehicles.

<sup>8</sup> Emissions by sector - Our World in Data

Figure 5 - Research and development expenses and intensity of selected global automotive manufacturers in 2021<sup>9</sup>



The technologies that are winning a large share of the funds made available for R&D are mainly 3:

- *Electric powertrains*

The new type of power supply that will undoubtedly replace fossil fuels is the electric one. The lithium-ion battery is the key technology at the origin of electric cars, and the effort of future research are directed towards the goal of increased capacity, reduced recharging time and general improvements in performance and longevity.

The electric car market is already gaining momentum: sales in 2022 are over 10 million and are expected to grow in 2023 as well. Considering the over 2.3 million electric vehicles sold in the first quarter in 2023 (about 25% more than in the same period the year before), total sales at the end of 2023 are expected to be around 14 million. As a result, electric cars could account for 18% of total car sales across the full calendar year<sup>10</sup>.

- *ADAS & Autonomous driving*

ADAS - abbreviation for Advanced Driver-Assistance Systems - is a group of technologies that are intended to help drivers and improve vehicle safety by giving real-time information, warnings, and automated interventions in critical driving circumstances. ADAS systems monitor the vehicle's surroundings, recognize potential

<sup>9</sup> R&D in selected global automotive OEMs: expenses and intensity | Statista

<sup>10</sup> Executive summary – Global EV Outlook 2023 – Analysis - IEA. (n.d.). IEA. <https://www.iea.org/reports/global-ev-outlook-2023/executive-summary>

threats, and provide proactive help by utilizing various sensors, cameras, radar, lidar, and computer algorithms.

By exploiting the full potential of these new technologies, the goal is to achieve complete autonomy – vehicles with the ability to operate and navigate without human input or intervention. Along with consumer benefits, autonomous driving (AD) will generate additional value for the auto industry. In particular, according to McKinsey analysis<sup>11</sup> based on customer interest in AD features and commercial solutions available today, ADAS and AD might produce between \$300 billion and \$400 billion in the automotive industry by 2035.

- *Connectivity and infotainment*

Together, connectivity and infotainment technologies are changing the way we interact with vehicles, providing advanced capabilities and enhanced user experience.

Connectivity to the internet allows vehicles to have access to a lot of useful information for the driver and to communicate with other connected devices – like smart phones or smart homes. Meanwhile, infotainment systems merge multimedia features into the vehicle's interface, providing passengers with tailored entertainment and intuitive control.

OEMs are exploiting these technologies to transform vehicles into intelligent and connected hubs, improving the driving experience, and making travels safer, more convenient, and pleasurable for users.

- *Changing consumer preferences:*

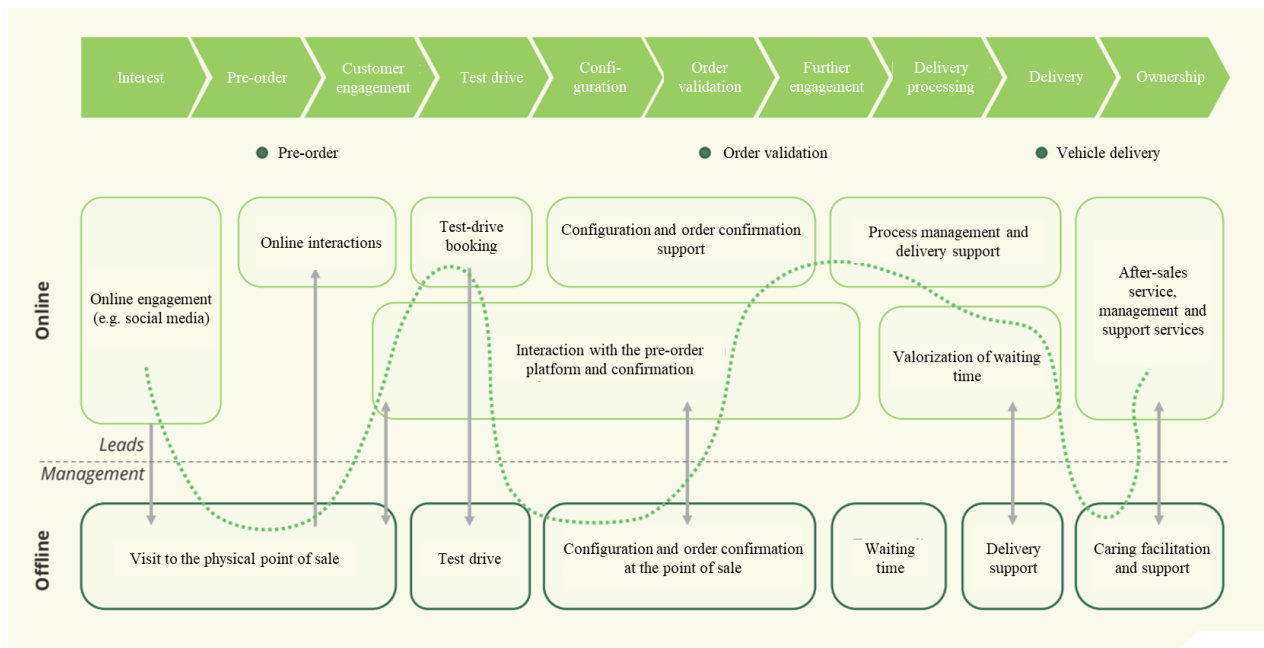
Car manufacturers used to compete primarily on the basis of their engineering capabilities: greater driving performance as well as reliability were their marketing pitches. Nowadays, these characteristics are still important, but secondary. Customer centricity is the new mantra, and the development of outstanding experience is the new battleground: being able to identify and adapt to customer demands is going to be a key point of differentiation.

