

EOI Business School



MBA FINAL PROJECT

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"GyroServices: a new way of flying"

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PREFACE

This Business Project is the result of a hard work developed by four entrepreneurial engineers during the last six months. This has been possible thank to the strong knowledge acquired within the Business Administration Master.

Nowadays, some companies provide different aerial services operating helicopters as well as airplanes. This fact raises some consequences; life cycle cost of these machines is high, petrol price is volatile, safety is an important issue since human people are the responsible for operating the machine and the environmental aspect, noise, consumption and so on, we have to keep the environment. The solution proposed by GyroServices is to cover this possible need that seems to come up, providing several services operating Autogyros.

GyroServices is an innovative idea so like every innovative idea it is important to demonstrate that it is really going to work. In the following pages you will be able to discover it chapter by chapter.

For the elaboration of this Project, we have enjoyed the constant support and help of Roberto López Cabaco, without his collaboration this Project would not have been possible. We would equally like to thank Manolo “Sevillita” who showed us Autogyros’ capabilities in the proper way, and we cannot forget either the different people who spent their time meeting with us and providing us some information like Jesús Zambrano, Javier Niño, José Manuel Moreira, Emilio López, Francisco Cabello...

Finally, it would not be fair to forget our families. Despite having been really busy during last months, they always have been there supporting and helping us.

Thank you all.

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1 EXECUTIVE SUMMARY

1.1 Opportunity

Civil services offered by Gyrocopter are an innovative idea since nowadays these services are mainly covered by helicopters and in some cases by ultralights airplanes.

There are key factors that contribute to the success of the business idea. A gyrocopter combines some capabilities between helicopters and airplanes as we can appreciate in the following list:

- It does not need too many meters for landing and taking-off.
- It has good performance characteristics in terms of speed and handle.
- Gyrocopter is considered the safest aircraft in the market thanks to statistics.
- Finally, it is important to mention the low operational cost that a gyrocopter has in terms of consumption, maintenance and so on.

All these aspects are quite important for monitoring operation. The most important factors defining the environment are the competitive advantage comparing to non-gyrocopter rivals. Also Andalusia characteristics like good weather for flying, a lot of kilometers of power lines to be monitoring as well as forest areas to be inspected.

1.2 Business idea

The business idea is to provide civil and commercial services in Andalusia region operating gyrocopters. The company will focus in different services, some oriented to private sectors and others to public administration.

The company name will be GyroServices and it will be a limited society.

1.3 Market and demand

According to the resources made in the market, there are near to 16,000 km of power lines in Andalusia (between ENDESA and Red Electrica Española) and there are not too many companies for covering this monitoring service. Bellow, we can find a table that shows the scope, periodicity, duration and price of yearly realized projects.

Power Line Inspections			
Customer	Scope	Periodicity / Duration	Price
Endesa	10.000 km	1 projects/year 2-3 months / project	300.000 €/project
Red Electrica de España	6.000 km	1 projects/year 2-3 months / project	550.000 €/project

Table 1: Power Lines Inspections market and demand

On the other hand, it is important to take into account the public contracts linked with GIS (Geographical Information Systems). The Regional Ministry of the Environment of Andalusia is used to launch a series of projects per year, from which GyroServices have selected a couple of them as a target for the first years of our activity. Among the selected projects are: burnt areas measurements, environmental assessments and panoramic photography.

REDIAM (Environmental Information Network of Andalusia)			
Project	Scope	Periodicity / Duration	Price
Burnt Areas Measurement	5.000-10.000 hectares/fire	3-4 projects/year 1 week / project	20.000€/fire
Enviromental Assessment	200.000 hectares/project	1 project/year 3 months / project	150.000€/project
Panoramic Photography	200 photos / campaign	3-4 projects/year 2 weeks/campaign	30€/photo

Table 2: Geographical Information Systems market and demand

In the following chart there is a market division in order to have an overview between all of them.

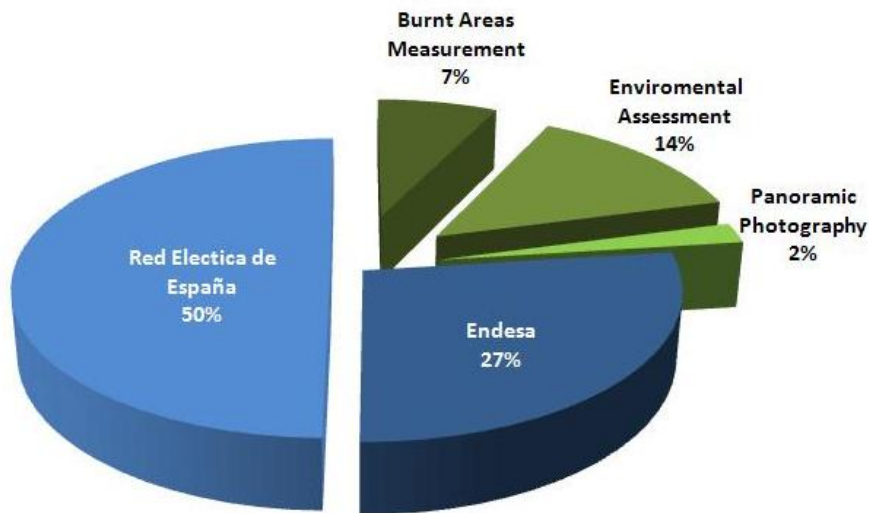


Figure 1: Total market shares

1.4 Service offering

The company will offer services both to private customers and public administration. We can divide those services in two areas:

- **High Voltage Power Lines, monitoring and inspection.** This service consists in a power lines surveillance to detect any irregularities and to maintain them in proper condition. Our offer will be addressed to the private sector (electrical companies) and to the public sector (public tenders).
- **GIS Remote Sensing and Environmental Assessment.**
 - Burnt areas measurements. This service consists in to deliver to the customer a certain number of information which contain:
 - Measurement of an area affected by disaster.
 - Losses Estimation.
 - Examine degree of recuperation of the forest.

- Environmental assessments. In case of this service information's delivered to the customer contain:
 - Measure impact of environmental disasters.
 - Deforestation degree estimation.
 - Examine degree of recuperation of the forest.
- Panoramic photography. It consists, delivery of a certain number of photographs to customer, both in paper and electronic format.

The key differentiations that define the commercial offer of GyroServices Company are: green image, low prices, innovative technology and flexibility.

1.5 Financial information

GyroServices will be incorporated as a limited society company at the beginning of 2011. The investment plan for the initial 5-years-period is shown below:

Expected investments	Investment
Autogyros	127.000 €
Xenon 2	63.500 €
Xenon 2	63.500 €
Equipment	116.440 €
Thermographic camera	75.440 €
Multispectral camera	41.000 €
Transport	5.000 €
Car trailer 1	2.500 €
Car trailer 2	2.500 €
Office	14.890 €

Table 3: Investments

Capital Expenditure	2011	2012	2013	2014	2015
Capex	245.940 €	- €	17.390 €	- €	- €

Table 4: Capital expenditure

The company funding will be fixed by 320.000 € and will consist of:

- Capital Stock: 80.000€
- Long-term Loan: 200.000€ (10-years-loan)
- Credit Line: 40.000€ (it will be cancelled in the 2nd year)

These are the expected results to be obtained in the first years of Gyroservices operations:

	2011	2012	2013	2014	2015
Sales	143.500 €	200.300 €	487.000 €	634.100 €	821.000 €
EBITDA	- 18.536 €	31.331 €	193.536 €	304.293 €	459.821 €
Operative earnings (EBIT)	- 42.412 €	7.454 €	167.921 €	278.678 €	434.206 €
Earnings before taxes (EBT)	- 58.196 €	- 9.431 €	147.475 €	256.510 €	409.606 €
Net profit (EAT)	- 46.557 €	- 7.545 €	117.980 €	205.208 €	327.685 €

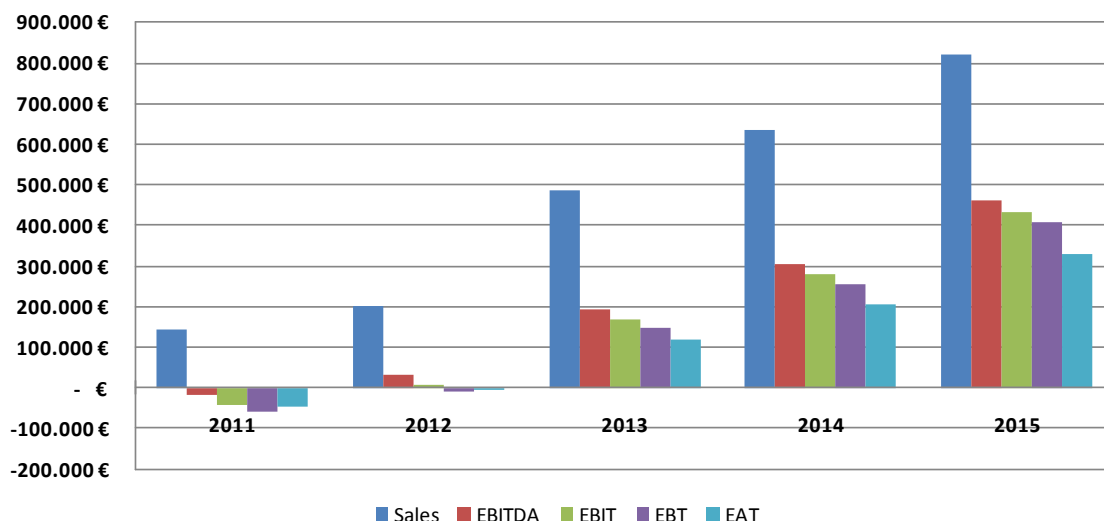


Table 5: Financial statements information

Regarding cash, inflows and outflows can be graphically shown as:

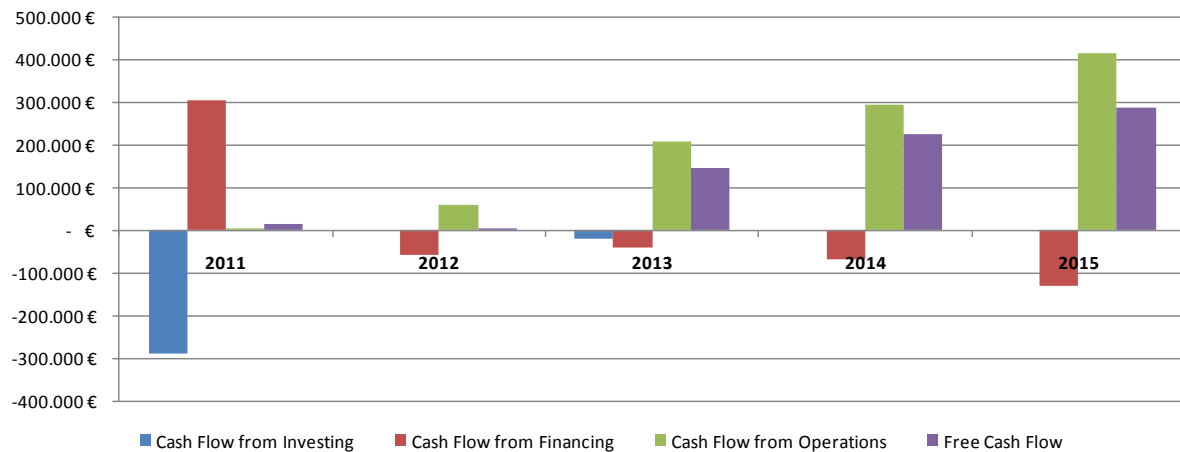


Figure 2: Cash-Flow evolution

In terms of profitability, the project has an **Internal Rate of Return** of 24% and reaches the **Break Even Point** in the second year of operation.

1.6 Business team

NAME	EDUCATION	CONTRIBUTION
Chrobak, Wojciech	Industrial Engineering	Experience in international and multicultural projects
Domínguez, F. Javier	Telecommunications Engineering	Experience in technological and innovative projects
Tortosa, Jacinto	Industrial Engineering	Experience in Project management in an international company
Yáñez, Ubaldo	Chemical Engineering	Public relations skills and experience living oversea

Table 6: Business team

2 COMPANY MISSION

2.1 Mission of the company

GyroServices' mission is:

“To satisfy customer needs in a different and most valuable way for the client than it is done nowadays, providing high quality services with the most advanced technology and at low operational costs”

We will start operating in Andalusia region and in the future will be possible to expand our services to the rest of the country.

2.2 Vision of the company

We want to be pioneers providing civil services with gyrocopters and be leaders in the sector along the years.

We will work to be perceived as a cutting-edge technology company, since this is our main characteristic. We are a young team with an enthusiastic attitude and that is a good factor for the success of any new business.

Apart of the services that we are going to provide at the beginning, new services or application can always be found. We will be focus on searching continuously for these new opportunities and this will be the factor which keep us in a leading position and will protect us from competitors.

2.3 Values and culture

In our company we intend to meet all needs of the customer and offer very well adapted services at the best price.

The reliability and technical excellence are key factors for our potential client and therefore they will be our main features. To achieve that, we will work with the best technology manufacturers and we will guarantee education plans for our human resources.

Innovation and research for new applications are also basic values of the company.

3 EXTERNAL ANALYSIS

3.1 Environment (P.E.S.T. analysis)

Along this point, the Political aspects as well as Economical, Socio-cultural and Technological ones are going to be reviewed.

3.1.1 Political and legal environment

Nowadays, Spain lives a confused political situation. It is a stable democracy for more than 30 years, but perhaps Spain is now living the worst economic crisis on this democratic stage.

The crisis, together with certain strategies and decisions of the executive, is debilitating a government who is in the middle of the legislature, but without leaving the series of legislative reforms that comes applying since it took the power in 2004.

Regarding air traffic legislation, as the autogyros have never been used to provide such a wide range of services until now, there are also legal facts to be considered that can affect how the company operates, its costs, and the demand for its services.

There is still not specific autogyro legislation in Spain, so they are now considered ULM (Ultra Light Motorized), with the following mainly restrictions:

- Not more than two occupants.
- A maximum all-up (take-off) weight not exceeding 450 kg.
- Restricted to day VFR conditions.
- Only for teaching, sport and recreation purposes.

Anyway, a new airworthiness regulation covering autogyros aerial works is being

developed by AESA (Agencia Estatal de Seguridad Aerea), formerly known as DGAC (Dirección General de Aviación Civil). It is expected to be issued by half of 2010.

This regulation, based on British BCAR-T CAP 643, issued by CAA (Civil Aviation Authority), cover the “Light Gyroplanes” that GyroServices S.L. wants to use, with the following restrictions:

- Not more than two occupants.
- A maximum all-up (take-off) weight not exceeding 600 kg.
- Restricted to day VFR conditions.

These aircrafts are allowed to perform aerial works under proper authorization but in order to fly these aircrafts, pilots must have “PPL” license (Private Pilot License), and to perform aerial works with it, pilots must have “CPL” license (Commercial Pilot License).

Private Pilot License (PPL) qualifies to pilot small planes (aircrafts of up to 1500 kg) only with recreation purpose. To the theoretician of private pilot it is possible to appear by free, but most frequent it is to attend a course in a specialized school in which it is learnt to drive a small plane in a minimum of 45 flight hours. The difficulty is not elevated, which means that it is possible to be preparation to surpass the tests of this license in about two months.

Commercial Pilot Certificate (CPL) allows exerting professionally, but in navigation of passengers it would only be possible to be worked like copilot. Other exits are the small planes of aerial photography, hydroplanes, cargo aircrafts, etc. Is necessary to before obtain the PPL, and the average time to form and to obtain CPL is 6 months. 200 flight hours are necessary (aside from those of private pilot), of which a part can be done in flight simulators.

3.1.2 Economical environment

The current economic world situation has to be taken into account for being one of the worst in history. The change on macroeconomic indicators due to the boom of subprime mortgages and the globalization, have had major impacts on how businesses operate and make decisions nowadays. Some of these indicators are shown in next Figures:

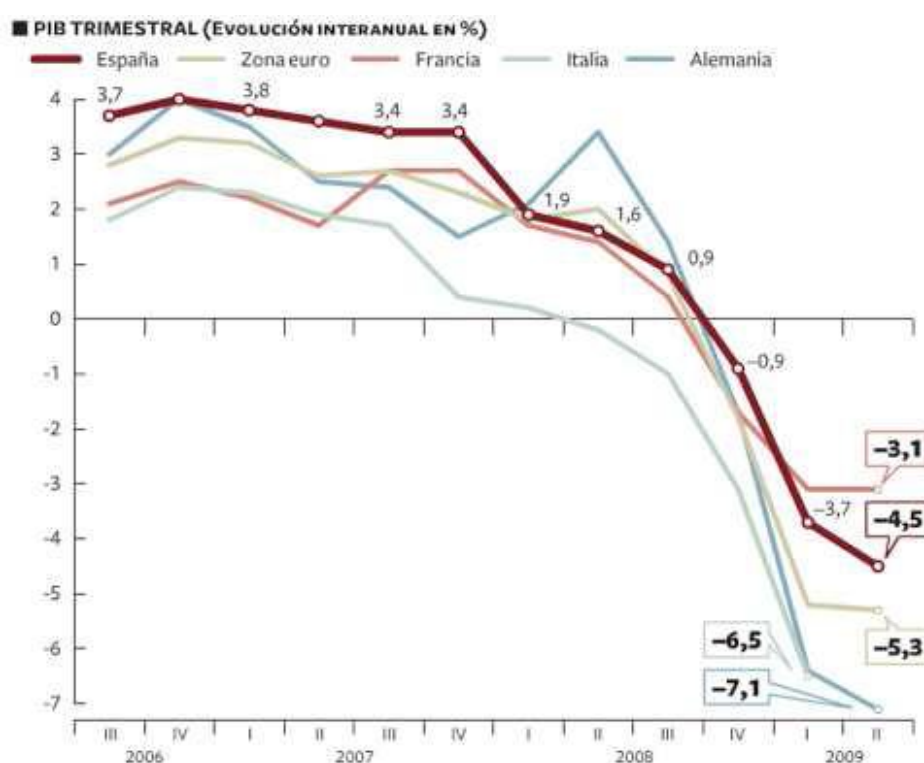


Figure 3: GDP evolution

Find in the following page a figure about the public debt from 1997 to 2008 and other one regarding public deficit.

In the Figure 6 a comparison between unemployment rate with some countries as well as an evolution in Spain can be also found.

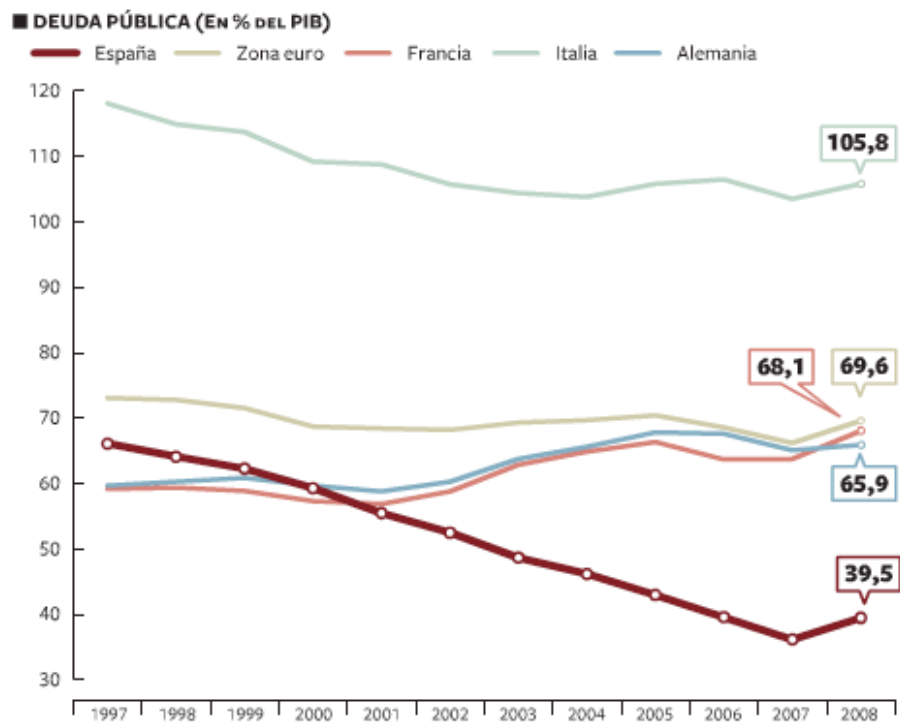


Figure 4: Public debt

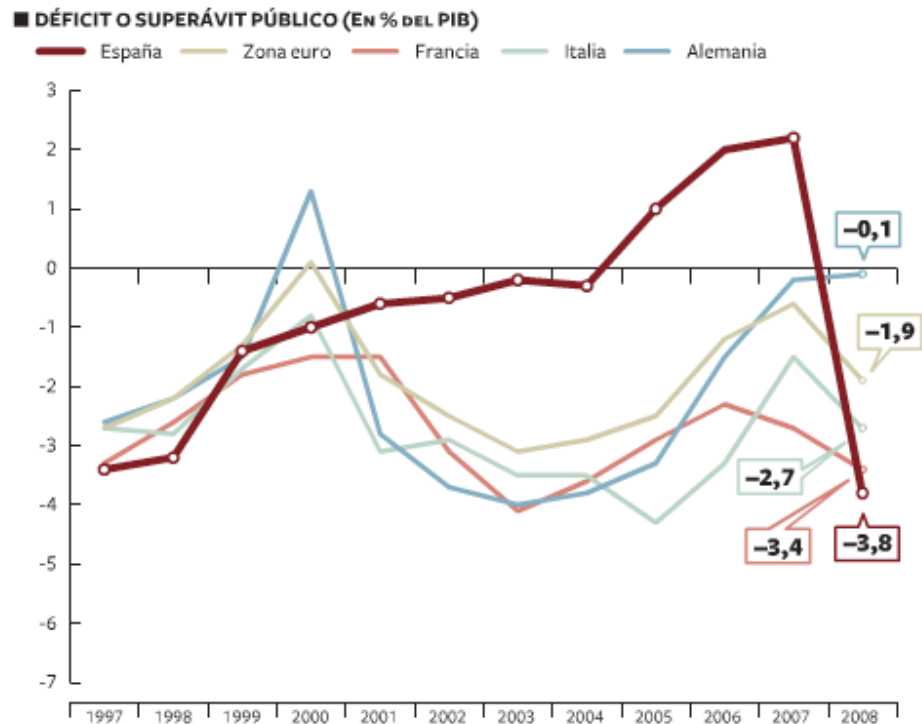


Figure 5: Public deficit

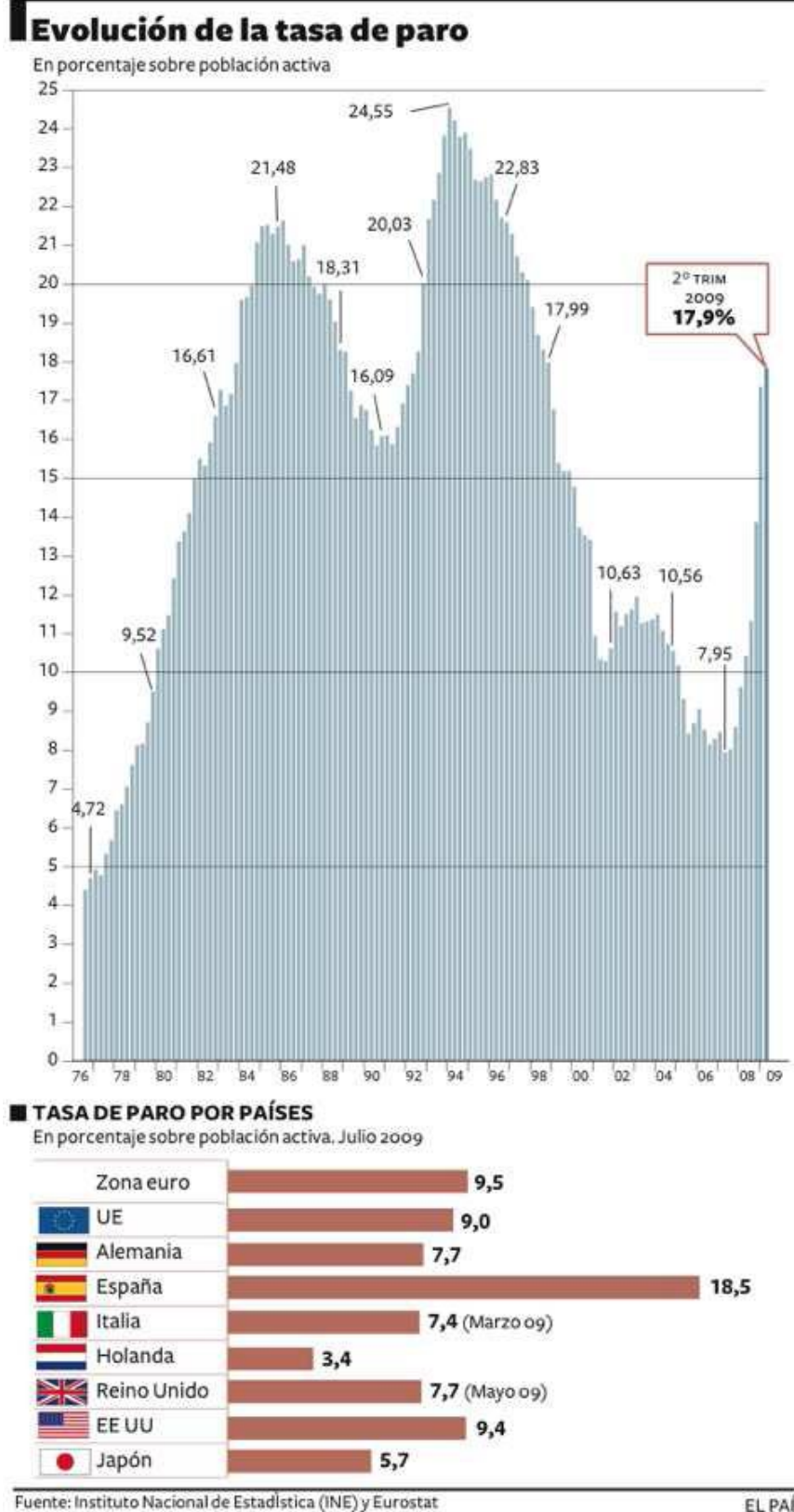


Figure 6: Unemployment rate

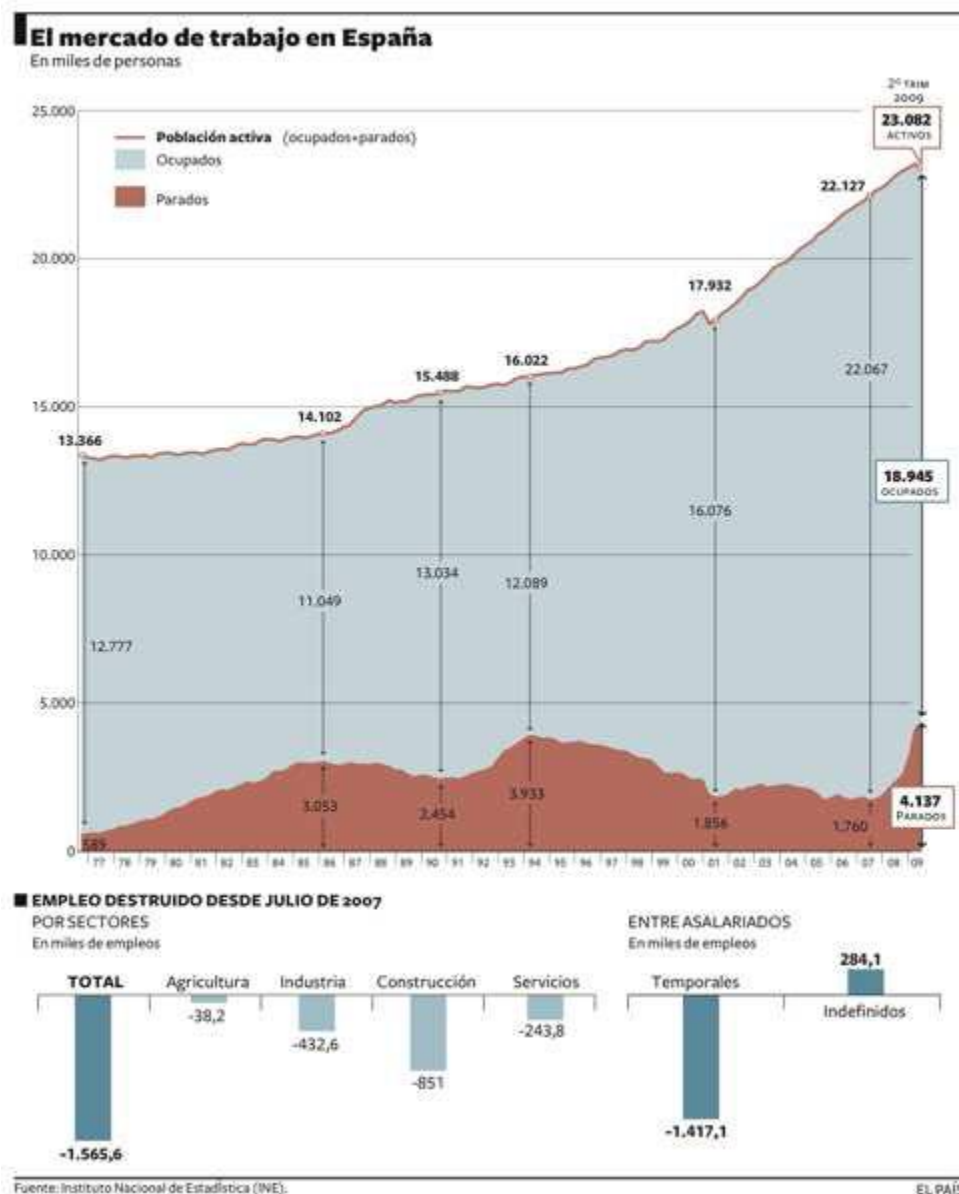


Figure 7: Unemployment in Spain

The world crisis began itself on the banking system, so it is not difficult to guess that lots of banks are now in liquidity problems, and as a consequence, generally it is really complicated to get financing from banks. Even some banks have bankrupted and others have had to be helped by the governments with state-funds just to survive.

Another important issue is the evolution of the fuel price. After reached an historic maximum of about 100 \$/barrel on 2008, it had dramatically drop to 25 \$/barrel in 2009. Now the trend is rising, and it is expected to be continuously increasing in the next years.

It is essential to show the inflation adjusted historical series. The oil price is really high, but not as much as shows the series of data without considering the effect inflation. In fact, in this graphic the estimated reference is the 2008 dollar.

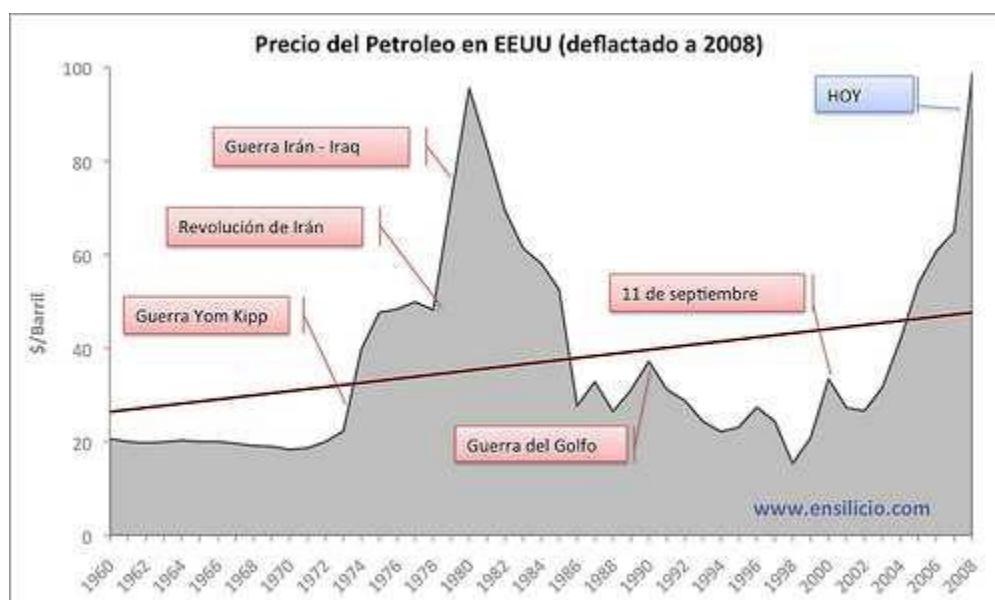


Figure 8: Inflation adjusted oil price

It exists a direct relation between the price of Brent oil and the one of the fuel, but they are not the same variable. In the last 8 years, oil has raised a 300% in dollars, but this ascent is of only a 71% in Euros.

In fact, fuels have only raised a 30%, due to the backward movement of the dollar against the Euro, and to that oil is only one of the production costs of fuel, but not the unique.

3.1.3 Socio-cultural environment

Seville is located in the South-West area of Spain, being the largest and most important city in the south half of the country. With a population of 700.000 (1.200.000 in the metropolitan area) is the 4th most populated city and the 3rd most populated metropolitan area in Spain.

Mostly known about its history, from the roman to the Arabs and specially its golden age in 16th century, nowadays Seville is recognized worldwide for being the land of Bullfighting, Easter Week, April's Fair, and friendly people.

Andalusia is the 2nd largest region in Spain and the most populated one, with about 1/5 of the total Spanish population. It is known as an agriculture based region, and it has great extensions of crops and forests. It is also considered as a green environment, with natural protected areas as Doñana, Sierra Nevada, Sierra de Cazorla o Sierra de Grazalema.



Figure 9: Andalusia natural reserves

Being considered one of the poorest regions in European Union, with one of the lowest literacy ratios, regional government is trying hard to fight it, and recently

Andalusia is being taken in some sectors as a reference of innovation and a cutting-edge technology developer.

Another important factor to remark is the incoming immigration. Andalusia is the entrance door of Europe for Africa. Because of that, maritime patrol and surveillance activities have increased a lot in the recent years, in order to control the illegally flow of people through the Gibraltar strait.

3.1.4 Technological environment

3.1.4.1 Aerospace sector in Andalusia

Although Andalusia is not a pioneer of industrial activities within Spain, there are some specific areas with an important presence and history in this region. This is the case of aeronautical (EADS, Alestis), transportation (Renault, CAF) or food industry (Heineken). Besides, Andalusia is an emerging center in new technologies sector, especially in Seville and Malaga. In this area, it is important to remark companies like Abengoa, MP, Sadiel or Ayesa.

Andalusia, and particularly Seville, has been always been related to aerospace industry. In the first half of 20th century, aeronautical industry in Spain was mainly compound of CASA, specialized in transport aircrafts, and “Hispano-Aviacion” specialized in combat aircraft. In 1927 was established a factory in Cadiz, for the assembly of hydroplanes *Dornier Super-Wal* and *Dornier J-Wal*. In 1944 was establish the first factory in Seville (Tablada plant), for the assembly line of the *He-111H* airplane.



Figure 10: Construcciones Aeronauticas S.A.

In 1971 CASA and “Hispano-Aviacion” merged, and a year later, CASA became member of the “Airbus Industry Group of Economic Interest “, it was one of the most important landmarks of its history.

On the 2nd of December of 1999 was agreed the fusion of the companies Aerospatiale Matra, CASA and DASA, that give rise in 2000 July to the EADS company (European Aeronautic Defense and Space company).



Figure 11: EADS-CASA.

Since 1923, the acceptance of own products of CASA in the international market is translated in more than 850 airplanes sold in 50 countries. Nowadays, with the total integration of the former EADS-CASA into Airbus, a lot of new challenges and huge international projects are arising in Andalusia, such as A400M or MRTT programs.



Figure 12: Airbus Military key programs: A330 MRTT and A400M.

3.1.4.2 History of autogyro

The early history of the autogyro is basically a history of one man, Juan De la Cierva. He was born in Murcia (Spain), 21st September 1895, and he was only eight years old when the Wright brothers first flew on the 17th of December of 1903.



Figure 13: Juan de la Cierva.

He was a young man on his way to becoming a civil engineer when he was intrigued by this new technology and decided to build his own airplane. His first attempt was in 1912, he named the airplane the BCD-1 “El Cangrejo”, Spanish for the BCD-1 Crab. The plane flew well and was considered to be the first Spanish built airplane. De la Cierva's second attempt was the BCD-2, a small monoplane, which he built in 1913. It did not fly as well as the BCD-1 and crashed. It was rebuilt, but crashed again. The design was abandoned.



Figure 14: BCD-1 “El Cangrejo”.

De la Cierva's third and final airplane design was the C3. The plane was a large tri-motor biplane, and was completed in May of 1919. It flew well, but in one of the preliminary tests the pilot flew the plane too slow and it stalled. The plane was wrecked, but the pilot escaped without serious injury. This crash disappointed De la Cierva, and inspired him to think of a better way to fly at low speeds.

After studying the flight, De la Cierva came up with the idea of the autogyro. De la Cierva's first attempt at building an autogyro was the C1. Unfortunately, this design never flew. However, when it was tested, in October of 1920, it did demonstrate successfully the principles of autorotation while taxiing on the ground.

After the C1, De la Cierva tried C2 & C3 and finally on 17th January 1923, De la Cierva's C4 flew, marking the first controlled flight of an autogyro. The C4 also demonstrated the autogyro's safety in low speed flight. On 20th January, three days after its first flight, the autogyro went into a steep nose-up attitude after an engine failure at about 25-35 ft. In an airplane, this would have almost certainly resulted in an almost unrecoverable stall. But the autogyro just descended gently to the ground without damage to the machine or injury to the pilot.

This low speed safety was demonstrated even more dramatically on January the

16th, 1925, when another design, the C6, lost power after take-off at about 150-200 ft. The pilot was still able to turn the autogyro around and bring it in for a safe landing, with only slight damage to the machine. This maneuver would have been much more difficult in an airplane, and quite possibly could have led to a worse accident.

De la Cierva continued improving the autogyro. Although all the autogyros demonstrated to have been capable of vertical landings at least in an emergency, they have also all needed some minimum takeoff run. But, if the rotor was powered before take-off to make it spin at the minimum speed for autorotation, why not just continue to power it to a higher speed and take off from the lift created that way. That is exactly what happened. In August of 1933, experiments were begun on a C30 in this new method of takeoff, which came to be known as a jump takeoff.

By 28th October 1934, after over a year of experimenting and refining, the C30 finally made a successful jump takeoff. Because of that, The C30 proved to be the most popular production autogyro ever designed, with more than 180 of them being built.

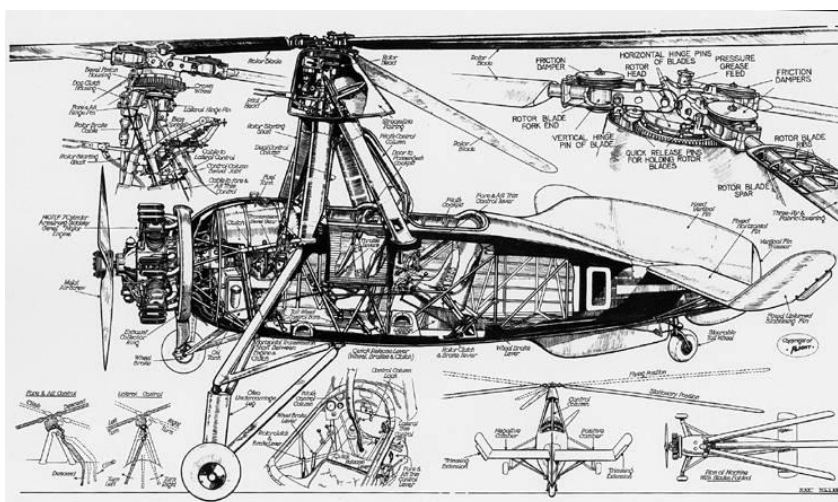


Figure 15: De la Cierva's C30 autogyro.

But then the helicopter arrived. On 26th June 1935, the Breguet-Dorand 314 was the first successful helicopter to fly. It incorporated many of the features developed for autogyros, such as collective and cyclic pitch control. On 8th December 1941, Igor Sikorsky's VS-300 flew another of the first successful helicopters. The VS-300 was only a test aircraft, but led to the VS-316, a more refined helicopter using the same principles. The U.S. Army ordered the VS-316, and 400 of these aircraft were produced along with the R-5 and R-6, two other Sikorsky helicopters of similar design.



Figure 16: Sikorsky's VS-300 helicopter.

3.1.4.3 Why Autogyros were not accepted

At this point we can ask the question of why autogyros were never widely accepted. These are some hints which try to explain it:

Early autogyros, although they had a higher speed envelope than airplanes, had a higher drag and so were not as efficient at higher speeds, and absolutely could not attain the maximum speeds of the faster airplanes. Also, the early autogyros did not have the vertical takeoff and landing capabilities that would have made them more attractive to potential buyers.

When the C30 finally demonstrated a successful jump takeoff in 1934, it was less than a year until the first successful helicopter flew, and only a few more years until the very successful Sikorsky VS-300 and VS-316. Although helicopters had a smaller speed envelope than autogyros, they were capable of hovering, and their envelope could fill the role that airplanes couldn't.

In other words, anything an autogyro could do, it could be done by another aircraft. Also, De la Cierva, who was doing most of the development of autogyros, was funding much of the development on his own. When the U.S. Army ordered the VS-316, that money went in to Sikorsky's company. This gave Sikorsky the funding for development that De la Cierva was running out of. Without the money, De la Cierva just couldn't fund the research.

