Università
Ca'Foscari
Venezia

Master's Degree

In Language, Economics and Institutions

of Asia and North Africa

Curriculum Language and Management to China

Final Thesis

The Italian Automotive Industry after Covid-19 emergency: internationalization strategy for the new electric Fiat 500 in China

Supervisor
Prof. Alessandra Perri

Assistant supervisor
Prof. Anna Morbiato

Graduand
Benedetta Baciarlini
874706

Academic Year
2019/ 2020

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前言

本论文旨在探讨同其他行业一样受到新型冠状病毒危机影响的意大利汽车工业特定领域的国际化战略，以进入中国市场，这样希望能为意大利汽车行业的复苏做出贡献。为了深化我在攻读硕士学位期间获得的知识和技能，我将介绍一个案例，研究如何开发一种能打入新款菲亚特 500(Fiat 500)的中国市场的国际化战略。菲亚特 500 最近在意大利上市，也被称为“ La Prima” ，因为它是这种模式的第一个电动版本。

因此，本论文更广泛的目的是分析意大利经济中最重要的行业之一——汽车业，在这个由新型冠状病毒引起的危机特殊时期，试图了解封锁的后果，并在一个具体案例研究的支持下，提出一个可能有助于本国在这一特定领域恢复的解决方案，这一解决方案的重点是利用生态创新作为进入外国市场的竞争优势。基于这个原因，我选择分析菲亚特 500，在我看来，这款标志性车型的电动版在全球最大的电动汽车市场中国可能会非常成功，这个市场特别喜欢意大利产品，意大利制造是高品质的代名词。

第一章将介绍汽车业的概况，全面介绍汽车业及新型冠状病毒肺炎对汽车业的影响。因此，本文将讨论该行业在意大利经济中的定位、多年来与可持续交通系统有关的技术演变和起源国效应带来的好处，以及将解释该行业在全球价值链中的地位、供应商在供应链中的作用及其两个主要特征，即外包和模块化。然后，将考虑冠状病毒对意大利这一特定行业的影响，提出投资国际化的建议，以在世界上最广阔的市场之一中国获得新客户，从而获得新的利润来源，凭借意大利制造在世界和中国的高声誉带来的好处，以及中国政府和人民对可持续性的日益重视，成功地在这一市场引进我们的案例研究对象，新的菲亚特 500。

第二章是对作为竞争优势的生态创新这一重要因素的明确解释。鉴于人们越来越关注汽车对环境的影响，从汽车工业的一般性到特殊性，描述了第二次汽车革命如何代表从传统汽车向清洁汽车的过渡，也称为替代燃料汽车，如双燃料汽车、混合动力汽车和电动汽车。本章将重点阐述生态创新与国际化的相互关系，以及生态创新如何成为一种优势，作为本案例研究的支持。因此，为了充分利用这些优势、满足客户需求的快速变化，以及更具有竞争力，企业似乎在不断创新。

第三章将对中国市场进行宏观和微观经济分析，利用有效的工具（如 PESTEL 分析模型和波特五力分析）来了解这个与我们如此遥远的市场，重点是经济数据、

海关法规、贸易和非贸易壁垒以及竞争对手。一方面，中国拥有 10 亿多人口的消费基础，人均国内生产总值约为 800 万美元 (2019 年) ，是世界上第二富裕的国家，营商便利指数为 31/190，考虑到中国持续增长的前景，这意味着一个很大的投资机会。根据 PESTEL 分析模型可以看出，由于中国是世界上碳排放量最高的国家之一，可持续性变得越来越重要，更重要的是，中国政府在过去几年里正在采取越来越多的行动来减少污染，比如促进和补贴购买电动汽车。实际上，创新和可持续性已成为政府推动的主要因素之一，因此，菲亚特的绿色产品很容易地在该市场中能找到自己的位置。另一方面，中国也希望在汽车行业取得领先地位，并大力支持其国内市场，这可能是我们战略的障碍。另一个证实我们的案例研究将从社会因素的分析中浮现出来，中国人购买昂贵产品的行为是他们表示其社会地位的方式之一，并且他们特别喜欢意大利制造的产品。最后，波特五力分析将为中国汽车市场的主导者和国内外厂商，以及中国与其他国家联盟的国际合资企业之间的激烈竞争提供一个清晰的视角。

第四章将关于菲亚特 500 如何进入中国市场的国际化战略案例为研究对象，分析菲亚特 500 进入中国市场的国际化战略取决于菲亚特 500 与中国本土企业的合资经营。在研究进入策略之前，我们将先介绍产品及其价值主张，以便更好地了解该产品可以为中国人提供的价值和独特性，并且以了解哪些人可能成为我们典型客户，然后详细介绍该公司迄今为止为接近中国市场和中国电动汽车特定竞争对手所采取的战略。最后，将介绍与台湾科技巨头富士康建立合资企业的建议，以在中国生产和分销该产品，解释为什么合资企业似乎是打入这一市场的最佳解决方案，为什么富士康将代表最合适的合作伙伴。鸿海精密工业股份有限公司于 1974 年肇基于台湾，以模具为根基，逐渐发展为高科技服务企业，透过集团化经营模式，于电子代工服务领域（EMS）排名全球第一，市占率超过四成。员工总人数季节性高峰约一百万人，现为台湾第一大企业，2019 年合并营收新台币 5.34 兆元。菲亚特可以利用与富士康的合作，前者将管理车辆的设计和制造，而后者将管理电子设备和软件。

因此，本个案研究将试图支持这样一个论点，为什么在我们现在生活的困难时期因为冠状病毒危机影响，我们应该投资于生态创新和国际化，以打入中国市场。每章都代表制定这一国际化战略的重要步骤，了解中国市场可能提供的机遇和风险。因此，我的建议当然是在世界上最大的市场之一寻找新的利润来源，中国可能代表着菲亚特 500 电动汽车的广阔市场。

Introduction

The idea of this thesis was born from my passion for internationalization strategies approaching in particular to the Asian markets, that led me to participate to the Active Learning Contamination Lab "All- Export Manager" arranged by my University, focused on the figure of the export manager and on the development of different case studies about Italian SMEs willing to approach to distant foreign markets as the one of China, Japan and Russia. Moreover, this interest of mine also led me to apply for an internship at Promos Italia, the national agency of the chamber system that supports Italian companies in internationalization processes, which I will continue after my graduation.

With the intent of deepening this subject and putting into practice the knowledge acquired during my master's degree programme, I decided to base my final thesis on a specific case study, the development of an internationalization strategy to penetrate the Chinese market for the new electric Fiat 500, which has been recently launched in Italy, also called "La Prima" as it is the first electric version of this model.

Therefore, the wider purpose of this thesis is to analyse one of the most important industries of Italian economy, the automotive industry, in this peculiar period of crisis due to the Coronavirus emergency, trying to understand the consequences of the lockdown and to give a solution for the recovery of the country in this particular field, with the support of a specific case study, a solution that is focused on exploiting eco-innovation as a competitive advantage to approach to foreign markets. For this reason, I chose to analyse the electric Fiat 500, because, in my opinion, an electric version of this iconic model could be very successful in the biggest market of the world for electric vehicles, China, a market particularly fond of Italian products, where Made in Italy is synonym of high-quality.

The first chapter will introduce the Automotive Industry. Thus, it will be discussed the positioning of this industry in the Italian economy, its internal organization and what makes it so unique in comparison to the rest of the world. Then, the Italian relationships with foreign countries, putting in light the role of global value chains. Finally, I will observe the impact of Covid-19 and propose a solution for the recovery centred on the exploit of sustainability as a strength factor to enter into foreign markets.

The second chapter is about eco-innovation as a competitive advantage and it will provide a clear explanation of this important element, first in general and then in the specificity of the automotive industry, elucidating the correlation between it and internationalization.

The third chapter will present a macro and microeconomic analysis of the Chinese market, making use of efficient tools as Pestel and Porter's analysis to understand this market so distant from ours, focusing on economic data, customs codes, trade and non-trade barriers and competitors.

In conclusion, the fourth chapter will regard the case study of the internationalization strategy for the electric Fiat 500 to enter in China, that lies on the exploit of a joint venture with a local company. Before examining the entry strategy, it will be presented the product and its value proposition, with a detailed description of the company, the strategies adopted so far to approach to the Chinese market and the specific competitors regarding electric vehicles in China.

Hence, with the support of this Case Study, I will try to demonstrate why, in a difficult period like the one we are living now, we should invest on eco-innovation and internationalization.

Chapter 1 The Italian Automotive Industry and Covid-19 impact

1.1. The Italian automotive industry

1.1.1. The Automotive industry's positioning on the Italian market

The Automotive industry is an important sector both for Italian and global economy, it comprehends three different segments: automobiles, components and finally commercial vehicles, trucks and buses. Over the past 20 years and before the pandemic, this sector has been continuously growing, apart from the interruption due to the crisis of 2009 that affected trade in this sector as well as those of a large part of the manufacturing industry. Regardless, in the last two decades, the growing has been visible, in fact, this industry has more than tripled, from € 239 billion in the mid-1990s to the current € 856 billion, equivalent to 4.6% of world trade[1]. Europe, in particular, is considered among the world's biggest producers of motor vehicles as the turnover generated by this sector represents over 7% of EU GDP and people involved are around 13.8 million[2].

In Italy, the main automotive industry regions are: Piedmont, dominated by the FCA group; Emilia Romagna with its "Motor Valley" where famous Italian luxury brands are produced; Lombardy, specialized in component manufacturers; and Abruzzo, focused on new technological developments. This sector is proving to be a driving force for our economy, both in terms of overall economic growth, export and the competitiveness of manufacturing on the international markets. Furthermore, its complexity makes it an unparalleled manufacturing school that continues to spread well-being and territorial social growth. The Italian car, in particular, embodies a strategic element for the entire country. As provided by ICE[3], in 2019 the Italian automotive industry ranked 6th in Europe and 19th in the world with regard to vehicle production; while regarding vehicle sales, the Italian market is the 4th largest in Europe and the 9th in the world.

According to the report "*Bilancio a quattro ruote*[4]" (2019) the automotive industry corresponds to the 5.6% of Italian GDP, the turnover of the production activities (direct and indirect) of the sector is worth 93 billion euros, equal to the 10.5% of the turnover of the manufacturing industry and the gross fixed investments in the sector are worth 14% of those of the manufacturing industry. Moreover, direct and indirect employees exceed 250 thousand

[1] Data by ICE report "Il commercio con l'estero del settore automotive italiano"
[2] https://ec.europa.eu/growth/sectors/automotive_en
[3] https://www.ice.it/en/invest/sectors/automotive
[4] "*Bilancio a 4Ruote*" is a study carried out by Cassa Depositi e Prestiti, Sace Simest and Anfia, in collaboration with the consultancy firm AlixPartners.

units (7% of the manufacturing sector), a lower share than that of the European Union (11.3%) but which at the same time shows a much higher turnover per employee to the Italian average.

It is evident that this industry represents a key element for our economy, indeed, it constitutes one of the first items of Italian economy both in terms of import and export, although it has revealed a slight decrease. As it emerges from data of 2019 by the *Osservatorio Economico*, this industry covers the 7.8% of total Italian imports with a value of 32.884 million euro, 1.3% less than the previous year, and the 4.4% of total Italian exports with a value of 20.790 million euro, 8% less than the previous year. It mainly exports to Usa, France, Germany, UK, Spain, Poland, Japan, Belgium, Switzerland and China. Thus, in comparison with the previous years, as we can deduce from the following table, we can notice a rather stable trend of the import and a slight drecrease of the export.

Table 1. Italy's commercial exchange in the automotive industry (values in millions of euros)

	2016	2017	2018	2019
Italian import	30.315	33.312	33.317	32.884
% of total Italian import	8,2	8,3	7,8	7,8
% variation in comparison to the previous year	23,8	9,9	0,0	-1,3
Italian export	21.278	23.731	22.587	20.790
% of total Italian export	5,1	5,3	4,9	4,4
% variation in comparison to the previous year	6,6	11,5	-4,8	-8,0

(Osservatorio Economico: 2019)

What makes our industry so successful abroad, is its uniqueness. If we observe the recent history of this sector, we can notice that thanks to the transformation of Fiat into FCA, it has been possible to maintain in Italy an autonomous collective manufacturing knowledge, that makes the Italian car different from the others. On the other hand, the dramatic crisis of Fiat between the 1990s and 2005 forced most suppliers to broaden their horizons in foreign

markets. As a result, the automotive industry became competitive because included in the international value chains. Between 2014 and 2017, the revival of FCA factories led the boom of the entire Made in Italy export and the passage of GDP from a negative sign to a positive sign. But in 2018 there was a first stop of this path, with the return of the overall production of vehicles below the quota of one million pieces. The reason is that even the Italian automotive industry has to deal with some issues. Besides its historic problem of underutilization of the plants, there are strategic and global nodes in the sector that involve mainly environmental issues, such as pollution and global warming that lead to many investments in R&D to promote the transition from diesel to electric and hybrids vehicles. In particular, the investments in Research and Development amount to 1.7 billion euro, 13% of national R&D expenditure and 18.8% of manufacturing industry expenditure, so, the competitiveness of the sector is higher than that of manufacturing in general. These investments brought Italy to rank first among the EU countries with a market for alternative drive cars. The other nodes of the sector are the rapid increase in the level of automation of cars and the generational evolution of customer tastes and requests. These issues represent an unrepeatable chance to seize opportunities so far only partially explored by the "Made in Italy" automotive whose evolution in the coming years is configured as a strategic match for the entire Italian society (Sessa e Pirone 2019: 4).

However, the importance of the automotive industry in the national reality is not only evident from the large amount of exchanges, the prestige of our brands or their long history, what is important is also the wide supply chain within which the automotive industry is inserted, that generates a significant income. If the automotive industry is concerned with the final production of cars, commercial vehicles and industrial vehicles, the chain also includes all those companies, suppliers of goods and B2B services, which are more or less directly involved in the production of vehicles. They are therefore suppliers of raw materials, components, accessories, transport services, commercial distribution, machinery and systems, and much more. According to the ANFIA[5] 2017 report, the Italian automotive supply chain employs 253 thousand workers (60% of whom are direct and the remaining indirect), making up 7% of the total employed in the manufacturing industry.

[5] ANFIA - National Association of the Automotive Industry Sector - is one of the major trade associations belonging to CONFINDUSTRIA. It was established in 1912 and for over 100 years it has the objective of representing the interests of the Associates towards public and private, national and international institutions and of handling the study and resolution of technical, economic, fiscal, legislative, statistical and quality issues of the automotive sector.

1.1.2. Technological evolution

The Italian automotive industry has certainly evolved over time, thanks to its commitment to research and development, whose expenditures in this precise sector account for 12.6% of all R&D investments made in the country. In particular, one of the major themes that influenced R&D investments in the last years is represented by sustainable mobility, the urge to reduce the negative impact of motor vehicles on the environment leading to the development of more sustainable vehicles as the hybrid and electric cars.

Sustainable or "smart" mobility refers to an ideal way of travelling both quickly and efficiently but having at the same time a little impact on the environment. It requires the use of alternative fuels (electric, hybrid, LPG, methane and hydrogen), new shared mobility networks, a constant investment in R&D, logistics and infrastructures (ITA: 2020).

The first electric vehicle developed in the world dates back to 1832, when the Scottish entrepreneur Robert Anderson developed the first electric carriage, but at the beginning this type of vehicle was not considered very practical until the 1890s, when William Morrison created the first successful electric vehicle in the US. In this period, electric cars gained popularity and many innovators began exploring ways to improve its technology. Unfortunately, the gap between electricity and gasoline contributed to the decline of electric vehicles, which by 1935 have mostly disappeared. The main reasons were the weight and volume of batteries, battery recharging times, low duration and limited performance. During the 90s new regulations created a renewed interest in electric vehicles and several automakers began exploring new options to achieve speeds and performance closer to gasoline-powered vehicles. In 1997, Toyota launched its Prius, the first mass-produced hybrid car, its success led to an increase of the electric vehicle's profile which gained more popularity also thanks to the improvements made by Tesla Motors, a Silicon Valley startup. The new interest in electric vehicles was accompanied by the development of new infrastructures as public charging locations indispensable for a practical use of the vehicle (Energy.gov[6]).

Nowadays, the European countries with a developed electric network are certainly Norway and Germany, followed by Great Bretain and France; while, from a global point of view, China represents the most important electric market, followed by Europe, US and Japan.

In Italy, the first electric model produced by Fiat was the Fiat City Car X1/23, developed in 1972, which consisted in the electric version of the Fiat City Car; followed by the release

[6] https://www.energy.gov/timeline/timeline-history-electric-car

in the 90s of Fiat Panda Elettra, Fiat Cinquecento Elettra, Fiat Seicento Elettra and several other prototypes. However, during this period, Italian consumers were not ready yet to accept this technology, so the vehicles did not gain the hoped success. Subsequently, in 2013, Fiat tried to explore again the electrical vehicle field with the development of the Fiat 500e, produced in Mexico in collaboration with the American Chrysler Group, but also this time the project was not very successful. In 2019, the Fiat Centoventi was presented at the Geneva Motor Show to celebrate 120 years of the brand Fiat, characterized by an autonomy of 100 Km and finally on March 2020 Fiat released its new electric Fiat 500, with an autonomy of 320 km and a 87kw electrical engine[7].

The technological evolution in Italy has been possible especially thanks to its research centres devoted to research in several different fields as environmental science, energy, security, materials and technology. Some examples are: the research centre established by GM Powertrain Europe at the Cittadella campus of the Turin Polytechnic University to develop new low-emissions engines; the "Motor Valley" industry district in the north-central region of Emilia Romagna dedicated to innovative research and development; the "notebook" programme under the Lombard Mobility Cluster[8] aimed at gathering and summarizing all the aspects of regional innovation in the field of electric vehicles.

In the last year, Italy became the second-leading market for new alternative fuel car registrations in Europe and, in particular, electric cars recorded the biggest year-on-year increase (+113.4%), followed by hybrids (+34.1%). This renewed interest in electrical mobility has been possible also thanks to the development of the necessary infrastructures as public and private charge station installations. According to data by Motus-e (2020)[9], there are currently 13,721 recharging points in 7,203 stations accessible to the public. However, the infrastructural development throughout the country is uneven, as stations are mostly located in the north and there is also a lack of stations along the highways, with a total motorway network of 6,943 km, there are 13 fast charging points for every 100 km. For this reason, it has been recently published the infrastructural plan of ASPI, "Transformation plan to 2023", with the aim of improving the charging network on the motorway and it is

[7] https://www.quattroruote.it/news/curiosita/2020/03/07/fiat_tutte_le_concept_e_i_modelli_di_serie_elettrici_foto_gallery.html

[8] This project is under the Lombard Mobility Cluster, in partnership with the Brescia Industry Association, the Milan Polytechnic University, the Lombardy chapter of Confindustria, the Brescia Chamber of Commerce and the University of Brescia.

[9] Motus-E is the platform for dialogue between the players in the e-mobility chain created to promote the spread of electric mobility in Italy.

composed of three phases. The first phase has the purpose of reaching the presence of recharging points every 90 km. The second phase wants to cover the remaining 69% of the service areas and thus achieve total coverage of the motorway network (Motus-e: 2020). ANFIA suggests that it would be optimal to have at least 30,000 stations installed by 2021, 170,000 by 2025 and 560,000 by 2030 (ITA: 2020).

Finally, another important issue related to the technological evolution of electric cars is represented by the production and recycling of batteries. The research on batteries of the last few years have been focused on improving the autonomy of the car, which is different from model to model depending on the capacity of the battery. Some examples are the Tesla Model 3, which represents a symbolic car in the electric market, that has an autonomy of 560 Km, the Renault Zoe has an autonomy of 395 Km while the new electric Fiat 500 has an autonomy of 320 Km. Moreover R&D investmments have also been made on searching recycling processes for the materials that compose batteries. In particular, in Italy it has been developed a new recycling process able to recover precious materials as lithium, nickel, cobalt and manganese. According to Sole 24 ore (2019)[10], currently, lithium batteries in Europe are mostly sent to Germany, where there are industrial operators able to correctly recover the components and part of the materials. However, Cobat and CNR ICCOM developed the first recovery plant able to keep innovation in Italy and lead to a circular economy in our country.

1.1.3. Made in Italy, synonym of quality

The automotive industry, as many other industries, is influenced by the country of origin effect (COO). As Pontiggia and Vescovi state (2015), the country of origin effect is linked to the need of consumers of being reassured by multiple proofs of the brand reputation that leads them to pay particularly attention to the image of the country of origin of the product. If the image is positive, it will represent a guarantee for the consumer, reducing his worries and the risk perceptions during the purchase. COO is thus considered by customers an important feature to assess the quality of a product, and specific products class could be related to a specific country (Özçam 2012).

[10] https://www.ilsole24ore.com/art/auto-elettriche-perche-riciclo-batterie-e-grande-problema-risolvere-ABrfcKnB

Italian firms tend to exploit the COO, being proud of the "Made in Italy" high reputation, that is solid all over the world especially in four sectors, the so-called "Four Fs[11]", fashion, food, factory automation, furniture and design. However, the reputation can be strong in educated markets, but weak in the ones that are uneducated, where relying just on it does not bring efficient results. In particular, some scholars say that the ones that are truly interested in exploiting the country image are the SMEs, while global firms, already well known, do not need to exploit it, but eventually contribute to build it. Indeed, as Chowdhury observes (2010), some studies revealed that COO may not be a relevant factor for consumers' product appraisals if we are talking about established brands. However, other studies concluded that the country of origin still has a greater influence on consumers' perception of the quality of the product than the brand name. Hence, even for global firms the exploitation of COO can lead to a competitive advantage, while underestimating it could make the multinationals vulnerable to loosing sales and customers (Özçam: 2012). Global firms, then, also benefit from the so-called "*number one syndrome*", in other words, when the correlation between the product and the country is built on the base of consumers' recent market experience, the country image is built by the first entrant or by the market leader (Pontiggia and Vescovi 2015).

The country of origin effect, as we said, has a significant impact also on the automotive industry, influencing consumers' willingness to buy an automobile. In particular, it has been found that consumers are willing to pay premium prices for vehicles made in a specific country, not only for the good itself, but for what it represents, the status and lifestyle it conveys (Baker and Michie: 1995). Italy is very well known abroad for its luxury sports cars of brands as Ferrari, Lamborghini, Maserati, Alfa Romeo and Fiat. It is evident that, being the manufacturer country of a car as Ferrari contributes to make the Made in Italy in the automotive industry appear as a guarantee for the consumer. Indeed, many studies confirmed that Asian consumers, that represent the target market of the case study we will present on the fourth chapter, depend on the COO too during the buying and evaluation process and tipically identify the leading brand and then prefer it over the other brands, increasing the reputation of already strong brands at the expense of new entrants, promoting the big global companies while reducing the appeal of niche brands.

Chinese consumers firmly associate luxury and high quality to European countries and in the specific field of the automotive industry, Italian automotive industry is defined as a

[11] The Four Fs are known in Italy as "Le quattro A", abbigliamento, alimentare, arredamento e automazione meccanica.

"myth" and renowned for its design. Chinese firms strongly believe that no one can compete with Italian car design. Italian automotive industry is indeed defined as the world's automotive design giant. Furthermore, Chinese people think that just like the passionate blood of the Italian Latin nation, similarly Italian cars are deeply romantic, as for Italians, a car is not just a combination of a set of machinery, but also an expression of productivity (朱敏慧: 2004).

In the light of what has been said, the Italian automotive industry abroad and specifically in China is considered as an excellent product both because it is proved to be so, both because it can rely on the strong reputation of the "Made in Italy", synonym of high quality and design. This positive perception of the country of origin clearly represents an advantage for our industry that can be relevant during an internationalization process.

1.2. The supply chain

1.2.1. Global value chains

As Sturgeon, Van Biesebroeck and Gereffy[12] state (2011: 183):

> "The automotive industry is neither fully global, consisting of a set of linked, specialised clusters, nor tied to the narrow geography of nation states or specific localities, as is the case for some cultural and service industries".

Indeed, from one side, government pushes for a local production, so OEMs tend to place the production near the demand of the market where they operate; while from the other, production appears to be globally dispersed and it is characterized by regional integration.

Regional production systems are the main operative models of the automotive industry's GVC; apart from them, there are other sub-systems of production at the national level. In other words, production is organized regionally or nationally and it is fragmented into specific parts production. In every macro-area, final assembly plants mainly produce for that market and they take parts and sub-components from suppliers that are in the same region. The different steps of the chain tend to be placed in a few districts that can become highly specialized in specific aspects of the business, as vehicle design, final assembly, or the

[12] Dr. Timothy J. Sturgeon is a Senior Research Affiliate at the Industrial Performance Center (IPC) at the Massachusetts Institute of Technology (MIT); Jo Van Biesebroeck is Professor of Economics at the K.U.Leuven (Belgium) and a Faculty Research Fellow at the National Bureau of Economic Research in Boston and Gary Gereffi is Professor of Sociology and Director of the Center on Globalization, Governance & Competitiveness at Duke University. Their researchs focuse on the process of global integration, with an emphasis on offshoring and outsourcing practices in the electronics, automotive, and services industries and, in particular, they made significant contributions to Global Value Chain (GVC) theory.

manufacture of parts with common characteristics, such as electronic content or labour intensity; and since there are big investments in capital equipment and skills, these regional automotive clusters are typically very long-lived. Furthermore, to assure timely delivery, production tends to be close to the plants in which the final assembly happens, while other more generic parts, as tyres, betteries, wire harnesses etc, are produced at a distance to exploit economies of scale and low labour costs. It is common, indeed, to shift the investment towards locations with lower operating costs, for example, the U.S. South and Mexico in North America; Spain and Eastern Europe in Europe and South East Asia and China in Asia. Indeed, the potential of these markets has induced car manufacturers, together with the main global suppliers, to establish design, production and assembly structures in these areas.
Finally, vehicle development is concentrated in a few design centres.
The set of all the different processes is also called "global commodity chain[13]" (GCC), a concept introduced by Gary Gereffy [14] in 1994 in the publication of 'Commodity Chains and Global Capitalism'. His framework is one of the most relevant in the field of GVC and makes a distinction between "producer-driven" and "buyer-driven" chains. We find the former in capital-intensive industries. This kind of industries are typically controlled by powerful manufacturers and they are related to many tiers of vertically organized suppliers; their core competencies are mainly R&D and production; and the principal barriers that new entrants face are economies of scale. The automotive industry belongs to this category. From the other side, buyer-driven chains are characterized by GVCs with a lower need for capital; they are controlled especially by retailers and the branded marketers, and, as a result, their core competencies are marketing and sales. One example of this type of industries is the apparel commodity chain. But then, this concept was upgraded by the theory of Sturgeon, Van Biesebroeck and Gereffy (2011).

A key aspect of value chain is right the interconnection between individual enterprises among the chain. These links are drove especially by cost minimization, indeed, every enterprise aims at having an efficient production process with minimal costs. This is what leads them to fragmentate their production according to trade costs, which are the costs

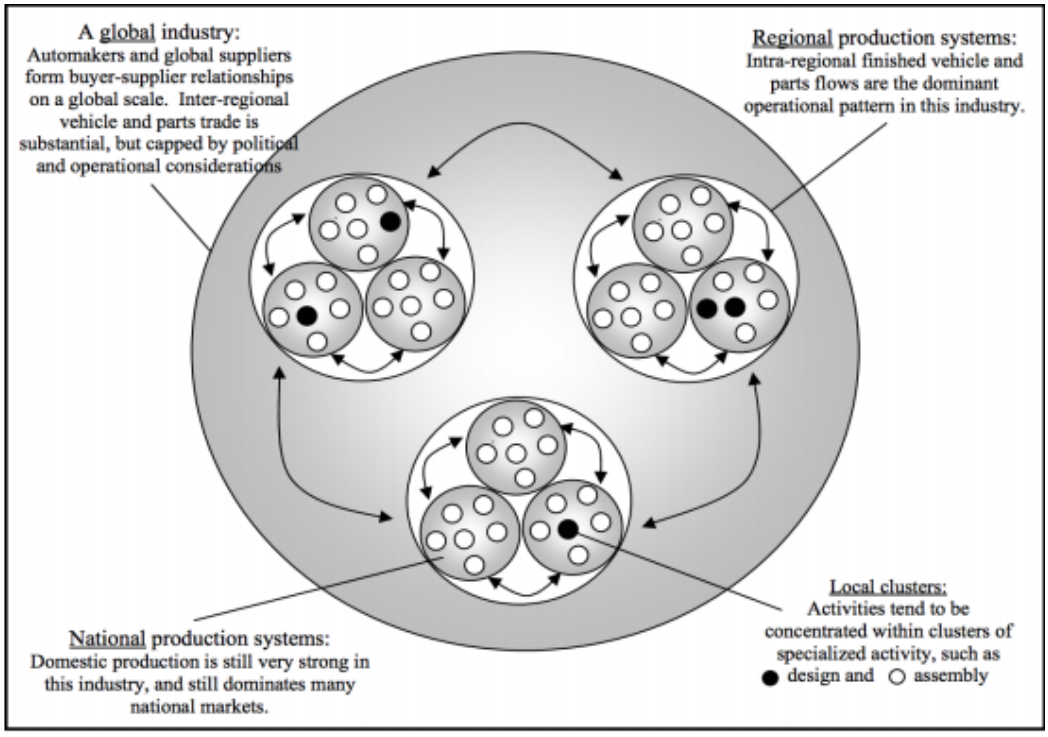
[13] During the past years there has been an evolution of this concept first developed in 1977 with the "Commodity chains" to indicate all the inputs and transformations that lead to a product; then, in 1985 we have Porter's "value chain", a set of activities that a firm which operates in a specific industry performs to deliver value. In 1994 there was the ideation of "global commodity chain" describing the apparel commodity chain spread across the globe. In the 2000s. it was introduced the "Global value chain" and finally in 2007 the "Global value network", a more recent strand of research that prefers to put the emphasis on the concept of "network" rather than "chain" because businesses are more and more interconnected.

accumulated from the production to the reach of final consumers, and coordination costs, the costs of managing geographically dispersed activities.

