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CHAPTER 1

1.The effects of pollution in the car industry

We all know that one of the most important issues of international politics is air pollution, specifically a series of physical, chemical and biological agents that modify the natural characteristics of the atmosphere.

Cars traffic is in the blacklist of the anthropogenic sources with the emissions caused by the kind of fuel used by cars. All heat engines produce water and, powered by fossil fuels allows to produce carbon dioxide. The diesel-powered vehicles emit primarily an agent called PM10, hydrocarbons, nitrogen oxides and sulfur dioxide. A gasoline vehicle emits NOx and Co, CNG and LPG vehicles emit ultrafine NOx and hydrocarbons.

In recent years, societies attempted to adopt a logic of reducing emissions from vehicles with the introduction of the euro 1,2,3 vehicles. Everything was made to put the catalytic converter and particulate filter.

I've always been sensitive on the subject of air pollution. Today in particular, I see the planet earth , with its thousands of sources and priceless and natural beauties deteriorating because of us humans. Mentioning all the different alternatives to these fuels with high levels of pollution, finding and studying feasible solutions to make sure that one day, maybe in a few years, everything will stop and ensure that the nature will return to dazzle us with its sources of natural and spontaneous beauty , starting from the animals in danger of extinction and coming to landscapes, poles in particular.

The cars in particular as I've mentioned before are an endless source of a series of catastrophic damages produced by ourselves .

Many car manufacturers have developed several field studies in recent years, to be more precise it comes to alternative energy and fuels. Today, on a small scale, we can find around eco-friendly cities cars made up with alternative energies.

The three most commonly known examples are:

- Ethanol autos : Are less polluting than oil (approximately 75%) but which extracted from plants involved in the human food chain.

- Auto with compressed air: It is a valid compressed air engine for automobiles. Performs mechanical work by exploiting the expansion of compressed air into mechanical phase through either linear or rotary motion. The compressed air exits from reservoirs at high pressure, this is used to move a piston or a turbine connected to a shaft. This process is devoid of any pollutant emission having no kind of combustion, must be supplied with compressed air as an energy carrier.

- Electric cars : It is a car with an electric engine that uses as a source of primary stored chemical energy as a "reservoir" energy. It consists of one or more rechargeable batteries and made available by these to the engine in the form of electricity. The vehicles within a single propulsion system mounting two different engines are defined hybrid vehicles. The most common hybrid vehicles are those that combine an electric motor and an internal combustion engine and a compressed air motor .Electric vehicles have an overall greater energy efficiency compared to almost all internal combustion engines . If a gasoline engine has an efficiency of 25 % , a diesel approaching 40 % , an induction electric motor into alternating current has an efficiency of 90%.The new models can travel for hundreds miles on a single charge , even after 160.000km those have used the same batteries. They are quieter than internal combustion engines, and do not produce harmful fumes . As disadvantages it has a limited range between charges , the charging time and the poor battery life, even though new technologies have increased the autonomy and useful life reducing the charging time. Although some models are still produced in limited quantities, some BEV (Battery electric vehicles) which have proven adequate to the roads have been withdrawn from the market and scrapped by their manufacturers. According to some observers, some oil companies have registered and bought the patents of

many of battery types and have used the "patent protection" to prevent the most modern technology of batteries used in rechargeable electric cars.

1.1 General situations

The development of electric mobility, in fact, depend not only on the adoption of specific technologies, but also the ability to organize and manage the activities of the different actors: automotive industry, battery manufacturers, suppliers of mobility services, energy distributors and institutions.
Certainly, consumer behavior will be critical and the demand for vehicles with low carbon emissions depend on various factors: the petroleum price trend; the spread of charging stations; the cost of the batteries; ease use of new technologies; etc..

The transition from a mobility based on traditional internal combustion engines to electric mobility, however, poses a number of issues relating to:

- ❏ Approval of consumer expectations in terms of cost of purchase and resale value, cost and battery life, road safety, acceptance of new technologies, range and speed of vehicles, energy security and the availability of research infrastructures.

- ❏ Public policy: nature, scope and cost of incentives to encourage both suppliers for the demand, the market presence of different solutions to low-carbon economy; the answer must be the integration of electric vehicles into the transport system.

- ❏ Behaviors and decisions adopted by the industry (investment, research and development, also aimed in reducing the cost of batteries and increase its capacity; different technological options, possible limitations due to the shortage of raw materials)

- ❏ Issues related to the capacity to produce energy at low carbon contents, then using renewable sources.

- Communications of the European Commission contains some specific actions for electric vehicles, in various areas, such as:

- ❏ Placing on the market (to meet the requirements of road safety and energy)

- ❏ Standardization (develop a charging interface standards to ensure interoperability and connectivity)

- ❏ Infrastructure (work together with Member States, taking on a leadership role for the implementation of charging points)

- ❏ Production and distribution of energy (comparing the environmental impact of vehicles, considering a lifecycle approach to evaluating the overall emissions "well to wheels" and the overall increase in electricity demand)

1.2 Pollution’s reactions from an international politic reaction

Many states have adopted different types of incentives to encourage the purchase of electric vehicles:

-Reduction of the fee for registration of cars, "for example, in Austria there is a bonus of € 500 for alternative propulsion systems, particularly, batteries for electric vehicles and hybrids)

-Reduction of taxes on income (in Belgium is 30% of the purchase price with a maximum of € 9.000)

-Exemptions from annual circulation tax (in UK and Germany for the first five years)

-Incentives purchase (£ 5.000 in the UK, from € 2.000 to € 6.000 granted by the Spanish Regional Governments). The future of these subsidies is uncertain. Given that of the currently benefiting from a very limited number of people, such incentives would be unsustainable if the number of electric vehicles would increase significantly.

-In many cities, electric vehicles are also allowed to circulate in low emission zones, enter the restricted traffic areas, park for free in the central areas, utilize the bus lanes, end even exempted from the "road pricing" or "congestion charge" applied in this areas.

1.3 Car industries business solutions

- The first business model it’s about car manufacturers choose to reduce its added value by giving to the customers the car without battery and consequently at a lower cost . The accumulator is provided by a partner upstream in the supply chain , but in case of malfunctions is difficult to understand if the liability is by the manufacturer or the supplier of the batteries.

- A second business model is that the manufacturer supplies both the car and the battery , which can be sold or leased. In the last case , the monthly fee could be between € 80 - € 100 and should cover the maintenance , insurance and replacement of the accumulator . Through this model , adopted for example by

the Norwegian carmaker “Think” , the purchase price and also the financial risk of the following consumer are reduced. Moreover , the replacement of the battery may be made with a new technology , with the possibility of increasing the performance of the car and the autonomy. In this case , the manufacturer assume:

- ❏ completely (in the case of the lease) the risks associated with batteries (deterioration , malfunction , etc.).

- ❏ The third model is essentially proposed by the American automaker Better Place. The consumer buys the car from the car manufacturers (ex Renault) and can choose between different services. The company which offers mobility services, retains ownership of the battery and also owns the infrastructure for charging and changing batteries. It offers consumers the ability to access to the charging infrastructure, and can also cover the cost of electricity. An integrated business model, able to provide greater added value for the consumer, really hard to realize.

According to the FIA, the most important issue from the point of view of the consumer is undoubtedly the cost. Currently the purchase price of most electric vehicles is a significant obstacle to their commercialization, giving no value to the competitiveness of the market. Some recent studies conducted in Spain and in Germany shows that 40% of drivers are not willing to pay more for an electric vehicle with characteristics similar to those of a conventional vehicle .