And then, on December 9, 1936, De la Cierva was killed in a plane crash (a DC-2 operated by KLM). He was only 41 years old. There were other people developing autogyros, but De la Cierva had been one of the main driving forces behind the movement. Much was lost when he was killed.

Another factor that kept the autogyro from being accepted was purely psychological. Even though helicopters weren't successful until 1935, they had been under development for as long as airplanes. The general public knew about helicopters, and understood the principle of a powered rotor. Autogyros had an unpowered rotor that spun due to aerodynamic forces. Most people did not understand how it worked and so did not trust it. Although it is actually safer than either helicopters or airplanes, people did not realize this.

Because of that, and despite the fact that the autogyros were invented a long time ago, have not been fully developed along the years and the same happens regarding to the services that can be offered making a right use of them. Autogyros are mainly used nowadays for pleasure flights by people members of flight schools.

Autogyros, due to their highly fuel efficiency and their lightness, have a very low consumption compared to aircrafts providing the same services. Therefore, they have very low operating costs. Apart from being highly efficient, they have some other attractive technical capabilities such as having very short distances needed to take-off and land. This performance characteristic allows them to operate in small runways and paths. Autogyros have also the ability to fly at very slow airspeeds.

The idea to recover the autogyros to deploy the range of services mentioned has many reasons. Autogyros have low acquisition, operational and maintenance cost. Regarding safety reasons, it is impossible for an autogyro to stall and so the level of accidents is very low.

3.2 Competitive forces analysis.

3.2.1 Suppliers

Considering the operations of GyroServices, and the services that are going to be provided, it is needed to establish partnership with some suppliers on several products and equipments.

3.2.1.1 Autogyros

3.2.1.1.1 ELA Aviacion S.L

ELA Aviacion S.L. is a company engaged in the manufacture and maintenance of aircraft. With 12 years experience in the industry, it has become the mayor Spanish Company in the manufacture of Autogyro, having their own design has obtained the certification by the General Director of Civil Aviation. ELA Aviacion team consists experienced manufacturing specialists who are able to produce to fifteen autogyros monthly.



Figure 17: ELA Aviacion product profile.

3.2.1.1.2 Celier

CELIER AVIATION started their activity in Poland in 2007 in association with Artur TRENDAK. It is based near the capital of Poland – Warsaw. All the manufacturing process is done on place. The actual staff consists 25 specialists, working in tandems. their regular production is 3 to 6 machines a month.



Figure 18: Celier product profile.

3.2.1.1.3 Arrow-copter

The company FD Composites was founded in August 2005 by Dietmar Fuchs as a sole proprietorship. It began its operations in view of the development of its new prototype made of fiberglass and carbon fibers. In the near future the company will seek to expand its operations in the world market with their own projects.



Figure 19: Arrowcopter product profile.

3.2.1.1.4 Irkut

Irkut Corporation is a Russian aircraft manufacturer, member of the United Aircraft Corporation. It is best known as being the manufacturer of the Sukhoi Su-30 family of interceptor/ground-attack aircraft. The company was founded in 1932 in the Transbaykal region in the Russian Federation. Irkut produces wide range of products: fighters, amphibious and trainer planes and military transport aircrafts since 2000 also autogyro. The company employs over 14,000 people.



Figure 20: Irkut product profile.

3.2.1.1.5 Magni Gyro

Magni Gyro company, born from Vittorio Magni's deep knowledge and passion for the rotating wing systems, nowadays has a quite important role in the world of gyros; Magni's products are worldwide renowned for offering reliability and safety. Company has 10 years of experience in the industry and is able to produce 6 gyroplanes per month



Figure 21: Magni Gyro product profile.

3.2.1.2 Monitoring equipment

3.2.1.2.1 FLIR

FLIR was founded in 1978, originally providing infrared imaging systems that were installed on vehicles for use in conducting energy audits. Today it is one of the world leaders in the design, manufacture and marketing of thermal imaging and stabilized camera systems for a wide variety of applications in the commercial, industrial and government markets, internationally as well as domestically.



Figure 22: FLIR product profile.

3.2.1.2.2 Fluke

Fluke Corporation is the world leader in the manufacture, distribution and service of electronic test tools and software. Since its founding in 1948, Fluke has helped define and grow a unique technology market, providing testing and troubleshooting capabilities that have grown to mission critical status in manufacturing and service industries. Fluke Corporation has authorized distributor and manufacturer representative channels in more than 100 countries and employs approximately 2,400.



	Fluke Ti55	Fluke Ti50
Thermal		
Campo de visión*	23° horizontal x 17° vertical	
Campo de visión instantáneo*	1,30 mrad	
Distancia focal mínima*	0,15 m	
Sensibilidad térmica (NETD)	≤0,05 °C a 30 °C	≤0,07 °C a 30 °C
Adquisición de datos/frecuencia de imagen del detector	60 Hz/30 Hz	
Enfoque	SmartFocus; enfoque continuo con un dedo	
Zoom digital de la image infrarroja	2x, 4x, 8x	2x
Tipo de detector	Matriz de plano focal de 320 x 240 de óxido de vanadio (VOx) con microbolómetros no refrigerados y paso de 25 micrones	
Banda espectral	De 8 μm a 14 μm	
Mejora de la imagen digital	Realce automático permanente	
Visualización (sólo modelos Fusion)		
Modos de funcionamiento en pantalla	Imagen totalmente infrarroja. Imagen totalmente visible. Fundido de imágenes visible y térmica. Imagen en imagen	
Cámara de luz visible	1280 x 1024 píxeles a todo color	
Zoom digital de luz visible	2x, 4x, 8x	2x

Figure 23: Fluke product profile.

3.2.1.2.3 Controp

CONTROP Precision Technologies Ltd. is a privately owned company that specializes in the development and production of Electro-Optical and Precision

Motion Control Systems. CONTROP provides some of the most innovative solutions for surveillance and reconnaissance activities used in the world today. CONTROP's products are in operational use in many different security and defence programs worldwide.

The C-VIEW is a lightweight, infrared, electro-optical, gyro stabilized, payload, installed on marine vessels (manned boats, yachts and unmanned surface vehicles) for night (or optionally day) observation and safety purposes.	
• Remote controlled stabilized Pan and Tilt single camera system. • Uncooled IR Camera with Continuous IR zoom lens or TV CCD Camera, for mission flexibility and optimization. • Three Gimbals Gyro Stabilization for quality image during sailing in rough seas. • Line of Sight control for best mission results. • Designated for observation, safety and security applications. • Very low weight (2880 grams). • 8-12μ un-cooled IR VOx sensor. • Highly cost effective. • Ruggedized Operation Kit. • Easy installation.	
The A-VIEW is a lightweight, infrared camera, electro-optical, gyro stabilized payload, installed on aerial vehicles (helicopters, fixed wing vehicles and UAVs) for night Mission Support purposes. A-VIEW with Day TV CCD is optional.	
• Continuous IR zoom lens for mission flexibility and optimization. • Gyro Stabilization for quality image during flight. • Integrated INS/GPS on Line of Sight (LOS) for Point to Coordinate capability. • Line of Sight control for best mission results. • Designed for observation, safety and security applications. • Very low weight (3200 grams – 7 lbs) – weight and balance considerations. • 8-12μ un-cooled IR VOx sensor. • Highly cost effective. • Airspeed up to 180 knots. • Hold Coordinate Mode (Inertial Tracking).	

Figure 24: Controp product profile.

3.2.1.2.4 Axsys

Axsys Technologies is a leader in the design and manufacture of high-performance electro-optical infrared (EO/IR) systems, multi-axis stabilized HD cameras, infrared lenses, optical systems and components and motion control products. Axsys Technologies is a division of General Dynamics Advanced Information Systems, a provider of end-to-end mission solutions in systems

integration, development and operations support to customers in the defence, intelligence, maritime, space and homeland communities.



V9 Gyro-Stabilized

Thermal Imager	
Sensor Type	640 x 512 HgCdTe FPA
Wavelength	3-5 μ m
Field of View Type	Continuous
Focal Length	25-300mm
Field of View	21.7° to 1.8° (Horizontal)
Digital Zoom	2x
Effective Focal Length	600mm
Zoom Ratio	12x optical, 24x overall

System Specifications	
System Type	4-axis gyro-stabilized multi-sensor
Azimuth Coverage	360° Continuous
Elevation Coverage	+28° to -194°
Slew Rate	0° - 140°/sec



V14 MSII Gyro-Stabilized

Thermal Imager	
Sensor Type	640 x 512 InSb FPA
Resolution	NTSC/PAL
Wavelength	3-5 μ m
Filed of View Type	3FOV
Focal Length	17/60/200mm
Optical Field of View	31.5°/9.10°/2.70° (Horizontal)
Digital Zoom	5x
Effective Focal Length	1000mm
Zoom Ratio	12x optical, 60x overall

System Specifications	
System Type	5-axis gyro-stabilized multi-sensor
Azimuth Coverage	360° Continuous
Elevation Coverage	32° to -155°
Roll Coverage	+/- 20° (HD sensor only)
Slew Rate	0-55°/sec

Figure 25: Axsys product profile.

3.2.1.2.5 Selex Galileo

SELEX Galileo, a Finmeccanica company, is a leader in defence electronics markets, with a distinctive strength in airborne mission critical systems and a wide range of capabilities for the battlefield and for homeland security applications. Supplying and supporting equipment in-country around the world, SELEX Galileo is a truly global business. The Company's 7000-strong international workforce is able to build close relationships with customers across 5 continents, allowing SELEX Galileo to respond to the specific needs of those on the front line.



TECHNICAL CHARACTERISTICS

Specifications	• Up to XGA res 1024x768px at 30fps • Built-in gain control, auto-balancing, de-noising, auto-focus, panning, zooming
Optics	
Type	Low-cost lightweight fixed focal automotive/ industrial derived
Specifications	• Mounting selection of horizontal FOV from 90° down to 3° (max 100mm length) achieving 2X to 12X optical zoom • 4:3 image aspect ratio • Fixed camera optics mounted at 60° each in azimuth, typically -25° in elevation but can be modified according to customer requirements
Pod	
Stabilisation	Autonomous pan/ tilt Gyro-mechanical
Gyros Type	MEMS. Automotive/ industrial derived
Performances	• Positioning $\pm 360^\circ$ pan, $\pm 90^\circ$ tilt • Speed: max 120°/sec both • Resolution: 0.005°/step both • Gyros angular rate range: $\pm 300^\circ$/sec
Target Tracking	Via Pod stabilisation and Gyro-imaging for Moving Target Tracking (MMT)
Dimension	EV-U: 420x480x190 EV-FPU: 380x380x155
Weight	EV-U: <7.0Kg EV-FPU: <7.0Kg

Figure 26: Selex Galileo product profile.

3.2.1.2.6 Ardita Aeronautica

Ardita Aeronautica is a leading provider of systems solutions for unmanned vehicles components as well as custom instrumentation and payloads. Their equipment is used in a wide variety of applications. By providing their customers

with the advanced products that are essential to their work, Ardita Aeronautica makes a significant contribution to the improvement of unmanned vehicles performance and safety. Their customer base and network of contacts are mainly located in Europe and the Americas. They operate through dedicated support offices in the UK, and Mexico, as well as through a limited network of qualified representatives in other countries.



TECHNICAL SPECIFICATIONS

Resolution:	4,256x2,848 pixels
Existing lens options:	NIKON AF 28-80mm lens
Non-uniformity correction:	Splines
Frames per second:	2.5 frames per second
Operating waveband:	UV to near infrared, 350-1,000 nm
Minimum channel width:	4nm
Weight:	< 2 kg (camera) <5 kg (mounted and fitted with a macro lens)
Dimensions:	38x38x42 (LxWxH) cm
Camera Power supply:	7.2VDC
Power consumption:	<35 watts operating
User control:	USB 2.0/IEEE 1394
Operating temperature:	-10oC to +50 oC

Figure 27: Ardita Aeronautica product profile.

3.2.2 Customers

GyroServices offers a wide portfolio of services with properties that can be attractive for many sectors. For that reason, we have different type of consumers depending on the market focus on.

Basically, the services will be offered to the private sector (electrical companies, particulars, constructors, etc) and to the public sector (public tenders).

3.2.2.1 Electrical Utilities

3.2.2.1.1 Scope

An electric utility is a company that engages in the Electric Power System (EPS). The EPS is a group of generation, transmission, distribution, communication, and other electrical facilities that are physically connected.

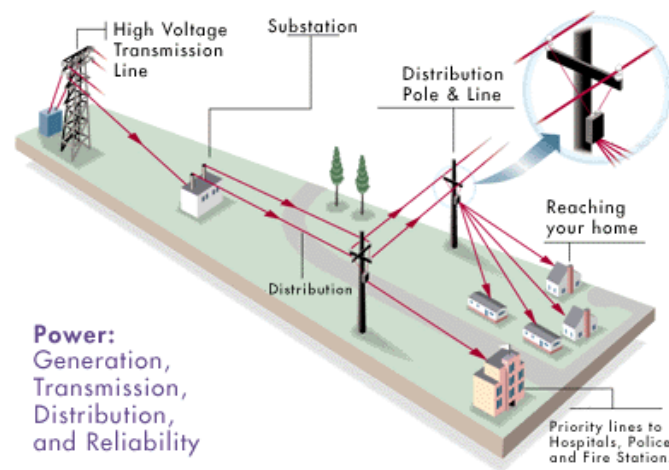


Figure 28: Conventional electric power system.

The EPS is sometimes referred to colloquially as a "grid"; however, for reasons of economy, the network is not a mathematical grid. Redundant paths and lines are provided so that power can be routed from any power plant to any load centre through a variety of routes, based on the economics of the transmission path and the cost of power. Much analysis is performed by transmission companies to

determine the maximum reliable capacity of each line, which, due to system stability considerations, may be less than the physical or thermal limit of the line. Deregulation of electricity companies in many countries has led to renewed interest in reliable, economic designs of transmission networks.

3.2.2.1.2 Spanish Electricity Market

The production of electricity energy in Spain, before to liberalization, was based on a system of “merit order” which supposed that the regulator determined what installations had to function to supply demand in every time period. Likewise, the retributive system of electricity companies was a regulator mechanism *cost plus* which established the settling of a price which allowed covering the service cost of the electricity enterprises and a return rate. In this context, electricity enterprises had incentives to secure the electricity supply in all time periods. However, Law 54/1997 of Spanish Electricity System (SES) establishes the legal base to implant a new electricity system whose central item is the creation of an electricity wholesaler market. The wholesale electricity market required a well-managed transmission network and an operation system that would coordinate generation and transmission as a whole, allowing the transfer of energy between producers and distributors and guaranteeing that demand would be met at all times.

Spain has the fifth largest electricity market in Europe (behind Germany, France, the United Kingdom, and Italy), and it is growing quickly. Electricity demand for 2008 was estimated to be 210.4 billion kilowatt-hours, a 5% increase over 2007. It is estimated that Spain's electricity demand will increase 30% by 2010.

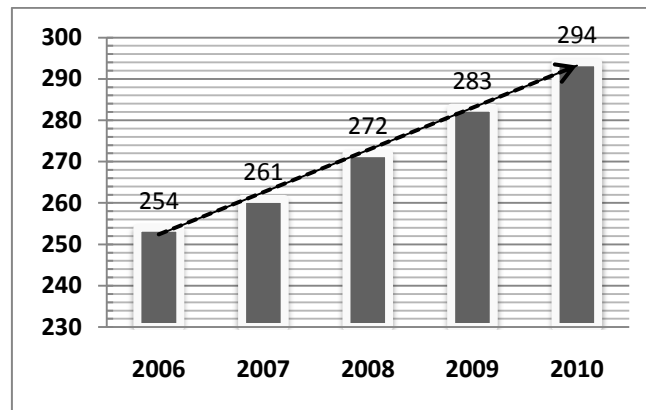


Figure 29: Spanish electricity market demand (TWh).

To meet Spain's increased demand for electricity, domestic utility companies have invested in generation capacity and distribution. Red Eléctrica de España (REE), invested heavily in the network in 2007, dedicating 78.4 million Euros to expanding the electricity network. REE also announced plans in October 2008 to invest between 60.2 and 72.2 million Euros to improve the electricity connection with France. Spain's three largest electricity groups, Endesa, Iberdrola, and Union Fenosa, have dedicated 34 billion Euros of investments from August 2004 to 2008, with much of that in Latin America and other European countries, but nevertheless including 8 billion Euros for new generating plants in Spain.

3.2.2.1.3 Spanish transmission network

Electrical energy cannot be stored. For this reason, production must equal consumption at all times, precisely and instantaneously. In order to transfer electric power from the areas of production to the areas of consumption it is necessary to have a constantly accessible connecting element. This is transmission network.

REE specializes in the transmission of electric power and is responsible for the operation of the power system as well as the management of the transmission grid. The basic installations of REE comprise the power control systems which direct and supervise the operation of the transmission system.

REE does not own the transmission grids of the insular and extrapeninsular systems but, as the system operator, REE guarantees a balance between energy production and consumption, ensuring quality supply in all places and at all times, and provides the market system with the safety and liquidity it needs. Its specialization guarantees its independence and the use of non-discriminatory criteria regarding access to the electricity system by agents.

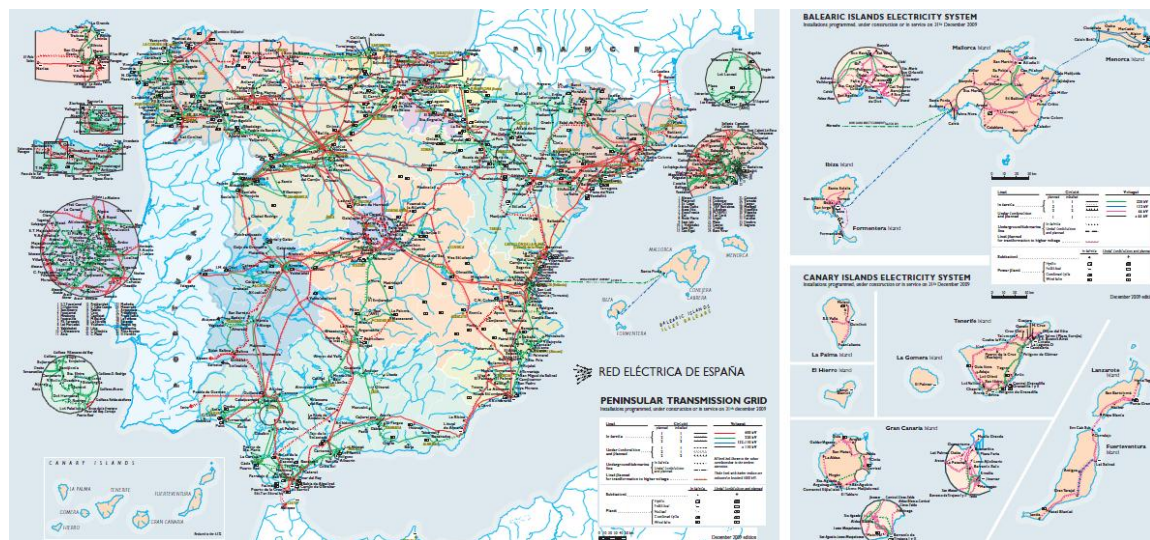


Figure 30: Spanish electricity transmission grid (2009).

The peninsular transmission grid is composed of nearly 34.500 km of high voltage electrical lines and more than 3.100 substations positions, and has more than 62.000 MVA of transformation capacity. REE owns 99% of the high voltage transmission grid and is therefore the only company specialized in power transmission in Spain. The remaining 1%, currently held by the power companies, will have to be purchased by REE in accordance with what is set forth in the 17/2007 Act within a maximum three year term as of its approval.

3.2.2.1.4 Spanish distribution network

Electricity distribution is the final stage in the delivery of electricity to end users. A distribution system's network carries electricity from the transmission system and delivers it to consumers. Typically, the network would include medium-voltage

power lines, electrical substations and pole-mounted transformers, low-voltage distribution wiring and sometimes electricity meters.



Figure 31: Spanish electrical distributors (2009).

ENDESA is the main company in the Spanish electricity system. ENDESA is the foremost electrical company in Spain and the first private utility in Chile, Argentina, Colombia and Peru and has business in Brazil. It is a leading operator on the European side of the Mediterranean, especially in Italy, and is also active in other European countries.

ENDESA has enjoyed phenomenal growth since its reorganization in 1983. The reorganization changed its relationship with its state parent company, Instituto Nacional de Industria (INI), by transferring all power companies under INI control to ENDESA's authority. Prior to 1983, ENDESA was one of a number of power companies controlled by the Spanish government through INI. ENDESA continued to increase in size as the Spanish utilities industry began to deregulate during the 1990s. ENDESA became fully privatized in 1998.

The distribution market of ENDESA in Spain encompasses close to 200.000 Km², distributed over 20 provinces of the Self-Governing Communities of Catalonia, Andalusia, Extremadura, Canary Islands, Balearic Islands, Aragon, and Castile-Leon, which together have a population of approximately 20 million inhabitants.

3.2.2.1.5 Power Lines Inspections

With aging transmission lines already operating at capacity, and the difficulties involved in building new ones, utilities are trying to meet increasing customer demands for reliable power. They must keep existing lines operating at maximum efficiency, which requires inspections and maintenance.

A wide variety of items need to be inspected for defects, which generally depends on the size of the item and the details required:

- **Large scale items:** sagging spans, leaning poles, broken or slack stay wires, and tree encroachment.
- **Medium scale items:** equipment mounted on the poles, high voltage and low voltage fuse units, air break switches, anti-climbing guards, and safety notices
- **Small scale items:** broken or chipped insulators, discoloration due to corroded joints on conductors, and traces of arcing on fuse gear or switches.



Figure 32: Cracked insulator skirt.

Not too long ago utilities traditionally sent their crews out either on foot to walk the lines or in vehicles to drive the lines, with frequent stops to send linemen up towers for closer inspection.

Nowadays, electricity providers in many countries commission the service of manned helicopter companies to conduct power line inspections, wash insulators and detect thermographic problems. Typically the smallest team is made up of an observer using dedicated equipment and a pilot flying at about 10-50 knots. The inspection frequency depends on the transmission line size. The helicopter usually hovers at a horizon distance close enough for observation, approximately 20-300 feet depending on the equipment used and at height of about 15 feet from the ground. This means that the noise produced by the inspection limits the hours the helicopter can fly, due to the noise abatement laws and disturbance to livestock.

Another technical point to be taking into consideration is that the helicopter itself needs to be powerful enough to withstand wind gusts that might push it into the line itself, a very expensive accident should occur. Thus, a twin engine helicopter is used costing a lot per day. With the current economic climate where cost reduction plans are being drawn up, replacing this method of inspection should most certainly be examined.

The technological and economical advantages provided by autogyros may overcome past restraints. The autogyro is a very suitable aircraft for electric power line inspection tasks. Equipped with required cameras, an inspection of specific electric power lines and poles or wide range inspection sends real time footage and data to the operator which can be sent at the same time to the power company's control centre for reviewing.

3.2.2.1.6 Potential Clients



RED
ELÉCTRICA
DE ESPAÑA

REE

Red Eléctrica de España

www.ree.es

As it is mentioned before, Red Eléctrica de España (REE) is the manager of the transmission grid and, as such, acts as the sole transmission on an exclusive basis.

As the manager of the transmission grid, REE is responsible for developing and enlarging the grid, for maintaining it on a uniform and consistent basis to provide the required availability and reliability, for managing the transmission of electricity between external systems and the peninsula and for guaranteeing third party access to the transmission grid under equal conditions.

The transmission grid in Andalusia is composed by nearly 6.000 Km of high voltage electrical lines with an upward trend. The Figure 33 shows current and future lines that REE is planning to operate in Spain for 2016.

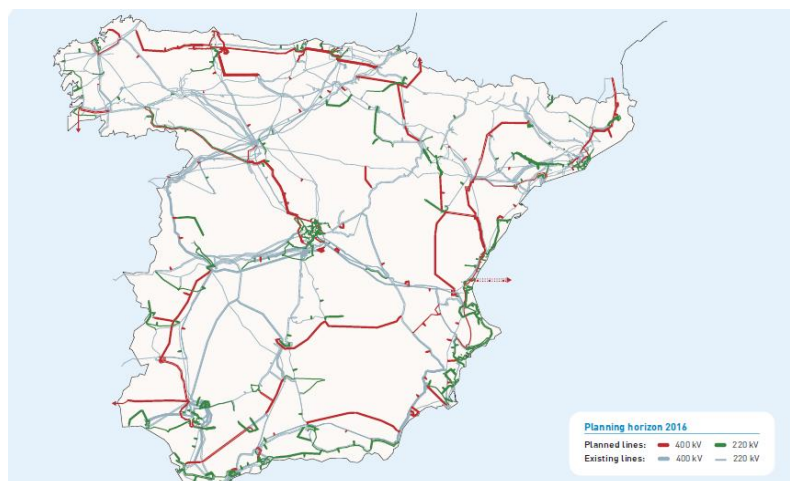


Figure 33: Electricity transmission grid planning 2016.

There are mainly two types of maintenance activities that REE carried out in Andalusia electrical system:

- Foot inspections
 - Regular
 - Intensive
 - Critical pylons
 - Optical fibre
- Aerial Inspections (by helicopter)
 - Regular
 - Intensive

The routing sheet for the next four years is scheduled as follows:

 RED ELÉCTRICA DE ESPAÑA	
Year	Maintenance Planning
2010	Intensive Foot Inspection + Regular Aerial Inspection
2011	Regular Foot Inspection + Intensive Aerial Inspection + Fibre Inspection
2012	Intensive Foot Inspection + Regular Aerial Inspection
2013	Regular Foot Inspection + Regular Aerial Inspection + Fibre Inspection
2014	Regular Foot Inspection + Intensive Aerial Inspection

Table 7: Complete range of REE maintenance procedures

The budget item of maintenance works in 2010 for power line inspections placed in Andalusia amount to **6.560.492€**.



ENDESA
Sevilla-ENDESA S.A

www.endesa.es

The transmission grid of ENDESA within Andalucía (Sevillana-ENDESA) is divided in three zones: West, North, and South. Each zone is commanded by different dispatch centres.

				
	NORTH	WEST	SOUTH	Total Aerial Lenght (Km)
VOLTAGE (KV)	AERIAL LENGHT (Km)	AERIAL LENGHT (Km)	AERIAL LENGHT (Km)	
020			4.801	4.801
045	30.540			30.540
050		95.891		95.891
066	1.994.557	2.172.937	2.125.761	6.293.255
132	1.861.911	570.225	1.147.940	3.580.076
220			16.026	16.026
Total	3.887.008	2.839.053	3.294.528	10.020.589

Table 8: Sevillana-ENDESA Aerial Power Lines (2009).

Within the framework of the 2009-2013 Strategic Plan, ENDESA plans to invest 13.5 billion €. The new strategic plan takes into account more moderate growth prospects for electricity utilities given the global economic crisis, which has hurt demand and prices.



Figure 34: Aerial Power Lines in Andalusia operated by ENDESA (January, 2010)

The maintenance works on power lines carried out in 2005 can be broken down as shown in the following Table:

TIPO REVISION	Tipo de Líneas		
	LINEAS "A"	LINEAS "B"	LINEAS "C"
REC. REGLAM.	1/3 RED	1/3 RED	1/3 RED(No Termog.)
INSPECCION	2/3 RED	1/3 RED	No se realiza
TERMOGRAFIA	TODA RED	1/3 RED (No Insp/Rec.Reg.)	1/3 RED
REV. EXHAUSTIVA	10% Ap. Rec.Reg.	10% Ap. Rec.Reg.	5% Ap. Rec.Reg.
TIERRAS	1/6 Ap.	1/6 Ap.	1/6 Ap.

Table 9: Complete range of Sevillana-ENDESA maintenance procedures

(Source: "Guía de programación y seguimiento de revisiones, Sevillana-ENDESA 2005")

The previous maintenance scheduling shows a tendency of change in favour of aerial thermography inspections.

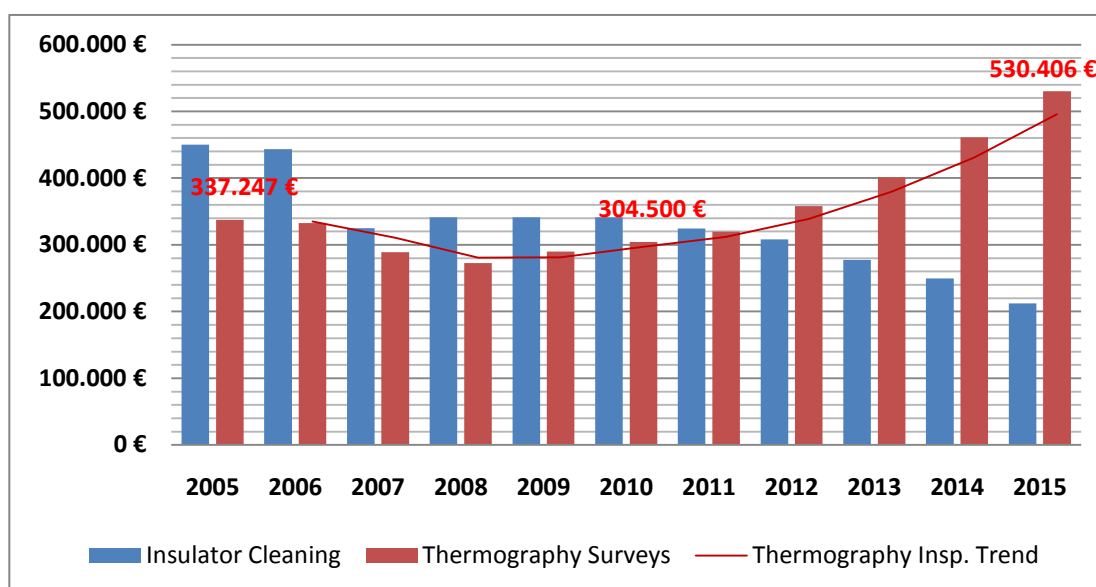


Figure 35: Maintenance trend.

Sevilla-ENDESA dedicates for each thermographic inspection project in 2010 an approximately amount of 300.000€.

The business of power lines monitoring by means of aerial thermography is expected to increase sharply in a future ever more closer. Up to now, these services have been covered by using poor state-of-the-art equipment, with high operational costs and within a risky environment.

GyroServices will be offered as a safer and more efficient alternative, reducing costs, increasing reliability and extremely focused on customer approach.

3.2.2.2 Public Administration

3.2.2.2.1 Scope

The “Consejería de Medio Ambiente de la Junta de Andalucía” has put special emphasis on the need for quality environmental information in order to correctly plan and manage its environmental performance and to address the demands and concerns of citizens.

The Department for Planning & Environmental Information is the responsible for the relationship between the European Topic Centre Land Use and Spatial Information and the Junta de Andalucía. This Department belongs to the General Directorate of Participation and Environmental Information as part of the main structure of the Ministry of the Environment of the Junta de Andalucía, with the following departments:

- Department of Spatial Analysis
- Department of Remote Sensing
- Department of Statistics and Databases

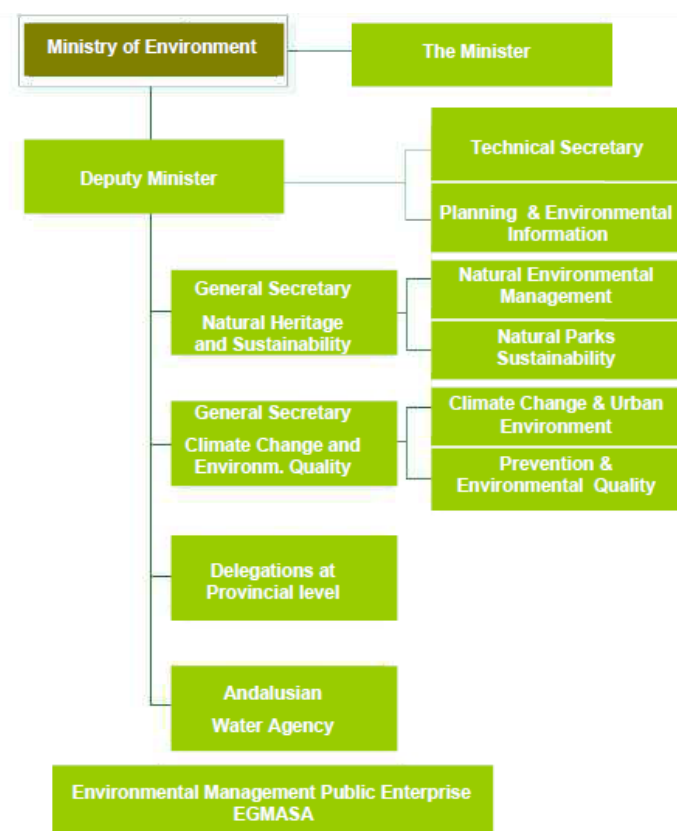


Figure 36: Regional Ministry of Environment. Organizational Chart.

The Department for Planning & Environmental Information is the responsible for the management and maintenance of the Geographical Information System (GIS) as the main tool for regional and local planning and environmental assessments. The aim of the Ministry of the Environment of Andalusia is also to promote the easiest way to access to the public environmental information for all kind of users.

The Department for Planning & Environmental Information is also responsible for the management and functioning of the Environmental Information Network of Andalusia (REDIAM), constantly updating data and adding new elements to be the main reference element for different environmental administrations. The Government of Andalusia has also been working towards the development of indicators to elaborate its annual reports on The State of the Environment in Andalusia.

3.2.2.2.2 Potential Clients



REDIAM

Red de Información Ambiental de Andalucía

<http://www.juntadeandalucia.es/medioambiente/site/web/rediam/>

The Andalusian Environmental Information Network (REDIAM) takes care of management, standardization and dissemination of environmental information in Andalusia. It has a large catalogue with contents in raster format, composed by imagery and products from satellite and airborne sensors and also raster information yielded by several methodologies and analyses. The size of this catalogue makes necessary to systematize addition, normalization, query, access and dissemination of information processes.

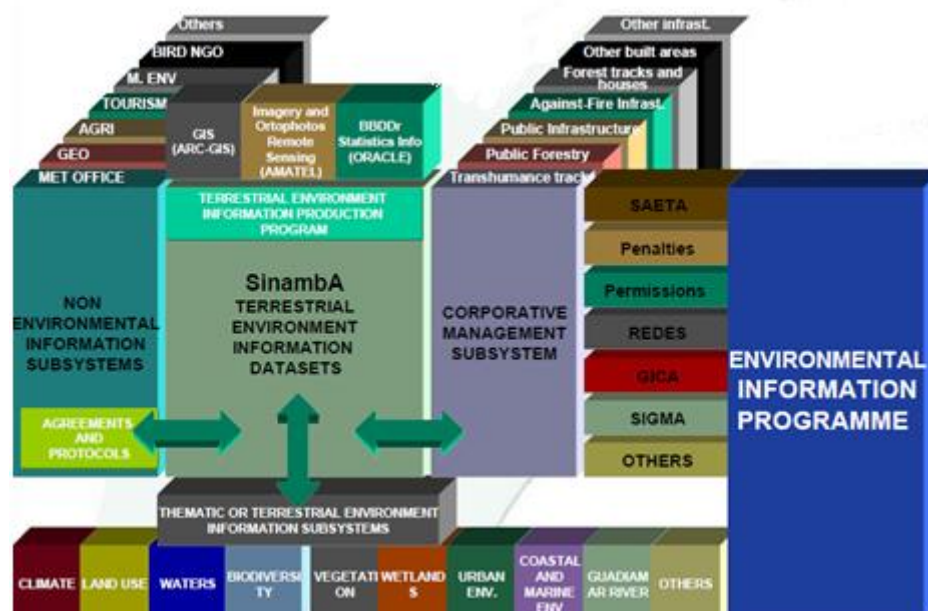


Figure 37: REDIAM Structure & Activities.

As shown in Figure 37, the main activities and topics involved in REDIAM can be summed up as follows:

- Natural conservation, including fauna and flora
- Soil conservation
- Forestry management
- Erosion control activities
- Forest fire prevention and control
- Declaration and management of all the Natural Protected Areas
- Water Quality and Management (coastal, inland, underground water...)
- Environmental Information, Participation and Education
- Integrated management of the water cycle: water system, supply and quality.
- Waste management.

3.2.2.2.3 Market & Figures

The following table sums up market figures that involve the major activities mentioned before.

PROJECTS	SCOPE	TECHNOLOGY	FREQUENCY	PROJECT DURATION	SIZE
Monitoring and flood control	500.000 hectares/project	LiDAR	2 projects/year	4 months/project	400.000€/project
Burnt areas measurement	5.000-10.000 hectares/fire detected	Multi-spectral image	3-4 projects/year	1 week/project	20.000€/fire detected
Environmental assesment	200.000 hectares/project	Multi-spectral image	1 project/year	3 months/project	150.000€/project
Panoramic Photography	200 panoramic photos/campaign	Multi-spectral image	2-3 campaigns/year	3 weeks/project	30€/panoramic photo

Table 10: REDIAM Market & Figures.

It is important to note that this information will be used later in order to develop and estimate a real marketing plan.

3.2.3 Substitutes

Two goods or products are substitutes if one can replace the other due to a change in the environment. Within a sector, the substitute is able to limit and change the prices; this creates a close competition between them.

The availability of several substitutes generate that customers are constantly comparing quality, price and performance expected. When a competitor can distinguish a good, product or service in the dimensions that customers value, the attractiveness of its substitutes may reduce.

The main factors influencing the threat of substitutes are:

- Buyer propensity to substitute.
- Relative prices of substitutes.
- Cost or ease of changing of the buyer.
- Perceived level of product differentiation.
- Availability of close substitutes.

Principal substitute in the markets GyroServices want to cover are Unmanned Aerial Vehicles (UAV). In fact, civil services offered by UAVs are an innovative and revolutionary idea that comes from the technology previously developed for military purposes.



Figure 38: UAVs.

The main characteristics of this technology are:

- High development and acquisition cost, but low operating and maintenance cost.
- Flexibility in their applications.
- Very low payload.
- Poor portfolio of actual products.
- Forecast of a fast growth in the coming years.

Therefore, the pioneers have the chance to make good profits in the present, to set a good position for the future market and to invent and to develop new applications. UAVs can substitute other conventional technology, e.g. aircraft in fumigation, but also can create new solutions, e.g. communication antennas, so the real market is still unknown.

However, the state of the art of UAV is developing nowadays, and there is still some uncertainty about the products that will be available and whether they will be able to provide services cheaper than with conventional methods. UAV's

manufacturing companies are now being founded all around the world, in many countries as Canada, U.S., Japan, Israel and even Spain, but the models created does not really respond to specified tasks (although it gives the advantage of the flexibility).

It seems that a huge market is currently emerging, but it is important to realize the present market dominance of military UAVs (surveillance, target acquisition, combat aircraft, target drones), although the market is expected to expand to civil UAVs (aerial photography, video productions, surveillance, weather and atmospheric monitoring, weather and atmospheric monitoring, and others).

The most relevant topics involving environment are the following:

- Lack of civil UAVs legislation, only Japan has developed laws.
- Important increase in fuel price, which can affect to a lesser extent to UAVs.
- Interest in cutting edge technology.
- Trend to substitute human work for machines and robots.
- Implementation of GALILEO, which will mean more accuracy in terms of navigation and monitoring systems.

3.2.4 Competitors

3.2.4.1 Business rivalry concept

In traditional economic model, competition among rivals firms drives profits to zero. But competition is not perfect and firms are not unsophisticated passive price takers. Rather, firms strive for a competitive advantage over their rivals.

If rivalry among firms in an industry is low, the industry is considered to be disciplined. This disciplined may result from the industry's history of competition, the role of a leading firm, or informal compliance with a generally understood code of conduct. Explicit collusion generally is illegal and not an option. In low-

rivalry industries competitive moves must be constrained informally. However, a maverick firm seeking a competitive advantage can displace the otherwise disciplined market.

When a rival acts in a way that elicits a counter-response by the others firms, rivalry intensifies. The intensity of rivalry commonly is referred to as being cutthroat, intense, moderate, or weak, based on the firm's aggressiveness in attempting to gain an advantage.

In pursuing an advantage over its rivals, a firm can choose from several competitive moves:

- Changing prices-raising or lowering prices to gain a temporary advantage.
- Improving product differentiation-improving features, implementing innovations in the manufacturing process and in the product itself.
- Creatively using channels of distribution.
- Exploiting relationships with suppliers.

3.2.4.2 Competitors analysis

A key point of the strategic analysis is to look at the competitive environment: what your competitors are doing, where the next technological developments are coming from and the general directions towards the market is moving.

Competitor analysis has two primary objectives:

- To obtain information about important competitors
- To use that information to predict competitors behaviour

Since our business is pioneer in Andalusia we do not have nowadays competitors offering the same service with autogyros. Instead of that, there are companies that offer similar services but with different aircrafts. By using autogyros we have

the chance to open new markets and offer different services that are not covered due to the high operational costs and safety issues.

An application analysis will be performed and, for each the sectors where we want to focus on, we will differentiate between:

- Companies that currently provide the same service in Andalusia.
- Companies that do not operate in Andalusia but may become competitors in a close future.

3.2.4.2.1 Power Lines Inspections

Andalusia



ADITEL

Auxiliar de la Distribución
Eléctrica S.A

www.aditel.es

Aditel Auxiliar de la Distribución Electrica, S.A. is a company which specializes in electrical installations, energy and telecommunications. It was founded in 1989 and is following the expansion of the original company dating back to 1971.