In light of what said above, as Sturgeon and Van Biesebroeck state (2011:181):

> "[...] local, national, and regional value chains in the automotive industry are *nested* within the global organizational structures and business relationships of the largest firms".

Picture 1. The nested geographic and organizational structure of the automotive industry.



(Sturgeon, Van Biesebroeck, Gereffi: 2007)

In the last years, OEMs began to produce more and more models of vehicles with similar standards to reduce costs, exploit more the economies of scale and ease the exchanges between regions. Indeed, the production is no more characterized by production and assembly of parts, but by the assembly of modules and systems of modules, that are not specific for a single model, but can adapt on more than one. Thus, models can share engines, transmissions, chassis and braking systems.

Consequently, this modularity led to a partial reduction of differenciation between models and to a greater standardization of the assembly processes. However, even with the introduction of common platforms for the assembly of different products, the modularity of the design and production of the parts is still limited due to the fact that platforms cannot be

used for different models of the same car manufacturer because, OEMs prefer to develop specific parts for each model to differ from competition.

1.2.2. The supply chain and the role of suppliers

According to Porter (2008: 82-83), companies depend on a wide range of different supplier groups that provide raw materials and components. The higher is the bargaining power of suppliers, the higher will be the costs of these elements. A supplier group is powerful if (Vescovi 2019: 95):

- there are many buyers and few dominant suppliers
- it does not depend heavily on the industry for its revenues, so the industry is not a key customer group to the suppliers
- industry participants face switching costs in changing suppliers
- it offers differentiated, highly valued products and there is no substitute for what it provides
- buyers do not threaten to integrate backwards into supply
- suppliers threaten to integrate forward into the industry.

A firm can reduce this power by seeking new sources of supply, threatening to integrate backwards into the supply chain and using standardized components so that they are easily produced by other suppliers.

When we talk about suppliers in the automotive industry, we should distinguish between OEM and OES. OES means Original Equipment Supplier and it refers to parts that are purchased directly from the dealer; while OEM means Original Equipment Manufacturer and refers to the producer. Due to the regulation of the ISO[15], there are a few OEM companies on the market, that necessarily deal with multiple OES brands. Having different suppliers means that when one of them has any problem, it will not affect the vehicles production, since it can be easily substituted.

The automotive industry is characterized by high product variety and complexity, and a strong involvement of suppliers in the component design. Suppliers represent the highest level of global integration in the automotive industry and have a key role in this industry. In general, OEMs rely to the first tiers, who supply the production plants globally, in different regions and areas. Indeed, first tiers are responsible for the organization of the supply chain

[15] The ISO is the International Organization for Standardization, in other words it is an international standard-setting body composed of representatives from various national standards organizations.

and they control second and third tiers. From the suppliers the automotive industry typically needs raw materials, as metals, or more differentiated inputs as components.
Suppliers are grouped into five different categories: co-design A, co-design B, simultaneous, detailed controlled parts and off-the-shelf (commodities) and this strategic segmentation is based on three elements: supplier involvement in NPD, the importance of the effect that a certain component can have on the style and overall performance of the vehicle and finally the length of the component NPD lead time.
We can notice that the supplier involvement in the vehicle design is not only managed in the vehicle concept phase by the development teams, but suppliers are also involved in a systematic way by the components development platform and participate to the organization's structure for knowledge creation. Thus, suppliers become real partners of the OEM and their contribution is fundamental (Caputo and Zirpoli 2001).

Very often, it happens that the supplying companies become so loyal that they are closely connected to the main producer, in some cases even dependent from them. In fact, today there is a large network of small and medium-sized enterprises specialized in the mechanic sector who have always had a large car manufacturer as their only customer. In such a context, the bargaining power that these companies can boast over the industrial producer is certainly not high. Therefore outsourcing is a valid solution to meet some market problems. However, not all companies recover to the outsourcing method, there are some manufacturers who prefer to produce everything at home, because they fear that outsourcing could lead to a natural decentralization not only of production but also of control; while autonomous production allows them to be independent and to invest directly in itself.

Since the offer of raw materials is very little differentiated, there is also a rather low distinction between suppliers, which reduces their bargaining power. However, being able to supply high quality materials and handcrafted components significantly increase their power. So, we can say that the power of suppliers in the Italian automotive industry is moderate. Indeed, according to ITA (2020), only first-rate suppliers of strategic components detain a significant bargaining power, while sub-suppliers and lower-grade suppliers have a much weaker bargaining power. Moreover, larger multinational components groups are generally in the position to negotiate much better terms in comparison to smaller local producers.

1.2.3. Outsourcing and modularity

When we talk about automotive industry, we should mention outsourcing and modularity, two important features of this sector that are stongly connected to each other.

Outsourcing refers to a very common process according to which components are commissioned and purchased from other companies rather than manufactured by the OEM. In this way costs are lowered and complexity is reduced by giving tasks to different and specialized companies. For example, Fiat typically outsources nine systems: air conditioning, brakes system, power train, acoustic comfort, exhaust system, steering system, safety system, electric system and interiors (Jacobides et al: 2016). However, companies that outsource can incurr in innovation competence loss in R&D and in particular can have consequence on the firm's ability to assimilate and apply new knowledge also called "absorptive capacity", as delegating specialistic tasks to third parties means a loss of opportunities with learning by doing, leading to a reduction of the firm's knowledge. Indeed, extreme design and engineering outsourcing weaken the firm's ability to understand the components of the product, with a consequent weakening of the understanding of the process in which components are integrated into systems and how to manage systems integration, which should be part of the firm's architectural knowledge. For this reason, to avoid this problem, companies should exploit outsourcing without becoming strongly dependent on suppliers for key component knowledge, employing sophisticated cooperation mechanisms such as colocated teams, benchmarking and value engineering techniques, information and communication technology tools (Becker and Zirpoli: 2017).

It is interesting to notice how Fiat managed to mitigate the loss of learning when it started to distinguish between two different types of product development projects: the former is a "template" that represents the key component technologies of the product and it is developed by Fiat; while the latter is a "derivative" type that Fiat can shift to suppliers to exploit economies of scale and specialized supplier firms. Also Toyota is careful to maintain a tight control over process and product technologies which are never fully outsourced, thus involving suppliers does not mean to outsource competences but rather to share knowledge with suppliers and cut the costs (Becker and Zirpoli: 2017).

From the other side, modularity refers to the organization of a production process through the use of standard modules. As Baldwin and Clark (1997) notice, the benefits of modularity derive from the fact that it allows to decompose complex tasks into simpler units, or *modules*, that can be managed independently by different companies, leading to a shortening of the

process and an improvement of quality, as every module is handled by a specific team of qualified experts.

In the automotive industry, carmakers usually organize the production process in different modules for each component of the car. The module suppliers provide their services of design, development, manufacture, warranty and supply of replacement parts, but they are not in the position to design the module which is managed by OEMs. These componenets in the end are put together to realize the final product. This requires a high degree of flexibility, coordination and interconnection, as every designer has to be aware of the final product to make the specific component fit during the final assembly which is controlled by OEMs. After the assembly, they then distribute the finished vehicle to dealerships for sale to consumers (Jacobides et al: 2016).

Thus, modular architecture by reducing complexity makes possible speedier innovation, shorter product development times and customization, as modules can be mixed and matched to deliver customer-specific functionality.

1.3. Covid-19 impact and how to recover

1.3.1. Global scenario

Corononavirus, also called Covid-19, is an infection disease caused by a new viral strain of the SARS[16], the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The virus was first identified in China, in the city of Wuhan, in December 2019 and then began to spread on the rest of the world until on the 11th of March it was declared a pandemic. To prevent the further diffusion of the virus, Italy and the different countries proceeded to lockdown and, after that, to social distance policies. This affected negatively every country's economy and led to the largest global recession since the Great Depression.

Indeed, in the last years, China became the main manufacturing center in the world, representing about a fifth of the global trade of intermediate or semi-finished products. That is why, when it had to stop its production, it caused a chain effect on the whole global economy.

If we look at the automotive industry (Murgida: 2020), we can notice that the lockdown had a huge impact on it, indeed, it represents the third most affected sector after precision

[16] Severe acute respiratory syndrome (SARS) is a viral respiratory disease of zoonotic origin caused by severe acute respiratory syndrome coronavirus, the first-identified strain of the SARS coronavirus species. The syndrome caused the 2002–2004 SARS outbreak.

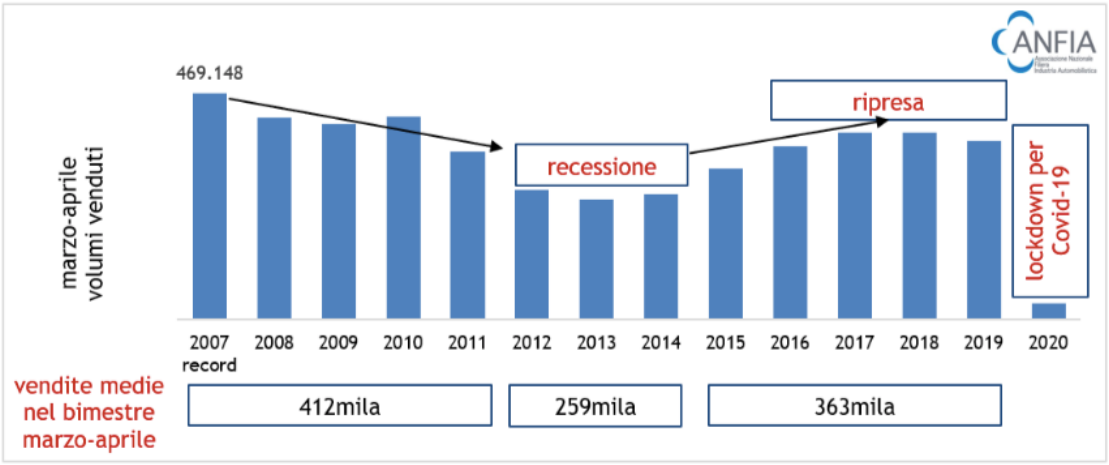
tools and machinery. Due to the lack of Chinese components, the European automotive industry during 2020 registered a decrease of export for a value of 2.25 billions of euro. The EU's loss was about $ 2.5 billion, $ 974 million of damages for Japan, $ 845 million in the US and £ 669 million in the UK. Korea follows with 578 million, Mexico with 493 million, Canada with 176 million, Taiwan with 147 million and Turkey with 107 million. In the list there are also other countries, such as Brazil, Russia and India, with large automotive productions but with minor losses of less than 100 million dollars.

The pandemic especially affected the supply chain and, because of the temporary closings of different plants in Korea, Japan and even in Europe, as FCA was forced to suspend the activities of its Serbian factory in Kragujevac due to the shortage of Chinese electronic components. For this reason, many companies began to evaluate alternative supply channels to become less and less dependent from China. However, it is unlikely to reduce this dependency in a short time as the diversification will require a longer time.

1.3.2. Impact on Italian automotive industry

In Italy, the lockdown began with the DPCM[17] of March 9th, 2020, which stated the beginning of the so-called "Phase 1", characterized by the limitation of the mobility of people, the stop of production activities and non-essential commercial services. According to data provided by Anfia (2020), the closure of dealers and sales networks throughout the country led to a reduction of -85% of the new car registrations, 28.396 in March and only 4.293 in April (-98%). Thus, in the first four months of the year, the market, with less than 352 thousand cars, halved.

Picture 2. Average sales of vehicles in the last years compared to 2020



(Anfia: 2008)

On May 4th, the "Phase 2" began, allowing the gradual reopening of production and commercial activities. However, the reopening of dealers will certainly not be enough to restart the market given the situation of profound uncertainty and the climate of distrust of citizens, which weakened the demand. In March 2020, Istat estimated a sharp decrease in the index of confidence climate of both the consumers (from 110.9 to 101.0) and firms (from 97.8 to 81.7).

Among the geographic areas, the most affected is the North West with a drop of -41% in Valle d'Aosta and -46% in Trentino Alto Adige during the period January-April 2020. The South and the Islands show a less heavy but still greater than 16% decline.

[17]The DPCM means "Decreto ministeriale del Presidente del Consiglio dei Ministri", it was signed by the Prime Minister Giuseppe Conte on March 9, 2020 and it contained the measures for the containment and contrast of the spread of the Covid-19 virus throughout the country. It sanctioned the start of the lockdown in Italy that lasted until May 19 with the prohibition of leaving the house apart from proven work and health needs.

Despite the reopening of most economic activities, after the lockdown, the automotive industry still collapsed in June, recording a -23% compared to June 2019. According to data by the Ministry of Infrastructure and Transport, in June, car registrations dropped to 132.457 units, compared to 172.312 in the same month last year, with a loss of around 40.000 units. As expected, the mere restart of economic activities is not enough to restart the demand for cars by families and businesses, weakened by the long closure and concerned about a highly uncertain future. Indeed, we can notice a decrease of -11,01% also in July 2020 and -0,43% in August.

In September, thanks to the incentives, car registrations raised of +9,54% (from 142,532 registered cars to 156,132) compared to the same month last year, in particular among the most sold cars we find the Fiat Panda, Lancia Ypsilon, Renault Clio and Jeep Renegade. This month was certainly positive for the automotive industry which seemed to have left behind the previous crisis, however in the following months car registrations fell again of -0,20% in October, -8,3% in November and -15% in December.

In conclusion, 2020 was not a successful year for the automotive industry, in the first six months, the demand was affected by the consequences of the coronavirus pandemic, while the second half of the year benefited only in part from the scrapping incentive programs. Indeed, from November onwards, two factors began to produce negative effects: on the one hand, the exhaustion of funds to support the scrapping programs and on the other hand the new restrictive measures launched by the government to contain the second wave of the coronavirus. 2020, therefore, ends with 1,381,496 registrations, 27.9% less than in 2019 (Murgida: 2021).

Regarding the analysis by segment, Fca group experienced a decline of -26,8% of car registrations in total, in comparison to 2019, the brands that suffered most were Alfa Romeo (-17,6%) and Maserati (-11,5%), while Fiat and Lancia showed a positive performance.
Among the auto manufacturers most affected by the crisis we find the Daimler group with a decrease of -73,5%, Ford (-26,9%), Renault (-25,4%), Volkswagen (-23,7%), Toyota (-21,%), BMW (-19,6%), Volvo (-18,39%), PSA (-31,3%). While among the groups that showed a positive performance we find Tesla with an increase of +55,1%.

On the power supply front, the collapse of traditional engines continues and, conversely, the boom of alternative ones. Diesel cars drop from 40% to 33,1%, petrol cars from 44,3% to 37,5%, LPG -31,3% and methane cars -18,1%. On the other hand, the alternative cars experienced great grows: hybrid vehicles increased of 103%, plug-in hybrids of +319,1% and finally electric cars of +207,6%.

1.3.3 Going international

The Covid-19 emergency, as we saw in the previous paragraph, truly caused an economic crisis that affected every Italian company and to respond to this difficult situation, companies should think, not only about surviving, but also about finding an efficient way to recover. The solution that I will support with this thesis is to exploit eco-innovation as a competitive advantage to approach to foreign markets as the one of China.

As regard to internationalization, it is evident that going international gives numerous possibilities to the Italian firms, allowing them to exploit the good reputation of the "Made in Italy" to reach new customers in foreign countries, spread business risk, amplify their brand and other advantages. For this reason, the government has been introducing different measures to incentivize firms in going international.

First of all, the last meeting of the Eurogroup, held on April, 9th reached an agreement about the collective measures to adopt to allow the recovery of the countries. The agreement includes three measures: an EU layoffs up to 100 billion, a special fund of the EIB (European Investment Bank[18]) of 200 billion, and above all a new availability of the ESM[19] of 240 billion.

In fact, given the benefits firms can obtain from going international, the European Commission unlocked € 1 billion from the European Fund for Strategic Investments [20] (EFSI) as a guarantee for the European Investment Fund [21] (EIF), part of the European Investment Bank Group, to incentivize banks and other lenders to provide liquidity, for an amount available estimated at € 8 billion, to at least 100,000 SMEs and small mid-cap companies. The intent of this measure is right to bring immediate relief thanks to funds that are already available. While, the "state-saving fund", also known as the ESM, will make available 240 billion euros to be lended to European states on more favorable terms.

[18] The European Investment Bank or EIB is the financial institution of the European Union created in 1957, and officially founded in the following year, with the Treaty of Rome, to finance investments aimed at supporting the political objectives of the Union.
[19] The ESM stands for European Stability Mechanism, in Italian it is called: "MES", it is also known as the State-Saving Fund, an international regional organization created as a European financial fund for the financial stability of the euro area. It was established by treaty by the Member States of the euro area to found an international organization based in Luxembourg, which was supposed to serve as a permanent source of financial assistance for Member States in financial difficulty, with a maximum loan capacity of € 500 billion.
[20] The European Fund for Strategic Investments, also called the Juncker Plan, is an initiative of the EIB group and the European Commission aimed at promoting the economy by mobilizing private financing for strategic investments.
[21] The European Investment Fund is a European institution whose main purpose is to support the creation, growth and development of small and medium-sized enterprises.

In the specific, the Italian answer to this situation has been to give immediate liquidity of 400 billion euros to businesses, 200 billion loan guarantees and other 200 billion to support exports thanks to the Liquidity decree-law. Moreover, SACE-Simest and Unicredit established a fund of 1 billion to support Italian companies. Short-term loans, up to 18 months, will be offered, provided by UniCredit and guaranteed by SACE, in favour of the bank's client companies, to meet the needs of the working capital. SACE also provided 4 billions to support the companies' needs of working capital, to boost exports and diversify the reference markets, integrating to the Plan for the promotion of Made in Italy coordinated by the Ministry of Foreign Affairs.

For this reason, in accordance with what has been said, I strongly believe that, to make the Italian automotive industry restart, we should invest in internationalization. In this way we could gain access to new markets and thus to new sources of profit. Indeed, the Case Study that we will analyze in the fourth chapter will try to develop an internationalization strategy for the new electric Fiat 500 in China.

1.3.4. Going "green"

Strongly related to the internationalization solution is the exploit of sustainability as a competitive advantage.

Nowadays, it is more and more important to incentivize eco-friendly policies that contribute to protect our planet, also regarding the automotive industry. Indeed, according to ANFIA, it is possible to have a decisive impact on air quality, aiming at the renewal of the vehicles on the road, as the new production vehicles are more fuel efficient, cleaner and safer. For this reason, people are more and more well-disposed to buy new and "green" cars; this explains also why this factor represents such a competitive advantage when going international.

For this reason, in Italy, ANFIA (2008), among the proposals to support the automotive industry, suggested an increase in the Ecobonus 2020 fund to continue the incentive for BEV[22] and PHEV[23] cars and the provision for an extension of the bonus, which currently is in force for cars up to 60 g of CO2 / km, also to alternative fuel cars with CO2 emissions from 61 to 95 g / km, in line with the environmental policies set by European regulations.

[22] BEV stands for Battery Electric Vehicle, cars without an internal combustion engine. They have an electric propeller that uses the chemical energy stored in the traction battery.

[23] PHEV stands for Plug-in Hybrid Electric Vehicle, a type of hybrid propulsion car whose batteries can be charged without the aid of the internal combustion engine, using, instead an external source of energy connected through cable or wireless systems.

This measure would clearly help the market to recover; indeed, when the ecobonus was introduced, the monthly average of rechargeable cars sold rose from 141, in 2018 and the first two months of 2019, to 525, then it dropped, from July to December, to a monthly average of 357. Moreover, it could be helpful to provide incentives to purchase cars in stock produced before the lockdown, to prevent that the selling of all the cars accumulated in stock by dealers and manufacturers during the lockdown could block the restart of production, giving also an immediate boost to the resumption of sales at a time when consumer confidence is low.

With these measures the intent of the Government is not only to support the vehicle market, but it has an environmental purpose, to integrate with the current European legislation on air and environmental quality. The resources available for the measure for the 2019 amounted to 60 million euros and for 2020 and 2021 to 70 million per year. This measure promoted the rechargeable car sector, which went from a 0.5% market share in 2018 (it was 0.2% in 2017) to 0.9% in 2019 up to 3.2% in the first quarter of 2020. Indeed, 2020 began with the highest number ever of rechargeable vehicles. In the first two months of the year, electric cars sold to private individuals rose to 827 per month, while plug-in hybrid cars a196. So, the share of BEV/PHEV/HEV[24] tripled to 18% compared to 6% in April 2019. Then, if we look at the different types of cars, in the March-April period, we can notice that the share of new diesel cars rose to 37% in March and 41% in April. Instead, the share of petrol cars decreased of ten points in comparison to the first two months of the year, 36% in March and 35% in April. While the share of alternative fuel cars rises to 27%, seven percentage points more than the previous two months of January-February.

Furthermore, from the analysis of the market data of rechargeable cars at a territorial level, it resulted that the top 10 provinces are mainly from the North as Trento with the 20% share, Rome (12%), Milan (11.6%), Florence (5.8) are at the top 5 places %) and Bolzano (5.6%). Moreover, according to the purchase method, the private or individuals who purchased more rechargeable cars in 2020 are resident in the provinces of Milan (11.7%), Rome (6.9%), Brescia (6.1%), Bergamo (4.4%) and Varese (3.9%).

Thus, as we already said, in a period like this we should invest in sustainable economy and mobility to restart the economy of the country. Social distancing, indeed, that is done to avoid possible contagions, will influence the travel of citizens especially during the weekdays. It is likely that many of them will prefer to use alternative means of transport as

[24] HEV stands for Hybrid Electric Vehicle, vehicles characterized by two engines in the inside: one that is electric and the other one that works with petrol, which work together.

bikes, motorcycles, scooters for short travels and cars for medium-long travels. According to data, the Italian automotive segment is still characterized by 12.8 million cars with emission standards before Euro 4, representing the 32% of the vehicles on the road. In a period like this, we should think about a sustainable mobility, promoting the renewal of private and public transports, also boosting the internationalization of our eco-friendly models of vehicles.

Chapter 2 Eco-innovation as a competitive advantage

2.1. What is EI

2.1.1. Definition

Environmental innovation (EI) or eco-innovation has been defined by Kemp and Pearson (2007:7) as:

> "The production, assimilation or exploitation of a product, production process, service or management or business method that is novel to the organization (developing or adopting it) and which results, throughout its life cycle, in a reduction of environmental risk, pollution and other negative impacts of resources use (including energy use) compared to relevant alternatives".

In other words, it refers to a product, process or service that is new to an organization and it is introduced in order to have beneficial effects on the environment, reducing pollution and the negative impact of human activities on the surroundings. So, EI does not relate only to specific environmental technologies, but it also includes new organizational methods, governance models and knowledge-oriented innovations. Like any other innovation, it creates value to customers, an advantage in competition and create profits for the innovators, the main distinctive feature is the beneficial effect that it has on the environment.

The relevance of EI consists in the fact that it leads to win-win situations, improving both environmental quality and economic growth. In fact, nowadays, its importance for achieving sustainable growth is widely recognized and it is considered a valid channel to increase the environmental efficiency of production processes. For this reason, in several countries, policy makers devoted an increasingly larger share of government budget to stimulate the generation and diffusion of environmentally beneficial technologies and placed EI in their policy agendas, some examples are the Environmental Technologies Action Plan[25] adopted by the European Commission in 2004 and the Europe 2020 strategy[26]. In particular, environmental laws should encourage innovation, indeed, according to Porter and Linde (1995) environmental standards should adhere to three principles: they should create the

[25] The Environmental Technologies Action Plan (ETAP) has the purpose of making eco innovation more and more usual throughout Europe. The plan was adopted by the Commission in 2004 to cover a wide range of activities promoting eco innovation and the use of environmental technologies.

[26] The Europe 2020 strategy is the EU's ten year strategy that emphasises smart, sustainable and inclusive growth in order to improve Europe's competitiveness and productivity and promote a sustainable social market economy.

maximum opportunity for innovation; they should foster continuous improvement, rather than locking in any particular technology; third, the regulatory process should leave little space for uncertainty at every stage.

On the other hand, EIs have been argued to be important drivers of the competitiveness of firms, according to the so-called "Porter hypothesis", namely the fact that strict environmental regulations trigger the use of environmental innovations that make production processes more efficient and improve commercial competitiveness. In particular, we define competitiveness as the potential for ecological responsiveness to improve long-term profitability. Some examples of ecological responses that increased competitiveness are: energy and waste management, process intensification, ecolabeling and green marketing, and the development of "ecoproducts". Indeed, Bansal and Roth (2017: 724) state that:

> "Firms compete on price and quality and are now competing more on the environmental issues, as well. Competitive advantage can be gained through environmental responsibility".

Eco-innovation is also linked to profitability and "eco-efficiency". Indeed, it improves the firm reputation, process efficiencies and product reliability, but its effect on productivity performance may be negative on the short run (Barbieri, Ghisetti and Gilli: 2016) as it also can generate extinguishing skills, unemployment and other social problems. Hence, there is a conflict among scholars that from one side, argue that EI could be positive for a company as it generates a competitive advantage through more efficient processes, productivity improvements and new market opportunities; but from the other side, they underline the fact that it generates extracosts and capital requirements with higher risks, decreasing the productivity of the company.

2.1.2. Forms of innovation

As Muscio, Nardone and Stasi (2017) tell us, any form of innovation can contain components of eco-innovation and, in particular, they distinguish three types of innovation:

- Product innovation, based on the management of R&D to develop new eco-friendly goods or services;
- Organisational innovations, refers to the optimization of capabilities within an organisation with a newly purpose of reducing the negative impact of a firm's activity on the environment;
- Process innovation, that can refer to cleaner production (CP) or end-of-pipe technologies (EOP). CP reduces the use of resources and pollution at the source

through eco-friendly inputs, while EOP technologies lower pollution emissions by implementing add-on measures. Thus, they both aim to reduce the environmental impact of CO2 and other gasses and waste emissions, but the former affects the production process itself, while the latter handle the impact of the firm's activities on the environment.

Furthermore, EI is subdivided into private and public (Marin and Lotti: 2016). We define "private" all the environmental innovations with the intent of improving energy efficiency with clear private benefits. Some examples are: transport technologies that are aimed at improving overall energy efficiency; other technologies to improve energy efficiency of specific devices or services (e.g. lighting and heating); technologies for improved input and output energy efficiency and finally technologies that contribute potentionally or indirectly at lowering emissions.

On the other side, we define "public" those technologies aimed at reducing negative environmental externalities as polluting emissions, waste generation and treatment, climate change; or at developing alternative, mainly renewable, energy production technologies. "Public" returns to eco-innovation are clearly positive, while the "private" returns can be ambiguous as eco-innovation can have a negative impact on the firms' productivity. For this reason, firms may not be incentivized in pursuing eco-innovation.

2.1.3. Drivers

Among the drivers of Environmental Innovation we find several factors as technological progress, demand factors, networking activities, internationalization, export, FDI and training (Muscio, Nardone, Stasi: 2017).

Technology progress may improve EIs through a more efficient use of natural resources, lowering the emission intensity during production activities or supplying more sustainable products instead of less efficient ones. Indeed, the more a company is innovative and it accumulates knowledge, the higher will be the chance to apply these factors to environmental innovation. Hence, companies that invest a lot on R&D will be more likely to have potential for eco-innovation. Furthermore, eco-innovation, very often requires changes in the raw materials or components used, the logistical and technical integration with external partners and the re-design of products. So, cooperation with suppliers is important to ensure the supply of inputs or components with eco-friendly features.

Demand factors, as the influence of customers associations and consumers demand for eco-friendly products, is also a driver of eco-innovation. Indeed, to gain new customers, companies can decide to exploit a "green reputation" that attracts the ones that are willing to pay even more for sustainable products.

Regarding internationalization, we should mention the so-called pollution heaven hypothesis (PHH). According to it, firms exploit differences between international environmental regulations through international trade and FDIs, for example they re-locate production or trade of goods with significant emissions from the home country to less regulated ones.

FDI is another important driver of innovation. Indeed, it is a tool thanks to which local firms enter into global networks, a context where a lot of knowledge about environmental practices and innovation is shared and when companies enter in such a context, their reputation usually becomes higher if they adopt environmental strategies. Firms also have higher opportunities to exploit the so-called "Porter hypothesis".

Apart from FDI, also export-oriented firms, in general, are pressured to adopt EIs to overcome the trade barriers that non-sustainable producers often face when they export to certain markets, while meeting the highest environmental standards will make those barriers lower. Then, similarly to FDI, also export can produce knowledge spillovers for domestic firms that interact with foreign competitors, exposing them to competition and because of this, motivating them to invest in green technologies.

An important element of EI is also cooperation between firms to reduce transaction costs and share risks. In particular, cooperation proved to be valuable for R&D intense sectors and for radical innovations.

According to Bansal and Roth (2017) there are other three dimensions that influence the motivations of firms: issue salience, field cohesion and individual concern. Issue salience refers to how much an ecological issue means for organizational constituents and it is determined by certainty, transparency and emotivity. Certainty is the degree to which we can measure the impact of the specific issue on natural environment; transparency refers to those issues that it is easy to attribute to a polluting firm; finally, emotive issues are those that obtain emotional responses from organizational constituents. Salient issues have a significant impact on firm's profitability, as they pressure firms in being sustainable, avoiding possible fines or penalties or the lost of support by customers.

