



ESCUELA TÉCNICA SUPERIOR DE INGENIERÍA  
(ICAI)

MÁSTER EN INGENIERÍA INDUSTRIAL  
ESPECIALIDAD DE EMPRENDIMIENTO

**ANALYSIS OF THE TOTAL SUBSTITUTION OF  
THE INTERNAL COMBUSTION ENGINE  
VEHICLES BY PUBLIC ELECTRIC ONES IN  
MADRID IN THE NEXT FIVE YEARS**

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Madrid

July 2018



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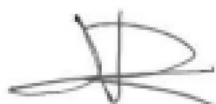
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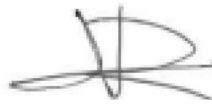
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Madrid

July 2018



# ANÁLISIS DE LA SUSTITUCIÓN DE LOS VEHÍCULOS DE COMBUSTIÓN POR VEHÍCULOS ELÉCTRICOS DE ALQUILER IN MADRID EN LOS PRÓXIMOS CINCO AÑOS.

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## **RESUMEN DEL PROYECTO**

### **1. Introducción**

Este proyecto de emprendimiento está basado en el diseño y desarrollo de un Business Plan en relación con una idea cuyo objetivo es la reducción de la contaminación y el gran tráfico que Madrid sufre prácticamente a diario. Para ello, la idea es ir reduciendo paulatinamente el número de vehículos con moto de combustión que circulan por nuestra ciudad y sustituirlos con coches eléctricos, ya sean de alquiler o privados, siendo este tipo de vehículo el único capaz de circular por Madrid en cinco años, junto a transporte público, eléctrico obviamente, y motocicletas, tanto eléctricas como de combustión.

El objetivo principal del proyecto es conseguir un plan que refuerce nuestra idea y que demuestre que es dicho proyecto tiene impactos positivos tanto en la economía, en la contaminación y en el tráfico.

### **2. Metodología**

El trabajo realizado durante estos meses ha estado dividido en tres grandes bloques. En primer lugar, realizamos una investigación acerca de la historia de los coches eléctricos y cómo ha ido incrementándose su demanda durante los últimos años, y cuál es el pronóstico para el futuro más cercano. En segundo lugar, realizamos lo que es el Business Plan propiamente dicho. Por un lado, diseñamos dicho plan, centrándonos en la parte económica que es la que más importancia tenía ya que era la que iba a dictaminar si el proyecto podía hacerse realidad o no, dependiendo de su rentabilidad. Por otro lado, diseñamos el Business Model Canvas, en el que explicamos tanto nuestras fuentes de ganancias y costes, como nuestros posibles inversores o actividades para nuestros clientes, entre otros muchos aspectos. En tercer lugar, realizamos, a modo de conclusión, una serie de informes técnicos con carácter económico, en relación con la contaminación y al tráfico para observar con mayor claridad el impacto que el proyecto iba a tener sobre estos tres aspectos.

### 3. Resultados

En relación con el Business Plan, pudimos comprobar que, a pesar de la dificultad que el proyecto tiene, la rentabilidad está asegurada, independientemente de la distribución de la deuda y las acciones (capital budgeting). Tras varios análisis, decidimos centrarnos en una distribución 70% equity y 30% deuda, ya que al ser una empresa start-up la parte de inversión ha de ser mayor que la deuda, ya que los bancos no van a prestarnos gran cantidad de dinero hasta que no vean que nuestra compañía es fiable y nuestros proyectos tienen futuro.

Para obtener los resultados, utilizamos la metodología del descuento de flujo de caja (DFC). Para ello calculamos los flujos de caja de los cinco años en los que el proyecto consiste y calculamos su valor presente con el WACC. La tabla que se muestra a continuación nos enseña los diferentes valores obtenidos teniendo en cuenta la proporción de deuda e inversión. Como podemos comprobar, a mayor deuda, menor WACC obtenido lo que supone un mayor NPV como podemos comprobar en la Tabla 2.

|                    | Cost of Debt | Cost of Equity | Beta  | WACC  |
|--------------------|--------------|----------------|-------|-------|
| 100% Eq. & 0% Debt | 0,61%        | 5,64%          | 0,705 | 5,64% |
| 70% Eq. & 30% Debt | 0,61%        | 7,26%          | 0,932 | 5,27% |
| 50% Eq. & 50% Debt | 0,61%        | 9,42%          | 1,234 | 4,94% |
| 30% Eq. & 70% Debt | 0,61%        | 14,45%         | 1,939 | 4,76% |

*Tabla 1 Resumen del WACC*

La siguiente tabla muestra un resumen de las diferentes combinaciones de deuda e inversión estudiadas y, como podemos comprobar, en todas las posibilidades, la rentabilidad está asegurada. Además, vemos que cuanto mayor proporción de deuda, mayor será la rentabilidad, pero como ya hemos comentado anteriormente, al ser una start-up, esta opción resulta irreal.

|                    | NPV              | IRR    | Payback Period |
|--------------------|------------------|--------|----------------|
| 100% Eq. & 0% Debt | € 648.027485,75  | 31,61% | 3,16           |
| 70% Eq. & 30% Debt | € 664.219844,24  | 31,61% | 3,16           |
| 50% Eq. & 50% Debt | € 678.531.127,51 | 31,61% | 3,16           |
| 30% Eq. & 70% Debt | € 686.282.771,50 | 31,61% | 3,16           |

*Tabla 2 Tabla Resumen de Rentabilidad*

### 4. Conclusiones

Para terminar con este pequeño resumen del proyecto, vamos a realizar una serie de conclusiones en relación con los resultados obtenidos.

En primer lugar, en relación con la economía, podemos asegurar, como hemos comprobado anteriormente, que el proyecto es rentable y que, aunque durante los

primeros años no se vea ganancia alguna, a partir del año 3, las ganancias van a crecer considerablemente.

En segundo lugar, en relación con la contaminación, es importante decir que debido al cambio a vehículos eléctricos la reducción es obvia. Pero lo importante es saber la cantidad que vamos a reducir. Tras una serie de investigaciones, pudimos comprobar que los vehículos pertenecientes a Car2go han obtenido una reducción de 500.000 toneladas con sólo 500 vehículos. Por tanto, si nosotros, usando la misma idea de transporte, podremos llegar a una reducción cercana a los 40 millones de toneladas, lo que supondrá una reducción de en torno al 50% de la contaminación provocada por el transporte en nuestro país.

En tercer lugar, en términos de tráfico, podemos asegurar que la reducción que teníamos en mente se va a llevar a cabo. La razón principal es la importante reducción de la cantidad de vehículos que circularán por Madrid. Pasaremos de los más de dos millones de vehículos que circulan actualmente a poco más de un millón de vehículos, lo que supone un gran paso.

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**Author: Rojo Tahoces, Francisco Javier**

Director: Sander, Erik

Collaborating Entities: ICAI - Universidad Pontificia Comillas, UF – University of Florida.

## **PROJECT SUMMARY**

### **1. Introduction**

This entrepreneurship project is based on the design and development of a Business Plan related with an idea whose main goal is the reduction of the pollution and traffic congestion that Madrid has nowadays. So, to achieve that, the idea is to reduce year by year the number of combustion engine vehicles that nowadays ride on Madrid streets and substitute them by electric cars, both private and public, transforming this type of vehicle the only one able to ride on our streets in five years with public transport, obviously electric, and motorbikes, both electric and combustion ones, because they do not pollute in a huge level.

The main goal of the project is to design a profitable plan, able to demonstrate that our idea can become real and the impacts in terms of economy, pollution and traffic congestion are all positive.

### **2. Methodology**

The project has been divided in three main sections. Firstly, we made a research related with the electric vehicles history and how its demand has changed along the years, focusing on the last decade and the near future. Secondly, we designed the Business Plan, which is divided in two main parts. On the one hand, we designed the plan focusing on the financial terms because it was the most important section and the one which was going to clarify if our project could become real, depending on the profitability. On the other hand, we designed the Business Model Canvas, where we explained several topics, such as the revenues and costs sources, the key partners of our company or the main activities that we have prepared for our customers to let them know us and our service. Finally, as a conclusion, we wrote three reports related with economy, pollution and traffic congestion to figure out the impact that the project has in these three main topics.

### 3. Principal Outcomes

In terms of the Business Plan, we could check that, besides the difficulty of the project, the profitability was assured, not worrying about the different capital structure used because all of them assured the profitability. After several analysis, we decided to focus on a capital budgeting of 70% of equity and 30% of debt, because being a start-up, it is really tough to get enough money of the banks as debt, so we need to ask for the most part of the money to the project investors. When we could show the banks that our idea and project is profitable, and our company is reliable, we could ask for bigger amount of money to the banks.

To achieve the different outcomes, we used the Discount Cash Flow Method (DCF). So, we needed to calculate the free cash flow of each of the five years of the project, taking into account the operating and investing cash flows, and the financing cash flows to get the appropriate discount rate (WACC). The following table shows the different values achieved taking into account the distribution of debt and equity. As we can check, with more debt, less WACC achieved, which means a higher NPV.

|                    | Cost of Debt | Cost of Equity | Beta  | WACC  |
|--------------------|--------------|----------------|-------|-------|
| 100% Eq. & 0% Debt | 0,61%        | 5,64%          | 0,705 | 5,64% |
| 70% Eq. & 30% Debt | 0,61%        | 7,26%          | 0,932 | 5,27% |
| 50% Eq. & 50% Debt | 0,61%        | 9,42%          | 1,234 | 4,94% |
| 30% Eq. & 70% Debt | 0,61%        | 14,45%         | 1,939 | 4,76% |

*Table 0.1 WACC Resume*

The following table shows a resume of the different combinations of debt and equity and, as we can figure out, in all the possibilities, the profitability is assured. Moreover, with a higher debt proportion, a higher NPV is achieved but this option is not real as we explained before.

|                    | NPV              | IRR    | Payback Period |
|--------------------|------------------|--------|----------------|
| 100% Eq. & 0% Debt | € 648.027485,75  | 31,61% | 3,16           |
| 70% Eq. & 30% Debt | € 664.219844,24  | 31,61% | 3,16           |
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| 30% Eq. & 70% Debt | € 686.282.771,50 | 31,61% | 3,16           |

*Table 0.2 Profitability Resume*

### 4. Conclusions

To conclude with this resume, we are going to make some conclusions related with the outcomes achieved.

Firstly, in terms of economy, we can assure that the project is profitable and, even though along the first years no revenues will exist, since year 3 they are going to increase considerably.

Secondly, in terms of pollution, it is important to mention that, due to the substitution of the combustion vehicles by electric ones the reduction in the total number is obvious. But, we need to know how much we are going to reduce it. After some research, we checked that, for example, with the 500 vehicles of Car2go, more than 500,000 tons of pollution have been reduced. So, if we use the same idea of transport, we could achieve a reduction near to 40 million tons, which means half of the pollution related with transport in our country.

Last, in terms of traffic, we can confirm that the reduction that we had in mind will be real. Nowadays, we have around 2 million cars riding in Madrid and, with our service, public transport and motorbikes, we will just have around a million of vehicles, which means a huge reduction.

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# SECTION I: DESCRIPTIVE REPORT



## 1. Introduction

This project consists on the implementation, for the next five years, of a great amount of public electric vehicles in Madrid capable of the total substitution of the combustion vehicles that nowadays ride on the streets. The idea emerged because since three or four years ago, the amount of new types of public electric vehicles that Madrid has in the streets have increased considerably. Also, a lot of new companies, such as Car2go or Emov, have been introduced in this industry with a really positive reaction from the society. So, if we consider this topic and we take into account the big pollution issue that Madrid has had during the last years, why we cannot eliminate this problem introducing the enough number of electric vehicles to allow the citizens ride as if they have their own cars?

First, we will design the Business Plan of a company who wants to develop this project for Madrid. In this section, we will analyse the investment needed, the market in which this project is going to be part (possible customers), a comparison with potential competitors such as Car2go or Emov, the marketing plan that we are going to design to make our idea known by every citizen and some financial projections that will show us if the project is profitable or not. To develop it, we will use the Business Model Canvas because the one used at Universidad Pontificia de Comillas and at University of Florida.

Second, once we have the project designed and we know perfectly if it is profitable or not, we can start doing some reports to analyse the impact that the project is going to have in the city. These reports are going to be based on financial terms, pollution reduction and traffic reduction. At the end, if the project goes well, more reports could be done but, right now, these three are the most important ones. As we said before, the pollution issue in Madrid is huge so we will need to focus most of our efforts on this problem. For that reason, we will need to explain perfectly how is going to be the CO<sub>2</sub> and the acoustic pollution reduction, in terms of quantity, we need to provide numbers to demonstrate why this project is useful for Madrid.

Finally, when the project is designed, and the impacts reports done, we will be ready to present our project to the investors and the city and, hopefully, the project could become real.

### 1.1 Motivation

As an engineer student, it is a great feeling to use all the techniques and skills learnt during the Degree and Master's Degree to develop a new idea that can suppose an advance for the society. So, if we finally do the project properly, we can solve a lot of issues of the city related to pollution and traffic congestion.

Moreover, thanks to different courses such as Entrepreneurship for Engineers and Innovation for Engineers, both attended at University of Florida, and Cost Analysis and Finance, attended at ICAI, we can develop more than an engineering project. We can mix all the engineer skills to design the technical part, but we can also develop the business plan needed to develop that project. So, the project is going to be more complete mixing both topics, Business and Engineering, than only focusing on Engineering.

Finally, the possibility to do the project in the University of Florida, with a professor such as Mr. Sander, the Director of the Engineering Innovation Institute of the University of Florida, gives me a great motivation to develop the project giving my best in every section of it. Also, the concept of research that exists on the United States is, for sure, different than the concept that we have in Spain, so it will be great to learn a new method of study and work and it will give us the opportunity to mix both cultures and develop the project in the best possible way.

## 1.2 Project Objectives

The main goal of the project is to achieve a profitable project which can become real in the near future. So, the idea is to have a project that we can present to the investors and feel confident about the idea of having a project which could be real, that we can watch and touch it.

Forgetting about the main goal of the project, another important objective for this project is to learn more about the Business world. I have learnt different ideas during my time at the University, but it is going to be the first time where I am going to use all those business skills to develop a real Business Plan for a big project.

Moreover, the possibility to work with American people here at University of Florida is a great opportunity to learn about another culture and another work methodology. So, at the end of the project, it will be interesting to know how this culture works and be able to select the best of both methodologies to get the best possible way to work for the future.

## 1.3 Project Methodologies

The project is going to be divided in two big sections. First, we will develop the Business Plan for the project, in which we will obtain how good is it or how possible is for it to become real. Second, once we have designed the Business Plan, we will focus in the impacts that the project is going to have in the city, related with traffic, pollution or economy. Finally, with all this, we will prepare the final report where everything is going to be covered and will be the document presented to the investors, in case that the project has a good response for society and future investments.

Talking more in detail about the Business Plan section, we will start with a Market Research in order to know the possible amount of people who will be able to use this kind

of transport. Second, we will make a comparison with possible competitors such as Emov or Car2go, which are the most powerful companies right now related with public electric vehicles. Third, we will design the Marketing Plan needed to make our idea known by every people in Madrid and every possible investor. Last, we will analyse all the financial projections that the project is going to have in order to check if this kind of business is something possible and profitable, something that could be real in the near future, as we said in the previous sections of the report.

About the reports that we have in mind, we are going to focus on the three mentioned before. The economic one because, as happen in every project in this world, the money is the most important topic, so we will create a detailed report with all the financial projections of the meal plan explaining every quantity showed there. Also, we will focus on the pollution and the traffic issues, because during the last five years in Madrid, these have been one the biggest problems for the city, so it will be great to reduce them.

The next table, Table 1.1, shows how the work is going to be divided approximately during the semester. Probably, it will change due to any issue or any topic made faster than expected so, this is only an estimation.

| Topic                 | Months  |          |       |       |     |
|-----------------------|---------|----------|-------|-------|-----|
|                       | January | February | March | April | May |
| Research              |         |          |       |       |     |
| Business Plan & Model |         |          |       |       |     |
| Reports               |         |          |       |       |     |

*Table 1.1 Project Schedule*

## 1.4 Resources to Use

First, we will use all the notes, papers and documents that we have for the different courses related with this topic. For example, here at University of Florida, we have attended Engineering Leadership, Engineering Innovation and Applied Engineering Project Management, which can be very useful to develop the idea and create a very detailed Business Plan for the project. Moreover, at ICAI, we have attended some Financial Courses such as Cost Analysis & Finance and Accounting, which will be used to prepare perfectly all the financial projections needed.

About the computer resources or applications that we will use during this project, we can say that Microsoft Excel and Microsoft Project will be used most of the time to develop the Business Plan. Thanks to the Microsoft Project that we are using in the Applied Engineering Project Management course during this semester, we can divide more efficiently the different sections and tasks, having optimized the time and the work.

Moreover, in order to understand how these electric vehicles world is working right now and how the different companies work, we will search in internet all the data needed to design the best possible Business Plan.

Finally, at the time of making the reports, we will use some of the courses attended during the Degree at ICAI related to Air Conditioning and Sustainable Engineering. Also, we will take the reports made by the Spanish Institutions about traffic and pollution to compare the actual data with the one in the near future if we take into account the project.

## 2. Electric Vehicles History Worldwide

We can assure than more than 100 years ago, electric cars became more popular in the society due to the pollution issue or the higher amount of money spent in combustion vehicles comparing with an electric one. Nowadays, we are having the same process where electric cars are rising up in popularity again and the reasons are quite similar with the ones that developed the first electric car in history.

Actually, around the 3% of the total market is based on electric vehicles but, according to a report by Navigant Research, in 2020, around the 7% of the market will be electric vehicles.

In this section of the report, we are going to talk about the process that electric vehicles have suffered since its birth in 19<sup>th</sup> century until today, and also what is expected to happen in the near future [1].

### 2.1 The Birth of the Electric Vehicle

We do not know exactly in which country or continent the first electric vehicle was developed, but we know that it was in the early years of the 19<sup>th</sup> century thanks to different innovators from Netherlands, Hungary and United States. They created the concept of a battery powered vehicle, developing the first small-scale electric cars. At the same time, the first crude electric carriage was developed by Robert Anderson, but it was not until the second half of the century when the first practical electrical vehicle was built.

For example, in the United States, the first electric car was designed in 1890 by William Morrison. This vehicle was capable to carry on six passengers with a top speed of 14 miles per hour.

By 1900, a third of the vehicles on the road were electric and during the next ten years, they continued having strong sales in the market. An example of this situation was that, during these years, New York City had a fleet of more than 60 electric taxis, as we can see in Figure 2.1:



*Figure 2.1 Electric Taxi in New York City*

## 2.2 The Early Rise and Fall of the Electric Vehicle

The reason of the popularity of electric vehicles around 1900 is related to the development of the society idea about transportation. During those years, the horse was still the primary mode of transportation, but Americans wanted to become more prosperous and, to be like this, they needed something new. So, they invented the motor vehicle available in steam, gasoline or electric versions.

The first vehicles designed were the steam ones because it was a true energy source and reliable for powering factories and trains. There was this type of vehicle since 1700 but it was not until 1870 when the technology was used for cars. The only problem for these vehicles was the required long start-up time, sometimes around 45 minutes, which supposed more than the normal time expected for the customer to start using the car. Moreover, the distance that these cars could ride were limited because the need of refill the engine with water to create the steam.

The gasoline powered cars became also popular due to the improvements in the internal combustion engine in the 1800s. As the steam cars, the gasoline powered had also issues that the electric ones did not have. For example, they were noisy cars and required a lot of manual effort to drive them, due to the gears change and the hand crack needed to start the engine.

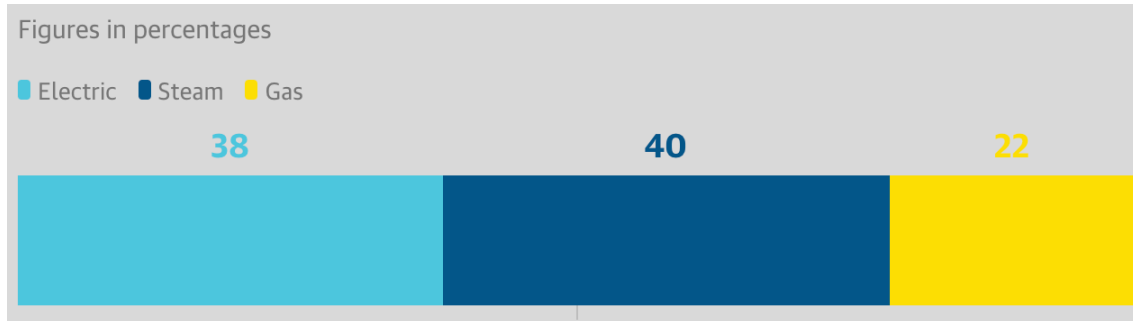
All these issues that we have talked about could be solved with another type of car, the electric vehicle. It was quiet, easy to drive and did not emit any pollutant. Also, during the first decade of the 1900s, more people had access to electricity, so the charging process of the vehicles was easier. So, thanks to all these reason, the electric vehicle became popular in the society and was a good mode of transportation for short distance, such trips around the city. Due to the high demand of these cars, some automotive engineers and designers developed their own prototypes. First, Ferdinand Porsche, the founder of the Porsche Company, developed its first electric car called the P1 in 1898. The next figure shows us how this model was:



*Figure 2.2 P1 Porsche*

Also, Thomas Edison and Henry Ford partnered together to explore for a low cost electric vehicle in 1914.

The next picture shows how the vehicles were distributed in steam, gas or electric during the last years of the 19<sup>th</sup> century and the first of the 20<sup>th</sup> [2]:



*Figure 2.3 Vehicles Distribution in 1900*

But, it was by 1912, when the fall of the electric vehicles started. First, the price of the gasoline powered ones (\$650) was lower than the electric ones (\$1,750). Moreover, in this year, Charles Kettering introduced the electric started in the combustion vehicles, which gave an important increase in the sales to these vehicles.

Finally, due to the improvements in the connections of the cities and the decrease on the gas price, all electric vehicles disappeared by 1935.

### 2.3 Transition Period for Electric Vehicles

During the next 30 years, electric vehicles spent a tough period which was based on the lack of improvements in this kind of vehicles. On the other hand, the improvements in the internal combustion engine and the great amount of cheap gasoline available, made harder the development of the electric cars.

Since 1970, the idea of the electric vehicles changed drastically. The gasoline increased in a considerable way, peaking with the 1973 Arabic Oil Embargo. Trying to reduce the dependence on foreign oil, the US Government allowed the Energy Department to start the research and development for the new hybrid and 100% electric car in 1976.

During the 1970s, some companies started to introduce the electric vehicle in the market. Some examples could be General Motors and American Motors Company. On the one hand, General Motors developed a prototype for an urban electric car in 1973. On the other hand, American Motors designed electric delivery jeeps that the US Postal Service used in a 1975 test program.

In the 1990s, another important fact benefited the electric vehicles and it was the new emissions regulations provided by the California Air Resources Board. From this point, the automakers started to focus more in the development of the electric vehicles, even basing on combustion engines cars, which made easy to achieve high speeds with the first

designs of the electric cars. One of the first and most well-known electric cars designed on this time was the GM's EV1, developed from the ground up, with a range of 80 miles and the capacity of reach the 50 miles per hour in just seven seconds, something completely unimaginable ten years before. The next picture, Figure 2.4, shows how was this model designed by General Motors:



*Figure 2.4 GM's EV1 model*

But, as normally happen, this was not ideal. The production costs were too high, and the gas prices continued low so, unfortunately for the electric vehicles companies, there was not a change in the mind of the customers, the combustion engine cars were the first option for them at the point of purchasing a car. In spite of this situation, engineers and scientist continued focusing on the improvement of the electric cars technology including batteries, always supported by the Energy Department.