Other uncertainties for the consumer regarding the efficiency of electric vehicles in the long term is their duration and the available collateral, as well as the residual value. These aspects have yet to be elucidated. One of the most important issues in the future might be the relationship between the lifetime of the battery and the price of the electric vehicle used: in 4-7 years will be developed a second hand market of electric vehicles and transparency in information about those ones, everything that will become essential for consumers. It is important to encourage the introduction of standard measures to

check the condition of the batteries in such a way as to support for the used market, establish a fair resale value of the batteries and prevent the occurrence of crimes. The cost of the energy required for charging of electric vehicles is expected to grow in the coming years and could be a factor of uncertainty, particularly if accompanied by a specific tax.

Another crucial aspect for the consumer is the autonomy of electric vehicles. Various studies and researches have brought to light how the autonomy of electric vehicles is enough for many daily commute, market research clearly show the existence of an anxiety to the autonomy of the cars that leads consumers to practical decisions as to restrict the movement of a little more than half of the kilometers actually viable. While it would seem useful to change the perception of the drivers on this aspect, on the other hand we should expand the range of electric cars fail to see so that they can be fully accepted by drivers.

Strategies to influence consumer choices must be clear and focused, so implying the responsibility and motivate them to opt for cleaner and more efficient solution. The need for accurate information definitely plays a key role in consumers' attitudes towards electric vehicles. Through training and experience, consumers could better understand how they work and drive new vehicles. It is important that consumers will be included as an active part in the development process of all new technologies with low carbon content, their perceptions, beliefs and behaviors are key factors for the success of electric mobility. Eliminate the negative preconceptions is a target we have to work on.

1.4 Willingness to pay for electric cars, Italian case:

Air pollution from traffic and air quality of our cities are one of the major concerns of the Italians in the environmental field.

What would be willing to do to reduce traffic and pollution? The options that seem most feasible are:

- Go more often on foot or by bicycle (45%)
- The more frequent use of public transport (32%)

- The purchase of an electric car or hybrid (13%)

It is not negligible, especially taking into account the fact that the other two activity, unlike the purchase of a new car, do not imply particular investments on the financial plan.

In this case, two out of three Italians claim that would consider an electric car or hybrid.

So what are the reasons that lead our fellow citizens to this choice?

More than three out of four are motivated by environmental issues.

Go by feet or in bicycle	**44,6%**
Using more public transportations	**31,9%**
Buy an electric car	**13,3%**
Arrange with familiar and friends for a single car	**5,3%**
None of these choices	**4,5%**
Don’t know/ Doesn’t answer	**0,4%**

Much less for a lower fuel consumption and the ability to move in special days or areas closed to traffic.

The most important reasons for those who do not would buy are one for the technological and the other for economic order: 30 % believe that electric or hybrid cars are still experimental, 40% consider them too expensive.

The propensity to buy an electric car or hybrid increases as the level of education and decreases with increasing age. Those who have not completed lower secondary school and those who have a bachelor's degree is 20 percentage points state that would buy an electric car or a hybrid 71% of graduates, 52% of those who did not finish the school. Would evaluate the purchase of an electric car, 76% of those who have between 15 and 29 years, approximately 60% of those who have more than 45 years.

Hypothesis on the acquisition reasons made by an Italian for an electric car. Why?

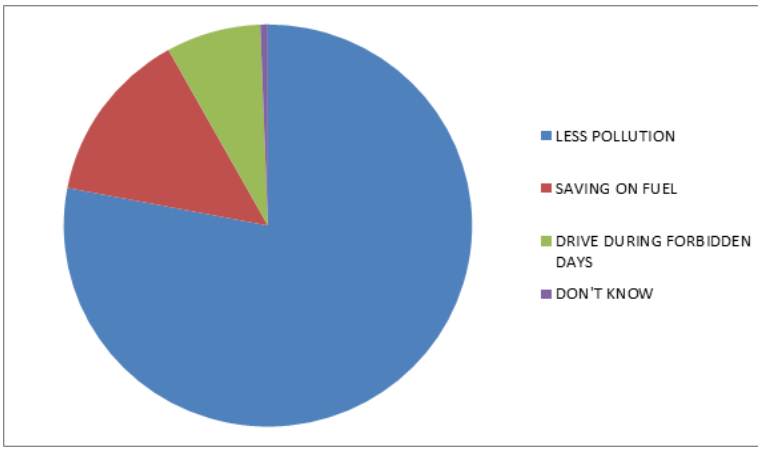


Fig. 1.1 www.nesteoil.com spread of electric cars

In this graph we have can see that the first reason Italians tend their choice for an electric car is for less pollution, this means that our population is sensible to the argument of gas emissions. With the high prices we face every day given by the high taxations made from our government to petroleum companies, savings on fuel could be another reasonable reason. A smaller percentage is for the driving during forbidden days given by Italian municipalities to reduce Gas emission, especially during weekends.

Here are some statistics about the main reasons people still today don't feel ready to buy the electric car. Certainly the main one is that today the cost is too high, obviously

for multinational developers and producers today is too early to launch in the market low price cars, personally I think that there are many political interests behind that.

Italians tendentially follows always there traditions, a big chunk of them are scared of experimental models.

As we have written before, the Achilles heel of electric cars is the battery duration, people feels much safer with it just inside cities and not for long trips.

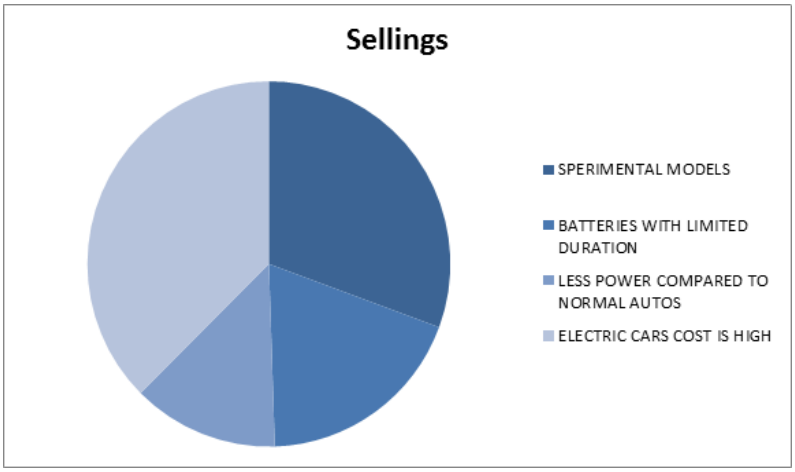


Fig. 1.2 Franke T. What drives range preferences in electric vehicles?

The European commission had taken legal actions against Italy for having exceeded with the limits allowed by the European standards for air and particles known as PM10. These particles are mainly emitted by industry, traffic and domestic pollution. All this leads to serious problems such as asthma, cardiovascular problems, cancer and premature death.

It has been shown that pollution from these causes 350,000 premature deaths in Europe each year and there are many places in Italy where every 100,000 inhabitants,

there are just over 15 people who die prematurely. The European Union is keen to want to take effective measures to fight against it.

The Community asked to all the state members to send notifications with results of air pollution. Italy in the specific has sent two notifications to the European Community which, more or less covering 80 areas of air in 17 different regions and autonomous provinces have failed to fully meet the parameters permitted, Italy has not been able to demonstrate that the actions taken could fully meet the deadline .

The committee then sent a final warning saying that if Italy had failed to take the right steps the commission would send the country in front of the European Court of Justice.

For Italians, traffic is the first cause of air pollution. The data is particularly important considering that we are one out of ten Italians and it might be the primary factor in the degradation of true quality of air, far in front of the emissions of industries (24%) and domestic heating system (10%). Italian's tendency to reduce these strong emission bring them to use public transport by changing their habits related to the use of private cars and motorcycles (52.7%).

After a thorough investigation results shows that the problem can be solved in part by subsidizing public transport (31.2%) and favoring the production of less polluting cars (30%).