Then, we define field cohesion as the intensity of relations between constituents in an organizational field; it may be increased promoting collaborative research of ecological impacts.

Finally, individual concern for the natural environment refers to the degree to which firms are concerned about the environment that results in the degree to which they also train their staff about ecological effects of organizational activities.

2.1.4. Corporate ecological responsiveness

According to what Bansal and Roth (2017) say, companies usually go "green" for several motives as: regulatory compliance, competitive advantage, stakeholder pressures, ethical concerns, critical events and top management initiatives.

We define corporate ecological responsiveness as a set of corporate initiatives with the purpose of reducing firms' impact on the natural environment such as changes to the firm, products, processes and policies regarding the reduce of energy consumption and waste generation, the use of ecologically sustainable resources or the implement of an environmental management system.

In particular, the environmental management systems, also called EMS, are firms' unilateral agreements concerning their commitment to eco-innovation, in other words, they represent a formalized change in the organization of a firm with the intent of setting environmental goals (Muscio, Nardone and Stasi: 2017). Across the european countries, the principal EMS frameworks are the EMAS[27] and the ISO14001[28]. According to different studies, the implementation of an EMS has a positive influence on the adoption of environmental innovations. Thus, the use of an EMS stimulates EI.

There are four drivers of corporate ecological response:

1. Legislation, escalating penalties, fines and legal costs that regulate firms' activities;
2. Stakeholder pressures;
3. Economic opportunities, firms can reduce their impact on the natural environment and lowering the costs of inputs and waste disposal at the same time by increasing production processes.

[27] EMAS stands for European Commission's Eco Management and Audit Scheme, it is a voluntary environmental management system that was developed in 1993 by the European Commission. It permits organizations to assess, manage and continuously improve their environmental performance.
[28] ISO 14001 is the international standard that provides a framework for an effective environmental management system (EMS) that firms can follow.

4. Ethical motives, firms can decide to go green because it is the “right thing to do”, because they feel some responsibility to the environment.

When a firm desires to legitimate its green commitment, it usually establishes an environmental committee or an environmental manager to oversee its ecological impact and advise senior management to develop a proper response and to adopt eco-friendly solutions as the redevelopment of previously used land to green areas, the provision of a less profitable green product line, donations to environmental interest groups and other local communities, the use of recycled paper, the replacement of retail items or office products with ones more ecologically benign, and the recycling of office wastes. This is due to the fact that firms are often concerned about getting fined or sanctioned, as this could affect their image and make bad publicity. Thus, ecological responsibility is perceived as the concern that a firm has for its social obligations and values.

Bansal and Roth (2017) identified three profiles that lead to high responsiveness: a caring, competitive or concerned profile. The caring profile is characterized by the fact that an individual concern on ecological responsibility is capable of influencing an organizational change of the firm, being legitimized by the issue salience; so, for example, because of a strong commitment to sustainability of a charismatic manager, a firm is therefore ecologically responsive.

In the competitive profile, there is a mixture of ecological responsibility and competitiveness due to the interaction among individual concern and low field cohesion. The firm can exploit the fact of being green to represent an alternative to its competitors. This interest in ecological responsibility often leads to innovations that otherwise would not be realized.

In conclusion, the concerned profile is characterized by the interaction of field cohesion and issue salience that causes a more intense legitimation motivation. Since the field is cohesive, all the ecological concerns are recognized.

2.2 Innovation in the automotive industry

The automotive industry is dominated by the self-supporting bodywork and the internal combustion engine, characterized by high fixed costs. For this reason, to reduce unit costs and sales prices, it needs a high mass production, which leads to greater process-oriented innovations; in other words, it leads to a continuous renewal of the way that cars are produced and changes in the motor technology to reduce the negative impact of it in the

natural environment, thanks to the significant invest in R&D activities that even if it is considerable, a company hopes to recover through the benefits resulting from its adoption.

As we saw in the first chapter, the automotive sector plays an important role in the economy of a country, it is a capital-intensive industry and it is characterized by vertical integration and economies of scale. It is evident that this particular type of industry requires many resources, leading to a significant impact on the environment; that is why in some European countries it has been implemented the ELV, European Union End-of-Life Vehicle Directive, to increase the recovery of end-of-life vehicles, reducing waste and pollution (Rodrigues Vaz, C. et al: 2017).

Indeed, during the last years, this industry has been particularly pressured by the growing concern about its effect on the environment, as it represents one of the main causes of pollution and global warming because of the growing energy requirements needed to fuel vehicles (oil, coal, natural gas).

For this reason, technological advances has been made, resulting into the introduction of sustainable vehicles as the hybrid or the electric models, with alternative solutions to the internal combustion engine. As Kuik (2006) explains, the main drivers for process innovation in this industry have been:

- cost pressure and consumer demands of greener and safer vehicles for the planet;
- company environmental policy and environmental regulation, an important role was played by the Kyoto Protocol and the Euro 4;
- as well as international competition, as innovation represents a competitive advantage.

Indeed, innovation is supposed to produce economic results and benefits on the environment, however, innovation also brings many uncertainties, so the results are not so easy to predict.

Furthermore, it can be noticed that the rapid economic growth of this decade led to an inevitable ecological crisis, accelerating the depletion of non-renewable sources of energy, in particular the needing to find alternative resources to petrol, putting an end to the total supremacy of petrol and diesel vehicles that characterized the previous years. In fact, it grew the awareness that these kind of cars contribute to global warming, pollution of air, water and soil, and also production of non-recyclable waste, leading to reconsider them (Freyssenet: 2011).

The main solutions that we will examine in this chapter are: bi-fuel, hybrid and electric vehicles. Similar to the first automobile revolution, nowadays the debate is focused on these

different solutions and on what should be more responsible to do. In particular, we can identify five strategies:

1. Low carbon fuels, strategy adopted by Fiat and Volvo;
2. Cleaner motorizations according to the different country and uses, adopted by Ford, PSA, Volkswagen, Daimler and BMW;
3. Hybrid engines, pursued by Toyota, Honda, Mazda and Porsche;
4. Plug-in hybrid and electric cars, as in the case of General Motors, Mitsubishi, and the Chinese newcomers BYD.
5. Electric cars, as for Renault-Nissan, Chrysler, many Chinese and Indian carmakers, and nearly all start-up companies and other newcomers.

Thus, while the first two solutions focus on a continuity of internal combustion engines but using low carbon fuels, the other three implicate a radical change in favor of electric or hybrid engines. Due to the rapid change of position of the different car manufacturers, it is still difficult to identify what the predominant solution may be, however, the most likely solution would seem to be the electric car, given that hybrid engines, including hybrid plug-ins, are complex and expensive (Freyssenet: 2011). In particular, the image of diesel cars has been particularly damaged by the scandal of the German company Volkswagen and the German judgment of the Federal Administrative Court of Leipzig has then prohibited the movement of diesel vehicles in urban centers. The decision to eliminate diesel cars from its production was made by several car manufacturers including Volvo, Porsche, Toyota and also by the FCA group, certainly due to the collapse of demand and the increase in the costs necessary for diesel models to comply with the anti-pollution limits imposed.

In conclusion, innovation has clearly become necessary for the survival of automotive industry. Manufacturers are required to continuously renew, innovate, incorporate new technologies and features because of structural changes in the marketplace, more intense competition, stricter regulation, growing fragmentation and shorter product life cycles.

2.2.1. Alternative Fuels

With the term of Second Automotive Revolution (Freyssenet: 2011) we refer to the transition to cleaner vehicles also referred to as alternative fuels that lead to the growing diffusion of bi-fuel, hybrid and electric vehicles. In particular, according to the National Academies Press (2013), alternative fuels developed to substitute the traditional ones are the following: bio-fuel, electricity, hydrogen, liquid fuels from natural gas, methane and LPG.

Methane and LPG are gases available in abundance, characterized by competitive costs when compared with those of oil. Moreover, if compared to petrol emissions they have lower CO2 levels equal to 23% for methane and 13% for LPG; however, the negative aspect of this type of fuel is found in the transport and in its volume which is particularly large.

Biofuels refers to any liquid fuel produced from a biomass source as ethanol, which is obtained from corn, and biodiesel, obtainable from palm oil. The principal purpose of this alternative type of fuel is to eliminate CO2 emissions, but in order to be synthesized, a long process from agricultural products is required, for example through the use of corn and soybeans in the US, sugar cane in Brazil and other oil seeds. Thus, the fact that their realization requires a significant consumption of energy and agricultural resources nullifies the few positive results obtained, resulting also more expensive compared to the production of petroleum-based fuels. That is why there are still many doubts on them and at the moment they still need government subsidies to compete economically with petroleum-based fuels. However, it is expected to obtain greater benefits also in terms of reducing local pollution for the subsequent evolutions of these first biofuels.

Electricity, then, does not present problems with regard to polluting emissions, CO2 and noise pollution; depending on the production method, it can result in a different environmental impact that is low if obtained through photovoltaic or hydroelectric plants or high if it is produced with the use of coal or fuel oil. However, the main difficulty related to electricity is attributable to the impossibility of being able to transport it, in fact it has not been created yet a battery able to match the performance of current fuels as regards transport. There are also several financial and societal barriers, as the investment cost needed for the charging infrastructures or the fact that permitting and building new power system assets is very time consuming.

Hydrogen represents the ideal alternative as it is clean and powerful. It is clean because when it is used as a fuel in fuel cell electric vehicles, the only vehicle emission is water and when it is used in an internal combustion engine, the emissions are water, nitrogen oxides, and other trace chemicals. Then, it is powerful as it can be used to fuel fuel cells which directly generate electricity from their combustion with very high efficiencies. Hydrogen, however, consumes large quantities of energy to feed its production.

Finally, liquid fuels from natural gas as diesel, gasoline or a combination of the two are produced in two different ways; one is the conversion of methanol into gasoline and the other is the conversion of the synthesis gas into hydrocarbons. The quality of this type of fuel is great but the conversion of methanol into gasoline is expensive.

An important element to underline is that these technologies are not developed independently, but rather tend to follow technological trajectories that are mutually intertwined, co-evolving and mutually reinforcing each other through learning processes (Dosi, 1982). The optimal solution has not yet emerged and this situation can favor the sharing of investments.

2.2.2. Bi-Fuel vehicles

Bi-fuel vehicles are vehicles that operate blending two different fuels in the combustion chamber, gasoline or diesel fuel and a natural gas that can be methan, LPG or hydrogen. The gas percentages typically are from 40% to 90% of total fuel and the blending happens thanks to what is called Bi-Fuel Conversion System or BFCS. Thus, from one side we have the diesel fuel, a dark flammable liquid, composed of hydrocarbons, extracted from the upper layers of the earth's crust; and from the other side, we generally have LPG[29], which is a colorless high flammable mixture of hydrocarbon gases, among which there is methan, also called CNG[30]. Usually, the most common alternative fuel used in Europe by bi-fuel vehicles is LPG.

Cars powered by petrol and LPG can use both petrol and LPG, for this reason they have two separate tanks and they are called bi-fuels. LPG represents a widespread fuel because, thanks to canalized networks, tanks and cylinders, it is able to replace methane in the most rural areas and in small urban centers which are difficult to reach by gas pipelines. So, this gas is more practical than methane because thanks to its high density it allows to reduce the overall dimensions problems and the energy that can be supplied is about triple. The performances provided by LPG cars have nothing to envy to petrol ones, in fact, unlike methane they have almost zero power loss, and therefore constitute a valid alternative. The most important point in favor, in addition to the benefits in environmental terms, is above all the savings on fuel costs of 50%.

What makes this car so attractive is that it represents one of the most efficient solutions to reduce CO2 emissions and the gas supply is also very economic, indeed LPG allows you to save about half on a full tank and methane allows you to achieve savings of 60%.

Furthermore, this technology has been designed in order to permit a conversion to Bi-Fuel of the generator while still being able to operate on 100% diesel fuel. So, it does not modify the original design of the generator drive-engine, that is why the generator can move from

[29] LPG stands for Liquefied Petroleum Gas.
[30] CNG stands for Compressed Natural Gas.

Bi-Fuel to diesel operation and back again always without any interruption in the power output and thanks to the Electronic Control System the generator drive-engine is thoroughly protected during these operations and it also can automatically return the engine to 100% diesel operation in case of any kind of fault.

This type of car was first put on the market during the 2000s and now it is very common since a gas-powered car allows to achieve an autonomy almost equal to that of a petrol car.

Bio-fuels cars are characterized by two separate tanks and identify the main fuel in methane, while petrol is used in emergencies. Natural gas is able to better exploit the engine's potential compared to other fuels, it also burns in the combustion chambers in a clean way or without producing carbonaceous combustion residues that encrust and attack the parts of the engine with which they come into contact, extending the time considerably between one oil change and another. However, currently, the purchase cost of natural gas is not very favorable and corresponds to 0.95 euro / kg (it is measured in kg and not in liters unlike the other fuels).

According to an article by Il Sole 24 ore (2019), the majority of the LPG vehicles sold in Italy belong to foreign car manufacturers, some examples are:

- *Dacia Sandero*, the most economic LPG vehicle present on the market characterized by two versions, Streetway and Stepway; *Dacia Logan*, a low cost station wagon; and *Dacia Duster,* which represents the most economic LPG SUV on the market. These three vehicles all belong to the Romanian auto manufacturer Dacia group;
- *Opel Corsa,* a german citycar characterized by an elegant aesthetic and innovative features and the SUV model *Mokka X;*
- The French citycar *Renault Clio,* characterized by a low cost but a refined style;
- Finally the Korean *Kia Picanto*, which represents the most economic GPL citycar present in the market.

While, the only Italian models are the GPL versions of Fiat Panda and Fiat 500 and also Lancia Ypsilon, produced by the automanufacturer group Lancia that belongs to FCA.
LPG vehicles sold in Italy represent a valid ecological alternative, they are more economic respect to hybrids and there is a wider offer compared to methan cars.

From the other side, among the CNG vehicles most sold in Italy there are:

- the methan version of *Fiat Panda*, which is at the top of the most sold methane vehicles and *Lancia Ypsilon*, a citycar produced by Lancia;

- the German *Volkswagen Golf,* characterized by a powerful natural gas engine, the 1400cc TSI, that makes this model highly competitive to petrol cars; then, the *Up!* and *Polo* models;

- *Skoda Octavia* and *Citigo G-Tec*, that embody the distinctive characteristics of the Czech car manufacturer: high standards and fresh style, with attention to every detail;

- *Seat Arona*, the first natural gas crossover which cleverly mixes the high and comfortable driving of SUVs with city-proof maneuverability, and *Seat Ibiza*, both produced by the Spanish auto manufacturer Seat

- *Audi A3,* the only premium car in the ranking of the top sold methane vehicles, thanks to the g-tron project it allows you to travel without worrying about fuel costs while maintaining all the advantages in terms of comfort and technology that this german brand has always made available.

Thus, from one side, the main advantage of methane is the low cost of fuel, indeed with a kg of methane you will be able to travel on average 1.6 times the road you would travel with a liter of gasoline. Then, both LPG and CNG vehicles have a positive impact on natural environment as they emit very few CO2 emissions, but if LPG cars emit 10% less carbon dioxide than petrol, the methane vehicles emitt even 20% less. Furthermore, compared to methane, LPG has the advantage of not limiting the machine performance. In an LPG car the engine performance is in fact much less penalized than that of a natural gas car. A second advantage of LPG is maintenance. While the gas cylinders for natural gas supply must be overhauled every 4-5 years, the change of the LPG cylinders must be done every 10 years.

2.2.3. Hybrid vehicles

According to its patent:

> "A hybrid vehicle comprises an internal combustion engine, a traction motor, a starter motor, and a battery bank […]. So that the engine is run only under conditions of high efficiency […] A hybrid brake System provides regenerative braking, with mechanical braking available in the event the battery bank is fully charged, in emergencies, or at rest; a control mechanism is provided to control the brake System to provide linear brake feel under varying circumstances ".

In other words, hybrid electric vehicles or HEV, as the word suggests represent a union between two different engines: a fuel, petrol or diesel and the electric one, that work together. The main advantages of this vehicle regard fuel economy and environmental impact. This kind of vehicle was first introduced in 1898 by Porsche and it is now very common, since it is considered an optimal vehicle to circulate in the ZTL areas that can respect the current regulations in terms of polluting emissions, providing at the same time an efficient performance, autonomy, reliability and an affordable price for the average customer.

The electric motor stars operating in the standing starts, thanks to the energy stored in the batteries and gives the necessary push to reach low speeds, allowing you to consume less fuel in all those situations where there are frequent stops and restarts, typical of a city; while, when the car reaches high speeds and more power is needed, the petrol engine is activated. Decelerations and repeated brakings contribute to recharge the battery of the electric motor for free, recovering the kinetic energy, which would otherwise be wasted in the form of heat.

Thus, the lower fuel consumption is linked to a reduction of polluting emissions. In addition to these benefits, there are facilities and also exemptions for the payment of the car stamp for a certain number of years from the first registration and there is also the possibility of traveling in areas affected by traffic restrictions or blockages (German: 2003).

Based on the power of the electric motor and the capacity of the batteries, there are three main types of hybrid vehicles:

- *Mild hybrid vehicles* or MHV, characterized by an electric motor and combustion engine which always work together on parallel. Indeed, the electric motor is not powerful enough to drive the wheels at any speed, so it needs the assistance of the combustion engine. These vehicles are capable of recovering energy and returning it during the acceleration, adding their own push to the one provided by the petrol engine. Some examples are Peugeot 308 e-HDI, Ferrari LaFerrari and Chevrolet Malibu;
- *Full hybrid vehicles* or FHEV, which are the most fuel efficient type of hybrid vehicle since they are capable of operate in series mode, all-electric mode or parallel mode, in other words, using just the combustion engine (diesel or petrol), the electric engine or a combination of the two; Some examples are Ford Fusion Hybrid, Toyota Prius and Honda Accord Hybrid;
- *Plug-in hybrid vehicles* or PHV, which use all the technology of a FHEV but have more capacity battery that requires to be plugged in order to be recharged. Moreover,

they can run on just electric mode. Some examples are Audi A2 E-Tron, BMW i8, Ford C-Max Energy, Kia Optima, Porsche Cayenne S and McLaren P1.

- *Micro hybrid vehicles*, despite the name they are not true hybrids, because there is no electric motor that helps to move the car. They are conventional cars, modified in the electrical system in order to reduce by a maximum of 10-15% fuel consumption. Usually, there is the Stop & Start system which automatically stops and restarts the engine at the traffic lights and an alternator managed electronically in order to produce more current during slowdowns. Thus, the increased battery stores more "free" energy and can later power the accessories such as lights and wipers without "stealing" horses from the engine.

Moreover, hybrid vehicles exploit two different methods to operate: series and parallel drivetrains. In vehicles with the series drivetrain, the heat engine is not connected to the wheels and it has to generate the necessary energy to power the electric one, while the superfluous energy is used to recharge the batteries. If it is required a large amount of energy, it then comes from both the engines. The major disadvantage is that when the car is running on high and constant speed, there is a significant reduction in the efficiency compared to thermal-only engines, due to the fact that during the thermal-electrical conversion part of the energy is wasted, while it would not happen with a direct transmission.

From the other side, the parallel drivetrain is the most used model and it is characterized by the fact that both the electric and thermal motors work together to generate the power that drives the wheels, ensuring greater power. In case of need, the thermal motor can be used to recharge the batteries. Usually the heat engine plays a dominant role, while the electric one provides more power in times of need. The main advantage of this type of vehicle is the elimination of low gears and consumption with the wheels at a standstill, precisely for these reasons it is a car suitable for cities rather than long distances.

According to a recent article by La Stampa (2020), among the most sold HEVs in Italy we find the following cars:

- *Ford Puma*, this mild hybrid crossover resulted the most sold hybrid car during the first two months of 2020. It is equipped with the EcoBoost Hybrid 48-volt technology, that contains its emissions and optizimes consumption, combined with an EcoBoost petrol engine, that permits a powerful and responsive performance.
- *Fiat 500 Hybrid*, the second most sold mild hybrid vehicle in February, carachterized by the ned D-fence pack that helps keeping the car's hygiene and front seats

containing an innovative fiber made of plastic collected from the ocean called seaqual yarn.

- *Toyota CH-R*, with its dynamic build and advanced tech, this Japanese model has been very successful in the Italian market. It is also equipped with the Toyota Safety Sense P (TSS-P) technology to keep the driver safe.
- *Toyota Yaris*, Japanese full hybrid vehicle that was on the first ranking before being substituted by Ford Puma. Its new Hybrid Dynamic Force engine has improved by 20% the efficiency and by 15% the power of the common Toyota's hybrid technology, providing also better performances in terms of consumptions and emissions.
- *Toyota Corolla*, as the other Toyota full hybrid vehicles, is able to reduce the emissions of Nitrogen Oxides up to 96% respect to the limits indicated by the legislation.
- *Toyota Rav4*, which has all the advantages of an electric motor combined with the high performance of latest generation petrol heat engine. The two engines work alone or in synergy and, thanks to the innovative 2.5L Hybrid Dynamic Force AWD-i powertrain, deliver a maximum power of up to 222 HP.
- *Suzuki Swift* and *Ignis,* produced by the Japanese auto manufacturer group Suzuki. Their hybrid range of vehicles is advantageous, eco friendly and does not need rechargering. Indeed, thanks to the work of the ISG[31] alternator and the lithium-ion battery, there is no need to charge the car, as it recharges itself during deceleration.
- *Range Rover Evoque*, belonging to the British auto manufacturer Land Rover, it is a myld hybrid electric vehicle that exploits the battery technology to reduce fuel consumption and reduce emissions without the need to plug it in. It is characterized by the fact that it combines Land Rover's efficient Ingenium petrol and diesel engines with a powerful battery. The engine can be turned off when coasting, braking or stationary.
- *Fiat Panda*, it remains the best-selling model ever with its petrol engines and LPG. This hybrid version of Fiat Panda ensures the advantages of an hybrid car, as efficiency and sustainibility. It is considered perhaps the best solution for a city car, consistent with the Fiat approach that has always been a pioneer in technology and an innovator in mobility and now it is more and more sustainable.

[31] ISG stands for Integrated Starter Generator,

- *Mazda CX-30*, Japanese vehicle distinguished for its good quality / price ratio, and the efficient performances with low consumptions.

Thus, as we have seen, the Italian market in regards to hybrid vehicles is dominated by foreign producers, mainly Japanese, but it sees also the significant presence of FCA models as Fiat Panda and Fiat 500 Hybrid.

2.2.4. Electric vehicles

According to Husain (2011), electric vehicles or EVs are cars that only use electricity thanks to powerful latest generation batteries, for this reason they are also called BEV, that stands for Battery Electric Vehicles and the recharging happens through columns spread throughout the territory or with a domestic electrical outlet.

So, EVs are driven by an electric motor and the energy source is portable and electrochemical or electromechanical in nature. Their main benefit is the positive impact on the natural environment in terms of emissions. Indeed, as he states (2011: 1):

> "The electric vehicles (EV) enabled by high-efficiency electric motor and controller, and powered by alternative energy sources, provide the means for a clean, efficient and environmentally friendly urban transportation system. Electric vehicles have no emission and therefore […] are the only zero-emission vehicles (ZEVs) possible".

The fuel necessary to their operation is stored in an energy storage device as a battery-pack to ensure the promp energy delivery on demand and this energy can be generated by a wide range of sources, from fossil fuels to solar energy. In particular, solar electric vehicles use solar panels and a power converter in order to recharge the car's batteries.

EVs were first introduced in the middle of the nineteenth century and their main disadvantage was the performance gap in comparison to petrol engines due to the weight and volume of the batteries, which are difficult to transport during journeys. However, during the last years, there have been several improvements on the autonomy of batteries and now electric models allow to travel 150 km, but still this issue represents a current problem combined also to the long charging times, the limited autonomy between the recharges and the poor battery life. The progress in technology brought to new types of rechargeable batteries and new technologies with increased autonomy, longer battery life and a reduction in the charging time.

Furthermore, another disadvantage is that in most cases electric vehicles do not involve a real reduction in CO2 levels due to the fact that most of the electricity-producing countries obtain it thanks to thermoelectric power plants that burn fossil fuels, apart from countries such as France.

Hence, from one side, EVs cannot compete with other vehicles as HEVs in terms of energy efficiency and CO2 emissions, or with petrol engine cars in terms of power, but from the other side, they do offer numerous benefits, especially from an environmental point of view thanks to the absence of pollutant emissions. Indeed, unlike hybrid cars they have a totally absent polluting impact, also the engine noise is absent, they only emit a sound to warn pedestrians of their arrival. Electric cars operate exploiting the chemical energy stored in the energy tank, which consists of one or more rechargeable batteries. Thus, the fact that they are carachterized by low fuel consumption, extremely high performance and near zero pollution make them a valid choice in the automobile market, having a greater overall energy efficiency than internal combustion engines.

Moreover, according to Hori (2004), BEV is distinguished mainly for three advantages:

1. The torque response of the electric motor is fast and accurate, precisely it lasts a few milliseconds, i.e. 10-100 times faster than the one of internal combustion engines;
2. Motors can be installed on each wheel and they can even generate antidirectional torques on the left and right wheels, in fact the position of the distributed motor is capable of improving Vehicle Stability Control (VSC) performance;
3. Finally, the third advantage is that motor torque can be measure easily. An electric motor has less uncertainty in the driving or braking torque than IC motors. Thus, it is possible to design a "driving force observer" and evaluate in real time the driving and braking force between tire and the road surface; this advantage will greatly contribute to the application of new control strategies based on the estimation of road conditions.

Electric vehicles performance, compared to conventional cars, depends on the way in which electricity is generated, if it is produced from renewable sources, there is a clear advantage; while, it is less evident and dependent on the power of the engine, if the electricity is derived from fossil fuels, especially those with a high carbon content. For this reason, the introduction of electric vehicles should be accompanied by a progressive development of renewable sources. Then, another advantage is also that any electric vehicle can be easily

dismantled and recycled for most of their components, compensating for the great damage caused by petrol engine components in terms of environmental impact.

Charging an electric car is simple and can be done wherever there is a plug or a charging station, that in general are present in petrol stations, car parks, restaurants, hotels and more. The time necessary is usually based on the type of charging, the power and capacity of the battery, the majority of modern electric cars use durable Lithium batteries. The cost of public charging through the columns is paid with a subscription, with a fixed cost of 25 euros per month and the columns are generally located in strategic points of the city, as in the center, or near tourist attractions and shopping centers. If the consumer prefers to recharge from home, there is a rental fee for an additional meter, called Wallbox, from 60 euros per month. Alternatively, the car can be charged through a normal power outlet, and the costs will thus affect the electricity bill. There is no predefined time to recharge an electric car, it can take half an hour or up to 12 hours depending on the kWh of the vehicle battery and on the power of the charging point and the car charger. Charging times are also affected by the temperature of external environment and the state and level of degradation of the battery. It is then possible that the charging speed is not always constant over time: once the threshold of about 80% is reached, the charging power may drop.

The electric car's benefits are evident both for the consumer and for the environment. Indeed, electric cars, being non-polluting vehicles, have free access to restricted traffic areas, so they are the perfect city cars and have smooth acceleration; then, they have reduced fuel costs, as the average cost of electric charging is cheaper than any other fuel, with an average cost of less than 1 euro per 100km. It is also very comfortable since it does not produce any noise and the maintenance is easier, since the mechanics of electric cars is composed of fewer components than that of a traditional car and the brakes are used less than in traditional cars.

The Italian market of BEVs is dominated by foreign players. In particular, the most sold electric cars of 2020 are:

- *Renault Zoe,* five door electric citycar, pleasant to drive and so quiet at low speed that a sound emitter is activated to alert pedestrians. It has a significantly increased autonomy which now reaches 390 km thanks to the 52 kWh battery.
- *Peugeot e-208*, it is the electrified version of the French 208 with a complete restyling, a fast recharge and a smooth ride.
- *Volkswagen eUp!*, electric version of the other German Volkswagen Up!, the autonomy has increased thanks to its battery of 32,3 kWh that now reaches 260 km.

- *Smart EQ ForTwo*, it marks the definitive transition to the electric and the cooperation of the German automotive brand with the Chinese Geely, which, from 2022, will join the current Smart, and then will definitely take the control with several zero emissions models that are still top secret.
- *Hyundai Kona*, belonging to the South Corean car manufacturer, it is Europe's first electric compact SUV, representing a new, no-compromise avant-garde model that combines surprising driving autonomy with that captivating style typical of SUV vehicles.
- *Volkswagen e-Golf*, one of the most successful models of Volkswagen is now available also in its completely electric version, maintaining the same design but with an electric engine that can reach 150 Km/h and has an autonomy of 300 km.
- *DS3 Crossback*, belonging to the French group DS Auto, Citroen's luxury brand. It represents the perfect citycar for its dimensions while being also an elegant vehicle with a sophisticated design.
- *Nissan Leaf*, which won the "Best Electric Car" and "World Green Car 2018" awards. This model by the Japanese automanufacturer group has a power of 110 Kw and thanks to the 40 kWh lithium-ion battery pack it is able to travel up to 378 km.
- *Smart EQ ForFour*, with a maximum speed of 130 km/h, it is powered by a lithium-ion battery that guarantees an autonomy up to 155 Km. For a full charge, it requires from 3,5 to 6 hours.
- Tesla Model 3, it is finally ranked as tenth among the most sold electric vehicles and it is available in different versions of the battery, from the basic version of 50 kWh to the most efficient of 75 kWh, with an autonomy of 345 km.