## 2.4 A New Beginning for Electric Vehicles

After all the research and time spent by engineers and scientist from different automakers companies, the first great innovation in the 21<sup>st</sup> century was the introduction of the Toyota Prius, released in Japan in 1997. It became the first mass-produced electric vehicle in the world and, due to the rising gasoline prices and the carbon pollution issue of the last decade, the Prius has become the best-selling hybrid worldwide during this period. The next picture shows how was the Prius in 2000, when it was released worldwide:



*Figure 2.5 Toyota Prius (2000)*

Before the Prius could be introduced in the US, Honda Company released in 1999 the first hybrid in the US since the 1900s.

The other important fact that increased the popularity of the electric cars again was the announcement in 2006 that a small Silicon Valley start-up called Tesla Motors would start producing luxury electric vehicles, with a range of 200 miles with an only battery charge. We will talk more in detail about Tesla in the next section of the report, in section 4.1.1 Tesla.

After Tesla Motors, a lot of automakers companies decided to start developing electric vehicles due to the great impact and support that they had during the first years of the century. But, in these years, customers were facing the same problems than in the past century, the range that these vehicles allowed riding without charging the batteries. For that reason, engineers spent time improving the vehicles batteries in terms of power, energy and durability. Moreover, in the US, the Energy Department spent more than \$100 million to build a charging infrastructure to allow customers to charge their cars easily and more often.

Nowadays, the continuous improvements in the technology have allowed engineers to reduce the cost of the batteries and to achieve a performance that 30 years ago was impossible to imagine. For example, if a customer wants today to purchase an electric car, the market is wide and he can go to BMW with the i8, to Toyota, to Honda, to Smart...As we can see, 15 years ago we started with the Toyota Prius (Figure 2.5) and, actually, we can buy hybrid and electric cars from more than ten different companies, so the near future expectations are really positive and with an unstoppable rising.



### 3. Present & Near Future Expectations Worldwide

In this point of the report, we are going to focus on the actual worldwide situation of the electric vehicle and how the market is going to grow in the near future due to the pollution regulations and the continuous price raising of the gasoline. Firstly, we will talk about the different companies that provide hybrid and electric cars and how are actually the prices comparing with the internal combustion engine cars. Secondly, we will study how the market is going to raise in the next ten years and how this is going to impact into the market, in the pollution and in the idea of the customers about the electric vehicles.

All the data showed in this point of the report has been read and selected from [2].

#### 3.1 Nowadays

As we explained before in the previous section (2.4 A New Beginning for Electric Vehicles), the creation of Tesla Motors was one of the key facts that changed the point of view of the electric cars. Its first prototype, called Tesla Roadster, was capable of riding around 200 miles without any battery charging. After this, they proposed themselves to create the first electric vehicle capable to compete with the combustion ones. This model was called Tesla Model S, and it was sexy and desirable as any other gasoline vehicle as we can check in Figure 3.1:

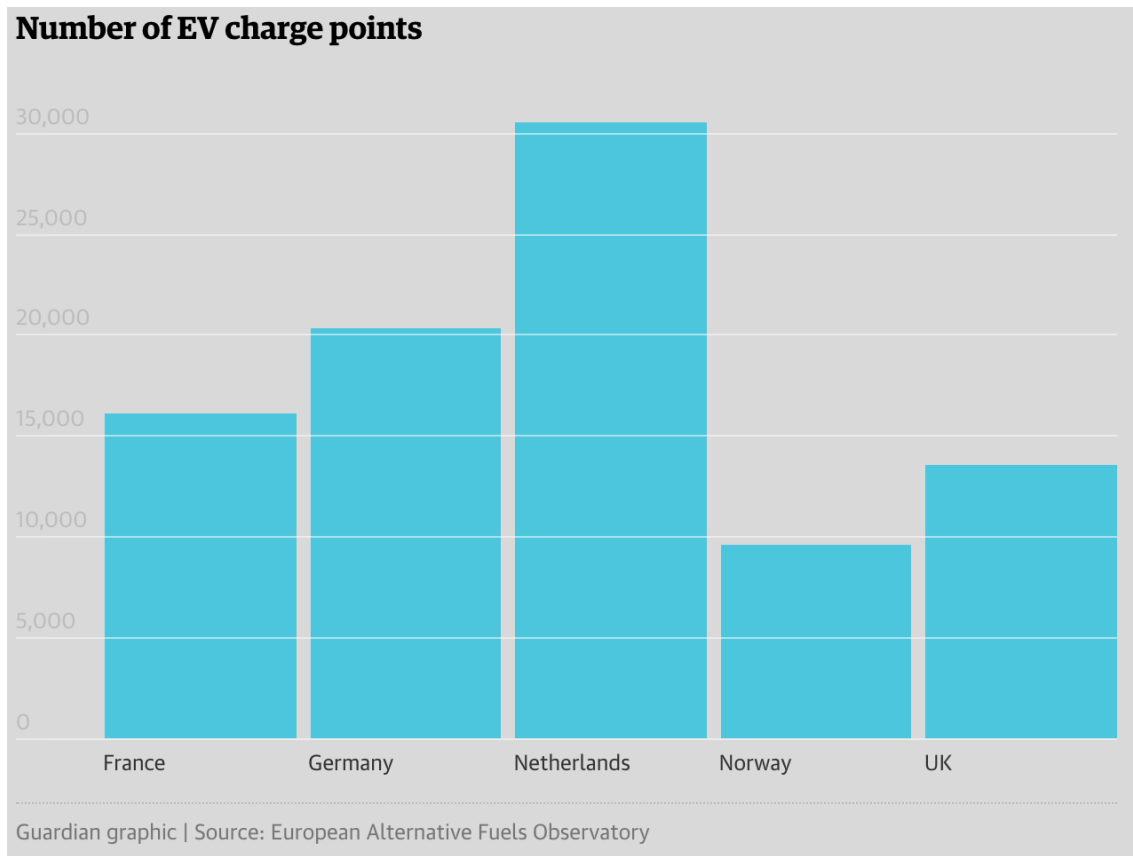


*Figure 3.1 Tesla Model S (2010)*

After Tesla, more car manufactures started with the electric vehicle development due to the outcome achieved by Tesla and the positive response obtained by the customers. For example, Renault, BMW or Nissan have been one of the companies with more interest in this development. If we talk about success in the electric cars world, we need to highlight the Nissan Leaf, the best-selling vehicle in history with worldwide sales of 260,000 units since 2010.

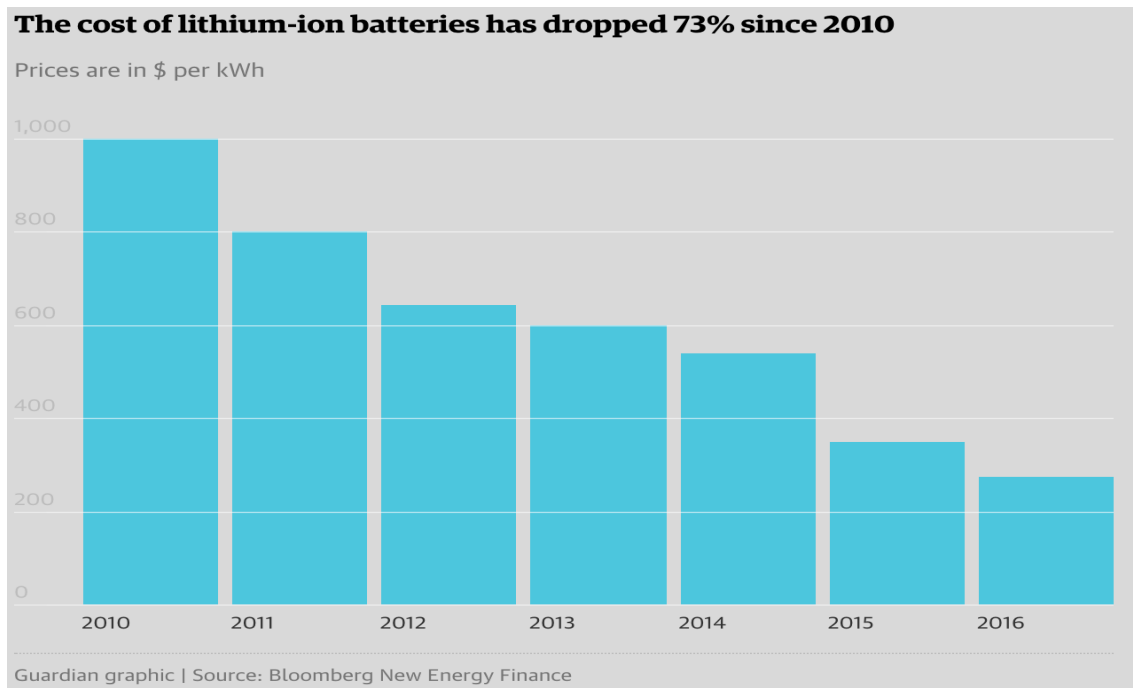
From 2010, several improvements have been done in order to benefit the electric vehicles customers. These changes haven been focused on the charging infrastructure, the quality and the cost of lithium-ion batteries. About the charging infrastructure, as we can see in

Plot 3.1, the rising of the amount of charging points is important, reaching around 115,000 only in Europe.



*Plot 3.1 Number of EV Charge Points*

About the quality of the batteries, the main improvements have been focused on the power and durability of them. Initially, it was hard to think about one electric car riding more than 50 miles without any charge. Right now, we can expect to ride more than 300 miles, so the difference is more than considerable. Another point that has benefited this type of vehicle is the decrease of the price, mainly in the batteries, which supposed a great percentage of the total price of the vehicle. As we see in Plot 3.2, the batteries prices have dropped in a considerable way since 2010 (around a 73%):



*Plot 3.2 The Cost of lithium-ion Batteries since 2010*

All these improvements will be impossible to make them real without the help and resources of the Governments of the different countries where the technology want to be introduced. For example, during the last decade in Europe, some ideas have been introduced to support the electric vehicles customers, such as exemptions of registration fees and road taxes, bus-line access or free parking, being these the most common ones.

### 3.2 Near Future

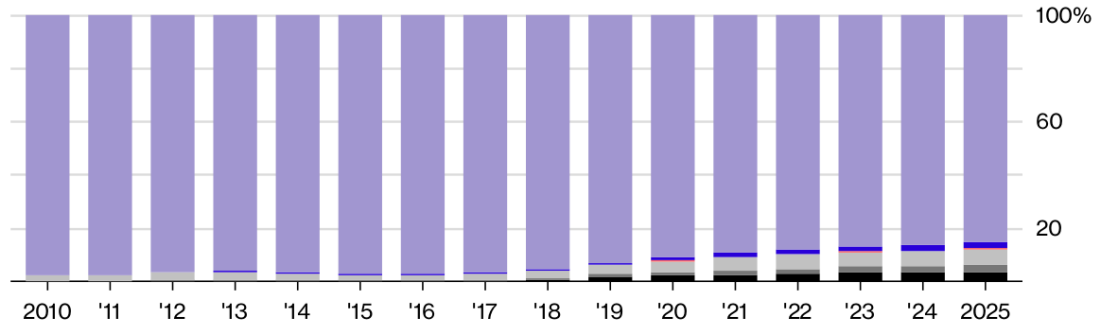
Researchers say that a hundred-different battery-powered vehicles will be in the market in the next five years. If we look the market right now, it looks quite difficult to achieve but the researches made by different specialists make this idea real.

Nowadays, only 1% of the market compromise the electric cars, even less in the US. By 2025, it is expected to be the 10%, which means a low value if we want to transform the automotive industry. **¡Error! No se encuentra el origen de la referencia.** shows how this transformation is going to happen until 2025, which will be the inflexion point for the electric vehicles industry, as we can see in **¡Error! No se encuentra el origen de la referencia.** [3].

## Gasoline's Staying Power

Internal combustion engines will still power 85 percent of new U.S. cars in 2025

Mild hybrid (with 48V)
  Plug-in hybrid
  Full hybrid
  Fuel cell
  Battery electric vehicle
  Extended-range EV
  Internal combustion engine

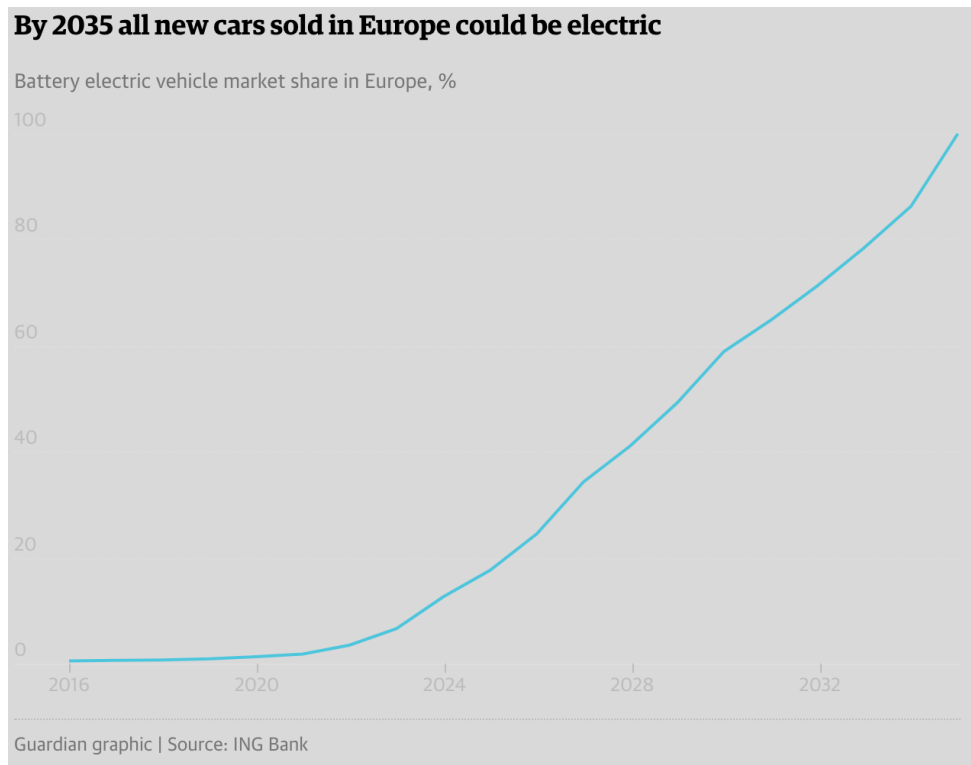


Source: LMC Automotive forecast

**Bloomberg**

*Plot 3.3 Automotive Industry Development*

The continuous growth of Tesla Company since its birth, both in profit and stock prices, make the idea of having a majority market of electric vehicles in around 15 years real. Moreover, all the Governments resources and ideas to help to the battery-powered cars customers, and the improvements made in the technology involved in the cars, help us to understand easily the shape of the plot that we can see in Plot 3.4 [2]:



*Plot 3.4 Electric Vehicles Market Growth*

As we can see in Plot 3.4, until 2025 the growth is going to be gradual but not enough. But, from this year, the increase of the market is going to be sharp, making the electric vehicles market in 2035 the 100%.

Another idea that we need to have clear is that the more important change and spending that is needed to do is in the marketing environment, not in the technology because hear the improvements have been really positive during the last years. So, if the automotive companies want to attract new customers and increase the market for these vehicles, a great percentage of its efforts have to be focused on the marketing campaign.



## 4. Present & Near Future Expectations in Spain

In this section, we are going to talk about the actual situation of the electrical vehicle market in Spain and the expectations that researchers have for these vehicles in the near future. As we will see, Spain is one of the countries with less percentage in the electric cars market, so a great improvement is needed if we want to change this situation. The only topic about them that is positive in Spain is the public electric cars that people can use in the biggest cities of the country. This mode of transportation has increased sharply in the last three years in Spain, always related to companies such as Car2go and Emov, of which we will talk in section 4.1.2 Rental Electric Cars.

### 4.1 Nowadays

As we explained before, Spain is one of the countries with less use of electric cars in the society. In 2016, electric vehicles compromise only the 0.41% of the total market, which meant an insignificant percentage. Moreover, if we compare it with Norway (24%) or Sweden (2.8%), we were quite far, so something big is needed to happen if we want to turn around this situation [4].

But, this null percentage can have positive meanings. To have less than 0.5% of electric cars in the society means that we can grow a lot in the near future if the changes and improvements are made correctly. Some polls made during the last year in Spain confirm that the idea of the people is changing. Around 70% of the surveyed thought that the electric cars will be a really useful and positive idea for the urban areas, where the pollution and traffic congestion are one of the main issues. Another survey showed that Spanish citizens really thought that in 30 years, most of the market will be based on electric cars.

Moreover, if we focus on Madrid City, the issues mentioned before increase exponentially so, a change is needed if we want to reduce or solve them. And here is the reason of this project. Once we knew these statistics and these big issues, we thought in something to solve the them, and we had an idea of having a 100% electric vehicle in the urban areas of the city, being all the cars public, without the necessity of purchasing an electric vehicle. Also, the price difference between the gasoline that an internal engine combustion car needs and the electricity that we need to charge an electric vehicle is considerable. As we can see in [4], we can go from paying \$10 per day in gasoline to pay \$1.5 per day in electricity, so the amount of money that we can save once we have the electric car is more than considerable.

After this brief explanation of the actual situation in Spain, we are going to talk more in detail how Tesla is working in Spain and how the different rental car companies work, and which are the options that they offer.

#### 4.1.1 Tesla

As Jorge Milburn, Tesla's President in Spain, said in the opening of the first concessioner in Spain, Tesla's vehicles allow customers to use them in every daily situation and, moreover, they are the best cars in the world, even being electric [5].

From 2015, the sales have been increasing year by year until today [6]. In 2015, ten units of the Tesla Model S were sold in Spain, a really poor amount. In 2016, 55 units were sold and, 46 of them, were from the Tesla Model S (Figure 3.1). Most of these vehicles were not used by private customers, were used by companies such as Uber or Cabify to provide quality to their customers' trips. From December 2016, more than 50 units of the Model S have been included in the Uber's fleet (Figure 4.1), what help Tesla to make his brand more known. The inflection point could have arrived in 2017, when the sales increased considerably. Instead of fifty units, Tesla closed 2017 with 225 new registrations for Model S and 162 for Model X, which supposed a big improvement comparing with 2016. Some of them were included in Uber's or Cabify's fleet but the rest of them were used by private customers, what means that the electric car idea is increasing in Spain and the near future could be really positive for these vehicles.



*Figure 4.1 Uber's fleet in Madrid*

Nowadays, the infrastructure that we have in Spain is really poor so many improvements are needed. Tesla Company understands the situation and they are prepared to make whatever is needed to transform Teslas's cars in one of the most powerful, useful and sold cars in Spain in the near future. With the last data of 2017, where a great amount of the new Tesla vehicles were for private customers, Tesla Company thinks that could be the proper time to open new stores in Madrid and Barcelona allowing customers to be

closer to Uber, having the option to try them and understand perfectly how they work before purchasing one.

#### 4.1.2 Rental Electric Cars

This new mode of transportation arrived in Spain in 2015 trying to reduce some of the issues that the urban areas of the main cities have. Principally, these problems are the traffic congestion and the pollution due to the CO<sub>2</sub> of the internal combustion engines exhausts. Initially, the only company was Car2go (4.1.2.1 Car2go). After, Emov (4.1.2.2 Emov) arrived to provide vehicles for more than two people (maximum of four people). Last year, Zity (4.1.2.3 Zity) arrived in Madrid's streets, giving the possibility to be five people in the car. These three companies can be called as mergers because, normally, they are an automotive company, such as Mercedes (Car2go) or Renault (Zity), joined with a big company, such as Ferrovial (Zity). The three companies offer more or less the same prices per minute of use, between 0,21 and 0,24 € [7].

The idea of this mode is very simple. First, you need to download the smartphone application of the company because everything goes through there. When you have the APP and you have created your profile, you are ready to start using these vehicles. In the smartphone you will find a map of the city in which you are with all the vehicles available with the exact location of them. So, taking into account your location, you can book the nearest one, having twenty minutes to start using the car. When you arrive to the car, you need to use the APP to open the car. Once you are inside, you are ready to start your trip. To finish your ride, you only have to go outside the car and close the car in the same mode that you opened before, using the APP. Around five minutes later, you will receive the charge of the trip in your bank account automatically. As we can see, the process is very simple and very easy for the customer. And this is the reason of the great impact that this new mode of transportation had since the beginning, the simplicity and comfort of the process.

Now that we know how these companies work, we are going to talk more in detail about the three of them.

##### 4.1.2.1 Car2go

Car2go was the first carsharing company who arrived in Spain after its great success in other countries. As we have explained before, one of the reasons of the implementation of this idea in Madrid was the huge pollution issue that the urban areas have, mainly due to the CO<sub>2</sub> of the combustion engines.

Car2go is a merger between Mercedes and Smart and allows two people maximum to go inside the car during the ride. In terms of numbers, a big investment was needed in 2015 to start this project in Madrid. Around six million euros were needed to buy the initial 350

cars fleet to introduce in the urban areas of Madrid. At the end of this year, the loses were counted near to one and a half million euros [8].

Nowadays, the company provides 500 vehicles in the urban areas of Madrid and the number of customers has increased until 185.000 [7]. The expectations for the near future, as we will see in 4.2 Near Future Expectations, are really positive due to the great increase in terms of demand during the las year and the positive reaction that this mode has had in different sectors of the society. Figure 4.2 shows the Smart model that Car2go uses:



*Figure 4.2 Car2go*

#### 4.1.2.2 Emov

Emov was the second carsharing company arriving in Madrid, during 2016. This company was a merger between Eysa (51%) and PSA (49%). The main difference with Car2go is the capacity of the car, being able to carry on four passengers instead of 2, giving more flexibility than Car2go. Figure 4.3 shows the Citroen model that Emov uses:



*Figure 4.3 Emov*

#### 4.1.2.3 Zity

Zity was the last company arriving in the carsharing industry in Madrid. They arrived during the last month of 2017 and they have had a good impact. To have three different

companies in the same city is not a problem if the demand of this vehicles still growing as it is doing during the last years, where a lot of people are changing their point of view of the electric cars and, moreover, their point of view about the rental car by short periods of time. Figure 4.4 shows the Renault model that Zity uses:



*Figure 4.4 Zity*

## 4.2 Near Future Expectations

The future is uncertain but if we believe the actual info about technology focused on a clean world with no pollution, we must continue with the electric vehicles growth. In the last three or four years, the increase in the number of hybrid or electric vehicles has increased sharply and it does not seem like it is going to stop so we need to enhance this technology. Moreover, the diesel vehicles will disappear in around fifteen or twenty years due to the huge pollution of its combustion process.

For these reasons, the idea of transforming Madrid in a clean city without combustion engines riding in its streets sounds really good from all point of view. For the government, it is essential to reduce considerably the levels of pollution that nowadays Madrid has due to the huge traffic congestion and the excessive number of vehicles riding. For the population, a clean city with no pollution means to improve its life, having a healthier atmosphere where to breathe. And for external companies will be an amazing opportunity to invest in our city, making Madrid one of the cleanest and most powerful cities in Europe and around the world.

Focusing on the electric rental cars, the growth is unstoppable because more and more companies are trying to go into the carsharing market in Madrid. Nowadays, we have three different services of carsharing and four more of electric motorbikes but, in the near future, car manufacturers like Kia want to introduce and be another option for the Madrid citizens to ride in the streets.

