Work project presented as a part of the requirements for the award of a Masters Degree from Nova School of Business and Economics

Consulting Project for the Company Via Verde

Strategic Guidelines for the Implementation of *Mobility as a Service* in Lisbon

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Consulting Lab carried out under the supervision of:

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January 3rd, 2018

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ACKNOWLEDGMENTS

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To ***Filipe Coelho, Duarte Marques and Frederico Melo,*** for all the support, patience and fruitful exchange of ideas that were fundamental for the development of the project.

To ***all Brisa and Via Verde's*** collaborators, for sharing with us all their areas of business and current challenges that allowed us to understand the company's business context as a whole.

To ***Nova SBE's professors Nadim Habib, Leid Zejnilovic, Catherine da Silveira, Jorge Velosa, David Bernardo and José Pinheiro,*** for the knowledge and expertise shared that helped the group to think critically and to develop a better output.

Last but not least, we would like to thank all the group members' ***friends and families*** for all the help and support provided during the past four months of work.

NONE OF US IS AS GOOD AS ALL OF US

- Ray Kroc

CONSULTING LABS

The main goal of this field lab is to provide a hands-on approach experience to students with little or no experience in the job market.

OVERVIEW

The Consulting Labs gives master students a truthful, real-life consulting challenge. Our team embraced the challenge of analysing the concept of Mobility as a Service and developing strategic guidelines so that Via Verde can implement a pilot project in Lisbon. This project was carried out under the supervision of Professor Constança Casquinho who has a strong professional background in consulting firms.

Throughout the past four months our team was based at Via Verde's headquarters. Through hard work and syndication the group was able to build a strong working relationship with several members of Via Verde and Brisa. We truly believe we have immersed the client's corporate culture and have added value to the company.

OBJECTIVES

- **Engaging with the client's corporate culture** through a *hands-on-approach* experience in order to simulate a real-life consulting challenge.
- **Applying theoretical concepts** learned throughout the academic life to a real-life consulting project.
- **Matching the client's expectations** and add real value to a company.
- **Learning new work methodologies and soft skills** – teamwork, empathy, syndication – that will be a valuable asset throughout the students' professional careers.

ADVISORS

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EXECUTIVE SUMMARY | BUSINESS CONTEXT

The project is conceived for the company Via Verde, the biggest automated toll collection company in Portugal. It represents a great opportunity to deepen the students' knowledge and work skills.

COMPANY – VIA VERDE

Founded in 1991, Via Verde is one of Brisa's **MOST SIGNIFICANT COMPANIES**. Although its service originally focused on automatic toll payments alone, Via Verde is increasingly becoming a **FLEXIBLE SERVICE** with important advantages for several business areas. Today, it is present in different sectors and the convenience it offers is undeniable. Alongside with other business units, Via Verde belongs to the Brisa Group. This **PRIVILEGED POSITION** of Via Verde guarantees access and close relationships with the other business units and a great know-how in the different sectors.

Via Verde's mission includes the design, marketing and management of products and services in the area of mobility, transportation, movement and the management of customer relationship and support. In addition, Via Verde is also responsible for developing and making available the Travel & Advantages program. Following this, Via Verde aims to develop a vision that will allow the company to be a pioneer key player in offering mobility services, namely an integrated offer of mobility as a service in Portugal.

ABOUT THE PROJECT

This project's objective is to understand if it is possible to implement a MaaS solution in Portugal and, if so, how can Via Verde play an active role in its development and implementation. As such, this consulting project aims to provide answers to the following questions:

- *What are the trends and challenges of urban mobility on a global level?*
- *What is Mobility as a Service? Where is it being developed? What are the market's best practices?*
- *Who are the key stakeholders in the mobility industry in Portugal?*
- *How can Via Verde be a pioneer in implementing a MaaS solution in Portugal?*

For the purpose of our study, Via Verde suggested to focus our project in **Lisbon Metropolitan Area (AML)** as a pioneer city for a Mobility as a Service solution in Portugal.

EXECUTIVE SUMMARY | APPROACH TO THE CHALLENGE

The project is conceived for the company Via Verde, the biggest automated toll collection company in Portugal. It represents a great opportunity to deepen the students' knowledge and work skills.

CONTEXT

There are several mobility challenges in the city of Lisbon that point the need of an integrated mobility solution. There is a need to reinvent and change the way people move in Lisbon.

AML's transportation network reaches most of this area's population and is able to meet the mobility needs of their users.

AML can be characterized by a high fragmentation of mobility transport operators that are inefficiently managed.

Via Verde is looking for a way to reinvent its business model in order to remain competitive on the following years. Nowadays, Via Verde's business model relies mainly on vehicles. Thus, there is an urgent need to understand how the company can adapt its core business and take an active role in the change of urban mobility.