In Italy, elecric vehicles also benefit from government incentives, that are erogated according to CO2 emissions, of the value of 6 thousand of euro in case of scrapping an old Euro 1, 2, 3 or 4 vehicle. Furthermore, in the last months, the Lombardy region also erogated an additional incentive for electric cars with the possibility to cumulate it with the government incentive.

2.3. Innovation and internationalization

2.3.1. Internationalization as a driver

As we have seen in the previous paragraphs, innovation is drived by several factors among which there is the internationalization, considered to be an important element to ensure the survival of a company, that provides higher incentives for firms to adopt more environmentally sustainable behaviours. According to a research, only 60% of Italian firms survive four years after being born and, as Giovannetti *et al* (2011) tell us, firms that are most likely to survive are those who are large-size, innovative and operate in high-tech sectors. Thus, to "survive" but above all to recover from such a difficult situation of emergency, internationalization and innovation appear to be important guidelines to follow.

Chiarvesio (2014), then, underlines how scholars have paid little attention to the degree of relationship between the propensity of a firm to introduce innovative products or processes that reduce environmental impact and its degree of internationalization. In this relationship, a particular role is played by the geography of a firm's supply activities, its market scope and its organizational architecture. As regard to the first element, if the actors involved in the manufacturing processes are close to each other, there is a clear reducement of environmental costs and impacts, increasing the effectiveness of the firm's green strategies. So, spatial proximity between the partners of the value chain is believed to bring positive results, while if production processes are global and dispersed the environmental consequences will more negative.

Moreover, Chiarvesio (2014) assumes that a firm's export intensity is also positively connected to its eco-innovation propensity and that is more likely for firms belonging to an international group to invest in EI. Indeed, from the point of view of the firm's export activities, the knowledge and capabilities developed abroad can increase its response to international demand for eco-innovation. Also FDIs expose firms to higher institutional pressures for environmental sustainability and innovativeness, providing a higher reputation for environmental responsibility.

However, firms that go international are exposed to a higher failure risk, since competition in international markets is much stronger. So, also for this reason, to face this fierce competition, they usually decide to exploit environmental innovation as an advantage.

2.3.2. Innovation as an advantage

According to Tiengtavaj *et al* (2017), a competitive advantage is sustainable if it guarantees some benefits that other companies are not able to duplicate and it is determined by some factors as:

- Domestic production, resources and labor;
- Domestic demand and market share:
- Competitive strategy, differentiation strategy, strategic cost, strategy aimed at individual differences and individual cost;
- Related and supporting industries in the country and the supply chain.

Scholars have identified in environmental innovation the source of a clear competitive advantage as it leads to products or processes that are very difficult to imitate. In particular, this advantage is created along the supply chain resulting in cost savings, production efficiencies and minimisation of waste and pollution. According to Wagner (2009), there are four types of competitive advantages gained through environmental innovations: market-related, image-related, risk-related and efficiency-related advantages. The market-related competitive advantage is related to sales, new market opportunities and market share; the image-related competitive advantage refers to the corporate image and the product image aimed to differentiate the company and its products from the competitors; the risk-related competitive advantage refers to funding opportunities and insurance conditions; finally, the efficiency-based competitive advantage concerns profits, cost savings and other financial indicators. In a long term, all the above types of competitive advantages should lead to an improvement of the firm's business performance.

The current environment of the automotive industry is characterized by an intense competition that leads companies to continuously innovate in order to meet the rapid changes of customer needs and to be competitive. For this reason, it is believed that the ability of a company to survive is influenced by its ability to innovate. In particular, firms usually invest in R&D, technical know-how and technical skills, machinery precision capability and collaborations, to enhance the competitiveness and growth. This investement in technology led to the diffusion of several alternative models of eco-friendly cars among which there are the electric vehicles that are more and more present in the automotive market, as they are both innovative and beneficial for the environment. Moreover, in line with Porter and van der Linde (1995) companies that pioneer in the new markets will enjoy the early mover

advantages and improve company's image, allowing them to ask for higher prices for green products. Indeed, they state that (1995: 104):

> "World demand is moving rapidly in the direction of valuing low-pollution and energy-efficient products, not to mention more resource-efficient products with higher resale or scrap value. Many companies are using innovation to command price premiums for "green" products and open up new market segments".

So, when going international, to differentiate from global competition, we should recognize environmental innovation as a competitive advantage, not as an annoying cost or a postponable threat, underlying the fact that these innovative models of cars ensure both good performance and beneficial effects for the environment.

Moreover, in this specific industry, good performance and low costs are not enough to ensure a significant advantage, the integrity of the product, instead, is a focal point for competitiveness. Companies operating in the automotive industry cannot compete by simply focusing on the superiority of a technology, as the technology of the product is complex and constantly evolving. So, innovation is really a crucial element because a company that is unable to sustain the rapid pace of innovation will see its profit margins lower as its products begin to become obsolete, and its inevitable exit from the market. Consumers, who have already experienced the product, increasingly demand an overall balance between the different characteristics such as basic functions, aesthetics, reliability and the cost of purchase and use. To understand if a product has achieved the aforementioned integrity it must be able to make this balance coincide and, consequently, it is able to attract and satisfy customers. So apart from innovation, to keep an advantage from competitors a company should consider also factors as cost, quality, delivery and flexibility. The willingness to purchase that green product will be linked to the degree of compromise between environmental attributes and the other buying criteria.

Chapter 3 Analysis of the Chinese market

3.1 Macroeconomic analysis

As China represents the target market of our Case Study, I will provide an analysis of this peculiar market, so distant from ours, from two different point of views, a macroeconomic and a microeconomic one.

As regard to the macroeconomic side, it will be presented first an analysis of some general aspects and data, and then a more specific Pestel analysis to describe the Chinese economic system as a whole and the relationships between economic factors as GDP and national income, investments, imports and exports etc.

3.1.1. General aspects and data

The People's Republic of China is a country in East Asia with a surface of 9.561.000 Kmq that shares international borders with fourteen sovereign states and is also touched by the East China Sea, Korea Bay and the South China Sea. It is a communist state with capital in Beijing city and the official language is Chinese Mandarin.

According to official data provided by the World Bank and projections from Trading Economics, the Gross Domestic Product or GDP of China in 2019 was worth 14342.90 billion US dollars, representing the 11.81 % of the world economy, with an inflation of 2.899%. As we know, the gross domestic product measures the national income and output for a given country's economy being equal to the total expenditures for all final goods and services produced within the country in a specific period of time, China, with a GDP of almost 15.000 billion US dollars, constitutes the second wealthiest country in the world for GDP and PPP, purchasing power parity, after the United States and it is the most powerful country in whole Asia. In particular, the Chinese economy grew by 3.2% in the second quarter of 2020, recovering from a record contraction of 6.8 of the previous three months, and becoming the first major economy to experience a growth after coronavirus pandemic, as factories and stores reopened after months of restrictions. However, the country is still facing a fall in retail trade.

The current population of China is estimated at 1,440,055,438 with a literacy rate of 96.4% according to Worldometer elaboration of the latest United Nations data, representing the 18.47% of the total world population. Forecasts see the Chinese population growing to 1.41 billion until 2022 and then it will begin to decline, for the first time in decades. The population density is 153 per Km^2 (397 people per mi^2) and the median age is 38.4 years.

Basing on these data, it is clear why China has ranked number 1 in the list of countries by population. Moreover, Chinese population is characterized by several ethnic groups, especially Han Chinese 91.6%, Zhuang 1.3% and others 7.1%. Religions present are especially Buddhisms 18.2%, Christianesism 5.1%, Muslim 1.8%, folk religion 21.9%.

Dividing the country's gross domestic product, adjusted by inflation, by the total population we obtain the GDP per capita, that was last recorded at 8254.30 US dollars in 2019, being equivalent to 65% of the world's average. During the last twenty years, China's GDP per capita has risen. However, according to the World Bank, it remains a middle-income country, respect to high-income countries as US or Japan. Indeed, the World Bank defines middle income as a gross national income per capita of between 1,006-12,235 U.S. dollars. In fact, according to the Beijing Statistical Office, China's Gini coefficient, a tool used to measure the level of economic inequalities, has increased from 0.462 to 0.467 last year, proving that there are still some differences between rich and poor people.

China is a powerful country and in The Ease of Doing Business Rank it is ranked 31 of 190, according to the latest World Bank annual ratings. The rank of China improved to 31 in 2019 from 46 in 2018. This index ranks countries according to the facility of doing business in it, where higher ranking (a low numerical value) usually indicates a simpler regulation for businesses and stronger protection of property rights. Thus, according to the ranking, China's environment appears to be "very easy" to have business with.

Table 2. Macroeconomic indicators

	2017	2018	2019
GDP (USD billion)	12310.41	13894.82	14342.90
Population (billion)	1.386	1.393	1.394
GDP per capita (USD)	7346.60	7807.00	8254.30
Unemployment (%)	3,9	3,8	3,62
Public debt (% GDP)	46,79	50,46	55,36
Inflation (%)	1,56&	2,1%	2,9%.

Statista

Finally a valid element to measure the state of health of a country is represented by the state of its infrastructures and the degree of technology. Usually, when a nation goes through a

phase of prosperity, it usually invest in the construction of a new infrastructure network or in the improvement of the existing one. Indeed, since President Xi Jinping announced the New Silk Road project in 2013, it has already invested 800 billion euros in roads, railways and ports. The Chinese government plans to build at least 4,000 kilometers of new railway lines in the country in 2020, including 2,000 kilometers of high-speed lines. China's railway network has reached a total length of 139 thousand kilometers, while the high-speed one has exceeded 35 thousand kilometers one year ahead of the plans set by the state for the development of the railway network.

While, regarding to technologies, China is accelerating on 3 crucial sectors for the development and diffusion of the most advanced technologies: 5G, blockchain and artificial intelligence, that are likely to make China become the world leader in technology. In fact, with the 13th five-year program for economic development, China places great emphasis on the concept of innovation as a driving force and the country is a world leader in innovation funds; an estimated 200 billion dollars are invested each year in research and development. In this regard we point out “Made in China 2025” and “Internet Plus”: two closely related programs that aim to improve Chinese manufacturing production. The ten-year plan is formulated on the German "Industry 4.0" model, intends to spread the use of Information technology, the Internet of things and Big Data to make production more flexible and more market-oriented, guaranteeing a better level of quality and products designed on the actual needs of consumers.

3.1.2. Pestel Analysis

The Pestel analysis is a framework used to analyse and monitor the macro-environmental factors that may have a profound impact on an organisation’s performance, that are: the political, economic, social, technological, environmental and legal factors. This tool is especially useful when entering a foreign market.

3.1.2.1. Political factors

The People’s Republic of China is a communist state, the chief of state is the president and the head of government is the premier. The core of the CCP is the National Congress, summoned every five years and devoted to the renewal of the top positions of the Party, while the main collegiate body of the Party is the Central Committee.

The actual president is Xi Jinping (习近平), who insediated in 2013 and the current premier is Li Keqiang (李克强). Their government is focused on the promotion of five factors: urbanization, modernization, computerization, sustainability and the modernization of agriculture. Indeed, we can indicate the current Chinese economic-political period as the fourth phase of an evolution towards innovation and sustainability. The first phase was the one in which the country was simply seen as a large market for selling products, in the second it became a country capable of selling its own products to the whole world; in the third, thanks to the foreign capital and know-how, it has increased its global competitiveness; finally, in this fourth phase, the Chinese government wants to focus on innovation as the driving force of development and on sustainability as a guarantee for the achievement by 2020 of the so-called *Xiaokang* (小康) which is a Confucian ideal to indicate a moderately prosperous society, materializing the Chinese dream, or *Zhongguo meng* (中国梦), according to the auspices of the president Xi Jinping. These factors are certainly relevant for our Case Study, as they show how China is ready and willing to promote the presence of innovation in the country but also of eco-friendly product and processes.

Then, from a political point of view, China has a key role in the Asian and international environment. Indeed, willing to be recognized as a global power, it has enhanced more and more its presence in the management of global crisis in emerging countries, helping in peacekeeping missions, giving a support in their economic growth and commercial exchanges. For this reason, China proposed itself as a natural guide for emerging countries and it now aspires to present its own development model as an example for others. The current context of tensions with the United States, which are expressed in particular in the commercial field, leads Beijing to accentuate its role in supporting multilateralism and adhering to international rules and standards. In terms of bilateral relations, China aims to increase its economic and trade relations also with industrialized countries and is one of the main financiers of economic development projects abroad. The relations with international partners are characterized by some essential elements such as the principle of non-interference in the internal affairs of other countries which is a cardinal principle of Chinese diplomacy, the recognition of territorial integrity and national sovereignty which is expressed in the request for adherence to the "One China Policy", in other words, the non-recognition of Taiwan as an entity state and full confirmation of Chinese sovereignty over Tibet.

Among the currently development plans implemented by the government, the most worthy of note is without any doubt the Belt and Road Initiative**,** considered a priority by Chinese political leaders. The declared goal is to establish a network of connectivity and partnerships that, together with bilateral and regional free trade treaties, facilitate trade and investment. This plan represents the result of the push towards internationalization and modernization strongly desired by China. It was initially called "One belt, one road" (OBOR) and then was renamed "BRI - Belt and Road Initiatve", or *Yi dai yi lu jihua* (一带一路计划). The plan, which includes the Silk Road Economic Belt and the 21st Century Maritime Silk Road, evokes the image of the ancient Silk Road with the aim of multiplying the connections between Europe, Russia and Asia, from the Middle East to the Pacific area, through a series of important infrastructural works that will affect all the countries crossed by the two new routes, one by land and one by sea. Thanks to the construction of roads, railways, ports and pipeline networks, the plan will obviously icrease commercial relations and also promote the development of new industries, cooperation between nations on energy issues and the creation of international scientific research centers. The idea was launched by President Xi and officially presented in 2015, then on March 23rd, 2019, Italy signed the so called Memorandum of Understanding with China to officially become a member of the Belt and Road Initiative.

To support the project, it was also established the Asian Infrastructure Investment Bank (AIIB) in Beijing with the purpose to promote sustainable economic development and regional cooperation. In particular, the AIIB, characterized by zero tolerance for corruption and attention to environmental issues, will focus its efforts on the development of infrastructures and on other strategic sectors, such as energy, transport, telecommunications, agricultural development, water supply, health, environmental protection, urbanization, logistics etc. Its functions include the promotion of private and public investments in the sectors listed and financial support to all member countries, international organizations and agencies involved in the objectives of the plan. Currently, 65 countries have already joined, including Italy.

Other plans that may be relevant to our case study are the following:

- Yangtze River Economic Belt (*Chang jiang jingji dai* 长江经济带): the plan should be implemented as a complement to the wider OBOR; it involves the service sector, clean energy and the modernization of agriculture. The geographic areas concerned are Shanghai, Jiangsu, Zhejiang, Anhui, Jiangxi, Hubei, Hunan, Sichuan, Chongqing,

Yunnan and Guizhou; together they represent a fifth of the territory of the entire country and follow the course of the longest river in China.

- National New-Type Urbanizational Plan (2014-2020): represents the country's first official urbanization plan with the purpose of bringing the urban population from 53% (2014) to 60% by 2020. The Chinese government has already invested 6.8 billion dollars. The project offers opportunities in many sectors, such as transport, health, energy, construction, media & entertainment etc. Foreign companies and multinationals can seize investment opportunities especially in the e-commerce, clean energy and ICT sectors. The plan places wants to transform rural populations into modern citizens through the application of Information Techonlogy, the modernization of agriculture, the creation of an efficient transport network and the development of the tertiary sector. The plan also promotes the creation of so-called "City Clusters" in the central areas of the country, in order to mitigate the inequality between the more developed and modern coast and the more inland continental areas, and of the so-called "green cities" and "smart cities", demonstrating, in this case too, a new focus on ecological issues. The opportunities for foreign investors are not limited to the time frame covered by the plan: urbanization, in fact, will contribute to the increase in the incidence of the consumer item.

Finally, the last political factor that we should consider is the fact that China is making a concrete commitment to open up to the international market and gradually break down the barriers that traditionally distinguish it and make the entry of foreign companies complex. Indeed, it has signed different agreements regarding this issue as:

- the Eu-China Investment Agreement, that was launched in November 2012 to increase the quality and quantity of mutual investments. The negotiation aims to progressively abolish restrictions on market access.
- Environmental Goods Agreement: signed by 17 countries, including the European Union and the United States, it is aimed at reducing customs duties on products considered "green goods", beneficial for the environment. This agreement is particularly relevant for our Case Study as the electric Fiat 500 is an eco-friendly product and its sales would really benefit from the reduction of customs duties.
- Shanghai Free Trade Zone: established in September 2013, it facilitates the entry into the market of foreign companies and multinationals thanks to simplified administrative procedures and less stringent government controls. All those sectors

that do not appear in the so-called "negative list" and are therefore predisposed to foreign direct investments benefit from this dedicated legislation. The plan represents a pilot project and it is hoped that in the future other Free Trade Zones will arise within the country..

3.1.2.2. Economic factors

China has a market-based system, that changed from a centrally planned system in the 1970s and the actual currency is the Yuan or Renminbi. It is a member of the Asia-Pacific Economic Cooperation (APEC) and of the Asia-Pacific Trade Agreement (APTA). According to the International Monetary Fund, Asia continues to be the fastest growing region in the world and the main engine of the globe's economy, contributing for more than 60% to the global growth and three quarters of this contribution are attributable to China, meaning that China, alone, accounts for one third of the world's contribution to economic growth.

The directives of the last Party Congress confirmed that the goal set for these years is achieving a "moderately prosperous society" by 2020 through constant growth rates of no less than 6.5%.

As regard to the economic factors that could influence our segment, first of all we should mention the 13th five-year program for economic development, that afftected the years from 2016 to 2020. The specific objectives are defined as follows: maintenance of stable economic growth, change of the growth model, coordination and improvement of the industrial structure, promotion of the development of innovation as a driving force, reform of institutional mechanisms, strengthening of the constitution of an ecological culture, protection and improvement of the living conditions of the population, promotion of development and fight against poverty.

According to the Chinese National Statistics Office, the data for April 2020 show a recovery in industrial production growing overall by 3.9% on an annual basis, or 2.27% on a monthly basis. In the first four months of this year, the value produced by state-owned companies (SOEs) decreased by 4.9% on an annual basis, about 3.5 percentage points less than the sharp decline recorded in the first quarter. The increase in production affected all types of businesses. While listed companies grew by 4%, those with foreign participation registered + 3.9% and private companies + 7.0%. Inflation decreased in April, with consumer prices growing by 3% on an annual basis, 1 percentage point less than in March. For the first four months, consumer prices increased overall by 4.5% yoy. The overall

unemployment rate in urban areas is increasing, amounting to 6%. In the first four months, the total value of trade, equal to RMB 9,070 billion (1,178 billion euros), decreased by 4.9% on an annual basis. In particular, the value of exports decreased by 6.4% and that of imports by 3.2%. The trade surplus was RMB 415.7 billion (54 billion euros), down by 30.4% compared to 2019. While exports to Western countries decreased by 10.4%, those to emerging countries and developing countries would be up 2.2% and now account for 50.9% of Beijing's overall exports. Despite the main official economic indicators show a slow improvement, the Chinese economy continues to face considerable difficulties linked above all to the need to continue to apply measures to prevent and fight the spread of Covid-19 that affect the normal performance of daily economic activities (Infomercati Esteri: 2020).

According to what was reported in the report presented by Premier Li Keqiang to the National People's Assembly, to address the post-Covid-19 economic crisis, China intends to stimulate annual GDP growth, fight poverty and build a moderately prosperous society in all respects. In detail, the main economic objectives include:

- increase in GDP and employment;
- public investment of approximately RMB 600 billion (€ 78 billion) for the construction of more charging facilities, further promoting the development of new energy vehicles, as well as the expansion of 5G applications (in line with the Shanghai model);
- adoption of a prudent, albeit more flexible and appropriate, monetary policy. Commitment to keep RMB stable, at a "reasonable and balanced" level. For SMEs, the exemption from the reduction of interest rates on loans extended until March 2021 is provided. Unlike a large part of the Central Banks, no unconventional monetary policy instruments are proposed;
- pursuit of a more proactive fiscal policy, tax and tax reduction of around RMB 500 billion (€ 65 billion). All the tax relief policies originally planned to expire at the end of June will then be extended until the end of the year. In this regard, it is indicated that this measure will result in a tax benefit for companies equal to 2,500 billion RMB (approximately 325 billion euros) by 2020;
- Issuance of bonds: it is planned to issue new central public debt (for the purpose of combating Covid-19) for 1,000 billion RMB (130 billion euros) while the ceiling for special bonds issued by local governments is raised to 3.750 billion RMB (487 billion euros). Banks will also be incentivized and facilitated to issue bonds for an additional 300 billion RMB (39 billion euros) to finance SMEs;

- Foreign trade: The focus on “stable and quality” exports and imports is underlined. (ICE 2020)

Regarding the relationship with Italy, based on Eurostat data, in 2019 the trade between Italy and China was 44.6 billion euros (+ 1.46%) of which 13 billion (-1.02%) due to exports and 31.7 billion euros (2.5%) to Italian imports from China. The composition of Italian exports to China in 2019 essentially maintains the same structure as in previous years. Exports of machinery decreased overall (3.9 billion; -1.06%), a sector that represents 30.4% of total exports. On the other hand, other important sectors of Italian exports are growing, including pharmaceuticals (956 million; + 18.52%), which becomes the second voice of Italian exports, surpassing the automotive, clothing (932 million; + 8.53%) and furniture (522 MLN; + 0.8%). As regards to Italian imports from China, in 2019 the main sectors were material and electrical equipment (6.6 billion; + 2.08%) and machinery (5.6 billion; + 2.93%) which represent 38, 9% of total imports. On the other hand, clothing imports decreased (2.4 billion; -0.23%), which represents the third largest import item from China. In 2019, Italy confirmed itself as the fourth customer country of China after the Netherlands (88.4 billion; + 3.38%) and the United Kingdom (57.9 billion; + 8.7%). As for the impact of the coronavirus, the Chinese customs data for the first two months of 2020 compared to the 2019 data indicate a global decrease of 11% which is determined by a reduction of 17.2% in exports and 4% on imports. The data at a single country level indicates an 18.5% reduction in Chinese exports to Italy and a 12.5% reduction in Chinese imports from Italy with a reduction in trade of 16.2% (Infomercati Esteri:2020).

Table 3. Italian export towards China

Italian export towards China	2017	2018	2019	Jan-May 2019	Jan-May 2020
Total €	13.509,45mln.	13.188,66 mln.	12.992,63 mln.	5.341,11 mln.	4.168,91 mln.
Goods (mln. €)			2017	2018	2019
Agricultural, fisheries and forestry products			41	37,79	58,27
Mining and quarrying products			186,24	202,4	201,57
Food products			250,66	250,57	254,1
Beverages			154,79	152,61	164,34
Textile products			440,42	463,14	425,93
Clothing items (also in leather and fur)			689,5	943,55	1.030,27
Leather goods (excluding clothing) and similar items			837,55	906,27	932,84
Wood, wood and cork products (excluding furniture); articles made of straw and plaiting materials			54,49	52,05	58,35
Paper and paper products			85,47	79,43	72,96
Coke and products from oil refining			48,68	14,73	30,06
Chemical products			847,38	940,24	936,31
Basic pharmaceutical products and pharmaceutical preparations			654,34	900,43	1.078,01
Rubber and plastic articles			295,89	300,65	298,63
Other non-metallic mineral processing products			175,14	186,07	199,74
Metallurgy products			260,29	256,54	239,18
Metal products, excluding machinery and equipment			371,62	363,36	343,75
Computers and electronics and optical products; electro-medical devices, measuring devices and watches			495,12	544,67	461,67
Electrical and non-electrical household appliances and equipment			477,28	472,01	433,48
Machinery and equipment			3.865,46	3.849,81	3.876,52
Vehicles, trailers and semi-trailers			1.815,93	835,68	642,46
Other means of transport (ships and vessels, locomotives and rolling stock, aircraft and spacecraft, military vehicles)			275,06	277,71	224,91
Furniture			450,65	472,62	482,89
Products from other manufacturing industries			368,49	379,15	369,17
Other products and activities			367,08	306,52	176,98

(Ice: 2019)

3.1.2.3. Social factors

China is the most populous country in the world with a total population of approximately 1.4 billion (World Meters: 2020), meaning that it is a massive market for consumer products. During the last years, the average wage level has gone up, resulting in an increase in consumer spending. Indeed in China, like in the other developed countries, many people want to demonstrate their success showing status symbols such as luxury cars, latest smart phones and designer clothing. This is clearly an opportunity for both domestic and foreign companies (Nationmaster).

However, this huge population is a double-edged sword which has empowered the country's economy and, at the same time, is threatening to dry country's natural resources. For this reason, the Chinese communist government has implemented strict population-control measures, as the one-child policy launched in 1979 and then abolished in 2015 as it affected the demographic pyramid of the country, resulting in a visible aging of the population. However, nowadays parents still prefer not to have more than one or two children, as in most of the developed countries around the world, due to the rising living costs, growing work pressure, growing trend towards self-realization and individualism, and change of social behaviors.

For several decades, the vast population of the country suffered from poverty and famine. However, China's huge economic growth has lifted hundreds of millions from poverty and it is now on the way to providing every citizen with Western-style standards of living.

About the literacy rate in China it is of 96.4%. Like the impressive progress in literacy rate, the country has also made stunning progress in poverty reduction. China aims to eliminate absolute poverty by 2020 and according to a report published by China's State Council Leading Group Office of Poverty Alleviation and Development, in the last five years it has lifted over 68 million people out of poverty. However, it still faces some social challenges as ageing population.

About education, today, the educational system of China is the largest in the world. It has also attracted the attention of international students, making the country the most popular destination for international studies in Asia, and the third all over the world. Official data reveals that primary education has 99% attendance and 85% attendance in middle school. This popularity is attributed to the huge government support to the educational system (at 4% of the country's GDP), and the fact that the school employs highly qualified and motivated teachers (Nationmaster).

Another social factor that I would like to consider is the language, indeed in China there are several different dialects, while the official language is Mandarin (spoken by 70% of the population) which is thought to originate in Beijing. Other important languages include Wu, Yue, Xiang, and Min. By sheer number of speakers, Mandarin surpasses English as the most spoken language. However, English is spoken by more nationalities and more countries, thus making it the universal language of the world. So, companies that want to penetrate this market should not rely only on the use of the English language, but also notice the importance of Chinese and consider to hire export managers that also speak fluenty this language to better communicate with the possible customers.

Among the social factors, the cultural element also plays an importan role. Cultural differences indeed are a major factor that influences business practices of a country. China's culture is really different from the western one, so, Italian companies that want to operate in this country should acknowledge these cultures and traditions and exploit them to penetrate the market in a captivating way. In particular, the business ethics and the organizational behaviours in China are dominated by the concept ot relationship called *guanxi* 关系, which is completely different from our conception. *Guanxi* is a fundamental concept within Confucian doctrine, which sees the individual as part of a community and of a set of family, hierarchical and friendly relationships; indeed this term can be defined as interpersonal and inter-organizational relationships and the granting of preferential treatment to business partners in exchange for favors and obligations. So, there is an unwritten rule of building interpersonal relationships first in the Chinese communities and, only if successful, commercial transactions will follow, while westerners normally build transactions first and, if they are successful, a relationship will ensue. Companies can gain competitive advantages by developing their networks of *guanxi,* indeed many of the multinational automobile manufacturers choose to establish a joint venture with local partners as their entry mode, as it can ease the process in both administrative and political processes, yet, cultural differences still represent a major obstacle for them to handle. Symbols are also important in Chinese culture, for instance, it would be better to avoid numbers such as 4 or 7, which are thought to bring bad luck, while using 6 or 8 means prosperity and luckiness, red and golden colors in advertisement and packaging also can result in a positive message and be attractive for Chinese consumers.

According to Vescovi (2019), other social factors that we should consider are the fact that China is characterized by a reactive culture, which in Lewis model[32] is the culture that gives a lot of importance to courtesy and respect, tending to avoid direct confrontation. Chinese have also a different conception of timing and see it as circular, instead of the western linear view, coming around again in a circle, where the same opportunities, risk and dangers will re-present themselves when people are more wiser. They are good listeners and take their time to clearly understand the topic of the talk before making decisions, so they are not impulsive. Thus, while western companies tend to be profit oriented, time is precious or "time is money", speed is the way to success, the past is over and you have to worry about future; for Asians and in particular for Chinese, the past is an important background that has to be considered in order to make present decisions, time is not money so they can afford to spend more time for taking important decisions.

Their culture is also considered to be a high context culture, meaning that group and community are valued over the individual and group reliance is promoted, strongly influenced by Confucius tradition. Referring to the Hofstede model[33] this high Confucianism influence reflects a high power distance in Chinese culture. Indeed, they are more likely to accept the hierarchical distribution of power, for this reason in luxury shops in China when the consumer is an high class person it is ofter required an equal high class person to serve it, as the managers. This means that when dealing with such a market, companies should take in consideration these factors and shape their approach in accordance with them in order to avoid misunderstandings and inefficiency.

Furthermore, high context cultures show the following tendencies:

- Association, relationships are built slowly and depend on trust. An individual's identity is rooted in groups (family, culture, work), social structure and authority are centralized and productivity depends on relationships and the group process;
- Interaction, nonverbal elements such as voice tone, gestures, facial expressions and eye movement are significant. So, verbal messages can be indirect;

[32] The Lewis model can be used to identify the different cultural characteristic of the different countries in the world. He proposed three main categories which are: linear activities, multi-activities and reactive countries. The linear activities country are task oriented as German and Swiss characterized by a strong conception of time saving, they are able to equally talk and listen, are more organized and consider time as linear; multi activities countries are people oriented, prefer more to talk and to do many things as Italy, Arabic countries, Latin America; finally reactive countries pay much more attention on rituals, courtesy and respect as the Asian countries, they have a more circular view of time and tend to be good listeners.

