
**www.polytrike.com**
**www.polytrike.es**

# POLYTRIKE

## Business Plan

## 1. PROJECT DEFINITION

The purpose of this Project is the development and merchandising of a new vehicle concept: Polytrike.

The original idea came up mid 2011 as a response to the need of finding a sustainable and practical solution to the conventional means of transport and to solve problems such as:

1. Emissions produced by fossil fuels. Worldwide scientists and experts have widely demonstrated the consequent effect of such emissions on global warming
2. The need of silent means of transport
3. The growing limitation to the use of traditional cars in big cities
4. The lack of parking places in urban areas
5. The expanding change of downtown areas into pedestrian areas and, therefore, the need of adequate means of transport for those zones
6. The lack of suitable means of transport for old cities, with narrow and sloped streets
7. Other than the daily use to move to the work place, the intention was that this vehicle would be valid in other environments such as rural areas, and that its range of use could be as wide as possible

The determining factors and premises that were taken into account in the vehicle design and development steps were as follows:

1. Electric powered: a clean, silent and zero emissions energy
2. The vehicle should be versatile, allowing the user to move either standing (in pedestrian areas) or seated (in roads or longer distances). In the seated mode, we thought in population segments with moving difficulties such as disabled or elderly people. Therefore, the vehicle should have a padded seat and back so long distances could be covered in a comfortable way for the user. Another ergonomic aspect that should be contemplated for these segments of population should be an easy way to access the vehicle.
3. In order to contribute to the sustainability concept of the idea and to allow an easy way to recharge batteries when no plugging is possible, the vehicle should count with solar panels. Also, these panels would act as a protective ceiling for the user against rain or excessive heat.
4. The vehicle should have at least three wheels to assure stability versus current existing 2-wheel vehicles. To ensure stability in bends, it was necessary to provide an automatic side tilt system to counteract the centrifugal force that shows in these occasions. Finally, it would be advisable that the vehicle could guarantee verticality for the use in standing position when facing ramps (up, down or side).
5. It should be totally foldable, preferably in an automatic way, so it took up the minimum space possible, and so it can be moved as a suitcase and fit in any standard elevator so it can be taken to a hotel room, flat, office, and could be charged as any other portable electronic device.
6. The batteries recharge should be as fast as possible (in less than one hour)
7. The use of the vehicle (driving, folding, unfolding) should be extremely easy and suitable for any person, without any technical knowledge
8. It should have some object moving possibilities, such as cases, shopping carts, handbags, backpack, etc.
9. Another desirable option would be the possibility or wireless communication with mobile devices to show speed, battery charge level, etc. as well as the possibility of remote managing of the folding and unfolding operations
10. The weight should be as light as possible, less than 40-45 kgs.

In spite of the multiple obstacles arose during the design phase, all of the above-mentioned conditioning factors were totally fulfilled.

There is already a first prototype built, which is totally operative in terms of folding / unfolding and driving operations. Find attached some photographs of the prototype:

Folded configuration

Carry vehicle

Standing configuration

Seated configuration

Speed:

Maximum speed reached during prototype trials has been 28 km/h (flat land). This speed is considered to be enough for city courses, though the idea is to reach up to 50 km/h in the final product so it will be allowed to use bus-taxi lanes and it does not slow down the traffic.

Range:

The range of the prototype with the current batteries equipped is around 35 km (17,5 km for each battery set), in a flat surface at an average speed of 23 km/h., without any support from the solar panels. We estimate that the final range will reach up to 40km, at an average speed of 30km/h with new and more efficient battery types.

This range should be more than enough to daily city journeys of short-medium distance that allows recharge at night or during long stops. However, it is important to highlight the possibility of fast recharge in just 20 minutes.

Extended range can be obtained by carrying one or more battery packs by the user, replacing the exhausted ones as they get used. The weight of each removable pack is 3,9 kgs.

Solar recharge:

The total charge of both battery sets (fix and removable) needs a sun exposition of at least 12 hours in ideal conditions (maximum radiation, sunny summer day with panels perpendicular to the sun rays). In average conditions, 2 full days are needed for a complete recharge of both battery sets.

Batteries and solar panels:

One of the potential advantages of the vehicle is the possibility of upgrading the batteries and solar panels according to the progress of the technology. There is a big number of manufacturing companies investing in the development of better performing solar panels and batteries with higher energy storage capability and reducing charging times as a result of the recent worldwide growing market of renewable energy sources (such as solar) and electrical vehicles (cars, bikes and motorbikes). Obviously this will result in a higher range of the vehicle and reduced recharging periods of the batteries, both by plugging or solar energy.

Summary of technical specifications:

| MODEL | Carbon fiber frame | Solar panels | Weight (Kg) | Max. Speed | | Range | |
|---|---|---|---|---|---|---|---|
| | | | | Prototype | Final version | Prototype | Final version |
| Premium S | ✓ | ✓ | 48 | 28 Km/h | 50 Km/h | 35 Km | 40 Km |
| Premium | ✓ | ✗ | 45 | | | | |
| Eco S | ✗ | ✓ | 54 | | | | |
| Eco | ✗ | ✗ | 51 | | | | |

Market:

This vehicle can be easily used worldwide by a vast majority of population, from young to senior people, as well as by disabled persons, due to the stability, comfort and easy-to-use design.

In terms of scope of application, there is a wide range where this vehicle can be perfectly used, such as:

1. Daily transport to the working or studying place, even combining with public transportation or private car (needed permits will need to be defined)
2. Supermarket or shopping centres, being an ideal mean of transport for elderly people, so they can shop in places far from their residences without the need to walk.
3. Vacation areas: for shopping, moving to the beach, go for a walk, etc. Due to its reduced size in the folded position, Polytrike can even be brought in recreational skippers to move freely when in land. Also applicable to cruises, where these vehicles could be rented to the customers that want to use them in the excursions programmed.
4. Rural and urban tourism, not only private but also rented by, for instance, City Councils, Hotels or other companies. Polytrike is an ideal mean of transport in old cities with narrow and sloped streets.
5. Golf courses
6. Amusement parks
7. Exhibitions and trade shows
8. Airports and harbours
9. Security corps, both private and public, to be able to patrol both pedestrian areas and roads

10. Mail, parcel or food delivery
11. University / College campus
12. Hunting and fishing activities
13. Moves in big factories

Intellectual Property:

The patent request (Model of Utility) for the vehicle was presented in October, 15, 2013 in the Oficina Española de Patentes y Marcas (OEPM) by the Agency: PONS CONSULTORES DE LA PROPIEDAD INDUSTRIAL S.A. The model was registered with the application number: U201331174

In April 15, 2014 the Utility Model was published in the Boletín Oficial de la Propiedad Industrial (BOPI). After the regulatory 2 months were gone by without receiving any allegation, the Utility Model was officially approved in Spain for a period of 10 years

The owner of the patent would hand over the patent rights to the company created to produce and market the vehicle.