The first requirement of the current demand is the digitalization of the customer journey and its omnichannel declination. In an increasingly digital world, offline channels are no longer as effective as they used to be and must necessarily be combined with online channels: the blending must be part of a coordinated and synchronized strategy between the channels, addressing all touchpoints to create a unified experience.

---

<sup>11</sup> *Autonomous driving's future: Convenient and connected.* (2023, January 6). McKinsey & Company. <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/autonomous-driving-future-convenient-and-connected/>

**Figure 6 - The new automotive purchase omnichannel experience<sup>12</sup>**



By leveraging the data acquired through digital channels, personalization and eventual long-term customer loyalty are the natural follow-up. A high level of personalization - built upon customers' previous interactions, preferences, and behaviors - combined with outstanding transparency - on pricing, costs, incentives, and fees – are able to bring great satisfaction and value to the customer, stimulating long-term relationships.

### 3.2.2- OEMs' strategies for success in respond to change

When in dynamic environment, firms have at their disposal a range of strategies not only to survive, but to navigate and capitalize for change. Among these we can name strategies such as diversification and internationalization but, in this paragraph, we will explore the Business Model Innovation as a way to address the change.

Business Model Innovation (BMI) refers to the process of creating, modifying, or adopting a new business model to better create and capture value. BMI is crucial in dynamic and competitive markets: unlocking new revenue streams, optimizing cost structures or - more generally - capitalizing on trends, allow companies not to fall behind and reach sustainable growth for long-term success<sup>13</sup>.

While BMI can provide a competitive edge and promote growth, it also introduces new problems and hazards. The following are some of the most significant:

<sup>12</sup> *Automotive Think Tank 3: l'agency model e la mobilità integrata | Deloitte*

<sup>13</sup> Kraus, S., Filser, M., Puumalainen, K., Kailer, N., & Thurner, S. (2020). *Business model innovation: A systematic literature review. International Journal of Innovation and Technology Management, 17(06), 2050043.*

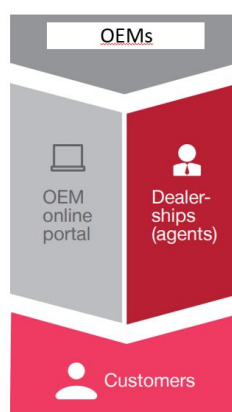
- Employee and stakeholder resistance to change: BMI frequently necessitates a significant shift in the way a company runs, which can be greeted with resistance from employees and stakeholders who are content with the status quo;
- Uncertainty: BMI entails testing new and untested concepts so there is some uncertainty about whether the new model will succeed or fail. Because of these fears there is a risk of not acting confidently and not committing enough to it:
- Cost: Implementing a new business model can be time-consuming and resource intensive for the main actor and all stakeholders involved.

It is often not enough to come up with new technologies or ideas to be successful: taking risks to ensure that their implementation is effective is the natural route to achieve competitive advantage. OEMs are obviously aware of this and - in addition to 'chasing' the trends we mentioned earlier - they are very interested in the possibility of evolving their business model. The starting point - the dealership business model - is already known to us, but the target destination - the direct sales business model - is to be addressed in more detail in the next section.

### 3.2.3- Direct-sales Business Model

The most widely explored form of business model among OEMs is the 'direct-sales' model, according to which – with no surprise – they would be able to sell directly to consumers through both self-owned distribution channels (the “pure” version) and the new figure of the agent (the “agency” hybrid version).

*Figure 7 - The direct sales/agency model (personal elaboration)*



Under this new paradigm, the level of disintermediation in the value chain is undoubtedly higher: in fact, as a result, roles, knowledge, and responsibilities of the actors involved are no longer the same.