After analysing all this info, the idea of our project sound really interesting, both for the government and for the population. The pollution will be reduced, as it is established to happen because the Health Worldwide Corporation (OMS in Spanish) determined that the levels in Madrid are out of limits and it cannot continue like this. Also, the traffic congestion will be reduced because the number of vehicles will be much lower. So, if everybody is happy, why not to develop the idea and make it real?

## 5. Pollution & Traffic Congestion Issues in Madrid

In this point of the report, we are going to focus on the two big issues that Madrid has nowadays. These two problems are the traffic congestion and the pollution in the sky and, as we will see in this section, both are related and as traffic congestion increase, the pollution increase directly.

### 5.1 Traffic Congestion

Madrid is one of the greatest cities in Spain and in Europe and, for that reason, the population is one of the greatest. This means that the number of people using a car to go around the city, either to work or to go to any supermarket, is huge and the issues at the rush hours are common every day of the year. Several actions have been taken in order to reduce this congestion in the main streets of the city with a positive impact, but they have not been enough to be able to say that the issue is solved. For example, the number of motorbikes has increased in a 61.4% during the last decade, between 2005 and 2015, instead of the 6.15% that the normal vehicles have increased [9]. Other alternatives proposed by the State Government are the reduction of the speed limit, 70 km/h instead of 90 km/h, in some of the big ring roads around Madrid (M-30), the prohibition of driving in one of the biggest and more conflict streets of Madrid in terms of traffic (Gran Vía) or the prohibition of driving to the even or odd enrolment, depending on the day of the week. These last actions taken by the Government did not get the expected positive impact on the population and new action are needed to have under control this huge problem that we have day by day in Madrid.

As we can see in the next figure, the traffic in the ring roads is huge and the speed limit reduction has been introduced sometimes in the last year, as we see in Figure 5.1.



*Figure 5.1 Traffic Congestion in Madrid*

Another actions that have been made during the last three years are the introduction on the streets of the rental electric cars (4.1.2 Rental Electric Cars), whose impact has been much

higher than the actions explained before and each year more and more vehicles are been introduced, reducing the traffic congestion but much more reduction will be needed to be able to say that the traffic congestion issue is fixed.

Finally, the State Government has tried to encourage the population with several promotions to use the public transportation more than nowadays, either bus or underground/train, reducing the prices and making advertising focusing on the pollution and traffic congestion.

## 5.2 Pollution

Now that we have mentioned the traffic congestion issue, we are ready to talk about the big problem, the pollution. Figure 5.2 shows the layer of pollution above Madrid after a long period without any wind or rain.



*Figure 5.2 Pollution layer above Madrid*

The main causes of this pollution are the CO<sub>2</sub> and NO<sub>2</sub> emissions from the internal combustion engines of the private vehicles and the public buses, and from the heating systems of the old buildings of Madrid which use coal instead of electricity.

As we explained in the previous point, several ideas have appeared trying to reduce the pollution, but the impacts were not the good and positive that initially were thought. During the last year, the pollution in Madrid increased and was above the limits established by the OMS. If we talk about the amount of pollution that Madrid had during the last year, it will be enough to say that 15 of the 24 weather points of Madrid picked up more than 40 micrograms per cubic meter which was the limit for the NO<sub>2</sub> established [10].

Now that we understand how big the problem is and the impact that the solutions proposed by the Government had in the population and in the levels of pollution, we need to think more alternatives trying to reduce the pollution because in Madrid, as we can see in Figure 5.2, is very common to have long periods of dry weather which means that the layer of pollution above the city gets bigger each day without any rain or windy

conditions. Below this layer, the breathing is tough, especially in old people, children or people with asthma. So, we need to change this, we need an alternative to fix the problem. Taking into account the positive impact that the rental electric cars (4.1.2 Rental Electric Cars), we thought about transforming this idea in something huge. We have thought about the total substitution of the internal combustion engine vehicles in Madrid City by public electric ones. With this solution more than  $\frac{3}{4}$  of the main sources of CO<sub>2</sub> will be eliminated and the pollution issue will be reduced considerably. During the second section of the report, we will explain more in detail this project and we will take into account financial reports, to check if this idea could be profitable for a city like Madrid.



## SECTION II: PROJECT DESIGN REPORT

As we have seen along the first section of the report, we have used it to present our idea to possible future investors and provide some background information about the past, current and near future situation of the industry in which we are going to introduce our product. Moreover, as we could realize before, our idea is similar to the ones explained in 4.1.2 Rental Electric Cars, but in another level. We want to create a city based on electric cars which are needed to be bought by the customers, they only need to use their smartphones to rent one of the cars that we provide and use it. That is simple, right? So, now we are going to check if all these interesting ideas are profitable and able to become real.

This section is going to be focused in all the analysis, statistics and numerical calculations made in order to check if the idea of developing this project is profitable or not. We have divided the section in two different parts. First, we will present the Business Plan created for this project. Second, we will explain the Business Model used (Canvas Model) and how we created it. Finally, we will resume all the outcomes achieved in some reports related to impacts on the economy, pollution and traffic congestion in Madrid City.

## 1. Business Plan

A business plan is a written document that describes in detail how a business, usually a new one, is going to achieve its goals. A business plan lays out a written plan from a marketing financial and operational viewpoint. So, basing on this definition, we are completely ready to start explaining our planning [11].

First, we will make a simple summary and industry overview to remember where we are and what we want. We will do it simple because these two points were mostly presented in the first section of the report, in Introduction and Present & Near Future Expectations in Spain. Second, the market analysis, with all the possible competitor, will be made in order to present our similar features to the others and in which point we are going to be different to them. It will be a resume because we talked about it in section one in Present & Near Future Expectations in Spain.

Once we finished these two first points of the planning, we will start doing numbers and processes to make our idea known by everyone. So, third, we will create a sales & marketing plan which will explain how we are going to start selling our product to the possible customers and how the prices and the clients are expected to grow. Moreover, we need to create an advertisement campaign to make our idea known by everyone before we launch it. Fourth, we will introduce our team and how we are organized. Fifth, we will present the operating plan of the project, in which we will focus on the production, equipment and suppliers needed to make our idea real. Finally, and the most important point of all the report, we will present the Financials calculations of the five years of the expected duration of the complete implementation of the project in Madrid. All the project success will depend on this last point, so we need to spend the necessary time to do it well, taking into account any possible variable able to change our project.

### 1.1 Executive Summary

This project is focused on the reduction in the pollution and traffic congestion levels that the city of Madrid has nowadays. The idea is to substitute, in five years, all the combustion engine vehicles that currently ride on the streets by electric vehicles, both private and rental ones. We understand that most of the people would not like to but an electric car so the idea of carsharing, such as Car2go or Emov, seems really interesting for them. Obviously, people interested on buying a private electric vehicle would help us on this reduction. Moreover, other types of vehicles such as motorbikes, both combustion engines and electric, would be allowed on the streets after these five years.

Our customers would just pay the amount of time that they use the service, independently of the number of miles rode. Basically, our total gross market would be people between 18 and 65, with driving license and a credit card where we would charge every service. The service is so simple that anybody could use it. The customer would just need three

main things: a smartphone, a credit card and, obviously, a driving license. With these three things and the desire of driving, our service will be ready whenever and wherever you want.

The service that we want to offer is really similar to the one of Car2go or Emov, but we want to provide this service in a huge level, not just 500 vehicles that we have nowadays if we sum the three main companies. Our idea is to provide, in 2023, 40.000 vehicles around Madrid, to let the citizens ride around the city without any issue related with traffic congestion, as the number of vehicles will be much lower, and without any CO<sub>2</sub> emission. In addition, we will provide some flexibility in terms of capacity of the vehicles. The companies that are currently working just provide one type of vehicle to their customer but, our idea is to have some flexibility and provide our customers the chance to ride a small or big car, depending on the number of people who want to use the service. Moreover, we can check that the quality and security of the vehicles provided by Car2go or Emov is not bad, but it can be improved so we assure that our vehicles would be high quality and the security would be the main idea in which we are going to be focused on.

Now that we understand the idea of the project, we can present some numbers calculated to check the profitability of the project. As it was expected, during year 0 and year 1 (2018 and 2019) the main investment will be made. In terms of positive or negative balance at the end of each of the years, we can assure that during these two years mentioned before, the net income will be negative, and, after that, we will start having positive values at the end of the following years. We can see this increase of the Net Income in the following table:

|        | Net Income        |
|--------|-------------------|
| Year 0 | -€ 431.000.000,00 |
| Year 1 | -€ 201.187.500,00 |
| Year 2 | € 42.590.625,00   |
| Year 3 | € 174.375.000,00  |
| Year 4 | € 316.095.000,00  |
| Year 5 | € 314.595.000,00  |

*Table 1.1 Net Income Resume*

Another financial calculation made is the Net Present Value (NPV). We have used the Discounted Cash Flow Method (DCF) where we have to take into account the operating cash flow, the variation in the net working capital and the CAPEX or investment made. After that and using the appropriate discount rate, the WACC, we calculated the NPV of the project and we figured out it was profitable, so it would be interesting to make the project real. We have used the WACC because we need to use the cost of capital, taking into account the portion of equity and debt used in the project.

To conclude this point of the report, we would like to mention how we think the investment can be made. Because our service is related to a vehicle and it is electric, with no emissions, we think that our two main investors could be a car manufacturer and a company related with energy generation. The idea of the car manufacturer is because if we sign a contract where this company will provide the vehicles needed, we can reduce our investment offering them being the main image of the service because everybody will relate the service with this car manufacturer. Also, the opinion about this company would change because they are helping in the reduction of emission that, nowadays, are destroying our world. The other powerful investor could be a company such as Endesa SA or Ferrovial because our vehicle would need a great amount of electricity to be ready and this type of company can provide it.

Once the summary is done, we are ready to start talking more deeply about the project and the different points that we mentioned before.

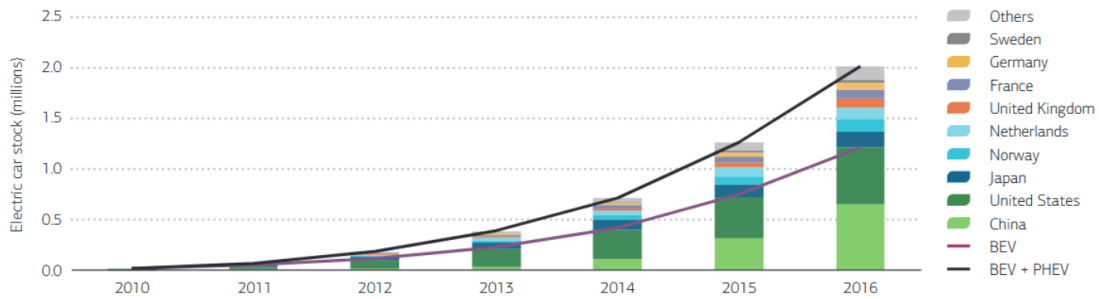
## 1.2 Industry Overview

This point provides the related info about the industry in which we are getting involved in. As we saw in section one, electric cars are growing sharply since some time ago and the near future expectations are really positive for this new type of vehicle. So, with this data in our hands, we think that if we develop our idea properly, it could be a great improvement for big cities with the traffic congestion and pollution issues as Madrid has.

We talked about the industry worldwide and, more in detail, in Spain in section one but for this section we will focus only in the current and near future situation of the industry in Spain because the idea is going to be implemented, if everything goes well, in our country.

Nowadays, our country presents one of the lowest ratios of electric cars use, with only a 0.41% of the total market (Present & Near Future Expectations in Spain). As we can see in Plot 1.1, the growth of this market has been considerably important in the last four years. Even though Spain is not in the graphic, we know that its growth has been similar, even higher in the last couple of years. For example, during 2016 the number of vehicles sold in Spain increase in a 51.5% and during 2017 a 82.7% which means that, although the arrival of this new vehicle was later than in other countries, it has become a possibility nowadays for our society [12].

Evolution of the global electric car stock, 2010-16



Plot 1.1 Electric Vehicle Market Growth

All this data was related with the electric cars in general, but we need to focus on the rental electric cars used currently. As we mentioned in section one of the report, in Spain we have, right now, three different companies able to offer electric carsharing, which means the possibility to rent an electric vehicle that is parked in the street for a few minutes and then park it again wherever you want, being always inside the border of use of these cars. These companies are Car2go, Emov and Zity, but we are not going to talk about them here because we did it in section one in 4.1.2 Rental Electric Cars.

Once we have mentioned the name of these companies, we can focus on the growth that this type of vehicle has head during the last decade, without explaining too much detail of these companies. For example, it is expected that until 2021 the number of clients of carsharing in Germany will increase to 2 million, even the increase will be seven time higher if we talk worldwide [13]. Nowadays, we have around 450,000 customers only in Madrid, when two years ago the carsharing was only a future idea in Spain. Analyzing this data, we can expect a huge increase in the near future, being able to get around the 32% of the market annually.

To conclude this section, we can assure that the carsharing in Spain is growing sharply in the last two years ago and the expectations are really positive for the near future. Moreover, we can add to the rental vehicles in Madrid the motosharing, with companies such as eCooltra (Figure 1.1). So, in the near future Madrid will be at the top of the rental electric vehicles in all Europe thanks to this growth but also because Madrid needs it to accomplish all the pollution limits that, right now, are not being satisfied, as we explained before in 5.2 Pollution.



*Figure 1.1 eCooltra motorbikes*

### 1.3 Market Analysis & Competition

The section provides an analysis of the gross market that our project could be introduced in and a comparison between what we offer and what the competitors offer.

On the one hand, we will calculate the total of possible customers that could be ready to use our vehicles. To do that, we are going to analyse the people in Spain with smartphones and personal bank account, using these ratios as filters from the total population of Madrid. Once we have reduced the total population to the total gross market, we could say if the project could be profitable or not in terms of possible users.

On the other hand, we will present a table in which we are going to compare the main features of our product with the three main companies that nowadays exist in our country. Moreover, we will focus on the characteristics that only our product has on order to raise the importance and value of our idea, giving it more possibilities for the future.

#### 1.3.1 Market Analysis

As we mentioned before, to calculate the total gross market we need to know the amount of people that currently own a smartphone [14] and how many of them have access to their bank account through the mobile, called online banking. Moreover, we need to filter with another parameter, which is the number of driving licenses nowadays in Madrid [15]. So, once we know how we are going to calculate the total gross market, we are ready to start doing it.

The total population in the Madrid Community is 6,377,364 citizens. Because we are focusing our project only in Madrid, we need to know what the exact population in Madrid is. After some research, we obtained that the total population is around 3,2 million

of people only in Madrid City. So, right now, we know exactly the number of people from which we are going to start filtering to calculate our possible market. On the one hand, we know that nowadays, around an 87% of the people in Spain own a smartphone (we can use this % for Madrid too) [14]. Also, we know that around an 80.75% of the people have access to a bank account. Finally, the last filter will be the number of people with a driving license. After checking data from 2018 in the Spanish Traffic Direction (DGT), we obtained that, in Madrid, around a 55% of the population can drive [15]. So, with all this information, we obtain the next total gross market:

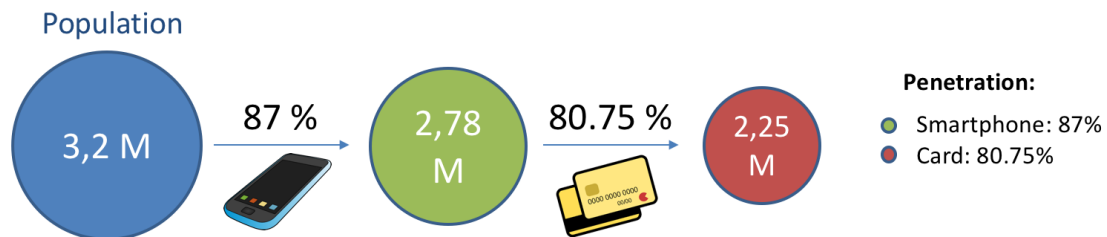


Figure 1.2 Total Gross Market Calculation I

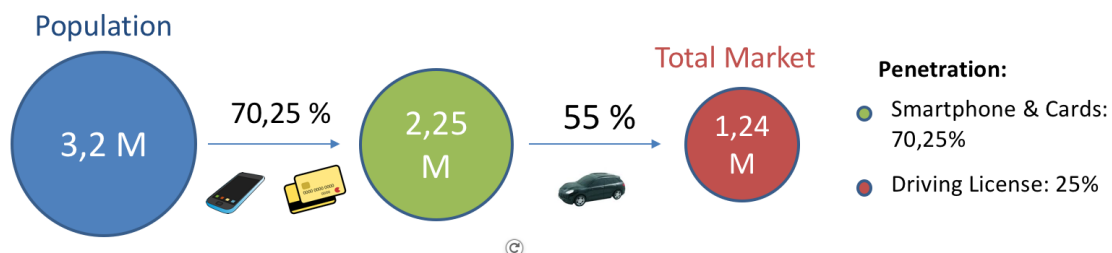


Figure 1.3 Total Gross Market Calculation II

Finally, we have obtained a 1.24 million of people who will be able to use our transport in the near future, even more because, as we know, the technology is stated in an unstoppable growth and in the near future the use of smartphones and online banking will be higher than nowadays. Obviously, we are not going to provide 1.2 million of electric vehicles because it will be a huge waste of money, so we need to find the best proportion between customers and vehicles. We will discuss this issue afterwards, in section 1.6 Operating Plan, but, right now, we know our total gross market and we think is a good point to start designing our operating plan.

### 1.3.2 Competition

Once we know which is going to be our total gross market, we need to explain the differences between our service and the other companies in the industry. To do that, we are going to show a comparative table where all the features of the four companies will be explained.

|                                                                                   | Enough<br>Range (km) | Availability<br>(100%) | Variety of<br>Vehicles | Credit Card<br>Payment | APP |
|-----------------------------------------------------------------------------------|----------------------|------------------------|------------------------|------------------------|-----|
|                                                                                   | ✓                    | ✓                      | ✓                      | ✓                      | ✓   |
|  | ✓                    | ✗                      | ✗                      | ✓                      | ✓   |
|  | ✓                    | ✗                      | ✗                      | ✓                      | ✓   |
|  | ✓                    | ✗                      | ✗                      | ✓                      | ✓   |

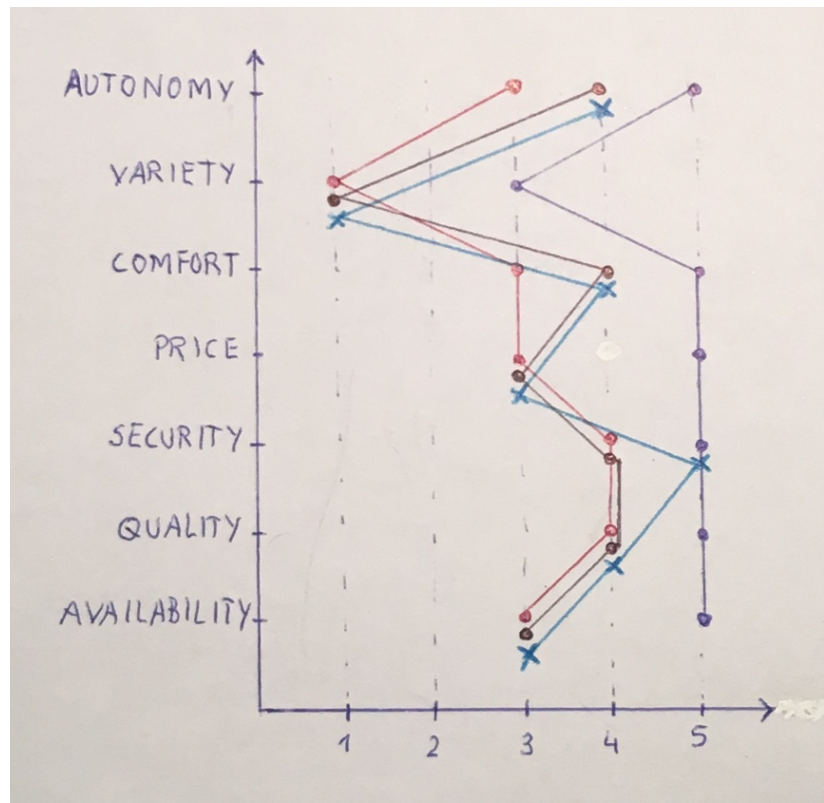
*Table 1.2 Competition Table*

Table 1.2 shows the similar features of the four services because in terms of use and offerings are quite similar. The big difference, as we have explained before, is the size of our idea comparing with the other three. In terms of range, all the vehicles can provide enough distances to ride without having any issue with the charge. Also, in terms of use and method payment, the four services will work very similar, booking the vehicle through the APP, being the payment instantaneously using the APP.

The differences appear in terms of availability and variety of the vehicles. Nowadays, the three companies working in Madrid just offer one type of vehicle each, being for a maximum of 2 people (Car2go), 4 people (Emov) and 5 people (Zity). In our case, we will offer different sizes, providing the customer the chance to choose between a car for 2 or a car for 5 people. This idea will give us more flexibility and a single customer could rent a small car for himself instead of renting a car for 5 people just for him. So, we can say that our company will be a mix between the three that we have now in the streets. The other difference could be the availability of vehicles. The use that nowadays people give to the electric rental car is just sporadic, so the number of vehicle is not huge which means that, sometimes, we can have problems to find a vehicle near our location. With our service we will not have this issue because the number of vehicles is going to be huge due to three main things. First, the demand is going to be much higher than nowadays because no combustion engines will be allowed in the streets. Second, we are going to be the unique group offering this service, so we need to have a great number of vehicles ready to be used. Last, we must always provide a vehicle for each of our customers. We need to create an idea of owning the car, which means that the customer does not own any of our vehicles, but he is going to have the opportunity to use one whenever and wherever he wants so he would think that he owns a car.

The chart below is going to be also a comparative method between our service and the other three, focusing more in specific characteristics like price or security. In this chart,

we are going to rate some common features of the four services, so we could see easily the differences between them.



*Plot 1.2 Comparison Plot*

As we can see in the chart above (5 is the best, 1 is the worst), the four services are similar but there are some important differences. About the availability, range and variety of vehicles we have talked before, so we are not going to go too deeply. In terms of comfort, we understand how good the car is, how easy to drive is and how comfortable is to drive the vehicle. Also, we include an easy use of the application which is really simple and easy for the four services. In terms of price, as we talked before in 1.4.3, we will offer the lowest price because our demand is going to be huge comparing it with the current one. Last, in terms of security and quality of the vehicles, we can say that our vehicles will be the most secure and with the highest technology, providing the customer a really high-quality service.

### 1.4 Sales & Marketing Plan

In this section we are going to focus on how our service is going to entice the customers. We can divide the section in three, starting with the advertising and promotion, pricing strategy and, finally, the sales and distribution process.

The advertising and promotion campaign is really important if we want to provoke a positive impact in the customers. So, all the time spent in the design of how our idea is

going to be presented to the clients is not going to be any waste of time, we could say it will be a future investment for our company.

Secondly, in the pricing strategy we will explain how the prices of renting the vehicle are going to change through the years and if any promotion will be able in case of being premium or new client, for example.

Finally, we will talk about the sales and distribution process where the main goal will be to explain how the acquisition of the vehicles is going to be made, obviously we are not going to purchase all the vehicles during the first year the project, and how these vehicles are going to be distribution around the city, depending on the demand.