However, if any other company would be interested in the production of the vehicle, the sale or assignment of the rights could be considered and/or negotiated.

In any case, the main objective in the decision making process is to reach the series production and commercialisation of the vehicle.

## 2. TEAM PRESENTATION.

- **Leopoldo López Maestro**

Technical Industrial Engineer, Mechanical, Machine Construction speciality.

Languages: English, Proficient User level (C2-Advanced)

Experience: 28 years in management positions, in different industrial areas such as:

- Food products packing
- Aeronautical Industry
- Microelectronics Industry
- Automation and robotization
- Industrial machinery design
- Manufacturing of building products

Functions: Project responsible and coordinator, performing the electrical, electronic and mechanical design, programming of the vehicle control systems as well as preparing financial calculations (viability analysis) and commercial tasks: marketing plan, etc.

Project involvement: Total

- **Luis Cortés Olago**

Second grade Formación Profesional

Experience: 35 years in industrial machinery, automation and assembly

Functions: Technical assessment of the mechanical design and contribution to the final assembly of the prototype

Project involvement: Total

- **Talleres Gaype**

Parts machining company located in Getafe (Madrid)

This company has produced the mechanical components of the initial prototype as well as performed technical support for the manufacturing cost reduction study.

There are a total of 12 persons working in this company, and they have modern CNC machining equipment, and are certified to ISO9001 (quality) and ISO14001 (environmental) standards.

Talleres Gaype has showed their intention to become part of the investment team of the company by producing all mechanical parts needed for the first production series.

- **La Mitocondria, Producciones Audiovisuales** (http://www.lamitocondriaproducciones.es)

Dedicated to the production of Nature documentary and promoter and defender of sustainability initiatives.

La Mitocondria closely cooperates in this project through its producer and responsible person, Luis Garcia-Ferreras, in the media broadcasting area and they have produced a documentary of the vehicle, highlighting its contribution in terms of environmental sustainability as well as an alternative solution for urban transportation. This documentary can be found in the web page of the project.

- **Other**

Once the company is set, the plan is to create a multidisciplinary and specialized team (technical, financial, purchasing and production) to afford the next steps of the project development.

We also foresee in the near future, a likely cooperation with Universities, Research centres and official bodies (such as the Centro de Automática y Robótica or Universidad Carlos III de Madrid) to further develop the vehicle concept.

## 3. MARKETING PLAN

Products and costs:

Four models are forecasted for initial production, depending on the type of frame (light or heavier) and the use of solar panels. This last option is considered as in some markets such as Northern Europe, the fact of using solar energy would not be an added value. Anyway, the cover would always be contemplated to protect the user against climate inclemency.

The following table shows the estimated costs and prices for the different models (€):

| MODEL | Carbon fiber frame | Solar panels | Direct cost | Company margin | Distributor margin | Shipping cost to retailer | Margin retailer | Minimum selling price | Minimum selling price (+ VAT) |
|---|---|---|---|---|---|---|---|---|---|
| Premium S | ✔ | ✔ | 4681 | 350 | 100 | 46 | 250 | 5427 | 6567 |
| Premium | ✔ | ✘ | 4051 | 350 | 100 | 46 | 250 | 4797 | 5805 |
| Eco S | ✘ | ✔ | 3831 | 350 | 100 | 46 | 250 | 4577 | 5539 |
| Eco | ✘ | ✘ | 3096 | 350 | 100 | 46 | 250 | 3842 | 4649 |

The direct costs take into account the delivery to distributors as well as an estimation of the duties, where they apply.

Prices / tariffs will be prepared for distributors with volume discounts.

The forecast is that the company develops other new products related to the sustainable mobility but without discarding other interest areas. Whatever the option is, the common factor to any new product will be the use of advanced and innovative technology.

Market survey:

A big survey has been performed through a deep search of possible competitors in the web. The next table shows a comparative between Polytrike and other existing vehicles, according to their characteristics and features:

| | POLYTRIKE | Segway | Moveo | Di Blasi | Travelscoot |
|---|---|---|---|---|---|
| Electric | ✓ | ✓ | ✓ | ✗ | ✓ |
| Sitted and standing configurations | ✓ | ✗ | ✗ | ✗ | ✗ |
| Foldable | ✓ | ✗ | ✓ | ✓ | ✗ |
| Automatic folding operation | ✓ | ✗ | ✗ | ✗ | ✗ |
| Solar | ✓ | ✗ | ✗ | ✗ | ✗ |
| Stability on curves | ✓ | ✗ | ✗ | ✗ | ? |
| Stability on slopes | ✓ | ? | ✓ | ✓ | ✓ |
| Roof | ✓ | ✗ | ✗ | ✗ | ✗ |

Websites:

- **Segway:** http://www.segway.es/
- **Moveo:** http://moveoscooter.com/
- **Di Blasi:** http://www.diblasi.it/
- **Travelscoot:** http://www.travelscoot.com/

In terms of prices, Polytrike (in the high range model Premium S) is similar to the American company Segway that markets the well known 2-wheel vehicles, where the user travels standing. But Polytrike offers many more features and applications than the Segway vehicle.