- **OEMs Point Of View (POV):**

Compared to the current Business Model, the OEMs' activities will increase in number and complexity. By eliminating the intermediary figure in charge of the entire sales process, activities like inventory management and operations such as dealing with the end consumer have to be handled.

Among the advantages, the most obvious one is the increase in margins on the single vehicle, which, despite an expected increase in costs due to the new activities just mentioned, still benefit from the disappearance of the intermediate actor.

Moving forward, the new business model provides OEMs greater control over some variables:

- a) The price can now be set in full by the automaker and adapted quickly to any market needs
- b) Discounts can now be used more effectively and rationally
- c) Marketing activities (e.g., branding, messaging, positioning...) can now be run following a consistent and coherent method, pursuing an omnichannel strategy

Finally, adopting a data-driven strategy thanks to the digital tools in use at all stages of the customer journey, data can be collected, analyzed, and used to gain detailed knowledge of individual needs and preferences, to improve vehicles and to personalize communications or offerings.

On the other hand, almost all of the disadvantages are attributable to the costs and risks to be faced because of the new activities that have arisen related to the sale process.

- **Agents POV:**

The biggest change obviously concerns the source of revenue. Vehicle ownership no longer passes through the dealer before reaching the consumer, so revenues are no longer tied to the mark-up applied to them. In the new model, the agent is assured a fee linked primarily to the number of vehicles sold with the possibility of bargaining on its percentage or adding extra-incentives that depends on contract to contract.

Given the drop-off of activities such as pricing, negotiation, heavy-financing, and inventory management, risks are reduced, the financial structure is leaner and there is the opportunity to focus on additional sales capabilities and services. Investing, training, and focusing on providing an outstanding customer experience for the "offline" portion of the customer journey for which agents are responsible are key activities for building trust, boosting sales, and therefore their revenues.

A survey conducted by Capgemini<sup>14</sup> to more than 50 dealers in China, the UK, Germany, Spain, France, and Sweden confirms that there is a positive attitude towards agency sales:

---

<sup>14</sup> Capgemini. (2023, July 13). *The agency sales model: Our global study identifies the influences set to shape the mobility ecosystem of the future* | Research & insight | Capgemini. <https://www.capgemini.com/insights/research-library/agency-sales-model/>

in particular it emerged that 96% of them consider the current business model as outdated or very outdated and some other important insights on their Point of View came up:

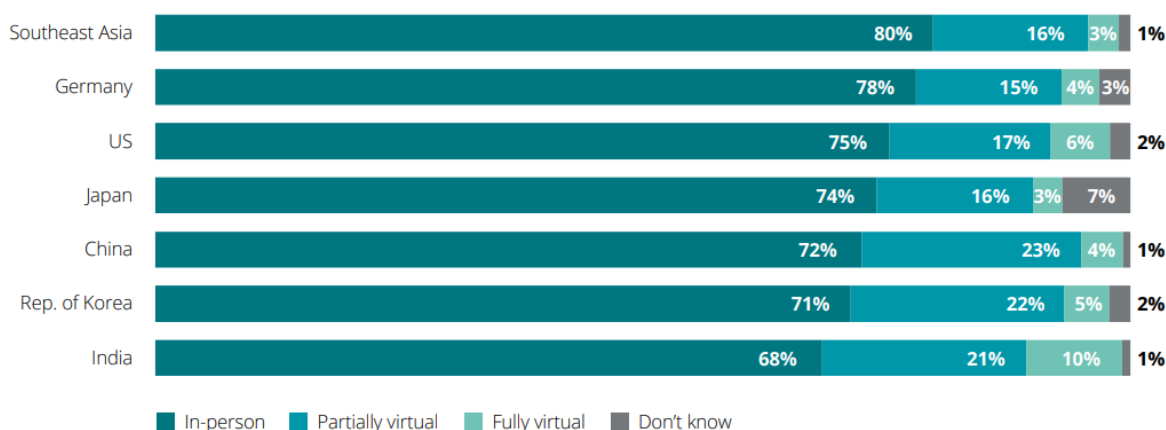
- Even though it may appear illogical, dealers are willing to give up pricing authority if it applies to the entire dealer network. A transparent and consistent price ensures dealers better planning with established margins, reducing traditional intra- and inter-brand competition.
- Having a unified IT system landscape across all sales levels will make data transfer between dealers and manufacturers easier, allowing for more focused, analytics-based interactions with customers and increasing the likelihood of closing sales.

- **Customers POV**

As we saw at the beginning of this chapter, consumer preferences are changing. The new business model is perfectly capable of putting the consumer at the center but, judging from some market studies, its "pure" version (without agents but only with digital channels owned by OEMs) does not appear to be in line with consumer expectations.