[33] Hofstede's cultural dimensions theory is a framework for cross-cultural communication, developed by Geert Hofstede, that shows how a society's culture affects the values of its members, and how these values relate to behaviour, using a structure derived from factor analysis.

- Territoriality, space is communal, people use to stand close to each other sharing the same space;
- Temporality, everything has its own time, and is not easily scheduled. Change is slow, and time is a process that belongs to others and nature. As we already said, time is seen as circular.
- Learning, learning occurs by observing others, analysing multiple sources of information and then practicing, proceding from general to specific. Groups are preferred, and accuracy is valued.

Finally, the most significant values for Chinese culture are family or *jia* 家, considered to be fundamental for society; simplicity, humility, perseverance and to save your face according to the mianzi 面子 principles, which means not to act disrespectfully towards other people. Then, we find collectivisms, people are connected within specific contexts such as family, professional and cultural ones, governed by the phenomenon of *guanxi;* and from the other side we also find more modern values linked to the idea of success, wealth, social position, individualism and personal freedom, even if the last two features have Western derivation and go against traditional Chinese thinking which usually tends to favor an idea of group and collective and not to choose according to personal preferences. In particular, Chinese people like to show their social status and, in particular, desire to show that they buy expensive and high class products in order to demonstrate their high status and this is an advantage to exploit for Italian companies that are renowned for their high quality manufacture (Pontiggia and Vescovi: 2015). Another influential concept is also the beneficial characteristic of the product, due to the mentality of Chinese people that take in high consideration the benefits of the product and they would be much more convinced to buy a product if you underline the beneficial characteristics of it, as in our case the sustainability of the electric car.

3.1.2.4. Technological factors

Concerning technology, China considers science and technology to be vital for achieving economic and political goals as well as national prestige. So, the lack of national intellectual property and technological innovation are seen as essential national problems. Chine indeed desires to be a global leader in technology and to achieve this purpose, the country launched 'mass entrepreneurship and innovation' programme in 2015, which aims to spread entrepreneurship throughout China and to help the country to move from a labour-intensive economy to an innovation-driven one. Also the 13th five-year program for economic development (2016-2020) placed a great emphasis on the concept of innovation as a driving force for the country, China indeed is the world leader in innovation funds, investing every year about 200 billion dollars in research and development. It is therefore not difficult to imagine how great the opportunities are in China for both domestic and international companies, particularly in science and technology sectors that propose innovative products.

In particular, the Chinese government has provided sufficient incentives to the domestic companies towards technological development in the automobile industry, leading to huge investments by local automakers in terms of production facilities, product design, and health and safety technology thus making them independent from the overseas companies. Indeed, technologies in automobile industry are keeps upgrading with a particular focus on designing cars with environmental consciousness in order to protect the environment. Although the government's effort toward emission control is laudable, however still remain hard challenges to face including the high cost of producing green cars.

According to an article by Melchers (2019), China has almost one in four of all of the vehicles sold in the world today and the automotive market is really strong also because of the commitment on disruptive technologies as autonomous, intelligent connected and alternative fuel vehicles. Both the state's *"Made in China 2025" plan*, released in 2015 and the "Automobile Industry Mid and Long Term Development Plan", released in 2017, focus on technology advancements. Light-weighting, reduction of fuel consumption and the development of new energy vehicles (NEVs, which in China largely means electric vehicles) are seen as levers. In particular, the Mid and Long Term Development Plan is characterized by different goals:

- The global top 10 NEV companies should include Chinese car makers by 2020;
- Key technology from Chinese auto parts manufacturers should dominate the global market by 2020;
- The global top 10 should include Chinese auto parts conglomerates by 2025;

- Chinese auto brands should be world-renowned by 2020 and rank in the global top 10 car makers by sales and output by 2025;

This means that China wants to obtain a lead role in the automotive industry and could represent a barrier from international automanufacturers trying to sell their products to them. Indeed, China's outstanding innovation could not accept as equally valid Italian innovative products. We need to consider that the growing demands of Chinese customers for greater connectivity has driven automakers to carry out upgrades on their Chinese models ahead of the rest of the world's major car markets. A great number of Chinese automakers offer opportunities for suppliers in the intelligent connected vehicle (ICV) industry chain providing sensors, software and algorithms, communication systems, controllers, chips, connectivity systems and system integration, mobility services, entertainment services, parking services and charging systems, making China the leading power for start-ups in the ICV field and innovating at the fastest speed.

Moreover, China is leading the global e-mobility revolution as its electric vehicle (EV) market is one of the most advanced and continuously growing. According to Financial Times (2017), at the end of 2017, Chinese car manufacturer BAIC even announced plans to stop production of non-electric and hybrid cars by the end of 2025 joining the UK and France, that recently announced they would prohibit the production of diesel and petrol cars by 2040. So, NEVs were recently identified as a priority by the Chinese industrial policy known as Made in China 2025, and the sector is one of 10 high-tech industries in which China wants to create national champions that will be globally competitive.

3.1.2.5. Environmental factors

China is one of the countries with the highest amount of carbon emissions in the world , it has become the world's largest carbon emitter in 2006 and the largest energy consumer in 2009; in the specific, the CO2 emissions in China reached 9.15 billion tons in 2015, corresponding to the 27.3% of the world total. For this reason, China is facing a severe situation requiring energy conservation and emission reduction, especially in some metropolitan areas such as Beijing, Shanghai, and Guangzhou, where environmental deterioration has gradually become a threat to the public health of urban residents.

During the last year, China became more and more concerned about these emissions' consequences as rising of the urban pollution, climate change, dependence on imported foreign oil supplies, and carried out various government policies and projects partially

financed by the European Investment Bank to preserve the environment and support the development of renewable energies, primarily solar and wind energy. It has also defined a greater role for nuclear power, intended as an opportunity for the country to export the high technology of the sector, aiming to integrate the ecological dimension into every single aspect of economic, political, cultural and social development.

Among the commitments of the Chinese Government to CO2 emissions reduction, we also find the will to peak its CO2 emissions by 2030 expressed in the China - US Joint Announcement on Climate Change. The promise has been made to lower CO2 emissions per unit GDP (i.e., carbon emission intensity) by 60–65% by 2030. Thus, the reduction of carbon emissions is an important issue for Chinese people and this could represent a point in favor to companies that want to sell electric vehiclese in this market as in our case.

In particular, within the thirteenth five-year program addresses we also find the accent on environmental issues, underlying that pollution has reached a level that is no longer tolerable, energy consumption per unit of GDP is twice the world average and almost three times the average for developed countries, and declaring for the first time the reduction of pollution as a top priority of the government, together with the need for a new sustainable development and a circular economy (ICE).

Regarding the automotive industry, in order to protect the environment, China has been encouraging more and more the growth of the new energy vehicle (NEV) industry with measures such as subsidies and easier access to car registration for NEV buyers. The “green car” became indispensable to preserve the environment with respect to the future. For this reason, the government is encouraging the manufacture of environmentally friendly cars.
Indeed, on May 12th Chinese government released three mandatory national standards about the safety of EVs and EV batteries, also called “the mandatory standards”, which will come into force on January 1, 2021. These standards focus on three aspects, namely, the EV-used rechargeable battery, the EV and the electric bus. The first standard about the safety of EV battery underlines the improvement on the safety of battery cell and modules, but also highlights stricter requirements on the safety of battery thermal system, machinery, electrical system and functions. Then, the EV safety standard stipulates the requests on EV's electrical and functional safety, and it underlines more strict requirements over EV performances of watertightness, insulation resistance and monitoring, with a view to lowering the security risks for both vehicles in normal operation and waterlogged vehicles. The last one is set for the security of electric bus.

Furthermore, starting from July 1st , 2020, automakers in China will be forbidden to produce light-duty vehicles that comply with the China V emission standards, as it will be implemented the China VI emission standard. All the old light-duty vehicles produced and imported before July 1 will be allowed to be registered and sold until December 31, 2020 in regions where the China VI criteria have not been carried out yet. Local authorities will strive to scrap over 70% of medium-duty and heavy-duty commercial diesel-fueled trucks under the China III emission standards or below by 2020. Such measures as adopting strict oversight of air pollution emissions, restricting vehicle usage and offering proper allowances will be taken to promote the elimination of old and used diesel-powered trucks.

Finally, we should also mention the national policy stating that new energy vehicles (NEVs) purchased from Jan. 1, 2021 to Dec. 31, 2022 will be exempt from vehicle purchase tax. Besides, local residents or locally registered business entities which purchase new energy cars during the period of Jun. 1 to Dec. 31, 2020 will be given a coupon worth 2,000 yuan ($281) per car as a subsidy on EV charging. The volume available for the incentive will be 30,000 units at most. Hubei provincial government has formulated a set of measures to unleash consumers' automobile consumption demands, as extending the NEV subsidies and the exemption of vehicle purchase tax on NEVs for two years, and reducing or cancelling the value-added tax levied on used car sale, according to a document issued by the provincial government on May 29. Besides, local authorities of eligible regions will be encouraged to offer subsidies to those consumers who sell or scrap a motor vehicle under the China IV national emission standards or below, and to the locally-registered automobile sales companies which purchase new vehicles that meet the China VI standards. It is noteworthy that Wuhan, the capital of Hubei province and the hardest-hit region from coronavirus, announced in mid-May that consumers who buy PVs produced by Wuhan's local enterprises and have their vehicles locally licensed would be granted cash handouts. Specifically, those who buy and register fuel-powered PVs shall enjoy a subsidy equivalent to 3% of a vehicle's original price at a maximum of 5,000 yuan ($702) per car, and NEV buyers will receive 10,000 yuan ($1,404) per car worth of subsidy. The incentive will be ended at the end of December 31, 2020.

Also the region of Shaanxi, to boost the consumption of NEVs, will support the purchase of new energy buses and fuel cell vehicles, and uphold car-free families in buying their first NEV, according to a document issued by Shaanxi provincial government on May 27, releasing proper incentives for uses or entities who voluntarily scrap and upgrade high-emission obsolete vehicles for family use or public services below emission standards ahead

of their due scrapping dates. To facilitate the used car transaction, Shaanxi will comply with the policy announced by the central government, which has cut the VAT slapped on secondhand-vehicle sales to 0.5% from 2.0%, starting May 1st and running until the end of 2023. Additionally, local authorities will further implement the policy of cancelling the restriction on the movement of pre-owned cars, and build a registration and supervisory system for used car transaction information. After the China VI emission standards come into effect, the government will gradually ease the traffic restriction on urban vehicles, according to the document. Furthermore, relatively concentrated new vehicle and secondhand vehicle markets will be constructed, and the deployment of automobile circulation, like franchise dealerships, will be further optimized (Gasgoo: 2020) .

3.1.2.6. Legal factors

The last element that the PESTEL analysis considers is legal environment.

Chinese business and employment practices are regulated by several laws as labour standards, employee remuneration and benefits, labour disputes, and other relevant issues regulated by The PRC Labour Law 1995, the PRC Labour Contract Law 2007, and various administrative regulations. For example, every few years, the National Development and Reform Commission (NDRC), China's top economic planning agency, releases a "Foreign Investment Catalogue" that groups foreign investment into broad categories: encouraged, permitted, and restricted. The catalog is usually considered a bellwether that reflects broad guidelines to be followed by other government agencies and local authorities who would introduce and implement specific policies accordingly. The catalog divides FDI into four categories:

1. encouraged, includes 384 industries as agricultural machinery manufacture, and fruit and vegetable drink production;
2. restricted, includes 35 industries as construction and operation of power grids, banks, and securities companies;
3. prohibited, includes 28 industries as air traffic control, postal companies, and domestic express delivery of letters;
4. permitted, includes industries that do not fall into any of the above mentioned categories.

Regarding the automotive industry, there are sufficient legislations regulating and supporting it, but the government have been accused of being inconsistent and bias in its

enforcement of many of them. As a consequence, it is likely that China would fail to meet its projected Foreign Direct Investment as potential investors would not desire to come in. Indeed, there have been several trade disputes on the auto sector between the United States and China, addressing issues such as China's implementation of its WTO obligations, failure to implement an effective intellectual property rights (IPR) enforcement regime, market barriers such as high tariffs on vehicle imports, export restrictions of raw materials such as rare earths, and various forms of government assistance to domestic auto and parts companies, such as tire producers. An emerging issue is that the Chinese government's policies and measures are becoming more and more restrictive towards foreign auto companies, as they prefer to give support to its domestic car makers. These new restrictions imposed by the Chinese government have caused great concerns among global auto companies regarding the business environment in China and how these measures may affect their business operations, growth plans, and competitiveness, so they clearly represent a barrier for foreign companies that desire to develop their business in China (Tang: 2012).

Mergers, acquisitions and consolidations in the automotive industry are generally encouraged by the Chinese government as such market activities can enhance the overall competitiveness of the automotive industry. According to the 2019 version of the Negative List, there is a 50 per cent cap on foreign equity ownership in automobile manufacturers, except for special purpose vehicle and NEV manufacturers, but the shareholder restriction on commercial vehicle manufacturers has been lifted since 1 January 2020. However, there is a restriction, according to the Negative List, foreign investors shall not invest in more than two automobile manufacturing companies that manufacture the same type of automobile, but it may lifted in 2022. Merger control (anti-trust) filing might be another major concern, as many of the players in the market are global automotive makers and might have significant market share in a specific segment. Another major issue is also how to protect the foreign brand or trademark when being used in China. Licensing of such brands requires careful consideration and strategy.

Under the current legal framework, a 50 per cent shareholding restriction on foreign capital still applies to the manufacturing of automotive vehicles other than special purpose vehicles, NEVs and commercial vehicles. This means that electric cars are exempt and clearly represent a point in favor for our case study. In addition, the Chinese government has provided substantial incentives to this sector in the last years, from manufacturing subsidies and tax breaks, to fewer restrictions to consumers on purchasing NEVs. Moreover, there is no shareholding restriction for foreign capital investors, which are now permitted to establish

a wholly foreign-owned enterprise (WFOE) for NEV manufacturing. An example is Tesla's wholly owned factory in Shanghai completed in October 2019. The total investment amount for establishing a new automobile manufacturer must be no less than 2 billion yuan, of which 800 million yuan must come from the investor's self-possessed funds.

Another important law that could affect our segment is the new Foreign Investment Law that has come into effect on January 1st 2020 declaring that foreign direct investments no longer need to be either filed with or approved by the Ministry of Commerce of China (MOFCOM). After the automotive manufacturing plant has been established, the manufacture and each automobile model are subject to a special "access permit for automobile manufacturers and their products", which is issued and administered by the Ministry of Industry and Information Technology of China (MIIT). In order to qualify for this kind of permit, an automotive maker must meet all the requirements established by MIIT, including obtaining the venue, capital and personnel necessary for carrying out its manufacturing operations, as well as demonstrating capabilities on product design and development, product production facility, product production consistency and quality control, and product sale and post-sale service. MIIT periodically publishes a list of the manufacturers and products for which the permits have been granted. Moreover, each vehicle model must also meet the relevant standards, obtain the China Compulsory Certification (CCC) and pass inspection performed by a qualified inspection institution.

On the other side, the production of automobile parts follows a different licensing process. First of all it is required a production licence issued by China's Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) (now merged into and becoming a division under the State Administration for Market Regulation (SAMR). Then, the automobile parts must be manufactured in accordance with the compulsory standards, known as Guobiao or GB, formulated and kept by the Standardisation Administration of China. In addition, certain automobile parts being subject to CCC must also undergo a specific accreditation process. Finally, each vehicle to be sold must be registered in accordance with the National Environmental Protection Catalogue and, where applicable, the local Environmental Protection Catalogue, which might set a higher standard for registration (Lovells: 2020).

3.1.3. SWOT Analysis

To have a greater comprehension of the Chinese market, I will also report a SWOT analysis of the country, where we can have a panoramic view of the strengths, weaknesses, opportunities and threaths of our target market.

Table 4. China's SWOT Analysis

STRENGHTS	WEAKNESSES
• Perspective of continuous growth of the Chinese economy, however at a lower rate than in the recent past; • Vastness of the Chinese market; • The evolution of the tastes of high-middle-income Chinese consumers represents a driver of consumptions; • Numerous industrial sectors with high growth rates.	• Great differences among people living in urban and rural areas; • Restrictive country with high governmental control; • High levels of pollution; • Cheap labor.
OPPORTUNITIES	**THREATHS**
What to sell: • Sustainable and innovative products; • Machinery and equipment; • Food and beverages; • Supply of water; sewerage, waste treatment and remediation activities; • Health and social assistance. Where to invest: • Sustainability; • Technology; • Machinery and equipment; • Electricity, gas, steam and air conditioning (also from renewable sources).	• External risks; • Covid-19 impact on economy; • Anti-pollution control, energy saving and environmental protection; • Operational risks.

If we look at the strenghts of the market, we can notice that Chinese economy is estimated to experience a continuous growth, but at a lower level than in the last decade. Indeed, China has the second GDP in the world and has been experiencing significant growth for years, although in 2018 it recorded the lowest annual growth rate in recent years, at 6.6%. In the first months of 2019, the Chinese economy remained stable in its main indicators. Furthermore, massive urbanization and the growth in the purchasing power of the middle class are the basis of the steady growth of domestic consumption. This not only in the so-called first-tier cities (Beijing, Shanghai and Canton) but also in the second and third-tier cities (20 metropolises, each with 7-10 million inhabitants).

To better grab these opportunities offered by the Chinese market, however it is necessary to be present on site, having the possibility to follow the emerging trends and the peculiarities of Chinese demand, shortening the distance between producers and consumers in logistical-commercial terms, and constantly monitoring the regulatory evolution and the administrative policies decided and implemented by the provincial authorities and municipal, which can be subject to significant variations according to the different regions of China.

The increase in incomes, the growing urbanization and the emergence of new trends in culture and fashion inspired by the Western model have determined in the Chinese market new consumption models that can be inspired by different status symbols depending on the sector and by strong attention to cost performance ratio. Therefore, China appears as a good market to invest in, in fact most foreign companies generate higher profits in China than in the rest of the world. In particular, the sements that show the highest growth rates are: healthcare, food, clean technologies, mobility infrastructure, retail and distribution (Infomercati esteri: 2019).

According to ICE, the sectors of opportunity for Italian companies are not limited to the traditional three Fs, Fashion, Food and Furniture, which represent the excellence of Made in Italy, but China is also interested in several other areas, as confirmed during the multiple institutional Italian visits in China of the last years. These sectors are the following: environment and sustainable energy, agriculture / agricultural mechanization and food (entire supply chain), sustainable urbanization and smart cities, health, aviation, space technologies / space economy and related applications, infrastructure and transport, cultural and creative industries.

Given the severe state of pollution that characterizes the country and the more and more incentives provided to citizens to buy eco-friendly vehicles, I would also say that this situation represents an opportunity for our country to invest on sustainable and innovative

products as the electric cars, offering something that would be beneficial for the environment aiming not only to gain profits but above all to fulfill a need.

Among the weaknesses we should cite the great disparity between people belonging to the urban area and the ones living in villages and rural areas. Indeed, even if China represent a strong power in the international field, however there are still people experiencing extreme life conditions especially in the rural areas. Another weakness of this country is the strict control of the government and the censorship policies that "isolate" China from the rest of the world, i.e. blocking the use of google or any kind of western social media. Finally, also the cheap labor represents a weakness of this country as it created a negative vision of the Chinese manufacture from foreigners who are worried about the exploitation of factory workers. "Made in China" is usually considered as made in an economic way with no attention to the quality of the product, however, this is not true for all the production.

Regarding the last point of the analysis, different threats are present in the Chinese contest. First of all, we find multiple external risks, China is the subject of disputes over the delimitation of maritime borders and sovereignty over the Diaoyu Islands (claimed by Tokyo) and the archipelagos in the South China Sea (claimed by Vietnam, the Philippines, Malaysia and Brunei). Despite sporadic situations of tension and the risk of naval accidents in disputed waters, however, there is currently no risk of conflict; as regards the South China Sea, negotiations are underway for the definition of a Code of Conduct. Further territorial disputes, currently under control, concern the demarcation of the land border between China and India. Then, there are also economic risks related to the rigidity of the country regarding environmental and energy issues that leads to strict anti-pollution controls, energy saving and environmental protection. The competent authorities are therefore strongly committed to the implementation of the relevant regulations and checks are increasingly frequent and punctual. Another threat is obviously the impact of Covid-19 emergency on the economy and, in conclusion, China is characterized by operational risks as the ones regarding the Intellectual property protection, with a medium-high risk level. The Chinese authorities continue to adopt policies and measures to improve the protection of intellectual property to combat the phenomenon of counterfeiting / usurpation of trademarks which still involves many Italian companies. In this context, Italian operators are recommended to adequately consider the aspects of protection of their interests, giving adequate administrative and contractual protection to their intellectual property, otherwise scarcely protectable.

3.2. Microeconomic Analysis

3.2.1. Porter's industry analysis

3.2.1.1. Threat of new entrants

According to Porter (2008) the degree of the threat of new entrants is related to the degree of entry barriers within the industry and on the reaction of the incumbents. The main entry barriers are constituted by economies of scale, capital requirements, switching costs, access to distribution, expected retaliation, government policies.

The Chinese automotive industry, as the Italian one is characterized by several barriers that make new entries very difficult. We will analyze three types of entry: domestic, foreign through imports and foreign through FDI. Regarding the domestic entry, one important barrier is constituted by capital requirements and economies of scale. Indeed, a company that wants to enter in the automotive sector has to be prepared to make large fixed capital investments in machinery, equipment, factories, fabrication etc.; not to mention the huge amount of resources that has to be devoted to research and development to always keep updated and introduce new innovative models. These actions and the long term investments needed make the entry in this industry particularly hard, the Chinese state industry policy in fact requires a company to have a minimum 2 billion yuan in order to make investments in this industry. So, the market is dominated by big companies as Chang'an Automobile 长安汽车, First Automobile Works 第一汽车集团, Dongfeng Motor Corporation 东风汽车公司 , Shanghai Automotive Industry Corporation 上海集团 and Chery Automobile 奇瑞汽车, called the five sisters, who can bear the high costs of the sector especially thanks to economies of scale, that exist when the cost of production decreases as output increases, for example they can develop new car models exploiting the same platform to save costs.

Another barrier is related to the incumbencies' advantages that they have gained through time, as all the experience and know-how that they have accumulated. These advantages clearly help them improving efficiency and competitiveness in respect to new entrants that do not have the same experience. Furthermore, incumbencies have a strong brand reputation and have built their own network of fellow customers, so consumers will prefer to buy a product from a trusted company with a wide network of customers. Thus, established and well known auto manufacturers can exploit several advantages that make them keep an edge over new entrants.

Concerning the entry throught import, China's automotive industry is far behind the advanced countries, however, in order to develop the domestic motor vehicle industry,

Chinese government, before its accession to the WTO, had imposed strict licensing requirements and heavy tariffs on imported vehicles and components. Then, in order to join WTO, it has been pressured from foreign countries to lower tariffs and with the entrance in 2002 this regulation was abandoned; thus tariff on imported motors fell from 180%-220% in 1992 to 50%-80% in 1999 and to 15% now, creating competition for local producers. However, the government still support local state-owned enterprises (SOEs) in building automobile assembly plants even when they have no comparative advantages with foreign producers. In this way, these firms can keep surviving thanks to local subsidies, import restrictions and also to the fact that they exploit the strong demand for low price, low quality cars that is typically not carried out by foreign firms.

Finally, we have to consider the relevant role played by foreign MNEs who make direct investments in China. FDI is considered an effective option to enter China's market as trade protection is very high in this market. Moreover, Chinese government also encouraged many foreign companies willing to enter to China to cooperate with local partners through the creation of joint ventures, to help domestic automakers to catch up with international companies.

In conclusion, in light of what previously said, we can affirm that the threat of new entrants is moderate. In fact, from one side, it is low as there are several barriers that obstacle the entry of new producers; from the other side, foreign companies are encouraged, in a moderate way, to enter the Chinese market in order to cooperate with local companies and bring them their advance experience and know-how. This is particularly relevant for our Case Study as it confirms the possibility of access to the market that Fiat would have in order to promote its electric Fiat 500, making for example a new joint venture or exploiting the one it already has. Some example of joint ventures established are:

- Luxgen, Daimler-Benz, General Motors in a 50/50 joint-venture with SAIC Motor;
- Beijing Benz Automotive Co., Ltd is a joint venture between BAIC Motor and Daimler AG;
- Honda Motor Co has a joint venture with Guangzhou Automobile Group (GAC Group);
- Toyota's joint venture is with GAC and the companies planned to build an electric vehicle under the GAC logo;
- Nissan operates in China under a joint venture with Dongfeng Motor Group Co Ltd;

- VW and Audi cars are manufactured in China by Volkswagen Group China under two joint-venture partnerships: FAW-Volkswagen and SAIC Volkswagen;
- BMW and Chinese partner Brilliance Automotive Group Holdings, it also made an alliance with Great Wall Motor to build electric-powered Mini cars in China for the domestic market;
- Jaguar Land Rover operates a joint venture with Chery;
- The entire Volvo Cars company has been owned by the Chinese company Geely since 2010;
- In October 2018, Ford and Baidu announced that they were planning to start testing autonomous vehicles together in Beijing roads by year end, using Baidu's "technological know-how and understanding of China together with Ford's vehicle expertise".
- GAC Fiat Chrysler Automobiles Co., Ltd. is an automobile manufacturing company headquartered in Changsha, China and a 50:50 joint-venture between GAC Group and Fiat Chrysler Automobiles. The company was founded on 9 March 2010.

3.2.1.2. The power of suppliers

The second force that Porter considers is the bargaining power of suppliers, in other words the role that suppliers play in a specific industry and the degree of dependence of companies from them.

In the automotive industry, suppliers are producers of auto parts and components. In the past 20 years, while the number of motor vehicle producers increased rapidly, the number of suppliers actually dropped. Moreover, their technology level is about 20 years behind the international standard, as they lack the capital and personnel to conduct R&D to improve product quality, resulting in low quality products. For this reason, local automakers have to rely on imported parts and components, especially for high-tech. Given the law quality of local suppliers in comparison to the international ones, Chinese automakers rely more on imports. The prices of these products are affected by world demand and supply and local automakers do not have the advantage to bargain with overseas suppliers.

Consequently, suppliers in the Chinese automotive market have no bargaining power. Indeed, there are too many parts and components producers, most of them very small and although there are also many local carmakers in China, however the industry is dominated by only a few very large ones. Thus, having such a wide choice, automakers do not depend heavily from local suppliers and do not face particularly different switching costs. In addition,

many large domestic automakers have their own subsidiary component plants in order to maintain long-term relationships with the supplies and to ensure component quality. So, they are more willing to order supplies internally rather than from outside companies. This vertical integration structure further weakens the bargaining power of local parts and components suppliers (HIS: 2016).

Neverthless, the relationship between OEMs and automotive technology companies appears to be changing from a simple supply-demand relationship to a deep collaboration based on market and innovation, one example is the cooperation between the battery enterprise CATL and different Chinese OEMs from product codevelopment to joint ventures.

Among the top raw materials suppliers we find:

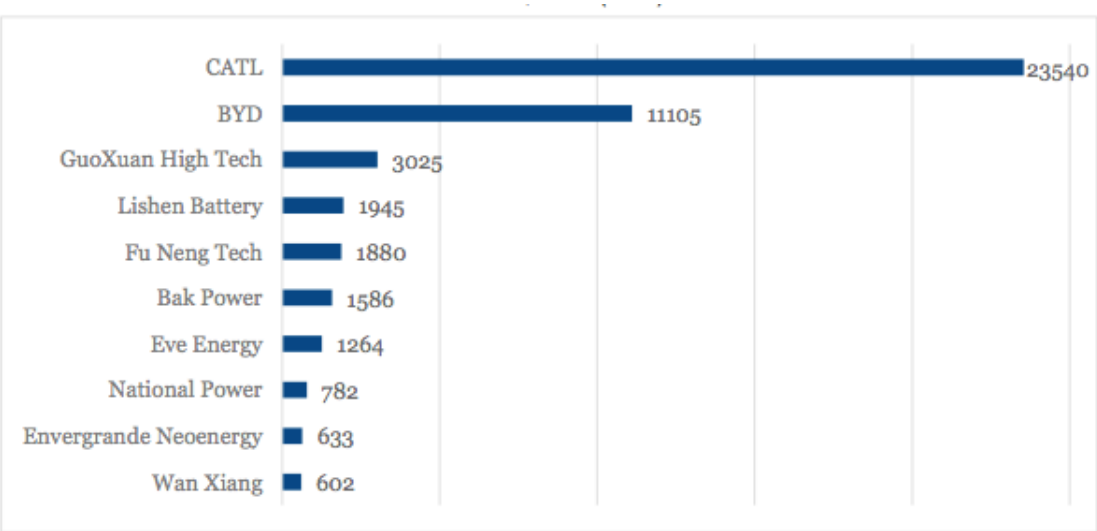
- Tianqi Lithium 天齐锂业
- Ganfeng Lithium 赣锋锂业
- Zhejiang Huayou Cobalt 浙江华友钴业
- Jinchuan Group 金川集团
- China Nonferrous Metal Mining Group 中国有色矿业集团公司;

While among top battery recycling companies we find:

- Quzhou Huayou Cobalt New Material Company 衢州华友钴新材料有限公司
- Ganzhou HighPower Technology Company 赣州市豪鹏科技有限公司
- GEM Co., Ltd 格林美股份有限公司
- BRUNP Recycling 广东邦普循环科技有限公司

Electrification will become mainstream in Chinese automotive industry, and it is promoted both by the government as well as by the OEMs and suppliers. Technologies and solutions either improving the performance or addressing the challenges of the EV, from electric control systems to battery materials, are on top of the industry agenda. With regards to weight reduction, the long-term focus will be on light-weight material development. However, before any larger commercialization of new materials will be possible, the OEMs and suppliers will continuously optimize the structural design to reduce weight. Italian companies in the above areas will have bigger chance to collaborate with domestic players and eventually expand their business in China (Stegrin: 2019).