The following comparison table shows the scores reached by Polytrike versus other current means of transport attending to their characteristics and features:

| COMPARATIVE ANALYSIS | POLYTRIKE | Foldable standard bikes | Electric bikes | 2-Wheel inertial vehicles | Standard bikes | Tricycle fuel motorbikes | Cars | Electric scooters | Standard tricycles | Motorbikes | Standard fuel scooters |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Clean energy* | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 | 0 | 0 |
| *Price* | 1 | 2 | 2 | 2 | 2 | 1 | 0 | 1 | 2 | 1 | 1 |
| *Consumption* | 2 | 2 | 2 | 2 | 2 | 1 | 0 | 2 | 2 | 1 | 1 |
| *Versatility (2 systems in 1)* | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Parking* | 2 | 2 | 2 | 2 | 2 | 1 | 0 | 1 | 1 | 1 | 1 |
| *Speed* | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 2 | 1 |
| *Range* | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Battery solar charge* | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Motor powered* | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 2 | 0 | 2 | 2 |
| *Road mobility* | 1 | 1 | 1 | 0 | 1 | 2 | 2 | 0 | 0 | 2 | 0 |
| *Street mobility* | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 0 | 1 | 2 | 2 |
| *Pedestrian areas mobility* | 2 | 1 | 1 | 2 | 0 | 0 | 0 | 2 | 1 | 0 | 0 |
| *Long distance* | 0 | 1 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 2 | 1 |
| *Medium distance* | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 |
| *Short distance* | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Stability (Still)* | 2 | 0 | 0 | 2 | 0 | 2 | 2 | 2 | 2 | 0 | 0 |
| *Stability on curves* | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 1 | 0 | 0 |
| *Stability on slopes* | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *Comfortability* | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| *Insurance cost* | 1 | 2 | 2 | 2 | 2 | 1 | 0 | 2 | 2 | 0 | 1 |
| *Thef risk* | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| *Automatically foldable* | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Portability at home, office, etc* | 2 | 2 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Car portability* | 2 | 2 | 2 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Public transport access* | 1 | 2 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Minimum dimensions* | 2 | 2 | 1 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| | | | | | | | | | | | |
| **SCORE** | **42** | **34** | **28** | **28** | **25** | **25** | **25** | **24** | **21** | **21** | **18** |

Based on the final scores shown in the table, Polytrike is wide ahead the rest of the means of transport studied.

Specifically in relation with bicycles, either electric or not, foldable or not, Polytrike does not pretend to compete but to complement them under the common objective of sustainability for those users that for age reasons or just for comfort, do not wan to exercise in their daily moves. This effect is particularly remarkable in sloped areas or areas with irregular ground such as cobbled, pot-holed or non-paved streets. Also, the exceptional stability that 3 wheels give to Polytrike means an alternative against unsafe sensations inherent to bicycles, especially under inclement weather conditions (wet ground) that results in wide population sectors been reluctant to use them.

On the other hand, many persons do not used bicycles due to the uncomfortable position of the user (stooped over instead of supported back) that results in fatigue in long distances, as well as the design of the seat (not ergonomic, but needed to pedal effectiveness. Also, the fragility of the bicycles structure and the reduced volume does not warrant enough trust and safety in many users, compared to other usual vehicles such as cars or buses.

Regarding motorcycles (standard 2-wheel), on top of sharing the problems of instability and ergonomics with bicycles, they also have the handicaps of the weight and even the high power as a barrier for an easy use.

The tricycle motorbikes, though gaining market because of the important improvement in stability and safety, still share the high weight and power issue with their bicycle sisters, as well as the need of performing some complicated tasks such as gearshift.

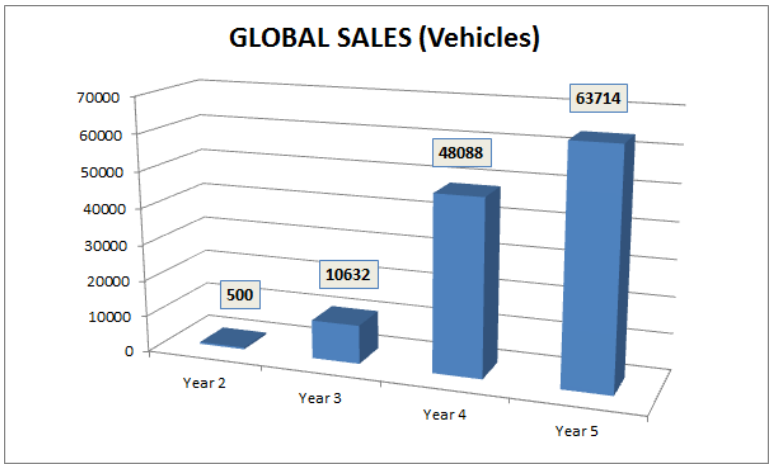
Company location

Initially, the starting location considered would be a 300 $m^2$ premise in Madrid area, during a 6-7 months period, where design, assembly, programming and trial tasks of the second prototype will be carried out, as well as any other task related with this or next project phases.

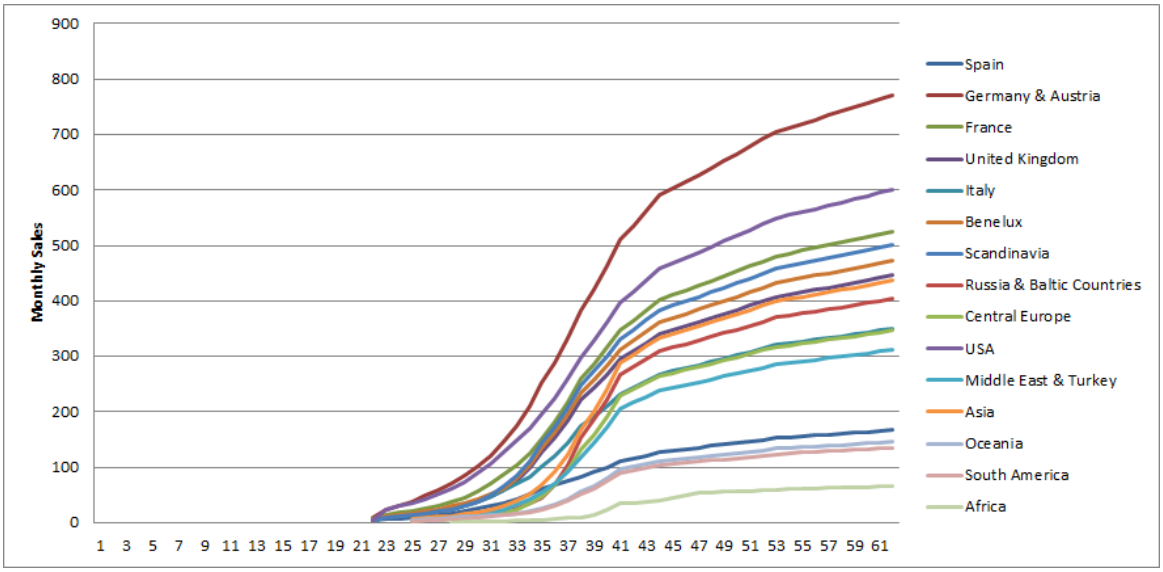
After this 6-7 months initial period, the company would move to a bigger premise to develop assembly and storage of the first units. The study performed shows a space need of around 9.000 $m^2$ to meet the production and storage plan. This space is always intended to be in a renting basis.