In particular from the Deloitte Global Automotive Consumer Study is clear that the most preferred way to acquire next vehicle is still the in-person one, with the partially virtual mode as second-best.

*Figure 8 - The most preferred way to acquire next vehicle<sup>15</sup>*



As a strategy for the future, all evidence points to the multichannel approach: consumers are not ready to abandon physical touchpoints and therefore "agency version" of the direct-sales business model seems the one to focus on.

<sup>15</sup> [Global Automotive Consumer Study 2022 | Deloitte Italy | Consumer Business](#)

## 4- Research methodology

After presenting the theoretical background and the automotive context, this chapter wants to describe how the research was carried out, dealing in particular with the method selected and the composition of the database in use.

### 4.1- Statistical approach, data collection and analysis

#### 4.1.1- Multiple linear regression method

Since this study aims to understand the variables influencing the openness of some US state governments towards the practice of direct-sales in the automotive, a quantitative method has been adopted.

The study was conducted using the multiple linear regression approach, which can estimate the linear relationship between an independent variable (y) and two or more dependent variables (x1,x2...).

In general:

$$y = \beta_0 + \beta_1 * X_1 + \beta_2 * X_2 + \dots + \beta_n * X_n + \varepsilon \quad \text{where}$$

- y is the dependent variable
- $\beta_0$  is the y-intercept (value of y when all other parameters are set to 0)
- $\beta_1 * X_1$  is the regression coefficient of the first independent variable (the effect that increasing the value of  $X_1$  has on the predicted y value)
- $\beta_n * X_n$  is the regression coefficient of the last independent variable
- $\varepsilon$  is the model error (how much variation there is in the estimation of y)

The following regression summarizes the model chosen for our specific case study:

$$\text{StateLawDirectSales} = \beta_0 + \beta_1 \text{GDP} + \beta_2 \text{Population} + \beta_3 \text{TypeOfGovernment} + \beta_4 \text{JudicialSelection} + \beta_5 \text{AutoRegistrations} + \beta_6 \text{ElectricStations} + \beta_7 \text{HQP} + \varepsilon$$

The dependent variable (y) and the independent variables (x1,x2...), which will be explained qualitatively later in this paragraph, are observations declined for each of the 50 U.S. member states and for each year from 2010 through 2020. Quantitatively speaking, then, this means having a total of 550 observations. Errors are clustered at the state level and thanks to the use of dummies variables for every year - a common practice when dealing with time series data - it has been possible to control for any variations or shocks over time shared by all states.

#### 4.1.2- Dependent variable

The dependent variable y is a measure that is meant to express the openness of every US state governments towards the practice of direct-sales in the automotive sector. Y is a binary variable that



takes the value of 1 if the state is open to direct-sales or the value of 0 if the state is closed to direct-sales.

To find this information, it was necessary to combine secondary sources with primary sources. A document compiled by the National Conference of State Legislatures (NCSL)<sup>16</sup>, a state-by-state summary of the situation regarding direct-sales in the automotive sector, was used as a secondary source and starting point. In addition, for greater depth and level of analysis, a law-by-law and state-by-state check was carried out by consulting an online legislative database<sup>17</sup>.

The following observations/assumptions were made in determining the independent variable:

- *When the law does not explicitly prohibit direct-sales*, the state is to be considered generally open to direct-sales (1)
- *When the law allows direct-sales to a single player thanks to a “private” agreement*, the state is to be considered generally close to direct-sales (0)
- *When the law allows direct-sales for a very narrow category of players but not to legacy ones*, the state is to be considered generally close to direct-sales (0)

#### 4.1.3- Independent variables

The independent variables that were selected and collected for this quantitative study are a total of 7 and can be gathered into three categories:

- Those describing the status of the American states (GDP and Population) and that enable us to appreciate the structural differences between them.  
For the collection of these two data, primary sources were consulted, in particular two different government databases that collect all census data<sup>18</sup> and key economic indicators<sup>19</sup>.
- Those that explain the political situation of the American states (Government and Judicial Selection), that enable us to appreciate the differences in legislative dynamics between them. The National Governors Association (NGA)<sup>20</sup> was the key source which allowed the collection of these two data. It is one of the country's most respected public policy organizations which, as its name suggests, has as associate members the governors of the 55 states, territories and commonwealths. The data were therefore selected and extrapolated from documents published

---

<sup>16</sup> Hartman, K., & Shields, L. (n.d.). *State Laws on Direct-Sales*. <https://www.wispolitics.com/wp-content/uploads/2021/08/State-Laws-on-Direct-Sales.pdf>

<sup>17</sup> CaseText. (n.d.). *CaseText*. <https://casetext.com/library>

<sup>18</sup> U.S. Census Bureau. (n.d.). *Explore Census data*. <https://data.census.gov/>

<sup>19</sup> U.S. Bureau of Economic Analysis (BEA). (2023, September 6). <https://www.bea.gov/>

<sup>20</sup> National Governors Association. (2023, September 5). *National Governors Association*. <https://www.nga.org/>

on their website, illustrating the history of governors in power for each state and their party affiliation.