#### 1.4.1 Product Offerings

The idea of our service is very simple, we offer the possibility to rent a car whenever you want to ride around the city Madrid. Our idea is bigger than nowadays, where we have the option to rent an electric car, but we can also use our private vehicle to move around Madrid. In the near future, the private combustion engines vehicles will not be allowed to ride through Madrid, being the only option to use our service, public transport (it will be an interesting idea for the government to make them electric) or a private vehicle, if it is electric obviously. The reasons of this big change in the transport in Madrid are simple, traffic congestion and pollution. Avoiding the use of the combustion engines in the vehicles, we will reduce a great portion of the current pollution. Also, the number of vehicles will be reduced considerably so the traffic congestion could become a less interesting issue for the government.

For the customers, it will be really easy to use our service. They just need a smartphone and a credit card. Then, the only thing to do is to download our APP in their smartphones and link the account with a credit card where we will charge the use of the vehicle. When the customer decides to use a vehicle, he will book it, having 15 minutes to get into the vehicle, where we will start charging the customer. Then, depending on the amount of time of use, the charge will be higher or lower, knowing that each minute will cost 0.12€. The opening and closing of the vehicles will be done through the APP, pressing a simple circle in their smartphone's screen.

#### 1.4.2 Pricing Strategy

For the selection of the price of our vehicle (€/min), we compare the prices that the three main companies working in our country have nowadays. As we can see in Table 1.3, the prices are 0,21 for Car2go and Zity, and 0,24 for Emov.

Initially, we thought to price our services with an amount between 0,21 and 0,24. But, after thinking deeply, we realised that the price needed to be much lower because being the only transport available, in addition to public transport and personal electric vehicles,

people will not be willing to pay more than 0,15 so we decided to price our service in 0,10 €/min, during the first three years, and 0,12 €/min since then. We estimated this price after asking some people on the streets and, as we could see later in the 1.7 Financial Plan, the profitability of the project is assured even though our price is half of the other companies.

| Price [€/min] |            |
|---------------|------------|
| Car2go        | 0,21       |
| Emov          | 0,24       |
| Zity          | 0,21       |
| Our Company   | 0,12 → 0,1 |

*Table 1.3 Price per minute of use*

Nowadays, if we want to use one of the rental cars applications, we need to pay certain amount to download it but, in our case, no payment will be needed because we have to facilitate the people to use ours. Moreover, being our service the only one available, we cannot charge any amount to the customers to download the APP, we will just charge the time that they would use our service.

Furthermore, for the first six months of life of the APP, 1 hour free will be ready for the customer once the download is done. After the six months, that hour free will not be available about all the prices will be the same.

#### 1.4.3 Functionality of our Service

In this point, we are going to focus on how our service is going to be provided and how the payments are going to be made.

First, we want to talk about how the number of vehicles is going to change along the project. As we know, the idea is to give every driver of Madrid the chance to use a rental car whenever they want, or they need so we must provide the enough vehicles to fulfill the wishes of all the customers. To see easily this evolution, we show the number of cars along the project in Table 1.4:

| Number of Vehicles |        |
|--------------------|--------|
| Year 0: 2018       | 15.000 |
| Year 1: 2019       | 30.000 |
| Year 2: 2020       | 35.000 |
| Year 3: 2021       | 40.000 |

|              |        |
|--------------|--------|
| Year 4: 2022 | 40.000 |
| Year 5: 2023 | 40.000 |

*Table 1.4 Number of Vehicles*

The reason of these numbers is simple. We started analysing the possible total gross market of our service and we got a total of 1,24 million of possible future customers of our application (Figure 1.3). Then, with a coefficient of 1,1, we reach a total gross market of 1,364 million of customers, which means that in the fifth year of the project, around 34 people will “own” a vehicle of our company. Obviously, the meaning of own is not real, is just the proportion between vehicles and customers. Nowadays, this proportion is much bigger but is because people can use their own vehicles. We really think that with this number of vehicles and the total customers expected, the proportion is the proper one and no customer without vehicle will exist at any time.

The functionality of our service is going to be very simple for everybody, independently of the age. As, we explained before, we just need a smartphone and a credit card which will be associated with our account in the mobile application. Once we have that, we just need to look for a car in the map inside the APP and book it. We will have around 25 minutes to take the car and use it. To open and close the car, it will be the same easy process than Car2go or Emov, we just need to press a button in our screen and the car will be ready or parked, depending on what we want. When the trip is over, the money will be immediately charged in our account, receiving the receipt a few minutes later via mail. As we have seen, the payment process is so simple that we only need to associate our account with the credit card the first day of use and the rest will be done automatically for the rest of the uses.

#### 1.4.4 Advertising & Promotion

In this section we are going to talk about how are going to get known by the society. To do that, we will use the most powerful tool that we have nowadays, the social media. People between 15 and 50 have, at least, one of the most common platforms of social media, like Facebook, Twitter or LinkedIn. So, knowing that, we are going to use them to get us known and make the people nervous and anxious about our idea and the era which could be coming. Also, we would use the newspapers and technological magazines to reach more and more people. We need to get known so we have to spend all the time and make all the possible efforts to explain our idea to everyone and create in them the desire to try our services.

We are not going to focus only on the marketing and advertising plan, we need to give the future customers the chance to drive our vehicles and use our application before downloading it and start using it in the near future. To do that, we will prepare some

journeys where every future customer could come and try the service, both driving and using the APP. Obviously all these journeys will be completely free and will be really useful for us to know the opinion of the customer and every feedback will be appreciated to keep improving the service.

Our goal is to get known by every citizen of Madrid, so a lot of time and money will be needed to do that. As we will see in the Financial Section, around 20 million is going to be the budget, both marketing and the opening journeys.

## 1.5 Ownership & Management Plan

This section describes the legal structure, ownership, and the management and staffing requirements of the future company if the project becomes real. Moreover, we will show how the group project is going to be structured with an organization chart, explaining also the roles of each of the positions. At the beginning, the company's ownership will depend on the investors because, as we will see afterwards, an important investment is needed to start and develop the project. Later, the ownership could change depending on succeed of the project and the investors, who will decide to continue investing or not.

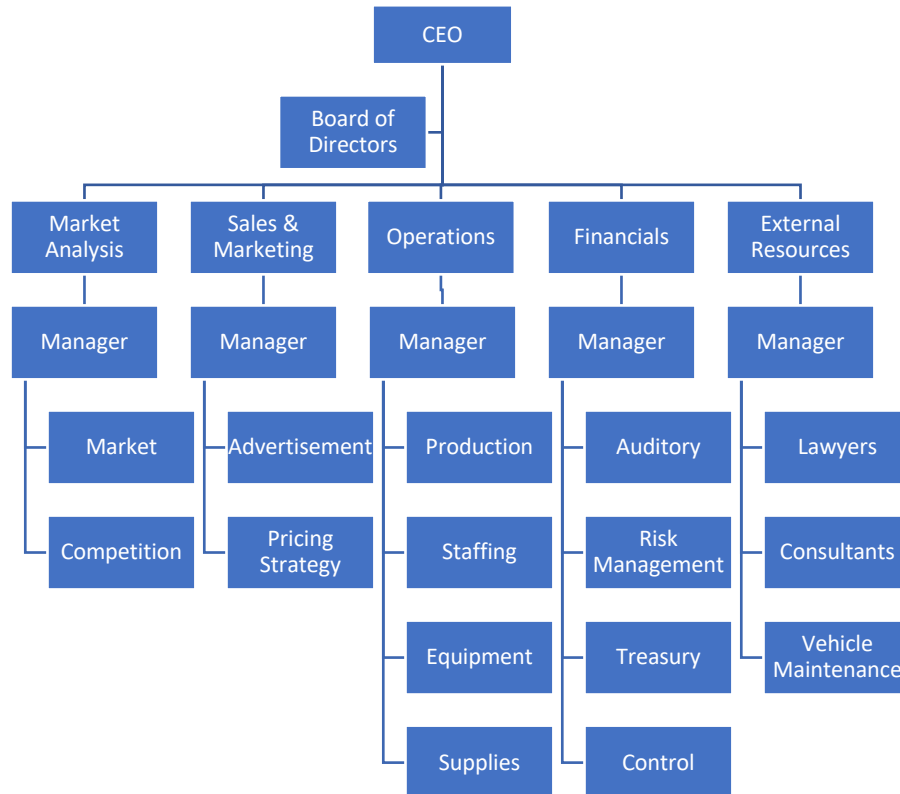
### 1.5.1 Management Team

In this point, we are going to focus on the structure of the organization, providing an organizational chart and explaining with some level of detail each of the roles of the people working on the company. We have decided to organise the company in a hierarchical organization because we think is the easiest way to distribute the different roles. In each department, the work done by the employees will be checked by its manager before the general manager of each of the five big sections of the structure check all the work.

At the top of the organization, we find the CEO and main investor of the organization. The decisions of the company along the years will be taken in several meetings between the CEO, the Board of Directors and the managers of each of the five big sections. Moreover, as he owns the majority of the shares of the company, he will have the last word in any conflictive decision. Below him, we will find the Board of Directors whose goal will be to meet all the general managers, understand every work done and present them to the CEO in order to give them the okay to continue developing and improving.

Below the Board of Directors, we find the five general managers of the five groups in which the organization is divided. The role of these members is to be the leader of the employees of each of the groups and verify every time that the work is being developing in the proper way and the goals to be achieved can be reached in that way. Moreover, these managers will be in charge of the presentation of the work to the Board of Directors, a really important step for the five sections.

Below the managers, we will find the employees whose role is to develop the work properly and present it to the manager. Even though they are at the bottom of the organization, they are at the same level of importance, even more, than the managers or the Board of Directors because without its work, no organization would exist.



Summing up this point, we think that with this type of organization we can reach the company's goals and no internal issues will exist because every member has the same importance than the other.

### 1.5.2 External Resources & Services

In addition to the structure explained above, as we can see in the organization chart, we have an external resources section whose role is to organize every member of the company who works from the outside, such as lawyers or consultants. These two people are essential for the company to understand and solve any possible legal problem, in the lawyers' case, and to introduce new ideas and help to develop the projects, in the consultants' case. As it happens in the other four sections of the organization, there is a manager whose role is to organize and help these externals to work as easy as they could and provide them any info or help they need.

### 1.5.3 Human Resources

In this point, we are going to detail how the different groups are divided, focusing on the number of employees approximately and, if there are, the different departments in each

group. This division is how the company is going to be distributed at the first year so, in next years, some changes, including more employees, could exist.

For the Market Analysis group, we have two different departments whose roles are different. First, we have the Market department which will be in charge of the study of the total gross market and how it varies along the time. Second, there will be a Competition department whose role is focused on the competitors that we have. This department will study deeply each of our competitors in order to know every detail of them, trying to design a better service, knowing the pros and cons of each of them. This groups will be divided in one manager and five employees per department.

For the Sales and Marketing department, we will just have two different sections of work. At the top, there will be the manager and, below him, we find the Advertisement and Pricing Strategy departments. The first one will be in charge of promotion and its main goal is to get known by everyone before launching our service. To do that, the department will have five employees. On the other hand, the Pricing Strategy department's role is to study the demand and current competitors' prices to get the most accurate price of our service. This group will be formed by three people.

For the Operations group, the complexity and size are bigger. In this group, all the decisions related to production, equipment or staffing will be taken, so the importance is huge. As we can see in the organizational chart in the previous point, this department and the Financial one is the biggest of the organization, so a great number of employees will be needed. We think that, at the beginning of the project, around twenty people will be enough to reach all the goals and work properly.

For the Financial group, several groups will be in. First, in terms of profitability of the projects, we will have two departments called Control and Risk Management, whose main role will be to study the projects of the company in terms of profitability and finally deciding if they are positive or negative projects for the organization, refusing the negative ones obviously. Moreover, two more groups in this group will exist. These are the Auditory and Treasury departments whose role will be to control and check how the money of the company is being spent and if it is being done in the correct way. The number employees will be around twenty-five, being fifteen for the Control and Risk and the other ten for the other two departments.

Last, for the External Resources group, we can divide it in three small departments. First, a group of lawyers to solve any legal issue that the organization could have so a group of three people will be enough. Second, as it happens in every company, it is really interesting to have the opportunity to work with a small group of external consultants who are able to provide new ideas and help to develop the work. For this small group, another three people could be enough. Third, we will need a group of people, obviously

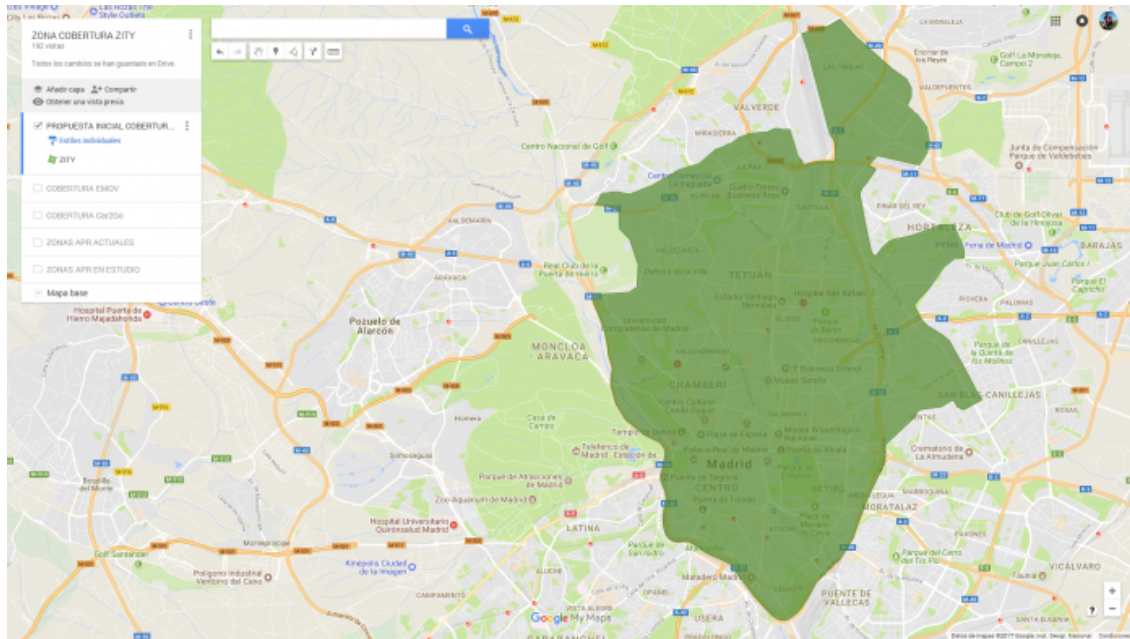
external and working in a specific place, to repair and check that every vehicle is in the proper way to use it. For this group, around twenty people will be needed.

## 1.6 Operating Plan

The operating plan outlines the physical requirements of your business, such as office, warehouse, retail space, equipment, inventory and supplies, labour, etc. For our case, we will talk about offices, equipment and production, which will be related with the number of vehicles and infrastructures around the city needed. Moreover, we will show a map of Madrid where all our vehicles could ride without any restriction.

### 1.6.1 Production

In this point, we cannot focus on the number of units that we are going to build or distribute so the idea, as we did before, is to explain how the number of vehicles is going to change along the project taking into account the gross market calculated. The number of vehicles was explained in 1.4.3 Functionality of our Service so we are not going deeply. As we explained before, these numbers depend on the total gross market, so it is really important to be completely sure of our estimation on this number. Moreover, in this point we want to show our future customers and investors the map where our cars could ride. We have explained along the report that our service would be just in Madrid City. But, what is exactly Madrid City? Nowadays, the three different companies working have three different areas of working, being the centre of Madrid the common area for the three. Because no combustion engines will be allowed to ride in this area, we need to have a considerable area of working to facilitate our customers their lives and movements around the city. So, to achieve that, we have decided that, until year 5 of our project where we could say that just electric vehicles would be riding, the area of working will be exactly the same that Zity has currently. Figure 1.4 shows where our vehicles could ride during these five first years of the project.



*Figure 1.4 Riding Map*

With this area of riding, we can provide our service to much more people than just the centre of Madrid. A lot people who do not live in the centre could use our service due to this small expansion that Zity did and we would use too. This area will cover all the neighbourhoods inside the M-30 and several more, such as Hortaleza, Mirasierra o Montecarmelo, outside it.

To conclude this point, we can assure that, in 2023, the number of vehicles offering our service will be 40.000 in the are showed above, which means that no citizen of Madrid would have any issue booking a vehicle. Explaining this with numbers, in 2023 each one of our vehicle will be “owned” by around 30 people (taking into account the total gross market estimated), which supposes a smaller proportion comparing it with the one that we have nowadays (around one vehicle each 1.500 people) So, knowing that, we can assure that no demand issues will exist using our service.

### 1.6.2 Staffing

In one of the previous points explained, we talked about the different departments of the company and how they are going to be integrated. In total, the company will have around seventy-five people working internally, forgetting about the external resources. For this amount of people, we will need a big office where everybody could work. So, a floor of around 400 m<sup>2</sup> could be a perfect size to work together, being easily to achieve our goals because to be all the members in the same space facilitate to control and solve the possible issues. Obviously, to rent this big office, we need a great amount of money which would be included in the financials, as we can see in 1.7 Financial Plan.

About the external resources, we just need to focus more deeply with the vehicle maintenance group because a warehouse or a garage to repair the cars. Obviously, the

rental of this space will be also included in the financials. It is really important to have the enough space to repair the possible damages and check that every car is in the correct way to provide the customer the best possible service.

All the members will be full-time workers, except the lawyers and consultants that would just work for us in case of need so the contract for them will be weekly or monthly, depending on the duration of the work. Even the mechanics working on the garage will be full-time workers due to the amount of work need to maintain all the vehicles perfectly.

### 1.6.3 Equipment & Suppliers

On the one hand, every single worker in the office will have the opportunity to work with a computer, with a complete access to internet, including all the new technologies. Also, there would be a couple of big meeting rooms to discuss and do the different presentations, both with the highest technology.

On the other hand, for the garage, we will need specific tools to solve any possible issue that the vehicles can have. A positive thing of this type of vehicles is that the maintenance is quite cheaper because they have not so many elements integrated in the engine so, even the reparations will be easier. Around ten vehicles at the same time could be interesting to be in reparation so the warehouse that we need is not small, so a great amount of money will be needed as we can check in the financials.

Another important idea is that we are not designers of vehicles, so we need to create a link between us and a car manufacturer which would provide us the vehicles. This is the same idea that nowadays Car2go, Emov or Zity has. As we have explained in 4.1.2 Rental Electric Cars, they have signed a contract with important manufacturers to provide the cars and the three companies just focus on the control and the use of them on the streets. So, if the project goes well, we will need to cooperate with an importance car manufacturer with some experience in electric cars, such us Renault or Citroen, which have the experience working on this type of projects, so it will be easy for them to accept.

## 1.7 Financial Plan

This section provides the most important info about the project and it will be the key at the moment of deciding if the project becomes real or not. Thanks to all the financial calculations showed in this section, we will be completely sure that, whatever decision we take, it will be the correct one because it will be based on the current and near future expectations of the project.

On the one hand, we will present the Income Statement and Cash Flow Projection of each year of the project. With these two financial reports, we understand perfectly how the revenues and operating expenses are going to change during the years, and also, we could

know the profitability level of the project with the NPV method, which would need to be positive if the projects want to become real.

On the other hand, we will present the Balance Sheet to know how the company value is going to change depending on the year and how the company is going to be distributed in terms of equity and debt, what we know as capital budgeting. To conclude the section, we think that a breakeven analysis could be interesting to check which are the limits for the profitability of the project and what we need to do to design a profitable project.

### 1.7.1 Income Statement

An income statement is a financial statement that reports a company's financial performance over a specific accounting period. Financial performance is assessed by giving a summary of how the business incurs its revenues and expenses through both operating and non-operating activities. It also shows the net profit or loss incurred over a specific accounting period.

Now that we know exactly the real meaning of an income statement, we can go deeply in our estimations. First, we are going to show our revenues and where they come from. Second, we will present all the costs associated to the project, including administrative costs such as salaries or rents. Finally, we will show a table where the five-year straight depreciation is explained in great detail.

Firstly, the estimated revenues during the first five years of the project are shown in Table 1.5, Table 1.6 and Table 1.7:

|                             | Year 0 = 2018 | Year 1 = 2019    |
|-----------------------------|---------------|------------------|
| Revenues                    | € -           | € 219.000.000,00 |
| Number of Vehicles          | 15000,00      | 30000,00         |
| New Vehicles                | 15000,00      | 15000,00         |
| Number of trips/day/vehicle | -             | 10,00            |
| Minutes Used [min]          | -             | 20,00            |
| Price [€/min]               | -             | 0,10             |
| New Users                   | -             | 500000,00        |
| Users                       | -             | 500000,00        |
| Price [€]                   | - €           | - €              |

Table 1.5 Revenues 2018 & 2019

|                             | Year 2 = 2020    | Year 3 = 2021    |
|-----------------------------|------------------|------------------|
| Revenues                    | € 383.250.000,00 | € 584.000.000,00 |
| Number of Vehicles          | 35000,00         | 40000,00         |
| New Vehicles                | 5000,00          | 5000,00          |
| Number of trips/day/vehicle | 15,00            | 20,00            |
| Minutes Used [min]          | 20,00            | 20,00            |
| Price [€/min]               | 0,10             | 0,10             |

|           |            |            |
|-----------|------------|------------|
| New Users | 500000,00  | 200000,00  |
| Users     | 1000000,00 | 1200000,00 |
| Price [€] | - €        | - €        |

Table 1.6 Revenues 2020 &amp; 2021

|                             | Year 4 = 2022    | Year 5 = 2023    |
|-----------------------------|------------------|------------------|
| Revenues                    | € 700.800.000,00 | € 700.800.000,00 |
| Number of Vehicles          | 40000,00         | 40000,00         |
| New Vehicles                | 0,00             | 0,00             |
| Number of trips/day/vehicle | 20,00            | 20,00            |
| Minutes Used [min]          | 20,00            | 20,00            |
| Price [€/min]               | 0,12             | 0,12             |
| New Users                   | 200000,00        | 100000           |
| Users                       | 1400000,00       | 1500000,00       |
| Price [€]                   | - €              | - €              |

Table 1.7 Revenues 2022 &amp; 2023

As it was expected, the revenues will increase progressively until year 4, where they will maintain constant during the next years. The main reason for this increase is focused on the increase in the number of users and vehicles along the years, which means much more trips using our service. The next graph shows how this evolution of the revenues is going to be exactly:



Plot 1.3 Revenues Increase along the project

The number of vehicles is going to increase from 15.000 in 2018 to 40.000 in 2022. The reason of this increase is just the demand, which is going to increase sharply from 500.000 (similar amount that the one using carsharing nowadays) in 2019 to 1.500.000 in 2023, when we will reach our total gross market (1.364.000 customers). This difference

between the expected gross market and the expected users in 2023 is because a small coefficient used in the calculation which provides us a margin in case of having more users than the expected.

As we can see in the tables above, no fee will be charged to the new customers to use our service. We have decided that because, without this fee, the revenues are quite important and, normally, this type of fee in applications or services make the customer dissatisfied and finally he decides to do not use the service. About the price charged per minute of use, we can confirm that, even though it is half of the current price charged by the carsharing companies, the profitability of the project is assured. We think that this price is the proper one and it is fair for the customers. More than the price established will be unfair because nowadays, having the chance of using our private vehicle, the price is around 0,23 €/min. So, thinking just on the benefit, we can say that the price is going to be higher than the previous one because no more services will be available, so everybody will be forced to use ours. But, if we think in the customers and in the benefit, we can establish a lower price where every customer will be willing to pay, and the revenues will be quite important due to the huge demand.