The pollution in the world kills over 3 million people a year. In Europe every citizen loses an average of 8 and a half months of life because of the poisons in the air. In Lombardy, the deaths by smogh are estimated in year 300 of which only 231 in Milan which along with Turin are the Italian capitals of pollution.

According to scientific studies, smog increases by about a quarter (24%) the risk of infarct and by more than a third (35%) of stroke.

1.5 European general situation

In the image downhere we have a clear map from 2010 of the PM10 present all around Europe.

It is sad and really clear that the highest presence of smog substances are present with a high and forbidden percentage in the North of Italy and in East Europe. The average all around the continent stays in the norm between 30 and 50. The "greenest" nations

are mainly the countries from the North Europe. Countries with the lowest percentage of PM10 are those ones who are more sensible to the green industry and mobility.

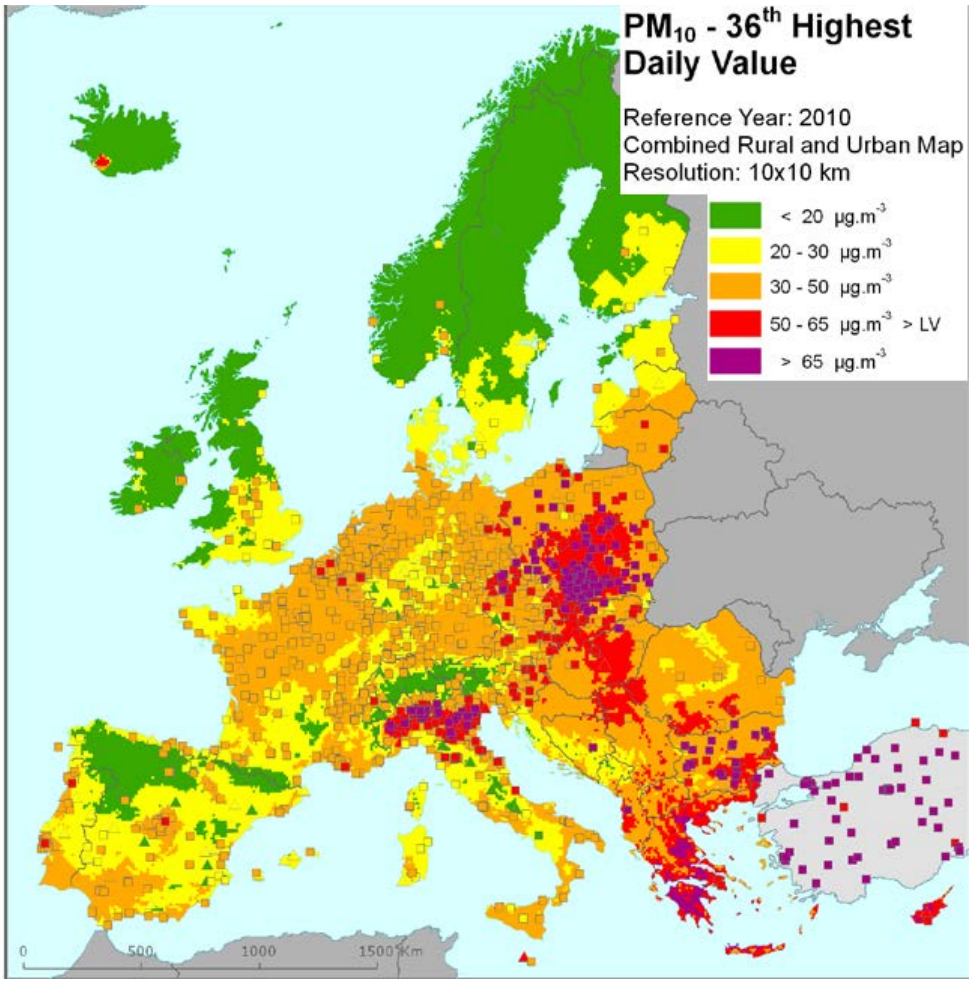


Fig. 1.3 Hui-Kuan., Affordability of electric vehicles for a sustainable transport system

Chapter 2

2. The importance of the introductory price

When there's the need to launch a new product on the market there is always the risk that the public doesn't understand, appreciate or buy it. In these cases it would be a total disappointment to anyone who has worked behind it, defeating sector studies, money, dreams.

An error common to most of the people is when those ones think of them to decide what the market wants, what they need to do is to create and set up the product / service / business and take into consideration the needs, problems, desires of the public. Socially is very profitable to enter deeply into the market by building contact lists and make them partakers of our future projects wondering, doing surveys and not taking for granted that we know and what they want.

For some manager’s opinion, on final price there’s no study of sector behind that. Usually, in times of trouble, the market wants the price list to be defined as " the board" through hypotheses or assumptions, feelings, unimportant marketing competition or by defining the costs of the various products and adding the profit margin to make up the lowest price possible. In other cases, it is believed that the price is given by the market and not influenced by the company.

A proper policy for setting prices must meet the company's needs for an adequate ROI with the achievement of marketing objectives previously defined and comply with a policy of strategy in the way of granting credit that rewards the most loyal customers in payment.

The price is one of the components of the marketing mix and preparing the sale list must be made with different criteria from the " panic trade " Whereas many other variables and using appropriate techniques.

The role of price on marketing strategy perceived by the customer is the monetary expression of value, and as such occupies a central place in the process of competitive exchange. From the point of view of the customer, the price that he is willing to pay measures the intensity of the need, as well as the amount and nature of the satisfaction they expect; As the seller, the price at which it is willing to sell measure the value of the factors that make up the product, to which is added the profit he hopes to achieve. The price can be defined as a ratio that indicates the amount of money needed to buy a given quantity of goods or services. A final client performs three roles (buyer paying, consumer) and it is important to assess the significance of the price compared to each role. The price, seen from the point of view of the customer, must therefore be regarded

as the counterpart of the set of rewards offered, so it must be set according to the value or utility of using global perceived by the customer.

2.1 Price decision phases

- ❏ The total cost of acquisition of a product for the customer

The price that the customer claims is not only the price paid, but also the term of trade which is the terms of a payment, the manner and timing of delivery, after-sales service. In some cases the customer may face high costs in relation to price, transaction costs or trading such as for example, the high costs of transfer if you change supplier to the extent that tied the characteristics of its product in a well-supplier accurate.

- ❏ Definition of price from the point of view of the customer

The concept of price goes far beyond of the nominal and includes the whole range of benefits offered by the product, monetary and non-monetary, incurred by the customer to appropriate the product. The measure of price sensitivity on the part of customers will therefore have to take into account the whole satisfaction and costs considering also the nominal price of the product.

- ❏ The importance of pricing decisions

The price directly affects the level of demand and consequently determines the level of activity; the selling price directly determines the profitability of the business, not only in relation to the profit margin expected, but also on the basis of quality sold; the selling price influences the overall perception of the product and the brand contributes, to the positioning of it among those who knows the potential customers; the price is more likely the other marketing variable to the comparison between competing brands or products; the pricing strategy must be compatible with the other components of the marketing strategy.

- ❏ The objectives of price strategies

Objectives are classified in three categories: objectives targeted on profit, volumes and knowledge.

- ❏ Profit’s objectives

Among the objectives focused on profit there's the maximization of it and the realization of a sufficient rate of return on invested capital. The objective of the rate of return so-called "sufficient" is widespread and is reflected in practice with the calculation of a price-target or a price sufficient, ex: a price that ensures a return "reasonable" return on investment.

❏ Volume's objectives

The objectives centered on the volume are intended to increase the volume of business or market share or more simply to ensure an adequate rate of growth on sales. The objective of maximizing the market share involves the adoption of a price of penetration (or low price), lower than that the competition, in order to increase as quickly as possible the volume and consequently the market shares.