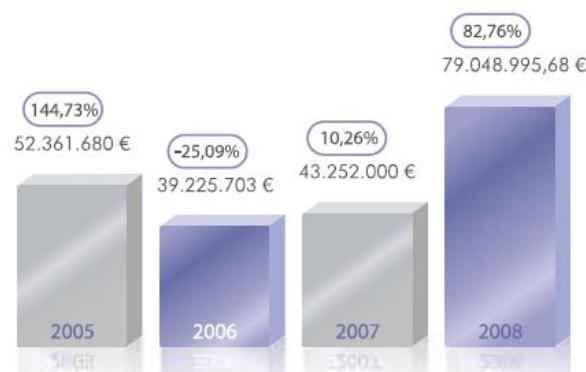


Figure 39: Aditel net turnover and percentage year-on-year variation.

Besides engineering, constructions and maintenance works, Aditel offers what they call “special services”: infra-red hot spot location, injection-based insulation testing up to 80KV, radar fault location and low voltage operations.

**SGS**

Société Générale de
Surveillance Holding S.A

www.es.sgs.com

The SGS Group was established in 1878 in Switzerland. The company dedicates itself to inspection, verification, testing and quality certification works, for agricultural food products, minerals, petrol and petrochemicals, industrial equipment and consumer good.

SGS established in Spain since 1929 and is present in all Autonomous Communities.

**Inaer**

Inaer Aviation Group S.A

www.gupoinaer.com

INAER is an international operator in Europe in air services and aircraft maintenance. Its major activities are HEMS, maritime rescue, fire fighting and passengers' airline. INAER is present in Spain, Italy, Portugal, France, United Kingdom and Chile.

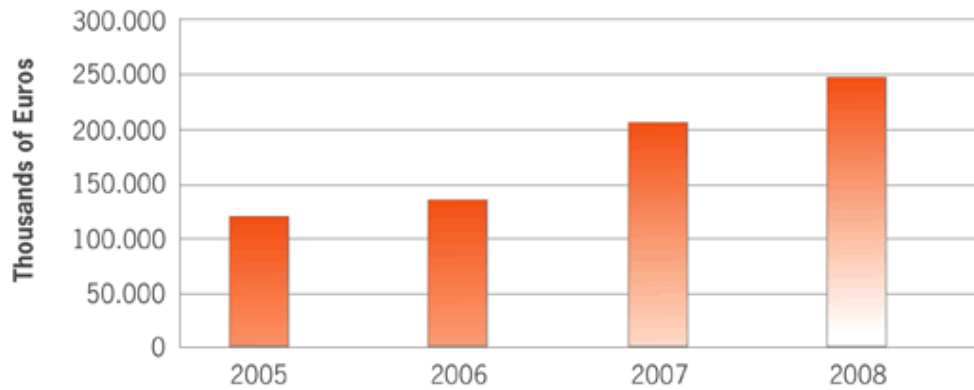


Figure 40: Evolution of turnover figures.

The last public tender released by Sevillana-ENDESA for aerial maintenance works was gained by a holding made up of:

- Aditel which actually was the real contractor of the tender project.
- SGS provided the recording system and the infrared technology.
- Inaer contributed with aerial means.



Figure 41: Aditel-SGS-Inaer collaboration.



Elecnor

Grupo Elecnor S.A

www.elecnor.es

Elecnor is a Spanish business group set up in 1958 dedicated to the promotion and integral management of projects and to the development of infrastructures.



Figure 42: Principle magnitudes of Elecnor Group

Among its principal activities stand out the generation, transportation, transformation and distribution of electricity and the maintenance related these activities.

Outside Andalusia



Heliswiss

Heliswiss Ibérica S.A

<http://www.heliswiss.es/>

Heliswiss Ibérica S.A is a helicopter company that was founded on 1987 in Sabadell (Barcelona). It is characterized by its experience in passenger transport and also in conducting aerial works of different types. Its headquarters is in the Sabadell's airport but also has several bases around the country. Flight Hour: 1500€.

**MIDA**

MIDA Electric S.L

<http://www.midasl.com/>

MIDA Electric S.L was founded in 1996 in Barcelona. The company dedicates itself to thermographic inspection, testing and measuring works, for utilities and local governments.

Among its clients, stand out Fecsa-ENDESA, Abengoa, Grupo Agbar, Retevisión and Respol YPF.

3.2.4.2.2 GIS remote sensing and environmental assessment

Andalusia**SAP**

Sociedad Aeronáutica Peninsular S.L

<http://www.sapaviacion.com/>

The company was founded in 1991 in Mairena del Aljarafe, Seville. Forest monitoring, aerial photography and surveillance and safety and rescue are the major activities which SAP is dedicated for.

Cessna 337 Model is the aircraft with which the company operates the services.



Figure 43: Cessna 337 Model, property of SAP Aviación.



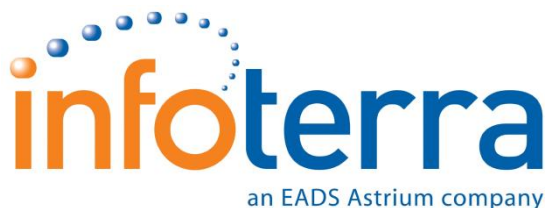
STEREOCARTO

STEREOCARTO S.L

<http://www.stereocarto.com/>

STEREOCARTO is a technology services company which, since its foundation in 1964 (Madrid), has been developing its activity in the sectors of Cartographic Engineering, Territorial Planning, Agronomy, Land Registers and Environment.

In order to develop the services, the company avails itself of airborne LiDAR sensor and digital cameras as well as terrestrial scanners, to data post-process, analysis and distribution.



Infoterra

Infoterra SGSA

<http://www.infoterra.es>

Infoterra SGSA has offices in Barcelona and Madrid and was founded in 2007 by Astrium (60%), Hisdesat (20%) and ICC (20%).

The company provides operational products and services across the geo-information spectrum, data acquisition and processing, imagery analysis and interpretation, hosting and delivery of datasets, as well as offering GIS development and consultancy.

Outside Andalusia



INTA

Instituto Nacional de Técnica Espacial

<http://www.infoterra.es>

INTA is the Public Research Organization specialized in aerospace research and technology development. Among its main it is worth mentioning: acquisition, maintenance and continuous improvement of all those technologies that can be applied to the aerospace field as well as performing all types of tests to check, approve and certify materials, components equipment items, subsystems and systems that have an aerospace application.

3.2.4.3 Competitors' analysis conclusions

Our main advantages reside on lower operational costs and more reliable capabilities than all previous companies, so we can offer a cheaper and safer service.

Nevertheless, once our business became known, we take the risk of having new

competitors that copy our business idea. As we are pioneers in this sector, we have to get advantage over possible competitors obtaining a good positioning and a big market share. Besides, as we are the first offering these services, we always will be the most experienced ones and must be seen as a reference for our competitors. We must have into account this possibility in our strategic objectives, in the marketing plan and obviously in our price policy (the emerging of new competitors will force us to decrease our prices).

3.2.5 New entrants

We can consider new entrants like different companies that will be able to copy our business services. In the point before, “competitors”, we have talked about these companies so for more information would be necessary to go back to the previous part. Anyway, find all these companies in the following list.

- Aditel
- SGS
- Inaer
- Elecnor
- Heliswiss
- MIDA-TGI
- SAP
- STEREOCARTO
- Info Terra
- Inta

Those companies could be new entrants in our business, not only because they could provide the same service, also because they could operate gyrocopters.

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4 INTERNAL ANALYSIS

In this chapter we will analyze the internal part of the company. Objective of this research is to clearly define all the difficulties that company can face.

Secondly we will measure company competitiveness by comparing our Personal, Technical and Financial capabilities in relation to the main competitors. In this way we will be able to evaluate strong and weak points that our company have and identify the areas where we can be efficient.

4.1 Personal Capabilities

Personal skills of the members of the crew that starts a new business are very important. It can be considered as an advantage (strong point) if those capabilities are appropriate and can be used in the development of the project.

GyroServices is formed by an international group of four young people that comes very enthusiastic to their innovative business idea. Each person characterise different interpersonal skills learned during studies and by working in different industries and environments. All the members are on the end of their long study career so all team is very motivated.

Main points that can characterise GyroServices crew:

- Intelligence and amount of ideas
- Enthusiastic to their innovative business
- Dynamic and creative
- Reliably carrying out its functions
- Experience working in a team
- Experience in working with people from different culture
- Leading skills

4.2 Technical Capabilities

4.2.1 Knowledge of the sector

All the members, thanks to their last year experience in Airbus Military and in the Aerospace MBA have knowledge of the sector and its peculiarities. Thanks to that we can contribute to the project with a global vision of the aerospace sector.

We know the methods that need to be implemented. We want to be pioneers providing civil services with gyrocopters and be leaders in the sector along the years. We will work to be perceived as a cutting-edge technology company, hence we have to know the technical characteristics and performance of the aircrafts in order to adapt to the customers in an optimal way.

Another very useful knowledge that we possess is the knowledge of the devices and equipment to use. The entrepreneurs do not have experience in this sector, nevertheless a market research of autogyros available has been made in order to get the knowledge to provide a good service to customers, that best adapts to their needs.

4.2.2 Commercial skills

For the commercial skills and vision of the project as a whole company we have the studies of the Master in Business Administration that makes us capable to understand and manage the different areas of the company. None of the members have work experience in this field but we will not consider it as a big problem since our interest in the project is big and we have the help of many people involved in the different areas we are entering.

4.2.3 Human resources

Concerning human resources at this initial stage, member of GyroServices will be the originators of this project. On the beginning company Team will be created by

four young engineers coming from different wide career specializations, all of them having complemented their technical career with an aeronautical oriented Master in Business Administration. Their innovative skills, entrepreneurship and the knowledge they have acquired both along their career and the MBA makes them be multidisciplinary and highly prepared. The sum of trainings and skills in different areas, and the complementary formation of the MBA master focused in aeronautics are an important asset to take into account.

GyroServices founders background:

Name	Educational experience	Professional experience	Language knowledge
Wojciech Chrobak	Industrial Engineering	Airbus Military: L&M Engineering Modification Coordination	Polish, Spanish, English, German.
F. Javier Domínguez Ruiz	Telecommunications Engineering	Airbus Military: L&M Service Bulletins Coordination.	Spanish, English, French, German.
Jacinto Tortosa Santiago	Industrial Engineering	Airbus Military: FAL A400M Production.	Spanish, English, French
Ubaldo Yáñez Díaz	Chemical Engineering	Airbus Military: Production Means and Infrastructure Maintenance.	Spanish, English, German.

Table 11: Founders background

4.2.4 Management Capabilities

4.2.4.1 Direction capabilities

The four members of our team are perfectly qualified to be direction managers since we all have received the training for developing our management skills. Each one on each position in the company is perfectly able to manage the

direction that all as a company want to achieve.

4.2.4.2 Business instinct

We all know how to look for market niches that need to be covered and to develop services to get into that market with the highest return on investment ratio. We also think that an original idea for a business is very important in the success of the company. That is why we decided to choose autogyro services as our business case.

The training and background we all have in this field is quite good since we all have completed the Master in Business Administration.

4.3 Financial Capabilities

This is an important issue for companies at his initial stage, and it will be analyzed in depth in the financial part of our project. The initially company budget will be about 320.000 € and it will consist of own capital (25%) on one hand, and on the other external financing (75%).

4.3.1 Internal Financing

The capital stock will consist of 80.000 €, and each partner would have 20.000 participations (25% of the capital).

4.3.2 External financing

The other part of the initial investment must be based on external financing. The capacity to get this capital will depend mainly in how this project will be attractive for the investors. That is why we do not consider it as a big problem since our main assumption in creating our business was answer to the market demand. We will provide a service with a lowest operating and maintenance costs (comparing to the competitors that are providing similar service) for the lowest possible start-up cost.

5 SWOT ANALYSIS

In this chapter of the project we are going to find out different **Strengths**, **Weaknesses**, **Opportunities** as well as **Threats** with the aim of achieving the final SWOT strategic matrix in order to define the main strategic lines of GyroServices, how to take advantage of different opportunities and how to mitigate threats.

5.1 Strengths

Here, we describe the most relevant points in which we are strong thanks to our internal capabilities and to gyrocopter's technology as we saw through internal analysis in previous chapter.

- Use of autogyro. Autogyros have better operational capabilities than airplanes and much lower operational cost than helicopters which gives us an important advantage comparing to our main competitors. Safety issue. It is also important to mention that autogyros are able to be operated under any weather condition.
- Cost competitive advantage. We will beat the competence providing similar service with lower prices and we will also create and capture new demands.
- We can play with "green image" due to the low consumption of our machine. Our business will beneficiate from an initial good brand image in the current social trend, where environmental concern is getting more and more relevant. This could be a motivation for potential suppliers/customers.
- Versatility (adaptability) in services. We are able to adapt to customer needs. This fact is quite important since we will deal with different kinds of customers, we can change our business core depending of existing demand.
- The special training and management capabilities. Team will be created by

four young engineers coming from different wide career specializations; all of them have completed their technical career and aeronautical Master in Business Administration. International team. We can manage with more than 5 different languages since the members of our team are from different places around Spain and we also have a Polish integrant.

5.2 Weaknesses

These are the points in which we could feel ourselves weaker than our competitors.

- Lack of experience in the service sector and in business in general.
- Autogyro's restrictions: cannot hang in the air. The minimum speed is around 20km/h.
- Reduced financial backup: As mentioned, this is a characteristic of a business at its early stage, and is a constraint as sets a narrow manoeuvring margin.
- Autogyros capacity: are used to be small in terms of capacity so it could be a huge weakness if we think in aerial tourism.

5.3 Opportunities

- Being pioneers in autogyro operation. It's important to mention that entering now in the autogyro business will offer opportunities associated to the fact that this new concept is for now almost unexploited.
- Low entry barriers: few competitors, low initial investment needed.
- Thermography aerial inspection growing market: emerging for inspections purposes.
- Suppliers. Developed aeronautic environment in Andalusia (in terms of facilities, MRO,...).
- Public tenders. Once achieved, very stable and profitable contracts.

- Economic environment advantages: few competitors surviving. Some of them collapsed during the crisis. Lot of subsidies from administration; low interest rates and inflation.

5.4 Threats

- Acknowledge of autogyros technology from the customer point of view. Lack of knowledge of autogiro. This is a Spanish invention but it is not so popular in our country. Clients may be reluctant to hire our services at first moment.
- UAVs appearance as new entrant.
- New competitors (Imitators) will be able to copy easily our business idea.
- Experience of existing competitors.
- Legal aspects. “Empty” legislation of autogyros.
- Economic environment constraints: loss of purchasing power of the customers & low level of investment.
- Banking system: difficult in obtaining loans.

5.5 Matrix

Given the information from the environmental scan, we should match the strengths to the opportunities that have been identified, while addressing weaknesses and external threats. The following matrix will help us to have a clear view about where we are.

		Opportunities			Threats			
		Pioneers in autogyros use	Low entry barriers	Thermography growing market	Acknowledge of autogyros	UAVs appearance	New competitors (imitators)	
Strengths	Use of autogyro	3	2	3	-2	-2	0	4
	Cost competitive advantage	1	3	1	0	2	-1	6
	Green image	2	1	0	2	-2	0	3
Weaknesses	Lack of experience	-1	-1	-2	-2	0	-1	-7
	Autogyro's technical restrictions	0	0	1	0	-2	0	-1
	Reduced financial backup	-2	-1	-1	0	2	0	-2
		3	4	2	-2	-2	-2	6

Table 12: SWOT Analysis

From this analysis will be also very important to take some conclusions and also some ideas about the possibilities we have to improve our business, and the strategies we can follow to minimize our weakness and improve our strength to profit from the opportunities of the market and to protect from the threats.

5.6 Strategy Definition

When using the SWOT analysis, we can divide the strategies in four different groups

	Threats	Opportunities
Weakness	Survival strategy	Re-orientation strategy
Strenghts	Defensive strategies	Attack strategies

Table 13: Strategic Groups

The impact of the different strategies will not have the same weight:

Strategy	Pair	Definition	Influence
Survival Strategy	T1-W1	SS1	-2
	T2-W2	SS2	-2
	T3-W1	SS3	-1
Defensive Strategy	T1-S1	DS1	-2
	T2-S1	DS2	-2
	T3-S2	DS3	-1
Re-orientation Strategy	O1-W3	RS1	-2
	O2-W1	RS2	-1
	O3-W2	RS3	1
Attack Strategy	O1-S1	AS1	3
	O2-S2	AS2	3
	O3-S1	AS3	3

Table 14: Strategic relative weights

Some of the strategies can be repeated; even in some of the different some groups. When a strategy is repeated, it will become more important.

SS1: Direct Marketing. GyroServices will use business-direct channels to reach and deliver services to customers without using marketing middlemen. These channels include direct mail, shows, fairs, web sites and brochures.

SS2: Differentiation Strategy. Cutting-edge technology will be used in order to

achieve a superior performance in an important customer benefit area, such as utilities and public administrations.

SS3: Limited assets will be acquired. **Leasing** and renting instead.

DS1: Direct Marketing.

DS2: Overall Cost Leadership. Our business works hard to achieve the lowest operational costs so that we can price lower than our competitors and win a large market share.

DS3: Promotional alliances. Our customers will agree carry a promotion for other subsidiaries companies or ministers, in Spain and abroad.

RS1: Customer Segment Strategy. Our business focuses on narrow market segments. We will get to know these segments intimately and pursues both cost leadership and safety conscious.

RS2: Customer Segment Strategy.

RS3: Customer Segment Strategy.

AS1: First-mover advantage. GyroServices will have a positive image and reputation of being pioneer, the control of technology, supply and distribution channels and a base of loyal customers.

AS2: Customer Segment Strategy.

AS3. Overall Cost Leadership.

5.6.1 Competitive Advantage

GyroServices is not only being able to create high absolute value, but also high value relative to competitors at a sufficiently low cost. The autogyro provides us the ability to perform in an efficient way (in terms of cost, placement and response time) that competitors cannot.

This constitutes our competitive advantage, which we want to use as “trampoline” to built new advantages.

We strongly want our competitive advantage to be seen as a *customer advantage*. Our customer values quality standards, low prices and high level of safety, and these requirements will be fulfilled by GyroServices.

5.6.2 Core Competencies

When defining our core competencies, we have analyzed three factors:

- Is it a source of competitive advantage?
- Has it applications in more than one market?
- Is it difficult for competitors to imitate?

The key, then, is to own and nurture the resources and competencies that make up the essences of our business: **to operate autogyros**.

Our strategy will be aimed at protecting the core competence in order to maintain and increase our competitive advantage.

5.6.3 Entry Strategy

Once competitors and customers have been analyzed, some other factors that are important in deciding the viability of entry in this specific market need to be taken into consideration.

- **Entry barriers:** Businesses differ greatly in ease of entry. In our case, major entry barriers include licensing and certification requirements, scarce local distributors and reputation requirements. We are aware that when trying to enter more attractive markets, mobility barriers will appear.
- **Pricing strategy:** we will use a good pricing strategy as an entry strategy
- **Alliances:** as it is mentioned before, one key point within our market entry strategy is to form alliances with customers and suppliers, in such a way that they become partners in certain activities of the value chain.
- **Trade risks:** some of the major risks incurred when entering in this business are the weather stability and liquidity risk.

5.6.4 Growing Strategy

GyroServices' growth stage will be marked by a rapid climb in sales, since we truly believe in the potential of our competitive advantage comparing to the existing competitors. However, new competitors will enter, attracted by the opportunities and they will introduce new service features and will expand distribution. For that reason we need to watch for changes in order to sustain rapid market growth. So, during this stage we will use the following strategies:

- To focus on a service strategy once we have tied the client.
- To improve service quality (by spending money on service improvement).
- To increase the competitive advantage using emerging technologies such as LiDAR (Light Detection and Ranging) and UAVs.
- To enter new market segments (pipe line and rail way monitoring).
- To increase distribution coverage (Spain, Europe...).

We are strongly convinced that these market expansion strategies will strength the company's competitive position.

5.6.5 Exit Strategy

When the time comes, it is necessary to know the market exit barriers in case of not being successful.

- **Investments:** since we are not going to invest heavily in capital equipment, this exit obstacle is relatively insignificant.
- **Redundancy costs:** GyroServices will have a low number of employees and will not have to pay redundancy payments in case of leaving the market.
- **Contracts with buyers:** this point is seen as the most important barrier to exit the market. Given the nature of our customers and type of contracts, penalty costs have to be considered in case of cutting agreements.

5.6.6 Strategy objectives

Previously in “Growing Strategy” we have explained the strategy of our company from long term point of view, now it is time to talk about our objectives for the first years of our activities. Of course, GyroServices will try to get important part of the market share and capture big number of contracts, which we can successively execute, but to make our project more realistic we did not anticipate in the beginning too optimistic predictions.

GyroServices has prepared a set of strategic objectives to fulfill for first years of our existence.

Firstly we want to remind to the people about autogyro existence and explain them why autogyro is a perfect solution for nowadays demands (find more information in Promotion plan).

Andalusia will be our target market initially; therefore GyroServices want to become quickly a recognized brand in the region.

If it comes to the services that we will provide, our company will focus on two basic ones: Power lines Inspections and GIS Remote Sensing and Environmental Assessment.

In the first year GyroServices wants to achieve 15% of all power lines inspections made in Andalusia region. That gives us around 2500 kilometers to inspect. In following years we want to increase our market share by 10% per year.

Taking into account “GIS Remote Sensing and Environmental Assessment” group of services, in the first year we want to achieve two small contracts which will be Panoramic Photography and Burnt Areas Measurement. In following years we want to slowly increase number of those contacts and additionally in the third year we want to win a tender for one bigger contract related to “Environmental Assessment”.

6 COMMERCIAL PLAN

The commercial plan is the central instrument for directing and coordinating the value delivery process and the set of marketing activities aimed at pursuing marketing objectives. We will study what customers want and thus we will develop a commercial offer that create value for our target clients.

6.1 Marketing Environment

Our main competitors have been already mentioned in the external analysis. But competition reports only one force in the environment in which the marketing operates.

The marketing environment consists of the task environment and broad environment.

The *task environment* includes the immediate actors involved in producing, distributing and promoting the offering. The main actors are the company, suppliers, distributors, dealers and the target customers. Included in the supplier group are material suppliers and service suppliers such as marketing research agencies, banking and insurance companies, transportation companies, and telecommunication companies. Included with distributors and dealers are agents, brokers, manufacturer representatives, and others who facilitate finding and selling to customers.

The *broad environment*, as has already been mentioned, consists of four components: political-legal environment, demographic and economic environment, technological environment, and socio-cultural environment. These environments contain forces that can have a major impact on the actors in the task environment. Market actors must pay close attention to the trends and developments in these environments and make timely adjustments to their marketing strategies.

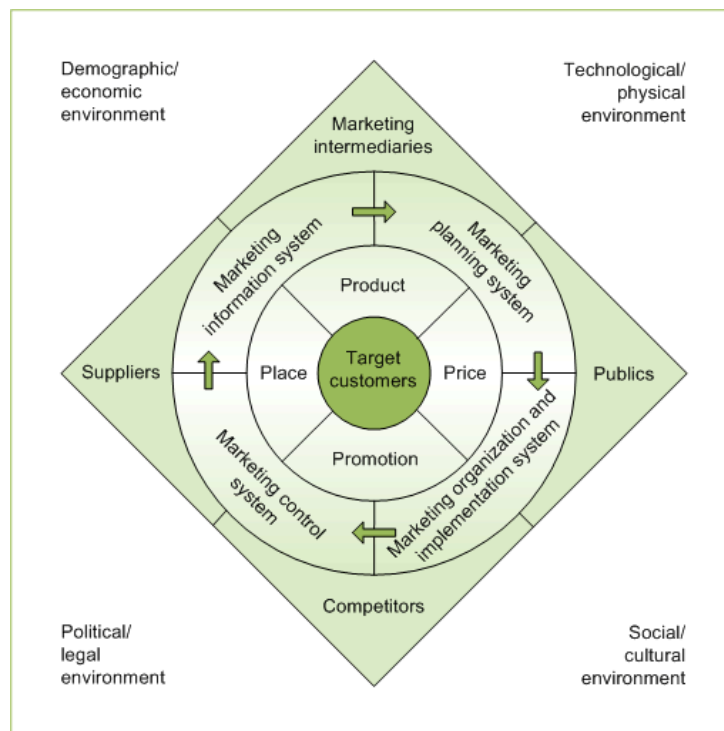


Figure 44: Factors influencing Company Marketing Strategy

In practice, there is a logical process that marketing follows. The marketing planning process consists of analyzing marketing opportunities, selecting target markets, designing marketing strategies, developing marketing programs, and managing the marketing effort. Figure 44 presents a grand summary of the marketing process and the forces shaping the company's marketing strategy.

6.2 Marketing Opportunity

“In many ways, good marketing is the art of finding, developing, and profiting from opportunities”

Philip Kotler, New York (1999)

A major purpose of environmental scanning is to discern new opportunities. A marketing opportunity is an area of buyer need and interest in which there is a

high profitability that a company can profitably satisfy that need. There are many sources of marketing opportunities:

- To supply something that is in short supply.
- To supply an existing product or service in a new superior way.
- Totally new product or service.

Opportunities can take many forms. We have spotted the following:

- GyroServices will benefit from converging industry trends and introduce hybrids services that are new to the market. Only our company provides power lines monitoring and surveillance using autogyros.
- GyroServices will offer a service at a much lower price and with a higher safety level.

6.3 The Value Delivery Process

One of the principal challenges of GyroServices is to deliver customer value at a profit.

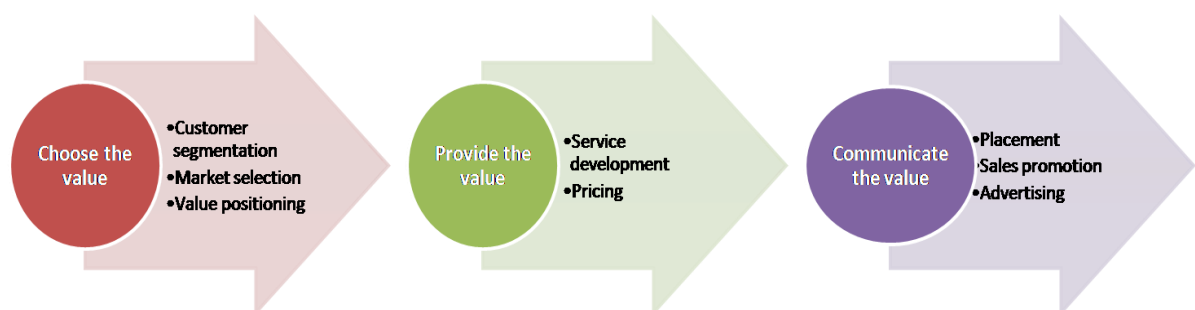


Figure 45: Value creation and delivery sequence

Figure 45 illustrates the value creation and delivery sequence that GyroServices is going to follow. The process consists of three parts.

- The first phase, *choosing the value*, represents the homework that must be done before any product exists. At this point, we will segment the market, select the appropriate market target, and develop the offering's value positioning. The formula segmentation, targeting, positioning (STP) is the essence of the strategic marketing.
- The second phase is providing the value. Marketing must determine specific product features, prices and distribution.
- The task in the third phase is communicating the value by utilizing the sales force, sales promotion, advertising, and other communication tools to announce and promote the product. Each of these value phases has costs implications

6.4 Segmentation Process

The first thing to do when defining a marketing plan is to really be aware that our customers are completely different. Therefore, we must understand the needs they have and adapt our value proposition to each target segment.

Market segmentation is the process of dividing a market into groups, known as segments, of customers with similar needs or characteristics who are likely to exhibit similar purchase behaviour. In segmenting the market the business is acknowledging that different types of customer may require different products or marketing approaches (marketing mixes).

6.4.1 Segmentation Hypothesis Definition

Two broad groups of variables are used to segment consumer markets. Some researchers try to form segments by looking at descriptive characteristics: geographic, demographic, and psychographic. Then they examine whether these

customers segments exhibit different needs or product responses.

Other researchers try to form segments by looking at behavioural considerations, such as consumer responses to benefits, use occasions, or brands. Once the segments are formed, the researcher sees whether different characteristics are associated with each consumer-response segment.

In contrast to consumers, industrial customers tend to be fewer in number and purchase larger quantities. They evaluate offerings in more details, and the decision process usually involves more than one person. Business markets can be segmented with some of the same variables used in consumer market segmentation, such as geography, benefits sought, and usage rate, but business marketers also use other variables.

The present project will follow the Nested Approach to Segmentation (NAS) represented and proposed by *Bonoma and Shapiro* (Figure 46). This is essentially a five-layered nested model, the logic being that the segmentation process should start with the outermost variables, and work inwards until a “good enough” schema is found, given that each successive layer increases in complexity and cost.



Figure 46: Primary segmentation variable for business market

(Source: Bonoma and Shapiro, 1983)

Major segmentation variables and for business market have been generated in order to have references to prioritize the target customers. Questions related to previous variables have been also included, as follows:

- Demographic
 - a) Industry: which industries should we serve?
 - b) Company size: what size companies should we serve?
 - c) Location: what geographical areas should we serve?
- Operating Variables
 - a) Technology: what customer technologies should we focus on?
 - b) User or nonuser status: should we serve heavy users, medium users, light users, or nonusers?
 - c) Customer capabilities: should we serve customer needing many of few services?
- Purchasing Approaches
 - a) Purchasing function organization: should we serve companies with highly centralized or decentralized purchasing organizations?
 - b) Power structure: should we serve companies that are engineering dominated, financially dominated, and so on?
 - c) Nature of existing relationships: should we serve companies with which we have strong relationships or simply go after the most desirable companies?
 - d) General purchasing policies: should we serve companies that prefer leasing? Service contracts? Systems purchases? Sealed bidding?
 - e) Purchasing criteria: should we serve companies that are seeking quality? Service? Price?

- Situational Factor
 - a) Urgency: should we serve companies that need quick and sudden delivery or service?
 - b) Specific applications: should we focus on certain applications of our product rather than all applications?
 - c) Size of order: should we focus on large or small orders?

- Personal characteristics
 - a) Buyer-seller similarity: should we serve companies whose people and values are similar to ours?
 - b) Attitudes towards risk: should we serve risk-taking or risk avoiding customers?
 - c) Loyalty: should we serve companies that show high loyalty to their suppliers?

There is hereby a classification of the different potential customers along with its principal characteristics in terms of the variables previously mentioned.

<u>BUSINESS SEGMENTATION VARIABLES</u>		<u>POTENCIAL CUSTOMERS</u>	
Demographic		Public Administration	Electric Utilities
	Industry	Public instiution	Energy sector (State-owned/Private companies
	Company size	High size of employees and budget	High size of employees and budget
	Location	Head office in Seville	Head office in Madrid with offices in several spanish cities
Op. Variables	Technology	Standard technology	Cutting-edge technology
	User/non-user status	Light user of the service	Heavy user of the service
	Customer capabilities	Changeable prospect	Good prospect of after-sale support
Purchasing Approach	Purchasing function organization	Highly decentralized	Low decentralized
	Power structure	Financially domintaed	Financially & Engineering balance
	Nature of existing relationships	No Applicable	No Applicable
	General purchasing policies	Service contracts/Public Tender	Public tender
	Purchasing criteria	Quality & Price approach	Service approach
Situat. Factor	Urgency	Occasinal and sudden needs	Services on schedule
	Specific applications	Non-specific application	Non-specific application
	Size of order	oad in summer with sporadic services the rest	High workload during summers
Personal charact	Buyer-seller similarity	Environmentally conscious	
	Attitudes towards risk	Risk-avoiding	Risk-taking
	Loyalty	Split loyal	Shifting Loyal

Table 15: Business market segmentation

Segmentation matrix requires only two axes, therefore, among the above listed characteristics, the more relevant and adequate for segmentation has to be chosen.

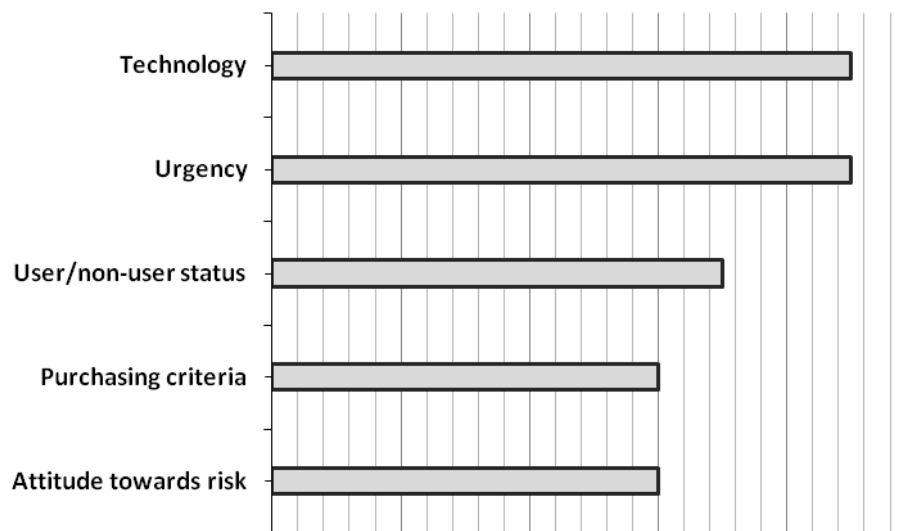


Figure 47: Priorization of the axes.

The ideal would be two characteristics that could make the segment distinct and identifiable (actionable). This is the reason of the election of **Technology** and **Urgency** as the axes of our segmentation matrix.

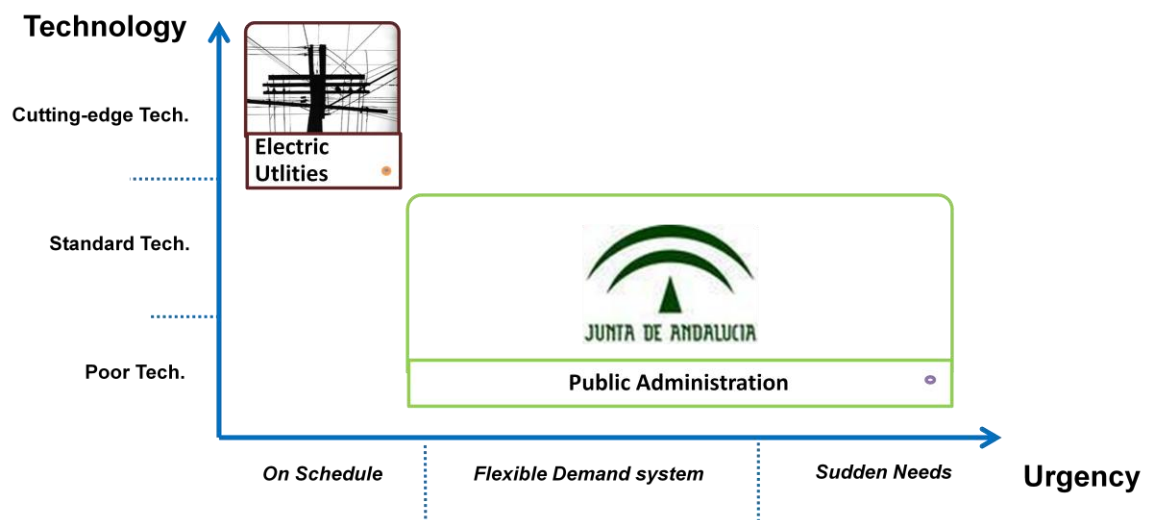


Figure 48: Segmentation Hypothesis.

The resulting matrix is filled dividing the market in segments that are homogeneous on their inside, but heterogeneous between them.

Once the segmentation of the market is done, it is time to evaluate the attractiveness of each segment for our company, in order to focus on the most profitable ones. This is done by comparing the value associated with each segment with our ability to compete on it.

6.4.2 Market Research

Marketing research is defined as the systematic design, collection, analysis, and reporting of data and findings relevant to a specific marketing situation facing the company.

An effective marketing research involves the following steps that we have accomplished:

- I. Define the problem: “Find out everything about power lines inspections and forest fire monitoring”
- II. Develop the Research Plan:
 - a. Data Sources. GyroServices team has gathered data from other MBA projects that were collected for another purpose (Secondary data) and data freshly gathered for our specific research project.
 - b. Research Approaches. We have undertaken surveys to learn about potential customers’ knowledge, beliefs, preferences, and satisfaction and to measure these magnitudes.
 - c. Behavioural Data. It was possible to learn the purchasing behaviour of potential customers in store scanning data and catalogue purchases (Internet).

III. Sampling Planning. This calls three decisions:

- a. Where is going to take place the surveys? ENDESA, REE and Regional Ministry of Environment.
- b. How many people should be surveyed? Power lines maintenance responsible and head of Centro Operativo Regional (COR).
- c. How should the responders be chosen? In the present case, the responders were chosen in terms of availability and technical knowledge.

IV. Contact Methods. Once we determined the sampling plan, we have contacted with the different subjects by using the following means:

- a. Mail questioner. This option has been used for customers who not give personal interview. A questioner example can be appreciated in the Figure of the next page. It is the case of REE.
- b. Telephone Interview. Similar characteristics as previous one. REE was also contacted by this mean.
- c. Personal interview. *Arranged Interviews* have been carried out by GyroServices in groups of two, three and four members. It is the case of Sevillana-ENDESA and Regional Ministry of Environment.

		MARKET QUESTIONER	
DATE: COMPANY: SUBJECT: INTERESTED PARTY:	January the 5th, 2010 Red Eléctrica de España Strictly confidential GyroServices S.L		
<u>QUESTIONS</u>			
TECHNICAL CONCEPTS			
Q1	How does REE, as an electric utility, work?		
Q2	What kind of maintenance work does REE plan regarding power lines?		
Q3	How often is the maintenance work carried out?		
Q4	Which are the technical barriers?		
MARKET FIGURES			
Q5	How many Km of power lines does REE own in Andalusia?		
Q6	What contracting policy does REE practice?		
Q7	What companies perform this job? Is the service outsourced?		
Q8	Financing item dedicated for power lines inspection in previous years.		
Q9	Long-term forecast.		

Figure 49: Questioner Sample.

- V. Collect the Information: It was the most demanding and time-consuming phase of marketing research. Getting the right respondents was critical.
- VI. Analyze the Information. According to the surveys that have been conducted, some corrections have been made in the segmentation matrix. Different characteristics have been found within Electric Utilities. The definitive segmentation matrix would be the following one:

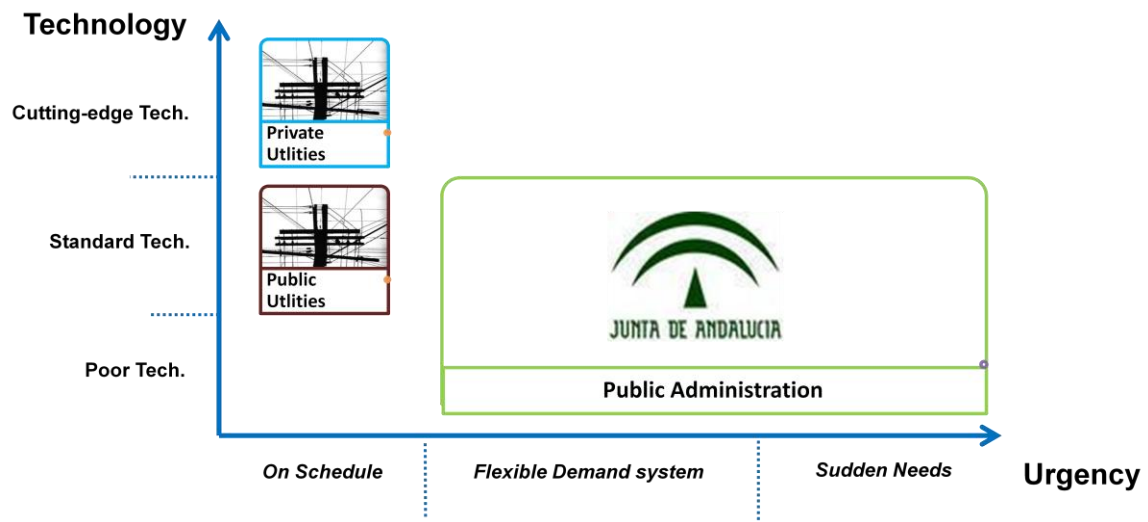


Figure 50: Definitive Segmentation Hypothesis.

6.5 Targeting

Once the segmentation of the market is done, it is time to evaluate the attractiveness of each segment for our company, in order to focus on the most profitable ones. This is done by comparing the value associated with each segment with our ability to compete on it.

6.5.1 Value of Segments

It is necessary to quantify the value that every segment of customers has for GyroServices.

In order to perform that, some factors have been defined, such as:

- Number of customers that every segment has.
- Economic value of contracts for the selected application/s.
- Times that the service offered is repeated throughout the course of the year.
- Projected annual growth, 2010-2015.