Picture 3. Top 10 battery manufacturers



(Stegrin: 2019)

3.2.1.3. The power of buyers

The power of buyers is related to their negotiating leverage and to the degree of the demand. The demand is influenced by different factors as income, road construction and car licences. Regarding the first factor, personal income is probably the major element that affects the demand, if the country is experiencing a prosperous economic phase, incomes will be higher and the demand will grow. Hence, the increase of car demand can be an inevitable result of rapid increases in personal income. For this reason, in highly developed regions and cities, the demand for cars is very strong even without any favorable policy. As we know, China has been experiencing a huge growth in the last few years, being the fastest growing economy in the world for a long time. An increase in national income implies a rise in living standards and purchasing power, which generates great demand for automobiles. However, the coronavirus emergency stopped for a while the production, so many projects have been launched now to make the production recover. For example, many local governments like Yiwu, Tianjin, Hubei and Shaanxi successively launched incentives to promote auto sales growth. Yiwu offers subsidy of up to 20,000 yuan per car in order to offset the COVID-19's impact on local auto market. The more expensive a vehicle is worth and the bigger the amount a buyer will receive. Consumers who buy vehicles priced below 10,000 yuan ($1,405, including VAT) will be afforded with a subsidy of 3,000 yuan ($421) per car. Tianjin added 35,000 license plates of non-commercial cars to its 2020 annual quotas to spur automobile sales.

Then, after demand, an important factor is also the road construction. In order not to make the demand decrease, a good government should invest in building more roads in cities and especially highways to connect cities. However, building highways requires a large investment and also a long time. Indeed, in China road construction is not adequate and this causes an issue especially in big cities than in rural areas. For example, in Beijing, the number of private cars is outstanding, with a severe shortage of parking space (estimated over 20,000 short in supply). Due to serious traffic jams during rush hours, people mostly prefer to take public transportation or a taxi even though they own a car. In the last years, regional governments at various levels have launched many projects to develop their local transport networks and widen their roads with the aim of solving traffic problems and raising demand for automobiles. In May 2020, Chinese Premier Li Keqiang also announced new infrastructure and new urbanization initiatives and major projects, which not only boost consumption and benefit the people, but also facilitate structural adjustments and enhance the sustainability of growth. He underlined that China will step up the construction of new types of infrastructure, develop next-generation information networks, expand 5G applications, and develop data centers. It will also promote the building of more battery charging and swapping facilities and wider use of new-energy automobiles, stimulating new consumer demand and industrial upgrading.

The third element affecting demand is car registration and licences. From one side, as we have seen, China desires to develop its local automobile industry and thus encourages private car ownership with several dedicated laws, for example giving car loans to individual consumers to help middle-income families to purchase cars. From the other side, the government has to consider environmental and traffic problems, so policies on new car registration should be implemented to control the growth of car ownership. In addition, since China has been experiencing a highly unbalanced economic growth, the central government should decide which areas need policies to encourage car demand and in which areas it should, on the contrary, discourage car demand (Tang: 2012).

In conclusion, in the last years, China experienced a huge growth in vehicle production as the demand of cars increased outstandingly, for this reason individual consumers do not have a relevant bargaining power, they do not have a particular negotiating leverage. Indeed, the fact of having a wide possibility of choice further weakens their power.

3.2.1.4. Threat of substitutes

Substitutes in the Chinese automotive industry are represented by bicycles, motorcycles, rail transport, and taxis. The cheapness of these means of transport makes these substitutes quite attractive. Since not many people in China can afford to buy a car, other means of transport instead of a car are really popular especially for short distances, affecting the sales of vehicles. The growth of these substitutes can reduce demand for cars and consequently impose price pressures and limit profit margins for automobiles.

Observing in details these substitutes, we can affirm that bicycles are definitely the most common daily transport means for most people in China including workers, students and housewives, due to the many advantages they have. They are economic and therefore can be afforded by most people; they are eco-friendly, they do not consume gasoline and save cost; they are perfect for daily commuting, as people usually travel for short distances; finally, they represent a valid option to cars, given the shortage of parking spaces. Furthermore, Chinese society particularly cares about health and riding a bycicle everyday is considered a good daily exercise, however, it also expose people to polluted air which is a severe issue in this country. The continuous growth of the use of bicycles and automobiles in China led to a chaotic mix on the roads of most cities. Indeed, in a typical Chinese road you will find the principal road with mainly cars and motorcycles and the sidewalk with a side for pedestrians and a side for bicycles and small motors. What often happens is a mixture of these elements also in the non correspoding lanes generating traffic confusion and dangers for both travelers and pedestrians. In conclusion, although there are a lot of advantages to bicycles, they are not a strong substitute for cars, which represent a status, they are a symbol. Most Chinese families would like to own a car as long as they can afford it. Therefore bicycles, as a substitute for cars, should not be a relevant threat to the demand for automobiles in China.

Concerning motorcycles, China has become the largest motorcycle-producing country in the world and it has the largest motorcycle-consuming market in the world. In comparison to bicycles, motorcycles contribute more to traffic congestion, release gas emissions and noise pollution. For this reason, several big cities in China have adopted strict policies through tax increases, to reduce them. However, they are still considered a valid substitute of cars as they are swift, quick and can be used for deliveries, which are particularly flourishing in China, a country in which people usually buy anything on the internet from furniture to food.

Another substitute is represented by public transportation. Since the dramatic situation of Chinese roads, characterized by a chaotic mixture of different vehicles that cause pollution and traffic jams, as described before, local governments have expended great effort in developing good public transportation systems, especially as regards to the subway, which has the advantages of no congestion, being punctual, safer and more environmentally-friendly than cars and buses.

Taxis are particularly cheap in China and represent a perfect vehicle to move in big cities without any queue as the one necessary to take public transports or the stress derived by looking for a park. They are also easily accessible, as you can book one simply through the Wechat app on your phone by digiting your address and verifying whether there is any available taxi in your area. Moreover, the mobility through car or ride sharing is also growing, the demand is many times higher than in North America and Europe.

Finally, concerning railways, they offer valuable transport between cities and provinces. Facilities such as a computerized reservation system, telephone ticket booking, enhance the quality of train services and promote the popularity of railway services to the public. Moreover trains can carry more people than cars, travel longer distances, and emit less pollution. Hence, trains are a substitute for cars to some degree, but as already said Chinese people are still willing to buy cars as a symbol of social and economic status, in addition a proper car has the advantage of making you independent without the need to wait at the train or subway stations, especially during rush hours and public holidays. Traveling by car also allows people to move from spot to spot where railways do not reach.

In conclusion, substitutes of cars as trains and motor vehicles have their respective advantages, but they will never completely substitute for each other. Thus, the threat of other transport means to automobile exists but is not really harmful to the whole automotive industry.

3.2.1.5. Rivalry among existing competitors

The principal automakers currently present in China are several and different. So, the market is competitive and concentrated, meaning that it is characterized by a large number of competitors and a few dominant companies. However, not all those automobile producers are competing in the same market. In fact, we can distinguish high-end, low-end and medium markets. The three markets are quite fragmented, high-end market is characterized by very rich business people as consumers and it mainly consists of imported luxury cars such as Mercedes Benz, Volvo, BMW and Lexus; while, government agencies, companies and high-income families represent the consumers present in the medium market, which consists of both some imported cars, such as Camry and Corolla, and those produced by the Big Three, such as Audi and Jetta; finally, low-end markets participants are middle income families and some people living in the counties and rural areas, this category consists of products from most small local car assemblers.

Price competition between categories is not severe, while within the same category is very fierce. For this reason, automakers tend to propose annually new models of vehicles or make new joint ventures, since having a larger production capability allows a firm to compete more aggressively in the market. Moreover, local firms in the medium category not only compete among each other, but also against foreign carmakers through imports. Only those companies that are competitive in their niche markets can survive. Such a variagated competition leads the industry to continuously restructure through entries, exits, mergers and acquisitions. As a result, the structure of China's automotive industry is not stable.

In the specific, the Chinese automotive industry is dominated by the so-called "Big Four":

1. SAIC Motor, it is an acronym for Shanghai Automotive Industry Corporation or 上海汽车集团股份有限公司, but it is simply known as SAIC (上汽) and SAIC-GM (上汽通用). It is headquartered in Shanghai and it has one of the largest production volumes of Chinese automakers. It sells vehicles under a variety of brands as Maxus, MG, Roewe, and Yuejin. Products produced by SAIC joint venture companies are sold unders marques including Baojun, Buick, Chevrolet, Iveco etc.
2. Dongfeng Motor Corporation 东风汽车公司, abbreviated to Dongfeng 东风 is another Chinese state-owned automobile manufacturer headquartered in Wuhan with a large production of vehicles. Its own brands are Dongfeng, Venucia and AEOLUS, while joint ventures include Cummins, Dana, Honda, Nissan, Infiniti, PSA Peugeot Citroën, Renault, Kia and Yulon;

3. FAW Group Corporation, 第一汽车集团, abbreviated to 一汽, is headquartered in Changchun and it sells products under at least ten different brands including its own and Besturn/Bēnténg, Dario, Haima, Hongqi, Jiaxing, Jie Fang, Jilin, Oley, Jie Fang and Yuan Zheng, and Tianjin Xiali. FAW joint ventures sell Audi, General Motors, Mazda, Toyota and Volkswagen;
4. Chang'an Automobile Group 重庆长安汽车股份有限公司, abbreviated to 长安, is an automobile manufacturer headquartered in Chongqing. It designs, develops, manufactures and sells passenger cars sold under the Changan brand and commercial vehicles sold under the Chana brand. Foreign joint venture companies include Suzuki, Ford, Mazda and PSA Peugeot Citroën;

Other car manufacturers are:

- BAIC Group 北汽集团, also known as Beiqi 北汽, is a state-owned enterprise and holding company of several Chinese automobile and machine manufacturers located in Beijing. Its principal subsidiaries include the passenger car maker BAIC Motor, the military vehicle and SUV maker BAW and the truck, bus and agricultural equipment maker Foton Motor. It also has foreign joint ventures with Hyundai and Mercedes-Benz;
- Geely or 吉利汽车 is the biggest privately owned automobile manufacturer and seventh biggest manufacturer overall in China. Currently, it is one of the fastest growing automotive groups in the world and it is particularly known for their ownership of Swedish luxury car brand, Volvo. In China, their passenger car brands include Geely Auto, Volvo Cars, and Lynk & Co;
- Brilliance Automotive or 华晨汽车集团 was the ninth biggest manufacturer in 2017. It has a foreign joint venture with BMW and also sells passenger vehicles under their own brand Brilliance;
- Guangzhou Automobile Group 广汽集团 or GAC is a Chinese state-owned automobile manufacturer headquartered in Guangzhou and it sells passenger cars under the Trumpchi brand. In China, they are more known for their foreign joint-venture with Fiat, Honda, Isuzu, Mitsubishi, and Toyota;
- Great Wall Motors or 长城汽车, represented the eighth biggest manufacturer in 2017 and the largest manufacturer of SUVs. It sells vehicles under the brands of Haval and WEY;

- BYD or 比亚迪股份有限公司 is an auto manufacturer founded by BYD Company who are known for their batteries and electric buses around the world. They were also the seventh best-selling Chinese car brand in 2017;
- Chery or 奇瑞汽车 is based in Anhui. They were the tenth biggest manufacturer in 2017. They have a foreign joint venture with Jaguar Land Rover for the production of Jaguar and Land Rover cars in China. They also sell cars under the Chery brand and Qoros brand;
- Jianghuai (JAC) or 江淮汽车 is based in Anhui and it has a wide model line that spans from commercial trucks to small city cars.

Then, in the market are also present foreign manufacturers who made alliances with Chinese local companies. Some examples are:

- General Motors 50/50 joint venture with SAIC Motor, who produce especially Buick, but also some Chevrolet and Cadillac models;
- Beijing Benz Automotive, joint venture between BAIC Motor and Daimler AG. They produce a lot of Mercedes-Benz vehicles;
- Honda Motor Co has a joint venture with Guangzhou Automobile Group (GAC Group) and planned to invest 3.27 billion yuan ($469 million) in 2019 in new-energy vehicle manufacturing in China;
- Toyota's joint venture with GAC, they planned to build an electric vehicle under the GAC logo;
- Nissan operates in China under a joint venture with Dongfeng Motor Group Co Ltd. They planned to invest roughly $900 million to eventually increase the production of Nissan vehicles in China and in 2018 launched Nissan's first electric sedan for the Chinese market, the Sylphy Zero Emission;
- VW and Audi cars are manufactured in China by Volkswagen Group China under two joint-venture partnerships: FAW-Volkswagen and SAIC Volkswagen. The latter also built an electric-car plant in Anting, aimed at the production of electric cars from October 2020. By that date the factory will be able to build 6 different models at the same time, arriving to produce 300,000 per year;
- BMW and Chinese partner Brilliance Automotive Group Holdings. The German company also made an alliance with Great Wall Motor to build electric-powered Mini cars in China for the domestic market.

- Jaguar Land Rover's joint venture with Chery;
- The entire Volvo Cars company has been owned by the Chinese company Geely since 2010 and they manufacture most of the XC60 vehicles in China both for export to various countries as well as for the local market. Geeley also has investments in Daimler, AB Volvo (the manufacturer of trucks, buses, construction equipment, and engines) and Lotus;
- In October 2018, Ford and Baidu announced that they were planning to start testing autonomous vehicles together in Beijing roads by year end, using Baidu's "technological know-how and understanding of China together with Ford's vehicle expertise";
- Finally, there is the 50/50 joint venture between FIAT and GAC, GAC Fiat Chrysler Automobiles Co., Ltd., headquartered in Changsha, China, it was founded on 9 March 2010.

In conclusion, we can say that rivalry in Chinese automotive industry is high as there is a fierce competition between, local, foreign companies and JVs. Thus, the market is characterized by several different players, all strongly committed to the industry. However, this kind of rivalry does not revolve only around price, but on other dimensions as product features, support devices, brand image, so it is less likely to disrupt profitability as it increases customer value and can lead to higher prices.

3.2.2. Customs codes

Customs codes represent an important tool to understand the commercial exchanges of a product among countries, observing tariffs and statistics. In particular, to identify uniquely a product it is used a specific code belonging to the so called Harmonized System (HS), which is a standardized numerical method of classifying traded products, used by customs authorities around the world to identify products when assessing duties and taxes and for gathering statistics. The HS is administrated by the World Customs Organization[34] (WCO) and is updated every five years. It is structured into 21 product sections, divided into 99 chapters, divided into items and sub-items, the latter identified with a 6-digit code for varying classifications and commodities. Furthermore, countries are allowed to add longer codes to the first six digits for further classification as the 10 digit codes that refer to the Combined Nomenclature (CN).

Thanks to the Agenzia Dogane Monopoli website I obtained the following HS codes:

- 8703 - Motor cars and other motor vehicles principally designed for the transport of persons (other than those of heading 8702[35]), including motor vehicles of the "station wagon" type and racing cars;
- 8703 80 - Vehicles with only electric motor for propulsion;

NC codes that further describe the product in question are:

- 8703 8010 00 – New vehicles
- 8703 8090 00 – Second hand vehicles
- 8703 9000 00 – Others.

According to statistics by the Market Access Database, the export value and quantity of vehicles in general, corresponding to the HS code 8703, from Italy to China have been decreasing for the last three years, probably due to the increasing Chinese politics to promote local automanufacturers instead of the foreign ones. So, the number of Italian vehicles imported by China is limited. Tariffs correspond to the 15% and a value added tax is levied at a rate of 13% of the duty paid value.

[34] The World Customs Organization is an intergovernmental organization headquartered in Brussels, Belgium, with the primary objective of enhancing the efficiency of member customs administrations.
[35] 8702 - Motor vehicles for the transport of ten people or more, including the driver.

Table 5. Export Value from the EU to China

Export Value from the EU/MS (EURO) to People's Republic of China		
2017	2018	2019
1.588.079.094	524.177.536	447.684.953

(MADB)

Table 6. Export Quantity from the EU to China

Export Quantity from the EU/MS (Kg) to People's Republic of China		
2017	2018	2019
72.993.000	16.334.000	14.286.000

(MADB)

While, the export value and quantity of electric vehicles, belonging to the HS code 8703 80 registrates a different trend, as we can see from the following data.

Table 7. Export Value from the EU to China

Export Value from the EU/MS (EURO) to People's Republic of China		
2017	2018	2019
598.229	678.988	361.490

(MADB)

Table 8. Export Quantity from the EU to China

Export Quantity from the EU/MS (Kg) to People's Republic of China		
2017	2018	2019
12.000	11.000	13.000

(MADB)

3.2.3. Tariff barriers

According to ICE (2019) before investing in China, foreign firms should consult the Catalogue for the Guidance of Foreign Investment Industries to ensure that their investment does not belong to the prohibited sectors. These are mostly sectors that endanger national security, undermine public interest, cause pollution, damage natural resources, use agricultural land for non-agricultural purposes or represent a threat to military installations. The Catalog also distinguishes sectors within which foreign investments are encouraged and sectors in which they are restricted. Encouraged projects benefit of simplified approval procedures and incentives for customs duties; they include technologies for energy saving and raw materials, for the promotion of agriculture and, in general, necessary for the economic development of China. While, restricted projects, on the other hand, are subject to different limitations as the obligation for foreign companies to have a local partner that holds a minimum of company shares, established by law for each specific sector. Restricted sectors are those in which it is used an obsolete or environmentally harmful technology or also some sectors considered strategic and with such an economic and financial importance as to want to regulate the foreign presence in them.

The Market Access Database reports several trade barriers related to China as:

- Administrative burdensome requirements;
- Administrative or customs procedures;
- Export prohibition and other quantitative restrictions;
- Export taxes;
- Government Procurement;
- Lack or insufficient enforcement of IPR;
- Non-automatic import licencing;
- Other measures, non-classifiable in former categories;

- Pre-establishment requirements;
- Pre-establishment requirements for services (Market Access restrictions);
- Quantitative restrictions related to imports;
- Standards and Other technical requirements;
- Subsidies;
- Tariff measures or practices, including tariff-rate quota.

In the specific, related to the automotive industry, a relevant trade barrier we have to consider is the Administrative Regulation on market Access of New-Energy Automobile Manufacturers and Product released by the Ministry of Industry and Information Technology (PRC) on February 2017 and last updated on June 2020, belonging to the Pre-established requirements area. This regulation requires NEV manufactures to master the development and manufacturing technology for the complete NEV, with the risk of technology transfers. For this reason, foreign companies are afraid not to be able to protect their core NEV intellectual property that gives them advantages over domestic firms once they begin manufacturing the technology inside China (Heller: 2017).

Furthermore, NEVs are particularly important for China's policies to reduce the severe air pollution crisis, indeed they belong to the key elements of the policies pursued by the Ministry of Environmental Protection and Ministry of Industry and Information Technology to reduce pollutions, which according to different studies from 15% to as high as 50% of PM2.5 can be attributed mostly to automobiles. Thus, this support for the domestic NEV industry makes it challenging for foreign auto firms to compete in China's NEV market, despite foreign vehicles being more advanced and efficient. Also import tariffs on foreign autos, as well as lower-priced batteries for subsidized Chinese manufacturers, cause many domestic Chinese consumers to favor Chinese NEVs.

However, on January 1, 2020, a new Chinese law on foreign investment came into force, the so-called Foreign Investment Law or FIL, with the aim of accelerating the process of opening the Chinese market and eliminating the regulatory inconsistencies present so far.
The FIL also eliminates the distinction between WFOE (Wholly Foreign Owned Enterprise), EJV (Equity Joint Venture), and CJV (Contractual Joint Venture), referring to the general concept of "foreign-invested enterprise". In particular, it has placed the emphasis on equal national treatment of foreign investments, placing foreign investors on an equal side with domestic investors on the Chinese market, guaranteeing them equal protection. It also underlined that Government departments and staff are not authorized to illegally provide

trade secrets learnt thanks to the cooperation to third parties, so forced transfer of technology in joint ventures should be reduced. This new law clearly represents a positive factor for our Case Study as it reassures Italian companies willing to enter in this market without the risk of technology transfers.

3.2.3. Non-tariff barriers

As reported by ICE (2019), China is characterized by multiple non-tariff barriers that represent an obstacle to foreign companies willing to enter in this market.

The first barrier is constituted by cultural differences. Despite the openness of the country towards the West and the particular appreciation for Italian excellence in the three Fs of fashion, food, furniture, Chinese society is rather conservative and tied to traditional values. So, even if the country represents a huge potential market, it is unfortunately little aware and poorly informed. Therefore, rather than a promotion and distribution action aimed at spreading Italian products, companies should undertake activities to spread awareness of the Italian quality both for retailers and consumers.

The second barrier is represented by the risks of violation of intellectual property. To avoid this risk it is suggested to resort to the assistance of the Intellectual Property and Fair Trade Protection Desk, set up by the MISE at the ICE Office in Beijing.

Another barrier concerns the discretionary application of regulations and bureaucratic slowness. Indeed, Customs generally adopt different attitudes even regarding the same categories of products. Although there is only one national legislation, customs offices act with high levels of discretion, citing consumer protection as a justification and the personal network of relationships, guanxi, is still the fastest way to solve unexpected events or speed up the obtaining of authorizations and paperwork. This barrier is also related to corruption, China was ranked around 83rd (out of 168 nations) in Transparency International's "Corruption Perceptions Index". However, President Xi Jinping is carrying out an intense anti-corruption campaign that has affected thousands of officials at all levels of government and state-owned companies.

Finally, the last barrier is counterfeting. China is particularly reknowned for “fake market”, and also “Italian sounding” phenomena are widespread with a consequent negative image for Made in Italy products and distortions in consumer perception. However, to purchase luxury Italian goods, China also uses reliable e-commerce, which represents the distribution channel with the best growth forecasts.

Chapter 4 Case Study: the new electric Fiat 500 in China

4.1. Brief history of the company

Fiat is an iconic Italian automobile manufacturer that now belongs to the American FCA group and recently merged also with the French PSA group, giving birth to Stellantis, one of the world's largest car manufacturer by global vehicle sales.

Fiat was founded on July 11th, 1899 in Turin, capital of the Piedmont region by Giovanni Agnelli and other local investors with the aim to be a completely Italian car manufacturer with high quality products. Indeed, the name is an acronym for "*Fabbrica Italiana Automobili Torino*" which means Italian car manufacturer based in Turin. Their first factory was quite small, employing only 150 people on a daily basis, now it represents the main carmanufacturer in the Italian automotive industry and the Lingotto factory and Mirafiori production district are renowned all over the world.

The production process of Fiat at the beginning was characterised by a mass production of standardised cars, for this reason, in 1923 the Lingotto factory was inaugurated, to host the assembly line. Consequently, Giovanni Agnelli also had the intuition to build displacement cars with affordable prices and in order to implement this project, in 1939, it was inaugurated the Mirafiori production district.

Another important figure of this company is Gianni Agnelli, grandson of the founder Giovanni Agnelli, who was a strong believer of internationalising the Fiat brand leading to a major reorganisation of the company. In particular, the tranformation of the company involved an expansion process, that began in the late '60s, in which Fiat acquired several car manufacturers as Ferrari, Lancia, Abarth, Alfa Romeo and Maserati.

Afterwards, the 1990s and post '90s were characterized by a new way of making cars exploiting modular projects that permit to reduce costs, maximising profits and optimising time. In other words, Fiat cars began to share the same engines, platforms and components.

For the past 100 years, Fiat remained one of the bestselling cars manufacturer in Europe and especially in Italy. Among the first models produced we find *Fiat 3½ HP*, *Fiat Tipo*, *Fiat 508 Balilla*, *Fiat 500 A Topolino* etc. While the most iconic model is without any doubt the *Fiat 500* originary model and also the new versions produced from 2007. It flourished also abroad as, to conquer the international market, it opened factories all around the world reaching countries as America, India, Serbia, Poland, China, Turkey. Fiat has also been the market leader in Brazil in the pickup segment for nineteen years and held different joint ventures to expand in complex countries.

In 2014, under the guide of John Elkann, nephew of Gianni Agnelli and new Chairman, following different agreements previously made by Gianni Agnelli and General Motors, Fiat and the American Chrysler Group merged into a new group, FCA: Fiat Chrysler Automobiles, overcoming, thanks to the fundamental contribution of the American government, the economic crisis that had affected heavily the Italian group.

In the last two decades, Fiat decided to invest on innovation and alternative fuels to respond to a change of the automotive market affected more and more by the negative impact of automobiles on the environment and willing to reduce pollution with the aid of green cars.

In particular, in the 2000s it developed bi-fuel vehicles alimented by LPG as Panda, Idea, Punto Classic and Multipla, and alimented by methane as Panda, Punto Natural Power and Multipla BluPower. Subsequently, due to the increasingly strict anti-pollution regulations, it revised its policies eliminating Diesel from lower-end cars and at the same time focusing on both the reduction of the diesel offer and on new petrol engines. In 2018, Fiat also announced the abandonment of LPG with the end of the production of LPG versions of Punto, 500L, 500X and Tipo. Indeed, Fiat decided to focus on the development of hybrid, in particular mild-hybrid, and electric vehicles due to the fact that all car manufacturers that sell in Europe are required to sell cars according to a maximum limit of CO2 emissions which over the years is becoming more and more stringent. Regarding the electrification process, its commitment has been confirmed by the announcement of the launch in the following year of the New Fiat 500 electric at the Geneva International Motor Show of 2019, which represents the pioneer vehicle of a new range of electric vehicles to be launched before 2022 and it is also object of our Case Study[36]. Furthermore, we should mention the merger of FCA and the Groupe PSA[37] that became effective on January 16th, 2021 giving birth to a new automotive giant: Stellantis, with Carlos Tavares, formerly the chief operating officer at Renault, as CEO and John Elkann, president of FCA, as Chairman, with the purpose of becoming the largest automotive group in the world relying on electric vehicles[38] and the relaunch of iconic brands as Alfa Romeo and Maserati[39].

[36] https://www.fcaheritage.com/it-it/home
[37] Peugeot S.A.
[38] Tavares announced 39 electrified models to be launched by the end of 2021 looking to a future of zero emissions.
[39] https://www.fcagroup.com/it-it/pages/home.aspx

4.2. Strategies used by Fiat to enter in China so far

As previously said, to penetrate distant markets as the one of China, Fiat adopted a policy based on the exploit of joint ventures with local manufacturers. The first joint venture, named Naveco, was established with Iveco and Nanjing Automotive in 1986 for the production of the Iveco Daily and it is still existent. It represents the first intent of Fiat to enter in the Chinese market an it was followed by another joint venture in 1999, the Nanjing Fiat Automobile or 南京菲亚特汽车有限公司 in chinese language, signed again with Nanjing Automotive for the production in China of several models as the Fiat Palio, Siena and Perla; unfortunately, the results were not as successful as expected and the collaboration ended in 2006. The reasons of the failure are possibly linked to management issues, the joint venture's president changed four times and to the fact that Fiat introduced in the Chinese market three old car models without any adaptation to the market trend.

After these negative experiences, Fiat decided to persist with the Chinese market and established a joint-venture with Chery, with the aim of producing Fiat, Alpha Romeo and Chery vehicles; however this strategy was soon delayed in 2009 leading Fiat to hold a new joint-venture agreement with Guangzhou Automobile Group in the same year with an investment of 500 million euros. The plant was established in Changsha and officially opened in 2012, one year later Fiat decided to expand the production of vehicles also to the Chrysler models, in particular of the Jeep, to which it was dedicated a further plant in Guangzhou. In 2015, GAC Fiat was renamed as GAC FCA[40]. This time, Fiat relied on the support of its alliance with Chrysler, which was the first American automanufacturer to build vehicles in China. The production began with the Fiat Viaggio, the first Fiat vehicle specifically developed for the Chinese market ever, it then involved also the Ottimo and the Jeep vehicles, Cherokee, Renegade and Commander. From 2017, FCA favoured the production of only Jeep vehicles, as data showed that in 2017 Fiat fell by 82.6% to only 2,276 registrations, while Jeep has soon reached the 202,901 units sold in the country[41]. Indeed sales of locally produced Jeep vehicles showed a great success with 77,182 units of Jeep Cherokee sold in 2017, 38,739 units sold of Jeep Renegade and 86,980 units for the Compass model, while at the same time Fiat Viaggio and Fiat Ottimo were both halving their sales. However, annual sales of the large SUV fell of 39% in 2018 to less than 125,200 and

[40] The native name of the JV is 广汽菲亚特克莱斯勒汽车有限公司 or simply 广汽菲克.

[41] https://www.carsitaly.net/fiat-car-sales_china.htm

of 46% to 52,372 in 2019. FCA's presence in China is also based on Maserati and Alfa Romeo, however Jeep is the only brand to be locally produced at the present.