CHALLENGE

What are the trends and challenges of urban mobility on a global level?

What is Mobility as a Service? Where is it being developed? What are the market's best practices?

Who are the key stakeholders in the mobility industry in Portugal?

How can Via Verde be a pioneer in implementing a MaaS solution in Lisbon?

APPROACH

To answer the previous questions, the following steps were taken:

- **Research** through academic papers, experts on the area, other companies and direct research (in-depth interviews) and online survey.
- **Syndication** with the clients involved and responsible people for the success of the business.
- **Analysis** of the data obtained on the research conducted
- **Recommendations** of the steps Via Verde must take in order to successfully develop and implement a MaaS solution in Lisbon. This includes:
  - To develop a new product (mobility packages, algorithm, mobile app);
  - To focus on creating partnerships with the key transport operators and key public institutions that must be part of this mobility offer;
- **Description** of some of the potential challenges that might come as a result of the proposed recommendations;
- **Development** of an implementation plan for the recommended product and partnerships;
- **Identification** of the future work that follows this project and was not within its scope.

EXECUTIVE SUMMARY | METHODOLOGY

The project was divided in three main phases: Diagnosis; Analysis and Recommendations which constitute the methodology

1. DIAGNOSIS

- Mobility industry mechanisms;
- Global trends in urban mobility;
- Mobility as a Service;
- Benchmark of MaaS solutions;
- MaaS Ecosystem;
- Urban mobility in Lisbon;
- Transport operators in Lisbon.

11th Set – 4th Oct

2. ANALYSIS

- MaaS Ecosystem in Lisbon:
  - MaaS Customers – Who are the potential customers and what are the needs;
    - Gathering Data about Lisbon costumers in mobility sector (Qualitative Research – In Depth interviews);
    - Analysis of consumer behavior patterns and need in Lisbon;
  - Transport Operators – Who are the transport operators in AML;
  - Data aggregators and Trusted MaaS Advisors – Who are the potential players?
- Via Verde's potential as a pioneer in MaaS solutions.

4th Oct – 10th Nov

3. RECOMENDATIONS

- Definition of the product to offer and main functionalities;
- Definition of the key partnerships to implement;
- Business model;
- General conditions;
- Challenges and implementation plan;
- Future Work.

13th Oct – 30 Nov

GLOSSARY

Account Sharing

Recently phenomenon that occurs when a platform user shares its account with non-users giving them the benefits only available for the users.

AML – Metropolitan Area of Lisbon

Metropolitan Area of Lisbon includes 18 counties of great Lisbon and Setubal Peninsula. The counties are the following: Lisboa, Amadora, Oeiras, Cascais, Sintra, Odivelas, Loures, Vila Franca de Xira, Mafra, Almada, Seixal, Sesimbra, Barreiro, Moita, Montijo, Alcochete, Palmela and Setúbal.

Autonomous Vehicle

Vehicle capable of sensing its environment and circulate without human input

Brokerage

Charging a fee to intermediate between buyers and sellers.

Bundling

Group similar goods or services to add value to the buyer.

CML – Câmara Municipal de Lisboa

The Câmara Municipal de Lisboa it's the executive branch of the county and has the mission to define and execute political initiatives that promote the development of the county in different areas.

Commuting Mobility

Need felt when having to go to Lisbon from a suburban area.

Data Aggregator

Acts as a data broker and has the ability to manage and analyse large amounts of data and extract insights from it.

GLOSSARY

Dominant Design

Configuration and features of a product that the majority of an industry (producers and consumers) accept as a standard. It represents the mass market solution.

Electric Vehicle

Vehicle that uses batteries or electric motors for propulsion instead of a combustion engine.

Extra (also seen as Extra-routine)

Mobility need felt outside the routine.

Fast Followers

Firms that recognize good ideas from their competitors and implement them within the organizations itself. This can occur in in product launches, technology development, HR best practices, etc.

First Mile

Mobility need that is felt before the commuting to Lisbon, that is, between the person's home and the beginning of one's modular journey.

Intermodal Passes (also seen as Intermodal Travel Pass)

Pass valid for a finite number of days available to be used in the mobility services that the company offers.

IoT - Internet of Things

The network of physical devices, vehicles embedded with electronics, software, sensors and network connectivity that enables these objects to connect and exchange data.

GLOSSARY

Lock-in Effect

It occurs when it is cheaper for users to stick with the actual product than switching to (even) superior technology. That is, the lock-in effect occurs when switching costs are high.

MaaS – Mobility as a Service

Response to the urban mobility challenges of today, creating solutions that fit the needs of both customers and cities.