Sales forecast

- Global Sales (Annual)



- Sales forecast by market (X axis shows months after Company creation)




As shown in above graph, Germany/Austria, USA and France are considered to be the markets with higher sales potential, due to their size and high purchasing power of their population. Germany is especially remarkable because of the importance and spread support to the sustainable concept.

Likewise, the Asian market is considered to be key, due to the big population and increasing economic development as well as to the fact that many of the big cities (Peking, Shanghai, etc.) are already affording serious pollution, traffic and parking problems and, therefore, will demand in a near future alternative means of transport.

The excellent advantage of Polytrike to be used in isolated areas with no mains but charging the batteries through solar panels makes this vehicle an ideal transport option in countries with precarious development levels, especially in Africa.

**Communication**

**Advertising**

· Direct Marketing. Presence in Shows related to the bicycle sector and, in general, related to sustainability and sustainable transport.

Some of the existing shows are:

- Spain
  - Expobike (Madrid)
  - Unibike (Madrid)
  - Festibike (Madrid)
  - Egética-Expoenergética (Valencia)
- Rest of Europe
  - Ispo Bike (Munich)
  - Eurobike (Friedichshaffen)
- Other:
  - USA : Bike expo (New York City)
  - Brasil : Bike ExpoBrasil

The approximate cost of attending a show in Europe is **10.070 €** (30m$^2$ Stand / 3 persons / 4 days)

The cost of attending a show in other continents (America or Asia) can be estimated in approx. **17.770 €** (30m$^2$ Stand / 3 persons / 6 days)

· Press. Newspapers, specialized press, magazines, free papers, yellow pages, local or sectorial guides, etc., in different geographic locations.

· Web page, Facebook and Twitter

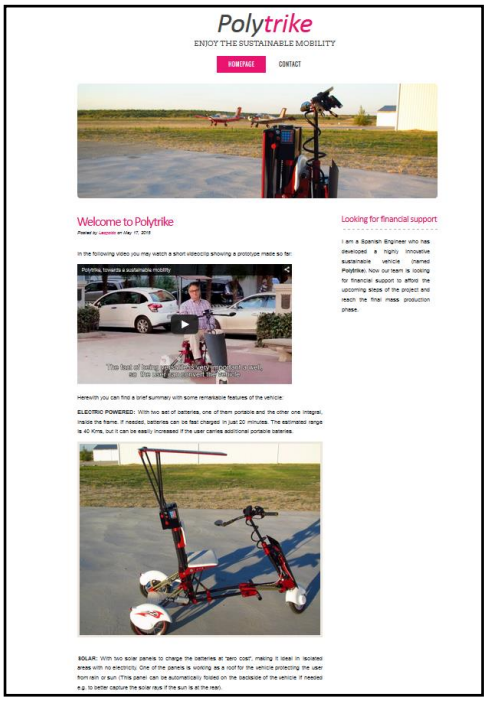
· Television, cinema, radio

· Outdoors advertisement: Fences, bus shelters, transportation media, etc.

· Promotion: Presentations, free trials and contests.

The communication budget is considered a very important factor in the marketing process of the product, representing an amount of **5.281.100 €,** in a 5 years period

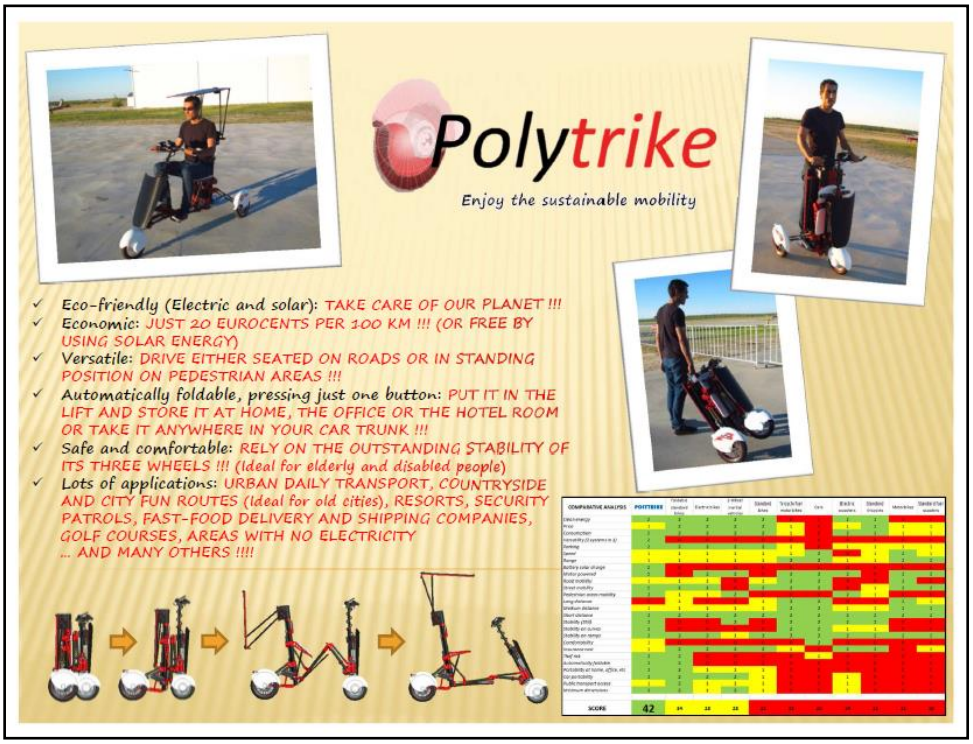
A web page with detailed project information has been created as a tool to obtain outside investment (www.polytrike.com)