- Those that give an insight into the automotive business in the American states (Auto registrations, Electric stations and HQ presence) and that enable us to appreciate the differences in the level of “permeation” and “importance” of auto between them. The data for the variables Electric stations and Auto registrations are those directly published by the U.S. Department of Transportation through the Bureau of Transportation Statistics site<sup>21</sup>, while for the collection of the variable HQ presence, a research was carried out on each of the sites of the six chosen car manufacturers in America (General Motors, Stellantis, Ford, Tesla, Lucid and Rivian).

The characteristics relating to the sample are summarized in the following tables, in particular: table 1 collects the characteristics of the variables while table 2 gives a summary of descriptive statistics of the sample.

**Table 1 – Variables description**

<i>Independent variable</i>	<i>Description</i>
<i>State-law on direct-sales</i>	<i>It expresses the openness of US state towards direct-sales in automotive sector. The variable has the value of 0 if direct sales are not allowed and the value of 1 if direct-sales are allowed.</i>
<i>Gross Domestic Product</i>	<i>Monetary value of all services and manufactured goods produced (GDP) for each year from 2010 to 2020 and for each US state. Measure in Billion \$.</i>
<i>Population</i>	<i>Number of resident citizens for each year from 2010 to 2020 and for each US state.</i>
<i>Government</i>	<i>Party of the governor in power for each year from 2010 to 2020 and for each US state. The cases reported are: Republican, Democrat and Independent.</i>
<i>Judicial Selection</i>	<i>Method of judicial selection for each year from 2010 to 2020 and for each US state. Five different methods have been observed: Partisan election, Nonpartisan election, Legislative election, Gubernatorial election and Assisted appointment. The Michigan has its own method.</i>
<i>Auto registrations</i>	<i>Number of registered cars for each year from 2010 to 2020 and for each US state.</i>
<i>Electric stations</i>	<i>Number of electric vehicle charging stations in the territory of each US state and for each year from 2010 to 2020.</i>
<i>HQ presence of OEMs</i>	<i>Number of Head Quarters of major OEMs for each year from 2010 to 2020 and for each US state. The OEMs taken into consideration are: General Motors, Stellantis, Ford, Tesla, Lucid and Rivian.</i>

<sup>21</sup> Tyler Data & Insights. (n.d.-b). Tyler Data & Insights. <https://data.bts.gov/>

*Table 2 – Summary descriptive statistics*

<i>Variable</i>	<i>Mean</i>	<i>Std. dev.</i>
<i>DirectSales</i>	<i>0,3654545</i>	<i>0,4819958</i>
<i>GDP</i>	<i>341,3363</i>	<i>426.692</i>
<i>Population</i>	<i>6306371</i>	<i>6999367</i>
<i>GovRep</i>	<i>0,5872727</i>	<i>0,4927727</i>
<i>GovDem</i>	<i>0,4054545</i>	<i>0,4914267</i>
<i>PartisanElection</i>	<i>0,16</i>	<i>0,3669398</i>
<i>AssistedAppointment</i>	<i>0,42</i>	<i>0,4940078</i>
<i>NonpartisanElection</i>	<i>0,26</i>	<i>0,4390335</i>
<i>GubernatorialElection</i>	<i>0,1</i>	<i>0,3002731</i>
<i>LegislativeElection</i>	<i>0,04</i>	<i>0,1961376</i>
<i>Registrations</i>	<i>2281930</i>	<i>2542652</i>
<i>ChargingStations</i>	<i>821,1073</i>	<i>2424,949</i>
<i>HeadQuarters</i>	<i>0,12</i>	<i>0,6215323</i>

## 5- Results

The primary objective of this chapter is to report and interpret the outcomes of our data analysis performed according to the methods and using the database described in the previous chapter. In addition to reporting the results of the linear regression, it will be shown:

- A robustness check;
- An alternative scenario that removes any doubt about some kind of bias that might have been involved.

### 5.1- Research outcomes

From *table 3* below, it is possible to derive the results related to the linear regression. Given the relatively small number of observations forming the database for this quantitative study (550), we can set the minimum level of significance of the variables at a pvalue value less than/ equal to 10%.