The last data that need to be explained is the one related with the number of trips per vehicle per day and the minutes per trip of each vehicle. After some research, we decided to use the same data that Car2go or Emov have nowadays, having 20 trips per day per vehicle with a 20 minutes trip for each vehicle. As we can see in the tables, these values will be since year 3, being lower the number of trips per vehicles during the first two years of the project.

Now that we know which are our revenues, we need to know our costs. To do that, we are going to show three different tables with the data for the different years of the project:

|                             | Year 0 = 2018    | Year 1 = 2019    |
|-----------------------------|------------------|------------------|
| Cost of Goods Sold (COGS)   | € 421.000.000,00 | € 392.100.000,00 |
| Cost per vehicle            | € 20.000,00      | € 20.000,00      |
| Infrastructure              | € 60.000.000,00  | € 60.000.000,00  |
| Maintenance (100 €/vehicle) | € -              | € 7.000.000,00   |
| Advertisement & Promotion   | € 20.000.000,00  | € 5.000.000,00   |
| Development of the APP      | € 1.000.000,00   | € 100.000,00     |
| Competition Fee             | € 40.000.000,00  | € 20.000.000,00  |

*Table 1.8 COGS Year 2018 & 2019*

|                             | Year 2 = 2020    | Year 3 = 2021    |
|-----------------------------|------------------|------------------|
| Cost of Goods Sold (COGS)   | € 151.100.000,00 | € 142.100.000,00 |
| Cost per vehicle            | € 20.000,00      | € 20.000,00      |
| Infrastructure              | € 20.000.000,00  | € 10.000.000,00  |
| Maintenance (100 €/vehicle) | € 8.000.000,00   | € 9.000.000,00   |

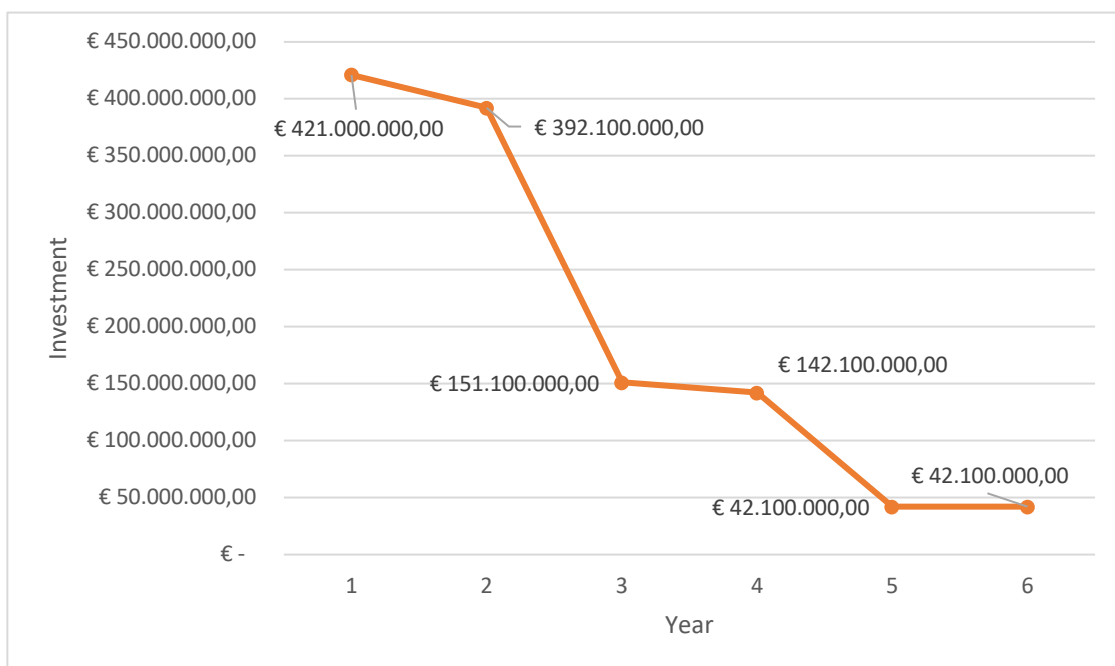
|                           |                 |                 |
|---------------------------|-----------------|-----------------|
| Advertisement & Promotion | € 3.000.000,00  | € 3.000.000,00  |
| Development of the APP    | € 100.000,00    | € 100.000,00    |
| Competition Fee           | € 20.000.000,00 | € 20.000.000,00 |

Table 1.9 COGS Year 2020 &amp; 2021

|                             | Year 4 = 2022   | Year 5 = 2023   |
|-----------------------------|-----------------|-----------------|
| Cost of Goods Sold (COGS)   | € 42.100.000,00 | € 42.100.000,00 |
| Cost per vehicle            | € 20.000,00     | € 20.000,00     |
| Infrastructure              | € 10.000.000,00 | € 10.000.000,00 |
| Maintenance (100 €/vehicle) | € 9.000.000,00  | € 9.000.000,00  |
| Advertisement & Promotion   | € 3.000.000,00  | € 3.000.000,00  |
| Development of the APP      | € 100.000,00    | € 100.000,00    |
| Competition Fee             | € 20.000.000,00 | € 20.000.000,00 |

Table 1.10 COGS Year 2022 &amp; 2023

As opposed to the revenues, the costs will decrease progressively long the project due to the huge initial investment needed. We can check this decrease in the next graph:



Plot 1.4 COGS Decrease along the project

We have estimated a vehicle cost of 20.000 €, a quite higher value comparing with the vehicles provided by Car2go or Emov because we want a comfortable and space care where our clients can ride without any problem and complete safe. Moreover, every vehicle, as we said before, needs to be in the ideal condition to use it so the maintenance is really important. Approximately, we have decided to spend around 100 € per car per year in its maintenance, knowing that not every car will have the maintenance that year. So, in other words, we have decided a maintenance budget for each year, which corresponds with around 100 € per car each of the years.

In terms of the infrastructure needed to install around the city, a huge spent is needed. We need a great number of recharging points, including several parking around the city. For the five years, we have estimated 170 million needed to design and install all the establishments needed for the recharging and parking. This budget will be distributed along the years, spending more than half during the first two years as we can see in Table 1.8.

Obviously, as any new company or start-up, without any advertisement is impossible to get known so we need an important portion of the budget to be focused on the advertisement and promotion. As we explained in 1.4.4 Advertising & Promotion, there are several ideas that we have in mind such as social media and different trial journeys where the future customers could drive our vehicle and give us their impressions. To develop all these ideas, we just established a 40 million budget, spending half of it during 2018.

Because our service is provided to the customer through a mobile application, we need to develop it and improve it along the years. So, a little portion of the total budget will be for the development of the application and future improvements and versions.

Last, we are going to explain the cost that we have named competition fee. Nowadays, there are three companies working in the carsharing industry in Madrid. But, if we arrive in 2019, we want to be the only one service offering electric cars in Madrid. Maybe if they reduce their prices to the one that we offer, they can maintain their service in Madrid. So, to avoid that situation, we can buy their service assuring that the only one offering carsharing in Madrid from 2023 is ours.

In addition to the Cost of Goods Sold, we have the general and administrative expenses. We have established after several calculations that we can say that these expenses are equal to the 5% of the revenues of each of the years. As we can see in the Appendix section where all the tables are included, in 2019, these expenses are equal to 10,95 million and, if we calculate this amount with more detail, we see that the approximation of the 5% is correct. Moreover, we will add the electricity used to maintain ready our vehicles in the general costs, so adding this cost to the administrative ones we get the general and administrative costs, which suppose a 5% of the total revenues of the year.

|                |                 |
|----------------|-----------------|
| Total Expenses | 10.300.000,00 € |
| Employees      | 80              |
| Office         | 3.500.000,00 €  |
| Warehouse      | 3.500.000,00 €  |
| Equipment      | 500.000,00 €    |
| Average Salary | 35.000,00 €     |

*Table 1.11 Administrative Expenses*

Another important topic in an Income Statement is the depreciation. We have used a 5-year straight line depreciation. The total investment is the sum of the vehicles purchase and the installation of the different infrastructures mentioned before. These values that we subtract to calculate the Net Income, will be added after in the Cash Flow Projections. As we can see in Table 1.12, we will have depreciation until year 10 of the project, which means that, even though our project will be available at 100% in year 6, not all the purchased items will be depreciated at 100% until year 10.

|                  | Total Investment | Depreciation     | Balance          |
|------------------|------------------|------------------|------------------|
| Year 0           | € 421.000.000,00 | € -              | € 421.000.000,00 |
| Year 1           | € 360.000.000,00 | € 84.200.000,00  | € 696.800.000,00 |
| Year 2           | € 120.000.000,00 | € 156.200.000,00 | € 660.600.000,00 |
| Year 3           | € 110.000.000,00 | € 180.200.000,00 | € 590.400.000,00 |
| Year 4           | € 10.000.000,00  | € 202.200.000,00 | € 398.200.000,00 |
| Year 5           | € 10.000.000,00  | € 204.200.000,00 | € 204.000.000,00 |
| Year 6           | € -              | € 122.000.000,00 | € 82.000.000,00  |
| Year 7           | € -              | € 50.000.000,00  | € 32.000.000,00  |
| Year 8           | € -              | € 26.000.000,00  | € 6.000.000,00   |
| Year 9           |                  | € 4.000.000,00   | € 2.000.000,00   |
| Year 10          |                  | € 2.000.000,00   | € -              |
| Dep. Inv. Year 0 | €                |                  | 84.200.000,00    |
| Dep. Inv. Year 1 | €                |                  | 72.000.000,00    |
| Dep. Inv. Year 2 | €                |                  | 24.000.000,00    |
| Dep. Inv. Year 3 | €                |                  | 22.000.000,00    |
| Dep. Inv. Year 4 | €                |                  | 2.000.000,00     |
| Dep. Inv. Year 5 | €                |                  | 2.000.000,00     |

*Table 1.12 Depreciation Table*

A huge investment, as we can see in Table 1.12, is needed. We do not own that amount of money so external investors are needed if we want to make this project real. We can see that the main portion of the COGS is related with the purchase of the vehicles. So, if we sign a link or contract with a car manufacturer and we explain them that they are going to be the main image, we could get the vehicles easily and, even, spending much less money just for the link between both companies. Everybody will relate our service with their vehicles, which means just positive impacts in their company such as higher demand or good opinions from the ecological groups against the combustion engines' emissions and supporters of the clean electricity without any kind of emission. Another important investors could be any electric company such as Ferrovial or Endesa, who could be really interesting in being linked with us, knowing that they could be an important prt of the image of our service.

Finally, to conclude this point of the Income Statement, we are going to show the values of the Net Income calculated with the equation Revenues – COGS – Adm&Gen Costs – Depreciation – Interest – Taxes = Net Income. To calculate the NI, we made an assumption of interests equal 0, so no debt was included. For the taxes, we have used a 25% tax rate, as it is used in Spain nowadays in this industry.

|            | Year 0 = 2018     | Year 1 = 2019     | Year 2 = 2020   |
|------------|-------------------|-------------------|-----------------|
| Net Income | -€ 431.000.000,00 | -€ 201.187.500,00 | € 42.590.625,00 |

*Table 1.13 Net Income 2018, 2019 & 2020*

|            | Year 3 = 2021    | Year 4 = 2022    | Year 5 = 2023    |
|------------|------------------|------------------|------------------|
| Net Income | € 174.375.000,00 | € 316.095.000,00 | € 314.595.000,00 |

*Table 1.14 Net Income 2021, 2022 & 2023*

As it was expected, during the first years of the project the Net Income is not positive for the company. If we check the Net Income in years 0 and 1, is higher than -200 million, which can make us think about the non-profitability of the project. But, after year 1, the revenues start to be higher than the COGS, as we can check in the previous tables, and the Net Income starts making the project profitable.

Now that we know which is going to be the Net Income every year and we have started talking about profitability, it is the good moment to go to next point and talk more deeply about the profitability of the project using the Cash Flow Projection Model.

### 1.7.2 Cash Flow Projections

The methodology used in this section is the Discounted Cash Flow Method (DFC). In this method, all the free cash flows of every year are discounted to the present with the appropriate cost of capital (WACC). We will explain all these details more deeply in this point.

We have studied three different scenarios, where the costs are always the same, with different probabilities for each one. First, we supposed a scenario where the EBIT was half of the calculated before. This scenario has a 30% of probability. Second, we studied a scenario where the EBIT was the expected one and it has a 50% of probability. Last, we supposed a scenario where the EBIT was 1,3 times the expected EBIT and it has the remaining 20% of probability. So, to study the real scenario, we made a combination of the three and we got the next EBIT for the five years:

|      | Year 0     | Year 1         | Year 2          |
|------|------------|----------------|-----------------|
|      | 12/31/2018 | 12/31/2019     | 12/31/2020      |
| EBIT |            | -€ 336.344.230 | € 51.676.625,00 |

*Table 1.15 Real Scenario EBIT 2018, 2019 & 2020*

|      | Year 3           | Year 4           | Year 5           |
|------|------------------|------------------|------------------|
|      | 12/31/2021       | 12/31/2022       | 12/31/2023       |
| EBIT | € 211.575.000,00 | € 383.528.600,00 | € 381.708.600,00 |

*Table 1.16 Real Scenario EBIT 2021, 202 & 2023*

As it happened with the Net Income, in years 0 and 1, the EBIT is negative due to the high investment needed. In year 0 we have the CAPEX, equal to the total investment in that year, which we will show after.

Now that we have the real scenario, we thought that we could make the idea more interesting and we started introducing new variables to the study. Until now, we studied three different scenarios taking into account the success of the project. But, after this, we wanted to introduce the possibility of having different capital structure in the project, which means to modify the proportion of debt and equity, giving us a different Weighted Average Cost of Capital (WACC), which supposes a different NPV. We have studied four different scenarios to understand perfectly how the capital budgeting can make some impacts in the NPV. First, we have studied the scenario of having 100% equity and no debt. Second, a 70% of equity and a 30% of debt. Third, a 50 % of equity and another 50% of debt. Last, a 30% of equity and a 70% of debt, which will suppose the higher NPV of the four cases.

Before starting the study of the four cases, we are going to calculate and explain how we got the different values for the WACC. The expression of the WACC is the following:

$$WACC = r_e * w_e + r_d * w_d * (1 - T)$$

As we know from the theory, the cost of debt is equal to the risk-free rate, so we are going to use a value of 0,61% for the cost of debt ( $r_d$ ) [16]. For the cost of equity, we will use the CAPM method with the following equation:

$$r_e = r_F + \beta * MRP$$

On the one hand, the MRP, after some research, will be 7,14% [16]. On the other hand, the beta, that we are going to use, has been calculated as a portfolio between automotive retail industry (50%) and the transportation industry (50%).

|                   | Unlevered Beta | Levered Beta |
|-------------------|----------------|--------------|
| Automotive Retail | 0,64           | 1,01         |
| Transportation    | 0,77           | 0,95         |
| My Company        | 0,705          | 0,98         |

*Table 1.17 Beta Calculation*

Now that we know exactly the values for the cost of equity and debt, we are ready to calculate the different values for the WACC in the four scenarios:

|                    | Cost of Debt | Cost of Equity | Beta  | WACC  |
|--------------------|--------------|----------------|-------|-------|
| 100% Eq. & 0% Debt | 0,61%        | 5,64%          | 0,705 | 5,64% |
| 70% Eq. & 30% Debt | 0,61%        | 7,26%          | 0,932 | 5,27% |
| 50% Eq. & 50% Debt | 0,61%        | 9,42%          | 1,234 | 4,94% |
| 30% Eq. & 70% Debt | 0,61%        | 14,45%         | 1,939 | 4,76% |

Table 1.18 WACC Resume

In Table 1.18 we can see how the beta varies depending on the scenario and this is because for the first case, without any debt, we use the unlevered beta with a value of 0,705, and for the other three cases we use a levered beta calculated with the following equation:

$$\beta_L = \beta_{su} * (1 + (1 - T) * \frac{w_d}{w_e})$$

Once this equation is clear, it is easy to understand that a levered beta is going to be higher with a higher weight of debt, as we can check in Table 1.18. Obviously, with a higher beta, the cost of equity will be higher using the equation above.

The last step before knowing if our project is going to be profitable, which means that it is really interesting to become real, is to calculate the Net Present Value (NPV), the IRR and the Payback.

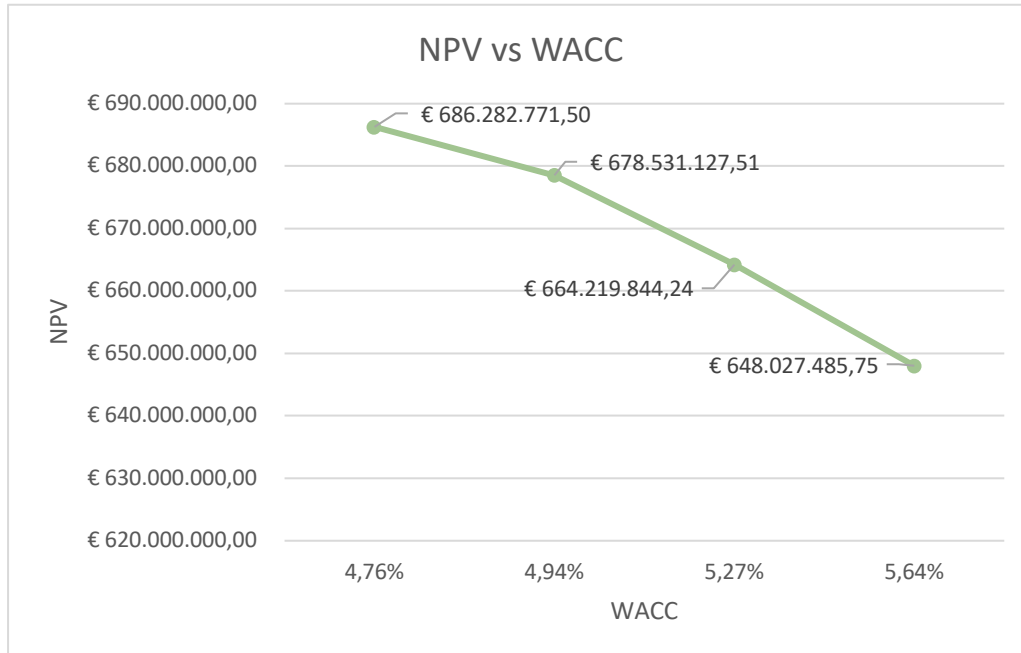
For the NPV, we added the depreciation to the EBIT calculated before and with the corresponding value of the WACC for each of the scenarios, we got the four different values of the NPV. As we can see, with a lower value of the WACC, a higher value for the NPV is gotten. Table 1.19 shows that in all the cases, the profitability of the Project is assured so it will be really interesting for a company to implement our idea and make it real.

For the IRR and Payback values, it is important to say that the values are going to be the same in all the cases because they do not depend on the WACC; they just depend on the EBIT and CAPEX values, which are the same for the four cases. For the IRR, we got a 34,51% which means that any WACC higher than this value will suppose a negative NPV and an unprofitable project. After some research, we figured out that the typical value of a start-up's IRR is between 25% and 30%, which means to double the capital invested after three years [17]. In our case, with a 31,61% of IRR, we assure that after four years of the project we will double the capital invested in year 0. For the Payback, we got a period of 3,16 years which means that in three years, we will get back the initial investment and only positive balances will exist in the following years.

|                    | NPV              | IRR    | Payback Period |
|--------------------|------------------|--------|----------------|
| 100% Eq. & 0% Debt | € 648.027485,75  | 31,61% | 3,16           |
| 70% Eq. & 30% Debt | € 664.219844,24  | 31,61% | 3,16           |
| 50% Eq. & 50% Debt | € 678.531.127,51 | 31,61% | 3,16           |
| 30% Eq. & 70% Debt | € 686.282.771,50 | 31,61% | 3,16           |

Table 1.19 NPV, IRR &amp; Payback Resume

We have decided to include a plot taking into account the NPV gotten and the scenario studied. As it was expected, being the Operating Cash Flows (OCF) and the CAPEX the same for the four scenarios, the lower the WACC, the greater the NPV.



Plot 1.5 NPV vs WACC

To end up this point of the report, we assure that the greater the debt's weight, the greater the NPV. To analyse this idea, we design a sensibility table in excel where all the possibilities and combinations of debt and equity are studied. As we mentioned before, the best combination for us would be 90% of debt and just 10% of equity or external investors. Because we are a start-up and banks are not stupid borrowing us the 90% of the initial investment, we forget about this possibility. So, two good combinations could be 50/50 or 70% of external investors and 30% of debt, which provide us a similar positive NPV, so the profitability is assured. The decision will be taken after knowing which are going to be the investors and the amount that they are willing to pay, so until that moment we just have all the possibilities studied, waiting for the external investors.

|  | DEBT | EQUITY         |                |                |                |                |                |                |                |                |                |                |      |
|--|------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|
|  |      | 0%             | 10%            | 20%            | 30%            | 40%            | 50%            | 60%            | 70%            | 80%            | 90%            | 95%            | 100% |
|  | 0%   | 893.682.774,59 | 863.161.303,46 | 833.512.649,71 | 804.706.701,25 | 776.714.557,95 | 749.508.476,07 | 723.061.815,60 | 697.348.990,23 | 672.345.419,92 | 660.102.188,14 | 648.027.485,75 |      |
|  | 10%  | 870.708.640,91 | 840.844.654,43 | 811.830.785,40 | 783.637.836,03 | 756.237.778,54 | 729.603.701,76 | 703.709.760,52 | 678.531.127,51 | 654.043.947,65 | 642.052.453,05 | 630.225.294,68 |      |
|  | 20%  | 848.229.785,50 | 819.096.171,32 | 790.610.664,41 | 763.014.949,60 | 736.191.841,43 | 710.115.232,82 | 684.760.046,39 | 660.102.188,14 | 636.118.503,56 | 624.372.487,18 | 612.786.735,88 |      |
|  | 30%  | 826.233.308,16 | 797.633.474,28 | 769.840.403,31 | 742.826.632,29 | 716.565.789,21 | 691.032.543,69 | 666.202.560,10 | 642.052.453,05 | 618.559.745,14 | 607.053.130,02 | 595.702.826,77 |      |
|  | 40%  | 804.706.701,25 | 776.714.557,95 | 749.508.476,07 | 723.061.815,60 | 697.348.990,23 | 672.345.419,92 | 648.027.485,75 | 624.372.487,18 | 601.358.601,33 | 590.085.486,44 | 578.964.844,28 |      |
|  | 50%  | 783.637.836,03 | 756.237.778,54 | 729.603.701,76 | 703.709.760,52 | 678.531.127,51 | 654.043.947,65 | 630.225.294,68 | 607.053.130,02 | 584.506.263,53 | 573.460.917,99 | 562.564.316,34 |      |
|  | 60%  | 763.014.949,60 | 736.191.841,43 | 710.115.232,82 | 684.760.046,39 | 660.102.188,14 | 636.118.503,56 | 612.786.735,88 | 590.085.486,44 | 567.994.176,93 | 557.171.034,40 | 546.493.013,60 |      |
|  | 70%  | 742.826.632,29 | 716.565.789,21 | 691.032.543,69 | 666.202.560,10 | 642.052.453,05 | 618.559.745,14 | 595.702.826,77 | 573.460.917,99 | 551.814.032,17 | 541.207.685,45 | 530.742.941,49 |      |
|  | 80%  | 723.061.815,60 | 697.348.990,23 | 672.345.419,92 | 648.027.485,75 | 624.372.487,18 | 601.358.601,33 | 578.964.844,28 | 557.171.034,40 | 535.957.757,30 | 525.562.953,13 | 515.306.332,63 |      |
|  | 90%  | 703.709.760,52 | 678.531.127,51 | 654.043.947,65 | 630.225.294,68 | 607.053.130,02 | 584.506.263,53 | 562.564.316,34 | 541.207.685,45 | 520.417.510,01 | 510.219.144,12 | 500.175.639,37 |      |
|  | 100% | 684.760.046,39 | 660.102.188,14 | 636.118.503,56 | 612.786.735,88 | 590.085.486,44 | 567.994.176,93 | 546.493.013,60 | 525.562.953,13 | 505.185.670,24 | 495.198.782,44 | 485.343.526,78 |      |

Table 1.20 Sensibility Analysis of the NPV

### 1.7.3 Balance Sheet

In this point we have designed a possible balance sheet for each year of the project in the four scenarios of capital budgeting. Because above we mentioned the 50/50 and 70/30 as

great combinations of equity/debt, we are going to explain just one these two. Moreover, being a start-up means that the external investors are the key of the project. So, for that reasons, we think that our capital budgeting, in the first years, is going to have more equity than debt, so only the balance sheet of the 70% equity and 30% debt will be explained in this point. Nevertheless, in the appendixes we will show the balance sheet of all the four scenarios. Also, just the years with positive EBITs are included in the balance sheet, so year 1 is out.