A video has also been filmed to show the product advantages. It is in English and can be retrieved in the following link:

https://www.dropbox.com/s/rcxloph23bk58gh/Polytrike%20-%20English%20-%20Short%20-%20V5.avi?dl=0

Finally, the following leaflet has been prepared :




Contests and other events

The vehicle was presented in the "Soy Emprendedor" contest, organized by Mutua Madrileña in June to September 2014 and was chosen finalist project among the 100 projects presented.

As a consequence, Polytrike was present at the "South Summit 2014" (October 10th- 12th) as part of the Mutua Madrileña stand. This multinational event gathers worldwide investors and entrepreneurial, and received a warm reception among companies and visitors. See the press clipping beside:

The vehicle was also presented at the "Zinc Shower" event at Madrid in May 2015 with a remarkable success among visitors and press media. Some examples of this can be found in the article published by the well-known magazine "Yorokobu" http://www.yorokobu.es/polytrike-la-vuelta-al-triciclo/, as well as a TV interview with the Spanish public channel TVE for the entrepreneurial program "Zoom Net" http://www.rtve.es/alacarta/videos/zoom-net/zoom-net-mundo-hacker-day-macbook-zinc-shower/3138611/

EL MUNDO CATALUNYA
INNOVADORES

PAÍS: España
PÁGINAS: 1,3
TARIFA: 3556 €
ÁREA: 828 CM² - 80%

FRECUENCIA: Semanal
O.J.D.: 11239
E.G.M.: 42000
SECCIÓN: INNOVACION

13 Octubre, 2014

> FERIA

# «Los fondos necesitan innovación para crecer»

The South Summit cierra con un marcado mensaje de fomento de la creatividad y el emprendimiento como los principales motores de la economía y la creación de empleo de España para salir de la crisis. Por **Daniel. J. Ollero**

Después de la frenética actividad vivida en la madrileña plaza de toros de Las Ventas, el encuentro Spain Start Up The South Summit deja un mensaje claro que sale de la boca de su presidenta y organizadora, Marta Benjumea: «Se ha demostrado que los fondos y grandes corporaciones necesitan de la innovación para seguir creciendo y hacer funcionar sus negocios».

Con unas cifras que superan las expectativas iniciales de 5.000 asistentes, tanto por parte de la organización como por parte de los asistentes coinciden en hacer un balance «muy positivo» de las jornadas. «Al final hemos contado con 6.500 visitantes, 4.000 de ellos de startups y emprendedores; más más de 400 fondos e inversores, 40 de ellos de referencia mundial y 35 corporaciones de las diferentes industrias, como Endesa o Telefónica», explica Benjumea.

«Porque el emprendimiento y la innovación», prosigue, «no es una cuestión puramente exclusiva de las empresas high tech, puede darse prácticamente en cualquier sector o industria».

Prueba de esta diversidad fue la exposición del chef Ferran Adrià en la ceremonia de clausura del evento. En su intervención, el famoso cocinero se mostró bastante precavido en medio de un clima generalizado de euforia tras la entrega de premios a las mejores startup. «La creatividad e innovación deben ser realmente creatividad e innovación, pero los conceptos se han frivolizado», señalaba.

Además, durante su discurso, el renombrado chef aprovechaba para poner en valor el factor de la investigación antes de lanzar un nuevo negocio, empresa o producto. «En el 90% de los nuevos productos no se investiga, independientemente de que vengan de una pyme que quiere montar un restaurante o de una gran multinacional», sostenía el cocinero. «De hecho, yo he trabajado como asesor para grandes corporaciones como Nestlé, PepsiCo o NH hoteles y la investigación o no se hace, o es insuficiente», añadía. «Ahora mismo, se lanza un montón de proyectos que llevan la etiqueta de innovación, pero que realmente no tienen nada de diferenciador», zanjaba.

Por el contrario, el contrapunto final, la euforia y el optimismo volvieron de la mano del presidente ejecutivo de Google, Eric Schmidt, que arrancó su intervención abordando una de las principales preocupaciones del auditorio, el mercado laboral. «El 75% de los nuevos empleos en España van a venir de la mano de las startup», afirmaba. «El futuro de España pasa por la mano del conocimiento y, para eso, necesitamos un espacio para la innovación», añadía.

El directivo de Silicon Valley

**Google** vaticina que el 75% de los nuevos empleos en España estarán ligados a startup

también aprovechó para poner en valor las posibilidades que la economía del conocimiento puede ofrecer en España. «Los trabajadores cualificados son el futuro de España para la senda del crecimiento y es necesario encontrar espacios como el Google Campus para que esa gente pueda desarrollar su actividad», señalaba. «Es importante construir empresas que puedan escalar y crecer», apuntaba. «Si hay países pequeños como Hong Kong, Singapur o Estonia, que son referencia en sectores punteros por la importancia y escalabilidad de sus empresas, España también puede», sentenció.

Ferran Adrià, Eric Schmidt y María Benjumea en el escenario de The South Summit / E.M.

## LOS GANADORES

De la competición realizada entre las 100 start up seleccionadas para exponer en The South Summit, siete compañías resultaron finalmente premiadas. En la categoría de Energy, la empresa **Deutecno** se alzó por su proyecto para recortar costes en las renovables. En la categoría de Biotech, la empresa **MintLabs** resultó galardonada por su sistema de procesamiento de resonancias para crear una imagen 3D del cerebro. Mientras tanto, en la categoría de Hightech el ganador fue **PayGiga** por su ecosistema de juegos en la nube sin descargas. En B2B, el ganador fue **ForceManager** por el uso de la tecnología para optimizar la productividad de las ventas. En B2C, la empresa galardonada fue **Ludei** gracias a su plataforma monetizar y aplicaciones móviles. Finalmente, el premio del público fue a **Playspace** por su plataforma para multijugador.