MaaS Costumers

Are the ones that consume the MaaS offering. Can be characterized by being a smartphone owner and and believer of new platforms.

MaaS Ecosystem

Involves they key stakeholders – MaaS costumers, transport operators, data aggregator and trusted MaaS advisor – to develop and implement a successful mobility offering.

Mobility Integrator

Entity responsible for gathering several mobility options in one platform.

Mobility Shop

Platform where you can buy different mobility services.

Moving Around

Mobility need felt when having to travel between places in Lisbon.

Multimodal Stations

Public transport stations where one or more means of transportation are available.

GLOSSARY

Network Externalities

It occurs when the product's benefits to each individual user increases with the number of other users.

NFC – Near-Field Communication

It is a set of communication protocols that allow two devices to communicate by being within 4 cm of each other.

NPS – Net Promoter Score

NPS is a methodology that measures the satisfaction and loyalty of company's clients.

Parking Lot

Refers to an area intended for parking vehicles.

Parking Space

Refers to a single for parking a individual vehicles. It can be in a parking garage, parking lot or in the street.

Private Vehicle

Includes car and motorcycle.

Public Transport (also seen as: Public Transportation, Mass Transit, Public Transit)

Shared transportation service that is available for the general public.

Ride-Hailing

Transportation of passengers from an unlicensed taxi service such as Uber of Cabify.

Routine

A sequence of actions regularly followed.

GLOSSARY

Shared Mobility

Shared use of a vehicle, bicycle or other transport. Usually through online platforms.

Sharing Economy

Economic activity involving online transactions.

Suburban Area

Refers to all the counties of AML, excluding the county of Lisbon.

Syndication

Concept used in the consulting world that means to work with the client, instead of working for the client.

Transport Operators

Are the ones that serve the MaaS consumers by providing the transport assets – private and public transport – urban realm assets – car parking and electric vehicle charging points – and digital assets.

Trusted MaaS Advisor

Is in charge of the integration and formulation of win-win partnerships between all the other stakeholders in the ecosystem. The TMA has an image of trust and confidence in the market.

Urban Area

Refers to only to the county of Lisbon.

Urban Mobility

How people move around cities from one point to another.

AGENDA

I. **DIAGNOSIS** | URBAN MOBILITY LANDSCAPE

1. The Future of Urban Mobility
2. Mobility as a Service
3. Lisbon: The Big Picture
4. Trends Impacting Mobility in Lisbon

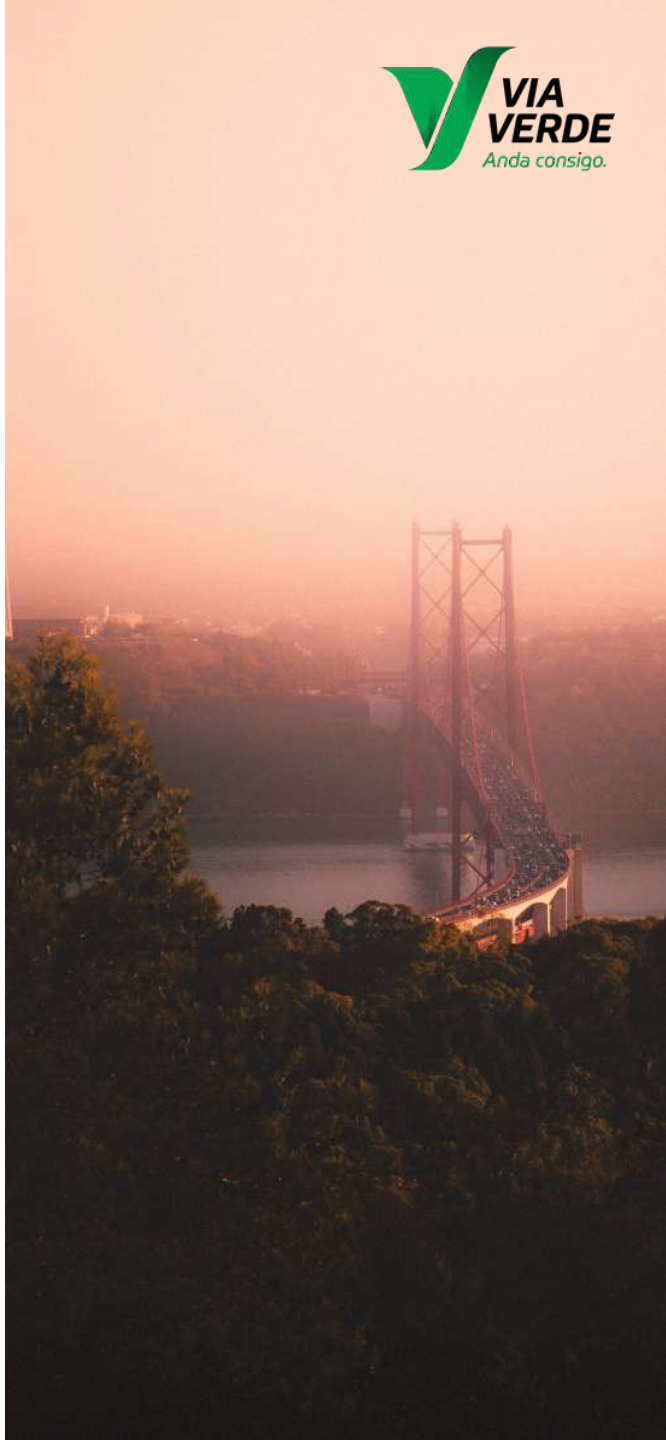
II. **ANALYSIS** | MAAS ECOSYSTEM IN LISBON