A completely different strategy is the price skimming which aims to achieve a high volume of business by taking advantage of the fact that certain groups of customers are willing to pay a high price which strictly perceives the value of the product. The objective in this case is the realization of a business volume possibly consistent through a policy of high price instead of high volume.

❏ The objectives of the competition

The objectives centered on competition aimed at price stabilization and alignment with competitors. The goal of the alignment (parity price) instead reveals that the company realizes that it cannot exert any influence on the market, especially if there is another leading company and whether the products are standardized, as is often the case in situations undifferentiated oligopoly. The company prefers in this case to direct their efforts towards forms of competition other than price. The development of a pricing strategy needs to take into consideration three groups of factors: cost, demand and competition.

2.2 Current price strategies

- Price flexible or differentiated

Low prices are applied to increase sales in the calm periods or when there are fluctuations in demand.

- Price prudent

The price discreet or prudent is designed to be neither too low or too high, compared to the market average and period to obtain the approval of the majority of customers and ensuring an adequate ROI maximizing revenue with good volumes.

- Discounted

The price is carefully used as a tool to bring the volume of business to a level that permits the maximization of profits through easy distribution or through economies of scale.

- Price Guarantee

The prices are high but also the value of the product or service. A product "Ferrari" must have a value "Ferrari" otherwise the customer is likely to be suspicious about the quality proposal.

· Maintaining a high level of prices

Similar to the price guaranteed this case of higher value of the product should look like rather than being based on the long and complex history of the brand image . For example, a manufacturer could sell the same goods with different labels, one of which at a lower price .

- Base price

Base prices are low to attract customers towards the product , with the hope (seller) to increase the initial price offered with extras or optional . In the car market is often the case that the base model is offered at a highly competitive price. With the inclusion on offer, with accessories, without which the basic model would be poor eye of the customer.

- Price -aligned

Reduce the quality of product and service standards to lower the price level. Is the case of the creation of a price rather than its specification.

- Price threshold

Price corresponding to the direct cost

- Price technician

Price corresponding to the break-even point, which is able to allow the recovery of direct costs and fixed costs of structure

- Target Price

Price that allows you to cover the direct costs, overhead costs to ensure a profit margin could be considered sufficient.

One of the strategies mainly used in pricing is known as price skimming. This strategy is used to sell a new product at a high price selecting a specific group of customers willing to pay for that. It is a prudent strategy, more financial and commercial. In commercial terms it is always easier to reduce a price increase. The advantages of the strategy of skimming are therefore particularly financial, frees up capital quickly and lets employees to work on other activities.

Another strategy often used is the “market penetration” which consists on practicing low prices to occupy a significant market share from the outset. Market penetration requires a high initial investment, in most of the cases the investments will see its return in the long-run. Commonly used as a commercial phenomenon and less financial. High volume for a short average cost to increase profits faster.

Price stimulates the demand for a key factor in the long-term profitability. The choice of pricing strategy thus involves two types of coherence:

- internal consistency
- external coherence

The importance of pricing decisions leads to four important and relevant consequences for the final choice.

- Oversupplied, if the market is present of many products similar one to the other. This would lead to a cut-throat competition among the different companies which, while selling more than others on the market and exceed many times you are forced to revenue grads.

- A short life cycle of products is the result of consumerism and the most developed capitalist societies.

- The proliferation of brands and products relatively poorly differentiated

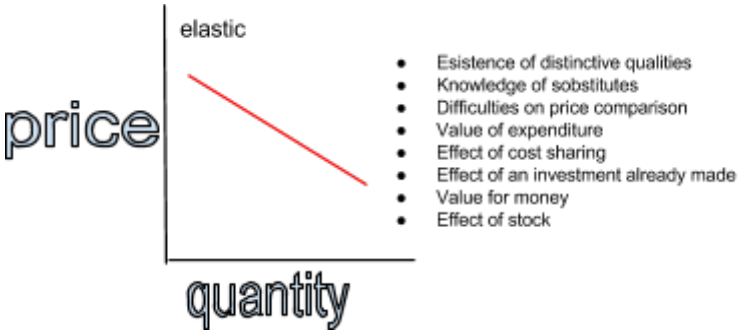
- The politics of private label and hard discounters

In the long term the cost of the product sets the lower limit of the price below which the firm can't go over. In many cases in the short term, you can also sell at prices below the cost of production.
Based on the costs and profits we then:

- price limit
  P = direct variable costs

- Price technician (Breakeven point)
  Pt = direct costs + fixed costs / expected volume

- price targetP = Pt / (1 - expected margin)



Two cases of price elasticity

To determine the maximum acceptable price we must consider the important aspects namely:

- Identify uses of the product
- Identify tangible and intangible benefits of the product
- Identify the non-monetary costs associated with the purchase
- Realize cost/benefit assessment

Price skimming:

- The price elasticity of demand is low
- The product life cycle is short or easily imitable
- The product is not readily comparable with others
- The difference perceived by the buyer is high

Penetration pricing:

- The price elasticity of demand is high
- The product life cycle is short, (strong competition on it)
- Need to create barriers to entry
- Low unit costs due to economies of scale and the effect of experience
- Production capacity of the company must be adequate
- Intensive distribution coverage
- Low transfer costs related to the adoption of the product

2.3 Car companies and price strategies

Especially today, big car companies launch their own new products thanks to the E-Marketing, a total new era of giving to the whole world the opportunity to have a better view of what are the offers they're going to face on the market. Thanks to Internet, there are many channels of information like: Google, Online magazines, Twitter, Facebook, Instagram, Ads on websites etc. With a click users are able to open their frontiers to different, intelligent and bilateral channels communicating personal interests.
From to 2001 it is proved that about the 85% of people before of purchasing a new product, interact with internet for general info. Car companies given this uses specialized internet media teams to build their own brand and product awareness offering many options like interaction with customers, promoting the company core

brand values and heritage, localize personalization of advertising and websites to reduce limits like language and compatibility.

This websites provide different information about corporation, services, online store and products to purchase. Thanks to this, companies can reach customers worldwide with a real buying experience thanks to the virtual showroom by which with a tool enables everyone who wants to build their own car, estimating costs and also to place orders. Thanks to this, consumers will be attracted by e-newsletters, brochures and online magazines with all the latest news on products and deals, helping the seller to promote the brand and the buyer being informed about all the latest news. To acquire and retain always new customers, companies e-marketing section gives a good customer relation and service delivery just through registration.

Computers, mobile devices, tablets for the e-marketing helps to increase popularity very rapidly thanks to applications available for different platforms like Facebook Apps, iOS, Android and Windows.

We can easily say that incorporating internet into the entire marketing strategy to attract and retain new customers is a valuable idea for effectiveness and efficiency. These ones are the features utilized today in e-marketing programs:

- SEARCH ENGINE MARKETING

To gain a considerable website traffic there is a number of techniques to promote brands through search engine. One of this one's is the paid search marketing where ads are bought in some search engine like BING, Google and Yahoo to let the link appear on the top of the page when users types specific keywords.

We can take the example of the SEO or search engine optimization which is an online software that basing the results of many users visiting a website or a web page, the more frequently is visited the more this one will be ranked in a better higher position on search engines. SEO can be targeted in different searches like video, image, location, news, industry specific or vertical. So how does this really works? basing the past researches by the keywords inserted in the research bar, the SEO is able to see which are the preferred stuff he have to look for.

- ONLINE PUBLIC RELATIONS

Through social networks like Twitter and Facebook is easy for companies to understand which are the public opinions, every mass complaint will be utilized to improve their mistakes and on creating a company goodwill. But sometimes using social networks for public relations can take troubles to companies giving the risk of creating a damaged brand image due to the liberty of the users, the solution can be a multi-directional communication for all the users who want to access and share their own information.