Scanning through the variables, those that are statistically significant turn out to be 'GovRep', 'GovDem' and 'Charging stations', with the first two showing a pvalue below 1% and the latter with a pvalue of 10%. With regard to the nature of the correlation, it is necessary to look at the coefficient column: 'GovRep' and 'GovDem' are both negatively correlated with the variable 'DirectSales' (-0,6650206 and -0,6559845 respectively), while 'ChargingStation' has a positive correlation (equal to 0,000035).

On the other hand, the remaining variables included in the model are not sufficiently significant and will therefore not be examined later in this chapter.

**Table 3 - Results of the linear regression**

<i>DirectSales (y)</i>	<i>Coefficient</i>	<i>Robust std. err.</i>	<i>t</i>	<i>P&gt; t </i>
<i>GovRep</i>	-0,6650206	0,1109892	-5,99	0,000
<i>GovDem</i>	-0,6559845	0,131449	-4,99	0,000
<i>GDP</i>	-0,0010655	0,0007569	-1,41	0,166
<i>Population</i>	-3,53e-08	7,17e-08	0,49	0,624
<i>Registrations</i>	7,49e-08	1,03e-07	0,73	0,469
<i>ChargingStations</i>	0,000035	0,0000209	1,67	0,101
<i>HeadQuarters</i>	0,127378	0,2561791	0,05	0,961
<i>PartisanElection</i>	0,3758728	1,068242	0,35	0,726
<i>AssistedAppointment</i>	0,5539381	1,032098	0,54	0,594
<i>NonpartisanElection</i>	0,4925965	1,022716	0,48	0,632
<i>GubernatorialAppointment</i>	0,8141982	0,9636629	0,84	0,402
<i>LegislativeElection</i>	0,6314922	1,103559	0,57	0,570

<i>R-squared</i>	0,1413
<i>No.Observations</i>	550

*Source: STATA*

### 5.1.1- Robustness check

A "robustness check" is a common exercise in empirical studies in which the researcher investigates how certain regression coefficient estimates behave when the regression specification is changed in some way. A finding that the coefficients do not change much is taken to be evidence that these coefficients are "robust".

In this particular case - to perform the comparison - the linear regression used at the beginning was replaced by a nonlinear probit model, generally used when the dependent variable is dichotomous.

Table 4 shows the results with the probit regression model. Comparing the values of the coefficients of the independent variables "GovRep," "GovDem" and "ChargingStations" with those previously viewed in the linear model (Table 3), we find that only the latter one can be considered "robust" since the two values are similar. The coefficient of the variables "GovRep" e "GovDem" can be considered as misspecified, so they may not accurately reflect the actual correlation.

**Table 4 – Results of the probit regression (Robustness check)**

<i>DirectSales (y)</i>	<i>Coefficient</i>	<i>Robust std. err.</i>	<i>t</i>	<i>P&gt; z </i>
<i>GovRep</i>	-6,08563	-	-	-
<i>GovDem</i>	-6,170742	0,4032592	-15,30	0,000
<i>GDP</i>	-0,0040485	0,0032863	-1,23	0,218
<i>Population</i>	-6,08e-08	2,85e-07	-0,21	0,831
<i>Registrations</i>	6,11e-07	4,32e-07	1,41	0,158
<i>ChargingStations</i>	0,0007581	0,0002863	2,65	0,008
<i>HeadQuarters</i>	2,514772	0,8300331	3,03	0,002
<i>PartisanElection</i>	15,37996	3,390446	4,54	0,000
<i>AssistedAppointment</i>	15,59806	3,157605	4,94	0,000
<i>NonpartisanElection</i>	15,43777	3,147049	4,91	0,000
<i>GubernatorialAppointment</i>	16,40853	3,072763	5,34	0,000
<i>LegislativeElection</i>	15,82527	3,336955	4,74	0,000
<i>R-squared</i>	0,1579			
<i>No.Observations</i>	550			

*Source: STATA*

**Table 5 – Detail of misspecification error**

<i>Type of coefficient</i>	<i>GovRep</i>	<i>GovDem</i>	<i>ChargingStations</i>
<i>Linear regression coefficient</i>	-0,6650206	-0,6559845	0,000035
<i>Probit regression coefficient</i>	-6,08563	-6,170742	0,0007581

**5.1.2- Bias check**

During the time period examined, 2010-2020, 13 states changed their direct-sales legislation, either by opening them up definitely (10) or by banning them explicitly (3). As already explained in the methodology, the database used for this quantitative study contains observations of the x and y variables declined for each of the 50 U.S. states and for each year from 2010 to 2020, but there is one remark to be made. It is safe to assume that once a law is enacted, at least in the short term, will no longer be challenged, and therefore keeping observations belonging to the later years of the mentioned enactment could lead to some bias.