1. MaaS Ecosystem in Lisbon
    1.1. MaaS Customers
    1.2. Transport Operators
    1.3. Data Aggregator
    1.4. Trusted Mobility Advisor
2. Via Verde: A Strategic Player

III. **RECOMMENDATIONS** | IMPLEMENTATION OF A MAAS SOLUTION IN LISBON

1. How Can Via Verde Create Value?
2. Key Partnerships
3. Business Model
4. General Conditions
5. Challenges and Implementation Plan
6. Future Work

IV. REFERENCES



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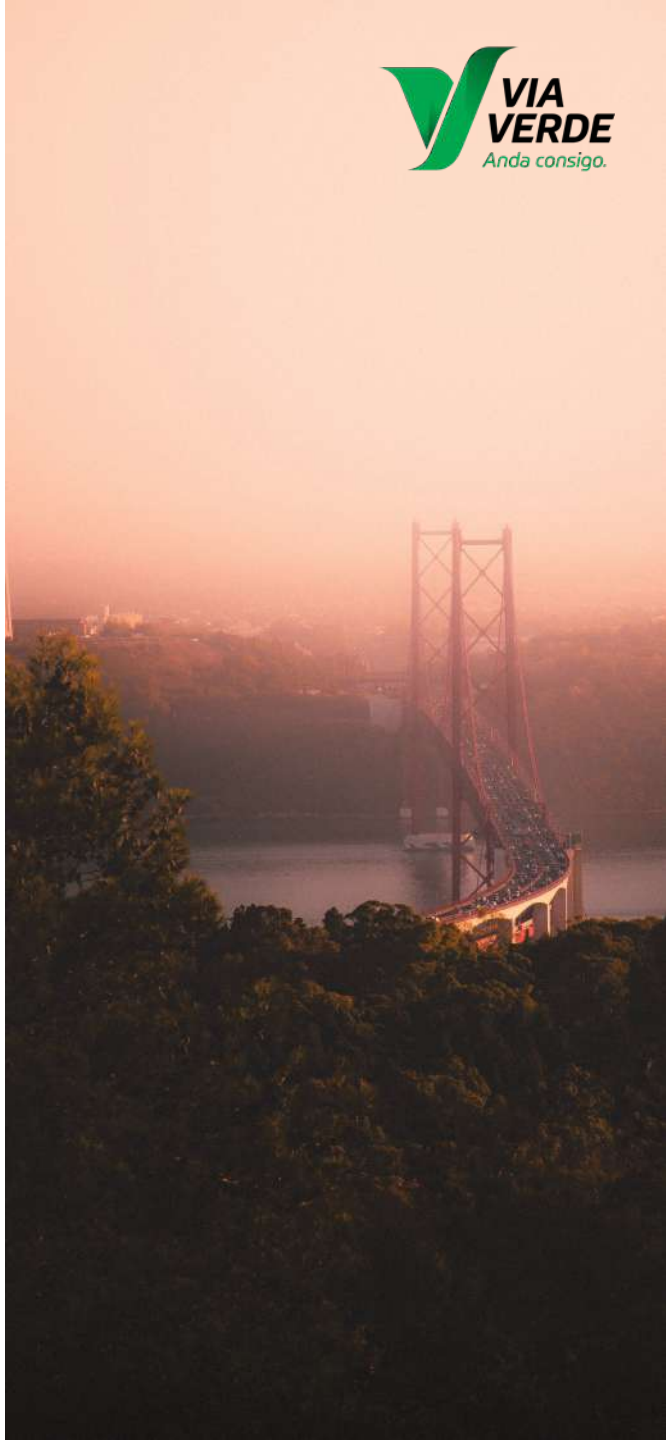


1. THE FUTURE OF URBAN MOBILITY

1. THE FUTURE OF URBAN MOBILITY (1/12)

Mobility is essential for urban life and for the cities' economic development. In recent years, the growth of the world population and urbanization has brought new challenges to city planners and also high pollution levels to the environment.