- ONLINE TELEVISION

Online television helps to promote brand's new features like quality, technology, performances and services offered from a company to potential customers. The two main features that helps online tv promotions are: Private tv on personal websites or better the popular website Youtube which distribute videos through his users interacting them all together sharing views and opening discussions on the bottom of the pages about the videos. Youtube gives the opportunity to create personal channels with subscribers and followers, this encourage all the companies on promoting themselves by the creation of videos and in increasing a non-indifferent number of users. For example Bmw spends the 15% of its marketing budget on digital marketing, red bull spends the 30% including mobile application and internet, this one for them wants to evidence how important it is their contribution to this marketing strategy. Online advertising includes pop-ups, banners, skyscrapers, shoshkeles and interstitials, all of this ones helps to increase their personal audience. In the last years what is helping companies to promote themselves with videos is the sponsorship for big extreme sports events like in the case of red bull which every year spends $500.000.000 or Bmw who promotes the Super Bowl.

- SOCIAL NETWORKS:

E-marketing strategies connect all together social networks such as Twitter, Youtube and Facebook, reaching a considerable number of people at a lower price comparing it to other channels. This interactive communication enable to conduct communal, viral

and very influencing campaigns. Adding to this, platforms like conversations brand blogging, those ones are a satisfactory conduct customer-product in final results.
Facebook have Fan Pages for brands promotions with followers for each of these pages from all over the world. With an algorithm studied, the company gives the opportunity on promoting companies to buy followers paying a monthly fee, this helps to increase the number of people sharing information through friendships very easily.

- EMAIL AND MOBILE MESSAGING:

Through a registration on company's personal websites, giving personal details, users automatically receives brand awareness promotions, customer retention and also obtaining data that helps learning customer online behaviors. Text messaging and Emails are also integrated through different channels for a better personalization. The only defect of this integrated communication channel is that not always the delivery have a great success, users easily ignore it.

- ONLINE MAGAZINE AND NEWSLETTERS:

Online magazines are considered the new frontier of reading experience, instead of wasting every year tons of papers, new revolution for saving papers are interactive features with informations, pictures, videos and entertainments which makes everything more attractive for users who doesn’t want just to read but also have a general idea of what is the real world they go through inside important websites. Newsletters let companies be able to deliver general informations at a relatively low cost compared to printing and delivery costs.

CHAPTER 3

3. Willingness to pay for electric cars and scientific researches

3.1 Miles analysis

Given different studies made by IDTechEx ltd. electric vehicles market is expected to grow of about 200% over the next ten years. Industries under this aspects are not just concentrating their powers on the everyday cars used by us for our comforts, but also for some projects growth in electric vehicles like ground vehicles, boats, robots and ultra quiet aircraft.

Going back to ordinary mortals we can analyze different scientific researches made all over world societies on willingness to pay for electric cars. It is proven that behind consumers, there's an anxiety that concerns their limited driving range. If ordinary consumers doesn't fight against these fears, it is unlikely that they will take into account purchasing an electric car. It is important that before the introduction of a low emission vehicle, the market requires a full knowledge understanding what they're going to face everyday, this aspect requires as we have written before some years to get used to.

Behind a meta analysis of studies and important investigations results that consumers are willing to pay, on average, between 66 and 75 US$ for a 1-mile increase in driving range, consumers' marginal willingness to pay decreases at a diminishing rate with increases in driving range, this takes to the assumption that short driving range are a major limitation to the large scale adoption battery. It is defined that technological developments permits to the market a longer drive will give the result of a better market penetration.

Another experiment that took the same result from buyers requests on a higher available range a case study on 79 participants who had driven an EV for 3 months. The result is that range preferences the users who were found to be substantially higher than their average range needs. The regression analysis easily explains that the state of anxiety on EV were related to higher range preferences for those ones decreased over the 3 months of usage. The indicators of average range needs were associated to a preference on EV after increasing experiences behind those ones, just this customers seem to give an accurate estimate on the final decision. Introducing this cars wouldn't be easy if there's no attitude on trying them for a time experience.

The power stored on the batteries of the electric vehicles can go back to the power grid and working on it all of the times the grid needs reserve power. This reduces the life cycle cost of owning an EV but at the same time this can lead to payments to owners. Given this study and analyzing 3029 respondents and giving them the choice to compare their preferred gasoline vehicle with two EV. The electric vehicles were presented with this two attributes: required plug-in time and "guaranteed minimum driving range". Then to the respondents were given a particular contract between them and a power aggregator that had to be always re-furnished. Final result is that people prefers to pay more for service provided or either an advanced cash payment rather than imposing fixed requirements on participants.

Another study comparing electric vehicles to conventional ones explains that people are inclined to pay for EV in the case they don't have to incur in additional costs equivalent to conventional vehicles for which the decision of a model depends also on changes in gasoline prices. The lifetime total cost for all electric vehicles types that are driven for 120,000 miles over 12 years are affordable with no more than 5% higher in lifetime total cost than a conventional vehicle except of the hybrid one with the electric plug-in equipped with a 35 mile driving range. An analysis based on this, revealed that cost savings can go lower of 42$ per ton. This study shows us the importance of a policy about energies including tax credits giving a strong importance to cost differentials and consumers' conveniences.

We have also to underline the importance of the EV charging network which is a cyber-physical system, which is made of a power grid and a great number of EVs and aggregators that collect information and control the charging procedure. This case study explains from a customer's perspective which are the charging problems considering also the aggregate revenue and customer's demand and cost.

We specify the study between two scenarios: static and dynamic.

- Static**:** Customers' charging demands are provided to the aggregator in advance
- Dynamic**:** An EV may come and leave at any time, known from the aggregator in advance

The dynamic scenario is more realistic but the Static solution can be better used to save costs, make more revenues and serve it as a benchmark for performance evaluation. Basing some studies on real electricity prices and load data that significant revenues and cost savings can be achieved by a optimal charging scheduling instead of an unregulated baseline approach. The dynamic charging in the end have better solutions.

For example from a case study made in Korea, calculating the marginal willingness to pay by estimating a mixed logit model and analyzing the consumer preferences on the key attributes, the result confirms that consumers have a greater preference for EV with swappable battery rather than unswappable battery, and another important fact is that more preferences came from the lump-sum payment rather than installment of the subsidies.

Basing some studies on the real- world driving conditions, hybrid cars are more fuel-efficient in india and China than those ones in the United States. Fuel savings for hybrid are fairly grossly underestimated, showing only a 29% savings over conventional vehicles.
The government of India launched last year a goal plan in order to get 6 to 7 million hybrid and electric vehicles on the road by 2020. This objective took them to work with the Berkeley Lab to see the results.

3.2 Price analysis

Given this, 3029 respondents asked to choose between their preferred gasoline vehicle and two electric versions of that preferred one. Results were used to estimate the willingness to pay for five electric vehicle attributes: driving range, charging time, fuel cost saving, pollution reduction and performance. It came out that individuals were willing to pay from 35$ to 75$ for a mile of added driving range incrementing the wtp per mile and decreasing at higher distances. They were willing to pay from $425 to $3250 per hour reduction in charging time for a 50 mile charge. Respondents capitalized about 5 years of fuel saving into the purchase price of an electric vehicle, people with the

highest values for electric vehicles were willing to pay a premium above their wtp for a gasoline vehicle that ranged from $6000 to $16,000 for electric vehicles with the most desirable attributes. Is important to underline that battery cost must drop significantly before electric vehicles will find a mass market without subsidy.