SEGMENT	APPLICATION	Nº of CUSTOMERS	VALUE OF CONTRACT	FREQUENCY	EXPECTED GROWTH	VALUE OF SEGMENT
Private Utilities	Power Line Monitoring	1	300.000 €	Single Contract	10,0%	330.000 €
State-owned Utilities	Power Line Monitoring	1	550.000 €	Single Contract	4,0%	572.000 €
Public Administration	Aerial Inspection	1	240.000 €	N.A	2,5%	246.000 €

Table 16: Value of potential customer segments

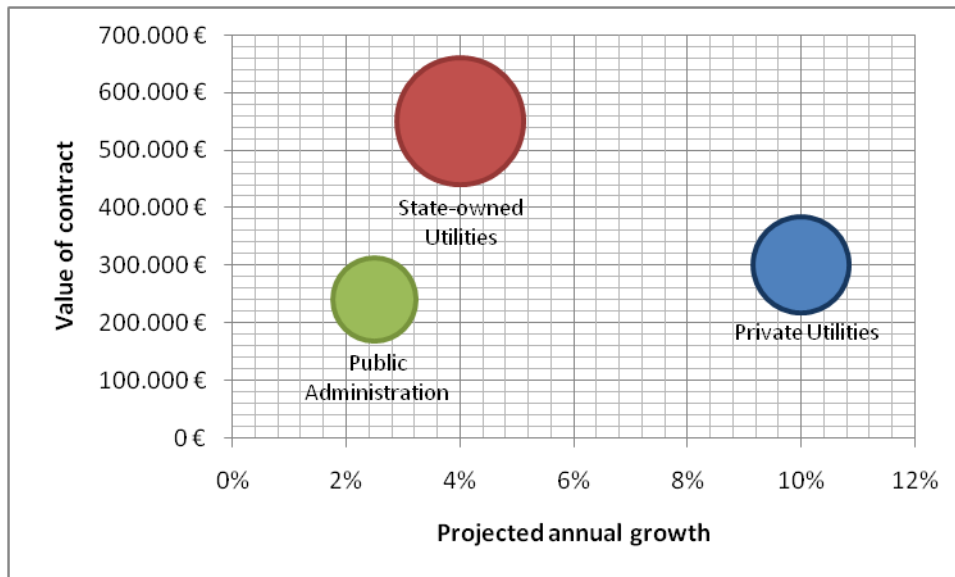


Figure 51: Value of the different segments

After representing the segments and their corresponding value, it is clear that there are some of them more interesting from the point of view of profitability.

6.5.2 Competitive Fit

The value of each segment has to be compared with the ability of our company to compete on it. This competitive fit is evaluated taking into account some factors.

- *Competition intensity*: This factor depends on the external competitors existing on each segment. As we are *Product Specialization* (we sell a product to several different market segments) there are competitors in each segment: private utilities, state-owned utilities and public

administration. The competitive intensity of them will be different in each case.

- *Innovative technology:* The level of technology used is a key point to compete. Therefore, in sectors less technological demanding, GyroServices will have more difficulty to compete since the service becomes unprofitable.
- *Price sensitivity:* One of the main competitive assets of GyroServices is price, as autogyro and our business model allow us to set prices below competitors. In some sectors that are more price sensitive, or where use of low-consumption means is limited by this factor, GyroServices will have a clear advantage.
- *Safety commitment:* This factor is attracting more and more compromises and GyroServices knows very well its importance. Technical facts provided by autogyros, makes our services be one step ahead in comparison with competitors.

According to the above listed characteristics, next table shows how GyroServices cover those parameters, as well as the assessment of competition intensity for each segment.

SEGMENT	INNOVATIVE TECHNOLOGY	PRICE SENSITIVITY	SAFETY COMMITMENT	AVERAGE	COMPETITION INTENSITY	COMPETITIVE FIT
Private Utilities	●	●	●	●	◐	●
State-owned Utilities	◐	◐	●	●	◐	◐
Public Administration	◐	◐	●	◐	◐	◐

Table 17: Competitive fit by segment

6.5.3 Priorization Matrix

Once the value and the competitive fit for every segment have been estimated, the graphic of next Figure is obtained, where every customer segment is ranking.

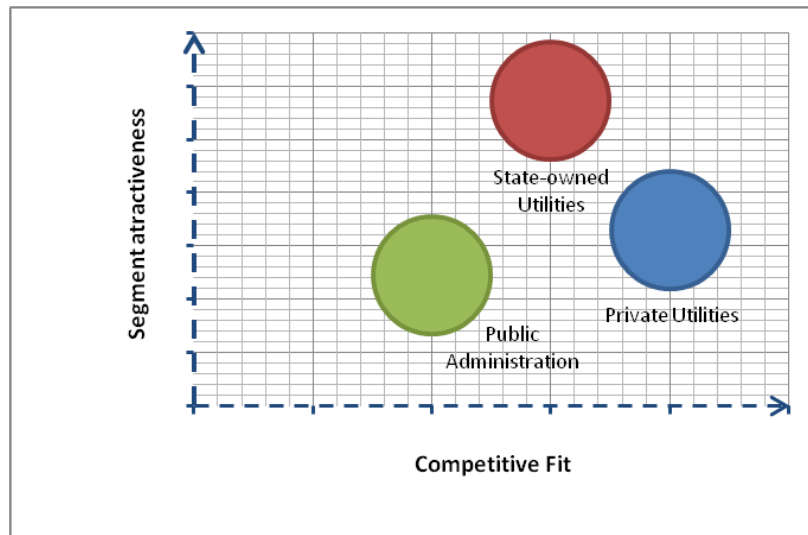


Figure 52: Priorization Matrix

According to the results obtained, the most attractive sectors are Private and State-owned Utilities. The potential growth associated with these segments is huge, regarding the increase of power lines inspections to the detriment of cleaning insulators. Both segments are therefore capital to the development of our business.

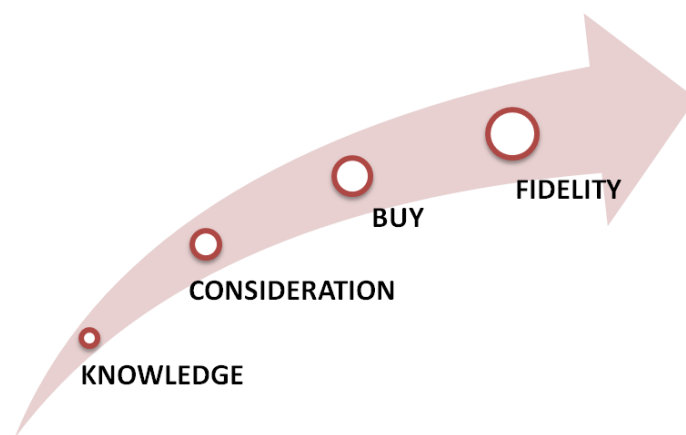
Anyway, the segment left, Public Administration cannot be neglected. Even though, growth and volume are not as high as in the case of utilities, there are two major reasons to do not neglect this segment:

- We strongly believe in the capabilities of the autogyro to fulfil environmental requirements at a sufficiently profit.
- In order to pay off assets and maintain the autogyros flying as much as possible

6.6 Customer Buying Process

As our company is pioneer offering services with autogyros, we do not have information enough to analyse the customer buying process. Nevertheless, this analysis will be very useful in order to define the value positioning first and the communication strategy secondly.

The buying process consists of four basic steps:



Knowledge: Nobody knows us because we are a new company. Neither the technology is known, so we have to invest in promotion and advertising in order to become a known company.

Consideration: Once they know our company, if our services are not being considered might be because the service is not well valued or adapted to the customer. It could be a consequence of insufficient promotion or bad advertising. With the purpose of avoiding these factors, we can invest in more efficient advertising and also prepare personalized solutions for our customers.

Buy: The main reason to lose customers in this step could be because they do not trust in our technology. As we are offering lower prices than services offered by helicopter or planes, they could think that we have lower quality in the service.

To avoid this bad perception, we should invest in special events, in order to show the technology and make aware customers of our good quality.

Fidelity: If we lose customers during this step could be due to a bad previous service, not coming up to their expectations. We should improve the customer attention and create fidelity programs and special discounts.

Our communication objectives should be the next ones:

- More efficient advertising and promotions to improve the image of the company.
- Personalized solutions for the customers
- Focus on the quality/price.

6.7 Value positioning

The objective of this point is to design a concrete commercial offer for each one of the services. We are focusing on maximizing values generated by the segment.

To each application, a specially equipped gyrocopter will be proposed, although with sufficient flexibility to adapt if necessary to the other applications. This way, we can better adapt to customer needs. According with the Customer Buying Process and surveys made, we define the general commercial offer for our services:

	Product/Service Offer	Pricing Strategy and Structure	Channel/Sales Strategy	Brand/communications messages
Key differentiators	•Technology (Autogyro) •Low Prices •Green Image	•Low Prices	•Customer databases •Fidelization programs	•Cutting edge Technology Company •Pioneer. •Low Prices
Minimum needs	•High performance (reliability) •Quality •Good service (availability, customer attention)	•Financing	•Direct contact •Sales persons	•Reputation and good perception •Low Prices
Offers flexibility	•Different Equipment and Service for each segment •Different prices	•Different prices for services •Special discount for each segment	•Participation in Specialized Fairs •Shows & Events •Visits	•Different communication channel and message depending on the market

Table 18: Commercial offer

Now, we explain more in detail the commercial offer.

- Competitive positioning: GyroServices is a pioneer company in Spain in providing civil and commercial services using autogyros. We are Green Image Company which realizes high quality service for low price. Gyroservices are using cutting edge technologies in term to offer services according to our customers needs.
- Product/Service Offer: The solutions and prices are different depending on the service we are offering. Also the equipment used is different. The minimum foreseen needs are good service, high performance and quality. The principal key differentiators are the innovative technology used (Autogyro), low prices of our services and the adaptive to the customers.
- Pricing Strategy and Structure: Our pricing strategy is different for each service. We offer financing to all the customers and our key differentiator is that we offer lower prices than other companies offering similar services

using helicopters and manned aircrafts.

- Channel/Sales Strategy: Participation in specialized Fairs, organization of shows and Events and personal visits to special customers (such electrical companies and public administration) are part of our channel strategy oriented to different segments.
- Brand/communications messages: There are different communication channel and message depending on the market to reach. We want to create a brand with good reputation, perception and quality. Our main key differentiators are to be considered as a cutting edge technology company, pioneer in this sector and with low prices.

6.8 Marketing Mix

In this part we will use Marketing Mix to find the best way to get to our target customers. The take proper marketing decisions we will classified them in the following four categories:

- Product
- Price
- Place
- Promotion

Those variables marketing managers of GyroServices will control in order to best satisfy customers in the target market. The marketing mix is portrayed in the diagram of the next page:



Figure 53: Marketing Mix Diagram

6.8.1 Product

Taking into account the results of the segmentation process and the target segments selections, we will offer two basic services:

- Power line inspection
- GIS Remote Sensing and Environmental Assessment

In this part we will explain how those services are provided nowadays. What kinds of machines and equipment are required. Secondly we will explain what the main advantages of autogyro in providing those services are.

6.8.1.1 Power line inspection

6.8.1.1.1 General description

Electrical companies have the necessity of periodical inspections to their power lines. The service consist a power lines surveillance to detect any irregularities and to maintain them in proper condition. Our offer will be addressed to the private sector (electrical companies) and to the public sector (public tenders). Service will be provided initially in Andalusia. We will start by explaining the basic principles associated with such inspection.

A wide variety of items need to be inspected for defects, which generally depends on the size of the item and the details required:

- Large scale items: sagging spans, leaning poles, broken or slack stay wires, and tree encroachment.
- Medium scale items: equipment mounted on the poles, high voltage and low voltage fuse units, air break switches, anti-climbing guards, and safety notices.
- Small scale items: broken or chipped insulators, discoloration due to corroded joints on conductors, and traces of arcing on fuse gear or switches.

Electric companies, not so long ago to perform power line inspections sent the groups on foot patrol or in a car. One of the men from each group (lineman) climbed up on a tower in order to implement a more thorough inspection. It was very simple and under-developed methods not to mention that they wore very time consuming.

Nowadays, electricity providers in many countries commission helicopter companies to conduct power line inspections. Their main function is detecting occurred problems and insulators cleaning. Those inspections are performed using termographical cameras (places where the problem has occurred are overheated so they can be easily detected using termographical cameras). Normally those inspections are performed in small two member groups, observer using dedicated equipment and a pilot flying at about 20-50 knots. The inspection frequency depends on the transmission line size. Above we can see some examples results of such inspection:

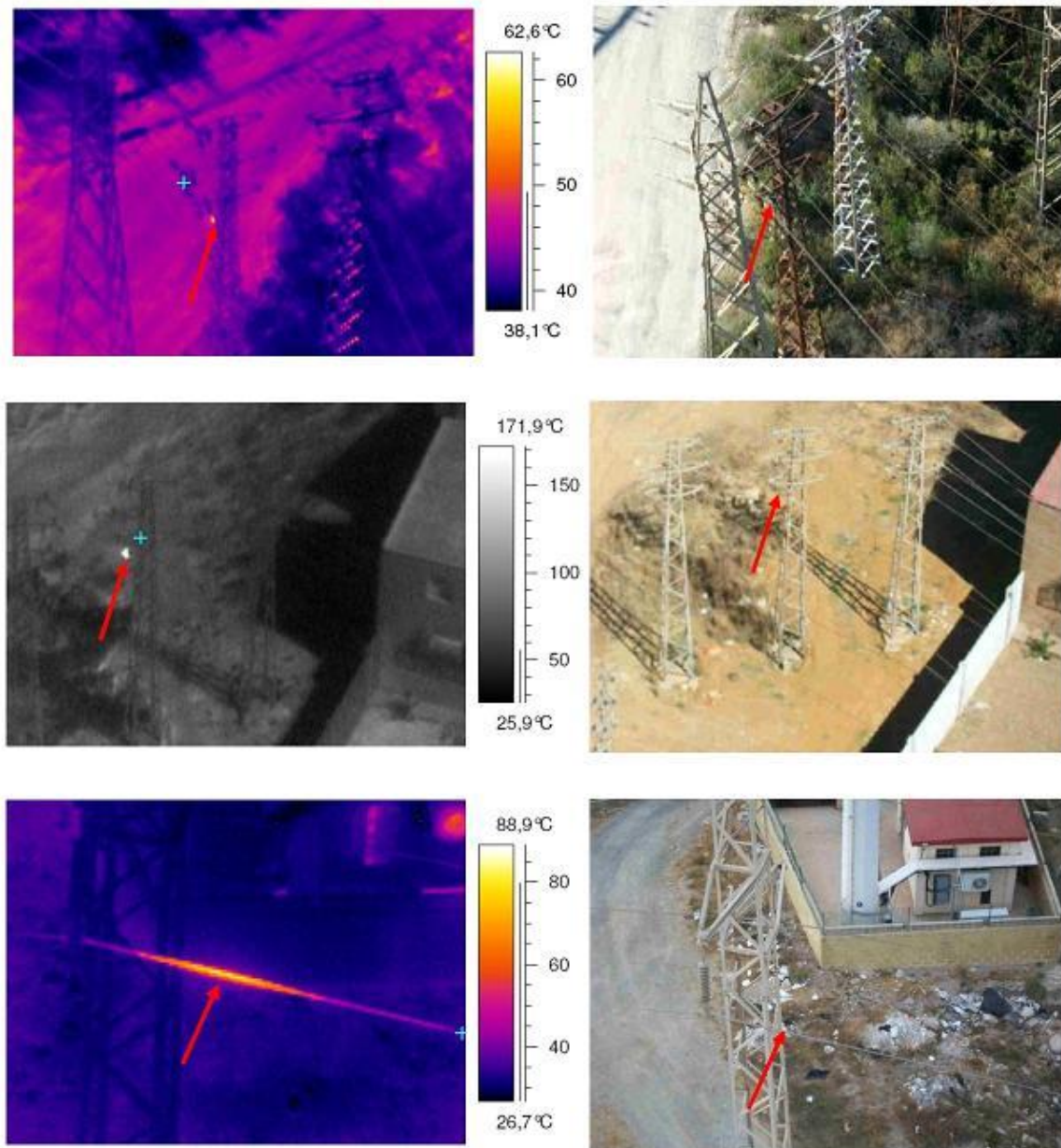


Figure 54: Power Line Inspection example

A bad connection on a transmission line shows up as a clear hot spot in the infrared image. A bad connection results in increased resistance and the current flow generates excessive temperature that can easily be detected with infrared thermography. If not attended to this connection might break, resulting in loss of power. These digital aerial maps are loaded to hand held GPS devices to enable

ground teams to navigate directly to the hot spots rapidly, either by walking, driving or flying in a helicopter.

6.8.1.1.2 GyroServices advantages

- Twin engine helicopter used for those inspections are costing a lot per day. With the current economic climate where cost reduction plans are being drawn up, replacing this method of inspection should most certainly be examined.
- Furthermore helicopter during the inspection is producing noise which limits his hours of fly, due to the noise abatement laws and disturbance to livestock.
- Utilizing cutting-edge infrared thermographs for electrical inspections can help set maintenance priorities, lower insurance premiums, reduce loss, reduce liability, prevent unplanned outages, evaluate repairs, and maintain performance.

This service seems to be a great opportunity for autogyro. The technological and economical advantages provided by autogyros may overcome past restraints. Autogyro is a very suitable aircraft for electric power line inspection tasks. Those inspections required specialized equipment what cutting-edge company like GyroServices is perfectly aware. Electric power lines wide range inspection sends real time footage and data to the operator which can be sent at the same time to the power company's control centre for reviewing.

6.8.1.1.3 Required equipment

- Autogyro
- Gyro-stabilized platform

- Complete set of Thermovision
- Vehicle
- Trolley

6.8.1.2 GIS Remote Sensing and Environmental Assessment

6.8.1.2.1 General description

GyroServices offer is addressed to Regional Ministry of the Environment of Andalusia which need quality environmental information in order to correctly plan and manage its environmental performance.

The Department responsible for the management and maintenance of the Geographical Information System (GIS) is Department for Planning & Environmental Information. It is also responsible for the management and functioning of the Environmental Information Network of Andalusia (REDIAM), constantly updating data and adding new elements to be the main reference element for different environmental administrations.

Geographic Information System (GIS), is any system that captures, stores, analyzes, manages, and presents data that are linked to location. Technically GIS is a system that includes mapping software and its application to remote sensing, land surveying, aerial photography, mathematics, geography, and tools that can be implemented with GIS software. In the strictest sense, the term describes any information system that integrates stores, edits, analyzes, shares, and displays geographic information.

The main activities involved in those programs are:

- Natural conservation, including fauna and flora
- Soil conservation
- Forestry management

- Forest fire prevention and control
- Declaration and management of all the Natural Protected Areas
- Environmental Information, Participation and Education
- Erosion control activities
- Waste management
- Water Quality and Management (coastal, inland, underground water...)
- Integrated management of the water cycle: water system, supply and quality

Nowadays, all the services mentioned before are carried out by satellites, airplanes as well as helicopters. GyroServices aim is to cover some percentage of services realized by airplanes and helicopters since autogyros restrictions do not allow us to cover hundred percent.

These activities are divided into three basic groups; surveillance, control and measurement. GyroServices, along first years of its activity, will focus on Environmental assessment, panoramic photography and burnt areas measurements. A brief description can be found in the following points.

- Environmental assessment: Every year REDIAM is raising a program which main task is to specify environmental assessment of the forests in Andalusia. Forests need continuous protection that's why REDIAM introduce a sustainable management which job is to:
 - Reduce the impact of environmental disasters,
 - Assistance in regeneration of forests,
 - Woods control,
 - Deforestation prevent,

Those inspections are carried out using multispectral cameras mounted in helicopters and airplanes. The subject area in that kind of project is around 200.000 hectares and it is carried out over a period lasting up to three months.

- Panoramic photography: Every year, REDIAM (Environmental Information Network in Andalusia) raises three or four projects linked with panoramic photography around Andalusia region to be developed in three weeks. Depending of the project, you have to fly over the specific area and take the pictures (around 200 per projects). REDIAM sets the characteristics of these pictures in terms of distance, area, number of copies and so on.
- Burnt areas measurements: In this point is important to take into account that every year an average of 700 fires occurs only in Andalusia region. Depending on damages, size of the affected area, and all topics linked with the importance of the fire, REDIAM decide to launch a project which main topics are:
 - Measure an area affected for that kind of disaster
 - Estimate losses
 - Examine degree of recuperation of the forest

In order to take these measures, an aircraft with special multispectral set of cameras attached, have to fly around affected area. Duration of that type of project is around one week.

6.8.1.2.2 GyroServices advantage

- As we said before, twin engine helicopter used for those inspections are costing a lot per day. With the current economic climate where cost reduction plans are being drawn up, replacing this method of inspection should most certainly be examined.
- Other very important advantage comparing to our competitors is GyroServices green image. Low consumption of fuel and low level of produced noises will be an important asset since our services are aimed to environmental companies.

- Some of those services are realized using airplane, in this case our main advantage beside the lower operational costs will be possibility of providing more accurate analysis since performance of our machine are similar to performance of a helicopter.

Starting our collaboration with the Regional Ministry of the Environment of Andalusia seems to be a great opportunity for our company. From one side autogyros operational cost are lower than helicopters and airplanes, which has an effect on the final price of the service. From the other hand GyroServices green image linked to the low consumption and the low level of produced noises can be a key point in providing those kinds of services.

6.8.1.2.3 Required equipment

- Autogyro
- Gyro-stabilized platform
- Multispectral camera system
- Vehicle (Van)
- Trolley

6.8.2 Pricing strategy

GyroServices knows that Pricing decisions are pretty difficult and they have to take into account lot of factors, which are internal like Marketing objectives, strategy, costs and external factors such as the nature of the market, competition and customers. GyroServices will make an accurate study about pricing in order to evaluate the final price for our service. Our final price must be: attractive for our clients, competitive comparing to our competitor's price and the most important, which create an important profit for our company.

In order to correctly evaluate final price for our service we need to specify couple

of subjects:

- Cost involved in providing each service,
- Current prices for realization of similar projects
- Final definition of GyroServices prices

6.8.2.1 Cost involved in providing Company services

To get the final cost of the service, our company need to take into account list of the following expenditures.

- Fixed costs (Xenon 2 cost, Equipment cost, Operators fixed cost)
- Operating costs (Xenon 2 operational cost, Operators variable cost, Transport & Logistics)

Costs involved in providing **Power Lines Inspections** have been evaluated for 454 €. Which are divided as follows:

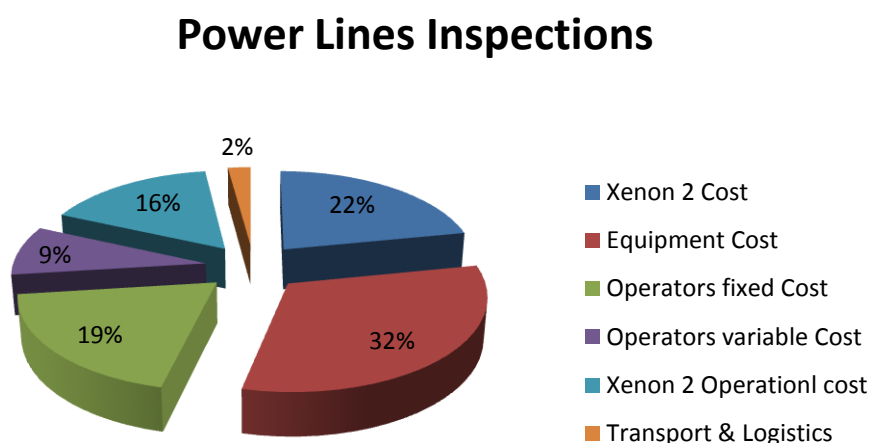


Figure 55: Cost of providing Power Line Inspection service

Costs involved in providing **GIS Remote Sensing and Environmental Assessment** have been evaluated for 377 €. Which are divided as follows:

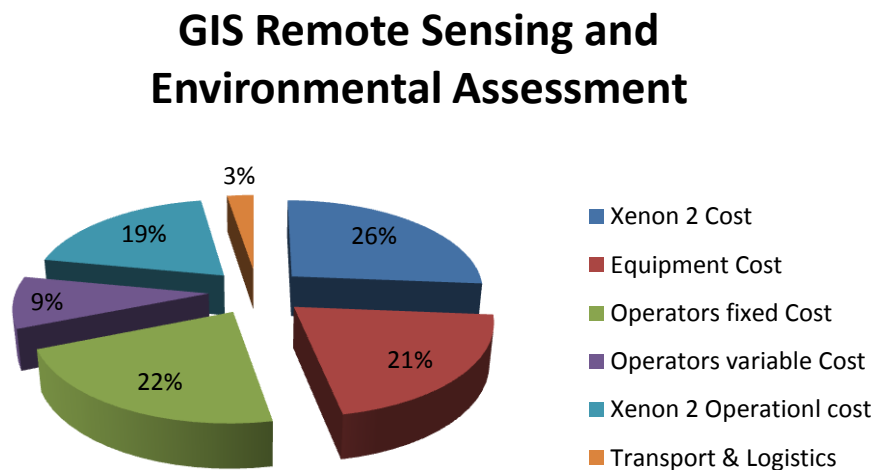


Figure 56: Cost of providing GIS Remote sensing and Environmental Assessment service

6.8.2.2 Current prices for realization of similar projects

After several analysis of the market, GyroServices have established the most important information's about their customers. Thanks to those investigations we have been able to specify: scope, periodicity, duration and prices of the interesting us services. Above you can find key information's according to which they are implemented:

Power Line Inspections

Power Line Inspections			
Cusromer	Scope	Periodicity / Duration	Price
endesa	10.000 km	1 projects/year 2-3 months / project	300.000 €/project
red electrica	6.000 km	1 projects/year 2-3 months / project	550.000 €/project

Figure 57: Power Lines Inspection service data

GIS Remote Sensing and Environmental Assessment

REDIAM (Environmental Information Network of Andalusia)			
Project	Scope	Periodicity / Duration	Price
Burnt Areas Measurement	5.000-10.000 hectares/fire	3-4 projects/year 1 week / project	20.000€/fire
Enviromental Assessment	200.000 hectares/project	1 project/year 3 months / project	150.000€/project
Panoramic Photography	200 photos / campaign	3-4 projects/year 2 weeks/campaign	30€/photo

Figure 58: GIS Remote sensing and Environmental Assessment service data

6.8.2.3 Final definition of GyroServices prices

In this point, GyroServices has taken into account the willingness of customers to buy the service. After previous explaining benefits for our customers related with GyroServices green image, we will talk about the final prices for our services. To make our company even more competitive GyroServices have decided to provide all mentioned for us projects in price **25% lower** than it is executed so far. Our price will be 25% lower irrelevant to whether it will be our competitor (airplane or helicopter). On next Figure we can find our price structure.

Power Line Inspections

Power Line Inspections

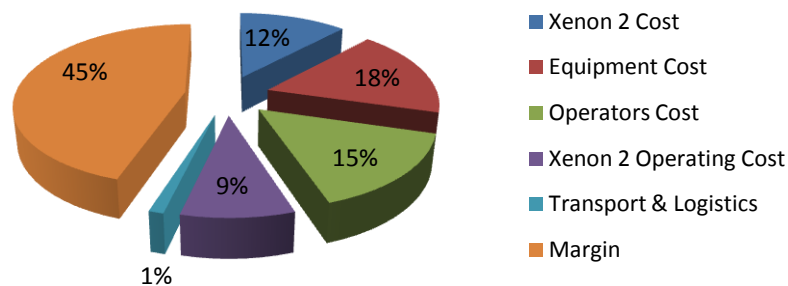


Figure 59: Power Lines Inspection influence cost

GIS Remote Sensing and Environmental Assessment

GIS Remote Sensing and Environmental Assessment

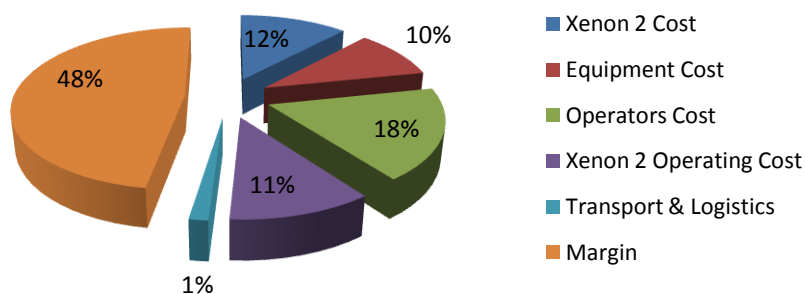


Figure 60: GIS Remote Sensing and Environmental Assessment influence cost

It is necessary to consider possible reaction of our competitors once GyroServices will enter on the market. But as we can see above, both, low gyrocopter cost and its low operational price, make us large field for negotiation.

6.8.3 Placement

The principal of the Placement Plan is to define all the points of interaction with the customer. Firstly we need to prepare a list of the potential channels that we can use to reach to our customers. Secondly prioritization of the channels will be done, in order to verify which channels are appropriated for each customer.

6.8.3.1 Potential channels

Due to that we are a new company and that we provide our services in an innovative way, we must choose the appropriate channels to promote our company. Initially, our offer will be directed to the specific customers therefore we have selected the following channels:

- Internet (Web-side Page)
- Specialized Magazines
- Direct contact (Mail, Phone...)
- Sales force (Private Visits)
- Specialized Fairs
- Events & Shows

6.8.3.1.1 Channel Priorization Analysis

To make appropriate Channel Priorization it is necessary to analyze two main factors: Channel Attractiveness and Channel Profitability.

Channel Attractiveness

This analysis is carried out to understand the extent to which individual channels are able to get customer attention and explain them our offer. The sum of these factors will let us determine the real channel attractiveness.



Figure 61: Channel attractiveness

Channel Profitability

To determine Channel Profitability we will measure implementation cost of the channel, expenses involved by running it and cost efficiency for the target segments.



Figure 62: Channel profitability

Once we have analyzed the attractiveness and the profitability of each channels we have made Priorization Matrix to clearly show channels evaluation.

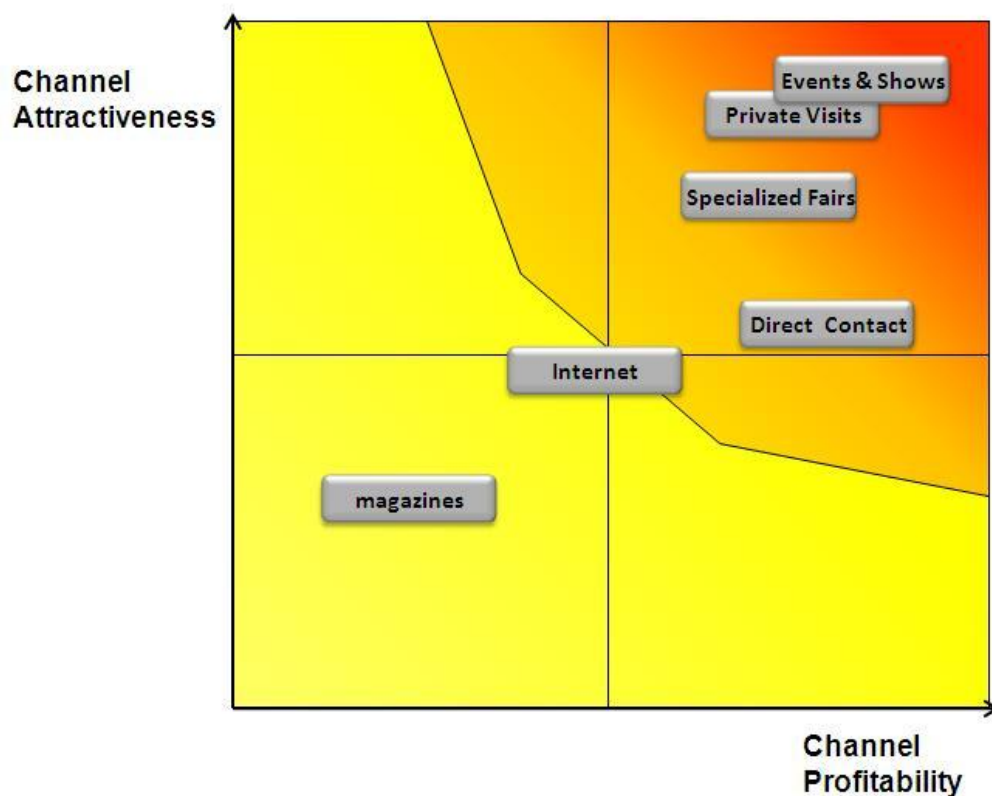


Figure 63: Priorization Matrix

On The Priorization Matrix is clearly shown which channels will be most efficient for our promotion. Last step in this part will be Identify the relevant activities for promotion of our Company.

6.8.4 Promotion Plan

Taking to account that our company begins its operations it is very important to get customers attention, clearly explain them our offer. In the beginning our offer is directed to small group of certain customers thinking of that special promotion will be prepared.

6.8.4.1 Branding

GyroServices knows perfectly that Branding is a basic pillar to build a good and attractive image of the company. In our case is even more important because we

want to use autogyro which is a Spanish invention but it is not so popular in our country. People have a lack of knowledge about autogyro. Therefore we need to remind them about autogyro existence, explain their basics and prove that autogyros are the safest and the most efficient machine on the market.

Brand will be the commercial identity of GyroServices, a visual and verbal element that links tangible benefits and intangible values. This perception of higher value is a reason for customers to invest in our product.

The name and the logo will allow the customers to easily identify our company and evoke them the feelings that we want to transmit:

- Clear name “GyroServices” it is an important remarking that we are a company which main target is to provide services using autogyro.
- Important task of the logo is to transmit to the customer that his is dealing with an aeronautical product. That will allow the customer identify the product easily.
- Colors: Dominating color of our company is green. It is associated with the Earth, as GyroServices is a company whose principal applications are based in the planet protection and care: forest, environment, surveillance...



Figure 64: GyroServices Logo

The logo is the symbol of the company and will be present in all our products, such as: the vans used to autogyro transport, the internet web page and all official documents. This will be an important part of the advertising for GyroServices.

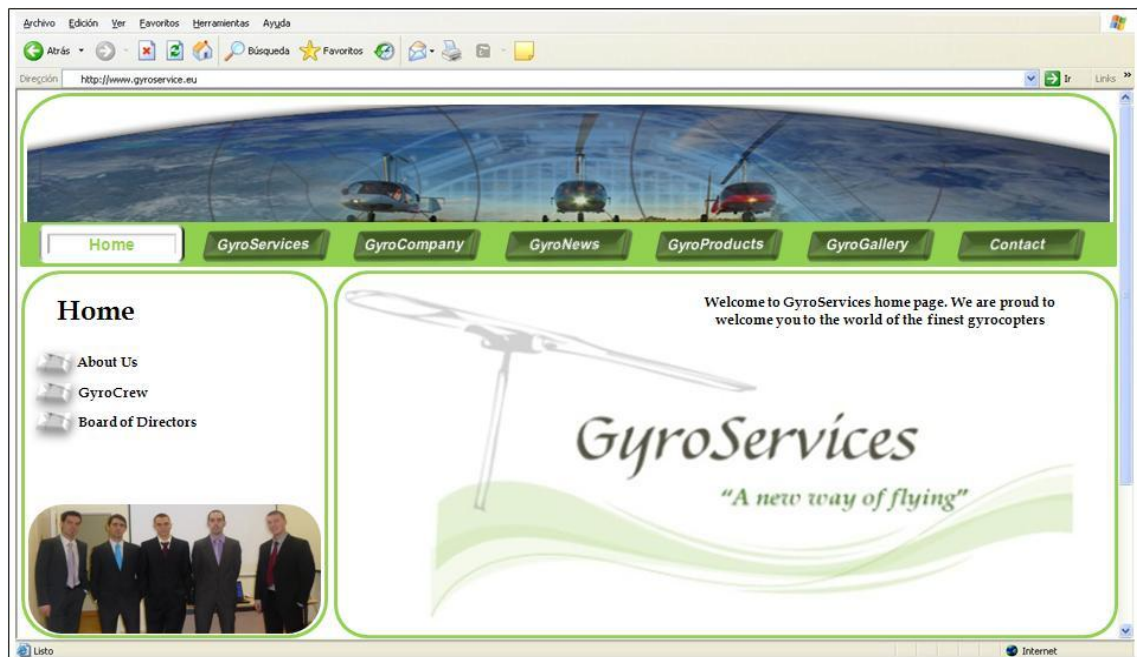


Figure 65: GyroServices Webpage



Figure 66: GyroServices Van

6.8.4.2 Communication strategy

In the beginning our offer is directed to small group of certain customers that for GyroServices will use different tools in order to make its potential customers aware of the possibility of using our company services to cover their needs.

Communication objectives that GyroServices wants to transmit to the customers are:

- GyroServices provide high quality service for the lowest prices on the market
- Be perceived as a cutting edge technology company
- Provide personalized solutions for each customer

Tools that GyroServices will include in its promotional plan need to be well prepared. GyroServices is a new company, for that reason we have to be noticeable to the customer. To communicate with the client and in order to better familiarize the customer with our company and our offer:

- Brochure

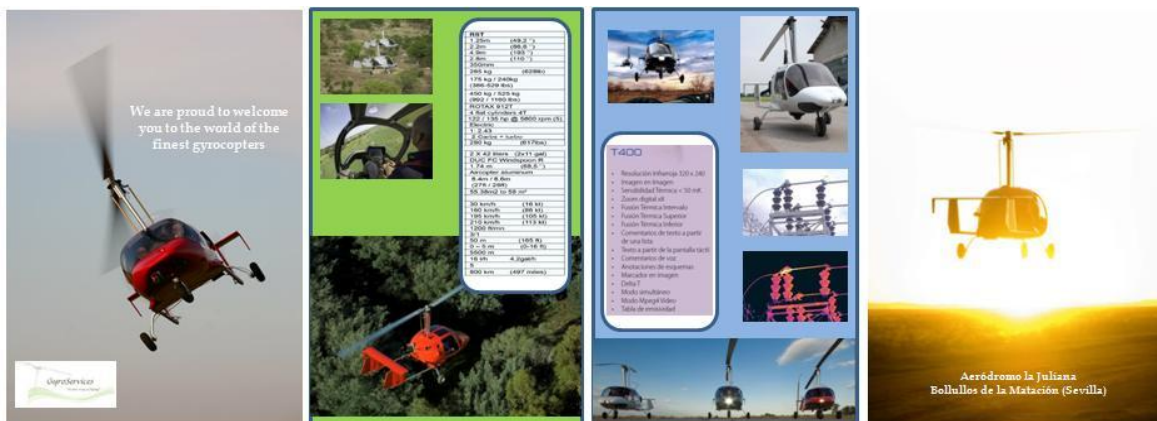


Figure 67: GyroServices Brochure

- Internet

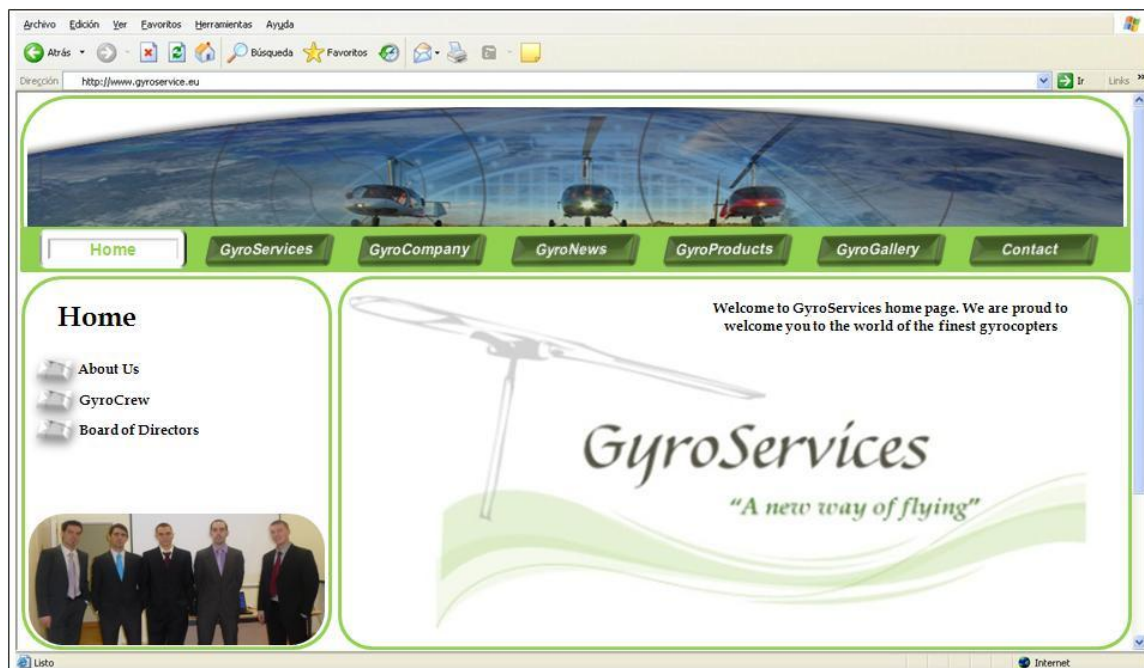


Figure 68: GyroServices Webpage

- Sales Team



Figure 69: GyroServices Team

- Magazine



Figure 70: GyroServices Magazine

- Direct contact



Figure 71: GyroServices Direct contact

Taking into account lack of knowledge that the people about autogyro. GyroServices need to:

- Clearly explain autogyro basics and performance
- Show how GyroServices can successfully provide service to cover their needs
- Explain our advantage comparing to the competence

Tools used to accomplish those requirements:

- Information graphic (See Figure/graphic in next page)

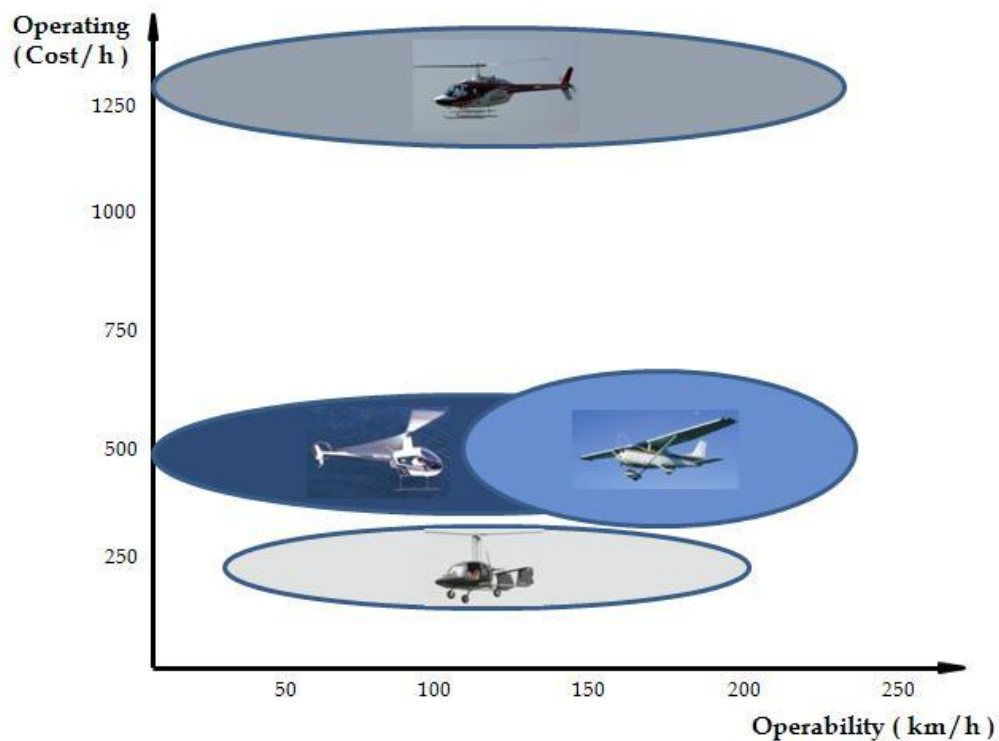


Figure 72: GyroServices Information graphic

- Air Show

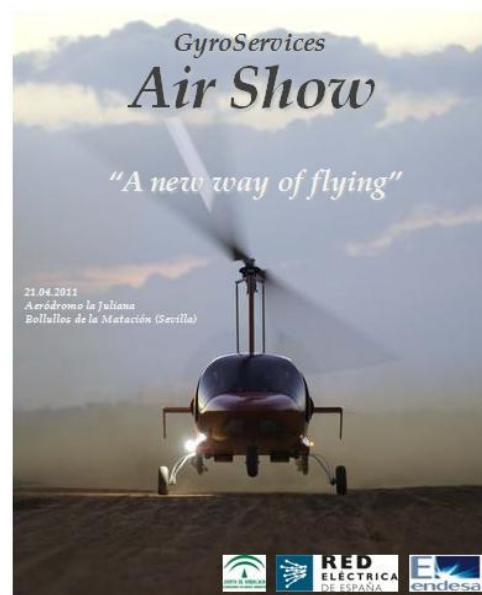


Figure 73: GyroServices Airshow

- Specialized Fairs



Figure 74: GyroServices Specialized Fairs

7 TECHNICAL PLAN

This plan explains the ways in which different technologies and equipment will help GyroServices to achieve its goals.