Urban mobility: How people move around cities from one point to another. A few number of challenges pose this as one of the hardest topics that major city centres are currently addressing.
To understand urban mobility at its fullest, we need to plot the trends that affect this matter worldwide:

- Increasing Population: The planet's population has been increasingly moving towards city centres creating a massive urbanization problem.
- Urban Areas: Today, according to an Arthur D. Little study, 3.5 billion people, i.e. 51% of the world's population, live in urban areas. That number is predicted to reach 60% in 2030[1] and 70% in 2050.
- Economic Growth: Also during this period, more than 2 billion people are expected to cross the threshold to the middle class. All this together will lead to a rising number of megacities with more than ten million people.
- Increasing number of cars: With more middle class in cities, the number of cars bought will rise. Total automobile sales are expected to increase to 125 million by 2025, with more than 50% being purchased in cities.
- Urban Infrastructure: The current urban infrastructure is not ready to undertake this increase of vehicles. By quantifying lost time, fuel that is wasted and increased costs of doing business we can estimate that congestion within cities can cost between 2 and 4 percent of a country's GDP[1].

MAIN TAKE AWAY

*The focus of cities must change now. **People need to be able to move around urban areas as rapidly, conveniently and sustainably regarding the environment as possible**. Private and public companies need to understand these shifts and respond accordingly with new business models and policies.*

[1]McKinsey, 2016, *An integrated perspective on the future of mobility*

1. THE FUTURE OF URBAN MOBILITY (2/12)

The future will bring a transportation landscape in which cars, buses, pedestrians, bicycles, freight and rail will be woven into a connected network; saving time and resources, producing lower emissions and congestion, and promoting efficient land use and improved safety.

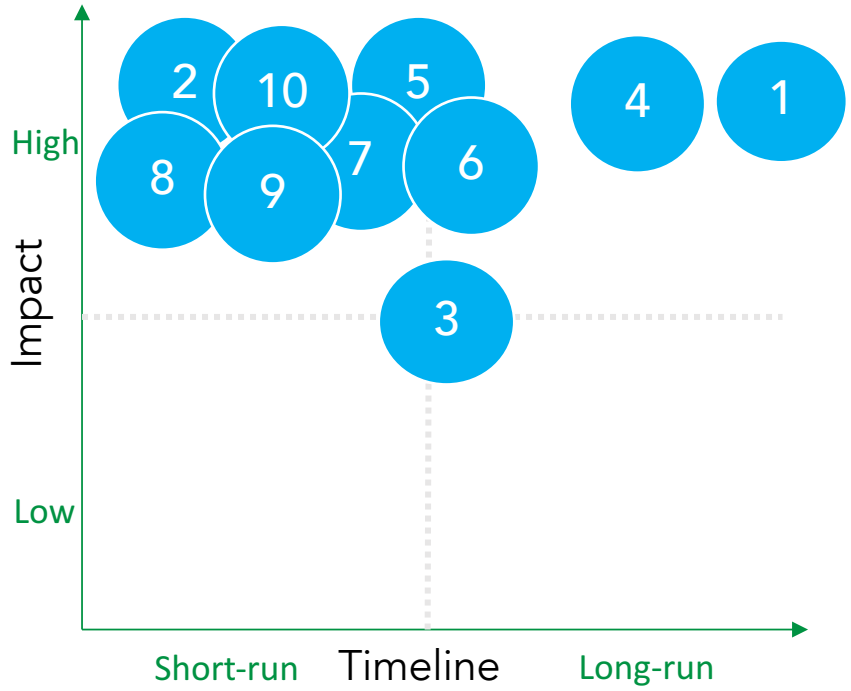
The future of urban mobility will be shaped according to these impactful drivers:

- Integrated approach for a more sustainable city: promoting equal involvement of all stakeholders in order to maximize emission reductions and boost mobility through better regulation.
- Connectivity revolution: intelligent networking of vehicles, both with each other and with infrastructure, to keep traffic flowing, prevent traffic jams, better manage parking and traffic safety, thereby saving resources and time.
- New business and mobility models: vehicles as integrated components in the internet of things, collecting and managing information from drivers, occupants, goods, vehicles and other sources, making it possible to provide citizens, companies and transport operators with new services.
- Better public transport systems: public and private transportation as part of a single connected network that increases efficiency, avoids congestion, lowers emissions and improves safety. Public transportation provides fast connections, on demand availability, accessibility and affordability.
- Optimized urban freight delivery and logistics have adapted to new consumer demands by implementing innovative urban freight distribution systems, e.g. new last mile delivery solutions or real time information systems.