At this point the source database was modified according to this reasoning. Hence we are referring to "Scenario 2," the results of which were compared with the starting results above to understand the extent of possible biases that may have been involved.

As can be seen from the *table 6* below, the variables found to be statistically significant in Scenario 1 were equally significant in Scenario 2, so the presence of any bias did not affect the validity of the results.

**Table 6 – Results of the “Scenario 2” (Bias check)**

<i>DirectSales (y)</i>	<i>Coefficient</i>	<i>Robust std. err.</i>	<i>t</i>	<i>P&gt; t </i>
<i>GovRep</i>	-0,7100993	0,1140352	-6,23	0,000
<i>GovDem</i>	-0,7010791	0,1362142	-5,15	0,000
<i>GDP</i>	-0,0014619	0,0007923	-1,85	0,071
<i>Population</i>	7,56e-08	7,36e-08	1,03	0,309
<i>Registrations</i>	1,53e-08	1,08e-07	0,14	0,888
<i>ChargingStations</i>	0,0000312	0,0000132	2,36	0,022
<i>HeadQuarters</i>	0,2491961	0,2420571	1,03	0,308
<i>PartisanElection</i>	1,320387	1,018194	1,30	0,201
<i>AssistedAppointment</i>	1,498413	0,974555	1,54	0,131
<i>NonpartisanElection</i>	1,398914	0,95096	1,47	0,148
<i>GubernatorialAppointment</i>	1,623234	0,9022969	1,80	0,078
<i>LegislativeElection</i>	1,611983	1,052986	1,53	0,132
<i>R-squared</i>	0,1502			
<i>No.Observations</i>	497			

## 5.2- Interpretation and discussion

The following results that will be discussed refer to the first regression performed (*Table 3*).

### 5.2.1- Governor's party affiliation and direct-sales

The first two variables with a significant result - p value ~ 0% - are those describing the incumbent governor's party affiliation (*GovRep* and *GovDem*) and both are negatively correlated with the independent variable y (*DirectSales*).

Taking in consideration the fact that their coefficients were previously diagnosed with a “misspecified error”, it is likely that the proposed model does not take into account complex interactions between variables not considered in the study. One of them, for example, could be lobbying activities carried out by dealers who - regardless of the type of government - could make it difficult to change the course at the legislative level and continue to deny the possibility of adoption of the new BM. In this sense, it would be intriguing for future studies to delve deeper into the negative correlation observed between the type of government and the variable y (*DirectSales*). Further investigation could shed light on the underlying factors and complexities of this relationship.

### 5.2.2- Charging stations and direct-sales

The third variable whose result is statistically significant - with a p value of 10% - is that of charging stations. In particular, the study shows a positive correlation between this independent variable x and the dependent variable y (*DirectSales*).

The conceivable motivation behind this result is the most interesting one. Opening to the new BM based on direct-sales and developing a dense network of charging stations can be considered as two levers of the same provision that aim to promote at governmental level the switch to e-mobility.

The direct-sales business model is the lever that mainly affects OEMs by bringing benefits and remedying some challenging circumstances in the new electric market. Let's see how the new business model fits into this context:

- Market size is limited as well as production volumes, so electric cars are not enough to cover all the territory and all dealer stocks. *Direct-sales BM lends itself more to the "pull" market scenario for this type of vehicle at the moment, because OEMs only have to worry about sending a limited number of machines to guarantee the physical test-drive and also do not have the burden of having to maintain a certain stock level. They can produce to order.*
- “New” e-mobility specialized OEMs may not have a dealer network available and its initial development from scratch is very expensive in terms of time and money. *Direct-sales BM eliminates this necessity because you can start selling without involving third parties.*

- The new knowledge requested from the market to deal with sales and customer-service takes time to be developed by dealers and it is outside the control of OEMs. In some cases dealers may not even want to invest because of the decreasing in future revenues for maintenance services for electric cars (maintenance for combustion engines is more frequent). *With the chance of selling directly to consumers, OEMs are no longer dependent on third parties and through agent-type contracts they can incentivize staff training.*
- The price is still considered high and volatile by the consumers. *Thanks to direct-sales BM, OEMs would be able to set their price on their own, lowering and stabilizing it since dealers mark-up is no longer a matter.*

On the other hand, the presence of a sufficiently widespread network of charging stations is one of the necessary conditions for electric mobility to take hold among consumers. Indeed, ease and immediacy of recharging are among the most important decision variables considered by road users interested in purchasing electric vehicles<sup>22</sup>.