7.1 Technology of the autogyro

The utilization of autogyros to provide services mean that the company wants to propose the autogyro as a real substitute of airplanes and helicopters providing services that they are nowadays doing.

For that reason, these aircraft are going to be analyzed and compared. As it is needed to talk about some technical features, dynamic forces involving aircrafts must be explained. All the forces involved can be simplified into 4 basic forces:

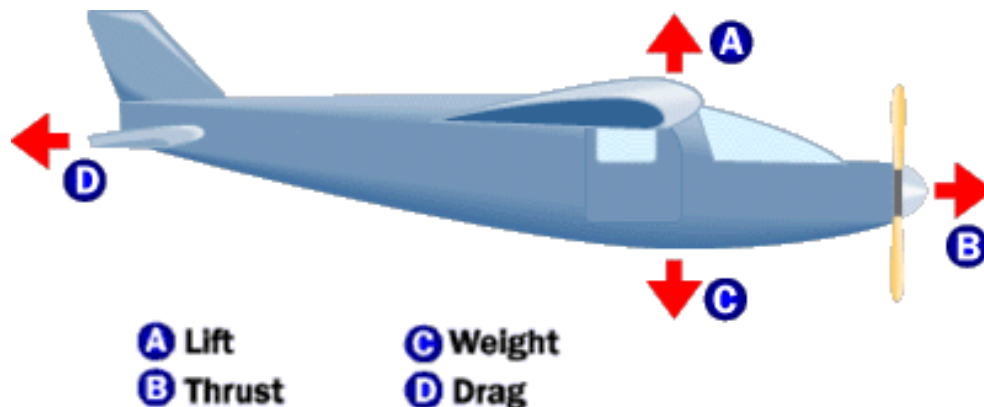


Figure 75: Aerodynamic forces in aircrafts.

- Lift: aerodynamic force that holds an airplane in the air.
- Thrust: force created in order to move forward.
- Weight: every object on earth is attracted by it due to the gravity.
- Drag: aerodynamic force that resists the motion of an object moving through a fluid.

In order for an aircraft to fly straight and level, the following relationships must be true:

- Lift = Weight.
- Thrust = Drag.

The origin of two of the forces is environmental (weight and thrust) and the other two (lift and thrust) are created by the aircraft in order to overcome the environmental forces. The way to create lift and thrust is that basically differentiate the type of aircraft: airplane, helicopter or autogyro.

7.1.1 Airplane

Airplane is a wide-concept fixed-wing aircraft. In fact, a Cessna 172, a Lockheed Martin C-5 Galaxy and an Airbus A380 are all airplanes, in spite of the big differences between them. Anyway, the possible substitute for the autogyro would be a light airplane, due to its size, price and technical features.

An airplane creates thrust using propellers, jet engines or rockets. In the case of light airplanes, it is used a single piston engine with a propeller.

The creation of lift needs somehow a further explication. Although there are many simplified explanation as “Longer Path” (based on Bernouilli) or “Air Deflection” (also called Newtonian), lift is created by pressure variations caused by turning a moving fluid.

Lift is a force on a wing immersed in a moving fluid, and it acts perpendicular to the flow of the fluid. The net force is created by pressure differences brought about by variations in speed of the air at all points around the wing. These velocity variations are caused by the disruption and turning of the air flowing past the wing. The measured pressure distribution on a typical wing looks like the following diagram:

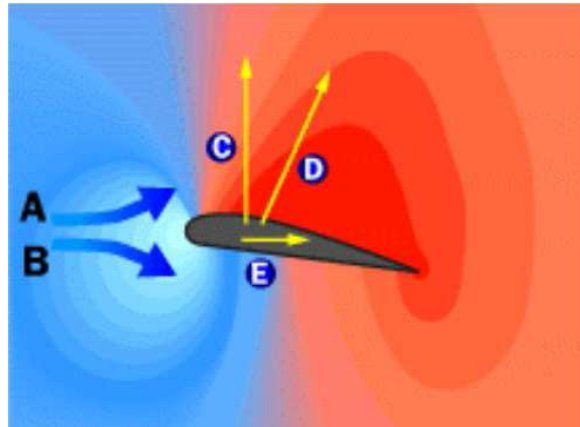


Figure 76: Airplane lift creation.

- A.** Air approaching the top surface of the wing is compressed into the air above it as it moves upward. Then, as the top surface curves downward and away from the airstream, a low-pressure area is developed and the air above is pulled downward toward the back of the wing.
- B.** Air approaching the bottom surface of the wing is slowed, compressed and redirected in a downward path. As the air nears the rear of the wing, its speed and pressure gradually match that of the air coming over the top. The overall pressure effects encountered on the bottom of the wing are generally less pronounced than those on the top of the wing.
- C.** Lift component.
- D.** Net force.
- E.** Drag component.

7.1.2 Helicopter

Helicopter is a more versatile, capable and complex aircraft. In term of movements, helicopters can do some things than other aircrafts cannot:

- Fly backwards and sideways.
- Rotate in the air.
- Hover motionless in the air.

In contrast, the complexity of the machine is much higher, as well as the skills needed to pilot it. The pilot has to think in three dimensions and must use both arms and both legs constantly to keep a helicopter in the air.

As mentioned before, helicopter operation fundamentals are very complex. It is not a fixed-wing, but a rotary-wing aircraft. Wings, mounted on a central shaft (which is called main rotor), are spinning very quickly so they can create lift, due to pressure variation as in airplanes.

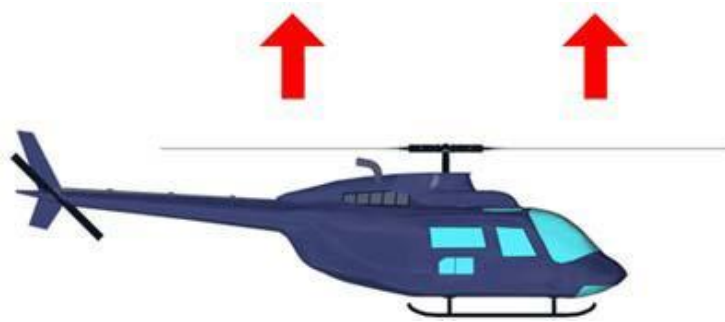


Figure 77: Helicopter lift.

Thrust is created also with the main rotor, changing angle of attack of the wings, with the use of collective and cyclic controls.



Figure 78: Helicopter lift and thrust.

As happens in the case of airplanes, there are helicopters from Boeing Chinook to Robinson R22 light helicopter. Of course, the most interesting helicopters for

the analysis are light helicopters.

7.1.3 Comparison with autogyro

An autogyro has also a main rotor, but it is unpowered, and lift is instead provided by steady state autorotation. To achieve this, the aircraft is pushed forward by a propeller, giving thrust and providing the required air velocity to keep the blades of the main rotor turning.



Figure 79: Autogyro lift.

In the next graph it is compared the thrust and lift direction, as well as the relative airflow in airplanes, autogyros and helicopters.

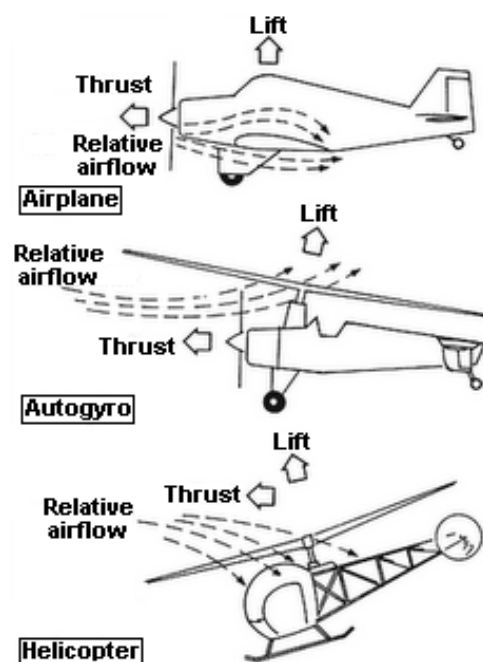


Figure 80: Airplane, autogyro and helicopter airflows.

Taking into account the general description of the autogyro and its possible substitutes, it is necessary to discuss on several topics.

7.1.3.1 Costs

Costs to consider can be divided into:

- Acquisition cost: it is the net price plus other costs needed to purchase the item and get it to the point of use.
- Operation cost: it is the regular, usual and customary recurring costs of using the equipment (salaries, licenses, rentals, fuel costs, insurances, taxes,...)
- Maintenance cost: includes the labor and parts to perform repairs and/or overhaul.

Autogyro's costs are similar to the equivalent airplane (acquisition and above all, operation) and significantly lower than those of the helicopter (a reduction of between 15% and 50%

), due to its simplicity (no reduction, transmission, tail rotor, ...), so its production, operation and maintenance is cheaper.

7.1.3.2 Safety

The main reason why De la Cierva designed this unit, was just safety. Its rotor is always in autorotation, so that the engine failure does not compromise its safety in flight, which does happen in other aircraft engine.

Indeed, some De la Cierva's autogyros suffered engine failure at demonstrations, and was able to descend safely with an astonished audience watching.

Besides, the autogyro has a much better response and behavior to adverse wind and bad weather conditions.

Furthermore, the gyroplane is a stable aircraft, while the helicopter is quite unstable and therefore more difficult to pilot. Besides, most accidents involving

autogyros have been mainly due to a pilot's overconfidence (caused by the feeling of safety) or simply an improper pilot age or maintenance by insufficient knowledge of the aircraft.

7.1.3.3 STOL/VTOL capabilities

Autogyros have good STOL (Short Take-Off and Landing) and VTOL (Vertical Take-Off and Landing) capabilities, allowing it to operate with minimal dependence on the field, as opposed to the airplane, which requires many facilities on land, and at least prepared runways of more than 100 m).

On the other hand, helicopters have better VTOL capabilities than autogyros, being able to take-off and land in a completely vertical way, while autogyros need a short taxi run or a jump-take-off, which is not completely vertical and needs more space available for the operation.

7.1.3.4 Speed range

Autogyro has an intermediate speed range between the helicopter and the airplane, and is able to fly:

- Exceeding the maximum speed of helicopters.
- Below the minimum speed of airplanes.

However, airplanes can reach higher speeds, while helicopters can perform hovering, remaining statically in the air in the same point, something that the autogyros cannot do.

7.1.3.5 Noise

Autogyro is much quieter than other aircrafts, due to less load disco and blade tip speed. The autogyros engine is rather less powerful than the one than needs other aircrafts

7.1.3.6 Military applications

In general, airplanes and helicopters are much more likely that the autogyro in

military applications, where the performances outweigh the cost. In the case of the helicopter, the fact of having rotor motorized gives important capabilities: hover flight (fuselage without movement on the ground, essential for rescue, crane wheel, release cargo without landing troops ...), and carrying heavy loads, greater manoeuvrability (fighting ability).

However, for many of the civilian and some military helicopters currently on operation (most of which do not require hover flight) and airplanes, the autogyro is qualified and may be a more profitable option.

7.1.3.7 Facilities

The autogyro physically occupies less space than an airplane or helicopter for storage, so it is needed less hangar space, even can easily be storage in a car garage or in pleasure boats. A trailer or a car with tow allows easy transfer by road to mountains or fields to fly.

7.1.4 Summary

Autogyros represent a significantly advantage over the helicopter in terms of economic cost. On the other hand, autogyros provide an important number of special capabilities very appropriate to our services that an airplane is not able to.

To summarize some of the topics revised and finalize the analysis of possible substitutes, it is needed to compare some figures (in terms of capacity, range, speed, etc.) regarding mentioned aircrafts, and have been selected some of them:

- Airplanes:
 - Cessna 172.
 - Cirrus SR-22.
- Helicopters:
 - Robinson R44.
 - Robinson R22.

- Bell 206.
- Autogyro:
 - Cerlier Xenon XL.

						
	Cessna 172	Cirrus Sr-22	Robinson R22	Robinson R44	Bell 206	Xenon 2
Number of seats	4	4	2	4	5	2
Maximun range (km)	1270	1800	480	640	704	800
Max take off weight (kg)	1110	1500	621	1134	1520	525
Max air speed (km/h)	250	350	180	240	220	195
Min air speed (km/h)	110	120	0	0	0	30
Take off distance (m)	400	475	0	0	0	50
Landing distance (m)	300	425	0	0	0	5
Price (€)	240.000	530.000	230.000	330.000	880.000	63.500
Operational cost (100h/year)	563	1048	589	778	1721	247
Operational cost (500h/year)	256	368	307	354	620	165
Petrol consumption (ltr/h)	20	30	35	50	90	16
Endurance (h)	5,5	4,5	3	3	4,5	5

Table 19: Aircraft comparison

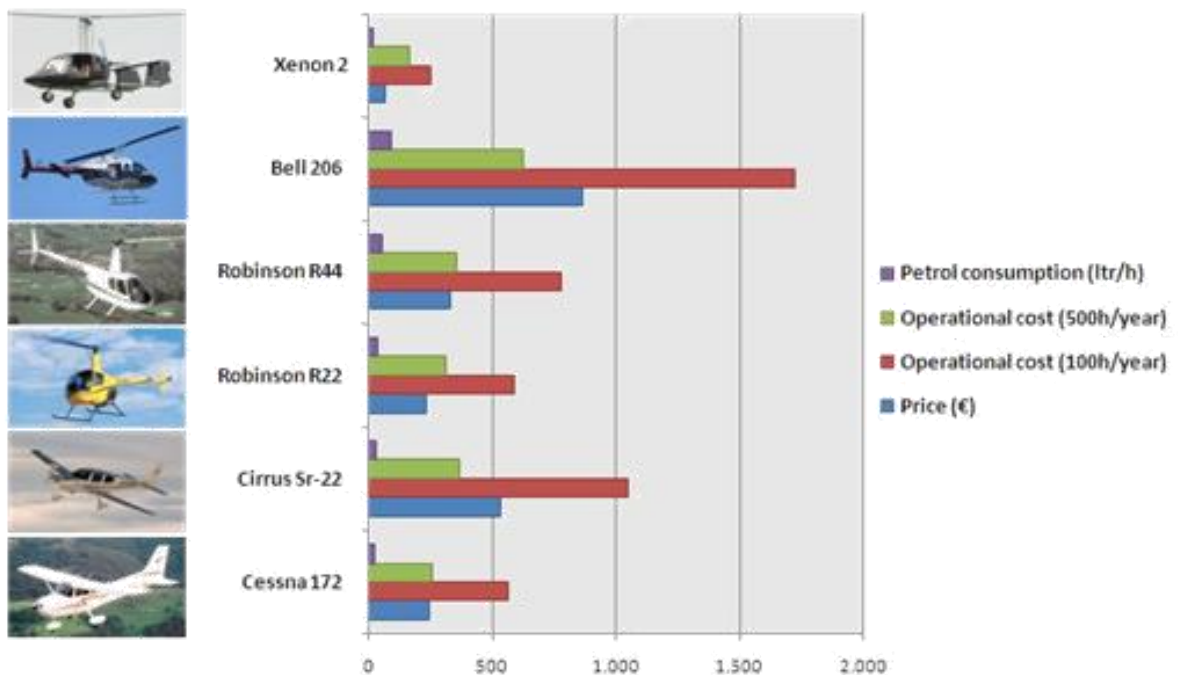


Figure 81: Aircraft comparison.

7.2 Infrared Thermography

Infrared thermography is a type of infrared imaging science. Thermographic cameras detect radiation in the infrared range of the electromagnetic spectrum (0.9–14 μm) and produce images of that radiation, called thermograms.

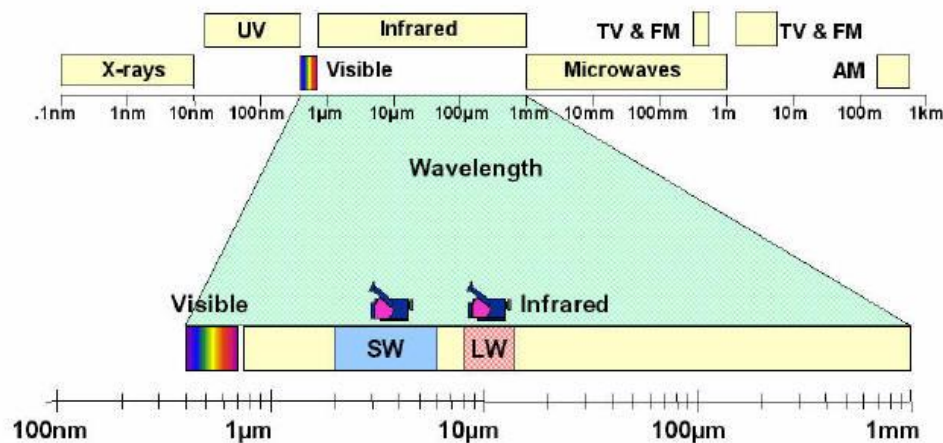


Figure 82: The electromagnetic spectrum.

Since infrared radiation is emitted by all objects near room temperature, according to the black body radiation law, thermography makes it possible to see one's environment with or without visible illumination. The amount of radiation emitted by an object increases with temperature. Therefore thermography allows one to see variations in temperature. When viewed by thermographic camera, warm objects stand out well against cooler backgrounds, humans and other warm-blooded animals become easily visible against the environment, day or night. As a result, thermography's extensive use can historically be ascribed to the military and security services.

Thermal Infrared Imaging has proven to be an ideal inspection method for all types of predictive maintenance in the electrical field. Infrared gives the ability to see and measure temperatures on defective components and the normal wear, chemical contamination, corrosion, fatigue and faulty assembly in many electrical

systems. The resistance or molecular friction produced within these problem areas is visible in the infrared spectrum. Overheating can occur in virtually all electrical components and hardware including generators, pole top connections, insulators, disconnects, jumpers, transformers, shoe connections, fuse connections, switchgear, starters, contactors and any other hardware. In transmission and distribution systems thermographic surveys can help cut production losses and prevent the eventual failure of these electrical systems.

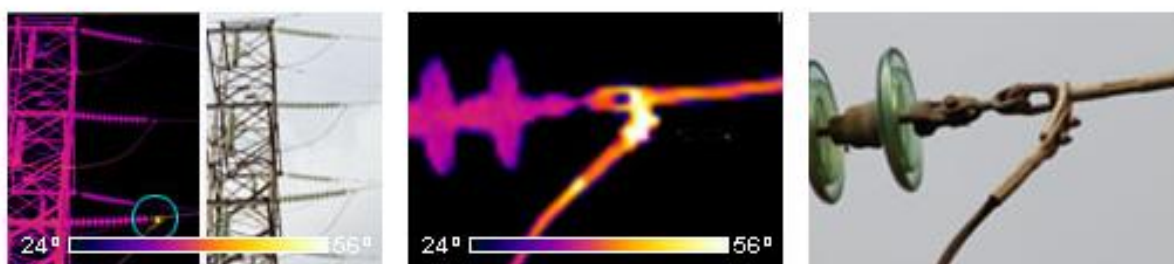


Figure 83: Infrared thermography is the core of utility predictive maintenance programs.

Utilizing infrared thermography for electrical inspections can help set maintenance priorities, lower insurance premiums, reduce loss, reduce liability, prevent unplanned outages, evaluate repairs, and maintain performance.

7.3 Geographical Information System

A geographical information system (GIS) is any system that captures, stores, analyzes, manages, and presents data that are linked to location. Technically, a GIS is a system that includes mapping software and its application to remote sensing, land surveying, aerial photography, mathematics, photogrammetry, geography, and tools that can be implemented with GIS software.

In the strictest sense, the term describes any information system that integrates stores, edits, analyzes, shares, and displays geographic information. In a more generic sense, GIS applications are tools that allow users to create interactive

queries, analyze spatial information, edit data, maps, and present the results of all these operations.

In the simplest terms, GIS is the merging of cartography and database technology. Consumer users would likely be familiar with applications for finding driving directions, like a GPS program on their hand-held device. GPS (Global Positioning System) is the real-time location component that uses satellites to show your current position, "where am I now" on your device.

GIS technology can be used for scientific investigations, resource management, asset management, archaeology, environmental impact assessment, urban planning, cartography, criminology, geographic history, marketing, logistics, prospectively mapping, and other purposes.

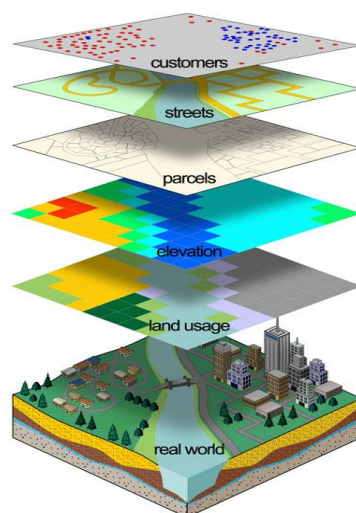


Figure 84: Use of layers in a GIS application.

Modern GIS technologies use digital information, for which various digitized data creation methods are used. The most common method of data creation is digitization, where a hard copy map or survey plan is transferred into a digital medium through the use of a computer-aided design program, and geo-referencing capabilities. With the wide availability of ortho-rectified imagery, both

from satellite and aerial sources, heads-up digitizing is becoming the main avenue through which geographic data is extracted. Heads-up digitizing involves the tracing of geographic data directly on top of the aerial imagery instead of by the traditional method of tracing the geographic form on a separate digitizing tablet.

7.4 Multi-Spectral Image

A multi-spectral image is one that captures image data at specific wavelengths across the electromagnetic spectrum. The wavelengths may be separated by filters or by the use of instruments that are sensitive to particular wavelengths, including light from frequencies beyond the visible light range.

Multi-spectral imaging can allow extraction of additional information that the human eye fails to capture with its receptors for red, green and blue.

Multi-spectral images are the main type of images acquired by remote sensing radiometers. Usually satellites have 3 to 7 or more radiometers. Each one acquires one digital image in a small band of visible spectra, ranging 0.7 μm to 0.4 μm , called red-green-blue (RGB) region, and going to infra-red wavelengths of 0.7 μm to 10 or more μm , classified as NIR-Near InfraRed, MIR-Middle InfraRed and FIR-Far InfraRed or Thermal.

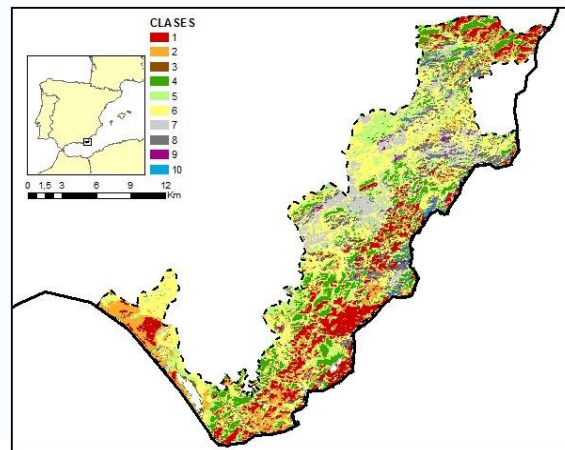


Figure 85: Multi-spectral image (Parque Natural Cabo de Gata-Níjar)

Multispectral images with more numerous bands or finer spectral resolution or wider spectral coverage may be called hyper spectral.

8 OPERATIONAL PLAN

The following section will identify the proposed operational plan for GyroServices. The Operating Plan is the framework that connects our vision, our mission and values and our goals and objectives. It asserts a specific and consistent value system, and defines a model for developing our services.

This document sets out five years operating plan for GyroServices. It is based on the main core activities. Operating Plan starts with the analysis of the core and non-core activities throw the whole description of the Business model. Other issues such as location and facilities as well as an estimation of the budget will be treated.

8.1 Business model

Our business model is going to be based, as we have mentioned before, on different services using autogyro. In this point, we are going to decide which our core services will be and why, explaining also non-core services.

We will explain point by point technical aspects required to develop different services; power lines monitoring, environmental assessment, burnt areas measurements and panoramic photography.

8.1.1 Power lines inspection

As we have seen in previous chapters one of our services will be Power Lines inspection. Although, we have talked about this topic before, it is important to describe technical characteristics required to be able to provide it.

Nowadays, this inspection is done by air using helicopters so if we want to provide this service, we will need a helicopter or different aircraft which has similar performances. We have mentioned along the present project gyrocopter's capabilities and those seem to be perfect to provide a high quality service for

lower price.

In the following list, we can see technical aspects which are going to be necessary:

- **Speed:** The operational speed range has to be between 30 km/h and 90 km/h.
- **Height:** To get adequate quality information, distance from power line to aircraft have to be between 30 metres and 60 metres so taking into account the height of the towers, aircraft has to fly from 50 to 100 metres.
- **Camera:** A thermographic camera with gyro-stabilized platform is required in order to get proper information.
- **Thermography equipment:** Portable control, display unit and adequate software.
- **GPS:** Integrate GPS system is going to be needed in order to pinpoint location of the problem.
- **Crew:** Pilot with commercial pilot license (CPL) and a thermography technician.

When services will be provided in areas without good connection with airfields or far away of our home base, a van with a special trolley will be used.

In the following chart we have a market forecast to be covered in Andalusia for five years since the beginning of GyroServices activities.

Power lines Inspections															
	1 year			2 year			3 year			4 year			5 year		
	%	km	€	%	km	€	%	km	€	%	km	€	%	km	€
Endesa	15%	1500	45000	20%	2000	70000	30%	3000	120000	40%	4000	180000	50%	5000	265000
Red Electrica de España	15%	900	82500	20%	1200	114000	30%	1800	180000	40%	2400	250000	50%	3000	325000
Total PLI	15%	2400	127500	20%	3200	184000	30%	4800	300000	40%	6400	430000	50%	8000	590000

Table 20: Power lines Inspections service forecast

Taking into account hours of the flight scheduled for the first years of our activity, GyroServices will not need more than one machine to realize its service. Anyway, in the following parts we will see how many autogyros we are going to acquire along years.

8.1.2 GIS remote sensing and environmental assessment

As in the case of Power Lines inspection, base description of the service was made in previous chapters. Although, we have talked about this topic before, in this part we will describe technical characteristics.

The services embody in this group for the first years of GyroServices existence will be:

- Environmental assessment
- Panoramic photography
- Burnt areas measurements

Nowadays, those services are done by air, using helicopters and airplanes depending of demand. To provide those services we will use an aircraft which combines advantages both of those machines. We have mentioned along the present project about gyrocopter's capabilities and those seem to be perfect to provide that kind of activities. Performance similar to helicopters characteristics, in price and operational costs even lower than in case of small airplanes. Adding to this cutting-edge equipment used in this type of activities our company will be able to provide a high quality service with lower price.

In the following list, we can find technical aspects which are going to be necessary:

- Speed: The operational speed range will depend of the type of provided service. It has to be between 30 km/h and 120 km/h.

- Height: Most of the GIS services selected by us are realized on the height range from 150m to 300m in order to get adequate quality information. Although some of them are executed by airplane on the height over 1000m which it is over gyrocopter range.
- Camera: A multispectral camera with gyro-stabilized platform is required in order to get proper information.
- Multispectral equipment: Portable control, display unit and adequate software.
- GPS: Integrate GPS system is going to be needed in order to pinpoint location of the problem.
- Crew: Pilot with commercial pilot license (CPL) and a multispectral system technician.

In the same way that services describe in the point before, time to time we will need a van with a special trolley.

In the following chart we have a market forecast to be covered in Andalusia for five years since the beginning of GyroServices activities.

GIS Remote Sensing and Environmental Assessment															
	1 year			2 year			3 year			4 year			5 year		
	Cont	h	€	Cont	h	€	Cont	h	€	Cont	h	€	Cont	h	€
Enviromental Assessment	0	0	0	0	0	0	1	180	160000	1	180	170000	1	180	185000
Panoramic Photography	1	10	6000	1	10	6100	1	10	6200	2	20	12700	2	20	13000
Burnt Areas Measurement	1	8	10000	1	8	10200	2	16	20800	2	16	21400	3	24	33000
Total GIS	2	18	16000	2	28	16300	4	216	187000	5	226	204100	6	234	231000

Table 21: GIS remote sensing and environmental assessment service forecast

As we can see above GyroServices has not established to optimistic plan for first years of our activity. Taking into account hours of the flight scheduled for the first years of our activity, our company will not need more than one machine to realize its service. Of course we are prepared to realize a couple of bigger projects, but

even in that case it is unlikely that we will need a second machine in first years.

8.1.3 Core and non-core services

Once we have clear knowledge about the services that our company is going to provide from a technical point of view, being aligned with company core competencies, it is important to know which our core and non-core services are going to be in terms of company.

GyroServices is going to provide services operating autogyros but it is clear that the core competency is to operate the machine. On the other hand, other services are going to be necessary for the company like provide reports to customers, the maintenance of our machines, repair possible autogyros averages, marketing campaigns, and so on.

As a small company, for GyroServices everything is going to be core at the very beginning since we will not be able to outsource anything in the first years. At the same time that the company will be growing, some services needed for our survival could be outsourced like the cleaning of our future offices, the maintenance of our machines or even the data delivery to our clients.

8.2 Material Resources

The tangible resources needed by the company in order to carry out the business are going to be described in this part. Once we will have all material resources needed clear, will be time to see the facilities.

8.2.1 Gyrocopter

Obviously, if we want to provide services from the air, an aircraft which has adequate performances to cover customer needs will be necessary. GyroServices has selected autogyros as a machine which combines low operational cost and adequate performances.

Let say gyrocopter is a machine between helicopters and airplanes. An autogyro is a type of rotorcraft which utilizes an unpowered rotor in autorotation to develop lift, and an engine-powered propeller to provide thrust. All characteristics have been described before. Nowadays, we can find different kinds of autogyros in the market along the world; even in Spain there is a factory (ELA Aviacion). If we have a look on the chart of next page, we will be able to have an idea about different gyrocopters and their technical characteristics.

GyroServices has decided to acquire two Xenon2 models for the first year. Later on, we will see a forecast for following years.



Figure 86: Xenon 2

TOPICS	COSTS
Fuel (GPH)	6,00 €
Fuel Costs / Gallon	2,73 €
Fuel costs / hour	17,16 €
Oil costs / hour	1,01 €
Maintenance costs / hour	22,80 €
Hourly Engine Reserve	9,05 €
Prop T/R Reserves	2,01 €
Total variable costs / hour	52,05 €
Total fix costs / hour	22,95 €
TOTAL OPERATION COSTS	75 €

Table 22: Xenon 2 operational costs

								
Model	Groen Hawk 4	Irkut A-002	Arrowcopter AC10	Celier Xenon XL	Celier Xenon	Aero-Astra Okhotnik	ELA 07S	Magni M-24 Orion
Market Price (€)	535000	110000	90000	75000	63500	55000	45000	80000
Nr of seats	4	3	2	3	2	3	2	2
Max speed (km/h)	212	210	200	190	195	170	150	194
Min speed (km/h)	60	60	30	60	30	60	40	40
Weight empty (kg)	835	620	250	300	285	550	260	285
Max T-O weight (kg)	1587	900	600	600	525	850	450	550
Take-off run (m)	46	40	60	100	50	45	60	70
Landing run (m)	8	10	10	10	5	5	10	30
Range (km)	584	600	400	600	800	400	500	800

								
Model	Magni M-22 Voyager	Magni M-24 Orion	UFO Helithruster	AAI SparrowHawk	Sportcopter II	Air Copter A3C	Chayair Sycamore	Aerocopter Futura
Market Price (€)	65000	175000	38000	45000	43000	60400	30000	60000
Nr of seats	2	3	2	2	2	2	2	2
Max speed (km/h)	185	195	193	160	161	160	164	190
Min speed (km/h)	30	60	30	30	30	30	64	40
Weight empty (kg)	280	350	431	408	272	245	400	270
Max T-O weight (kg)	550	650	725	680	450	450	620	450
Take-off run (m)	70	100	45	153	60	100	150	100
Landing run (m)	30	30	15	10	10	10	15	5
Range (km)	481	850	965	453	600	300	400	400

Figure 87: Different gyrocopters in the market

Xenon gyrocopter is made in Poland by Celier Aviation Company. This gyrocopter was developed since the beginning for professional uses. It is fully certificated in all European countries.

Xenon 2 RST is a last version of the Xenon2 model. Real success is caused by perfect development of the genuine turbo version of the Rotax 912. This RST, as per the equipment list, integrate a great number of options. See the following Figure.



Figure 88: Xenon 2 characteristics

In the following chart we have a summary about Xenon 2 that are going to be acquired by GyroServices along first five years.

	2011	2012	2013	2014	2015
Number of Xenon 2	2	-	-	-	-
Expenses per year	127.000 €	0 €	0 €	0 €	0 €

Table 23: Gyrocopter expenses along first five years

8.2.2 Cameras

Second of the key point elections after selecting machine which we are going to use will be choosing of right equipment.

For providing high quality Power Line Inspections nowadays are used termographic cameras. As it is deeper explained in previous chapters thermography is a fast developing sector which is increasingly being applied to caring out next services. That is why it is so important good understanding of this technology and having a good knowledge about equipment available on the market. This knowledge will allow us to be even more competitive comparing to our competence, as the main characteristic of GyroServices Company is to provide high quality service for low price. In term to our quality could be high enough we would need proper equipment. This decision is even more important due to the price of such equipment can exceed the price of our Gyrocopter.

In case of “GIS remote sensing and environmental assessment” service our situation is similar like in term of cameras used for power line inspections. The difference is that we are dealing with a different technique of airborne photography, but the price of equipment used to provide this service is almost that high like in other case. To carry out most of the services mentioned in that group our company will need a set of multispectral cameras.

Table below shows a list of cameras from which we will select those which best satisfy our conditions.



Figure 89: Specialized cameras comparison

GyroServices has decided to acquire for the first year two cameras, one to provide power lines inspections and other for GIS remote sensing and environmental assessment. Below we have made more detailed description of bought cameras.

Camera for Power Lines Inspections



SWESYSTEM

300 HDIR

Gimbal System		
Four-Axis Active Gyro-Stabilized Gimbal		
Coverage Az	360° Continuous	
Coverage El	+20° to -120°	
Dimension	Ø300 mm (11.8 in)	
Weight	20 kg (44 lb) (depending on configuration)	
Power Req.	20-30 VDC, 10A	
IR Camera		
Detector	Uncooled microbolometer (FPA)	
FOV	12° x 9°	
Array Size	640x480 pixels	
Spectral Range	7.5-14µm	
Focus	Manual and Auto Focus	
Digital Zoom	Yes	
Temperature Accuracy	±1.5°C, ±2% of reading	
TV Camera		
Type	HD (up to 1080i)	PAL / NTSC
Image Sensor	1/3" CMOS	1/4" HAD CCD
Optical Zoom	10x (50' to 5.4')	36x (57.8' to 1.7')
Digital Zoom	Yes	Yes
Low light mode	Yes	Yes

Figure 90: Thermographic camera 300 HDIR

The 300 HDIR systems offer an HD Camera combination, using a high resolution Thermal Camera in combination with a High Definition visible camera. Ideal for radiometric research work, such as power line inspection, oil spill detection, pipeline inspection and wild life inventories.

Superior Performance using Long Wave thermal IR: High Precision measurement accuracy, superb image quality and long wave solar reflection immunity provides outstanding performance for most applications.

Gyro Stabilized Camera Gimbal: For stable imaging a fully digital 4-axis active gyro stabilization system compensates for the aircraft movements and vibrations.

Radiometric output: The Explore 300 HD IR offers a radiometric output with full thermal resolution. Providing digital images with accurate temperature information is a key feature for efficient Thermal inspection.

On Screen Graphics: On Screen graphics indicating Time and Date, GPS position, etc.

System Options: Analysis and Reporting Software, Laser Range finder, Video Tracker, SLASS Interface, GPS and Monitor

Camera for GIS remote sensing and environmental assessment

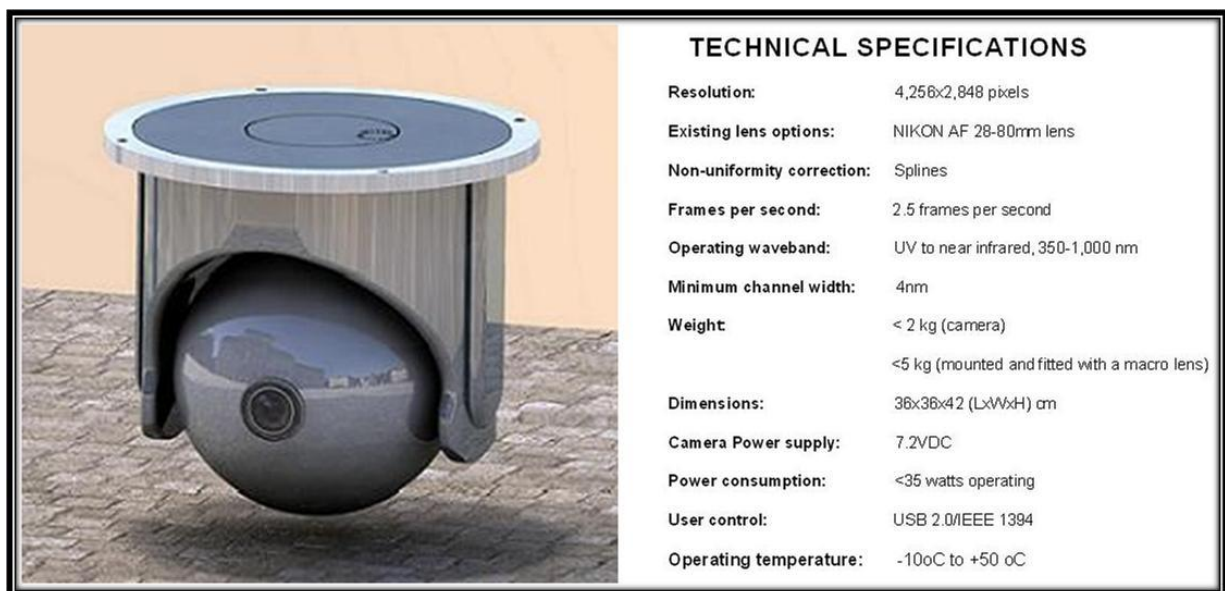


Figure 91: Multi spectral camera

The existing availability of multispectral cameras is heavily tilted towards robust and very sophisticated multispectral cameras and also to sophisticated laboratory versions that are not so robust.