From a case study made by the Massachusetts Institute of Technology on the demand for electric cars with a daily range between 50 and 100 miles and a six to eight hours battery recharging period, the result is a procedure that allows a survey data within a qualitative choice model framework. Each subject was asked to categorize 16 car designs diversified over 9 attributes. Seats capacity, the maximum speed, price, operating costs, those ones are all attributes always valuated, but the most important one is the limited daily range. Scientists developed an “ordered logit model” to rank a preference data. The result of this one estimated over approximately 200 people and the empirical finding is that consumer place an extremely high negative valuation on the limited range. Giving this behind that the doubt from the consumer comes from the existing technology. The logit model as a parameter have the idea of a common one in a large scale population, but as forecast the hypothesis gives different preference parameters in the final data. The result is confirmed and the sample variation of attributes confirm that people limits this new technology just for range limitations.

In another section another estimation is the auto choice model based on a rank of different orders in a ADL survey data. The preference parameters with a given utility function, B, are all identical in the population. The common factor with the logit model is that the population’s heterogeneity is accounted with socioeconomics characteristics like the family members and the income. With this parameters, tradeoffs were calculated assuming initial price, operating costs, limited range, size and performances of the car.

ADL study sample included the household with the driving and ownership characteristics, very similar to the characteristics of electric and hybrid vehicles. There was no intention to represent the entire U.S automobile population but with 193 individuals divided in groups of 10 individuals each the result was:

- Nine selected cities with different forecasts and climate conditions suitable for electric vehicles, reducing battery's performance.
- A mixture of men and women with different interests while using a car
- People were required to be the principal drivers
- Daily round trips to and from work or school excluding trips of over 50 miles

This ADL workshop gave to the respondents, sixteen cards containing descriptions of automobilities and the nine characteristics: fuel cost per 10,000 miles,, initial price, whether powered by a conventional gasoline engine or battery with a six or seven hours recharge, range before recharging or refueling, top speed, acceleration, seats, air conditioning and type of warranty. Every respondent were asked to describe in the cards what they were likely to purchase. Everyone were motivated on buying a new car instead of a used one. Socioeconomic characteristics in families also were collected.
Down here a table that gives a more specific idea of the logit model estimations:

Table 1
Ordered logit model estimated with common taste parameters.[a]

Variable	Estimated coefficient
(1) Price ($2,000, $3,000, $4,500 or $6,000 * 10^{-3})	−0.2093 (0.0290)
(2) Fuel cost ($150, $400 or $1,000 * 10^{-3})	−0.7891 (0.1346)
(3) Gas-powered (=1 vs electric-powered =0)	0.4549 (0.1672)
(4) Range (50 or 200 miles * 10^{-3})	4.0378 (0.5148)
(5) Number of seats (2 or 4)	−0.0385 (0.0589)
(6) Air conditioning (=1 vs none =0)	−0.0393 (0.1049)
(7) Special 3-year warranty	0.1668 (0.0606)
(8) (Price)/(Income)	0.4407 (0.4961)
(9) (Fuel cost)/(Income)	3.3351 (2.3038)
(10) (Gas-powered) * (Range)	−0.1333 (0.5811)
(11) (Gas-powered) * (Female)	−0.3166 (0.1137)
(12) (Gas-powered) * (Commuter)	−0.2525 (0.1132)
(13) (Gas-powered) * (Higher education)	−0.0011 (0.0962)
(14) (Electric-powered) * (Special warranty)	0.1872 (0.0910)
(15) (Range) * (Commuter)	0.6906 (0.5724)
(16) Top speed 45 MPT (=1 vs 65 MPH =0)	−1.4032 (0.3063)
(17) High acceleration	0.0566 (0.0562)
(18) (Top speed 45) * (Commuter)	−0.3661 (0.4102)
(19) (Family size)/(Number of seats)	−0.7696 (0.1220)
(20) (Air conditioning) * (Income * 10^{-5})	0.9357 (0.3841)
(21) (Air conditioning) * (Boston or Seattle)	−0.2945 (0.1110)

Fig. 3.1: Jin C., Optimizing electric vehicles charging

Final results gives us an idea of limited range and long refueling which are an important barrier to consumer willingness to accept electric cars. The main goal to achieve as a technological improvement is the battery. With all of this parameters, means 16 types of cars per each person. The function is given with, B, which is less than the number of choices. Giving different individuals parameters estimations, we associate this approach to the one who used Cardell in 1977 or Hausman-Wise in 1978, who both used the logit and probit model for distribution heterogeneity. The ranked preference data gave the opportunity to permit to each person to have their own parameters.

3.3 American scientific researches

The study made by the American economist John E. Calfee not on the prediction of electric car's demand but more specific on what kind of cars what kind of cars one introduced in the market the consumers tendencies to purchase. Obviously the diversification of vehicles request on market depends also in the distribution channels and the success of the singular electric car considering also limited range and performance and on finding odd market niches and unusual tastes. The analysis in this way it gets more difficult to solve, this give the specific mean that the research couldn't be developed only on the classical averages of the "typical" consumer. Second important factor to consider is the new dimension of low performances electric cars which were irrelevant in the past and even in today's market. In final, this one is a niches study about only a small subsection of this new market considering also the private demand and not the one from business, categorizing all the study to automobiles and not vans or trucks. This sector must be prepared not only on the willingness to sell the cars but to be really ready factors like repair facilities.

A pilot project for the demand of clean-fuel vehicles in California conducted a study on how the demand for clean-fuel vehicles vary the attributes comparing this ones to conventional gasoline ones. Everything is based on the different typologies of vehicles from electric to methanol, ethanol, compressed natural gas or propane. Considering also the purchase price, fuel cost, range between refueling, availability of fuel and the level of reduction in emissions compared to our vehicles. In California South Coast, 700 people gave their own opinion on the hypothetical future vehicles. In final the refueling is an important attribute especially in the final choice because range con fuel cost are considered important factors like the emission levels.

3.4 Scientific results in a worldwide range

European automotive industry is the world leader in technology developments, this ones are the first words dictated by the University of Essen. This case study is made exclusively with the scope to investigate in new opportunities for the automotive industry, more specified developing two models: the first one is a market model to develop the electro mobility globally, the second one more complicated is a model that helps the development of a value added in the transition to electro mobility in the EU.

Registrations for this new vehicles worldwide today stands under a percentage of 0.06 in countries like EU, USA, Japan, China and South Korea. There's no trust among the market participants because almost all of them remember the phase of development of electro mobility in the 90s giving a lack of success unfortunately thus to burn the incentives given by the states.

A case study made on a model validated by experts regarding cost/benefit gave a general idea about purchase decisions in all the commercial and private segments. Thanks to this model previsions says that in 2020 registrations will increase to 14.8 million with a considerable amount of 7% on the market share in the electric industry, 15 million vehicles for 2030.

What gives a high devaluation on today requests on the market is the high price of the Batteries which tendencies to decrease of the 50% by 2020 and 70% by 2030.

Purpose Design and Conversion Design are the two results of the architectural vehicle assembly because after econometrics perspectives, the result based on the creation in large scale standardizing and modulating gives a huge cost reduction. If we take the example of the i-brand made by BMW, is a risky model because the direct integration of an electric propulsion in an existing vehicle architecture is much cheaper in the final sum.

The benefits that EV will take to the market in the next years are considerably high in terms of fuel consumption which is expected to be reduced of the 25%. The Range Extender's utility- cost index will increase from 55 today to 78 in 2020 and 119 in 2030, all of this making a comparison to our internal combustion engines. in Plug-In Hybrids the utility cost index will vary from 67 today to 83 in 2020 and 128 in 2030 always compared to our vehicles. At the end the utility-cost Index of Fuel Cell Electric Vehicles will change from 1 today to 8 in 2020 and 54 by 2030.

Looking to the trading aspects for the next years, today there are international agreements between EU and Japan. Chinese for example has expanded rapidly and EU at the same time have more than the 60% of luxury vehicles especially of SUV market. By 2020 conversely joint ventures for the export of EV in Europe are still established.