Dos visitantes observan prueban un vehículo solar plegable. / BERNARDO DÍAZ

**Sales network**

Sales reps will be hired in each geographical area to assist distributors, rewarded with volume incentives. Their number will be growing based on sales growth, up to 19 persons after 5 years.

**Distribution and retail sale**

A net of big distributors in each country will be created to service shops and other customers (malls, official entities and other big customers). These distributors could be the same ones that currently market existing sustainable vehicles such as electric bikes or motorbikes.

The same shops and shopping centres where these items are currently sold could also sell Polytrike.

For after-sales service, the plan is to rely in the supply chain (shops, distributors and sales reps). However, a net of technical service repair shops should be created in each geographical area to attend reparation, adjustments batteries replacements, etc. They will receive support and training by sales and technical members of the company producing Polytrike so they can perform the job properly.

Circulation regulation and permits

In Spain, the responsibility of vehicle circulation permits in urban areas relies in City Councils. As Polytrike can be driven both in the seated and standing position, for the standing one the vehicle is similar to the existing Segway, and like it, it would benefit from the same existing permits in most of the Spanish cities.

However, Segway vehicles are limited to sidewalks and pedestrian areas. Polytrike, in its standing position, would be affected by the same regulation.

In the seated configuration (this is, to travel through roads) Polytrike would be affected by the same regulation that any other motor vehicle (e.g., motorbikes) in the worst case, and therefore, subject to registration and insurance. As there is not a similar vehicle in the market, the insurance companies should develop the tariffs to be applied, but the estimation is that they would never be higher than the ones currently applied to motorbikes. They will probably be lower due to the reduced speed (so less crash risk), the fact of being a sustainable vehicle and the capability of being stored at home, which implies a reduced theft risk. In any case, after the good relations set with Mutua Madrileña, this Spanish insurance company would be willing to support this aspect when needed.

It is quite likely the mandatory use of helmet both for standing position (already mandatory for Segway) and seated position (like motorbikes)

It is well know that the trend in Spain is to support sustainable transport. As an example, the recent creation of a rental electric bikes network in Madrid. Also, the news regarding the future conversion of the downtown area in pedestrian will force non-residents to find an alternative mean of transport, sustainable and small, allowed to circulate in these areas.

Regarding other countries, the regulation differs from one to another but in general, and as a minimum, it can be considered alike the Spanish one. However, in countries such as Germany, Netherlands or France, sustainable vehicles receive much more support and advantages from local and national governments.

## 4. OPERATIVE PLAN

The project consists of the following phases:

1. Design, manufacture and trials of prototype (Done)
2. Gather outside investment – 1st Phase (On going)
3. Decision on the first manufacturing Plant
4. Manage grants and subsidies from public institutions
5. Hire technical staff (Draughtsman and electronic)

6. Mechanical and electronic design of a second prototype, applying improvements identified after trials of the first prototype (this phase is partially completed)
7. Hire technical staff (Programmer)
8. Manufacture, assembly, programming and trials of the second prototype
9. Gather outside investment (2nd Phase)
10. Vehicle homologation del vehicle in the Industry Ministry (Spain), Autonomous Communities and European Union competent authorities
11. Design and dies order (Steel, Aluminium and plastic) and extrusion (Aluminium)
12. Decision on a second manufacturing Plant
13. Hire financial and purchasing staff
14. Hire production operators
15. Hire sales staff
16. First series production (500 units)
17. Attendance to shows and other commercial events
18. Commercialization

Production strategy

Assembly line production with cost reduction program is planned in order to reach a price competitive position in the market.

The forecast is to start the first run (500 units) after 21 months of company creation.

The company will be ISO9001 (Quality) and ISO14001 (Environmental) certified.

Machinery, equipment and supplies needs

The equipment needed initially is Drill press, hand press, tube cutter, electric screwdrivers, etc.

There will be additional expenses to prepare the industrial area and offices such as wiring, compressed air, store racks, office materials, etc.

Assembly tools:

In a first step, a total of 6 main tools are needed to assemble the different vehicle subsets, on top of other smaller ones for secondary operations.

Quality control tools and instruments

Measuring and verification tools are needed to check quality, such as callipers, gages and electronic verification equipment.

Extrusion, forming and moulding tools

Adequate tools are needed in order to reduce costs of the steel, aluminium and plastic parts (moulds and forming and extrusion dies) so the operations of machining and manual finishing of these parts are reduced to a minimum. All these tooling will be located at the supplier premises, but owned by the company producing Polytrike.

The total estimation of the tooling is as follows:

- 57 Moulding, stamping and extrusion dies, for steel and aluminium parts
- 45 Plastic injection moulds
- 3 Tools for carbon fibre tubes

The total cost of above tooling is **3.093.900 €**

Production data

We estimate that the standard assembly time is **6,58** operator hours per vehicle, including quality checks. There should be an initial learning period (ramp up) prior to reaching the standard lead-time.

Cost of direct man-hours: **16 €/hour**

Yearly assembly capacity: **215 Vehicles/year/operator**

Purchasing and stocks strategy

The initial manufacturing of the mechanical elements through machine tools is planned to be in Spain, but possible import from competitive markets in the future that meet the quality standards is not discarded.

The plastic parts (ABS most of it) will probably be imported from Chinese plastic injection suppliers (or alternative Asian countries)

All the standard elements such as wheels, tyres, main motor, electronic control cards, lightings, brakes, etc. will be imported most probably from China.

In any case, the final assembly, quality checks and vehicles storage prior to delivery to distributors will be entirely done in Spain.

The finished vehicles coming out from the assembly line will be stocked in the company warehouse. To calculate the stock needs, the assumption is to have one month of stock.

Supplier's choice

Suppliers will be chosen attending mainly to quality assurance and delivery lead-times fulfilment criteria, due to the high technological level of the final product. A trip to China will be needed 8 months after the company creation to find tooling, plastic injection, aluminium moulding and extrusion suppliers as well as supplier for other standard items.