Our customized instrumentation group has identified a niche for a low-cost multispectral camera with limited capability from the UV to the IR bands on just 40-50 channels and made with standard off-the-shelf components and our image fusion and image processing software. The camera under development includes a 12.3 Million pixels sensor with a sampling rate of 2.5 frames/second, able to record images in the 350-1,000 nm range, i.e. from the UV to the near-infrared, a NIKON AF 28-80mm lens, with a minimum resolution of 4nm, coupled to a transmission grating iBTF filter, and controlled through a USB 2.0 connection by a dedicated FPGA chip. Although this is a limited spectral range, it does allow to discriminate targets such as water, vegetation, sand, cement, snow, humidity, different types of soil, environmental characteristics such as exhaust fumes, metal and some geological terrain characteristics.

GENERAL DESCRIPTION AND KEY FEATURES

- Compatible with our Raphael ground control station
- High-resolution sensor
- Whole-field imaging
- UV to Near-IR allows investigation of a wide range of targets
- Minimum channel width of only 4nm

The Ground Station allows playback of the recorded images and includes a Remote Control System for the connection to several remote EVs, tracking over a map and the remote control of the on-board system.

In the following page we can find chart with a summary about expenses that GyroServices will have in terms of cameras

	2011	2012	2013	2014	2015
Number of 300 HDI	1	-	-	-	-
Price per camera	92.000 €	0 €	0 €	0 €	0 €
Number of GIS cameras	1	-	-	-	-
Price per camera	50.000 €	0 €	0 €	0 €	0 €
Expenses per year	142.000 €	0 €	0 €	0 €	0 €

Table 24: Cameras expenses during first five years

8.2.3 Other material resources

Apart of Autogyros and cameras, other materials are going to be necessities in order to start our company.

The first thing that we are going to need is a Van for moving ourselves around the region and also to transport the autogyro when it will be necessary. As one strategy of the company, the van is not going to be bought since renting system could be ok for us. As we have mentioned before, in point 6.8.4 of this project, GyroServices van is going to be a promotion channel due to different logos printed in the laterals and also in the front.

Renting is a form of long-term lease, by contract and in exchange for a monthly fee entitles you to use the vehicle during the prescribed period. It is not regulated by law and therefore is not considered a financial product, It is not needed to be autonomous or lessee company for renting a vehicle, but also can subscribe to a particular and there are no limitations on the duration of the contract, although it is usual to establish a minimum period of one year and a maximum of five.

The different advantages are described in the following points:

- Enjoy the vehicle without having to make significant outlays.
- The contract includes a number of services (registration tax, comprehensive insurance, maintenance and repairs, taxes, tire change, replacement vehicles, etc.).
- Although renting does not have to cover the purchase, in many cases, particularly at the end of the contract, you can purchase the vehicle.
- With respect enterprises, they also can benefit from tax deductions, since it is a rental and therefore is an expense.

On the other hand is also important take into account the disadvantages of renting:

- It does not necessarily involve a purchase option.
- The price of renting an operation depends on several factors. Therefore, excess in the number of kilometres travelled is a penalty in money.
- The tenant is required to perform vehicle inspections and repairs in the workshop approved by the leasing company.
- When signing the contract, the tenant must pay a deposit.

The van selected was a Volkswagen Transporter and the company with we are going to do this renting is ALD Automotive. In the following chart, there is a description about the quantity and the money we will spend in this service.

	2011	2012	2013	2014	2015
Number of Vans	1	1	2	2	2
Expenses per year	6.420 €	6.580 €	13.161 €	13.490 €	13.827 €

Table 25: Van expenses in the first five years

Once we have the van, a special trolley to transport the autogyro will be necessary so from the beginning we are going to have it but this time we are going to buy it so it is going to be an assets for the company. In the following picture it is possible to see an autogyro on a special trolley. It costs 2.500 €.

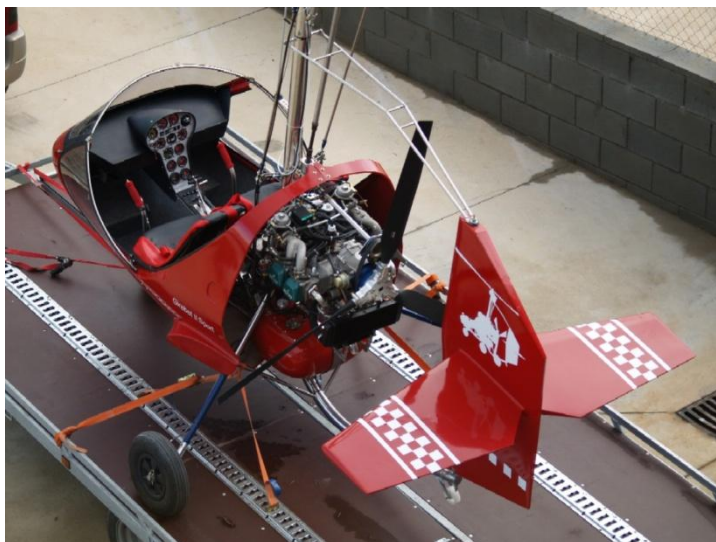


Figure 92: Gyrocopter on a special Trolley

	2011	2012	2013	2014	2015
Number of trolleys	1	-	1	-	-
Expenses per year	2.500 €	0 €	2.500 €	0 €	0 €

Table 26: Trolleys acquisitions

Finally, with other materials acquisitions the expenses along the first five years are in the following table.

	2011	2012	2013	2014	2015
TOTAL expenses	8.920 €	6.580 €	15.661 €	13.490 €	13.827 €

Table 27: Total material resources expenses

8.3 Human resources

The human resources needs are going to be analyzed depending of the services that are going to be covered. It is important to take into account that to operate an autogyro is necessary to have a pilot and an operator working in tandem. All personal needed by GyroServices will be internal; it means that nobody is going to be subcontracting so this point will be analyze more in detail in Human Resources chapter. Only remark that in the future could be necessary to subcontract somebody external to the company always depending of growing and demand.

8.4 Processes definition

In the following section, the processes involved in the company's activity will be described. The company has three core activities, as listed below:

- Sales and contracting.
- Service Execution.
- Data Processing and Delivery.

8.4.1 Sales and contracting

In the following flow-chart, the process by which the company reaches the final customer is described:



Figure 93: Sales & Contracting flow-chart

Hereby, each of the steps shown in Figure before will be detailed:

1. Promotion and customer approaching: as in any other business, reaching the final consumer comes fundamental in order to develop the activity. In the particular case of GyroServices, because of the use of “new machine” in this kind of services, this step becomes critical, since our potential customers could ignore on a first approach the capabilities of autogyros. A deeper description of promotion is described in chapter 6.8.4.
2. Customer Reply: after the convenient customer approach and promotional activities, the customer shall come forward with a response stating their actual needs and particular details of the services they want done.
3. Offer preparation: in response to the customer reply, salespeople will analyze the customer requirements. The result of this analysis, will determine the commercial offer.
 - a. In case the analysis of requirements proves the “standard” product can afford to comply with those, a simple service execution is offered.
 - b. For unfavourable matches of standard products and customer applications, the customer will be offered to develop a customized solution.
4. Contract negotiation: whatever the offer generated in the previous step is, the sales department will negotiate the terms, conditions and price according to the previous tendering.

On the other hand, if our client is going to be the public administration, as the government, Junta de Andalucía, Consejería de Medio Ambiente, etc. we will have to participate in a public bid and obviously follow another process. In the following flow-chart, the process is going to be describe:



Figure 94: Sales & Contracting “public bids” flow-chart

Hereby, each of the steps shown in the Figure before will be detailed:

1. Study different public bids: If the option is to compete in order to achieve the possibility to work in a public bid, we will have to study different option offer in the market and be alert about movement. Any public bid which could be done with an aircraft could be a point to focus in.
2. Promotion and customer approaching: as we have mentioned before in point one, reaching the final consumer (public administration in this case or even big companies) comes fundamental in order to develop the activity. In the particular case of GyroServices, because of the use of “new machine” in this kind of services, this step becomes critical, since our potential customers could ignore on a first approach the capabilities of autogyros.
3. Offer proposal: Following the requirements propose for the public administration, GyroServices will have to write and prepare the offer in order to have the option of achieving the public bid.
4. Contract negotiation: whatever the offer generated in the previous step is, the sales department will negotiate the terms, always following public bid restrictions.

8.4.2 Service execution

The general procedures to take on the standard services are defined on the following flow-chart:



Figure 95: Service execution

In the following paragraphs, each step will be described more in depth:

1. Gyrocopter tuning: operators shall check the gyrocopter. Verify if fuel tank is full or empty, liquid levels and so on. If gyrocopter is going to be transported with the special trolley, prepare it and join it with the van.
2. Equipment preparation: prepare the specific equipment for the application (mainly cameras and GPS) and the standard devices. If there is any slightest modification to be made to the standard solution, it WILL be properly documented in a Service Bulletin, in order to give the operator the proper guidance.
3. Operation: it is the actual process that has been contracted by the customer. The Gyrocopter will perform the mission it was assigned, providing the necessary data the customer asked for. We can consider the operation phase like the most important part of the service. Each mission will need one team consisting in a pilot with Commercial Private License and a the specific technician depending of the job.

4. Maintenance and overhaul: The operator checks the conditions of autogyro and other device in order to store everything properly.

8.4.3 Data processing and delivery

Due to the different nature of the services to be provided by GyroServices, the information provided by the Thermographic camera and so on, will be treated in different ways depending on the application it comes from. Anyhow, the structure of the processes is approximately the same:



Figure 96: Data processing & Delivery flow-chart

The description of these processes is as follows:

1. Data recompilation: At the same time that gyrocopter is flying, it is recording information using a special camera.
2. Data processing: this is the main process for all applications, the data will be stored in hard-drives.
3. Data reporting: the administrative assistants will prepare, alongside with the operator who performed the service, the corresponding report of the activity, according to the terms stated in the contract.
4. Delivery: as an operating standard, GyroServices will deliver reports in digital format. If the customer should request so, the reports and data shall be printed in paper and sent together with the digital format. However, these terms will be established in the servicing contract to prevent wastes.

8.5 Location and facilities

In this point of the project, we are going to see where and why GyroServices is going to be located as well as which facilities the company will need in order to born. It is important to locate the company properly; otherwise we could spend much more resources than necessities.

8.5.1 Location selection

The zone to place the facilities should be in a strategic point, which maximized the benefits. If we are going to operate our gyrocopters in Andalusia (Spain), when launching the company is important to locate it properly around this autonomic community.

Andalusia is composed for 8 provinces but taking into account the future expansion of the company, it is really important the communication factor since we have to move ourselves around Andalusia by car or even with the van and the special autogyros trolley. In this point is also important to take into account the market analysis make before. Therefore, an appropriate location would be somewhere between the provinces of Seville, Huelva and Cadiz.

The province chosen has been Seville for all factors describe before and also because there are several airfields in this province as well as an International Airport. This last point could be important because of the gyrocopters we are going to operate are made in Poland and always is important to be linked with other cities around the country and also around the world. See the following picture with different aerodromes and airports in Andalusia and Seville, the province chosen.



Figure 97: Airports and airfield around Andalusia

Once we have decide the place and taking into consideration that we are going to need a place for parking our gyrocopters and we also will have to be next to a runway in order to operate them directly from this place, if the operations which are going to be provided allow us to do it, the location is clear. We have to be located in an airfield.

8.5.2 Facilities

Due to the strategy, we are not going to invest money for having more assets that are going to be necessary so to rent a hangar in existing aerodrome is the solution for us. In the following table there is a summary about different airfields around Andalusia we have considered for location, some of them because of the place, near to Seville, and others like Aeroclub Muller (Almeria) and Aeroveleta (Granada) have been considered only for the possibility to have a couple of operation areas but at the beginning it is not going to be necessary.

Name (Place)	Runway dimension	Hangar to be rented	Hangar price per month
Aeroniebla (Huelva)	400m x 13m	NO	135 €/gyrocopter
Aerosidonia (Cadiz)	400m x 10m	NO	120 €/gyrocopter
La Juliana (Sevilla)	925m x 17m	YES	374€ (156m ²)
Aerohispalis (Sevilla)	600m x 14m	NO	150 €/gyrocopter
Aerocordoba (Cordoba)	1340m x 30m	YES	420€ (120m ²)
Aeroclub Muller (Almeria)	480m x 40m	YES	380€ (150m ²)
Aeroveleta (Granada)	500m x 30m	YES	375€ (140m ²)

Table 28: Some aerodromes characteristics

We have decided to rent a 156 square meters hangar in “Aerodromo La Juliana”, it is located in Bollullos de la Mitacion, only 16 kms from Seville. This hangar has capacity for two / three autogyros, one car and also for having some offices, a meeting room, male and female toilets and reception area where the secretary will be located. See an image of our hangar location in the following image (Image X.1)



Figure 98: Aerodrome “La Juliana”

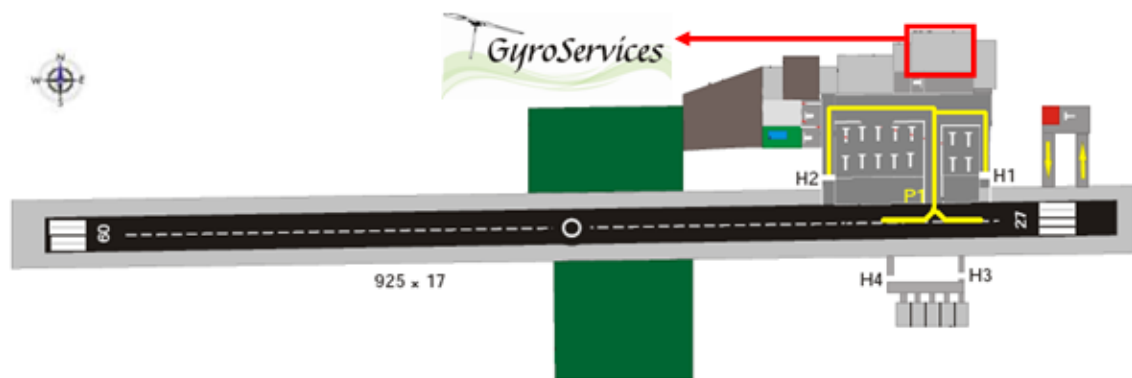


Figure 99: Hangar location in “La Juliana”

Talking about offices, there are some options for offices but if we are going to rent a hangar and there is enough space for having them over there, we are going to take advantage of that, so offices will be inside the hangar but not from the very beginning of GyroServices start up.

Setting up a business can be costly, and the overheads eat into your profits fast so we have decided to have a virtual office. We can consider it as one of the most cost-effective and professional solutions for small businesses. GyroServices is going to be a small company during first and probably second year.

With virtual office, we get a whole package of services, including a premium city centre business address, mail forwarding to any address in the world, telephone answering in your company name, plus SMS or email message forwarding. If you prefer, choose just telephone answering or a business address. Either way, you get pay-as-you-go access to our state-of-the-art video conferencing, meeting and hotdesking facilities. So we can be as impressive as a big business, without the hefty fixed costs.

The virtual office is going to be rented in Seville, Nervion neighborhood. The office flat has an underground parking when you pay depending of hours you have your car parking. Reception and one of the meeting rooms are in the

following picture.



Figure 100: Reception and meeting room

We have estimated to build our own offices in the same place that we will have our hangar between second and third year. Offices areas are going to be built with a modular building system in order to save money and to change the configuration in the future if it would be necessary. The first layout that GyroServices is going to have is the following.

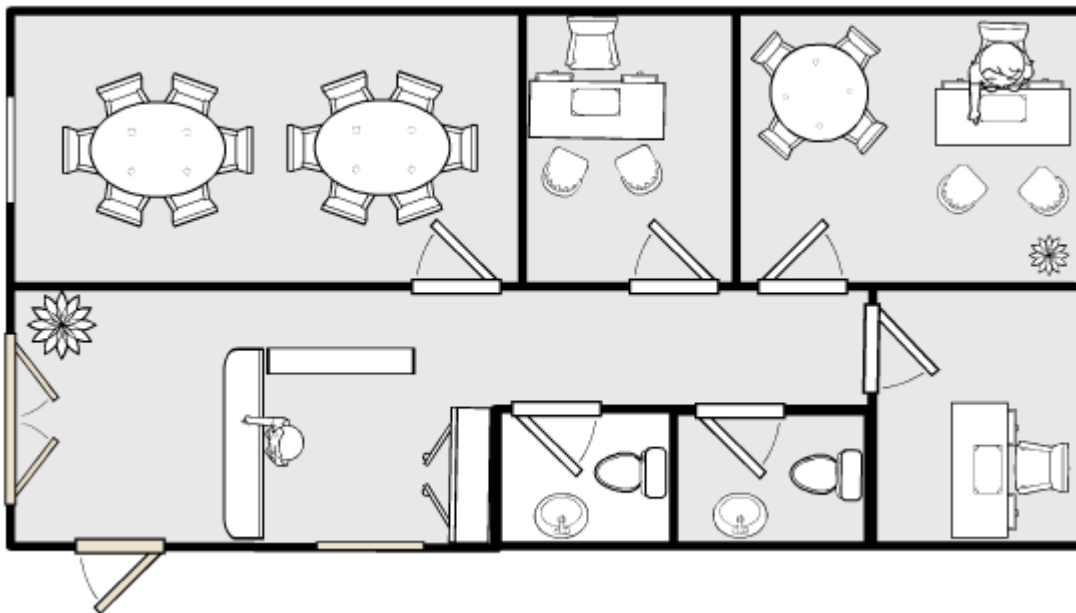


Figure 101: Office layout

Apart of the modular built system we will have to acquire furniture, photocopy machines, faxes, computers and so on.

In the following table we have a summary about the expenses GyroServices is going to have through first five years in terms of facilities.

	2011	2012	2013	2014	2015
Hangar rental	4.488 €	4.600 €	4.715 €	4.833 €	4.955 €
Virtual office rental	1.200 €	1.600 €	600 €	-	-
Own office investment	-	-	14.890 €	-	-
TOTAL expenses	5.688 €	6.200 €	20.405 €	4.833 €	4.955 €

Table 29: Facilities summary

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9 HUMAN RESOURCES PLAN

In this chapter of the Project, different aspects of GyroServices' Human Resources organization will be defined. We have to take into account worker profiles as well as salaries, working timetable and so on. We have to consider employees as the most valuable assets of our company since we are going to be a Small and Medium Enterprises (SME). Starting from this premise, Human Resources policy is going to be developed.

It is clear that GyroServices is a service company so we have to have every step defined and covered properly with right people in order to avoid problems in the future. For this reason, profiles for different positions in the company have to be also defined.

9.1 Organization chart

The company is just being created so the organisation structure should be as flexible as possible in order to adapt to different needs as soon as possible.

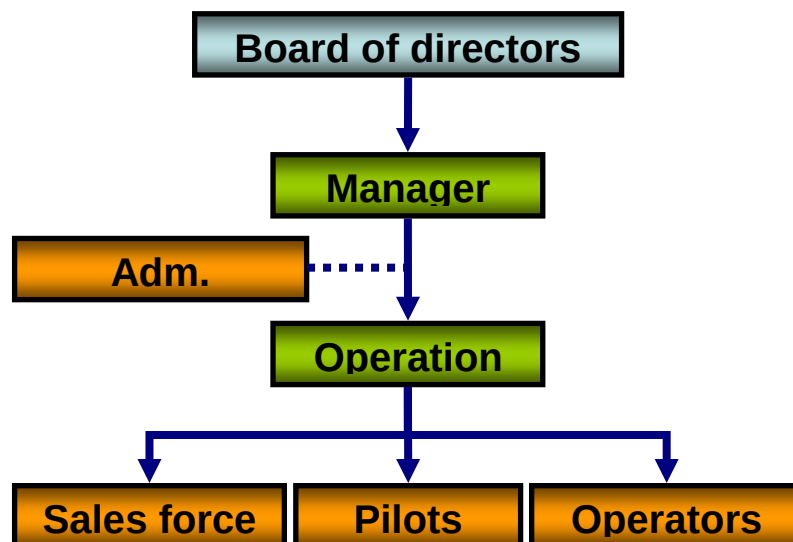


Figure 102: Organization Chart

The Board of Directors comprises the four entrepreneurs; Wojciech Chrobak, Francisco Javier Domínguez Ruiz, Jacinto Tortosa Santiago and Ubaldo Yáñez Díaz. It is important to be conscious that at the beginning, the Board of Directors will manage the company as we can see in the previous org chart but they also will have to face several legal issues, company statutes, and be always aware of different economical and financial aspects to keep redirecting the company.

One of the four entrepreneurs will hold the position of the manager. In the first year it will be decided between the shareholders in a democratic way. Rest of entrepreneurs will cover operations and sales departments.

At the beginning, administrative assistant position is not going to be mandatory but later on it will be probably necessary if business goes as expected.

GyroServices will start up in January 2011 with four people staffs.

9.2 Jobs description

As it has been mentioned before, with the birth of GyroServices, no external employees are going to be needed but in any Human Resources plan it is important to define different job positions for running the business properly.

General areas of responsibility and essential functions are going to be analyzed for each jobs position as well as required knowledge, skills, education and experience.

Job description will be reviewed once a year in order to be completely sure that they are in line with possible changes in the company.

9.2.1 Board of directors

The following points will be the missions of the Board of directors in order to ensure that the business is being driving in a responsible way.

1. Provide continuity for the organization by setting up a corporation or legal existence.
2. Define company's policies and strategy.
3. Select the Manager (as we have mentioned before) to whom the responsibility for the administration of the organization is delegated.
4. To have enough communication with the Manager and review his/her performance regularly.
5. Economic and financial statement supervision as well as budget approval.
6. Acquire sufficient resources for the organization's operations and to finance the products and services adequately.
7. Look for different contracts from public or private sector in order to allow the business develop itself.

Concerning their behavioral skills, they must be enterprising and have the ability to take decisions and solve problems efficiently and they also must have a global knowledge of the company in order to integrate and coordinate the different teams.

9.2.2 Manager

This person will represent the company in terms of customers, in national or possible international fairs and so on. It is important to take into account that he/she will have to manage Human Resources, Marketing and Financial account since the company is going to be a SME and no specific department are going to exist.

The manager also will have the responsibility to implement the strategy describe by the Board of directors so communication between them is absolutely necessary.

Once we know the different tasks and responsibilities of the manager of the

company, it is also important go deeper and evaluate on one hand the educational qualification and technical knowledge and on the other hand the skills in terms of behavior and professional.

Educational qualification and technical knowledge:

- University degree in Engineering, Business Administration, Economics or similar.
- Desirable: MBA.
- Apart of educational life, have some knowledge in relation with engineering, business administration, finance and marketing.

Behavior and professional skills:

- Negotiation abilities.
- Leadership.
- Good communication.
- Dynamic, taking initiative, self-motivated.
- Desirable: Fluent level of English.

The minimum professional and work experience required is 5 years.

9.2.3 Operations manager

This position is just under managers. We could say that this person is going to manage everything in relation with operations being helping by manager but he will also be the “right hand” of manager providing information and helping with everything that manager could need.

This person has to be completely aligned with manager decisions and the way forward.

Educational qualification and technical knowledge:

- University degree in Engineering.
- Desirable: MBA.
- Apart of educational life, have some knowledge in relation with aeronautical engineering and thermo graphic inspection.

Behavior and professional skills:

- Leadership.
- Technical person
- Good communication.
- Dynamic and self-motivated.
- Desirable: Fluent level of English.

The minimum professional and work experience required is 2 years

9.2.4 Sales force

This position is quite important in the company since we need to have customers and for that, customers have to be conscious that GyroServices exist and we can cover their demand with our services. The main tasks that this person will run are sales development, plan and control commercial activities, collaboration with the operators in order to adapt to customer needs, prepare the commercial offers for potential customers, contract negotiation/sign new contracts, identify sales opportunities from both existing and potential contracts, actively seeking new and profitable business opportunities.

To cover all activities described before, it is important to mention the educational qualification as well as behavior and professional skills.

Educational qualification and other knowledge:

- University degree in technical Engineering.
- Apart of educational life, have some knowledge in relation with marketing or commercial aspects.

Behavior and professional skills:

- Negotiation.
- Good communication skills.
- Dynamic and self-motivated.
- Commitment.

The minimum professional and work experience required is 1 year

9.2.5 Operators

This person is going to be the responsible for having gyrocopters fully ready and operational when pilots will have to operate them. The main tasks for an operator are gyrocopters and supplementary devices maintenance, technical advice to salesperson and to manager and information processing for the delivery to the customer with operations responsible help.

Apart of points describe before, operator will be the person responsible of fly with the pilot in the autogyro in order to develop the different activities depending of service being provided.

Educational qualification and other knowledge:

- Some experience in thermograph and multispectral technologies.
- Vocational course on Electronics/Mechanics.

- Apart of educational life, have some knowledge in relation with aeronautics aspects.

Behavior and professional skills:

- Ability to use common computers application software.
- Dynamic and self-motivated.
- Responsible and organized.
- Commitment.

The minimum professional and work experience required is 2 years.

9.2.6 Administrative assistance

Let have a look on the administrative assistance position. The responsible and tasks for this person are the same than in other companies; to register and control orders, data base update, telephone assistance to customers, management of documentation related to customers and employees and management of wages and salaries.

If it is necessary to have a control on Manager's agenda, the administrative assistant will have the responsibility.

Educational qualification and other knowledge:

- University degree in business administration or at least, Administrative assistant or secretarial course
- Apart of educational life, have some knowledge in accounting, pay slip management and computer skills

Behavior and professional skills:

- Ability to use common computers application software.
- Responsible, methodical and organized.
- Good communication skills.
- Medium-fluent English (telephone attention).

The minimum professional and work experience required is 1 year.

9.2.7 Pilots

They are fundamental for the company since they will operate the autogyros. The contract that GyroServices is going to have with different pilots is depending of flight hours (fix + variable salary) and the tasks are mainly operate gyrocopter as well as inform operators about technical problems found at the same time that they operate the machine. They will also collaborate with operators in terms of maintenance and so on.

Educational qualification and other knowledge:

- Private pilot license (PPL). It is necessary in order to operate gyrocopter.
- Commercial pilot license (CPL). It is necessary in order to operate gyrocopter working from the air.

Behavior and professional skills:

- Ability to pilot gyrocopter in special conditions.
- Responsible.
- Flexible timetable.

The minimum professional and work experience required is 100 flight hours.

9.3 Staff planning

The number of employees in each position will change through the life of the company in order to adapt to market needs and company's growth previsions. Nevertheless, this fact does not affect to manager, operations manager, administrative assistant and salesperson position. The staff composition concerning them will be stable through the first years:

- One general manager. At the beginning, one of the entrepreneurs belong of Board of Directors will assume this responsibility.
- One operations manager. Also an entrepreneurs will hold this positions in the first years
- Two salespersons. He/She is key factor for the company's success at the beginning. He/She must make potential customers know well the services we provide and all their associated advantages, since they are the responsible for the contracts acquisition. They must have also technical knowledge.
- One administrative assistant as soon as it will be necessary but not from the beginning.

Operators and pilots dimensioning is difficult to be predicted since it depends of the growing of the company. One thing is clear, with the birth of GyroServices only an operator is going to be required in order to have gyrocopters completely functional and start having some knowledge about the business and needs GyroServices are looking for. Here, there is a forecast for followings 5 years.

Position	2011	2012	2013	2014	2015
General Manager	1	1	1	1	1
Operation manager	1	1	1	1	1
Sales force	2	1	1	1	1
Operators	1	1	2	2	2
Administrative assistance	-	-	1	1	1
Pilots	1	1	2	2	2

Table 30: Staff planning

9.4 Incomes policy

As said before, employees' satisfaction is one of the priorities in our company's human resources policy. The pay policy is considered a key factor to motivate employees and therefore to achieve their satisfaction. In this way, their performance will be higher.

We are going to follow the Spanish legal agreement "Convenio colectivo nacional de empresas de ingeniería y oficinas de estudios técnicos" and for the first year, the salary is going to be the lowest one that this agreement says, taking into account that we (the four entrepreneurs) are going to be 70% of employees.

All employees will have an indefinite contract. In order to motivate them, a performance-related pay system will be implemented. Salaries will consist of a fixed part and a variable part depending on the objectives' accomplishment, as follows:

- **Manager.** The annual gross salary is 22.937 € in fourteen instalments, with an extra pay of 2% of previous year net revenues.
- **Operations manager.** The annual gross salary is 17.038 € in fourteen instalments, with an extra pay of 2% of previous year net revenues.

- Sales persons. The annual gross salary is 17.038 € in fourteen instalments, plus a variable salary of 1% of gross revenues.
- Operators. The annual gross salary is 4.107 € in fourteen payrolls, plus an extra pay of 0,15% of the previous year net profit. The will have a variable salary of 20 Euros / flight hours. During first year and taking into account the number of flight hours that GyroServices is going to have, the contract is going to be part-time (10 hours/week).
- Administrative assistant. The annual gross salary is 13.396 € in twelve instalments, with an extra pay of 0,15% of previous year net profit.
- Pilots. The annual gross salary is 4.260 € in fourteen payrolls with a variable payment of 30 Euros per flight hours so the contract is an agreement depending of flight hours. In addition to this, in forest monitoring, a night shift is foreseen during summer months, so operators will have an extra pay for unsocial hours of 20% of the gross salary according to the number of worked hours at night. During first year and taking into account the number of flight hours that GyroServices is going to have, the contract is going to be part-time (10 hours/week).

This is summarized in the chart below:

Position	Gross salary (€)	Variable
General Manager	22.937	2%
Operation manager	17.038	2%
Sales force	17.038	1%
Operators	4.107 + flight hours	0.15%
Administrative assistance	13.396	0.15%
Pilots	4.260 + flight hours	0.15%

Table 31: Salaries

The gross salary will be increased each year according to the real RPI of the above-mentioned year and as we said before, during third year an important increased is forecasted as we can see in the Annex 13.1.

Concerning working hours, those of operators will be eight hours per day, adapting to mission requirements and customer's needs. For both the manager and the administrative assistant, the working hours will be 8'30h-15h and 16-18'30h, but flexible, as well as for salespersons.

Other incentives are foreseen, such as cars for the salespersons.

9.5 Human resources policy

9.5.1 Recruitment process

The manager is responsible for this process, taking into account the requirements and advice made by staff members from the involved department. The Board of Directors will manage the initial recruitment process, given that the first year they are assuming manager and operations manager responsibilities.

9.5.2 Training and education

Continuous training to employees is one of the most important aspects of our Human Resources policy. The aim is providing to employees the necessary training to adapt to market needs, so that they can continuously improve company's performance face to competitors.

A suitable training and education policy will also contribute to employees' motivation. This way, they will be aware that the management is taking an interest in staff development.

In order to achieve this objective, as well as the initial operators training, an annual budget of 12.000 € is foreseen for refresher courses and specific

education to all employees. These are some examples:

- Manager: finance, marketing, negotiation techniques, languages.
- Salespersons: sales and negotiation techniques, UAV systems, languages.
- Operators: Thermograph and multispectral technology, computers, electronics and mechanics, languages.
- Administrative assistant: accounting, invoicing, computers, languages.

In addition to this, it is important to mention that all the hired employees will have an initial period of adaptation in which they will be guided and supervised by more experienced employees or by managers.

9.5.3 Performance evaluation

Since the company's organization is very simple, their immediate supervisor will evaluate performance of employees annually; in this case, this figure is always the manager. Also the Board of Directors will evaluate the manager. Main factors that must be taken into account are:

- Knowledge of work.
- Accomplishment of objectives.
- Quantity and quality of work.
- Initiative, dependability, responsibility.
- Quality of interpersonal relationship.
- Supervisory ability.

In addition to this, it is also important the 360-degree assessment, in which the participant completes a self-assessment and also collects feedback from supervisors, subordinates and customers.

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10 LEGAL PLAN

10.1 Legal Structure

The first decision regarding the legal subject is to choose a form of business enterprise. Spanish law envisages various different kinds of mercantile entities, and the most significant are:

- Corporation (“Sociedad Anonima”, abbreviated as “S.A.”).
- Limited Liability Company (“Sociedad de Responsabilidad Limitada”, abbreviated as “S.L.” or “S.R.L.”).
- New Limited Liability Company (“Sociedad Limitada Nueva Empresa” abbreviated as “S.L.N.E.”).
- European Public Limited-Liability Company (“Sociedad Anónima Europea”, abbreviated “S.E.”)

The company would not be SLNE because of several reasons. On SLNE only individuals can be partners (not juridical persons), and there is a maximum of 5 partners allowed. Besides, the members of the Administration Body must be partners of the company. This type of company will never adopt the form of a Board of Directors.

The European public limited liability company is not chosen because there is not a pre-existing company, so it is not possible to have this kind of firm. Besides, a minimum capital of 120.000 € must be subscribed.

In order to take a decision between SL and SA, the main features of these forms of business are going to be presented in the next table.

Name	Corporation (SA)	Limited Liability Company (SL)
Minimum capital stock	60.102€	3.006 €
Paying in upon incorporation	25%	100%
Amendments to the by-laws	The directors or the shareholders shall prepare a written report to justify the amendment.	No report is required.
Call for General meetings	Announcement published in the Official Gazette of the Mercantile Register	As indicated in the by-laws
Managing body	The by-laws must indicate a specific managing body (Board of Directors, Sole Director, etc.).	The by-laws may set different types of managing bodies and the General meeting will select one.
Number of members of the Board of Directors	Minimum: 3. There is no maximum number.	Minimum: 3. A maximum of 12 members.
Term of the office of Director	Maximum 6 years, They may be re-elected for periods of the same maximum duration.	Might be indefinite.

Table 32: Main features of SL and SA.

Since it is assumed that the company would be small at the beginning, the Corporation (SA) is ruled out because it requires too much capital, it is much more difficult and complex to manage, and founders want to maintain the control of the company, so the Limited Liability Company (SL) looks like the better option for GyroServices.

The funding partners of GyroServices S.L. are:

- Mr. Chrobak, Wojciech.
- Mr. Domínguez Ruiz, F. Javier.
- Mr. Tortosa Santiago, Jacinto.
- Mr. Yáñez Díaz, Ubaldo.

10.2 Company incorporation

The general steps that have to be taken into account in order to establish GyroServices S.L. consist of:

1. Ask for and obtain a certificate of clearance of the corporate name at the Spanish Central Mercantile Register.
2. Open a bank account for the activities of the firm.

The capital stock will consist of 80.000 €, and each partner would have 20.000 participations (25% of the capital).

1. Determination of the body administration (it is described in bylaws part) and preparation of the corporate bylaws.
2. Execution of a public deed that will take place in a Spanish public notary in order to give evidence of the identity and evidence of payment.

Our company is governed by the Corporations Law and by its bylaws (detailed in bylaws part).

3. Assignment of a provisional tax identification number to the new company, CIF.

4. Payment of the transfer tax. The transfer tax is 1% of the share capital, which is 400 euros. With regard to the fees that are charged by using the public notary, the fee will be 0,03-0,45% of the capital.
5. Registration of the company in the Spanish Central Mercantile Register.
6. Assignment of the definitive tax identification number. At this moment the company acquires legal status.
7. Declaration of the investment to the General Directorate for Trade and Investment of the Ministry of Economy and Finance.
8. Registration of the company for the purpose for IAE (Tax on Economic Activities).

The tax that is related to this step does not need to be paid during the first two years according to the Art. 82.1.b del RDL 2/2004. Even so, the registration has to be completed before the company starts its activity.

9. Ask for the opening license.
10. Registration of the company for Spanish social security and registration of its employees for the social security number.
11. Compliance with formalities at the local office of the Ministry of Labor and Social Affairs.

10.3 Fiscal planning

The company would be incorporated in Spain, specifically in Seville (Andalusia), where general meetings will be called. For this reason, it is really important to take the different Spanish taxes into consideration.

10.3.1 Tax on Economic Activities (TEA)

Although this tax is elaborated by the central government; each region fixes the value and collects the payment. The Tax on Economic Activities Law establishes that, during the first 2 years, any company is exempted from this taxation.

Companies with less than 1.000.000€ turnover are also exempted from payment, so GyroServices will be exempted to pay it.

10.3.2 Corporate Income Tax

The Spanish Corporate Income Tax used to be fixed by 30%. However, for small-sized companies, the figure used to be reduced to 25% for the first 120.202,41€ of taxable income. The Corporate Income Tax Law defined small-sized companies as companies with less than 8.000.000€ turnover.

Nowadays, Spanish Government is changing fiscal model, and some issues as VAT rates or corporate taxation is expected to change.

Regarding corporate income tax, there will be a reduction of 5% of the rate, in both types defined above:

- Tax basis between 0 to 120.202,41: 20%
- Tax basis from 120.202,41 and up: 25%

Anyway, in order to benefit of that, there are some requirements to accomplish:

- Revenues must be below 5.000.000€.
- To have less than 25 employees.
- Must maintain or increase the number of employees from previous year.

Summarizing, GyroServices S.L. hopes to take advantage of this, as it seems to satisfy all the requirements needed.

10.3.3 Value Added Tax (VAT)

VAT is an Indirect tax on the domestic consumption of goods and services, except some exemptions. It is levied at each stage in the chain of production and distribution from raw materials to the final sale based on the value (price) added at each stage. It is not a cost to the producer or the distribution chain members, it avoids the double taxation (tax on tax) of a direct sales tax. It was introduced by

the European Economic Community (now the European Union) in the 1970s.

As it was said in the former point, Spanish Government is changing VAT taxes in the following way:

- Super reduced rate: 4%.
- Reduced rate: from 7 to 8%.
- Standard rate: from 16% to 18%.

10.3.4 Dividends

In order to make sure a consolidated business and, taking into consideration that the company could have some losses as it is growing, capital gains would not be obtained during the first year. GyroServices will take the advantage of the tax shield and thus, it will discount the taxes that it should pay if the negative results were positive.

As the time goes by, and once the company gets profits, it will be decided by mutual agreement that the 60% of the benefits will be used as reserves for the company (as a guarantee for the expansion plan) and the 40% left will be distributed through the participants.

Participation units are taxed in Spain at a single flat tax rate of 18% (with the exemption of the first 1.500 €). It is expected an increase of 3 points (only for the first 6.000 €) in the coming year.

10.3.5 Social Contribution

To have an estimation of social contribution expenses of the company, some brief calculations are now presented. The social taxes per employee are broken down in the following way:

Concept	Rate
Common Contingencies	23.60%
FOGASA	0.40%
Unemployment	6%
Job training	0.60%
TOTAL	30.60%

Table 33: Social Security expenses for the company

10.4 Company Bylaws

PART I. GENERAL REGULATIONS

Article 1.- NAME → The society is called "GyroServices S.L.". It will be governed by the provisions of these statutes, and in matters not covered by them, by the Law of Limited Liability Companies "Ley 2/1995, de 23 de marzo, de Sociedades de Responsabilidad Limitada".

Article 2.- ADDRESS → The registered office is set to Plaza Ruiz de Alda 11, 41004 Seville, Spain.

The change of address within the same municipality as well as creation, deletion or removal of branches, agencies or offices shall be agreed by the director.

Article 3.- SOCIAL PURPOSE → The company, established 1st January 2011, is founded by four partners with the intention of providing air services with autogyros. Set in the region of Andalusia, will try to become pioneer in this aircraft-type operation.

ARTICLE 4.- COMMENCEMENT OF OPERATIONS → The company is established for an indefinite period, and begins operations on the day of the deed of incorporation.

PART II. SOCIAL CAPITAL

ARTICLE 5.- CAPITAL → Social capital is fixed at EUR 40.000 fully paid by the partners at equal distribution.

PART III. ORGANS OF THE SOCIETY

ARTICLE 6.- ORGANS OF THE SOCIETY → A single Director governs the society. The rest of partners will express their opinions by the majority vote, but the Director is the person who takes the final resolutions.

ARTICLE 7.- GENERAL MEETINGS OF PARTNERS.

A) NOTIFICATION: The call of General Meetings of Partners must be made by sending a registered letter with acknowledgment by a notary to the address of each partner to put on the Record Book of partners.

The notification must be made within the fifteen calendar days before the date set for its conclusion, starting to count from the date that the notice was first referred to call by the last of the members.

For such purpose, members may request, at any time, to update or change data related to their address listed in the Record Book of partners.

Members residing abroad must appoint an address within the country to receive the notifications, which will be recorded in the Record Book of partners.

B) DIRECTOR: The Director will be elected by majority vote of the partners. The director, will have a term of one-year duration.

C) DISCUSSION AND MAKING AGREEMENTS: The General Meeting of Partners will deliberate on the matters included in the agenda of the notification, and shall be recorded in the same manner provided by Law.

ARTICLE 8.- POWERS OF THE DIRECTOR → The representation of the Company in court and out of it, will belong to the Director as provided by Law and these statutes.

The representation will extend to all acts within the corporate purpose, including those that have a complementary purpose.

It is stated that the Director may make, inter alia, the following acts and business:

- a) To acquire, dispose, transfer or encumbering all kinds of assets, and establish, accept, modify, and extinguish all sorts of personal and property rights including the mortgage.
- b) To administer assets.
- c) Manage the organization of the Company and its business.
- d) To be the responsible for all agreements reached with other foreign companies interested in our product, being the head of public relations at the Company.
- e) Give all kind of acts, contracts or legal transactions, with the covenants, in terms and conditions as they deem advisable, compromise and agree on arbitration, take part in tenders and auctions, make proposals and accept awards.
- f) Borrow money or credit, recognized payables and receivables; provide guarantees in the interest of the Company or others.
- g) Open and cancel, disposing of its funds, accounts and deposits of any kind in any banks, savings banks or credit institutions or financial in general.
- h) Hire and dismiss employees and agents, sign contracts of employment and transport.

- i) To appear before all kinds of Courts of any jurisdiction and in any kind of public organization, and all sorts of trials and proceedings.
- j) To grant and sign all kind of public and private documents in the exercise of its powers, including payment cards, receipts or invoices.