The reason behind the failure of Fiat strategy to enter into the Chinese market was probably related to the fact that it did not adapt its models to the target market, according to the tastes of Chinese consumers, who generally prefer bigger cars than in Europe, that is why SUVs are really appreciated by wealthy consumers who, according to the research, are more likely to buy a SUV than the rest of the market (McKinsey: 2012). Indeed, other foreign car manufacturers paying attention to this detail proposed adapted models, as the Volkswagen's Passat, which proposed a larger and longer version of the European model. Fiat, instead, proposed its small vehicles which are succesfull in Europe for having an appropriate size being the perfect city car, while were perceived as low value from the Chinese consumers because of the change of perspective regarding the size.

Afterwards, in 2018, FCA announced the plan to offer more vehicles specifically tailored to the Chinese market and also to speed up electrification to relaunch the group in the world's largest car market. By 2022, Alfa Romeo will add two long-wheelbase vehicles to its range, Stelvio and Giulia models, specifically destined to the Chinese market, while Jeep will include a full-electric version of the Grand Commander model. Furthermore, in January 2020, the taiwanese Foxconn 富士康科技集团[42], which is the world's biggest contract electronics manufacturer, and FCA revealed that they are discussing a future collaboration to develop and manufacture in China new generation battery electric vehicles and engage in the IoV (Internet of Vehicles) business; with the intent to manufacture in China for the local market first and then to possibly export. Fiat Chrysler will be in charge of the carmaking, while Foxconn supports the electronics know-how including hardware and software. However they still have not signed a final binding agreement[43].

In conclusion, as FCA and PSA recently merged into Stellantis, the strategy adopted in China has been recently completely modified. Stellantis is now a leading global mobility player guided by a clear mission, to provide distinctive and sustainable solutions to the customers, willing to meet their evolving needs and tastes, as they are more and more

[42] Foxconn manufactures electronic products for major American, Canadian, Chinese, Finnish and Japanese companies. Notable products manufactured by Foxconn include mobiles and devices by Apple, Nokia, Xiaomi, also Kindle, Nintendo, PlayStation, Xbox, Wii etc. The operation of Foxconn's EV business will be handled mainly by group subsidiaries FIT Hon Teng, which makes automobile components, and FIH Mobile, Foxconn's Android smartphone assembly arm, that will provide software solutions for automotive systems in electric cars.

[43] https://www.ansa.it/canale_motori/notizie/industria/2020/01/17/fca-conferma-trattativa-con-hon-hai-precision-per-lelettrico_e5a4c0b1-9344-47ef-8f16-fd73e2e34aee.html

embracing electrification, connectivity, autonomous driving and shared ownership. Stellantis will compete in China with the major domestic automakers and dominant foreign companies, including Volkswagen, Honda, General Motors and Toyota; for this reason, entering into the Chinese market will be a real challenge. As stated by Stellantis, the strategy in China will begin with a reduction of the presence of the two companies in China, including the reduction of the brands present but also of the models and factories that the two companies have in China, with the purpose of lowering costs and optimizing the current structures that only gained a marginal presence in the Chinese market so far. Indeed, FCA never really experienced a great success in China and it is currently present only with the brand Jeep; while PSA even if it did experienced some positive results in the beginning, in the last years also faced a reduction of sales. Thus, to avoid repeating the same mistakes of the past, it is evident that different strategies are needed[44].

4.3. Value proposition

4.3.1. Description of the product

The new electric Fiat 500 also defined "*La Prima*", as it represents the first electric car in its segment, was meant to be presented at the 2020 Geneva Motor Show[45], unfortunately, due to the sanitary emergency, the Show was canceled and the new vehicle was unveiled in Milan on March 4th of 2020 and launched on the market on July 4th of the same year, which represents a symbolic date as on the same day of 1957 it was launched the iconic "Cinquino", the first version of the 500, and on the same date of 2007 it was also launched the modern version. The new electric Fiat 500 is produced in Turin, in the Mirafiori plant thanks to a new platform dedicated to the elctrified models and it uses batteries developed in a collaboration with Samsung. It is available in three different versions: 500 Icon, 500 Passion and 500 Action, in other words, sedan, cabrio and 3+1[46].

In order to understand the value of this product, first of all, it should be considered the value of the original Fiat 500 and what it represents for Italian people and abroad. The Fiat 500, also known as "*The Cinquecento*" or "*Cinquino*" was originally launched by Fiat in 1957 and it was presented as a cheap and small size but functional town car. It rapidly became very popular from the very beginning and through the years the company released different versions of this model. In particular, in 2007, in occasion of the 50th anniversary of the first

[44] https://www.money.it/Fiat-Chrysler-rivoluzione-Stellantis-in-Cina
[45] It was meant to be from March 5th to 15th.
[46] Equipped with four doors, one of which opens against the wind on the right side.

model, Fiat released a modern reinterpretation of the original 500 with some evident changes in the design and features of the car, making the iconic Fiat 500 reborn in a modern version of itself keeping up with the times. A further restyling was applied to the car on 2015 and afterwards, some other versions were reliesed inlcuding an electric version addressed only to the nordamerican market, the 500e, and finally the recent electric version, object of our case study. Despite all the different versions and the improvements of the car, the essence of the original Fiat 500 remained always present in each model, representing Italy's most loved car, much loved also all over the world. It is also the European leader in the city car segment and has been the best-selling FCA car in the last year: the original model reached approximately 6 million units sold and over 2 million the renewed model of 2007. Thus, it is clear how people feel affectionate towards this product, making the product gain a high psychological value.

After having expressed the context that surrounds the product, which as previously said is strongly connected to a high degree of psychological value, it will be presented, more specifically, the product of the Case Study: the new electric Fiat 500 *La Prima*. Although it has evolved considerably in style, the New 500 does not betray its origins, reproposing the style details that characterized the previous generation. Little changes have been made on the round headlights, that are now split between the bumper and engine hood; the Fiat symbol is no longer on the front but it is present only on the rear, while in the center of the grille there is the 500 logo; finally a new LED turn indicator makes its debut on the side. Being based on a totally new mechanic, this new model has slightly different dimensions than the current models with a heat engine. Six centimeters longer than today's 500, the New 500 measures 3 meters and 61 centimeters in length and 169 cm in width (+6 cm). Although the car is slightly larger than the previous versions, still Fiat could consider to release an even larger version specific for the Chinese market according to the preference of Chinese consumers for bigger cars, but it does not appear to be fundamental for the success of this product in this market as according to a further research developed by McKinsey in 2019, even if preferring bigger cars is clearly a trend of Chinese consumer's behaviour when purchasing a car, there are still strong sales opportunities in the small car segment since a new urban lifestyle is emerging characterized of more and more urban residents willing to buy a second and small car for commuting, suited for daily life. Indeed, the proportion of non-first-time buyers has increased over the last years from 10% in 2017 to 30% in 2019. Thus, considering this new trend, a small size city car could be particularly appreciated by non-first-time buyers.

The wheelbase has also increased by 2 cm (232 cm) and it is precisely between the two axes that the technicians have decided to place the battery pack. It is powered by a 118 hp (87 kW) electric motor powered by a 42 kWh lithium-ion battery and it has 400 km of autonomy in the city, it recharges up to 50 km of autonomy in just five minutes and reaches 80% of the charge in 35 minutes using compatible columns that can be found in strategic points of the city, while at home consumers can use the 7.4 kW Easy Wallbox (six hours for a full charge). It offers three different driving modes. In addition to the Normal, designed to drive the car like a traditional car, the New 500 includes the Range and Sherpa. The first allows you to drive the car in one pedal mode, while the Sherpa mode is designed to guarantee the driver to reach the set destination or a charging station, minimizing the energy consumption of the vehicle. The electric 500 is also characterized by new technologies as the Uconnect 5 infotainment based on the Android Automotive operating system with a 10.25" screen and connected features, and by various safety and driver assistance systems such as active cruise control with pedestrian and cyclist recognition, trajectory maintenance, automatic emergency braking, Attention Assist and Urban Blind Spot with ultrasonic sensors. Thus, as for the functional value, we can say that this vehicle, thanks to the features mentioned above, represents the perfect car for daily travels as the autonomy can reach 460 km, it can be charged in only five minutes and the small size makes it suitable for a city combining performance with sustainability. Being fully electric, it releases zero emissions on the atmosphere, contributing to the environment safeguard.

The value of this product is certainly increased by the fact of being an electric vehicle, since, as seen in the second chapter, nowadays consumers feel more and more responsible towards the environment, and driving a zero emissions car represents the optimal solution to their concern. For this reason, the functional value is connected to a social value, owning an electric car makes the consumer himself feel more active on the safeguard of the environment and part of a community willing to reduce pollution and preserve the planet. When we talk about electric cars, we usually also talk about the future. In fact, many countries seem increasingly to believe in the advantages of this type of car, approving incentive programs for the purchase of electric cars. The electric car, as already explained in the second chapter, is a car that uses only electricity thanks to the use of powerful latest generation batteries. Unlike hybrid cars, electric vehicles have a totally absent polluting impact, however the disposal of batteries, according to critics, may represent a source of

environmental damage, not to mention the impact of the production of electricy[47]. Thus, even if they appear to not release polluting emissions, the production cycle and the recycling cycle may represent a source of pollution. Apart from these issues, electric vehicles seem to offer both personal and environmental advantages. To mention some of them, they have free access to restricted traffic areas, reduced fuel costs, they are easy to drive, comfortable (producing almost no noise , the electric car offers a relaxing environment, which reduces the stress of driving), easier maintenance (the mechanics of electric cars are much simpler than that of a traditional car, because there are fewer components and less liquids to top up)[48].

Finally, regarding the monetary value, the car has a starting price of 26,150 euros which corresponds approximately to 201,974 yuan. Compared to other popular electric vehicles in our target market, specifically to other electric city cars that are particularly appreciated by Chinese people, we can notice that the price is higher than models as the Wuling Hong Guang Mini EV, the Great Wall Ora R1 and the Chery eQ, however the price is justified by the added value of the Made in Italy which obviously implies a higher cost. Furthermore, according to a study by McKinsey (2019) there is a new trend of Chinese consumers willing to trade up from a price range of 150,000 to 200,000 RMB, to a price range of 200,000 to 300,000, for this reason the price of the electric Fiat 500, being comprised in this range, seems to be proper and reasonable.

Table 9. Starting price (after incentives) of competitors' EVs

Model	Starting price (€)	Starting price (元)
Wuling Hong Guang Mini EV	3,728 – 5,023	28,800 – 38,800
Great Wall Ora R1	7,593 – 1,0098	60,000 – 78,000
Chery eQ	7,359	60,000

(Carsalesbase[49])

[47] The extraction of materials used for the manufacture of energy accumulators, such as lithium and cobalt, brings with it serious consequences for the environment, primarily the pollution of water resources.
[48] https://www.fiat.it/auto-elettriche?adobe_mc_ref=https://www.fiat.it/500-elettrica
[49] https://carsalesbase.com/car-sales-china-home-main/

4.3.2. Segmentation

In order to identify the segment of the electric Fiat 500 in China, several factors should be considered.

First of all, this product belongs to the category of city cars, the largest segment in the entire automobile industry, which includes small cars, perfect for urban life. Their size is suitable to deal with the traffic, find a parking space and easily drive around a city. This means that the segment may be composed by people living in an urban area, as rural areas do not have a proper network of recharging infrastructures, moreover, since rural areas in China are generally less developed than the urban ones, they would also probably not have the resources necessary to buy it and even if they would, the lack of recharging infrastructures still would make impossible to maintain a constant use of the car. Thus, geographically speaking, the segment is located in urban and developed areas of China. In particular, the automotive industry in China is grouped in distinct clusters that group around the key regional industrial centres of Shanghai, Beijing, Changhun, Hubei, Chongqing and Guangzhou. Also Shenzhen, being the first city in the world to have all electric public transport and consequently approximately 40,000 charging stations, may represent a perfect market in which introducing this product, moreover, it appears to be a city much more open to new brands while other cities of China as Guangzhou, who usually only buy well-known brands (McKinsey: 2012). Thus, people in Shenzhen could be more open to accept Fiat which in a certain way is considered as a new brand as it is not well established in China.

Considering the socio-demographical aspects, city cars are usually acquired by people with a low-middle income living in an urban area, as they offer both a comfortable drive at an affordable price. Fiat particularly specialized through the years in this segment, together with brands as Renault, Opel and Ford; while other auto manufacturers as Mercedes, BMW, Audi specialised in vehicles for consumers with middle income; finally, Maserati is positioned in middle-high incomes and Ferrari in high incomes. Thus, the typical Fiat customer seeks an economic car, with a small size but a larke trunk and that is generally cheap to keep efficient. However, since our target market is China, where local brand vehicles are extremely cheap, our product would be perceived actually to be expensive (in comparison to local cars); that is why, regarding income, our segment would not be composed of low-middle income people, but of middle-high income, in order to afford both the purchase and the maintenance of the car, which also can be costly as spare parts of foreign models are often hard to find, thus this product may be perceived in China as a luxury product. Having this kind of income, our typical customer may be composed by wealthy consumers aged 18 to 34, who generally

prefer sedans overs SUVs (McKinsey: 2012), moreover young people may have more modern tastes than old people and they are generally more attracted by Western products.

As regards psychographic aspects, since this product may be perceived in China as expensive and also being Made in Italy recalls luxury and a high lifestyle, the segment could be composed of members of the upper class, that occupy the highest place and status in society and also want to show their status to the other people. Indeed, as it emerged through the Pestel Analysis of the target market, Chinese people particularly like to show off their social status, buying expensive products. This is related to the concept of 面子 *mianzi*, which literally means "face" and figuratively refers to the honour, prestige and appearance of a person. According to Chinese culture, *mianzi* is the mirror of your social role and in order to keep your appearance safe, people usually show off their luxurious lifestyle through the purchase of expensive products. Thus, the electric Fiat 500 could exploit this dynamic to its advantage. Thanks to its background and to the country of origin effect, it would be clearly perceived as a high-end and top quality product that could contribute to keep someone's *mianzi* intact.

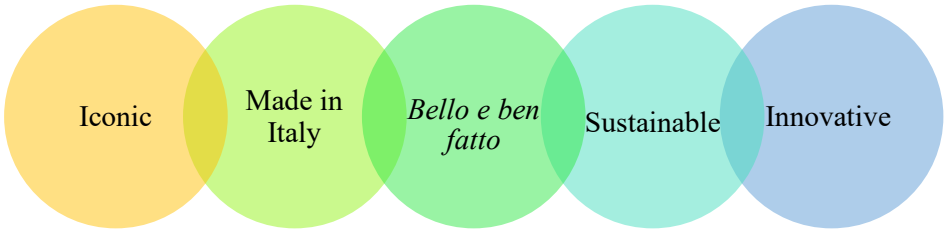
Moreover, the feature that most distinguishes this new version of Fiat 500 from the past models is certainly the fact of being a fully electric vehicle. This means that our segment will be composed of people that feel responsible towards the environment and prefer to buy a car that does not contribute to pollution. From this point of view, Chinese people culturally pay great attention to the beneficial characteristics of a product and they are more convinced to buy it if you underline them. Being a country with a high degree of pollution, they are also very concerned about sustainability. In particular, regarding electric vehicles, China is already an educated market, where electric vehicles are already well introduced. The majority of consumers in China now understand NEV products, and have collected preliminary knowledge of their performance and use (McKinsey: 2012). Indeed, China represents the greatest electric vehicles market in the world. According to the statistics of the Ministry of Public Security[50], in 2020 the electric vehicles increased by almost 30% compared to 2019, 4.9 million of vehicles were registered, of which 81% were electric cars. Despite policy changes and diminishing government subsidies, consumer enthusiasm for NEVs remained and Chinese consumer awareness towards NEVs continues to improve.

[50] https://www.ansa.it/canale_motori/notizie/analisi_commenti/2021/01/08/auto-cina-30-i-veicoli-elettrici-immatricolati-nel-2020_8a1096e7-34af-467f-b6e1-430f26ea72d1.html#:~:text=Sono%204%2C9%20milioni%2C%20di%20cui%2081%25%20auto%20elettriche%20pure&text=Circa%204%2C92%20milioni%20veicoli,della%20Pubblica%20Sicurezza%20pubblicate%20oggi.

In the specific, since 2017, the proportion of consumers willing to embrace NEVs has risen to 55 percent from 20 percent and is mainly composed of high income earners with a monthly household income of more than 48,000 RMB (McKinsey: 2019). This means that this sector is more and more increasing, so the segment appears to be wide, easily accesible, practicable and it can generates profit. Moreover the research conducted by McKinsey also showed that people in China with the highest degree of understanding the capabilities of an electric vehicle are the ones aged 25 to 44, who consequently constitute the primary group for purchasing such vehicles, as informed consumers are more motivated to buy a product they know.

Thus, the strategy that may be adopted is a niche targeting, as Fiat would be present only in this specific segment with just this product; and the typical customer may be a member of newer generations, young people and modern people who have aesthetic taste, and whose lives are energetic, adventurous, and full of excitement, living in the most advanced urban areas of China, who are particulary concerned towards the environment and have a deep knowledge of electric cars, aged 25 to 44.

4.3.3. Unique Selling Proposition



The Unique Selling Proposition (USP) is composed of 5 selling points that express the characterizing and distinctive aspects that help communicate the uniqueness of the product in question. For the electric Fiat 500, have been identified the following selling points:

1. Iconic
2. Made in Italy
3. *Bello e ben fatto*
4. Sustainable
5. Innovative

Indeed, the new electric Fiat 500 takes ispiration from an iconic model, the original Fiat 500, that shaped the history of the automotive market in Italy and has been appreciated also all

over the world. It is then an Italian product, meaning that it is the result of high quality manufacture and specialized know-how. As already discussed, being a Made in Italy product can clearly represents an advantage respect to our competitors, since Chinese people take in high consideration Italian products. For this reason, these two elements have been identified as the first two selling points. Indeed, the market is already saturated of mainstream and premium cars, but there is a limited offer of iconic cars.

The third selling point, "*Bello e ben fatto*" (BBF) literally means "Beautiful and well done", in other words, with a good design and manufacture. This definition is usually used to indicate the modus operandi with which our beautiful country produces unique goods capable of standing out in the developed markets. The fortune of this winning formula is due to the Italian culture of know-how, the care for aesthetics, the technical and technological ability, with a balance between quality but also utility, charm, beauty and functionality. Hence, our product could definitely stand out from the local and foreign competitors because of its elegant design combined with a high quality.

Subsequently, the fourth and fifth points refer to the fact that Fiat 500 *La Prima* is an innovative electric version of the original model. So, its innovative features, functions, but also the updated design represent a competitive selling point. In particular, these innovations are related to the more and more urgent need of sustainability in the automotive sector, as cars with a traditional engine greatly contribute to the increase of pollution. Moreover, sustainability is in line with the current initiative of the Chinese government, China 2025, thanks to which China will become a real avant-garde country on several fronts, including the electric one, thought to reduce the CO2 emissions and concretely contribute to the protection of the environment. Thus, being an innovative and electric vehicle are two key points of our product that make it appreciable from Chinese customers.

4.4. Analysis of competitors

As previously discussed, China represents one of the greatest markets of electric vehicles in the world. According to data communicated by the Ministry of Public Security, in 2020, approximately 4.92 millions of electric vehicles were registered, with an increase of almost 30% compared to 2019. The so-called new energy vehicles (Nev) composed of electric, plug-in hybrids and hydrogen cars represent the 1.75% of the general market of 281 million cars and of the NEVs, the 81.32% is made up of electric cars. Despite the good results, the Ministry of Finance announced that subsidies for the purchase of electric vehicles will be cut by 20% by the end of 2021.

To analyse the different players present in the Chinese market, both local and foreign manufacturers will be considered, which obviously have a different unique selling proposition from the one of the electric Fiat 500 and cannot exploit the Made in Italy advantage. Indeed, in the EVs market in China there are several foreign players, local players and then traditional manufacturers who have long-standing joint ventures with Chinese manufacturers.

The foreign leader of this segment in China is certainly Tesla, with its own Gigafactory in Shanghai, which recently lowered the price of its Model Y precisely for the Chinese market, with the result of attracting great public interest. In particular, according to data provided by CNBC[51] the model that obtained most success in China during 2020 was the Tesla Model 3, selling more than 137,000 vehicles; at the second place we find the SGMW Hongguang Mini (77.370 of sales) produced by Wuling, SAIC and General Motors; finally the third classified is the Ora R1 by Great Wall Motor.

In the specific, the 2020 new energy car rankings provided by CNBC is the following:

1. Model 3 (Tesla)
2. Hongguang Mini (SAIC-GM-Wuling)
3. Ora R1 (Great Wall Motor)
4. Aion S (GAC Motor)
5. Qin EV sedan (BYD)
6. eQ (Chery)
7. Li One (Li Auto)
8. Han EV (BYD)
9. ES6 (Nio)
10. 5 PHEV (BMW)

Among this rank, the players that most threaten the electric Fiat 500 are the ones which directly compete with it, thus the city car models as: the Hongguang Mini by SAIC-GM-Wuling, the Ora R1 by Great Wall Motors and the eQ by Chery. These three models represent tha main competitors as they are addressed to the same segment of Fiat's product, people living in urban and developed areas, who want to easily drive around the city. While the other popular models of sedans, even if they are successful in the electric vehicle market in China, do not directly compete with Fiat as they are addressed to a different segment,

[51] https://www.cnbc.com/2021/01/13/warren-buffett-backed-byds-han-luxury-sedan-top-10-electric-cars-sold-in-china.html

composed of customers with different needs. Indeed, sedans are vehicles of a medium size, comfortable and ideals for long travels. A similar logic can be applied to the SUV models.

In order to analyse all the different players that would eventually compete with our product directly and indirectly, the most sold models of electric vehicles will be analysed taking in consideration five elements. First of all the USP, to observe how the competitor company communicates its product and the features that stand out from other competitors. Secondly, three elements of the marketing mix, to understand how the competition distributes, prices (the price has been converted from yuan into euro for practical reasons) and produces. Afterwards, it will be considered the positioning in the market to understand our target and finally the strengths and weaknesses of the model.

Table 10. Analysis of competitor electric cars

	USP	MARKETING MIX	POSITIONING IN THE MARKET	STRENGHTS	WEAKNESSES
Hongguang Mini (SAIC-GM-Wuling)	-Cheap -Tiny -Practical -Compact -Ideal for urban commuting	Starting price: around €3,700 Place: produced locally thanks to a JV between SAIC Motor, GM and Liuzhou Wuling Motors Product: city car	Top	-Low price -Can seat 4 people -Advanced battery	-Unelegant design -Slow charging at the public charging piles (charging time around 9 hours) -Top speed of 100km/h
Ora R1 (Great Wall Motors)	-Original design -Intelligent -Open -Reliable - Alternative	Starting price: around €7,000 Place: distributed by local carmaker in experience centers and smart outlets (ORA HOME) in the main	Top	-Exterior design -Space -Intelligence -Safety -Maximum speed of 150Km	-Low range (300Km)

		Chinese cities, also on Tmall Product: city car, available in three versions (28, 33 and 37 kWh)		-Develops 100 km/h in 7.7 seconds	
eQ (Chery)	-Flexible design (smiling frontal face) -Quality -Safe -Intelligent -Innovative	Starting price: around €7,000 Place: produced by local car manufacturer Product: 3 doors all electric car, supermini	Middle- Top	-Intelligent technology -Simple maintenance -Fast charging (from 30% to 80% takes 30-50 minutes)	-Low range (around 200Km) -Top speed of just 100 Km/h
Model 3 (Tesla)	-Fast -Seductive design -Efficient -Innovative -Performant	Starting price: around €32,000 Place: local assembled (in Tesla Gigafactory in Shanghai) Product: four-door fastback sedan; three versions: Standard, Long Range and Performance	Top	-580 Km range -75 kWh battery -Small, but can seat 4 people -Efficient -Sprint from 0 to 100 km / h in 3.3 seconds -Maximum speed of 261Km/h	-Uncomfortable features (Door cutting requires you to lower your head to enter, sharp steering wheel, windshield easily fog up…) -Expensive
Aion S (GAC Motor)	-Latest generation -Innovative -Intelligent -Smart	Starting price: around €20,000 Place: distributed locally by local	Middle- Top	-510 Km range 58.8 kWh battery -Top speed is 156 km/h	-High price compared to other players

	-Safe	carmaker, can be ordered also via an app Product: compact sedan, 7 trim levels available		-Infotainment screen -Solar panels to power the interior -Voice integration	
Qin Pro EV sedan (BYD)	-"Dragon Face" design -Intelligent -Quality -Powerful -Safe	Starting price: around €10,000 Place: distributed locally and also worldwide by Chinese car maker Product: compact sedan available as electric, plug-in hybrid and internal combustion engine vehicle.	Middle- Top	-Range of 500Km -Fast recharge (can reach 80% charge in just 30 minutes) -Luxurious interior -Avant garde design	-High price -Limited rear seat comfort
Han EV (BYD)	-Long range -Fast -Ultra-safe -Luxurious - Performant	Starting price: around €30,000 Place: produced by local car manufacturer Product: luxury electric sedan available as all electric and plug-in hybrid	Middle- Top	-Cheaper than Tesla Model 3 -Competitive specs and features -Fast (From 0-100 km/h in less than 4 seconds) -Long range 605 Km	High price
5 Series PHEV (BMW)	-Excellent design	Starting price: around €46,000	Middle- Top	-Fast charging of the battery (up to 5 hours)	-Slower than other players (4.7-second

	-Avant-garde -Powerful -Intelligent -Comfort	Place: produced locally in BMW Brilliance's factory Product: both electric and petrol engine. Two versions, family and road-ready		-Advanced technology	sprint from 0 to 100 km/h)
Li One (Li Auto)	-Start-up -High-end -Spatious -Powerful -Huge	Starting price: around €50,000 Place: produced by local car manufacturer Product: luxury mid-size crossover SUV powered by petrol engine and electric motor	Middle-Top	Less range anxiety	-Low range (180 Km) but the gasoline engine functions as range extender Expensive
ES6 (Nio)	-Start-up -Advanced -Progressive -High-Tech -Original[52]	Starting price: around €46,000 Place: produced by local start-up and only distributed in China Product: mid-size 5 door SUV	Middle- Top	-Range up to 410 km -Advanced technology -Intelligent fragrance dispenser	-Slower than other players (4.7-second sprint from 0 to 100 km/h) -Expensive

[52] The ES6 is also equipped with an intelligent fragrance dispenser, which releases a refreshing scent when the artificial intelligence system senses the driver's fatigue.

Regarding the direct competitors, looking at their USP and at their features, apart from being electric, innovative and small size cars, they present some differences between each other. The Hongguang Mini developed by SAIC-GM-Wuling is the cheapest, however from a design and aesthetic point of view is not comparable to the elegance of Fiat 500e, it has also very slow charging times. Then, the Ora R1 and eQ, produced by the Chinese Great Wall Motors and Chery, are also very affordable and stand out for their original design and the advanced technology, however they still have a lower range than the electric Fiat 500. Thus, even if our product is much more expensive than these competitors, it still can exploit its outstanding and iconic design and the Made in Italy essence to be more competitive, not to mention the much longer range that Fiat offers.

Concerning all the other different types of sedans, our product appears to be clearly less competitive, since it is less performant than models as the leader Tesla's Model 3 or Gac's Aion S etc., which are faster, cheaper, have longer range and more powerful batteries. However, these players do not directly threaten our product as they are not city cars, so they are addressed to a slightly different segment from the one of Fiat.

Thus, we can suppose that if the electric Fiat 500 would be introduced in the Chinese market, it may be competitive among the other players of this segment, thanks to the aforementioned advanced features and especially because of its unique selling proposition that offers a product of good quality and design, satisfying the needs of Chinese consumers willing not only to have a comfortable city car but also to have an iconic and fashionable car that can contribute to maintain intact their social status.

4.5. Swot Analysis

In order to recapitulate the degree of competitiveness of the new electric Fiat 500 in the Chinese electric market, the tool of the Swot Analysis could give a panoramic view of the strengths, weaknesses, opportunities and threaths of this product.

Table 11. SWOT Analysis of the electric Fiat 500 in China

STRENGHTS	WEAKNESSES
• Made in Italy; • Quality; • Elegant design and features[53], icon • Long range (up to 460 Km); • Fast charging times (5 minutes for 50 Km); • Top speed of 150 Km/h; • Powerful battery (70 Kw).	• Expensive; • It needs up to 9 seconds for the sprint from 0 to 100 Km/h; • Less performant than popular sedan models as the ones by Tesla, GAC, BYD and BMW.
OPPORTUNITIES	**THREATHS**
• Already educated market, it is one of the greatest electric vehicles market; • Advanced cities in the most developed areas as Shenzhen, the most green city in the world, where all the public transports are electric; • Large network of public charging stations; • Chinese people are fond of Italian products and lifestyle.	• Saturated electric market; • Local electric vehicles much cheaper; • Competitors are well established in the market; • Cut of 20% of subsidies by government; • Economic crisis due to the sanitary emergency.

[53] One example is that Fiat committed also on making the sound of the vehicle as lighter as possible in comparison to the other electric vehicles on the market and the sound can be listened also on their website.

4.6. Entry strategy: Joint Venture

4.6.1. Joint Ventures in the Chinese automotive market

Since the Chinese Government opened its market in the 1980s, hundreds of international companies have been competing in search of business opportunities in this promising country. In particular, to enter into the Chinese automotive market, different international players began to establish joint ventures with local partners as it was the only way to enter in the market allowed by the Chinese government. The reasoning behind the desire of western firms to establish themselves in China was related more on market potential in the long term rather than to leap over tariff barriers or to take advantage of the availability of relatively low cost labour. The first one was established in 1984 between Volkswagen AG and SAIC Motor. Afterwards, in 1994, the Chinese government introduced the 50% limit on foreign ownership and in the following years, the joint ventures continued to spread according to this limit. Moreover, after China joined WTO in 2001, the Chinese auto market saw an accelerated development, growing from 1 million in 2000 to 15 million in 2010 and 25 million in 2019, making it the largest in the world. For this reason, almost all remaining global automakers entered China teaming up with a local partner[54].