Obviously such a sharp division of benefits is not real but merely preparatory for dissemination purposes, in fact it is easy to imagine how many of those "for OEMs" have positive feedback on consumers and vice versa. The goal of such a "pro- e-mobility" campaign could be to incentivize the switch in the early stages, because - going forward - demand and supply will support each other and the market will really take off.

---

<sup>22</sup> Liao, F., Molin, E., & Van Wee, B. (2016). *Consumer preferences for electric vehicles: a literature review*. *Transport Reviews*, 37(3), 252–275. <https://doi.org/10.1080/01441647.2016.1230794>



## 6- Conclusion, limitations and future research

According to the quantitative study, the research question finds its answer in the positive correlation between the number of electric charging stations and the likelihood of having pro-direct-sales laws. Specifically, it shows that the two variables are correlated by a coefficient of 0.000035.

The great synergies between e-mobility and the new business model highlighted in the previous chapter imply that the switch is only a matter of time. For the OEMs, it would be beneficial for the transition to take place as soon as possible, and so investing in the new market both internally (e.g. R&D) and externally (e.g. facilities) may work in their favor and may influence a rapid approval of direct-sales.

The main limitation of this study undoubtedly concerns the quantity of observations in the database. Being able to use a larger number of observations would make it possible to investigate all the factors potentially involved and thus answer more punctually to the exploratory research question that is the subject of this thesis. It would be interesting if future research - using more means and resources - could take the results of this quantitative study as a starting point to further investigate the correlations that have come to light.

Finally, as already mentioned in the introduction, since this study was conducted within the USA context, it can be replicated in other regions around the world to compare results and draw other interesting insights.

## References

- *Automotive Think Tank 3: l'agency model e la mobilità integrata* | Deloitte
- *Autonomous driving's future: Convenient and connected.* (2023, January 6). McKinsey & Company. <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/autonomous-drivings-future-convenient-and-connected#/>
- Capgemini. (2023, July 13). *The agency sales model: Our global study identifies the influences set to shape the mobility ecosystem of the future* | Research & insight | Capgemini. <https://www.capgemini.com/insights/research-library/agency-sales-model/>
- CaseText. (n.d.). CaseText. <https://casetext.com/library>
- Colias, M. (2022, March 11). *Tesla set the model for selling EVs; Ford, VW and others want to follow.* WSJ. <https://www.wsj.com/articles/tesla-set-the-model-for-selling-evs-ford-vw-and-others-want-to-follow-11647003781>
- *Executive summary – Global EV Outlook 2023 – Analysis* - IEA. (n.d.). IEA. <https://www.iea.org/reports/global-ev-outlook-2023/executive-summary>
- *Global Automotive Consumer Study 2022* | Deloitte Italy | Consumer Business
- Hartman, K., & Shields, L. (n.d.). *State Laws on Direct-Sales.* <https://www.wispolitics.com/wp-content/uploads/2021/08/State-Laws-on-Direct-Sales.pdf>
- Kraus, S., Filser, M., Puumalainen, K., Kailer, N., & Thurner, S. (2020). *Business model innovation: A systematic literature review.* *International Journal of Innovation and Technology Management*, 17(06), 2050043.
- Liao, F., Molin, E., & Van Wee, B. (2016). *Consumer preferences for electric vehicles: a literature review.* *Transport Reviews*, 37(3), 252–275. <https://doi.org/10.1080/01441647.2016.1230794>
- *NADA Home Page* | NADA. (n.d.). <https://www.nada.org/>
- *National Governors Association.* (2023, September 5). National Governors Association. <https://www.nga.org/>
- *Overview.* (n.d.). World Bank. <https://www.worldbank.org/en/topic/urbandevelopment/overview#1>
- Pichlak, M. (2015). *The innovation adoption process: A multidimensional approach.* *Journal of Management & Organization*, 22(4), 476–494. <https://doi.org/10.1017/jmo.2015.52>
- *R&D in selected global automotive OEMs: expenses and intensity* | Statista
- Ritchie, H. (2020, May 11). *CO<sub>2</sub> and Greenhouse Gas Emissions.* *Our World in Data.* <https://ourworldindata.org/emissions-by-sector>
- *The future of automotive mobility to 2035* | Deloitte Global. (2023). Deloitte. <https://www.deloitte.com/global/en/Industries/automotive/analysis/future-of-automotive-mobility-study.html>
- *Tyler Data & Insights.* (n.d.-b). Tyler Data & Insights. <https://data.bts.gov/>
- *U.S. Bureau of Economic Analysis (BEA).* (2023, September 6). <https://www.bea.gov/>
- *U.S. Census Bureau.* (n.d.). *Explore Census data.* <https://data.census.gov/>