PART IV. ACCOUNTING ISSUES

ARTICLE 9.- ECONOMIC RULES.

A) FISCAL YEAR: Each fiscal year (FY) will begin on January 1st of each year, and ending on December 31st of that year.

B) SOCIAL AND ANNUAL ACCOUNTS BOOKS: The Governing Body should manage the social and accounting books, as well as drafting the annual accounts and management report in accordance with the provisions of Law.

Within the following month of the approval of annual accounts, a certification of agreements adopted by the General Meeting of annual accounts and appropriation of earnings will be submitted through the relevant official forms, for deposit in the office of the Trade Register (Registro Mercantil), attaching a copy of each of these accounts and other documents envisaged by Law.

If the Governing Body breached this requirement shall incur under the Law.

C) DISTRIBUTION OF PROFITS: When the company starts to get profits, the 60% of them will be used as reserves for the company, to guarantee the expansion plan, and the 40% left will be distributed equally through the partners.

PART V. LIQUIDATION OF THE COMPANY

Article 10.- The General Meeting shall appoint the liquidators, as appropriate, stating the duration of its mandate and the conditions of their action.

In the absence of such appointments, shall serve as liquidator of the company, the Director himself.

PART VI. OTHER PROVISIONS

ARTICLE 11.- ARBITRATION → All doubts and disputes arising in order to the interpretation of these Bylaws shall be submitted to arbitration fairness.

ARTICLE 12.- INCOMPATIBILITIES → They may not occupy or hold positions in this Society person in any of the prohibitions or incompatibilities provided for in the Spanish Law.

10.5 Legal environment and applicable legislation

10.5.1 Limited Liability Companies

Spanish legislation refers to Limited Societies in three laws:

- Law 2/1995 March 23, Limited Responsibility Societies.
- Law 19/1989 July 25, partial reform and mercantile legislation adjustment to the boards of the EC as for societies
- Law 7/2003 April 1, Limited society New Company
- Legislative royal decree 1564/1989 December 22 by which there is approved the rewritten text of Anonymous Societies Law.

10.5.2 Air Traffic & Navigation

There is still not specific autogyro legislation in Spain, so they are now considered ULM (Ultra Light Motorized) and the regulation covering them is

contained in the following laws:

- Law 48/1960, July 21, “Ley sobre Navegación Aérea”.
- Legislative royal decree 57/2002, January 18, “Reglamento de Circulación Aérea”.
- Order 24th April 1986, regulation for ULM (Ultra Light Motorized).
- Order 14th November 1988, airworthiness requirements for ULM.
- Legislative royal decree 1591/1999, regulation for register and use of ULM and register of non-mercantile private aircraft.

Anyway, a new airworthiness regulation covering autogyros aerial works is being developed by AESA (Agencia Estatal de Seguridad Aerea), formerly known as DGAC (Direccion General de Aviacion Civil). It is expected to be issued by half of 2010.

This regulation, based on British BCAR-T CAP 643, issued by CAA (Civil Aviation Authority), cover the “Light Gyroplanes” that GyroServices S.L. wants to use, with the following restrictions:

- Not more than two occupants.
- A maximum all-up (take-off) weight not exceeding 600 kg.
- Restricted to day VFR conditions.

In order to fly these aircrafts, pilots must have “PPL” license (Private Pilot License), and to perform aerial works with it, pilots must have “CPL” license (Commercial Pilot License).

10.5.3 Authorization to carry out aerial works

Apart from legislation presented above, in order to provide aerial services, GyroServices S.L. needs an authorization from AESA.

The application for the authorization must be accompanied by the following documentation:

- Copy, notarial or certified copy of certificate of incorporation and bylaws.
- Vouchers of discharge in the Social security, and to fiscal effects, for the exercise of the activities.
- Voucher to have registered and enrolled the aviation material to use in the Registry of Matriculation of Aircrafts. It is precise to own at least one operative and authorized airship with its technical documentation for the activity in question.
- Voucher of to have arranged a responsibility insurance in case of accident, in front of third parties and occupants on board the aircraft. The insurances will have to fulfil the requirements established in the Regulation (EC) of the European Parliament and the Council nº 785/2004 of 21 of April of 2004 ("D.O.U.E." L 138, of 30-04-2004), Law 48/1960 of 21 of July on Aeroplane navigation ("B.O.E." nº 176 of 23-07-1960) and Royal Decree 37/2001 of 19 of January ("B.O.E." of 2-02-2001).
- Voucher of to have formalised a guaranty of 3.005,06 € in "Caja General de Depósitos", at the disposal of AESA, for "guaranty of the obligations that the company can contract with the Agency, derived from the exercise of its activity".
- Report of flight personnel of the company that will have the nationality of any Member State of the European Union and to be in possession of the licences and indispensable qualifications in each case.
- Proposal of Maintenance Manual. This Manual has to cover the following points:

1. MAINTENANCE MANUAL.

- 1.1 Introduction. Activities.
- 1.2 Procedure of distribution and audit of the Manual.
- 1.3 Applicable regulation.
- 1.4 Structure of organisation, definition of functions and responsibilities.
- 1.5 Identification and use of the aircrafts.
- 1.6 Procedure for the maintenance of weight and centre of gravity within the approval limits.
- 1.7 Modifications anticipated in the airships to adapt them to its practises of operation.
- 1.8 Maintenance programs.
- 1.9 Report of maintenance tasks that will be realised by the company and those that will be contracted with third parties
- 1.10 Contracts or agreements with third parties for the accomplishment of part or all the maintenance and the control of the aircrafts.

2. MAINTENANCE CENTRE.

Request of recognition like Centre of Authorised Maintenance, when the company has intention to realise maintenance of airships of third parties, or when the AESA considers necessary based on the volume and complexity of the maintenance to be realised by the company in its aircrafts.

- Proposal of Operations Manual. This Manual has to cover the following points (see next page):

PART A: BASIC/GENERAL ASPECTS

- 0. Administration and control of the operations manual.
- 1. Organisation and responsibilities.
- 2. Control and supervision of operations.
- 3. Quality system (non obligatory).
- 4. Composition of the crews.
- 5. Required qualifications.
- 6. Precautions regarding health and safety of crew.
- 7. Limitations of flight time.
- 8. Operational procedures.
- 9. Dangerous goods and arms.
- 10. Safety.
- 11. Event treatment, notification and investigation.
- 12. Air rules.
- 13. Aircrafts rental.
- 14. Aerial works.

PART B: OPERATIVE ASPECTS RELATED TO THE TYPE OF AIRCRAFT

- 0. General information and units of measure.
- 1. Limitations.
- 2. Normal procedures.
- 3. Abnormal and emergency procedures.
- 4. Performance.
- 5. Flight planning.
- 6. Weight and centre of gravity.
- 7. Payload.
- 8. List of configuration deviations.
- 9. List of minimum equipment.

- 10. Survival and emergency equipment.
- 11. Procedures of emergency evacuation.
- 12. Systems of the aircrafts.

**PART C: INSTRUCTIONS AND INFORMATION OF ROUTES,
AERODROMES AND HELIPORTS**

PART D: TRAINING

AESA will transact the request, verifying all the documents requested, and will eventually inform about the fulfilment into requisites technicians demanded for the exercise into the activity. The term of the procedure transaction is three months.

After that, AESA will adopt the resolution that corresponds, that will be notified to the company. In case of unfavourable resolution, the lawsuits of the refusal will be expressed, as well as originating appeal.

The authorization initially grants by ONE YEAR, being renewable at the request of the company whereas this one maintains the fulfilment of the indispensable conditions.

11 FINANCIAL PLAN

In this Chapter it is presented the financial forecast and planning of the company on a five years basis, taking into account our Operation and Marketing Plan.

11.1 Economic environment

In order to elaborate the further financial estimations and analysis, it is necessary to establish some hypothesis and assumptions in terms of Retail Price Index (RPI), interest rates, taxation and labor costs.

11.1.1 Retail Price Index (RPI)

RPI is a measure estimating the average price of consumer goods and services, which normally estimates the inflation. It is commonly used to index or adjust wages, salaries, pensions, and regulated or contracted prices.

To understand inflation it is important to consider other indicators as GDP growth and unemployment rate, so in the next table there are shown the last two years and a forecast for the following five years.

	2009	2010	2011	2012	2013	2014	2015
GDP growth	-3.7	-0.8	1.0	1.4	1.9	2,2	2,5
Unemployment rate	17.9	20.0	19.0	18,5	18	17	16
Inflation	-0.4	0.8	1	1,5	1,75	2	2,5
RPI	0,6	0,8	1	1,25	1,50	1,75	2

Table 34: Retail Price Index.

11.1.2 Interest rates

An interest rate is the price a borrower pays for the use of money they borrow from a lender.

The European Central Bank (ECB) is an institution of the European Union (EU) tasked with administrating the monetary policy, which includes establishing the official interest rate. The EUro InterBank Offered Rate (EURIBOR) is a daily reference rate based on the averaged interest rates at which banks offer to lend funds to other banks in the euro interbank market.

At the end of the chain, banks lend money to final clients (physical or juridical persons) at a higher rate, which it could be called “Borrowings” rate.

In the next table it is shown the recent year’s rates and the forecast for the following five years.

	2009	2010	2011	2012	2013	2014	2015
Interest Rate (ECB)	1.00	1.50	2.00	2,25	2,5	2,5	2,5
EURIBOR	1,25	1,25	1,50	1,75	2	2	2
Cash investments	2	2,5	3	3,5	4	4,25	4,5
Borrowings	3.25	4.25	5.50	6.50	7.75	8.75	8.75

Table 35: Interest rates

11.1.3 Taxes

Regarding taxes, we only expect an increase in VAT on July 2010, and the others may remain stable.

	2009	2010	2011	2012	2013	2014	2015
VAT	16%	16%	18%	18%	18%	18%	18%
Corporate Income Tax	20%/25%	20%/25%	20%/25%	20%/25%	20%/25%	20%/25%	20%/25%
Social Security	30.60%	30.60%	30.60%	30.60%	30.60%	30.60%	30.60%

Table 36: Taxation and labour costs

11.2 Funding

11.2.1 Distribution of Equity & debt

The financing policy adopted by the company is really important since:

- Financing is the fuel for developing the corporate operating strategy.
- The financing decision can have a considerable effect on the business result.
- The financing decision is not a sporadic event that occurs just once.

The financing decision in the company implies asking the following:

- What financial structure does it want to have?
- What funds does the company need?
- When, how much and for how long should it finance itself?
- What specific financing instruments should it use?
- How should it be financed?

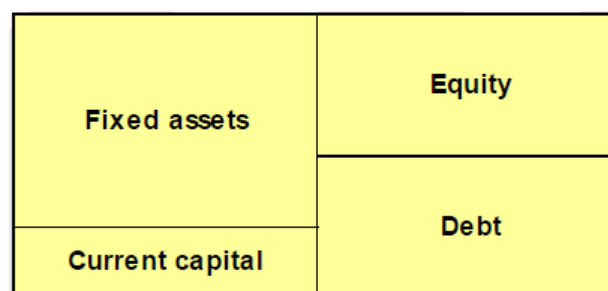


Figure 103: Financial structure

The financial structure of the company tell us how is external or internal financial sources used.

Financial leverage (FL) is the relationship between debt and equity. Mathematically $FL = \text{Debt} / \text{Equity}$. It is important to consider some statements

when deciding the financial structure:

- Levering is to increase the debt-to-equity ratio in the financing structure.
- Financial leverage increases profitability for the shareholder.
- Increasing debt in the financing structure increases, at the same time, the risk for the shareholder.
- Financial leverage is similar to operating leverage.
- The financing decision must be a balance between profitability and risk.
- Financial leverage increases the ROE for the shareholder, but what really increases is the shareholder's "expected" profitability.
- Leverage increases the company's fixed costs due to the debt interest charges.
- Debt increases the company's expected profitability and the shareholders' risk at the same time.
- As the debt-to-equity ratio increases, the costs of financial insolvency, which are the costs of possible bankruptcy, increase.
- The financing decision must aim to strike a balance between the two (profitability and risk).

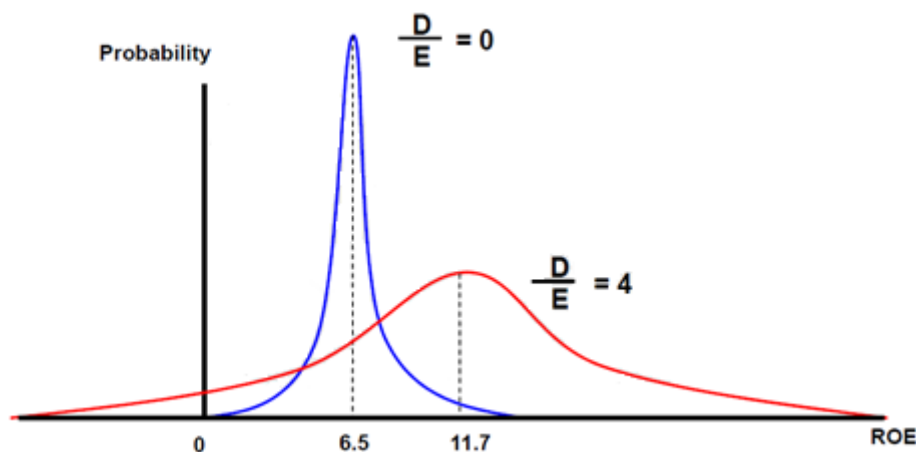


Figure 104: Profitability / risk by leverage

In the next points, some financial alternatives are going to be presented, all of them with special conditions and features adapted to GyroServices needs. The financial sources are:

- Agencia IDEA.
- Programa MELKART. Andalucía Emprende.
- Línea ICO emprendedores.

Apart from these public sources, GyroServices would not miss the opportunity and would eventually study other sources as:

- Private capital.
- Business Angels.
- Venture capital.
- Reciprocal Guarantee Company.

11.2.2 Agencia IDEA

The IDEA (Innovación y Desarrollo de Andalucía) agency manages the Order for the promotion of the Innovation and the Enterprise Development. The “Programa para el fomento de la Innovación y el Desarrollo empresarial en Andalucía” is a program of incentives financed by the Global Subsidy Innovation-Technology-Company of Andalusia 2007-2013, co-financed by the European Regional Development Fund (ERDF) and incorporated in Operative Program ERDF Andalusia 2007-2013. The total economic amount of the program is up to 1.500 million euro.



Agencia de Innovación y Desarrollo de Andalucía
CONSEJERÍA DE INNOVACIÓN, CIENCIA Y EMPRESA



The objectives of this program are:

- To make weigh on the Innovation the system of incentives to the enterprise activity in Andalusia.
- To favour the insertion of Andalusia in the Society of the Knowledge and to foment the use of IT.
- To simplify and to make agile the management of the incentives: a single order, a single managing organ (the IDEA Agency) and a unique procedure of procedure.
- To promote the Electronic Administration.
- To support of special way the strategic sectors: Aeronautics, agro-industrial, biotechnology, IT, emergent sectors, metallurgic, culture industry, power and environmental Sector.

The program is structured in six types of project and up to 20 categories:

- Projects of company modernization.
- Projects of company competitive cooperation.
- Projects of Research, Development and Innovation (R+D+I).
- “InnoEmpresa” program.
- Small innovation companies of recent creation.

LÍNEAS DE PROYECTO	CATEGORÍA DEL PROYECTO
Creación de Empresas	Proyectos de innovación Proyectos de Empresas de Base Tecnológica Proyectos de empresas que articulen el tejido productivo local Proyectos de emprendedores Provisión de espacios productivos, del conocimiento y de servicios a las empresas
Modernización de Empresas	Proyectos de innovación Proyectos de Empresas de Base Tecnológica Proyectos de empresas que articulen el tejido productivo local Provisión de espacios productivos, del conocimiento y de servicios a las empresas Proyectos que incorporen tecnologías de la información y de la comunicación y proyectos que incorporen servicios avanzados
Cooperación Competitiva de Empresas	Proyectos para generar productos, procesos o servicios innovadores Proyectos para la mejora de la posición competitiva Proyectos de cooperación en red
Investigación, Desarrollo e Innovación (I+D+I)	Proyectos para la generación de nuevo conocimiento Proyectos de aplicación del conocimiento existente Proyectos de Innovación, de la Investigación y el Desarrollo Estudios de viabilidad técnica previos a los proyectos de I+D+I Incentivos a la estancia de personal altamente cualificado en régimen de comisión de servicios. Proyectos para el desarrollo de agrupaciones (clusters) innovadoras. Incentivos para los servicios de asesoramiento en innovación ("cheque innovación")
Programa InnoEmpresa	Proyectos de innovación organizativa y gestión avanzada Proyectos de innovación tecnológica y calidad Proyectos de innovación en colaboración
Incentivos para Pequeñas Empresas de Innovación.	

Figure 105: IDEA Agency project categories

To be incentivable the project has to meet the following conditions:

- Has not been initiated.
- Viable. The project has to be viable, technical, economically and financially.
- Located in Andalusia
- Creates or maintains jobs.
- Adjusts to one of the categories of the program.
- Respects the environmental legislation.

- Respects the equality of treatment and opportunities between men and women.

The Program establishes eight modalities of incentives. For the project so many modalities will be able to be solicited as they are considered suitable and necessary for the financing of the project, not existing any mutual incompatibility among them.

- Non-refundable **Direct Incentive**. Consists of the delivery of an amount of money that does not have to give back.
- **Reimbursable Incentives**. Consists of the delivery of an amount that must give back past a time. The loan has the following characteristics:
 - Type of interest: 0%
 - Term of amortization: of 5 to 10 years
 - Deficiency: up to 2 years
 - Commissions: Not
- **Interest rate bonifications**. Obtained through a financial organization to finance the project. It has as aim to lower the price of the interests.
- **Participating loans**. Is a loan with some characteristic special: Type of interest: EURIBOR to 1 year limited 50% of the results before taxes. That is to say, that the interests that are really never paid will be able to surpass 50% of the benefits. If there are no benefits, the interests are not paid.
 - Term of amortization: 7 years with 2 years of deficiency.
 - Amortization: Annual
 - Type of amortization: Progressive. In the first years less amount will be amortized.
 - Guarantees: Those that offer the own project and the quality of the equipment of project management.
 - Commissions: not.

This type of incentive will be applied to projects of technological basic company essentially.

- **Contributions to the share capital** by Invercaria and risk capital funds participated by IDEA.
- **Loans of the European Investment Bank** .Consist of a loan realized by the Agency IDEA with funds of the European Investment Bank. Their characteristics are:
 - Amount of the loan: Minimum 125,000 Euros. Maximum 2.500.000 Euros.
 - Type of interest: Fixed with a value below the market
 - Term of amortization: Up to 10 years with possibility of 2 years of deficiency.
 - Guarantees: Endorsement of financial organization.
 - Commissions: not.
- **Bonifications on the commissions** of loan endorsement guaranteed by of reciprocal guarantee societies.
- **Endorsement**. Consist of a loan guarantee. The loan will not be able to surpass the 500,000 €.

11.2.3 “Programa MELKART”. Andalucía Emprende

The “Melkart” program is a line of financing based on participating loans with low interest promoted by the Council of Innovation, Science and Company, through “Andalucía Emprende” and “Invercaria”, to impel enterprise projects of technological or creative-cultural base, of great potential, but that usually finds difficulties to accede to the conventional channels of financing.

From the beginning of this initiative, in March of 2007, the “Melkart” program has impelled a total of 52 basic projects, which has supposed the concession of 2.577.991 Euros in loans.



The addressee of this program must be either a Basic technological company (EBT) or a Basic creative company EBC). GyroServices belongs to the EBT category, defined as:

- Own development of technology and/or incorporated technological advances.
- Incorporation of innovating elements. Innovation in organization methods, re-engineering of processes, products technologically improved, etc.

The loans are financial supports with low interest and with conditions of return that adjust to the growth of the beneficiary company.

They have the mission to stimulate the entrepreneurship and the growth of good enterprise projects able to contribute to the social and economic wealth.

There are different types of “Melkart” support:

- Melkart pre-seed. Technological or basic credits for entrepreneurs and projects enterprise creative innovators in phase of constitution (0 years of life).
- Melkart seed. Technological or basic credits for enterprise creative

innovators just undertaken (of 0 to 2 years of life).

- Melkart starts. Credits of consolidation for basic companies innovating technological or creative (of 2 to 5 years of life).
- Melkart consolidation. Credits for basic companies innovating technological or creative with expansion projects (more than 5 years of life).

The main characteristics of the “Melkart” credits are:

- Interest rate: Euribor + 0,5.
- No commissions, neither opening nor cancellation.
- Guarantees: the own project.
- Progressive return of capital from the third year.
- Commitment of answer in a maximum of 3 months.

Regarding the criteria of selection of the projects, “Andalucia Emprende”, “Fundacion publica andaluza” and “Invercaria” will select enterprise projects social based on:

- Degree of innovation.
- Enterprising capacity and leadership of the entrepreneur.
- Viability and economic and enterprise sustainability.

11.2.4 “Linea ICO Emprendedores”

Instituto de Credito Oficial (ICO) is a Spanish official organization that provides loans in very advantageous conditions to certain form of business.

Concretely, a modality for entrepreneurs exists which can be very useful for GyroServices. To be considered this way, it will have to fulfill the next requirements:

- To have a payroll of 1 to 9 employees.
- Revenues or balance sheet below 2.000.000 €.

The features of the loan are:

- Maximum amount per customer: 300.000 € in one or more transactions.
- Maximum funding: 100% of the investment project.
- Eligible investments:
 - Productive fixed assets: new or second hand.
 - Purchase of passenger vehicles, whose price (including VAT) does not exceed 24.000 €.
 - Expenditure linked to the establishment of the company, with a limit of 10% of the total project.
 - Acquisition of Companies.
 - VAT.
- Amortization is chosen from the following options for repayment and grace period:
 - 3 years with no grace period for payment of principal.
 - 5 years with 0 or 1 year grace period for payment of principal.
 - 7 years with 0 or 2 year grace period for payment of principal.
 - 10 years with 0 or 3 year grace period for payment of principal.
 - 12 years with 0 or 3 year grace period for payment of principal.
- Interest rate:
 - Fixed, as reported by ICO biweekly.
 - Variable Differential Euribor 6 months, as reported by ICO biweekly.
- Commissions: Credit Institutions may not charge any amount in respect of the fee, or availability study.

Period	Grace Period	Interest rate APR
Fix 3 years	-	4,216
Fix 5 years	-	4,642
Fix 5 years	1 year	4,697
Fix 7 years	-	5,001
Fix 7 years	2 years	5,106
Fix 10 years	-	5,417
Fix 10 years	3 years	5,543
Fix 12 years	-	5,629
Fix 12 years	3 years	5,727
Variable 6 months	-	3,465

Table 37: ICO interest rates 15th – 28th March 2010.

11.3 Investments

This chapter describes the necessary investment to achieve the objectives of the company.

In this line, the following fixed assets have to be acquired:

- Autogyros.
- Thermografic equipment.
- Multispectral camera.
- Car trailers.

Both thermographic and multispectral equipment are components of high technology with a fast devaluation market of price. Because of it, it is established a lower depreciation period of 8 years. For the assets left, the period is quite longer (up to 14 years).

In the next table investments, depreciation period and annually depreciation amount are shown:

Expected investments	Investment	Years	Annual Depreciation
Autogyros	127.000 €		9.071 €
Xenon 2	63.500 €	14	4.536 €
Xenon 2	63.500 €	14	4.536 €
Equipment	116.440 €		14.555 €
Thermographic camera	75.440 €	8	9.430 €
Multispectral camera	41.000 €	8	5.125 €
Transport	5.000 €		500 €
Car trailer 1	2.500 €	10	250 €
Car trailer 2	2.500 €	10	250 €
Office	14.890 €	10	1.489 €

Table 38: Investments depreciation

The capital expenditure in five years period is:

Annual depreciations	2011	2012	2013	2014	2015
Office	- €	- €	1.489 €	1.489 €	1.489 €
Machinery	23.876 €	23.876 €	24.126 €	24.126 €	24.126 €
Total annual depreciation	23.876 €	23.876 €	25.615 €	25.615 €	25.615 €

Net value	2011	2012	2013	2014	2015
Adquisition costs	245.940 €	245.940 €	263.330 €	263.330 €	263.330 €
Accumulated depreciation	23.876 €	47.753 €	73.368 €	98.984 €	124.599 €
Net value	222.064 €	198.187 €	189.962 €	164.346 €	138.731 €

Capital Expenditure	2011	2012	2013	2014	2015
Capex	245.940 €	- €	17.390 €	- €	- €

Table 39: Capital expenditures

11.4 Forecast.

In this chapter a forecast of sales and expenses is presented for the next five years.

11.4.1 Sales forecast

Summarizing the former marketing plan, GyroServices expected sales can be broken down in two different dimensions:

- Power lines inspections.
- GIS.

Power Lines Inspection	2011	2012	2013	2014	2015
Endesa	300.000 €	350.000 €	400.000 €	450.000 €	530.000 €
Market share	15%	20%	30%	40%	50%
Endesa sales	45.000 €	70.000 €	120.000 €	180.000 €	265.000 €
REE	550.000 €	570.000 €	600.000 €	625.000 €	650.000 €
Market share	15%	20%	30%	40%	50%
REE sales	82.500 €	114.000 €	180.000 €	250.000 €	325.000 €
Power Line Sales	127.500 €	184.000 €	300.000 €	430.000 €	590.000 €

GIS	2011	2012	2013	2014	2015
Burnt area measures	10.000 €	10.200 €	10.400 €	10.700 €	11.000 €
# Projects	1	1	2	2	3
Burnt area sales	10.000 €	10.200 €	20.800 €	21.400 €	33.000 €
Environmental control	150.000 €	155.000 €	160.000 €	170.000 €	185.000 €
# Projects	0	0	1	1	1
Environmental Control sales	- €	- €	160.000 €	170.000 €	185.000 €
Panoramic aerial image	6.000 €	6.100 €	6.200 €	6.350 €	6.500 €
# Campaigns	1	1	1	2	2
Panoramic aerial image sales	6.000 €	6.100 €	6.200 €	12.700 €	13.000 €
GIS Sales	16.000 €	16.300 €	187.000 €	204.100 €	231.000 €

	2011	2012	2013	2014	2015
Total Sales	143.500 €	200.300 €	487.000 €	634.100 €	821.000 €

Table 40: Expected sales

Total predicted sales are calculated considering the market share that GyroServices will reach as it is recorded in the operational plan.

11.4.2 Human resources expenses

Summing up the information illustrated in Annex 13.1, the following table explains the main items related to personnel costs.

	2011	2012	2013	2014	2015
Number of employees	6	6	9	9	9
Gross salary	91.644,58 €	93.868,85 €	150.463,93 €	153.375,77 €	165.526,47 €
Variable salary	7.520,00 €	10.486,00 €	46.889,00 €	57.804,69 €	70.258,31 €
Social security	30.144,46 €	31.730,19 €	42.948,67 €	59.608,34 €	59.608,34 €
Total expenses	129.309,04 €	136.085,04 €	240.301,60 €	270.788,79 €	295.393,12 €

Table 41: HR expenses

11.4.3 Structure expenses

Structure expenses consist mainly of:

- General service costs: telephone service, office supplies, commercial trips...
- Rental: hangar and virtual office.
- Renting car.
- Maintenance of autogyros: these costs are directly linked to flying time.
- Supplies: fuel consumption.
- Professional legal service: this term includes incorporation costs and legal advice.
- Insurance: autogyros insurance and public liability insurance.

	2011	2012	2013	2014	2015
Structure expenses	25.727 €	28.384 €	48.162 €	53.518 €	59.786 €
General service costs	3.000 €	3.300 €	3.630 €	3.993 €	4.392 €
Rental	5.688 €	6.200 €	5.315 €	4.833 €	4.955 €
Renting car	6.420 €	6.580 €	13.161 €	13.490 €	13.827 €
Maintenance of the machinery	1.860 €	2.592 €	7.523 €	8.909 €	10.325 €
Supplies	3.869 €	5.591 €	16.786 €	20.515 €	24.473 €
Professional legal services	3.190 €	2.400 €	- €	- €	- €
Insurance	1.700 €	1.721 €	1.747 €	1.778 €	1.813 €

Table 42: Structure expenses

11.4.4 Financing expenses

11.4.4.1 Loan

Taking into account the information presented in paragraph 11.2, for the financial analysis purpose, an estimated loan for GyroServices would have the following features:

Amount of loan	200.000,00 €
Commitment fee	- €
Amortization period (years)	10
Grace period (years)	2
Lending rate	5,50%
Payments per year	1

Table 43: Loan characteristics

Amortization of this loan for the whole period is calculated in the next table. Note that first year is 2011.

Year	Paid interests	Fully paid capital	Amount of payment	Capital left
1	11.000,00 €	- €	11.000,00 €	200.000,00 €
2	11.000,00 €	- €	11.000,00 €	200.000,00 €
3	11.000,00 €	20.572,80 €	31.572,80 €	179.427,20 €
4	9.868,50 €	21.704,31 €	31.572,80 €	157.722,89 €
5	8.674,76 €	22.898,04 €	31.572,80 €	134.824,85 €
6	7.415,37 €	24.157,44 €	31.572,80 €	110.667,41 €
7	6.086,71 €	25.486,09 €	31.572,80 €	85.181,32 €
8	4.684,97 €	26.887,83 €	31.572,80 €	58.293,49 €
9	3.206,14 €	28.366,66 €	31.572,80 €	29.926,83 €
10	1.645,98 €	29.926,83 €	31.572,80 €	- €

Table 44: Loan payments

11.4.4.2 Credit line

A line of credit of 40.000€ with an interest of 5% is going to be needed in order to gain flexibility and increase free cash flow at the end of the first fiscal year. It will be cancelled in the second year (2012).

11.4.4.3 Bank discount

Since GyroServices' customers are public administrations and state-owned electrical utilities companies it is important to discount the payments in order to receive cash as soon as possible.

This line of discount will have an interest rate fixed by 5% over the required amount (120 days).

11.4.5 Earnings and dividends policies

When the company starts to get profits, the 60% of them will be used as reserves for the company, to guarantee the expansion plan, and the 40% left will be distributed equally through the partners as dividends.

11.4.6 VAT accounting

VAT will be paid in a three months basis according the difference between VAT on sales and VAT on purchases. It is important to mention that the VAT payment of last quarter will be delayed to the first quarter of the next year.

	2011	2012	2013	2014	2015
VAT on sales	25.830 €	36.054 €	87.660 €	114.138 €	147.780 €
VAT on supplies	5.585 €	5.609 €	9.255 €	10.303 €	11.515 €
VAT on investments	44.269 €	- €	3.130 €	- €	- €
Net	- 24.024 €	30.445 €	75.275 €	103.835 €	136.265 €
VAT to compensate	24.024 €	- €	- €	- €	- €
VAT payable	- €	6.421 €	75.275 €	103.835 €	136.265 €

Table 45: VAT accounting

11.5 Financial statements

11.5.1 Profit and loss account

Regarding all data presented before, it is the moment to build the profit and loss account of the company.

	2011	2012	2013	2014	2015
Sales	143.500 €	200.300 €	487.000 €	634.100 €	821.000 €
Exploitation subsidy	- €	- €	- €	- €	- €
Operational expenses	159.722 €	164.237 €	293.313 €	329.811 €	361.179 €
Marketing	7.000 €	4.500 €	5.000 €	5.500 €	6.000 €
Structure expenses	25.727 €	28.384 €	48.162 €	53.518 €	59.786 €
Human resources	126.995 €	131.353 €	240.151 €	270.794 €	295.393 €
EBITDA	- 16.222 €	36.063 €	193.687 €	304.289 €	459.821 €
Depreciations	23.876 €	23.876 €	25.615 €	25.615 €	25.615 €
Operative earnings (EBIT)	- 40.098 €	12.187 €	168.071 €	278.673 €	434.206 €
Financial expenses	11.000 €	11.000 €	11.000 €	9.868 €	8.675 €
Financial expenses credit line	2.000 €	2.000 €			
Other financial expenses	2.784 €	3.885 €	9.446 €	12.300 €	15.925 €
Earnings before taxes (EBT)	- 55.882 €	- 4.699 €	147.625 €	256.505 €	409.606 €
Income taxes	11.176 €	940 €	29.525 €	51.301 €	81.921 €
Deferred income taxes (BS)	11.176 €	12.116 €	- €	- €	- €
Tax due (BS)	- €	- €	17.409 €	51.301 €	81.921 €
Net profit (EAT)	- 44.706 €	- 3.759 €	118.100 €	205.204 €	327.685 €

Table 46: Profit and loss account

As shown in the table above, GyroServices will suffer losses the first year and the second year, basically due to the initial investment. The third year the company will sharply experiment profit and will continue growing for the following years.

The next table shows the vertical analysis (all statements related to sales for each year) and horizontal analysis (increases of each statements from one year to other).

Vertical Analysis						Horizontal Analysis			
	2011	2012	2013	2014	2015	2012	2013	2014	2015
Sales	100,0%	100,0%	100,0%	100,0%	100,0%	39,6%	143,1%	30,2%	29,5%
Exploitation subsidy	0,0%	0,0%	0,0%	0,0%	0,0%				
Operational expenses	111,3%	82,0%	60,3%	52,0%	44,0%	2,8%	78,7%	12,4%	9,5%
Marketing	4,9%	2,2%	1,0%	0,9%	0,7%	-35,7%	11,1%	10,0%	9,1%
Structure expenses	17,9%	14,2%	9,9%	8,4%	7,3%	10,3%	69,7%	11,1%	11,7%
Human resources	88,5%	65,6%	49,3%	42,7%	36,0%	3,4%	82,9%	12,7%	9,1%
EBITDA	-11,3%	18,0%	39,7%	48,0%	56,0%	-322,3%	436,7%	57,2%	51,1%
Depreciations	16,6%	11,9%	5,3%	4,0%	3,1%	0,0%	7,3%	0,0%	0,0%
Operative earnings (EBIT)	-27,9%	6,1%	34,5%	43,9%	52,9%	-130,4%	1277,9%	66,0%	55,8%
Financial expenses	7,7%	5,5%	2,3%	1,6%	1,1%	0,0%	0,0%	-10,3%	-12,1%
Financial expenses credit line	1,4%	1,0%	0,0%	0,0%	0,0%	0,0%	-100,0%		
Other financial expenses	1,9%	1,9%	1,9%	1,9%	1,9%	39,6%	143,1%	30,2%	29,5%
Earnings before taxes (EBT)	-38,9%	-2,3%	30,3%	40,5%	49,9%	-91,6%	-3238,6%	73,9%	59,7%
Income taxes	7,8%	0,5%	-6,1%	-8,1%	-10,0%	-91,6%	-3238,6%	73,9%	59,7%
Deferred income taxes (BS)	7,8%	6,0%	0,0%	0,0%	0,0%	8,4%	-100,0%		
Tax due (BS)	0,0%	0,0%	3,6%	8,1%	10,0%			195,2%	59,7%
Net profit (EAT)	-31,2%	-1,9%	24,2%	32,4%	39,9%	-91,6%	-3238,6%	73,9%	59,7%

Table 47: Profit and loss account vertical and horizontal analysis

The incoming graph shows the evolution of sales and earnings over the years.

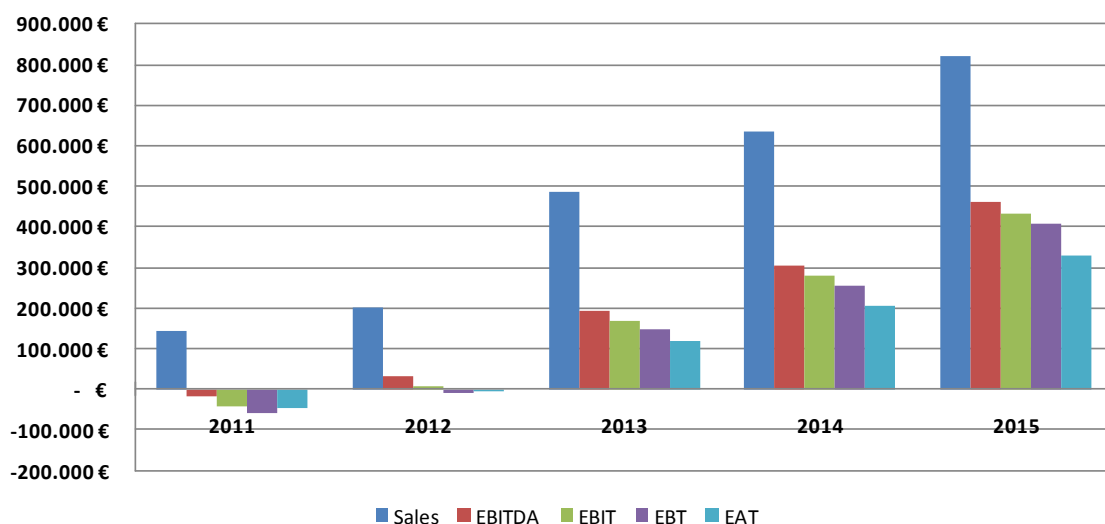


Figure 106: Financial statements evolution

11.5.2 Balance sheet

Regarding the balance sheet, the total value of fixed assets comes basically from the investment in the necessary equipment for the process. Current assets consist of taxes to compensate and cash.

Equity is constant through the years. Liabilities involve, apart from taxes issues, a credit line which is only on first year, and a long-term loan which will be amortized as shown in paragraph 11.4.4.1.

	2011	2012	2013	2014	2015
Assets	273.443 €	232.319 €	358.094 €	558.518 €	819.949 €
Total Fixed Assets	222.064 €	198.187 €	189.962 €	164.346 €	138.731 €
Total Current Assets	51.380 €	34.132 €	168.132 €	394.172 €	681.218 €
VAT to compensate	24.024 €	- €	- €	- €	- €
Deferred income taxes	11.639 €	13.525 €	- €	- €	- €
Cash	15.717 €	20.607 €	168.132 €	394.172 €	681.218 €
Liabilities and equity	273.443 €	232.319 €	358.094 €	558.518 €	819.949 €
Total Equity	33.443 €	25.899 €	143.878 €	323.535 €	569.136 €
Common stocks	80.000 €	80.000 €	80.000 €	80.000 €	80.000 €
Retain earnings (voluntary reserve)	- €	- €	- €	38.327 €	161.452 €
Net earnings	- 46.557 €	- 7.545 €	117.980 €	205.208 €	327.685 €
Accumulated losses	- €	- 46.557 €	- 54.101 €	- €	- €
Long-term borrowings	200.000 €	200.000 €	179.427 €	157.723 €	134.825 €
Total Current Liabilities	40.000 €	6.421 €	34.788 €	77.261 €	115.987 €
Short term borrowings	40.000 €	- €	- €	- €	- €
VAT payable	- €	6.421 €	18.819 €	25.959 €	34.066 €
Income taxes	- €	- €	15.970 €	51.302 €	81.921 €

Table 48: Balance sheet

11.5.3 Cash flow

Cash flow statements are divided into:

- Operations: containing GyroServices operating activities.
- Investing: considering capital expenditure.
- Financing: taking into account all financial issues.
- Free cash flow: regarding all previous aspects.
- Cash balance: accumulated free cash flow along the years.

	2011	2012	2013	2014	2015
Sales collections	169.330 €	236.354 €	574.660 €	748.238 €	968.780 €
Payments to suppliers	38.312 €	38.494 €	62.417 €	69.321 €	77.301 €
Payments to employees	129.309 €	136.085 €	240.302 €	270.789 €	295.393 €
VAT payments	- €	- €	62.877 €	96.695 €	128.157 €
Income taxes payment	- €	- €	- €	15.970 €	51.302 €
Cash Flow from Operations	1.709 €	61.775 €	209.065 €	295.464 €	416.627 €
Investments	290.209 €	- €	20.520 €	- €	- €
Cash Flow from Investing	- 290.209 €	- €	- 20.520 €	- €	- €
Common stocks	80.000 €	- €	- €	- €	- €
Borrowings	200.000 €	- €	- €	- €	- €
Credit line	40.000 €	- €	- €	- €	- €
Financial expenses payment	11.000 €	11.000 €	11.000 €	9.868 €	8.675 €
Financial expenses credit line	2.000 €	2.000 €	- €	- €	- €
Loan amortization	- €	- €	20.573 €	21.704 €	22.898 €
Other financial expenses	2.784 €	3.885 €	9.446 €	12.300 €	15.925 €
Credit line payment	- €	40.000 €	- €	- €	- €
Dividends payment	- €	- €	- €	25.551 €	82.083 €
Cash Flow from Financing	304.216 €	- 56.885 €	- 41.019 €	- 69.424 €	- 129.581 €
Free Cash Flow	15.717 €	4.890 €	147.525 €	226.040 €	287.046 €
Cash balance	15.717 €	20.607 €	168.132 €	394.172 €	681.218 €

Table 49: Cash flow

The next graphic helps to have an idea about the evolution of cash flows during the first five years of GyroServices.