Considering the value added in 2011 in the automotive industry, final results gives us an amount of 151 billion expecting to be stable from 2020 to 2030 from an amount of approximately 141 billion. With the takeover of the electric vehicles the value added will be reduced of 4% in 2020 and 10% in 2030 but this huge loss will be automatically be compensated by gains in services surrounding electro mobility.

If we take the more specific cell batteries technology, Europe is much more less developed related to the Asian or American industry. Our country is more specialized in electric engines and power electronics. Battery technology is the most relevant factor. Batteries components like cathodes, anodes, electrolytes and cell productions will be created in Asia and at the same time European industry will compete on cell production. We can say that nowadays the general production will be completed worldwide in the sector of batteries and not anymore in specific industries. Agreements between European and Asian manufacturing will be the answer for an important step which will take to our market a new era of automotive.

Public policies for the conclusion of this important step is the most relevant factor, after that labor costs and logistical costs will play a less estimated role but always important.

Is difficult to find competent people today who knows how to develop especially in large scale Electrical automotive industries, reason why many companies are planning to enter into alliances and joint ventures both between large and small companies or even medium-sized and start-up companies.

Efficiency-oriented is the maximization of internal combustion engine technology, Flexibility-oriented is the direct production of the vehicle giving the designing and production process.

The important factor of the introduction of new services in the electro mobility will lead medium-sized companies to develop recycling start-ups, charging infrastructures and car sharing. Obviously small recharging stations will be another key to reduce the space

occupancy in the streets, if we compare electrical stations to the petrol ones, present today in regions all around the world. Thanks to this the market share of leasing or recharging batteries will increment mass opportunities.

A direct and indirect support will be required for a linear public policy in the electro mobility breakthrough both in USA and Asia.

The Accelerated Path to this new scenario have a fast view of the global automotive market for a deep market penetration up to 2020 under all the aspects from the technological to business models and to finish more difficult the stabilization worldwide of public policy supports leading to an additional EU-27 value added of approximately 40 billion Euro in 2020 and 30 in 2030 giving 100,000 to 150,000 jobs opportunities in Europe. In the case of a Long run to it with a slow market especially in the BRIC countries who develops less dynamically, the European automotive industry value added will be catched in a worst position giving minus 20 billion in 2020 and minus 40 billion in 2030, cutting 150,000 to 200,000 jobs. The general cloud gives an idea of a value added job creation in the European automotive industry.

By the recommendation of CARS 21 High Level Group assuming policy approach, smart regulations and a better global market access the five more specific “no regret moves” for the European public policy will be:

- A European platform for battery technology to help to develop the missing capabilities in battery technology.
- A formal training initiative in the field of electro mobility to reduce the lack of workers’ competences related to it.
- A special depreciation regime to support investments in production technologies for electric vehicles and their components.
- Expansion of the charging infrastructure in order to enable charging of electric vehicles in the individual countries.
- Focused media campaign to increase the level of information held by customers.

Obviously as we have mentioned in this chapter already, there are many components to consider in the analysis of opportunities both from the creation of workplaces through

electro mobility which is a positive fact for European citizens and in the other way the risk of an unrealistic assessment of this development with public restrictions policies in the case of a missing multi-level strategy in Europe and an excessive government spending.

CHAPTER 4

4. History of automobiles

History of automobile as a mean of transportation began in the nineteenth century. It is based on models already created earlier and that’s why we can’t determine the exact date of the first embodiment.

During the Renaissance period were created models of wagons that can move on their own, we must consider that the projects were only on paper but working prototypes as the wagon Cugnot, that working at steam were built in the late eighteenth century.

The car was created to replace animal traction but only after the First World War with the introduction of the internal combustion engine and gasoline began the popularization of the car. Over the years, proposals for alternatives to gasoline were always in the historical periods considerations but never taken with seriousness.

Even in the nineteenth century cars with steam traction were built, despite what engineers and inventors continued to work on muscular wheel drive models or sailing in 1802 the Swiss Isaac de Rivaz developed the first car with an internal combustion engine.

In 1839, Robert Anderson created the first electric car and only 60 years after the prototype "La Jamais Contente" was the first to exceed the speed of 100 km/h looking like a promise for electric cars, but in the course of the twentieth century, electric vehicles became much more rare than vehicles with internal combustion engine.

Our age is characterized especially in the sign of the machine today, men’s relationship with his creation is arrived to a degree of precision and unprecedented perfectibility. The historical phase between the first tools made from branches, bones, stones and today Nanotechnology is the path to fusion technique and companies have had; cultural

evolution of instruments is the total expression accompanied by the evolution of human brain, a link that leads to "knowledge" and "know-how".

CHAPTER 5

5. Buyers and economic analysis

The relationship between cars and humans to developed in so many points of view.
The need that forces us to use the car for journeys of first importance; for example get to work is the first factor, commissions and family emergencies.
In the second floor we have those who use the car for traveling or for long trips. Many families who have a car to save on excessive costs such as gasoline, insurance decide to take advantage of this privilege only for entertainment.
On the third floor we have those who buy cars for a true passion. Those ones uses their cars very rarely treating this objects like precious gems.
Given these different features is our duty to make a careful analysis of the way in which it is experienced and interpreted the car in the coming years, especially in the Italian context.
A real revolution in the national and international market of cars is that the car sharing that allows you to use an auto reservation, picking it up and bringing it back into a parking lot and paying according to the use made.
This service is used within sustainable mobility policies to promote the reduction of environmental impacts, social and economic generated by private vehicles. Among the things we have air pollution, noise pollution, congestion, accident rates, the deterioration of urban areas caused by the space occupied by the vehicle and the use of land caused by the construction of roads and infrastructure.
The reasons of this phenomenon of car sharing are different; first of all it is possible to satisfy most of their needs for mobility using public transport or mobility unauthorized. The second concerns the density of the population that can cover a large catchment area with each parking maintaining modest distances between the parking lot and the home users. Third and most important is the possession of a car hard to sustain and if

ever used with high costs in the long-run. Do not forget that owning a car does not only imply the purchase of the vehicle but also maintenance costs very high.
The garage first of all, in many countries is considered a value almost equal to that of a small apartment. The insurance in second point is the most expensive in Europe, in relation to the other countries we pay 231 euros more.
A service of car sharing is convenient for those who use the car only sporadically (if you drive less than 10,000 km per year). The families who own one or more cars and need to use another, can combine the possession of fewer car with the car sharing service when needed.
The advantageous aspects are very important for the community, given the large catchment area possessors of a car.
As we have already said before, the first thing to consider is the reduction of the number of cars parked on the street.
The rapid rotation of the material: the cars share are used intensively, so they tend to be restarted at a frequency greater than the private car they replace. Users will drive newer cars than they would have been owners in the absence of the service with several advantages:

- greater road safety because the newer cars are more technologically secure
- impact on the environment, you will enjoy the latest technological advances in terms of emissions and fuel consumption
- cars will be disposed of to wear and not for aging, each of these will develop a greater mileage.

5.1 Advantages and disadvantages of electric cars

We arrived at the conclusion that electric cars have advantages as disadvantages.
Among the most important we have the first as regards the non-utilization of the oxygen for combustion, a basic principle for the operation of any internal combustion engine which burning a variety of oxygen when it is in motion significantly reduces the deterioration of the atmosphere.