We count on producing most parts of the final vehicle with recycled materials as well as assuring that the parts themselves are easily recyclable

Supply terms

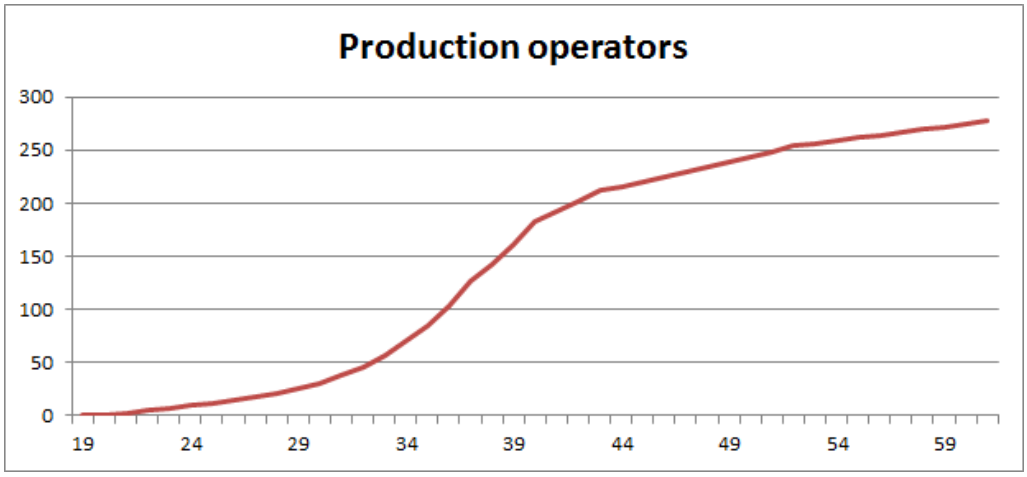
Delivery to distributors will be in full truckloads that shall be stocked at the distributor premises. Each truckload will be approx. 75 vehicles.

## 5. HUMAN RESOURCES PLAN

Other than the staff described in point 2, the following personnel will be needed in the future. Dates refer to time passed from the creation of the Company.

- Draughtsman: Immediate
- Electronic: Immediate
- Programmer: 3 Months
- Administrative responsible and staff: 17 Months
- Purchasing responsible: 17 Months
- Production responsible: 17 Months
- Warehouse responsible: 17 Months
- 1st Sales rep: 17 Months. Depending on sales, the sales rep number will be increased up to 19 persons after 5 year, distributed through different geographic areas
- Production operators (Assembly, quality control and packing):

The number of operators will vary according to the Production Plan, as shown in the below graph (X axis shows months after Company creation):




### Labour costs

Labour costs forecast in 5 years time is:

- Direct manpower and Quality Control: **12.949.073 €**
- Indirect labour costs (Plant and Sales reps.): **13.196.237 €**

## 6. FINANCIAL AND ECONOMIC PLAN

Loans, grants and subsidies

Different options have been considered in order to gather the needed capital to afford the project in Spain, such as:

- **Financial entities**

Loans conditions vary depending on the entity. Spanish ICO loans offer the following terms:

  - Interest (TAE): 6,29 %
  - Capital covered: Up to 100% of the investment with a maximum of 10 Million euros
  - Refund period: 12 Years, 2 years of waiting period

- **CDTI (Centro de Desarrollo Tecnológico e Industrial)**

  This Spanish official entity finances the R+D phases of technological projects through loans, focusing in the innovation level and technical characteristics of the product. It does not apply to series production, stocks, etc.

  - Interest : Euribor + 0,1 %
  - Capital financed: Above 170.000 € and up to 300.000 €
  - Refund period: 12 Years, 2 years of waiting period

It requires a preliminary request and after one month, a final request. Resolution takes place 3 months after presentation.

- **ENISA (Empresa Nacional de Innovación)**

Spanish entity depending on the Industry Ministry

Participative loans, with no bank guarantee, and with an interest depending on results. ENISA covers up to 100% of the capital provided by the company associates.

  - Interest: Fixed (Euribor + 3,75%) + Variable (Up to 8%, depending on results)
  - Capital financed: According to rating reached in the study and evaluation phase, from 300.000€ up to 1.500.000€
  - Refund period: 6 Years, 2 years of waiting period

Request is normally solved within 6 months

- **Red Emprendeverde (REV)**

Entity depending on the Spanish Ministerio de Agricultura, Alimentación y Medio Ambiente. It offers:

A. - A free access platform with 3 objectives:

1. Drive the net services
2. Be a meeting point for experience and knowledge exchange
3. Work as a social network that allows new contacts, participation, finding synergies with other entrepreneurial and investors and spread business initiatives and investing opportunities

B. - Contacts with investors and forum, through:

1. Investment forums: meeting point between investors and innovative projects of different sectors related to environmental, needing investment.
2. Bilateral meetings with investors
3. Market place in investment events
4. Networking 2.0 Platform
5. Showcase for green businesses.

- **European Union**

There are different sustainability projects helping programs in the EU, some of them related to mobility

Project JESSICA (European help supporting sustainable investments in urban areas)

It is an initiative of the European Commission developed in cooperation with the European Investments Bank and the Development Bank of the European Council. The objective is to promote regeneration and sustainable urban growth through financial engineering mechanisms.

EU countries may choose investing **part of their assignments of the Structural Funds** in reimbursable funds, to help reusing financial resources and accelerate, therefore, investments in urban European areas.

CIVITAS Initiative (Cities – Vitality – Sustainability)

The EU investigation program, being its objective to support the effort of the cities to innovate towards a more sustainable urban mobility, finances it. Civitas has supported more than seven hundred demonstration activities in sixty cities since it started back in 2002 (inside a global network joined by 200 cities learning of these demonstration activities), with a total EU investment of more than 200M€. This activity has promoted an additional investment close to one thousand million euros of local authorities and private associates.