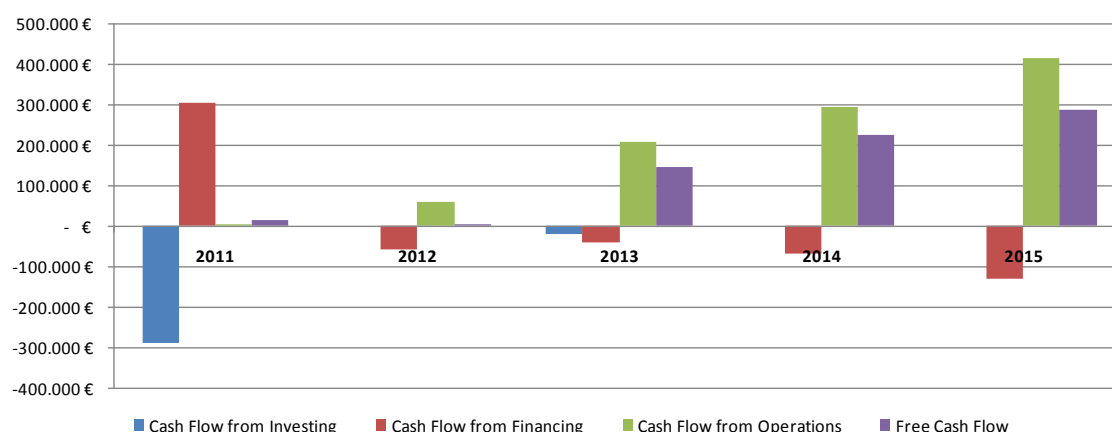


Figure 107: Cash flow evolution

11.6 Financial analysis

Financial analysis refers to an assessment of the viability, stability and profitability of a project.

11.6.1 Ratio analysis

Different ratios are described below:

	2011	2012	2013	2014	2015
OPERATIONS					
Revenues Growth Rate	N/A	40%	143%	30%	29%
Net Income Growth Rate	N/A	N/A	N/A	74%	60%
Operating Margin	-12,9%	15,6%	39,7%	48,0%	56,0%

Table 50: Operations ratios

	2011	2012	2013	2014	2015
PROFITABILITY					
ROE	-0,58	-0,09	1,47	2,57	4,10
ROS	-30%	4%	34%	44%	53%

Table 51: Profitability ratios

	2011	2012	2013	2014	2015
LIQUIDITY					
WC	11.380 €	27.711 €	133.344 €	316.911 €	565.230 €

Table 52: Liquidity ratios

	2011	2012	2013	2014	2015
SOLVENCY					
FL	3,0	2,5	2,2	2,0	1,7
D/D+E	0,75	0,71	0,69	0,66	0,63
FCC	-3,26	0,57	15,27	28,24	50,05
Cost of Debt	5,4%	6,5%	6,1%	6,3%	6,4%

Table 53: Solvency ratios

	2011	2012	2013	2014	2015
STOCK					
Payout Dividend	0,0%	0,0%	0,0%	12,5%	25,0%

Table 54: Stock ratio

	2011	2012	2013	2014	2015
CASH GENERATION					
Operative cash flow margin	1,0%	26,1%	36,4%	39,5%	43,0%
Free cash flow margin	9,3%	2,1%	25,7%	30,2%	29,6%

Table 55: Cash ratios

According to these results, some conclusions come up:

- Revenues and net income figures are high from the third year on, reaching a peak the last year of approximately 50%.
- Return on Equity ratio has an increase on the third year due to new market share achieved.
- Financial leverage starts at level of 3 but as amortizations take place, the value falls down to 1.7. At the same time, FCC increases sharply and reaches a value of 50. That means a GyroServices good performance in dealing with liabilities.
- Operative cash-flow margin is a good indicator of GyroServices operating efficiency.

11.6.2 Break Even analysis

The Break Even Point (BEP) is the point at which total expenses and revenues are equal.

	2011	2012	2013	2014	2015
Revenues	143.500 €	200.300 €	487.000 €	634.100 €	821.000 €
Fixed Costs	193.183 €	197.663 €	305.770 €	335.866 €	360.671 €
Variable Costs	8.512 €	12.068 €	33.755 €	41.724 €	50.723 €
Total Costs	201.696 €	209.731 €	339.525 €	377.590 €	411.394 €

Table 56: Break Even analysis data

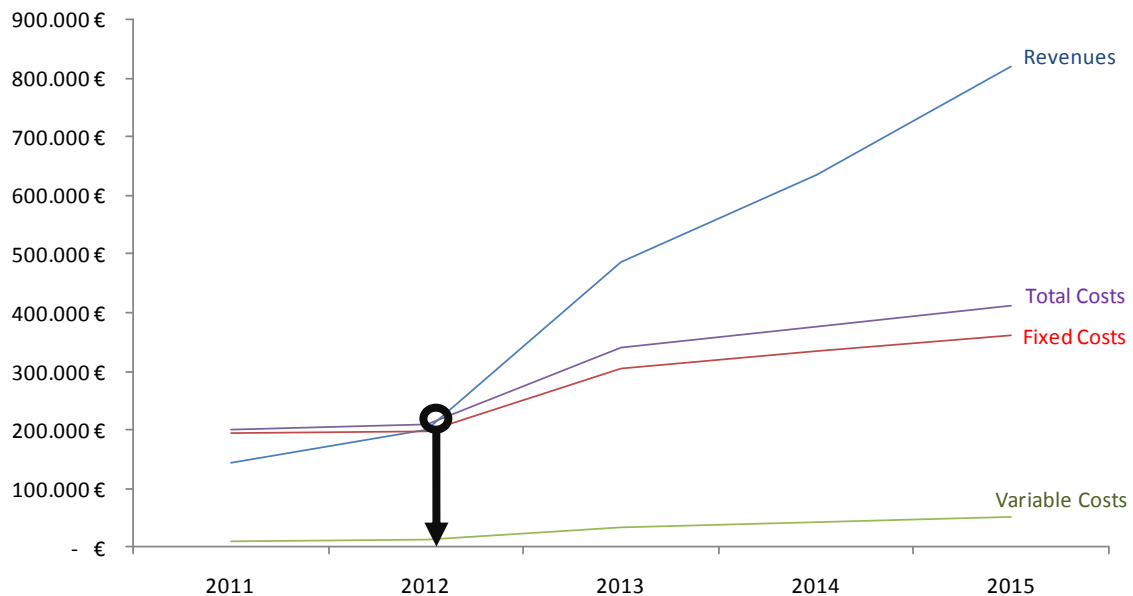


Figure 108: Break Even point

Given the previous results, GyroServices will get the BEP the second year (2012, 200.000€).

11.6.3 NPV/IRR analysis

In order to calculate the Net Present Value and the Internal Rate of Return, an appropriate discount rate has to be chosen. In the present case, weighted average cost of capital is fixed at a value of 10%.

WACC	10%
Investment	- 290.209 €
Q₁	15.717 €
Q₂	4.890 €
Q₃	147.525 €
Q₄	226.040 €
Q₅	287.046 €

Table 57: NPV / IRR analysis data

After performing NPV / IRR analysis, the next results were obtained.

NPV	155.981 €
IRR	24%
Pay Back (years)	2,35

Table 58: NPV / IRR analysis result

11.7 Alternative Scenario

On this alternative scenario, there are some different considerations from the ordinary financial approach presented in paragraphs 11.5 and 11.6:

- An exploitation subsidy of a 25% of total investment has been granted.
- Capital is decreased to 60.000€ (15.000€ each participant).

In the next points, statements and analysis are presented, marking in red the most important differences between the primitive scenario and this alternative one.

11.7.1 Profit and loss account

	2011	2012	2013	2014	2015
Sales	143.500 €	200.300 €	487.000 €	634.100 €	821.000 €
Exploitation subsidy	61.485 €	- €	- €	- €	- €
Operational expenses	162.036 €	168.969 €	293.464 €	329.807 €	361.179 €
EBITDA	42.949 €	31.331 €	193.536 €	304.293 €	459.821 €
Operative earnings (EBIT)	19.073 €	7.454 €	167.921 €	278.678 €	434.206 €
Earnings before taxes (EBT)	3.289 €	- 9.431 €	147.475 €	256.510 €	409.606 €
Net profit (EAT)	2.631 €	- 7.545 €	117.980 €	205.208 €	327.685 €

Table 59: Profit and loss account for alternative scenario

11.7.2 Balance Sheet

	2011	2012	2013	2014	2015
Assets	302.631 €	261.507 €	399.579 €	568.031 €	829.461 €
Total Fixed Assets	222.064 €	198.187 €	189.962 €	164.346 €	138.731 €
Total Current Assets	80.568 €	63.320 €	209.617 €	403.685 €	690.731 €
Liabilities and equity	302.631 €	261.507 €	399.579 €	568.031 €	829.461 €
Total Equity	62.631 €	55.087 €	173.066 €	333.048 €	578.649 €
Common stocks	60.000 €	60.000 €	60.000 €	60.000 €	60.000 €
Retain earnings (voluntary reserve)	- €	- €	- €	67.840 €	190.964 €
Net earnings	2.631 €	7.545 €	117.980 €	205.208 €	327.685 €
Accumulated losses	- €	2.631 €	4.913 €	- €	- €
Long-term borrowings	200.000 €	200.000 €	179.427 €	157.723 €	134.825 €
Total Current Liabilities	40.000 €	6.421 €	47.085 €	77.261 €	115.987 €

Table 60: Balance sheet for alternative scenario

11.7.3 Cash Flow

	2011	2012	2013	2014	2015
Sales collections	169.330 €	236.354 €	574.660 €	748.238 €	968.780 €
Exploitation subsidy	61.485 €				
Payments to suppliers	38.312 €	38.494 €	62.417 €	69.321 €	77.301 €
Payments to employees	129.309 €	136.085 €	240.302 €	270.789 €	295.393 €
VAT payments	- €	- €	62.877 €	96.695 €	128.157 €
Income taxes payment	- €	- €	- €	28.267 €	51.302 €
Cash Flow from Operations	63.194 €	61.775 €	209.065 €	283.167 €	416.627 €
Cash Flow from Investing	- 290.209 €	- €	- 20.520 €	- €	- €
Cash Flow from Financing	284.216 €	- 56.885 €	- 41.019 €	- 89.099 €	- 129.581 €
Free Cash Flow	57.202 €	4.890 €	147.525 €	194.068 €	287.046 €
Cash balance	57.202 €	62.092 €	209.617 €	403.685 €	690.731 €

Table 61: Cash flow for alternative scenario

11.7.4 Ratio Analysis

PROFITABILITY

ROE	0,04	-0,13	1,97	3,42	5,46
ROA	1%	-4%	37%	45%	49%
ROS	13%	4%	34%	44%	53%

Table 62: Profitability ratios for alternative scenario

SOLVENCY

FL	4,0	3,3	3,0	2,6	2,2
D/D+E	0,80	0,77	0,75	0,72	0,69
FCC	1,47	0,57	15,27	28,24	50,05

Table 63: Solvency ratios for alternative scenario

11.7.5 NPV/IRR Analysis

WACC	10%
Investment	- 290.209 €
Q₁	57.202 €
Q₂	4.890 €
Q₃	147.525 €
Q₄	194.068 €
Q₅	287.046 €

Table 64: NPV / IRR analysis data for alternative scenario

NPV	170.414 €
IRR	26%
Pay Back (years)	2,38

Table 65: NPV / IRR analysis result for alternative scenario

To sum up, it is important to remark that ROE has increased significantly, while FL has also increased. Net present value calculated amounts to 170.000€ (greater than 155.000 of ordinary scenario), and Internal rate of return has also changed in the same direction (26% compared to 24%).

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12 IMPLEMENTATION PLAN

By means of this Implementation Plan we want to define how we are going to go on with legal documentation, the marketing campaign in order to let our future customers know us and finally, how and when we will start our operating activities.

Some bureaucratic procedures must be completed before starting the operations, so let start talking about that

12.1 Legal documentation

Regarding legal documentation necessary for start running GyroServices, whole information is in the proper chapter, but we are going to see how it is going to happen along the time.

In the following list there are the most important steps to take into consideration in order to be able to have the company operative. The general manager will be the main actor to prepare every thing and do it during January 2011.

- Ask for and obtain a certificate of clearance of the corporate name at the Spanish Central Mercantile Register.
- Open a bank account for the activities of the firm.
- Determination of the body administration and preparation of the corporate bylaws.
- Execution of a public deed that will take place in a Spanish public notary in order to give evidence of the identity and evidence of payment.
- Assignment of a provisional tax identification number to the new company, CIF.

- Payment of the transfer tax and the fees for public notary.
- Registration of the company in the Spanish Central Mercantile Register.
- Assignment of the definitive tax identification numbering order to have a legal status.
- Declaration of the investment to the General Directorate for Trade and Investment of the Ministry of Economy and Finance.
- Registration of the company for the purpose for IAE (Tax on Economic Activities).
- Ask for the opening license.
- Registration of the company for Spanish social security and registration of its employees for the social security number.
- Compliance with formalities at the local office of the Ministry of Labour and Social Affairs.

Apart of all points mentioned before, it will be necessary to follow other aspects for having an AESA authorization in order to be able to carry out aerial operations with our gyrocopters. The operations manager will be the responsible to prepare all following documentation and be ready during January 2011 as we will see in Gantt chart at the end of the chapter

- Copy, notarial or certified copy of certificate of incorporation and bylaws.
- Vouchers of discharge in the Social security, and to fiscal effects, for the exercise of the activities.
- Voucher to have registered and enrolled the aviation material to use in the Registry of Matriculation of Aircrafts. It is precise to own at least one

operative and authorized airship with its technical documentation for the activity in question.

- Voucher of to have arranged responsibility insurance in case of accident, in front of third parties and occupants on board the aircraft.
- Voucher of to have formalised a guaranty of 3.005,06 € in “Caja General de Depositos”, at the disposal of AESA, for “guaranty of the obligations that the company can contract with the Agency, derived from the exercise of its activity”.
- Report of flight personnel of the company that will have the nationality of any Member State of the European Union and to be in possession of the licences and indispensable qualifications in each case.
- Proposal of Maintenance Manual.
- Proposal of Operations Manual.

As soon as all those steps have been completed and after wait for the proper time, GyroServices will be ready to operate legally. Before to talk about operational implementation, let see how the marketing campaign will be developed.

12.2 Marketing campaign

The first four months after the creation of the company will be dedicated to develop the marketing activities we have design in our Marketing Plan, to look for and recruit the human resources we will need in the firsts activities and to give them the appropriate education to ensure a good performance.

We will look for any national air fair in the first four months period of the year in order to show everybody our machine and the services we will provide. In the following list, we can find different steps.

- Register GyroServices logo.
- Creation of GyroServices web in order to let our customers how the company is going to work and services that we will provide.
- Prepare the van with laterals stickers as we can see in the Marketing mix part.
- Have the Brochures ready to let the company be known.
- Visit potential customers, go at least to a fair with our machine and go on with the marketing campaign in general.

Finally, we cannot forget the steps for the operational implementation since acquire devices, facilities and so on is essential for our company.

12.3 Operations

All aspects linked with operations have been taken into account in its chart but in order to summarize, we are going to enumerate the most important ones and in the final Gantt chart we will see how everything is going to happen along the time:

- Look for and rent different facilities. We are going to be located in “La Juliana” so we have to sign the contract. Also the virtual office has to be contracted
- Visit ALD in order to sign the van renting.
- Acquire the gyrocopters. Previously, we have been in Poland visiting the factory and we have the agreement so we can order them online and the estimated period to receive a gyrocopter is 3 weeks.
- First flight and training period with the machine.
- Course and special educations as soon as the operator position will be filled for some candidate.

- Start operating with the first contract that we will achieve.

In the following sheet, we have a Gantt chart in order to be able to see all steps mentioned in this chapter visually.

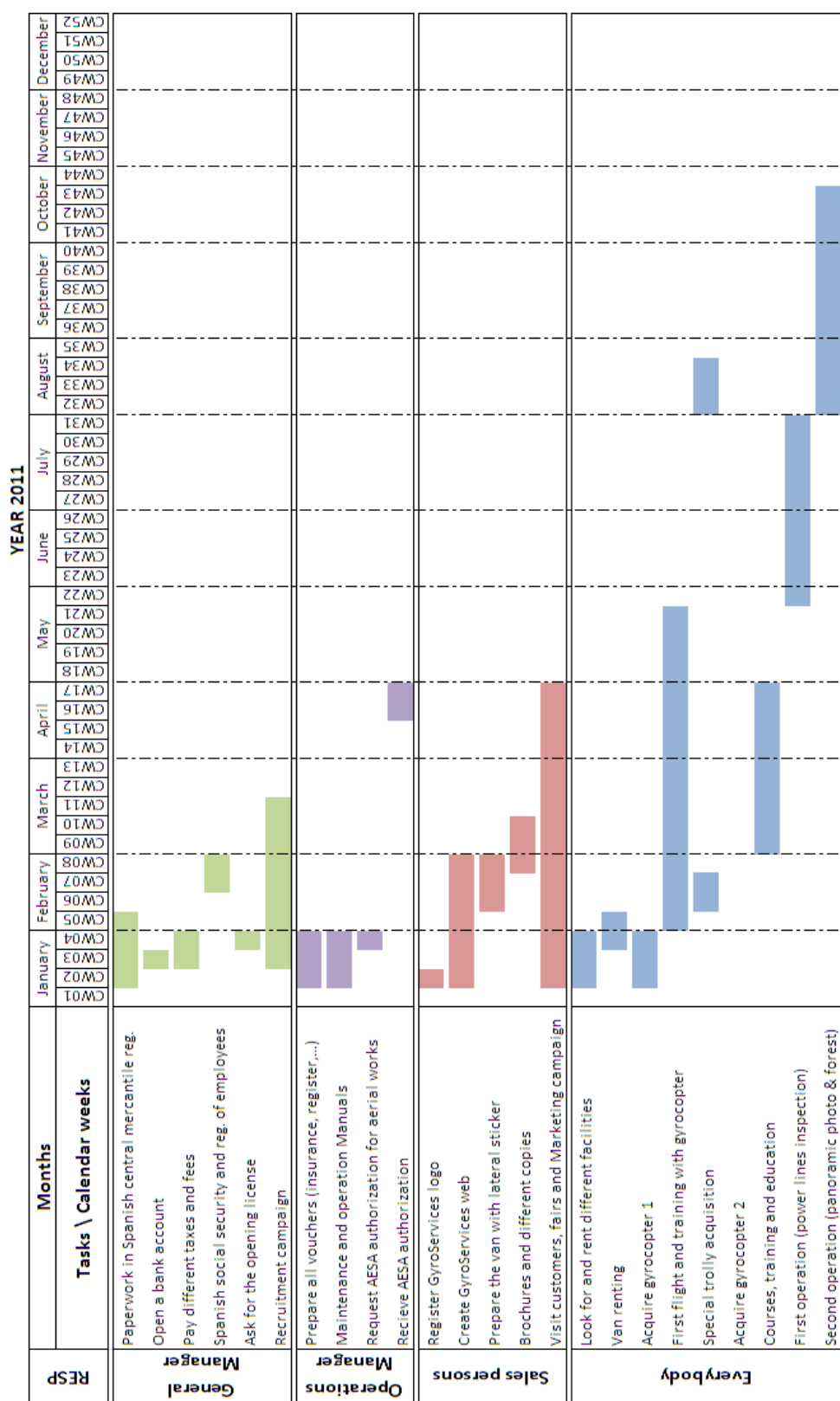


Figure 109: Gantt diagram

13 CORPORATE RESPONSIBILITY PLAN

Corporate Responsibility (CR) is the commitment of business to contribute to sustainable economic development, working with employees, their families, the local community and society at large to improve their quality of life while preserving the environment.

13.1 Sustainability Policy

Since we want the company to survive in the long run, we need to be sustainable, which is: **be effective, efficient, and responsible.**

A sustainability policy involves three different activities: economic, social, and environmental dimension. Each one of these activities has two operational dimensions, internal and external. The following figure shows in a more visual way all these concepts:

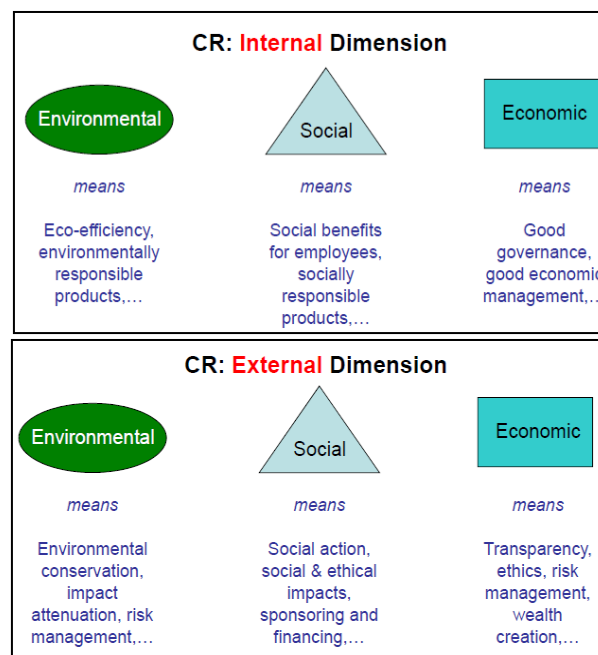


Figure 110: Sustainability Policy. Internal and external dimensions.

13.2 Value chain

Putting into practice all concepts that were shown before, we have summarized and applied some issues related to CR that have considered important into GyroServices' value chain.

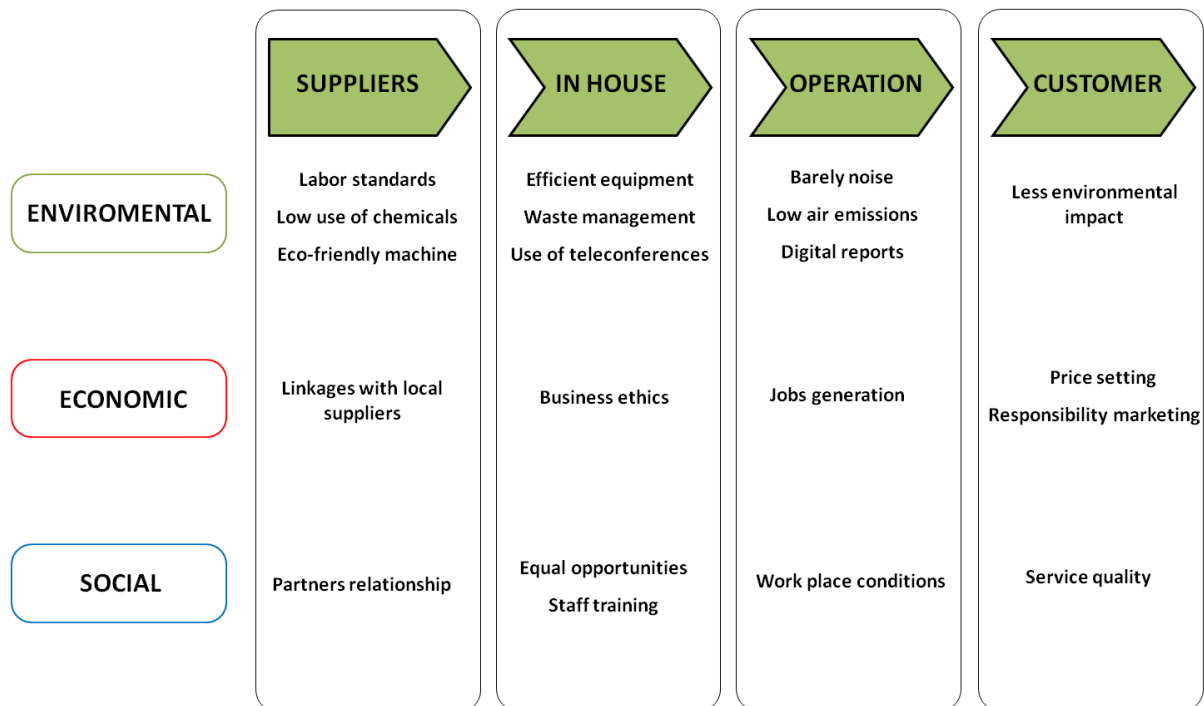


Figure 111: Sustainability policy by activity.

The CR plan of Gyroservices can be considered as a business strategy oriented to reduce risks from a social, environmental and economic point of view.

Social activities: it includes training to employees and continuous policy of education.

Environmental activities: through the use of autogyros, GyroServices will provide environmental services. We want to make our customers realized that the fact of contracting Gyroservices can be used for their own benefit. They will be able to make their investors see that they produce less environmental impact

than competitors and even they can use it as a marketing tool for clients.

Economic activities: from the economic point of view, the CR plan fixes the objective of being transparent towards employees, investors and clients.

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14 CONCLUSIONS

Along this document has been developed the GyroServices project, as a sustainable initiative for some services provided nowadays by helicopters and airplanes. The objective is to prove the viability and profitability business which is possible thanks to use of autogyro that gave us competitive advantage over our competitors.

These are the principal features of Gyroservices venture:

- **MISSION:** To satisfy customer needs, providing high quality services with the most advanced technology and at low operational costs.
- **VISION:** We want to be pioneers providing civil services with gyrocopters and be leaders in the sector along the years.
- **Activities:** Power Lines Inspections, GIS remote sensing and environmental assessment
- **Income sources:** Provided services for Electrical companies and Regional Ministry of the Environment of Andalusia
- **Competitive advantage:** Low cost
- **Strategic key points:**
 - Remind to the people about autogyro
 - Become recognized brand
 - Achieve 15% of all power lines inspections made in Andalusia
 - Achieve two contracts made for Ministry of the Environment of Andalusia
- **Location:** Seville
- **Activities initiation:** January 2011
- **Workforce:** 6 initially, 9 on 2015
- **Net Present Value (NPV)** 156.000 €
- **Expected Break-even point:** 2.5 years
- **Initial investment:** 320,000€
- **Investment sources:**

- Capital Stock: 80.000
- Long-term Loan: 200.000
- Credit Line: 40.000€

GyroServices will offer services both to private customers and public administration in Andalusia region. Initially company will focus on two basic services Power Lines Inspections, GIS remote sensing and environmental assessment which are considered as a profitable sectors within a field to expand.

Finally our financial analysis prove that all our project is profitable, making us feasible to go on with. It is nevertheless important to remark the attractiveness rate of return which for sure will be highly attractive for our investors and shareholders.

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16 ANNEXES

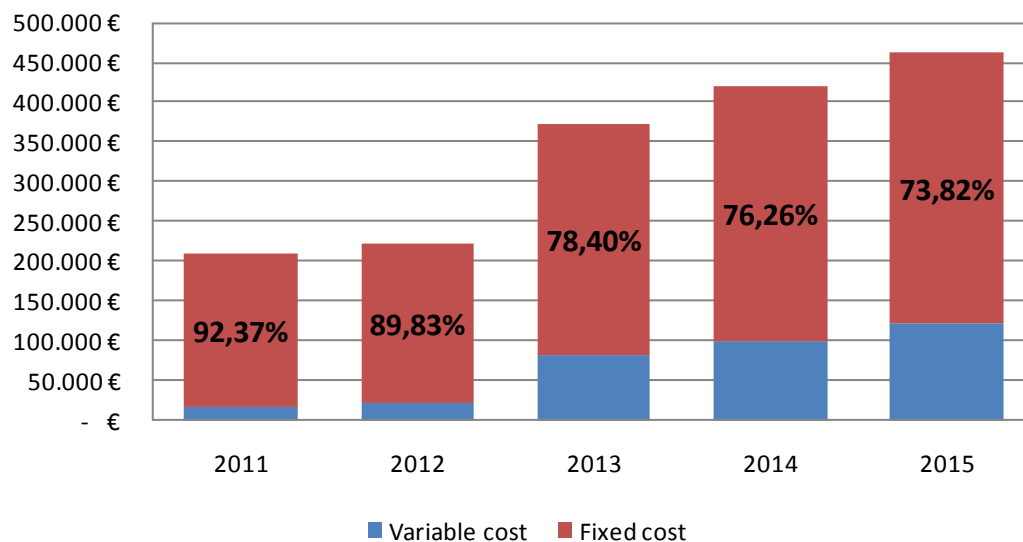
16.1 Human Resources plan

YEAR 2011									
Flying Time: 93 hours									
Professional Standing	Working Day	ABS	Allowance	Variable (Profits)	Variable (Sales)	Variable (Flying time)	Total	Personnel Cost	Total Cost
Manager (Level 1)	Full-Time	22,937.51 €	2,049.90 €				24,987.41 €	7,446.25 €	32,433.66 €
Operations manager (Level 2)	Full-Time	17,038.62 €	2,049.90 €				19,088.52 €	5,841.09 €	24,929.61 €
Sales representative (Level 2)	Full-Time	17,038.62 €	2,049.90 €		1,435.00 €		20,523.52 €	6,280.20 €	26,803.72 €
Sales representative (Level 2)	Full-Time	17,038.62 €	2,049.90 €		1,435.00 €		20,523.52 €	6,280.20 €	26,803.72 €
Operator (Level 3)	Part-Time (10 hours/week)	4,107.52 €	512.22 €			1,860.00 €	6,479.74 €	1,982.80 €	8,462.54 €
Pilot (Level 2)	Part-Time (10 hours/week)	4,259.65 €	512.22 €			2,790.00 €	7,561.87 €	2,313.93 €	9,875.80 €
Total		82,420.54 €	9,224.04 €		2,870.00 €	4,650.00 €	99,164.58 €	30,144.46 €	129,309.04 €
YEAR 2012									
Flying Time: 128 hours									
Professional Standing	Working Day	ABS	Allowance	Variable (Profits)	Variable (Sales)	Variable (Flying time)	Total	Personnel Cost	Total Cost
Manager (Level 1)	Full-Time	23,224.23 €	2,075.52 €				25,299.75 €	7,539.33 €	32,839.08 €
Operations manager (Level 2)	Full-Time	17,251.60 €	2,075.52 €				19,327.13 €	5,914.10 €	25,241.23 €
Sales representative (Level 2)	Full-Time	17,251.60 €	2,075.52 €		2,003.00 €		21,330.13 €	6,527.02 €	27,857.15 €
Sales representative (Level 2)	Full-Time	17,251.60 €	2,075.52 €		2,003.00 €		21,330.13 €	6,527.02 €	27,857.15 €
Operator (Level 3)	Part-Time (10 hours/week)	4,158.86 €	1,057.98 €			2,592.00 €	7,808.85 €	2,389.51 €	10,198.35 €
Pilot (Level 2)	Part-Time (10 hours/week)	4,312.90 €	1,057.98 €			3,888.00 €	9,258.88 €	2,833.22 €	12,092.09 €
Total		83,450.80 €	10,418.06 €		4,006.00 €	6,480.00 €	104,354.85 €	31,730.19 €	136,085.04 €
YEAR 2013									
Flying Time: 366 hours									
Professional Standing	Working Day	ABS	Allowance	Variable (Profits)	Variable (Sales)	Variable (Flying time)	Total	Personnel Cost	Total Cost
Manager (Level 1)	Full-Time	27,108.48 €	2,106.66 €				29,215.14 €	7,111.52 €	36,326.66 €
Operations manager (Level 2)	Full-Time	20,136.93 €	2,106.66 €				22,243.59 €	5,911.94 €	28,155.53 €
Sales representative (Level 2)	Full-Time	20,136.93 €	2,106.66 €		4,870.00 €		27,113.59 €	6,724.01 €	33,837.60 €
Sales representative (Level 2)	Full-Time	20,136.93 €	2,106.66 €		4,870.00 €		27,113.59 €	6,724.01 €	33,837.60 €
Operator (Level 3)	Part-Time (20 hours/week)	8,442.49 €	1,073.85 €			7,429.80 €	16,946.15 €	2,645.80 €	19,591.95 €
Operator (Level 3)	Part-Time (20 hours/week)	8,442.49 €	1,073.85 €			7,429.80 €	16,946.15 €	2,645.80 €	19,591.95 €
Pilot (Level 2)	Part-Time (20 hours/week)	8,755.18 €	1,073.85 €			11,144.70 €	20,973.73 €	3,308.90 €	24,282.63 €
Pilot (Level 2)	Part-Time (20 hours/week)	8,755.18 €	1,073.85 €			11,144.70 €	20,973.73 €	3,308.90 €	24,282.63 €
Administrative assistant (Level 5)	Full-Time	13,696.54 €	2,130.73 €				15,827.27 €	4,567.79 €	20,395.06 €
Total		135,611.17 €	14,852.76 €		9,740.00 €	37,149.00 €	197,352.93 €	42,948.67 €	240,302.60 €
YEAR 2014									
Flying Time: 426 hours									
Professional Standing	Working Day	ABS	Allowance	Variable (Profits)	Variable (Sales)	Variable (Flying time)	Total	Personnel Cost	Total Cost
Manager (Level 1)	Full-Time	27,582.88 €	2,143.52 €				29,726.40 €	7,183.91 €	36,910.31 €
Operations manager (Level 2)	Full-Time	20,489.33 €	2,143.52 €				22,632.85 €	5,955.84 €	28,588.69 €
Sales representative (Level 2)	Full-Time	20,489.33 €	2,143.52 €		4,870.00 €		27,502.85 €	9,061.36 €	36,564.21 €
Sales representative (Level 2)	Full-Time	20,489.33 €	2,143.52 €		4,870.00 €		27,502.85 €	9,061.36 €	36,564.21 €
Operator (Level 3)	Part-Time (20 hours/week)	8,590.24 €	1,092.64 €			8,669.10 €	18,351.98 €	3,229.58 €	21,581.56 €
Operator (Level 3)	Part-Time (20 hours/week)	8,590.24 €	1,092.64 €			8,669.10 €	18,351.98 €	3,229.58 €	21,581.56 €
Pilot (Level 2)	Part-Time (20 hours/week)	8,908.39 €	1,092.64 €			13,003.65 €	23,004.69 €	3,993.78 €	26,998.47 €
Pilot (Level 2)	Part-Time (20 hours/week)	8,908.39 €	1,092.64 €			13,003.65 €	23,004.69 €	3,993.78 €	26,998.47 €
Administrative assistant (Level 5)	Full-Time	14,214.95 €	2,168.02 €				16,382.97 €	4,659.15 €	21,042.12 €
Total		138,263.08 €	15,112.68 €		9,740.00 €	43,345.50 €	211,180.45 €	59,608.34 €	270,788.79 €
YEAR 2015									
Flying Time: 484 hours									
Professional Standing	Working Day	ABS	Allowance	Variable (Profits)	Variable (Sales)	Variable (Flying time)	Total	Personnel Cost	Total Cost
Manager (Level 1)	Full-Time	30,947.99 €	2,186.39 €				33,134.38 €	11,783.91 €	44,918.29 €
Operations manager (Level 2)	Full-Time	22,989.03 €	2,186.39 €				25,175.42 €	10,595.84 €	35,771.26 €
Sales representative (Level 2)	Full-Time	22,989.03 €	2,186.39 €		6,341.00 €		31,516.42 €	9,061.36 €	40,577.78 €
Sales representative (Level 2)	Full-Time	22,989.03 €	2,186.39 €		6,341.00 €		31,516.42 €	9,061.36 €	40,577.78 €
Operator (Level 3)	Part-Time (20 hours/week)	8,762.04 €	1,114.50 €			9,873.60 €	19,750.14 €	3,229.58 €	22,979.72 €
Operator (Level 3)	Part-Time (20 hours/week)	8,762.04 €	1,114.50 €			9,873.60 €	19,750.14 €	3,229.58 €	22,979.72 €
Pilot (Level 2)	Part-Time (20 hours/week)	9,086.56 €	1,114.50 €			14,810.40 €	25,011.46 €	3,993.78 €	29,005.24 €
Pilot (Level 2)	Part-Time (20 hours/week)	9,086.56 €	1,114.50 €			14,810.40 €	25,011.46 €	3,993.78 €	29,005.24 €
Administrative assistant (Level 5)	Full-Time	14,499.25 €	2,211.38 €				16,710.63 €	4,659.15 €	21,369.78 €
Total		150,111.53 €	15,414.94 €		12,682.00 €	49,368.00 €	235,784.78 €	59,608.34 €	295,393.12 €

16.2 Variable / Fixed costs

	2011	2012	2013	2014	2015
Fixed cost	194.176 €	199.245 €	292.636 €	319.786 €	341.136 €
Variable cost	16.032 €	22.554 €	80.644 €	99.529 €	120.981 €
Percentage F/V	92,37%	89,83%	78,40%	76,26%	73,82%

Fixed / Variable costs



16.3 Financial alternative scenario

Profit and loss account

	2011	2012	2013	2014	2015
Sales	143.500 €	200.300 €	487.000 €	634.100 €	821.000 €
Exploitation subsidy	61.485 €	- €	- €	- €	- €
Operational expenses	162.036 €	168.969 €	293.464 €	329.807 €	361.179 €
Marketing	7.000 €	4.500 €	5.000 €	5.500 €	6.000 €
Structure expenses	25.727 €	28.384 €	48.162 €	53.518 €	59.786 €
Human resources	129.309 €	136.085 €	240.302 €	270.789 €	295.393 €
EBITDA	42.949 €	31.331 €	193.536 €	304.293 €	459.821 €
Depreciations	23.876 €	23.876 €	25.615 €	25.615 €	25.615 €
Operative earnings (EBIT)	19.073 €	7.454 €	167.921 €	278.678 €	434.206 €
Financial expenses	11.000 €	11.000 €	11.000 €	9.868 €	8.675 €
Financial expenses credit line	2.000 €	2.000 €	- €	- €	- €
Other financial expenses	2.784 €	3.885 €	9.446 €	12.300 €	15.925 €
Earnings before taxes (EBT)	3.289 €	- 9.431 €	147.475 €	256.510 €	409.606 €
Income taxes	- 658 €	1.886 €	- 29.495 €	- 51.302 €	- 81.921 €
Deferred income taxes (BS)	- 658 €	1.228 €	- €	- €	- €
Tax due (BS)	- €	- €	28.267 €	51.302 €	81.921 €
Net profit (EAT)	2.631 €	- 7.545 €	117.980 €	205.208 €	327.685 €

Balance sheet

	2011	2012	2013	2014	2015
Assets	302.631 €	261.507 €	399.579 €	568.031 €	829.461 €
Total Fixed Assets	222.064 €	198.187 €	189.962 €	164.346 €	138.731 €
Total Current Assets	80.568 €	63.320 €	209.617 €	403.685 €	690.731 €
VAT to compensate	24.024 €	- €	- €	- €	- €
Deferred income taxes	- 658 €	1.228 €	- €	- €	- €
Cash	57.202 €	62.092 €	209.617 €	403.685 €	690.731 €
Liabilities and equity	302.631 €	261.507 €	399.579 €	568.031 €	829.461 €
Total Equity	62.631 €	55.087 €	173.066 €	333.048 €	578.649 €
Common stocks	60.000 €	60.000 €	60.000 €	60.000 €	60.000 €
Retain earnings (voluntary reserve)	- €	- €	- €	67.840 €	190.964 €
Net earnings	2.631 €	- 7.545 €	117.980 €	205.208 €	327.685 €
Accumulated losses	- €	2.631 €	- 4.913 €	- €	- €
Long-term borrowings	200.000 €	200.000 €	179.427 €	157.723 €	134.825 €
Total Current Liabilities	40.000 €	6.421 €	47.085 €	77.261 €	115.987 €

Cash flow

	2011	2012	2013	2014	2015
Sales collections	169.330 €	236.354 €	574.660 €	748.238 €	968.780 €
Exploitation subsidy	61.485 €				
Payments to suppliers	38.312 €	38.494 €	62.417 €	69.321 €	77.301 €
Payments to employees	129.309 €	136.085 €	240.302 €	270.789 €	295.393 €
VAT payments	- €	- €	62.877 €	96.695 €	128.157 €
Income taxes payment	- €	- €	- €	28.267 €	51.302 €
Cash Flow from Operations	63.194 €	61.775 €	209.065 €	283.167 €	416.627 €
Investments	290.209 €	- €	20.520 €	- €	- €
Cash Flow from Investing	- 290.209 €	- €	- 20.520 €	- €	- €
Common stocks	60.000 €	- €	- €	- €	- €
Borrowings	200.000 €	- €	- €	- €	- €
Credit line	40.000 €	- €	- €	- €	- €
Financial expenses payment	11.000 €	11.000 €	11.000 €	9.868 €	8.675 €
Financial expenses credit line	2.000 €	2.000 €	- €	- €	- €
Loan amortization	- €	- €	20.573 €	21.704 €	22.898 €
Other financial expenses	2.784 €	3.885 €	9.446 €	12.300 €	15.925 €
Credit line payment	- €	40.000 €	- €	- €	- €
Dividends payment	- €	- €	- €	45.226 €	82.083 €
Cash Flow from Financing	284.216 €	- 56.885 €	- 41.019 €	- 89.099 €	- 129.581 €
Free Cash Flow	57.202 €	4.890 €	147.525 €	194.068 €	287.046 €
Cash balance	57.202 €	62.092 €	209.617 €	403.685 €	690.731 €

Ratio analysis

	2011	2012	2013	2014	2015
OPERATIONS					
Revenues Growth Rate	N/A	40%	143%	30%	29%
Net Income Growth Rate	N/A	N/A	N/A	74%	60%
Operating Margin	29,9%	15,6%	39,7%	48,0%	56,0%
PROFITABILITY					
ROE	0,04	-0,13	1,97	3,42	5,46
ROA	1%	-4%	37%	45%	49%
ROS	13%	4%	34%	44%	53%
LIQUIDITY					
WC	40.568 €	56.899 €	162.532 €	326.424 €	574.743 €
SOLVENCY					
FL	4,0	3,3	3,0	2,6	2,2
D/D+E	0,80	0,77	0,75	0,72	0,69
FCC	1,47	0,57	15,27	28,24	50,05
STOCK					
Payout Dividend	0,0%	0,0%	0,0%	22,0%	25,0%
CASH GENERATION					
Operative cash flow margin	37,3%	26,1%	36,4%	37,8%	43,0%
Free cash flow margin	33,8%	2,1%	25,7%	25,9%	29,6%