In addition, in the last years, president Xi announced the further opening up of Chinese automotive industry, releasing in 2018 an official reform to remove the limit on foreign ownership in special-purpose and NEV vehicles, commercial vehicles and passenger vehicles, he also declared that each foreign investor cannot hold more than two joint ventures.

Some examples, already discussed in the analysis of existing competitors of the third chapter, are presented in the following table:

Table 12. Joint Ventures present in China

Joint Venture	Foreign partner	Chinese partner	Annual Vehicle Sales (2019)	Market Share (2019)
BMW Brilliance	BMW	Brilliance Auto	25,213	0.12%
Beijing Benz	Daimler AG	BAIC Motor	550,000	N/A
StarRides	Daimler AG	Geely	N/A	N/A

[54] https://www.pwccn.com/en/automotive/chinese-automotive-industry-opening-up-impact.pdf

Denza	Daimler AG	BYD	2,089	0.01%
GAC Fiat Chrysler Automobiles	FCA	GAC	72,956	<1%
Changan Ford	Ford	Changan	232,555	1.10%
SAIC-GM	General Motors	SAIC Motor	N/A	N/A
FAW-GM	General Motors	FAW	222,188	1.05%
GAC-Honda	Honda Motor	GAC	770,884	N/A
Dongfeng Honda Automobile	Honda	Dongfeng	1,553,086	7.33%
Guangzhou - Honda		Guangzhou		
Beijing Hyundai Motor	Hyundai	BAIC	685,738	3.24%
Chery Jaguar Land Rover	Jaguar Land Rover	Chery	33,839	0.16%
Dongfeng Yueda Kia Motor	Kia	Dongfeng	283,307	1.34%
FAW Mazda Motor Sales	Mazda	FAW	224,977	1.06%
Changan Mazda		Changan		
South East Motor	Mitsubishi	China Motor Corporation and Fujian Motor Industry	131,343	0.62%
GAC Mitsubishi		GAC		
DFL (Dongfeng Motor Company Limited)	Nissan	Dongfeng Motor	1,174,030	5.54%
Dongfeng Peugeot-Citroën Automobile	Peugeot	Dongfeng	63,758	0.30%
GAC Toyota	Toyota	GAC	1,409,198	6.65%
FAW Toyota		FAW		

FAW-Volkswagen Automobile	Volkswagen	FAW	3,100,498	1,463%
SAIC Volkswagen Automotive		SAIC Motor		

(Carsalesbase[55])

4.6.2. The entry mode for Fiat

When a company decides to go international, the reasons behind this strategy, as already discussed in the first chapter, are the possibility to find new market opportunities, to exploit a competitive advantage original of our country and finally other reasons can be cost reduction, efficiency and economies of scale. According to the amount of resources committed to the foreign country, there are three different entry modes:

1. Export, indirect or direct;
2. Contractual agreements as licensing, franchising, service contracts and cooperation agreements;
3. Foreign direct investment or FDI, greenfield investment, mergers and acquisitions, and joint ventures.

Each strategy has its own set of advantages and disadvantages. After having analysed the target market in the third chapter, paying attention to several aspects as political and economic factors, culture, environmental issues, opportunities and risks, a safe way for Fiat to enter into the Chinese market may be with a strategic alliance with a local partner, in other words, establishing a joint venture. Indeed, considering the different types of entry modes (Lasserre: 2012) and looking at the three categories of advantages proposed by the Eclectic Model, a theoretical model useful during the decision of the entry mode, which are ownership advantage, internalization advantage and locational advantage, in this case all the three are present, meaning that the right choice to do could be FDI. In fact, export should be considered when the locational advantage is the only one that is not present, licensing when internalization advantage is not present and finally FDI when all the three categories are present. For the product of this case study, ownership advantage is certainly present, the electric Fiat 500 relies on Fiat's strong brand name with a great reputation, it has a specific knowledge and know-how, so the brand is very important, but also the quality and reliability.

[55] https://carsalesbase.com/car-sales-china-home-main/car-sales-by-brand-china/

Then, China as a target market also could provide locational advantage, since it is a wide market, labor force is cheap, it is already well educated as concerns EVs and very advanced from a technological point of view. Regarding the internalization advantage, Fiat could gain advantages from outsourcing part of the value chain activities in China. Thus, the FDI appears to be the right choice of entry mode in the particular form of IJV, following the example of the other big international players that entered in the Chinese market so far.

The international joint venture (IJV) is one particular form of FDI, where an MNC controls overseas operations in partnership with other MNCs or local firms. The consequent advantages are clearly much faster and less costly access to a foreign market that can be achieved by purchasing an existing company in the jurisdiction or starting a new venture. Thus, among the benefits derived from a JV we find:

- Quick access to channels of distribution, and to knowledge, expertise and know-how of the target marketplace;
- The resident partner also often has existing relationships with key suppliers and customers, not to mention proficiency in the local language and customs;
- IJVs allow the partners to move quickly, cost effectively and with credibility (provided by the reputation of the resident partner) in the local marketplace;
- Both parties can then take advantage of complementary lines of business and synergies that may exist between the two companies;
- Being an equity sharing alliance, both parts share risks and costs.

Each Sino-foreign JV is a semi-permanent project that is subject to renewal every two to three decades, with the approval of the Chinese central government and it exists as a separate business entity, belonging to neither of the partners (Nam: 2011). Having a local partner for Fiat would mean to enter into the Chinese market through a local distributor, benefit from locational advantages as the low cost of labour, develop knowledge about this foreign market and avoid establishing a wholly – owned subsidiary. Indeed, even if president Xi announced the removal of the limit on foreign ownership, it would be still particularly difficult, time-consuming and resource-intensive to develop a dealer network without local partners, who can give an in-depth understanding over the local market, the policy of local government etc.

From the other side, under the Sino-foreign JV arrangement, Chinese local automotive assembly firms thanks to spillover effects can gain access to advanced technologies, transferred by leading global automakers, and local parts suppliers also have the possibility to benefit substantially from the technology-transfer process. FDI in the Chinese automobile

industry through joint ventures gave indeed an important contribution to the industry of this country. For this reason, JVs represent a win-win formula, where each partner works in the areas in which has more competence. China, having an advanced electric vehicles market is runnning ahead of the general market in many fields as battery supply, customer data, operational mode and local government support.

However, potential issues may occurr as management issues because of different management philosophies of the two partners. They also may discover that they do not share the same expectations or that they are not flexible enough to change and accommodate the evolving needs of the business. Moreover, because of the spillover effects, an IJV has also the potential disadvantage of creating a potential competitor in one's own JV partner. For this reason, a company should carefully choose its partner taking the aforementioned elements in high consideration.

4.6.3. Stellantis and Foxconn JV

As already discussed, Fiat, that is part of FCA, recently merged with the PSA group, French multinational manufacturer of automobiles and motorcycles sold under the Peugeot, Citroën, DS, Opel and Vauxhall brands, giving birth to a new big player of the automotive market named Stellantis, more precisely on January 16th, 2021. Moreover, last year FCA had already mentioned that it was negotiating with the giant of components for electronics Hon Hai Precision (Foxconn) to set up a 50/50 joint venture for the development and production in China of new generation electric vehicles. The two companies have not yet signed a contract, but since they are already discussing about a collaboration, this thesis would like to suggest to successfully hold this collaboration and to exploit it also for the production and distribution in China of the new electric Fiat 500. Fiat will handle the manufacturing, while the Taiwanese tech giant will handle the electronics and software.

4.6.3.1. Who is Foxconn (Hon Hai Precision)

Hon hai Precision or 鸿海精密工业股份有限公司, better known as Foxconn, was established in 1974 in Taiwan. Nowadays, it represents the world's largest electronics manufacturer and the leading technological solution provider. It received several international recognitions, for example in 2019, it ranked 23rd on the Fortune Global 500 rankings, 25th in the Top 100 Digital Companies and 143rd in the Forbes ranking of the World's Best Employers and is particularly renowned for the manufacture of famous products by Apple, Nokia, Xiaomi, Nintendo devices, PlayStation, Wii and Xbox console.

Through the years, the company has established R&D and manufacturing centers in markets all over the world including China, India, Japan, Vietnam, Malaysia, Czech Republic, U.S. and more. In particular, according to its strategy, research and development is specifically centred in Greater China and US, while design and manufacturing in Asia, US and Europe. This widespread network of R&D centers all around the world allowed Foxconn to build a deep expertise in different elements as Cloud Computing, Mobile Devices, IoT, Big Data, AI, Smart Networks, and Robotics / Automation. It also owns more than 83,500 patents and is particularly committed to environmental sustainability. Indeed, among the fields the group has expanded its capabilities on, we also find electric vehicles.

To better understand who Foxconn is, we should present its vision and mission. The vision of Foxconn as reported on its website[56] is:

> "Creating comprehensive smart living experiences for our customers across the globe".

While the mission is to create long term value for their customers in order to drive long-term sustainable business growth. This is possible thanks to their commitment to the R&D of emerging technologies, the acquisition and application of new knowledge, that allow them to offer to their customers advanced, integrated technologies and a strong production scale across their strategic global network. In doing so, the company always respect a series of corporate values as care, confidence and determination. In other words, during their daily operations, they care and respect for each others, they are determined to succeed and have confidence in achieving their goals.

Finally, Foxconn's commitment on sustainability is evident in its Corporate Social Responsibility Code of Conduct, aimed at guiding all Hon Hai global operations and all the companies belonging to the Group. In this Code, they state that all activities of Foxconn shall be carried out with respect for the environment and there is a particular section dedicated to air emissions. Indeed, Hon Hai's greenhouse gas emissions policies across the value chain are coherent to the goals of Paris Agreement, still they aim to achieve the goal of zero emissions by 2050. To guarantee that all the operations comply with this Code, Hon Hai established a CSR Committee in 2007. However, their image has been seriously damaged by a series of suicides involving its employees. Since the beginning of 2010 there have been about 11 suicides, reaching the highest number of suicides in a company, caused by overwork stress and poor conditions for workers. Moreover, in January of 2020 a group of

[56] https://www.honhai.com/en-us/about/core-values

300 employees climbed onto the roof of the factory and threatened mass suicide as a result of the failure to recognize a severance pay, previously agreed with the company. After hours of negotiations, the situation fortunately was solved and the employees went back to work. This fact highlighted a social issue present in the company to which Fiat should pay attention before considering a cooperation with Hon Hai.

Since the market in which Foxconn is more active, the one of the smartphones, is becoming more and more saturated and competitive (in 2018 the company closed with a decline of profits of 7%), with the starting of negotiations with Fiat, Foxconn is trying to diversificate its market. Thus, this JV represents an opportunity to broaden its commercial horizons with the production of electric vehicles and the entering in the IoV business (Internet of Vehicles), remaining committed to its values and mission.

4.6.3.2. Why Foxconn?

To understand if Foxconn would be an appropriate partner for Fiat, different factors should be analysed, distinctively the strategic fit, capabilities fit, organizational fit and cultural fit. Regardind the first point, the respective objectives of the two companies can be considered to be compatible, as they are both committed to the environment and willing to reduce zero emissions by the aid of electric vehicles. Furthermore, they are both interested in the Chinese market. Foxconn is already established in China and this country represents the core of its strategy, while Fiat wants to penetrate succesfully this market. Thus, their goals apparently seem to be compatible, but it cannot be affirmed undoubtedly since there could be some hidden goals that are not public.

Concerning the capabilities fit, the two partners are also able to contribute to the resources, assets and competencies needed for a competitive success. Indeed, they both represent two established global leaders, from one side in the automobile design, engineering and manufacturing, while from the other side in the mobile software technology. Foxconn has also been investing heavily in a variety of future transport ventures for several years as Didi Chuxing, the Chinese ride service giant, and Chinese electric vehicle start-ups Byton and Xpeng, not to mention the investments in Chinese battery giant CATL. Having such an expert partner may help FCA-PSA to shorten its gap in the electric vehicles in Asia. Indeed, according to what planned, FCA will be handling the manufacturing and Foxconn the electronics and software exploiting all the knowledge acquired thanks to Apple's iphones, in particular through the aid of the two subsidiaries Fit hon Teng, dedicated to auto components, and Fih Mobile, that manages the assembly of Android smartphones and will

provide software solutions for the electric vehicles. Since Fiat already designed the electric version of the Fiat 500, this JV could be useful for the production and distribution in China of this product, keeping the same high quality of the Mirafiori plant or even improving it with some ameliorements and innovations in technology. FCA currently operates in China through a loss-making joint venture with Guangzhou Automobile Group (GAC) and did not manage to succesfully establish itself in this market, thus Foxconn could represent finally the long waited opportunity to enter properly in the Chinese market.

In relation to the organizational fit, the decision-making and control mechanisms used by the two partners appear to be effective and could lead to a good communication between the two parties. In particular, what is most important in a strategic alliance is the willing to trust each other. Trust persuades people to share information, promotes the building of joint expectations, induces reciprocity and coordinates actions, for this reason is crucial in a joint venture.

Finally, regarding the last point, cultural fit, in order to avoid misunderstandings due to cultural differences, it may be useful to hire linguistic and cultural mediators that can ensure the right communication between the two parties.

In conclusion, an IJV with Foxconn seems to be the optimal solution to introduce the electric Fiat 500 in the Chinese market as Foxconn is already well established in our target market, having consequently good relations with local markets and solid knowledge of the institutional and regulatory mechanisms, filling the gap necessary to make this product successful in China. It then can provide solid support in the technological side. While Fiat, thanks to the spillover effects typical of collaborations, could bring its expertise in the manufacturing of vehicles which is also the result of the Made in Italy know-how. Thus, it would be a win-win situation with consequent benefits for both the parties. In particular, according to Il Sole 24 ore[57], Hon Hai Precision's direct stake in this joint venture will not exceed 40%, the other 10% will be owned by subsidiaries, while FCA will have a 50% stake.

4.6.4. Stellantis Foxconn JV facilities in China

After holding a 50/50 joint venture with Foxconn, the two parties may decide to begin the construction of Stellantis Foxconn facilities in China dedicated to the production of electric vehicles to be sold in this market, including the electric Fiat 500. Indeed, having a plant in the target market, will reduce the costs of production and ease the distribution of the product

[57] https://www.ilsole24ore.com/art/fca-collaborazione-foxconn-veicoli-elettrici-cina-ACpZtTCB

in China. Fiat has already facilities with the other joint venture partner GAC in Changsha, where they produce Jeep vehicles, while Foxconn has several plants in different cities, in particuar the largest factory is in the Shenzhen area. Since Shenzhen is renowned to be the greenest city in the world, it may be convenient to set the two parties' plant in this well served area as well.

The Foxconn Stellantis JV plant may be a CDK assembly plant meaning a Complete Knock Down plant, where the components of the vehicle are in part imported and in part supplied locally and then assembled, as it is much cheaper and faster to build an assembly plant instead of a production centre that handle all the phases of the production cycle. In this way, Fiat would keep to manage the design and manufacture of the vehicle, contributing to maintain intact the high reputation of the Made in Italy that would characterize this product in China. Thus, the auto components would be mainly produced in the Mirafiori plant in Italy, Turin where the electric Fiat 500 is currently produced, and then exported, while the electronics components could be supplied by Foxconn and incorporated in China. Thus, given its high expertise, the contribute of Foxconn would be limited to the electronics and software of the electric Fiat 500, for example it may help with the autonomous driving, intuitive infotainment, advanced driver-assistance systems (ADAS) and powertrain, thanks to the help of the two subsidiaries Fit hon Teng, specialised in auto components, and Fih Mobile, that manages the assembly of Android smartphones and can provide software solutions for the electric vehicles.

Instead of building a new plant, the two groups could also exploit the standard platform for EVs launched by Foxconn on October of 2020 and called MIH[58], that will be opened to auto companies for building their electric cars and it can be used to reduce the development time of their electric models. Foxconn hopes indeed that its open-source platform will account for 10% of the electric car market by 2027, with the aim not to build its own electric cars, but to become the largest supplier in the industry by providing key components to manufacturers, it is also developing a solid state battery to be launched in 2024[59]. The MIH platform in particular has four key characteristics:

1. Its architecture is modularized and easily customizable;
2. The chassis is made with lightweight materials that optimize the EV's performance;
3. It provides a powerful electrical architecture for all levels of applications;

[58] https://www.foxconn.com/en-us/mih-ev-open-platform
[59] https://www.alvolante.it/news/foxconn-degli-smartphone-alle-auto-elettriche-370900

4. It allows the development of autonomous driving technologies.

4.6.5. Distribution

In the Chinese automotive market, the most popular distribution channel is certainly the specialist store, that sells cars of only one brand and provides integrated pre-sales and after-sales services. They are commonly known as 4S stores, short for Sales, Service, Spare parts and Surveys (customer feedback) and they were introduced at the end of the 20th century, authorized both by foreign and domestic carmakers. Since each one is beholden to a specific brand of cars, the manufacturer has a great deal of leverage in dictating the conditions of the 4S dealership. Carmakers, indeed, can decide how large the dealership should be, what kind of customer service it should offer and what types of repair services it has to provide (Munson: 2013).

While a domestic automaker may sell cars by itself, an overseas automaker, as in this case, must establish a local presence or authorise a domestic entity to act as its sole distributor to sell cars in China. The sole distributor may further authorise several sub-dealers to engage in automobile sales and service activities. In other words, a dealer must be authorised by either the automaker or the sole distributor to sell cars and car parts. For this reason, the collaboration with Foxconn could be useful in order to find the right distribution channel, since it is already established in our target market and it is also developing a network of *guanxi* to build a presence in China's electric car scene, that could help Fiat in its strategy. Foxconn indeed has also signed different agreements with other auto manufacturers as Fisker and the startup Byton to produce electric vehicles in China, and it is also negotiating with Zhejiang Geely to form a venture that can provide consulting services on EV technologies to automakers. Moreover, Hongfujin Precision Industry (Shenzhen) Co., a Foxconn affiliate, has founded the Futeng New Energy Automotive Technology Co. in Nanjing, which will be developing and manufacturing automobile components. In addition, Foxconn has teamed up with Kyoto-based Shimadzu Corporation to set up joint laboratories in 22 locations across China, including Shenzhen, Wuhan, and Chengdu. These labs will serve to provide services for automobile testing and analysis in China. Thus, given all these initiatives, Foxconn is certainly building its presence in Chinese electric market and could have useful resources also regarding distribution that coul benefit Fiat.

Another channel that could be considered is the online shopping. In China it is possible from a few years to choose and buy a car online through the popular platform Tmall[60].

[60] https://www.east-media.net/auto-cina-si-provano-comprano-online-tmall/

Premium brands such as Audi, BMW and Mercedes are already present on the e-commerce platform. Also Alfa Romeo opened in 2017 a dedicated store on this platform and in occasion of the inauguration, it sold 350 Giulia models in just 33 seconds. To make it easier to buy cars online, Tmall offers the opportunity to try the car that the consumer would like to buy for three days. Once the car has been chosen on their smartphone, the user can book the test and collect the car at a Super Test Drive Center. Following their example, Stellantis could also consider to exploit this platform as a further alternative to sell the electric Fiat 500, giving the possibility to try it in dedicated centers. Indeed, in a period as the one we are living, due to the several lockdowns and closures of the shops, online shopping has increased and people are willing more and more to buy a product with just one click avoiding leaving the house. However, the online should be considered as an added channel that does not substitute the physical one which continues to be important for the consumer especially in the automotive sector.

Conclusions

This thesis wanted to explore the subject of internationalization strategies applying them to a specific Case Study about the introduction of the new electric Fiat 500 in the Chinese market, exploiting factors as environmental innovation and the country of origin effect as competitive advantages. This strategy has been developed with the wider aim to give a valid contribution to the recovery of the Italian automotive industry, particularly affected by the sanitary emergency due to the spread of the Coronavirus, also called Covid-19 virus.

Before presenting my internationalization strategy proposal, it has been necessary to provide a panoramic view of the automotive industry and the impact of Covid-19, given in the first chapter, analysing first its positioning on the Italian market, the technological evolution that it experienced through the years related to sustainable mobility and the benefits derived from the country of origin effect; subsequently, explaining its position along the global value chains, the role of suppliers in the supply chain and two of its main characteristics, outsourcing and modularity. Afterwards, considering the impact of the Coronavirus on this specific industry in Italy, I exposed my proposal of investing in internationalization to reach new customers in one of the widest markets of the world, China, and therefore to gain new sources of profit, exploiting the benefits given by the high reputation of the Made in Italy in the world and in China, and also exploiting the increasing attention to sustainability manifested by the Chinese government and people to successfully introduce in this market the object of our case study, the new electric Fiat 500.

In the second chapter, I talked about eco-innovation in general and in the specificity of the automotive industry, describing how the Second Automotive Revolution represented a transition from traditional to cleaner vehicles also referred as alternative fuel vehicles such as bi-fuel, hybrid and electric vehicles, due to the growing concern about the impact of cars on the environment. In this chapter, I particularly elucidated the correlation between eco-innovation and internationalization, to support my Case Study, and how the former may therefore represent an advantage. Indeed EI resulted to bring four types of competitive advantages, market-related, image-related, risk-related and efficiency-related. Thus, companies appeared to continuously innovate in order to exploit these benefits, meeting the rapid changes of customers needs' and being competitive.

Afterwards, in the third chapter I analysed our target market which is the Chinese market, from both a macro and microeconomic point of view through the use of efficient tools as Pestel, Porter and SWOT analysis, resulting that China, with a consumer base of more than

1 billion people and a GDP per capita of about 8 millions USD (2019), constitutes the second wealthiest country in the world with an ease of doing business of 31/190, and given the perspective of continuous growth of this country, it therefore represents a big opportunity to invest in. Important aspects that emerged from the Pestel Analysis are that since China is one of the countries with the highest amount of carbon emissions in the world, sustainability has become more and more important and Chinese government in the last years is taking more and more actions in order to reduce pollution, promoting and giving subsidies for the purchase of electric vehicles. Innovation and sustainability are indeed comprised among the main factors the government is promoting, for this reason our green product could easily find its place in this market. From the other side, China also wants to obtain a lead role in the automotive industry and strongly support its domestic market, this could definitely represent a barrier for our strategy. Another confirm to our case study emerged from the analysis of social factors, that put in light how Chinese people desire to show their social status buying expensive products and are particularly fond of Made in Italy products. Finally, Porter's analysis provided a clear view about the dominant players in Chinese automotive market and the fierce competition constituted by domestic and foreign players, and alliances of both of them through international joint ventures.

In the fourth chapter, dedicated to the Case Study, after illustrating Fiat's history and its previous strategies to penetrate the Chinese market, I described the electric Fiat 500, paying particular attention on its value proposition, to better understand the value and uniqueness that this product could offer to Chinese people and who could be our typical customer. Subsequently, I provided a specific analysis of competitors that produce electric cars, analysing the models of electric vehicles that were more appreciated in the last year, resulting that our product could be highly competitive both because of its features that appeared more performant than other popular city cars and because of the high value related to its italianness that represents a clear advantage even on well established brands as Tesla. Finally, I presented my proposal of exploiting a possible joint venture with the Taiwanese tech giant Foxconn to produce and distribute this product in China, explaining why the JV appears to be the best solution to penetrate this market and why Foxconn would represent the most appropriate partner.

In conclusion, each chapter represented an essential step that helped me developing this internationalization strategy understanding both the opportunities and risks that Chinese market could offer. Given the economic crisis we are living, because of the sanitary emergency, my proposal is certainly to look for new sources of profit in one of the largest

markets in the world that could represent a wide segment for the electric Fiat 500. Indeed, through my analysis I realized how eco-innovation in the form of smart mobility combined with the Made in Italy element could really be exploited as an advantage to enter in such a complex market, where Fiat always struggled to establish itself.

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Ringraziamenti

Alla conclusione, tanto attesa, di questo percorso mi sento profondamente soddisfatta e grata all'Università Ca' Foscari per avermi dato la possibilità di approfondire la mia conoscenza del cinese con la scelta di un curriculum all'avanguardia, manageriale ed economico unico, disponibile solamente presso questo Ateneo.

Ho sempre pensato che nella mia città natale, Roma, avessi tutto: una bella famiglia, degli splendidi nipoti, dei cari amici e una grande offerta universitaria, data la presenza di tre atenei pubblici, per non parlare delle molteplici e rinomate università private. Essendo la sesta di sette figli, ho sempre molto guardato anche all'esperienza dei miei fratelli e sorelle, e nessuno di loro ha mai pensato di intraprendere un percorso universitario o cercare un impiego in un'altra città; per questo motivo, anche a livello inconscio, ho sempre pensato che vivendo nella capitale, non avrei avuto bisogno di spostarmi nella vita, in cerca di nuove opportunità, perché tutto quello che potevo desiderare era qui, a Roma. Mi sbagliavo…

Al termine del percorso di laurea triennale in Lingue e Mediazione Linguistica presso l'Università degli Studi di Roma Tre, con la voglia di migliorare il mio cinese sul campo, mi sono iscritta per un semestre alla Language and Culture University di Pechino e ho passato forse i mesi più belli della mia vita. L'esperienza all'estero, il ritrovarmi in una realtà completamente diversa da quella a cui ero abituata e la conoscenza di persone provenienti da tutto il mondo mi hanno sicuramente aperto gli occhi e fatto capire che c'era un intero mondo fuori da Roma ad aspettarmi. Durante questo tempo ho inoltre sentito parlare, per caso, dell'Università Ca' Foscari e dopo aver visto i corsi che offriva ho subito pensato che un percorso di laurea magistrale in quell'ateneo sarebbe stata una grande opportunità per me da non lasciarsi sfuggire!

Col senno di poi, sono contenta di aver colto quest'opportunità e di aver vissuto due anni nella meravigliosa città di Venezia, studiando ciò che mi appassiona e approfondendo le mie conoscenze grazie a professori esperti e validi. Per questo motivo il mio primo e grande ringraziamento va all'Università Ca' Foscari, grazie per offrire un'offerta formativa così mirata ed interessante, grazie a tutti i professori e in particolare alla mia relatrice per le conoscenze che mi avete trasmesso, grazie anche per l'attenzione allo studente e non solo alla formazione ma anche all'inserimento nel mondo del lavoro. Grazie per avermi dato la possibilità di partecipare a un laboratorio extra curricolare sulla figura dell'export manager senza il quale non avrei forse maturato ancora di più questo mio interesse per il mondo dell'internazionalizzazione che mi ha spinto alla scelta dell'argomento di questa tesi e mi ha portato anche nell'azienda Promos Italia, agenzia nazionale camerale per

l’internazionalizzazione, dove sto attualmente svolgendo un tirocinio nel settore dei servizi digitali dedicati alla promozione del Made in Italy in Cina. Non avrei potuto chiedere di meglio, tutto ciò in cui speravo quando mi sono iscritta a questa università si è avverato!

In secondo luogo vorrei ringraziare i miei genitori e la mia famiglia per avermi sempre appoggiato in ogni mia decisione e incoraggiato ad inseguire le mie passioni. Grazie mamma e papà per i vostri sacrifici e per avermi sempre dato tutto, per avermi dato la possibilità di andare in Cina e di studiare a Venezia, facendo avverare i miei sogni! Sono stati degli anni sicuramente entusiasmanti ma anche difficili e onestamente spesso ho sentito nostalgia di casa, nostalgia di voi e soprattutto dei miei bellissimi nipoti, ma posso dire che ne è assolutamente valsa la pena. Grazie in particolar modo anche alle mie sorelle che hanno sempre saputo come tirarmi su nei momenti in cui più volevo tornare a casa e a cui, anche se non ve lo dico spesso (mai), sono profondamente legata e grata per il sostegno e l'affetto che mi date!

Grazie anche ai miei compagni di corso e alla mia “seconda famiglia”, in particolare a Caterina, Marco, Marilena, Viola, Giuseppe, Federica e Serena, compagni di studio ma soprattuto amici senza i quali probabilmente non ce l’avrei fatta a sopravvivere nel “lontano Nord”. Grazie per le giornate interminabili trascorse in biblioteca a studiare, per tutti i pranzi domenicali che mi facevano sentire un po’ meno lontana da casa, per tutti gli aperitivi, le gite in giro per il Veneto e i disagi che abbiamo condiviso della vita universitaria fuori sede!!!

Oltre alle nuove amicizie, un ringraziamento speciale va anche alle mie amiche della triennale di Roma e alle amiche di una vita che anche se lontane, ci sono sempre state e hanno sopportato e continuano a sopportare con pazienza questi miei cambi di città! Grazie per essere le amiche meravigliose che siete e per essermi state vicine anche se fisicamente lontane!!!! Mi mancate!!!

Vorrei ringraziare anche delle care persone che mi sono state accanto e mi hanno accolto in questi anni, dandomi la possibilità di vivere a Venezia, senza le quali non sarei qui oggi, Maria, Alessandra, Maurizio e la famiglia Musolino. Grazie davvero per la vostra generosità e in special modo a Maria!

Per finire, grazie a me stessa per non avere mai mollato e continuato con determinazione questa strada in salita che è la vita e che continuerà ad avere le sue difficoltà, ma come dice la dedica che ho scelto per questa tesi: 不到黄合心不死, letteralmente “non fermarsi finché non si raggiunge il Fiume Giallo”, ovvero, non bisogna fermarsi finché non si raggiungono i propri obiettivi, i propri sogni ed io non mi fermerò!