Electric cars reduce the dependence on oil. As a commodity imported oil brings severely damages to the trade balance and creates economic dependence with great strategic risk because supplies were financially unstable and ruled by dictatorial systems that buy stakes in major companies and international business groups thus being able influence strategies, political and economic life of the western states.
Not affected by the volatility of oil prices; reduce energy costs by up to 90% and recovering 15% of the total energy expenditure, for example with the charging system slowdowns due to braking and descents, this leads to the mitigation of global warming, particularly if their energy is produced with the ' wind, hydroelectric, solar and nuclear power. Just think of the production of toxic fumes such as CO, CO2, NOx, hydrocarbons and many others.
In the previous chapters we have said that the battery is one of the biggest dilemmas for electric cars, and so with the Li-Ion batteries or Zinc-air and a quick replacement in case of long trips, these can extend up to 1500 km. Electric cars have a life very high because in case of engine problems, those ones are easily repairable and replaceable in the event with a significantly reduction cost compared to combustion.
Aluminum is the best material to build electric cars because thanks to this, can last at least 50 years old and over only having to replace the brake actuator and electric circuits ensuring a lower consumption of energy, raw materials and their processing, then less need of destruction and waste of resources.

Electric cars would not bring benefits only in our society, there are some target points regarding pollution we have to take care of. Most electricity today is produced with fossil fuels leading to problems of emissions and waste generation. Burning coal produces about 0.97 kg of CO2 per kilowatt-hour and other pollutants in the extraction, transportation and refining of fuel.
The batteries have very high expenses like a starting price from 1,500 € (lead acid) to 15,000 euro (li-ion). Whenever you change in actual and daily excursions with small electric vehicles there are no more than 32,000 km with a single set of batteries, and the incidence of the cost of replacement can be from 20 to 30 cents per kilometer higher than petrol cars.

Despite the drastic reduction of noise pollution on the roads which would benefit from the low noise of electric vehicles involves a greater investment risk for pedestrians and cyclists due to the absence of audible noise.

CONCLUSION

Taking a brief and hypothetical comparison between the critical points regarding air pollution both in terms of petrochemical and electrical solution that can bring benefits to our society should be active mainly towards solutions very difficult to apply, but given the recent sensitivity protection of human beings on the earth and above all, thanks to Internet and the easy dissemination of this information may be possible. By reducing the number of cars directly owned and, consequently, to take advantage of an eco-friendly car-sharing services, would benefit not only in the pockets of Italians but especially to the defense of our planet, an exhaustible natural beauty.

The use of cars to rent in the short term gives the opportunity to take advantage of public transportation offered by cities. Otherwise for longer trips or any important event electric cars provided by public or private companies.

Giving the final question " How much are the consumers are willing to pay and why in our country" we can complete our survey mentioning statistical results from some websites.

The first one is www.ecoblog.it which explains that following their research the 61% probably will acquire an electric car. A further 10% will be able to acquire it for sure, the 25% probably not and the last 5% wouldn't buy it for sure.

On the website www.rischiocalcolato.it I found some graphs regarding the registrations of the electric cars from 2010 to 2014.

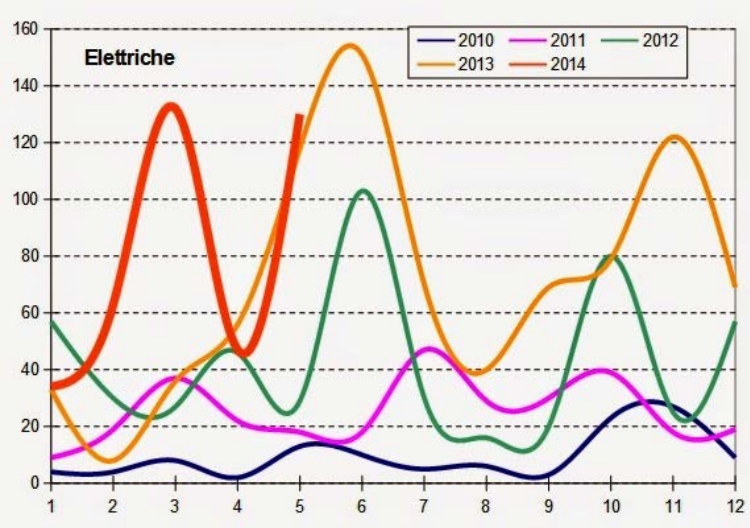


Fig. 5.1: www.ecoblog.it

Electric cars monthly registrations per solar year

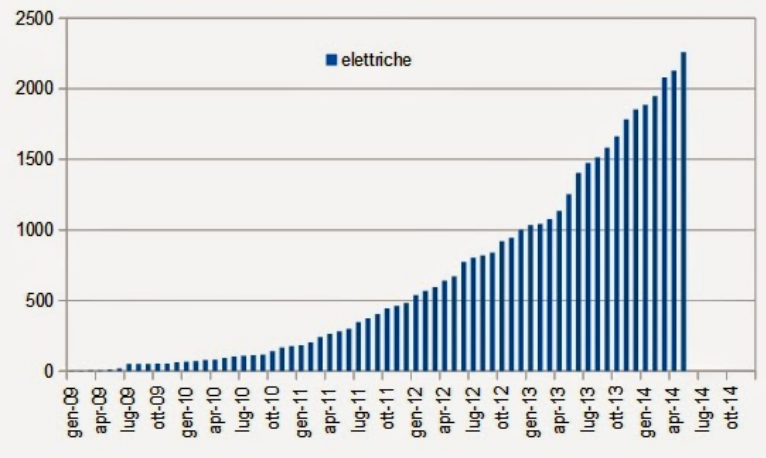


Fig. 5.2: www.rischiocalcolato.it

Progression of electric cars either registered from 2009 till today

This two graphs shows an incredible increase in the registrations of electric cars in Italy in the last four years. If the market strategies used by companies continues like that they will surely continue to increase on selling but I continue with my idea on car sharing, money are always less and car's expenditures per year are too high.

I took part on a project made between University Luiss Guido Carli and the Sapienza University of Rome regarding the Willingness to Pay for electric cars in our ages.
This research consisted on scouring scientific researches, worldwide questionnaires and cases, websites and material from libraries to a better understand on which is nowadays the position of electric cars on worldwide market but better in our national one's.
The second part of the research consisted on a survey made with the help of families, friends and acquaintances with a base of 349 results. This research consisted on understanding which is their social position and other key elements that leeded on helping us what people really knows and especially if they are ready to introduce themselves in a new era. I will draw up 5 general questions results that will lead to understand easier and in general the social situation of people. The highest percentage of people taking part on this project are students with an annual income lower or the equal for 15.000Euros per year.

1) On this first question regarding the optional changing of a new car and which are the key factors people would choose on it we take in consideration the facility of parking, the reduction of CO2 emissions, Ratio Liters/fuel, Price of the car, the total performance of the car, the design. The final result says that people's final decision will be based on the first point the price of the car, the second the ratio of liters for km viable the comes the CO2 emission and the parking facility.
2) The second question is regarding the possibility of buying a new car with a budget between 25.000,00Euros and 35.000,00Euros regarding also the necessities of the customer. The first one is about a Electric Vehicle with a 145km autonomy, total recharging 8 hours, 5 hours recharging for 100km and 1Euro saving per each Km, pollution than a gasoline car with 30%less, 50% less accelleration to gasoline cars and 5.000Euros more on final cost. The second one with an autonomy of 300Km, 10 hours full battery, 2 hours charging of battery for 100 km, 1,5Euros savings per each Km, less pollution 50%, same acceleration but 18.000 Euros more on final price. Third and last one is the classic Gasoline car with a 700km tank, fuel with 70Euros with fuel cost at

1.68 Euros. No saving on Km/l, pollution at 125 g/Km, Acceleration from 0 to 100 in 12,5 sec and a final cost of 17.000 Euros.

3) From a question made to get a general idea on the real culture on electric vehicles world and what concerns them, we saw that a really high percentage of people doesn't know that much about them, this means that marketers who works for it, if they really necessitate a deep penetration in our society, first at all who they must work with are people from 16 to 30 years old.

4) Concerning a general idea about prices, people are not willing to pay high amounts of money to introduce electric cars in their own quotidianity, their incomes are not high and what people really needs and what maybe will help them to generate an idea about it are incentives.

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