To create these four balance sheets, we made some research looking for similar companies to check the distribution that they had in terms of cash, fixed assets or account payables, for example. We found the financials sheets of a company called Daimler AG, which has the control of Car2go, so it is a good approximation for us and a good company to base on [18].

For the assets, we have used this distribution, where the greatest one is the net properties asset (fixed assets):

|                |         |
|----------------|---------|
| Cash           | 13,00%  |
| Inventories    | 14,00%  |
| Receivables    | 21,00%  |
| Other          | 9,10%   |
| Net Properties | 34,00%  |
| Intangibles    | 8,90%   |
|                | 100,00% |

*Table 1.21 Assets Distribution*

For the liabilities, we have used the following proportion, being the long-term debt the greatest liability:

|          |      |
|----------|------|
| Payables | 10%  |
| Accrued  | 30%  |
| LT Debt  | 60%  |
|          | 100% |

*Table 1.22 Liabilities Distribution*

For the equity, we decided to change the distribution of the common stock and retain earning along the years, being the following the resultant:

|                 | Year 2 | Year 3 | Year 4 | Year 5 |
|-----------------|--------|--------|--------|--------|
| Common Stock    | 80%    | 70%    | 60%    | 50%    |
| Retain Earnings | 20%    | 30%    | 40%    | 50%    |
|                 | 100%   | 100%   | 100%   | 100%   |

*Table 1.23 Equity Distribution*

Initially, the investors will own most of the company and, our idea would be to get a portion of the company each year until being the only owner. To do that, we will distribute

the equity with higher common stock than retain earnings in the first years. After that, the retain earnings will be higher until the point where all the revenues could be re-invested in the company for improvements or new ideas.

Now that we know how our assets, liabilities and equity are going to be distributed, we are ready to show how the balances look like.

| Year 2: 2020          |                         |                              |                         |
|-----------------------|-------------------------|------------------------------|-------------------------|
| Assets                |                         | Liabilities & Equity         |                         |
| <b>Current Assets</b> | <b>€ 461.801.182,45</b> | <b>Current Liabilities</b>   | <b>€ 97.051.036,59</b>  |
| Cash                  | € 105.138.622,98        | Account Payables             | € 24.262.759,15         |
| Inventory             | € 113.226.209,36        | Accrued Expenses             | € 72.788.277,44         |
| Account Receivables   | € 169.839.314,04        |                              |                         |
| Other                 | € 73.597.036,08         |                              |                         |
| <b>Fixed Assets</b>   | <b>€ 346.957.455,82</b> | <b>Long Term Liabilities</b> | <b>€ 145.576.554,89</b> |
| Net Properties        | € 274.977.937,01        | LT debt                      | € 145.576.554,89        |
| Intangibles           | € 71.979.518,81         |                              |                         |
|                       |                         |                              |                         |
|                       |                         | <b>Equity</b>                | <b>€ 566.131.046,79</b> |
|                       |                         | Common Stock                 | € 452.904.837,43        |
|                       |                         | Retain Earnings              | € 113.226.209,36        |
|                       |                         |                              |                         |
| Total Assets          | € 808.758.638,27        | Total L & E                  | € 808.758.638,27        |
|                       |                         |                              |                         |
| Company's Value       | € 808.758.638,27        |                              |                         |

Table 1.24 Balance Sheet Year 2020

Year 2020 will be the first one with positive balance at the end of the year, so it will be the inflection point of the project. Comparing the company's value with the other years' values, it is easy to check that this year is going to be the start of the unstoppable growth of the company. To calculate the company's value, we divide the Net Income of each of the years with the corresponding WACC calculated before.

| Year 3: 2021          |                           |                              |                         |
|-----------------------|---------------------------|------------------------------|-------------------------|
| Assets                |                           | Liabilities & Equity         |                         |
| <b>Current Assets</b> | <b>€ 1.890.711.422,76</b> | <b>Current Liabilities</b>   | <b>€ 397.347.409,34</b> |
| Cash                  | € 430.459.693,45          | Account Payables             | € 99.336.852,33         |
| Inventory             | € 463.571.977,56          | Accrued Expenses             | € 298.010.557,00        |
| Account Receivables   | € 695.357.966,34          |                              |                         |
| Other                 | € 301.321.785,41          |                              |                         |
| <b>Fixed Assets</b>   | <b>€ 1.420.516.988,38</b> | <b>Long Term Liabilities</b> | <b>€ 596.021.114,01</b> |
| Net Properties        | € 1.125.817.659,79        | LT debt                      | € 596.021.114,01        |
| Intangibles           | € 294.699.328,59          |                              |                         |
|                       |                           |                              |                         |

|                 |                    |                 |                           |
|-----------------|--------------------|-----------------|---------------------------|
|                 |                    | <b>Equity</b>   | <b>€ 2.317.859.887,80</b> |
|                 |                    | Common Stock    | € 1.217.098.457,22        |
|                 |                    | Retain Earnings | € 695.357.966,34          |
|                 |                    |                 |                           |
| Total Assets    | € 3.311.228.411,15 | Total L & E     | € 3.311.228.411,15        |
|                 |                    |                 |                           |
| Company's Value | € 3.311.228.411,15 |                 |                           |

Table 1.25 Balance Sheet 2021

At the end of year 2021, we could see the important growth that the company is going to have in terms of value, which means that the project is working properly. As we could see at the end of year 2022, the company will double its value due to its revenues.

| Year 4: 2022          |                           |                              |                           |
|-----------------------|---------------------------|------------------------------|---------------------------|
| Assets                |                           | Liabilities & Equity         |                           |
| <b>Current Assets</b> | <b>€ 3.427.351.553,71</b> | <b>Current Liabilities</b>   | <b>€ 720.284.039,31</b>   |
| Cash                  | € 780.307.709,25          | Account Payables             | € 180.071.009,83          |
| Inventory             | € 840.331.379,19          | Accrued Expenses             | € 540.213.029,48          |
| Account Receivables   | € 1.260.497.068,79        |                              |                           |
| Other                 | € 546.215.396,48          |                              |                           |
| <b>Fixed Assets</b>   | <b>€ 2.575.015.440,53</b> | <b>Long Term Liabilities</b> | <b>€ 1.080.426.058,96</b> |
| Net Properties        | € 2.040.804.778,04        | LT debt                      | € 1.080.426.058,96        |
| Intangibles           | € 534.210.662,49          |                              |                           |
|                       |                           |                              |                           |
|                       |                           | <b>Equity</b>                | <b>€ 4.201.656.895,97</b> |
|                       |                           | Common Stock                 | € 2.520.994.137,58        |
|                       |                           | Retain Earnings              | € 1.680.662.758,39        |
|                       |                           |                              |                           |
| Total Assets          | € 6.002.366.994,24        | Total L & E                  | € 6.002.366.994,24        |
|                       |                           |                              |                           |
| Company's Value       | € 6.002.366.994,24        |                              |                           |

Table 1.26 Balance Sheet 2022

| Year 5: 2023          |                           |                              |                           |
|-----------------------|---------------------------|------------------------------|---------------------------|
| Assets                |                           | Liabilities & Equity         |                           |
| <b>Current Assets</b> | <b>€ 3.411.087.369,43</b> | <b>Current Liabilities</b>   | <b>€ 716.865.997,08</b>   |
| Cash                  | € 776.604.830,17          | Account Payables             | € 179.216.499,27          |
| Inventory             | € 836.343.663,26          | Accrued Expenses             | € 537.649.497,81          |
| Account Receivables   | € 1.254.515.494,89        |                              |                           |
| Other                 | € 543.623.381,12          |                              |                           |
| <b>Fixed Assets</b>   | <b>€ 2.562.795.939,56</b> | <b>Long Term Liabilities</b> | <b>€ 1.075.298.995,62</b> |
| Net Properties        | € 2.031.120.325,06        | LT debt                      | € 1.075.298.995,62        |
| Intangibles           | € 531.675.614,50          |                              |                           |

|                 |                    |                 |                           |
|-----------------|--------------------|-----------------|---------------------------|
|                 |                    |                 |                           |
|                 |                    | <b>Equity</b>   | <b>€ 4.181.718.316,29</b> |
|                 |                    | Common Stock    | € 2.090.859.158,15        |
|                 |                    | Retain Earnings | € 2.090.859.158,15        |
|                 |                    |                 |                           |
| Total Assets    | € 5.973.883.308,99 | Total L & E     | € 5.973.883.308,99        |
|                 |                    |                 |                           |
| Company's Value | € 5.973.883.308,99 |                 |                           |

*Table 1.27 Balance Sheet 2023*

At the end of year 5, where it is supposed to be the end of the implementation of all the infrastructures and vehicles, the company's value is going to be close to 6 million, which is a really interesting value to present to our investors to let them know how our company is going to grow in just five years.

After the explanation of all the financial info, including Income Statement, Cash Flow Projection and Balance Sheet, we are ready to go to our investors and present our idea to them, supporting it with all the numbers calculated that give our project a huge value. Resuming all the outcomes achieved, we assure a project with a payback period lower than three years and positive NPVs since year 2, which means really interesting values for a start-up. In terms of company's value, we have seen how it is going to increase since year 3, reaching a value near to 3 million and doubling it during the next years. For all these reasons, we are confident about our project and ready to face the investors and convince them to make our project real and transform Madrid in a complete new city, clean of pollution and traffic congestion.



## 2. Business Model

In this section, we are going to present the Business Canvas Model designed for our project. The Model is made up by nine different sections, being all connected to give the project the union and complexity to become real. These nine sections are: Key Partners, Key Activities, Value Proposition, Customer Relationships, Customer Segments, Key Resources, Channels, Cost Structure and Revenues Streams [19].

First, we are going to show how the Model is with all the different sections completed. As we observe in Figure 2.1, there are three different colours, depending on the value of the boxes. The blue boxes are the main ones and they are the topics which complete each of the nine sections. The black boxes are ideas or lower topics inside the main boxes which describe how the main ideas are developed. Moreover, there is one black box related to a goal that the company has with the different activities proposed and it is no more than the customer satisfaction. Finally, the red boxes are related to the future and possible new markets.

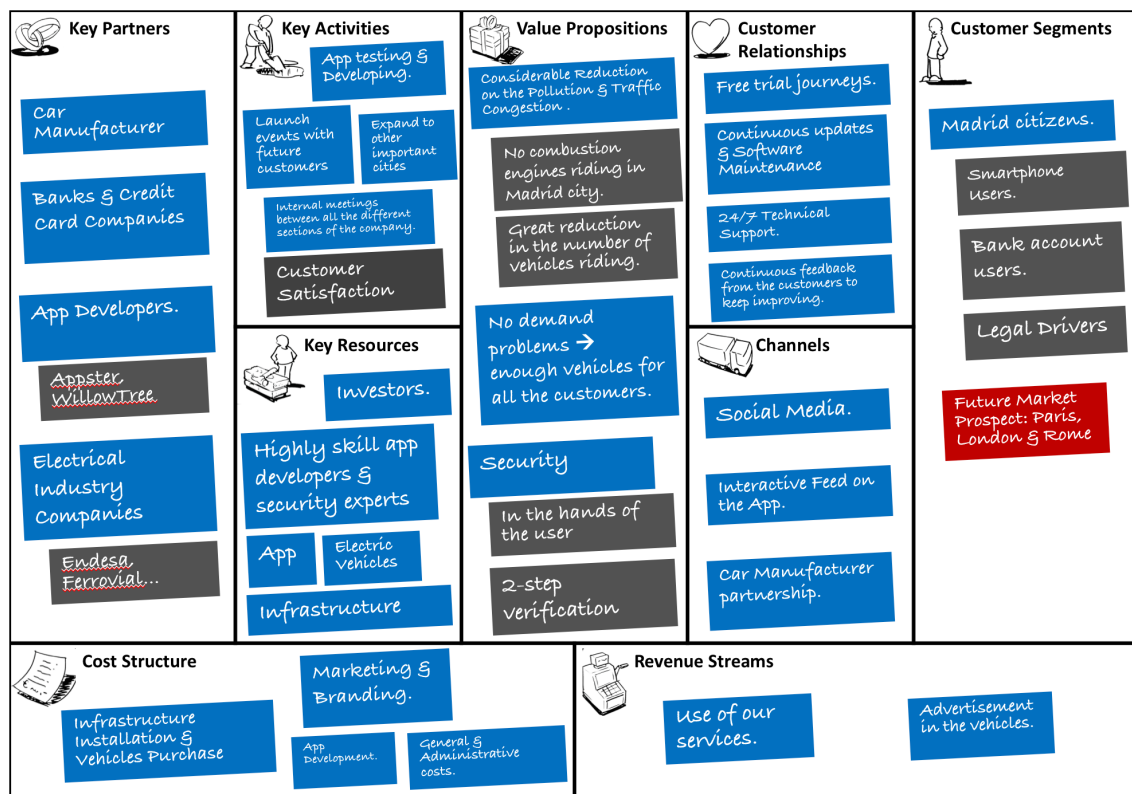


Figure 2.1 Business Canvas Model

Now that we have a global picture of the Canvas Model, we are going to explain deeply the different sections and the reasons of including these boxes in each section.

The first section that we are going to talk about is the Key Partners. These partners allow us to create different links with external agents, such as providers or different companies of the industry, developing several activities that our company is not going to create itself.

We have selected four different partners, with the possibility of increasing this number in the near future if everything goes well. The first and main partner is going to be a car manufacturer who will provide the vehicles, giving us the chance to reduce the huge initial investment needed because we would like to sign a contract to benefit mutually, we reduce our investment and they are the main image of the company. The second partner will be the banks and credit card companies because, as we have explained, all the payments will be made through the APP with a credit card related to the customer's account. The third most important partner could be an electrical industry company, such as Endesa SA or Ferrovial, as our service is based on the new era of electric cars out of pollution. Last, we can benefit working together with APP developers, for the creation and maintenance of our application, avoiding us to hire specific employees just for that. We think it is better to leave all the topics related with the application to an external server who will be in charge for every possible issue.

The second section is related with the Key Activities that the company has prepared to be closer to our customers and to create a group work inside the company, being easier to solve any issue with the point of view of every member in the company. First, to make our future customers confident about our service, we will prepare several trial journeys where they could ride our vehicles and check the application system, giving us some interesting feedback to keep improving. As we highlighted in Figure 2.1, we just look for the customer satisfaction with all this kind of activities. These are external activities, but we have also internal ones to improve and make us a stronger company able to solve any inconvenience. For our employees, we will have continuous internal meetings to check how the work is being developed, trying to improve day by day. Moreover, there will be several employees who could try our services and application services before anybody, giving more feedback, trying to look for the perfect service. As it happened with the external activities, the internal ones just look for the customer satisfaction, as he is going to decide if we are good enough to keep providing our service to the people.



*Figure 2.2 Customer Satisfaction*

The third block to talk about is the Key Resources, which is related with all the possible human, monetary or physique resources necessities to develop the project. In terms of money, the main resources are going to be a car manufacturer and several electrical industry companies, as we explained before. In terms of physiques resources, we can talk about the infrastructures around the city to keep our service comfortable and easy for the customers, the application to use our service and, obviously, the huge number of vehicles that we are going to provide the citizens to ride around the city without any kind of issue. In terms of human resources, all the employees and external people who will work for us, such as the app developers or the team in charge of the maintenance, are essential and without them no project could be developed.

The forth section to be explained is the Value Proposition, where we explain the top three or four reasons to make the future customers confident and trusting in us about the security and performance of the service. We are going to focus on three main ideas:

1. The main goal of the project is to reduce in a considerable way the pollution and traffic congestion that every day Madrid has. Moreover, these problems have been mentioned by several organizations to be reduced in the near future. So, as we will talk about in the Technical Reports, a huge reduction will be achieved thanks to the implementation of our service and the progressive removal of the combustion engine vehicles. The main consequence will be a healthier life for every citizen, making Madrid one of the best cities in the world.
2. Initially, it could be logic to think about problems with the demand and the number of vehicles available. But, as we explained before in 1.4.3 Functionality of our Service, every car will be owned by around 34 people, which means a huge difference with the actual ratio, which is 1400 approximately. So, with the ratio that we have in mind, no problems will exist because the people will use the service at different times along the day, having the peak hours at the entrance and exit of the work journey.
3. Some people are reluctant to make payments through websites or smartphone applications. For this reason, in our service's payment, two checking steps will be needed to complete the process. First, once you get into the vehicle, an automatic message will be send to the client's smartphone, just to check that he is using the service. Second, when he drops and closes the car, a verification code will be send to the smartphone to approve the payment. So, with these two verification steps, the security is assured, and every client will be confident of using our service.

The fifth section is based on the Customer Relationships, which means the different ways to make the customer happy, getting more and more customers. To achieve that, we will

provide free trial journeys to let the customers check any improvements done in the services. Moreover, a 24/7 technical support will be provided in order to facilitate any possible issue in the application or in the vehicle. Finally, an open channel for the customer will exist to help us improve, receiving any feedback that the customer wants because he has realised that it is important for us to know.

The sixth section is related to the channels that the company uses to get known before launching the service and also when the service is launched because there is a possibility that some people do not know about it and we want that everybody knows us. The main resource is going to be the social media, as we are living in a technological period where there is no life without any social media around, independently of the age of the person. So, websites or applications such as Twitter, Instagram, LinkedIn or Facebook will be our main places to show our service trying to get known and convince the future customers. Another importance source that we will use to get known is the car manufacturer partnership that we need to sign because a lot of customers could hear about us through the car manufacturer advertisement instead of ours, so it could be interesting to have two sources of advertisement because much more people could hear about us. Last, once the customer has downloaded the APP in his smartphone, continuous advertisements will be uploaded giving the customer the chance to know any new info or product that we offer with our service.



*Figure 2.3 Social Media*

The seventh section is related to the Cost Structure that the company has, including all the initial investment needed and the general and administrative costs along the project. Obviously, the main spent of this project is going to be the vehicles purchase and the installation of all the infrastructure needed to maintain the cars ready to be used by the customers. Another important portion of the total costs of the project is related with the marketing campaign needed to get known by everybody. It is really important to create an impressive campaign, to keep in the customers' minds, so it does not matter the total amount if it is spent properly and with the goal of getting known. Another point could be the app development because we need to design a good-looking application where the

customer has zero problems while he is trying to book a car, both opening or closing, so we need to find the best external app developer in order to achieve that. Finally, we need also to include the general and administrative cost related with the employees, offices rental and use of common services such as water or electricity, which will be really high due to the maintenance and charging process of the vehicles.



*Figure 2.4 Cost Structure*

The eighth section to talk about in the Canvas Model is going to be the Revenue Streams which means all the sources of income that the company has. The main source is the amount charged to each customer when they use our service. As we explained before, we just charge our customer per minute of use, so it does not matter the distance he rides, we just care about the time he is using our service (1.4.2 Pricing Strategy). Another possible source could be some advertisement in our vehicles or in the smartphone application so every client, when he uses the service, notifies the picture or logo, making that company more known day by day.

The last section of the Model is called Customer Segments and it is related to our total gross market. As we mentioned in 1.3.1 Market Analysis, our total gross market is based on smartphones users plus credit card users and, obviously, legal drivers. So, our potential market will be around 1,364 million users. And, for the future, if everything goes well in Madrid, we will try to expand to other European capital such as Paris or Rome.



*Figure 2.5 Looking for a future expansion*



### 3. Technical Reports

Once we have designed the Business Plan and Canvas Model, we are ready to analyse the profitability of the project and the impacts that it is going to have in several aspects. We will focus on three main topics, being the most important one the economic report. In addition to the economic report, two more reports are included. First, one focusing on the impact that the project will have on the pollution issue that Madrid has, checking if the project produces any improvement or reduction on the pollution over Madrid. Second, a traffic congestion report, where we will analyse the impact that the project has had on this issue.

The main report of this section is the economic one because, as in any project, the final decision is based on the profitability. So, in this report all the financials calculations made before will be very useful to understand properly if the idea of make the project real is the correct choice for the company. In the other two reports, we will focus on the improvements made with the implementation of the project and we will realise how good or how bad the project is for the city and for the population.

#### 3.1 Economic Report

This report is going to be based on all the financial calculations explained in 1.7 Financial Plan. The goal of this report is to resume all the conclusion that we achieved with the financial calculations.

First, as in any new project or start-up, a huge investment is needed to start running the project. In our case, during the first two years, 2018 and 2019, around 800 million will be needed. This amount is huge, but it is also important to say that just in the first year (2019) more than 200 million will be earned so it seems that something good is coming. During the next four years, some more investment will be needed to complete all the infrastructure, but the revenues will increase sharply, being around 700 million per year since year 4. All this info sounds really interesting but, what the investors want to see or know is how profitable the project is. So, what we need to present is not how much we are going to spend or earn during year 3, we need to focus on the NPV of the project. As we can see in Table 1.19, the profitability of the project is assured in every case, independently of the capital budgeting used. Moreover, the IRR ratio shows a typical and interesting value for a profitable star-up (34,51%), which means that our company has done a really good job developing the idea, giving us the possibility to become it real. In addition to these two financial values, we have included the payback ratio to show the investors when they are going to start making positive balances. As we calculated before, this payback value was closer to three, which means that in 2021 we will recover all the investment made in 2018 and we could start making profit.

Second, we have studied several combinations of equity and debt, trying to figure out which one was the best to have the best possible capital budgeting for the project. Because our project is new, and we can consider us a start-up, we have decided that, at least until year 5, the role of the investors will be greater than the one of banks, which means that in the balance sheet we will have more equity than debt. Being more accurate, after analyzing all the possibilities of capital budgeting, we have decided that a 70% equity and a 30% debt for these five initial years could be a really good way to start the project (the other distributions are show in Table 1.20). Moreover, the distribution of the equity is not going to be the same along the project, as we can see in Table 1.23. During the first years, most part of the equity will be related with common stock and dividend payments instead of the retain earnings. But, after year 2, when we will start making profit, the distribution will change, having more amount in the retain earnings and less in the common stock. This strategy is focused on having more percentage of the company year by year, using the revenues in future improvements instead of dividend payments.