The Commission adopted the Urban Mobility Action Plan in 2009, which included up to 20 steps until 2012. Their results are currently under evaluation. In 2011, the Commission published the Transport White Book that sets 2 objectives in terms of urban mobility: 1) progressively eliminate the traditional motor vehicles before 2050, and 2) achieve that all urban logistics of the main urban areas is $CO^2$ emissions free by 2030.

- **National Administrations**

It is highly possible to get non-refundable subsidies either from the Spanish Government, or from Autonomous Communities or City councils, either by tax reductions or as a consequence of employment creation, taking into account that we forecast to create around **300 direct jobs and around 50 indirect jobs** in 5 years time.

However, in order to be conservative in respect to the financial calculations, they do not contemplate any grant or subsidy either from EU or national administration. For sure, this should improve the financial results of the Company in its case.

- **Investment needs**

There are 2 phases contemplated regarding external capital investment:

- First Phase: **204.823 €**

This capital will be needed from the new company start up and will cover the first 6-7 months, in order to complete the development phase of the second prototype, as well as the required homologations.

- Second Phase: **6.590.866 €**

This capital will be needed after the first 6-7 months, to complete the rest of the project phases.

The external investment interest rate will be a **yearly 25.5%, in a 5 years time**, under the expected benefits forecasted (**Deducting the amortization of the initial investment, that will be carried out along the 5th year**)

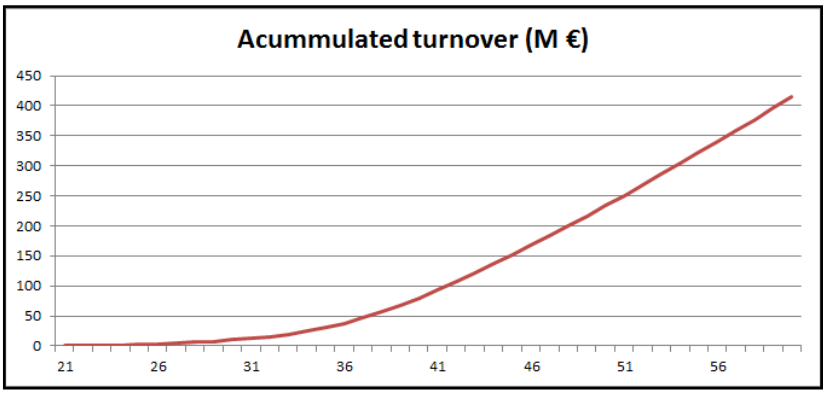
In the case that external investors invest all the needed capital, this total amount (6.795.689 €) would be converted in a participation of 45% of the equity capital of the future Company (see point 7)

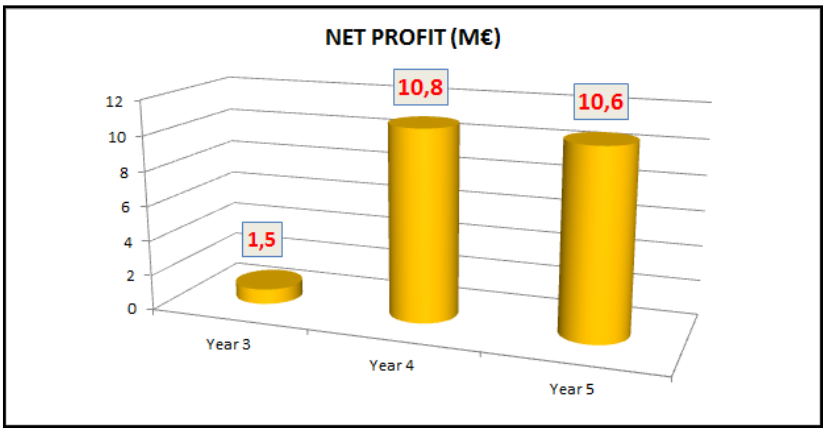
In the case of different investors, the share percentage in the equity of each of them will be calculated proportional to the capital invested up to a maximum of 45% participation

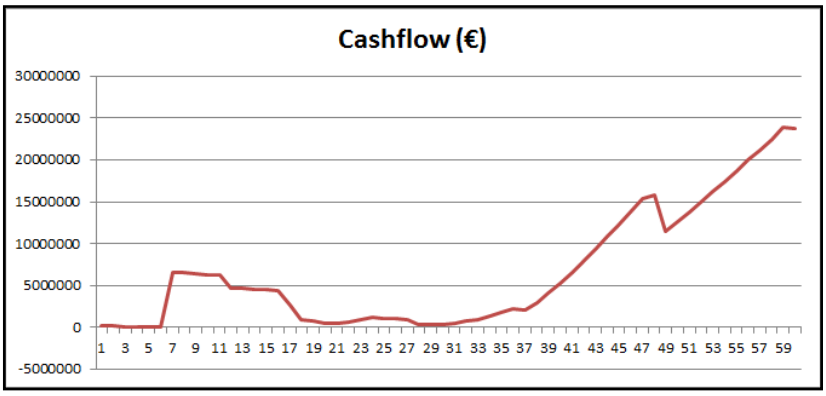
Financial data

1. External investment recovered along the 5th year, in 12 monthly payments
2. Liquidity: The minimum cash needed should be 300.000 €, to assure the capability of the Company to afford any expense or unforeseen payments that may arise during the project development
3. Dividend payment: 50% on net profit, from the 4th year onwards (the rest will be re-invested in the Company)
4. Additional income from spares sales: A 5% on the retail price has been estimated, after 6 months since sales start. The batteries supply either for replacement or to increase the vehicle autonomy, will mean the main contributor to the spares income
5. Claims / returns: Estimation is 2% on sales

Turnover (X-axis shows moths after Company startup)



Financial Summary (Period:5 years)

| | |
|---|---|
| **CAPITAL EXPENDITURES** | 3.357.900 |
| **DIRECT COSTS** | 380.648.671 |
| **INDIRECT COSTS AND AMORTIZATIONS** | 29.528.686 |
| **SALES** | 415.202.925 |

## 7. FORMAL LEGAL PLAN

The initial Company will be a limited liability company, moving to stock company after 6-7 months.

The final name is yet to be decided

Shareholder composition:

- Leopoldo López: 51%
- Luis Cortés: 4%
- External investors: 45%

## 7. CONTACT.

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