ACEA, 2016, *The 2030 Urban Mobility Challenge: ACEA's Contribution*

1. THE FUTURE OF URBAN MOBILITY | MOBILITY TRENDS WORLDWIDE (3/12)

A priority matrix was built taking into account two factors: the impact the trend will have in urban mobility and when this impact will be felt. Ten current trends were considered and each of them will be analyzed in detail.



1. AUTONOMOUS VEHICLES
2. SHARED MOBILITY
3. ELECTRIC VEHICLES
4. INTERNET OF THINGS
5. SUSTAINABILITY
6. ARTIFICIAL INTELIGENCE
7. PUBLIC TRANSIT
8. REGULATION
9. PLATFORM REVOLUTION
10. CONSUMER PREFERENCES

Disclaimer: the matrix is divided by quadrants and each trend is placed in a quadrant or dividing line, e.g., consumer preferences do not have more impact than shared mobility although they are placed in different parts of the quadrant

1. THE FUTURE OF URBAN MOBILITY | MOBILITY TRENDS WORLDWIDE (4/12)

Totally autonomous vehicles will eventually become a reality, impacting not only car manufacturers but also consumers and urban mobility experience.

1 AUTONOMOUS VEHICLES

These types of automobiles are starting to appear in our lives and will certainly change the *status quo* of the industry in the time to come. They will be able to reduce traffic accidents and will allow for the time spent in the car to be used for other activities[1].

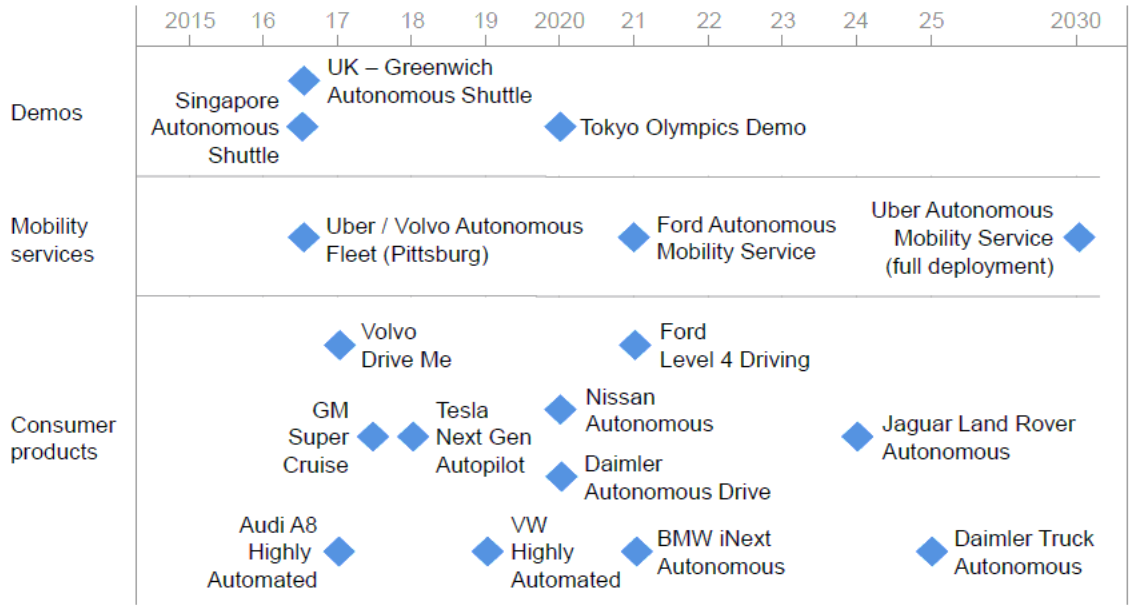
Advances made by big automotive companies by the likes of Daimler, Tesla, Ford or BMW lead us to believe that autonomous vehicles will available for the mass market in the mid-2020s[2].

Several start-ups are currently working on the development of different products and services that are linked to self-driving cars, from wireless connectivity, maps or data gathering to new car rental and insurance schemes adapted to this new reality

Transport companies such as Uber or big trucking enterprises are also active in this area looking to reduce costs with drivers[3].

LAUNCH OF SELF-DRIVING CARS PREDICTION

Timeline of events



SOURCE: Press search; Company websites

[1] Goldman Sachs, 2017, *Cars 2025*
[2] McKinsey & Company, 2016, *An integrated perspective on the future of mobility*
[3] Wired, 2017, *As uber flails, its self driving tech rolls on*

1. THE FUTURE OF URBAN MOBILITY | MOBILITY TRENDS WORLDWIDE (5/12)

Shared mobility may reduce the growth of car sales, but at the same time it represents new opportunities. The investment in companies whose business model is based on the sharing economy is leading to new competition in the market.