Third, in the balance sheet section we could check how the value of the company is going to change along the project. Until 2020, the Net Income achieved is negative, which means that the value of the company is not going to be so good. But, at the end of year 2021, the Net Income will start to be positive and the value of the company will become interesting for investors. Between years 3 and 5, the value of the company will experience a huge increase, from 3 million to almost 6, a really interesting value for a company with just 5 years of life.

### 3.2 Pollution Report

After some research about the pollution in Madrid, we have realized that with the implementation of the new electric vehicles such as Car2go, the pollution has been reduced in a huge amount. For example, with the Car2go vehicles, the total amount of CO<sub>2</sub> emitted has been reduced in more than 500.000 tons, thanks to the more than 14 million kilometers rode by the 125.000 users [20]. This huge amount is just because of the change of the combustion engines by electric engines. So, if this really interesting reduction is related with just 500 vehicles, imagine what we can do with 40.000.

Now that we know exactly the ratio between the number of vehicles and the tons reduced of CO<sub>2</sub>, it is very simple to estimate the reduction that our services will provoke. As we can see in Table 3.1, the CO<sub>2</sub> will be reduced in around 40 million of tons using our service in 2023.

|             | Vehicles | Pollution Reduction in tons |
|-------------|----------|-----------------------------|
| Car2go      | 500,00   | 500000,00                   |
| Our Company | 40000,00 | 40000000,00                 |

Table 3.1 CO<sub>2</sub> Reduction in tons

Once we know the reduction, we need to analyse which is going to be impact of that amount in the society taking into account the total emissions. As Table 3.2 shows, in 2016, the 73,8% of the total emissions were related with combustion activities. Moreover, the 36% of the emissions related with the activities based on a combustion process were related with the transport. So, assuming that most of these emissions are focused in the main cities such as Madrid or Barcelona, we can assure that almost half of the emissions of the transport can be eliminated using our service in 2023, when the project will be completely finished.

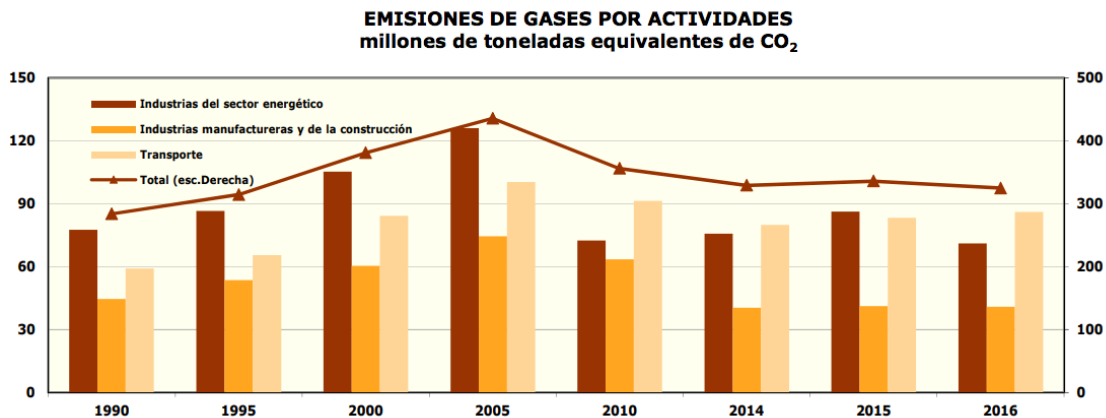
Fecha Actualización: 28/05/2018

**IV.14. EMISIONES DE GASES EFECTO INVERNADERO POR ACTIVIDAD (1)**  
Kilotoneladas equivalentes de CO<sub>2</sub>

| CATEGORÍAS (2)                           | 1990    | 1995    | 2000    | 2005    | 2010    | 2014    | 2015    | 2016    |
|------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. Procesado de la energía               | 211.715 | 239.252 | 288.854 | 345.498 | 269.835 | 238.092 | 255.453 | 244.135 |
| A. Actividades de combustión             | 207.610 | 235.185 | 284.743 | 341.553 | 266.527 | 233.127 | 250.880 | 239.633 |
| 1. Industrias del sector energético      | 77.656  | 86.637  | 105.343 | 126.018 | 72.418  | 75.726  | 86.224  | 71.128  |
| 2. Industrias manufactureras y de la c   | 44.672  | 53.640  | 60.464  | 74.540  | 63.434  | 40.404  | 41.173  | 40.865  |
| 3. Transporte                            | 59.111  | 65.481  | 84.266  | 100.324 | 91.423  | 79.879  | 83.386  | 86.131  |
| 4. Otros sectores                        | 26.172  | 29.426  | 34.671  | 40.671  | 39.252  | 37.119  | 39.754  | 41.018  |
| B. Emisiones fugitivas de los combustib  | 4.105   | 4.068   | 4.111   | 3.945   | 3.308   | 4.965   | 4.573   | 4.502   |
| 1. Combustibles sólidos                  | 1.835   | 1.483   | 1.263   | 1.029   | 584     | 268     | 183     | 90      |
| 2. Petróleo y gas natural                | 2.270   | 2.585   | 2.848   | 2.916   | 2.725   | 4.697   | 4.390   | 4.412   |
| 2. Procesos industriales                 | 25.851  | 29.001  | 36.404  | 36.345  | 30.955  | 37.742  | 30.760  | 31.816  |
| 3. Agricultura                           | 37.659  | 36.548  | 44.029  | 40.843  | 40.014  | 37.406  | 35.979  | 34.405  |
| 4. Tratamiento y eliminación de residuos | 7.013   | 9.465   | 11.543  | 12.742  | 15.094  | 15.686  | 13.471  | 14.351  |
| Total categorías                         | 283.749 | 314.266 | 380.831 | 435.428 | 355.898 | 328.926 | 335.662 | 324.707 |

Table 3.2 Total CO<sub>2</sub> emissions [21]

Another interesting idea found in [21] is related with the distribution of the emission along the last two decades. Around 1990, most of the emissions were related the energetic industry, being almost half of the total emissions. But along the years this distribution has changed and since 2010, the transport is the main source of emissions in our country. Also, we can see a small reduction in the emissions related to the transport since 2005. It is because of the first steps that the electric vehicle has done in our county in the las decade. But this reduction is not enough, and we are still above the limit, so more changes are needed and, as we have realised before, our idea could help pleasantly to reduce these emissions.



Plot 3.1 Total CO<sub>2</sub> emissions Histogram

### 3.3 Traffic Congestion Report

The first thing that we did after knowing exactly the total number of vehicles provided to our customers is to compare it with the current number of vehicles riding nowadays. We have decided that, at the end of 2023, 40.000 vehicles will be provided for all our customers to ride around Madrid. Nowadays, after some research [22], we checked that around 2 million vehicles ride each day around the city centre of Madrid. In the article it is said that almost 2,5 million of vehicles rode in 2011, which meant a 5% less than in 2006. So, we have estimated that from 2011, another 5% has been reduced, which means that around 2 million of vehicles ride nowadays.

In our forecast, we have estimated that in 2023, each of our vehicles will ride a total of 20 rides per day. This means that our services will be used around 800.000 times per day. Obviously, there is an important difference between 2 million and 800.000 but it can be explained. First, the growth experienced by the motorbike market has been huge in the last five years [23]. Second, the great public transport that Madrid has help an important part of the population to go to any place by bus or underground. Last, the electric vehicles purchase is expected to have an incredible growth from 2023 approximately, as we can figure out in Plot 3.4. So, this huge difference could be closer thanks to the increase in other vehicles such as motorbikes, both electric and combustion engine, and private electric vehicles. It is important to mention that the idea of not allowing combustion engines from 2023 does not affect to the motorbikes, because its emissions are tiny comparing it with the cars.

**Evolución de las matriculaciones de motocicletas y ciclomotores en Europa durante los últimos diez años**



*Plot 3.2 Motorbikes Registration Variation*

As we can see in Plot 3.2, from 2007 to 2012, there was a huge decrease in the motorbikes registration due to the unstable political situation that Spain had and the important crisis that affected Spain along those years. But, it also remarkable how in 2013 this changed

radically and, in just one year, the registration increased in around 16%. Nowadays, we are recovering values similar to the ones in 2005.

To conclude this resume of the impacts in the traffic congestion, we can assure that the number of vehicles (cars) riding in the peak hours around Madrid will be much less thanks of the use of our service and the unstoppable growth of the motorbike and private electric cars. The reduction could be around half which means a huge one, meaning that a traffic congestion will be extremely rare from 2023 and could be related to accidents or critical weather conditions.



## 4. Conclusions

Now that we have presented all the technical reports and all the financial calculations, including the explanation of the business model, we are ready to conclude the report with some bullet points as key aspects that we have figured out after the research and design.

- The main goal of this project was very clear, and it was no more than the reduction in terms of pollution in the city of Madrid. Nowadays, we have a big problem related with the pollution and we need to focus on it and try to solve it. Moreover, the good impact that the carsharing has had in the last years made us feel comfortable and ready to design a project of this size.
- Our total gross market was really big because the future customers just need a smartphone and a credit card. These two things are essential nowadays in the society so the implementation for the customers would be really easy.
- In terms of economy, we have showed several kinds of combinations and possibilities and we have realized that in every possible situation, our project would be profitable. Obviously, most of the combinations are not real for a company like ours so we needed to establish which ones were possible. Because we are a start-up and we need to ask for most part of the investment, two main sources are available. First, external investors (equity). Second, loans from banks (debt). Finally, decided to prepare our project with a capital structure equal to 70% of equity and 30% of debt, knowing it was not the best option or the most profitable one but it was the real one. Even though it was not the best one, the profitability was assured as we checked out before.
- In terms of pollution, we showed that the reduction obtained is considerable and really important in terms of the health of the population. As we explained in the technical reports, the reduction obtained could be equal to half of the current pollution that transport provoke in Spain every year. So, if we think deeply in this ratio, we can ask ourselves what can we do implementing this service in the most important cities of Spain? Even in Europe, why not? Just imaging...
- In terms of traffic congestion, we have figured out that a reduction is made. Nowadays, more than 2 million vehicles ride on the streets of Madrid every day. But, with the implementation of our service, we will just have around 1 million of rides, which means that just half of the cars would ride on the streets at the end of 2023.
- Another important section of the project has been the business model. If we need to mention some important aspects of it, we can focus on the Key Partners and Value Proposition explained. On the one hand, the Key Partners could also be called as main investors would be a car manufacturer and an electric company such as Endesa SA. The reason of these two types of industries is because our two

principle ideas are, on one side a vehicle, and, on the other, free pollution using electricity. On the other hand, our Value Proposition will be focused on three main topics: pollution reduction, no demand problems and security assured in every single ride.

- Last, we have realized that the project is positive in terms of pollution and traffic congestion, is profitable having studied a 5-year project (just imaging the huge possibilities after these five years), is really positive in terms of health for every single citizen living in Madrid....so what are we waiting for? Why do we not start right now implementing it?

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## SECTION IV: APPENDIXES

INCOME STATEMENT

|                                            | Year 0 = 2018     | Year 1 = 2019     | Year 2 = 2020    | Year 3 = 2021    | Year 4 = 2022    | Year 5 = 2023    |
|--------------------------------------------|-------------------|-------------------|------------------|------------------|------------------|------------------|
| Revenues                                   | €                 | € 219.000.000,00  | € 383.250.000,00 | € 584.000.000,00 | € 700.800.000,00 | € 700.800.000,00 |
| Number of Vehicles                         | 15000,00          | 30000,00          | 35000,00         | 40000,00         | 40000,00         | 40000,00         |
| New Vehicles                               | 15000,00          | 15000,00          | 5000,00          | 5000,00          | 0,00             | 0,00             |
| Number of trips/day/vehicle                | -                 | 10,00             | 15,00            | 20,00            | 20,00            | 20,00            |
| Minutes Used [min]                         | -                 | 20,00             | 20,00            | 20,00            | 20,00            | 20,00            |
| Price [€/min]                              | -                 | 0,10              | 0,10             | 0,10             | 0,12             | 0,12             |
| New Users                                  | -                 | 500000,00         | 500000,00        | 200000,00        | 200000,00        | 100000           |
| Users                                      | -                 | 500000,00         | 1000000,00       | 1200000,00       | 1400000,00       | 1500000,00       |
| Price [€]                                  | -                 | -                 | -                | -                | -                | -                |
| Cost of Goods Sold (COGS)                  | € 421.000.000,00  | € 392.100.000,00  | € 151.100.000,00 | € 142.100.000,00 | € 42.100.000,00  | € 42.100.000,00  |
| Cost per vehicle                           | € 20.000,00       | € 20.000,00       | € 20.000,00      | € 20.000,00      | € 20.000,00      | € 20.000,00      |
| Infrastructure                             | € 60.000.000,00   | € 60.000.000,00   | € 20.000.000,00  | € 10.000.000,00  | € 10.000.000,00  | € 10.000.000,00  |
| Maintenance (100 €/vehicle)                | € -               | € 7.000.000,00    | € 8.000.000,00   | € 9.000.000,00   | € 9.000.000,00   | € 9.000.000,00   |
| Advertisement & Promotion                  | € 20.000.000,00   | € 5.000.000,00    | € 3.000.000,00   | € 3.000.000,00   | € 3.000.000,00   | € 3.000.000,00   |
| Development of the APP                     | € 1.000.000,00    | € 100.000,00      | € 100.000,00     | € 100.000,00     | € 100.000,00     | € 100.000,00     |
| Competition Fee                            | € 40.000.000,00   | € 20.000.000,00   | € 20.000.000,00  | € 20.000.000,00  | € 20.000.000,00  | € 20.000.000,00  |
| Gross Margin                               | -€ 421.000.000,00 | -€ 173.100.000,00 | € 232.150.000,00 | € 441.900.000,00 | € 658.700.000,00 | € 658.700.000,00 |
| Selling, General & Administrative Expenses | € 10.000.000,00   | € 10.950.000,00   | € 19.162.500,00  | € 29.200.000,00  | € 35.040.000,00  | € 35.040.000,00  |
| EBITDA                                     | -€ 431.000.000,00 | -€ 184.050.000,00 | € 212.987.500,00 | € 412.700.000,00 | € 623.660.000,00 | € 623.660.000,00 |
| Depreciation & Amortization                | € -               | € 84.200.000,00   | € 156.200.000,00 | € 180.200.000,00 | € 202.200.000,00 | € 204.200.000,00 |
| EBIT                                       | -€ 431.000.000,00 | -€ 268.250.000,00 | € 56.787.500,00  | € 232.500.000,00 | € 421.460.000,00 | € 419.460.000,00 |
| Interest Expenses                          | € -               | -                 | -                | -                | -                | -                |
| EBT                                        | -€ 431.000.000,00 | -€ 268.250.000,00 | € 56.787.500,00  | € 232.500.000,00 | € 421.460.000,00 | € 419.460.000,00 |
| Income Tax Expense                         | -                 | -€ 67.062.500,00  | € 14.196.875,00  | € 58.125.000,00  | € 105.365.000,00 | € 104.865.000,00 |
| Net Income                                 | -€ 431.000.000,00 | -€ 201.187.500,00 | € 42.590.625,00  | € 174.375.000,00 | € 316.095.000,00 | € 314.595.000,00 |
| Operating Cash Flow                        | -€ 431.000.000,00 | -€ 116.987.500,00 | € 198.790.625,00 | € 354.575.000,00 | € 518.295.000,00 | € 518.795.000,00 |

## CASH FLOW PROJECTIONS WITH LOW EXPECTATIONS

[illegible]

### CASH FLOW PROJECTIONS WITH NORMAL EXPECTATIONS

|              |                  |                   |                  |                  |                  |                  |                  |       |
|--------------|------------------|-------------------|------------------|------------------|------------------|------------------|------------------|-------|
|              | Year 0           | Year 1            | Year 2           | Year 3           | Year 4           | Year 5           | Risk Free Rate   | 0,61% |
|              | 12/31/2018       | 12/31/2019        | 12/31/2020       | 12/31/2021       | 12/31/2022       | 12/31/2023       | Beta             | 0,705 |
| EBIT         | -€               | 268.250.000,00 €  | 56.787.500,00 €  | 232.500.000,00 € | 421.460.000,00 € | 419.460.000,00 € | MRP              | 7,14% |
| Depreciation | €                | 84.200.000,00 €   | 156.200.000,00 € | 180.200.000,00 € | 202.200.000,00 € | 204.200.000,00 € | Cost of Equity   | 6%    |
| OCF          | -€               | 421.000.000,00 -€ | 116.987.500,00 € | 198.790.625,00 € | 354.575.000,00 € | 518.795.000,00 € | Cost of Debt     | 0,61% |
| CAPEX        | -€               | 421.000.000,00    |                  |                  |                  |                  | Weight of Equity | 100%  |
| NPV          | € 757.471.139,79 |                   |                  |                  |                  |                  | Weight of Debt   | 0%    |
| IRR          | 36,35%           |                   |                  |                  |                  |                  | WACC             | 5,64% |
| Payback      |                  |                   |                  |                  |                  |                  |                  |       |
|              |                  |                   |                  |                  |                  |                  |                  |       |
|              | Year 0           | Year 1            | Year 2           | Year 3           | Year 4           | Year 5           | Risk Free Rate   | 0,61% |
|              | 12/31/2018       | 12/31/2019        | 12/31/2020       | 12/31/2021       | 12/31/2022       | 12/31/2023       | Beta             | 0,932 |
| EBIT         | -€               | 268.250.000,00 €  | 56.787.500,00 €  | 232.500.000,00 € | 421.460.000,00 € | 419.460.000,00 € | MRP              | 7,14% |
| Depreciation | €                | 84.200.000,00 €   | 156.200.000,00 € | 180.200.000,00 € | 202.200.000,00 € | 204.200.000,00 € | Cost of Equity   | 7%    |
| OCF          | -€               | 421.000.000,00 -€ | 116.987.500,00 € | 198.790.625,00 € | 354.575.000,00 € | 518.795.000,00 € | Cost of Debt     | 0,61% |
| CAPEX        | -€               | 421.000.000,00    |                  |                  |                  |                  | Weight of Equity | 70%   |
| NPV          | € 774.723.308,47 |                   |                  |                  |                  |                  | Weight of Debt   | 30%   |
| IRR          | 36,35%           |                   |                  |                  |                  |                  | WACC             | 5,27% |
| Payback      |                  |                   |                  |                  |                  |                  |                  |       |
|              |                  |                   |                  |                  |                  |                  |                  |       |
|              | Year 0           | Year 1            | Year 2           | Year 3           | Year 4           | Year 5           | Risk Free Rate   | 0,61% |
|              | 12/31/2018       | 12/31/2019        | 12/31/2020       | 12/31/2021       | 12/31/2022       | 12/31/2023       | Beta             | 1,234 |
| EBIT         | -€               | 268.250.000,00 €  | 56.787.500,00 €  | 232.500.000,00 € | 421.460.000,00 € | 419.460.000,00 € | MRP              | 7,14% |
| Depreciation | €                | 84.200.000,00 €   | 156.200.000,00 € | 180.200.000,00 € | 202.200.000,00 € | 204.200.000,00 € | Cost of Equity   | 9%    |
| OCF          | -€               | 421.000.000,00 -€ | 116.987.500,00 € | 198.790.625,00 € | 354.575.000,00 € | 518.795.000,00 € | Cost of Debt     | 0,61% |
| CAPEX        | -€               | 421.000.000,00    |                  |                  |                  |                  | Weight of Equity | 50%   |
| NPV          | € 789.969.782,58 |                   |                  |                  |                  |                  | Weight of Debt   | 50%   |
| IRR          | 36,35%           |                   |                  |                  |                  |                  | WACC             | 4,94% |
| Payback      |                  |                   |                  |                  |                  |                  |                  |       |
|              |                  |                   |                  |                  |                  |                  |                  |       |
|              | Year 0           | Year 1            | Year 2           | Year 3           | Year 4           | Year 5           | Risk Free Rate   | 0,61% |
|              | 12/31/2018       | 12/31/2019        | 12/31/2020       | 12/31/2021       | 12/31/2022       | 12/31/2023       | Beta             | 1,939 |
| EBIT         | -€               | 268.250.000,00 €  | 56.787.500,00 €  | 232.500.000,00 € | 421.460.000,00 € | 419.460.000,00 € | MRP              | 7,14% |
| Depreciation | €                | 84.200.000,00 €   | 156.200.000,00 € | 180.200.000,00 € | 202.200.000,00 € | 204.200.000,00 € | Cost of Equity   | 14%   |
| OCF          | -€               | 421.000.000,00 -€ | 116.987.500,00 € | 198.790.625,00 € | 354.575.000,00 € | 518.795.000,00 € | Cost of Debt     | 0,61% |
| CAPEX        | -€               | 421.000.000,00    |                  |                  |                  |                  | Weight of Equity | 30%   |
| NPV          | € 798.227.393,01 |                   |                  |                  |                  |                  | Weight of Debt   | 70%   |
| IRR          | 36,35%           |                   |                  |                  |                  |                  | WACC             | 4,76% |
| payback      |                  |                   |                  |                  |                  |                  |                  |       |

## CASH FLOW PROJECTIONS WITH HIGH EXPECTATIONS

|              |                    |                |                  |                  |                  |                  |                  |       |
|--------------|--------------------|----------------|------------------|------------------|------------------|------------------|------------------|-------|
|              | Year 0             | Year 1         | Year 2           | Year 3           | Year 4           | Year 5           | Risk Free Rate   | 0,61% |
|              | 12/31/2018         | 12/31/2019     | 12/31/2020       | 12/31/2021       | 12/31/2022       | 12/31/2023       | Beta             | 0,705 |
| EBIT         | -€                 | 206.346.153,85 | € 73.823.750,00  | € 302.250.000,00 | € 547.898.000,00 | € 545.298.000,00 | MRP              | 7,14% |
| Depreciation | €                  | 84.200.000,00  | € 156.200.000,00 | € 180.200.000,00 | € 202.200.000,00 | € 204.200.000,00 | Cost of Equity   | 6%    |
| OCF          | -€                 | 421.000.000,00 | € 70.559.615,38  | € 211.567.812,50 | € 406.887.500,00 | € 613.173.500,00 | Cost of Debt     | 0,61% |
| CAPEX        | -€                 | 421.000.000,00 |                  |                  |                  |                  | Weight of Equity | 100%  |
|              |                    |                |                  |                  |                  |                  | Weight of Debt   | 0%    |
| NPV          | € 1.005.089.684,78 |                |                  |                  |                  |                  | WACC             | 5,64% |
| IRR          | 44,89%             |                |                  |                  |                  |                  |                  |       |
| Payback      |                    |                |                  |                  |                  |                  |                  |       |
|              |                    |                |                  |                  |                  |                  |                  |       |
|              |                    |                |                  |                  |                  |                  |                  |       |
|              | Year 0             | Year 1         | Year 2           | Year 3           | Year 4           | Year 5           | Risk Free Rate   | 0,61% |
|              | 12/31/2018         | 12/31/2019     | 12/31/2020       | 12/31/2021       | 12/31/2022       | 12/31/2023       | Beta             | 0,932 |
| EBIT         | -€                 | 206.346.153,85 | € 73.823.750,00  | € 302.250.000,00 | € 547.898.000,00 | € 545.298.000,00 | MRP              | 7,14% |
| Depreciation | €                  | 84.200.000,00  | € 156.200.000,00 | € 180.200.000,00 | € 202.200.000,00 | € 204.200.000,00 | Cost of Equity   | 7%    |
| OCF          | -€                 | 421.000.000,00 | € 70.559.615,38  | € 211.567.812,50 | € 406.887.500,00 | € 613.173.500,00 | Cost of Debt     | 0,61% |
| CAPEX        | -€                 | 421.000.000,00 |                  |                  |                  |                  | Weight of Equity | 70%   |
|              |                    |                |                  |                  |                  |                  | Weight of Debt   | 30%   |
| NPV          | € 1.025.454.249,86 |                |                  |                  |                  |                  | WACC             | 5,27% |
| IRR          | 44,89%             |                |                  |                  |                  |                  |                  |       |
| Payback      |                    |                |                  |                  |                  |                  |                  |       |
|              |                    |                |                  |                  |                  |                  |                  |       |
|              |                    |                |                  |                  |                  |                  |                  |       |
|              | Year 0             | Year 1         | Year 2           | Year 3           | Year 4           | Year 5           | Risk Free Rate   | 0,61% |
|              | 12/31/2018         | 12/31/2019     | 12/31/2020       | 12/31/2021       | 12/31/2022       | 12/31/2023       | Beta             | 1,234 |
| EBIT         | -€                 | 206.346.153,85 | € 73.823.750,00  | € 302.250.000,00 | € 547.898.000,00 | € 545.298.000,00 | MRP              | 7,14% |
| Depreciation | €                  | 84.200.000,00  | € 156.200.000,00 | € 180.200.000,00 | € 202.200.000,00 | € 204.200.000,00 | Cost of Equity   | 9%    |
| OCF          | -€                 | 421.000.000,00 | € 70.559.615,38  | € 211.567.812,50 | € 406.887.500,00 | € 613.173.500,00 | Cost of Debt     | 0,61% |
| CAPEX        | -€                 | 421.000.000,00 |                  |                  |                  |                  | Weight of Equity | 50%   |
|              |                    |                |                  |                  |                  |                  | Weight of Debt   | 50%   |
| NPV          | € 1.043.450.479,86 |                |                  |                  |                  |                  | WACC             | 4,94% |
| IRR          | 44,89%             |                |                  |                  |                  |                  |                  |       |
| Payback      |                    |                |                  |                  |                  |                  |                  |       |
|              |                    |                |                  |                  |                  |                  |                  |       |
|              |                    |                |                  |                  |                  |                  |                  |       |
|              | Year 0             | Year 1         | Year 2           | Year 3           | Year 4           | Year 5           | Risk Free Rate   | 0,61% |
|              | 12/31/2018         | 12/31/2019     | 12/31/2020       | 12/31/2021       | 12/31/2022       | 12/31/2023       | Beta             | 1,939 |
| EBIT         | -€                 | 206.346.153,85 | € 73.823.750,00  | € 302.250.000,00 | € 547.898.000,00 | € 545.298.000,00 | MRP              | 7,14% |
| Depreciation | €                  | 84.200.000,00  | € 156.200.000,00 | € 180.200.000,00 | € 202.200.000,00 | € 204.200.000,00 | Cost of Equity   | 14%   |
| OCF          | -€                 | 421.000.000,00 | € 70.559.615,38  | € 211.567.812,50 | € 406.887.500,00 | € 613.173.500,00 | Cost of Debt     | 0,61% |
| CAPEX        | -€                 | 421.000.000,00 |                  |                  |                  |                  | Weight of Equity | 30%   |
|              |                    |                |                  |                  |                  |                  | Weight of Debt   | 70%   |
| NPV          | € 1.053.197.074,17 |                |                  |                  |                  |                  | WACC             | 4,76% |
| IRR          | 44,89%             |                |                  |                  |                  |                  |                  |       |
| Payback      |                    |                |                  |                  |                  |                  |                  |       |

## CASH FLOW PROJECTIONS WITH REAL EXPECTATIONS

|              |            |                |                  |                  |                  |                  |  |                  |        |
|--------------|------------|----------------|------------------|------------------|------------------|------------------|--|------------------|--------|
|              | Year 0     | Year 1         | Year 2           | Year 3           | Year 4           | Year 5           |  | Risk Free Rate   | 0,61%  |
| EBIT         | 12/31/2018 | 12/31/2019     | 12/31/2020       | 12/31/2021       | 12/31/2022       | 12/31/2023       |  | Beta             | 0,705  |
| Depreciation | -€         | 336.344.230,77 | € 51.676.625,00  | € 211.575.000,00 | € 383.528.600,00 | € 381.708.600,00 |  | MRP              | 7,14%  |
| OCF          | €          | 84.200.000,00  | € 156.200.000,00 | € 180.200.000,00 | € 202.200.000,00 | € 204.200.000,00 |  | Cost of Equity   | 5,64%  |
| CAPEX        | -€         | 168.058.173,08 | € 194.957.468,75 | € 338.881.250,00 | € 489.846.450,00 | € 490.481.450,00 |  | Cost of Debt     | 0,61%  |
|              |            |                |                  |                  |                  |                  |  | Weight of Equity | 100%   |
| NPV          | €          | 648.027.485,75 |                  |                  |                  |                  |  | Weight of Debt   | 0%     |
| IRR          | 31,61%     |                |                  |                  |                  |                  |  | WACC             | 5,64%  |
| Payback      | 3,16       |                |                  |                  |                  |                  |  |                  |        |
|              |            |                |                  |                  |                  |                  |  |                  |        |
|              | Year 0     | Year 1         | Year 2           | Year 3           | Year 4           | Year 5           |  | Risk Free Rate   | 0,61%  |
| EBIT         | 12/31/2018 | 12/31/2019     | 12/31/2020       | 12/31/2021       | 12/31/2022       | 12/31/2023       |  | Beta             | 0,932  |
| Depreciation | -€         | 336.344.230,77 | € 51.676.625,00  | € 211.575.000,00 | € 383.528.600,00 | € 381.708.600,00 |  | MRP              | 7,14%  |
| OCF          | €          | 84.200.000,00  | € 156.200.000,00 | € 180.200.000,00 | € 202.200.000,00 | € 204.200.000,00 |  | Cost of Equity   | 7,26%  |
| CAPEX        | -€         | 168.058.173,08 | € 194.957.468,75 | € 338.881.250,00 | € 489.846.450,00 | € 490.481.450,00 |  | Cost of Debt     | 0,61%  |
|              |            |                |                  |                  |                  |                  |  | Weight of Equity | 70%    |
| NPV          | €          | 664.219.844,24 |                  |                  |                  |                  |  | Weight of Debt   | 30%    |
| IRR          | 31,61%     |                |                  |                  |                  |                  |  | WACC             | 5,27%  |
| Payback      | 3,16       |                |                  |                  |                  |                  |  |                  |        |
|              |            |                |                  |                  |                  |                  |  |                  |        |
|              | Year 0     | Year 1         | Year 2           | Year 3           | Year 4           | Year 5           |  | Risk Free Rate   | 0,61%  |
| EBIT         | 12/31/2018 | 12/31/2019     | 12/31/2020       | 12/31/2021       | 12/31/2022       | 12/31/2023       |  | Beta             | 1,234  |
| Depreciation | -€         | 336.344.230,77 | € 51.676.625,00  | € 211.575.000,00 | € 383.528.600,00 | € 381.708.600,00 |  | MRP              | 7,14%  |
| OCF          | €          | 84.200.000,00  | € 156.200.000,00 | € 180.200.000,00 | € 202.200.000,00 | € 204.200.000,00 |  | Cost of Equity   | 9,42%  |
| CAPEX        | -€         | 168.058.173,08 | € 194.957.468,75 | € 338.881.250,00 | € 489.846.450,00 | € 490.481.450,00 |  | Cost of Debt     | 0,61%  |
|              |            |                |                  |                  |                  |                  |  | Weight of Equity | 50%    |
| NPV          | €          | 678.531.127,51 |                  |                  |                  |                  |  | Weight of Debt   | 50%    |
| IRR          | 31,61%     |                |                  |                  |                  |                  |  | WACC             | 4,94%  |
| Payback      | 3,16       |                |                  |                  |                  |                  |  |                  |        |
|              |            |                |                  |                  |                  |                  |  |                  |        |
|              | Year 0     | Year 1         | Year 2           | Year 3           | Year 4           | Year 5           |  | Risk Free Rate   | 0,61%  |
| EBIT         | 12/31/2018 | 12/31/2019     | 12/31/2020       | 12/31/2021       | 12/31/2022       | 12/31/2023       |  | Beta             | 1,939  |
| Depreciation | -€         | 336.344.230,77 | € 51.676.625,00  | € 211.575.000,00 | € 383.528.600,00 | € 381.708.600,00 |  | MRP              | 7,14%  |
| OCF          | €          | 84.200.000,00  | € 156.200.000,00 | € 180.200.000,00 | € 202.200.000,00 | € 204.200.000,00 |  | Cost of Equity   | 14,45% |
| CAPEX        | -€         | 168.058.173,08 | € 194.957.468,75 | € 338.881.250,00 | € 489.846.450,00 | € 490.481.450,00 |  | Cost of Debt     | 0,61%  |
|              |            |                |                  |                  |                  |                  |  | Weight of Equity | 30%    |
| NPV          | €          | 686.282.771,50 |                  |                  |                  |                  |  | Weight of Debt   | 70%    |
| IRR          | 31,61%     |                |                  |                  |                  |                  |  | WACC             | 4,76%  |
| Payback      | 3,16       |                |                  |                  |                  |                  |  |                  |        |

BALANCE SHEET

| Equity 100% / Debt 0% |                  |                       |                      |                     |                    |                       |                    |                     |                      |                       |                    |
|-----------------------|------------------|-----------------------|----------------------|---------------------|--------------------|-----------------------|--------------------|---------------------|----------------------|-----------------------|--------------------|
| Year 2: 2020          |                  |                       | Year 3: 2021         |                     |                    | Year 4: 2022          |                    |                     | Year 5: 2023         |                       |                    |
| Assets                |                  |                       | Assets               |                     |                    | Assets                |                    |                     | Assets               |                       |                    |
| Liabilities & Equity  |                  |                       | Liabilities & Equity |                     |                    | Liabilities & Equity  |                    |                     | Liabilities & Equity |                       |                    |
| Current Assets        | € 430.909.031,54 | Current Liabilities   | € -                  | Current Assets      | € 1.764.234.899,09 | Current Liabilities   | € -                | Current Assets      | € 3.198.083.615,36   | Current Liabilities   | € -                |
| Cash                  | € 98.105.520,31  | Account Payables      | € -                  | Cash                | € 401.664.688,06   | Account Payables      | € -                | Cash                | € 728.110.105,07     | Account Payables      | € -                |
| Inventory             | € 105.652.098,80 | Accrued Expenses      | € -                  | Inventory           | € 432.561.971,76   | Accrued Expenses      | € -                | Inventory           | € 784.118.724,69     | Accrued Expenses      | € -                |
| Account Receivables   | € 158.478.148,20 |                       | € -                  | Account Receivables | € 648.842.957,63   |                       | € -                | Account Receivables | € 1.176.177.862,94   |                       | € -                |
| Other                 | € 68.673.684,22  |                       | € -                  | Other               | € 231.165.281,64   |                       | € -                | Other               | € 597.258.447,47     |                       | € -                |
| Fixed Assets          | € 256.838.668,52 | Long Term Liabilities | € -                  | Fixed Assets        | € 1.650.507.645,60 | Long Term Liabilities | € -                | Fixed Assets        | € 2.385.251.342,20   | Long Term Liabilities | € -                |
| Net Properties        | € 256.838.668,52 | LT debt               | € -                  | Net Properties      | € 1.650.507.645,60 | LT debt               | € -                | Net Properties      | € 1.885.251.342,20   | LT debt               | € -                |
| Intangibles           | € 67.164.548,52  |                       | € -                  | Intangibles         | € 274.985.824,90   |                       | € -                | Intangibles         | € 498.475.379,63     |                       | € -                |
| Equity                | € 754.657.848,57 |                       | € -                  | Equity              | € 3.089.728.369,69 |                       | € -                | Equity              | € 5.600.846.962,10   |                       | € -                |
| Common Stock          | € 603.726.278,86 |                       | € -                  | Common Stock        | € 2.162.009.858,78 |                       | € -                | Common Stock        | € 3.360.508.177,26   |                       | € -                |
| Retain Earnings       | € 150.931.569,71 |                       | € -                  | Retain Earnings     | € 926.918.530,91   |                       | € -                | Retain Earnings     | € 2.240.338.784,84   |                       | € -                |
| Total Assets          | € 754.657.848,57 | Total L & E           | € 754.657.848,57     | Total Assets        | € 3.089.728.369,69 | Total L & E           | € 3.089.728.369,69 | Total Assets        | € 5.600.846.962,10   | Total L & E           | € 5.600.846.962,10 |
| Company's Value       | € 754.657.848,57 |                       | € -                  | Company's Value     | € 3.089.728.369,69 |                       | € -                | Company's Value     | € 5.600.846.962,10   |                       | € -                |
| Equity 70% / Debt 30% |                  |                       |                      |                     |                    |                       |                    |                     |                      |                       |                    |
| Year 2: 2020          |                  |                       | Year 3: 2021         |                     |                    | Year 4: 2022          |                    |                     | Year 5: 2023         |                       |                    |
| Assets                |                  |                       | Assets               |                     |                    | Assets                |                    |                     | Assets               |                       |                    |
| Liabilities & Equity  |                  |                       | Liabilities & Equity |                     |                    | Liabilities & Equity  |                    |                     | Liabilities & Equity |                       |                    |
| Current Assets        | € 401.801.183,45 | Current Liabilities   | € 97.051.056,09      | Current Assets      | € 1.899.711.423,76 | Current Liabilities   | € 397.347.409,24   | Current Assets      | € 3.427.351.553,71   | Current Liabilities   | € 720.284.039,31   |
| Cash                  | € 120.594,65     | Account Payables      | € 75.788.177,43      | Cash                | € 469.565.350,15   | Account Payables      | € 298.015.557,00   | Cash                | € 826.487.989,48     | Account Payables      | € 1.340.317.029,48 |
| Inventory             | € 113.726.209,36 | Accrued Expenses      | € 75.788.177,43      | Inventory           | € 469.565.350,15   | Accrued Expenses      | € 298.015.557,00   | Inventory           | € 826.487.989,48     | Accrued Expenses      | € 1.340.317.029,48 |
| Account Receivables   | € 169.839.314,04 |                       | € -                  | Account Receivables | € 693.557.966,34   |                       | € -                | Account Receivables | € 1.254.515.494,89   |                       | € -                |
| Other                 | € 73.597.016,08  |                       | € -                  | Other               | € 301.321.785,41   |                       | € -                | Other               | € 546.215.396,48     |                       | € -                |
| Fixed Assets          | € 346.957.455,82 | Long Term Liabilities | € 145.576.554,89     | Fixed Assets        | € 1.420.516.988,38 | Long Term Liabilities | € 596.021.114,01   | Fixed Assets        | € 2.575.015.440,53   | Long Term Liabilities | € 1.080.426.058,96 |
| Net Properties        | € 274.977.037,01 | LT debt               | € 145.576.554,89     | Net Properties      | € 1.125.817.659,79 | LT debt               | € 596.021.114,01   | Net Properties      | € 2.040.804.778,04   | LT debt               | € 1.080.426.058,96 |
| Intangibles           | € 71.979.418,81  |                       | € -                  | Intangibles         | € 294.699.328,59   |                       | € -                | Intangibles         | € 534.210.662,49     |                       | € -                |
| Equity                | € 566.131.046,29 |                       | € -                  | Equity              | € 2.315.849.867,09 |                       | € -                | Equity              | € 4.181.518.316,29   |                       | € -                |
| Common Stock          | € 457.904.827,43 |                       | € -                  | Common Stock        | € 1.215.801.347,87 |                       | € -                | Common Stock        | € 2.200.994.132,58   |                       | € -                |
| Retain Earnings       | € 113.226.209,36 |                       | € -                  | Retain Earnings     | € 695.557.966,34   |                       | € -                | Retain Earnings     | € 1.980.662.758,39   |                       | € -                |
| Total Assets          | € 808.758.638,27 | Total L & E           | € 808.758.638,27     | Total Assets        | € 3.311.228.411,15 | Total L & E           | € 3.311.228.411,15 | Total Assets        | € 6.002.366.994,24   | Total L & E           | € 6.002.366.994,24 |
| Company's Value       | € 808.758.638,27 |                       | € -                  | Company's Value     | € 3.311.228.411,15 |                       | € -                | Company's Value     | € 6.002.366.994,24   |                       | € -                |
| Equity 50% / Debt 50% |                  |                       |                      |                     |                    |                       |                    |                     |                      |                       |                    |
| Year 2: 2020          |                  |                       | Year 3: 2021         |                     |                    | Year 4: 2022          |                    |                     | Year 5: 2023         |                       |                    |
| Assets                |                  |                       | Assets               |                     |                    | Assets                |                    |                     | Assets               |                       |                    |
| Liabilities & Equity  |                  |                       | Liabilities & Equity |                     |                    | Liabilities & Equity  |                    |                     | Liabilities & Equity |                       |                    |
| Current Assets        | € 802.466.112,66 | Current Liabilities   | € 250.358.671,04     | Current Assets      | € 2.046.268.454,70 | Current Liabilities   | € 529.667.720,52   | Current Assets      | € 3.627.408.458,48   | Current Liabilities   | € 318.529.632,35   |
| Cash                  | € 120.594,65     | Account Payables      | € 43.123.305,63      | Cash                | € 459.045.350,15   | Account Payables      | € 176.555.906,84   | Cash                | € 826.487.989,48     | Account Payables      | € 1.340.317.029,48 |
| Inventory             | € 120.594,65     | Accrued Expenses      | € 129.369.916,90     | Inventory           | € 494.536.530,15   | Accrued Expenses      | € 529.667.720,52   | Inventory           | € 891.882.984,57     | Accrued Expenses      | € 955.586.912,04   |
| Account Receivables   | € 181.117.883,66 |                       | € -                  | Account Receivables | € 741.534.808,72   |                       | € -                | Account Receivables | € 1.337.524.476,85   |                       | € -                |
| Other                 | € 78.884.416,25  |                       | € -                  | Other               | € 321.331.750,45   |                       | € -                | Other               | € 579.723.939,97     |                       | € -                |
| Fixed Assets          | € 369.997.962,33 | Long Term Liabilities | € 258.739.833,80     | Fixed Assets        | € 1.514.849.680,68 | Long Term Liabilities | € 1.059.335.441,04 | Fixed Assets        | € 2.732.984.288,42   | Long Term Liabilities | € 1.911.177.854,07 |
| Net Properties        | € 293.238.478,40 | LT debt               | € 258.739.833,80     | Net Properties      | € 1.200.580.166,51 | LT debt               | € 1.059.335.441,04 | Net Properties      | € 2.166.001.533,95   | LT debt               | € 1.911.177.854,07 |
| Intangibles           | € 76.759.484,03  |                       | € -                  | Intangibles         | € 314.269.514,17   |                       | € -                | Intangibles         | € 566.982.754,47     |                       | € -                |
| Equity                | € 413.233.056,33 |                       | € -                  | Equity              | € 1.765.559.068,39 |                       | € -                | Equity              | € 3.185.266.374,45   |                       | € -                |
| Common Stock          | € 344.986.445,06 |                       | € -                  | Common Stock        | € 1.412.447.234,71 |                       | € -                | Common Stock        | € 1.952.648.186,73   |                       | € -                |
| Retain Earnings       | € 86.246.611,27  |                       | € -                  | Retain Earnings     | € 282.489.459,94   |                       | € -                | Retain Earnings     | € 1.952.648.186,73   |                       | € -                |
| Total Assets          | € 802.466.112,66 | Total L & E           | € 802.466.112,66     | Total Assets        | € 3.331.118.136,78 | Total L & E           | € 3.331.118.136,78 | Total Assets        | € 6.370.992.746,91   | Total L & E           | € 6.370.992.746,91 |
| Company's Value       | € 802.466.112,66 |                       | € -                  | Company's Value     | € 3.331.118.136,78 |                       | € -                | Company's Value     | € 6.370.992.746,91   |                       | € -                |
| Equity 30% / Debt 70% |                  |                       |                      |                     |                    |                       |                    |                     |                      |                       |                    |
| Year 2: 2020          |                  |                       | Year 3: 2021         |                     |                    | Year 4: 2022          |                    |                     | Year 5: 2023         |                       |                    |
| Assets                |                  |                       | Assets               |                     |                    | Assets                |                    |                     | Assets               |                       |                    |
| Liabilities & Equity  |                  |                       | Liabilities & Equity |                     |                    | Liabilities & Equity  |                    |                     | Liabilities & Equity |                       |                    |
| Current Assets        | € 510.607.922,02 | Current Liabilities   | € 250.358.671,04     | Current Assets      | € 2.090.536.506,61 | Current Liabilities   | € 1.025.131.717,04 | Current Assets      | € 3.771.997.094,56   | Current Liabilities   | € 1.849.469.928,68 |
| Cash                  | € 116.530.490,13 | Account Payables      | € 65.596.417,76      | Cash                | € 475.954.020,77   | Account Payables      | € 256.282.914,26   | Cash                | € 858.682.469,89     | Account Payables      | € 462.467.482,17   |
| Inventory             | € 120.594,65     | Accrued Expenses      | € 181.762.253,28     | Inventory           | € 494.536.530,15   | Accrued Expenses      | € 768.848.802,75   | Inventory           | € 924.734.964,34     | Accrued Expenses      | € 1.387.102.446,51 |
| Account Receivables   | € 187.789.253,28 |                       | € -                  | Account Receivables | € 768.848.802,75   |                       | € -                | Account Receivables | € 1.387.102.446,51   |                       | € -                |
| Other                 | € 81.375.343,09  |                       | € -                  | Other               | € 333.167.814,54   |                       | € -                | Other               | € 601.077.726,82     |                       | € -                |
| Fixed Assets          | € 383.626.617,42 | Long Term Liabilities | € 375.578.506,56     | Fixed Assets        | € 1.570.648.268,54 | Long Term Liabilities | € 1.537.697.605,56 | Fixed Assets        | € 2.833.652.140,73   | Long Term Liabilities | € 2.774.204.893,02 |
| Net Properties        | € 304.039.743,41 | LT debt               | € 375.578.506,56     | Net Properties      | € 1.244.802.823,55 | LT debt               | € 1.537.697.605,56 | Net Properties      | € 2.245.784.913,40   | LT debt               | € 2.774.204.893,02 |
| Intangibles           | € 79.586.874,01  |                       | € -                  | Intangibles         | € 325.845.444,99   |                       | € -                | Intangibles         | € 587.867.227,33     |                       | € -                |
| Equity                | € 266.239.343,43 |                       | € -                  | Equity              | € 1.690.355.432,54 |                       | € -                | Equity              | € 1.981.574.923,59   |                       | € -                |
| Common Stock          | € 214.616.289,46 |                       | € -                  | Common Stock        | € 768.848.802,78   |                       | € -                | Common Stock        | € 1.981.574.923,59   |                       | € -                |
| Retain Earnings       | € 51.623.053,97  |                       | € -                  | Retain Earnings     | € 329.506.629,76   |                       | € -                | Retain Earnings     | € 990.387.461,79     |                       | € -                |
| Total Assets          | € 894.234.539,43 | Total L & E           | € 894.234.539,43     | Total Assets        | € 3.661.184.775,14 | Total L & E           | € 3.661.184.775,14 | Total Assets        | € 6.065.249.745,29   | Total L & E           | € 6.065.249.745,29 |
| Company's Value       | € 894.234.539,43 |                       | € -                  | Company's Value     | € 3.661.184.775,14 |                       | € -                | Company's Value     | € 6.065.249.745,29   |                       | € -                |