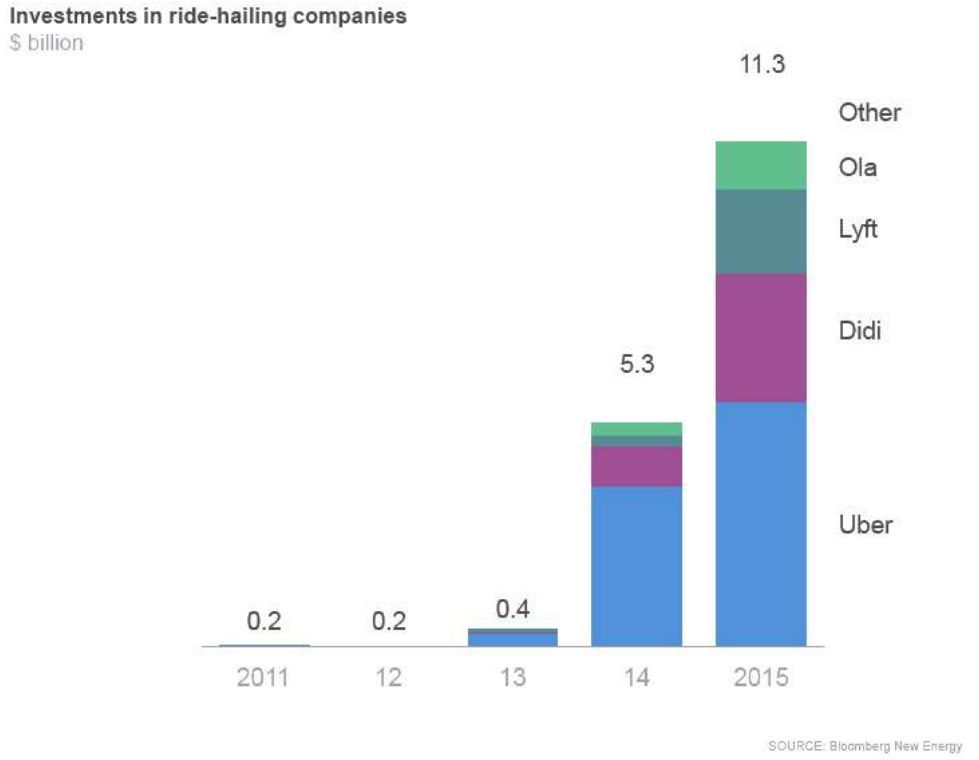
2 SHARED MOBILITY

Shared mobility is a trend that has been growing exponentially in the last years and it is definitely changing the scope of how passengers see urban mobility[1].

Most individual vehicles are just used for small day-trips being parked 95% of the time[2]. This has led to the rise of new services and business models such as *ride-hailing* (e.g., Uber and Cabify), *moto-sharing* (e.g. eCooltra) or *car-sharing* (e.g. Drive Now) in what is called the *shared economy*.

Investment in *ride-hailing* companies, for example, exceeded 11 billion dollars in 2015 and 21 billion dollars in 2016[3], posing as one of the major bets in the mobility sector.

These are now a part of our daily lives and are increasingly being more value by the customers. These services compete not only with taxis but also with public transports and private vehicle ownership.



[1] Goldman Sachs, 2017, *Cars 2025*
[2] idem
[3] McKinsey & Company, 2016, *An integrated perspective on the future of mobility*

1. THE FUTURE OF URBAN MOBILITY | MOBILITY TRENDS WORLDWIDE (6/12)

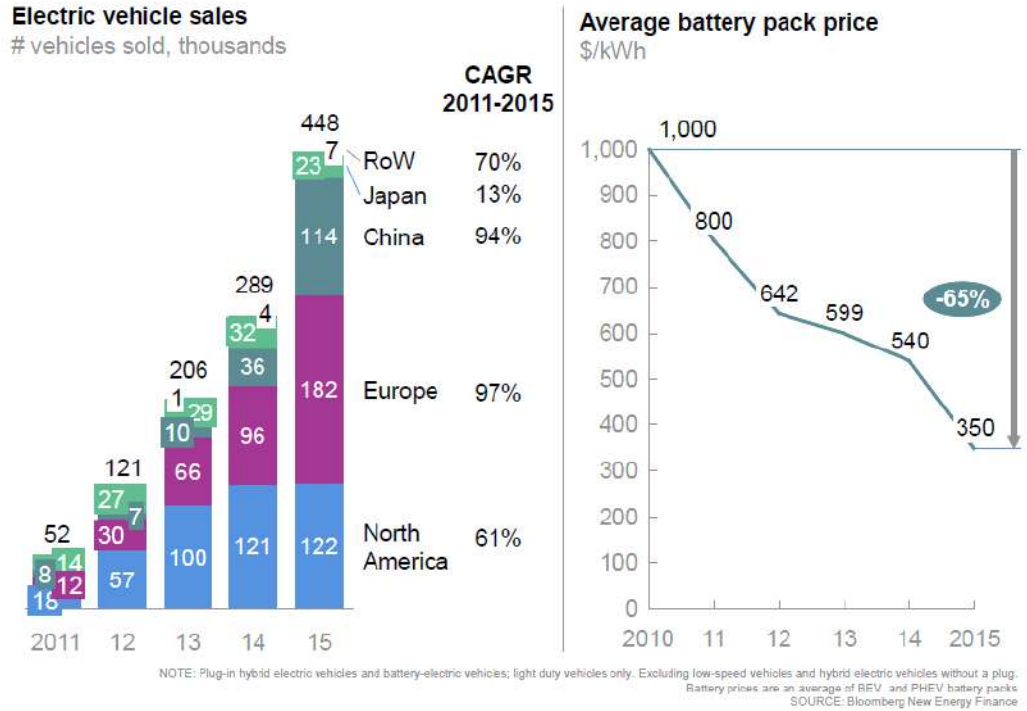
Electric vehicles are becoming more competitive each year. However, its adoption rate and growth will heavily depend on the local environment of each country.

3 ELECTRIC VEHICLES

The market for electric vehicles has increasingly become more competitive but its adoption time will depend heavily on the reality of each country[1].

The rise of this solution by the hands of environmentally conscious people has been and will continue to be keeping our cities cleaner and the air we breathe healthier. The momentum for the rise of electric vehicles has four key factors: carbon emissions are being more regulated each day, the cost of the battery that makes the vehicles run is decreasing rapidly and charging infrastructures are growing[2].

This is leading to a high growth in the number of sales of these types of cars, especially in Europe where, from 2011 to 2015, the number of vehicles sold rose by 97%



[1] McKinsey & Company, 2016, *Disruptive trends that will transform the auto industry*
[2] McKinsey & Company, 2016, *An integrated perspective on the future of mobility*

1. THE FUTURE OF URBAN MOBILITY | MOBILITY TRENDS WORLDWIDE (7/12)

The Internet of Things (IoT) will change how objects interact with technology, turning them into intelligent hardware. Improvements in IoT will transform urban mobility, reducing risk and increasing efficiency.

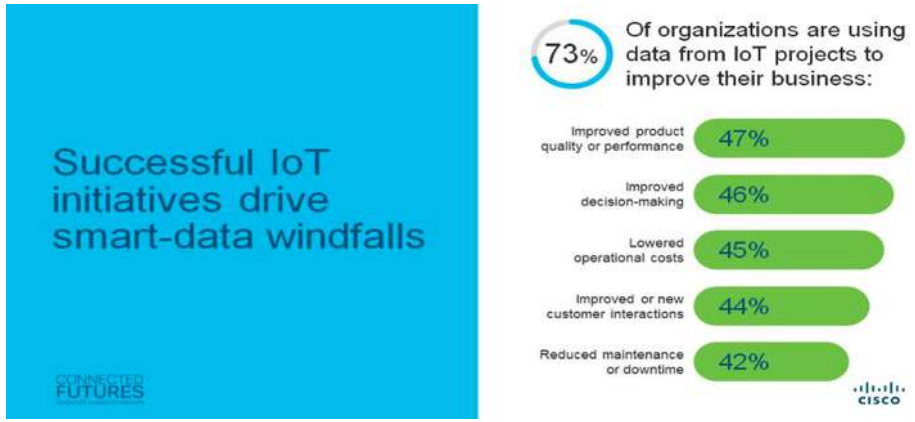
4 INTERNET OF THINGS

The Internet of Things (IoT) is a technology advancement that allows physical objects, such as vehicles, to have connectivity between each other.

The IoT is defined by three pillars: the presence of sensors, network connectivity and data interpretation velocity.

It is rapidly getting in the mobility industry and new business models are arriving. This technology allows for data gathering and data processing in ways that have never been available before – the so-called *smart data*.

With more data, public transport operators, vehicles present in the *sharing economy* and other types of transportation can predict better the needs of the customers leading to a better service provided and less traffic in cities.



1 McKinsey & Company, 2016, *The internet of things*
2 Cisco Company, *Connected futures*
3 Cisco Company, *Forecast Highlights Mobile*

1. THE FUTURE OF URBAN MOBILITY | MOBILITY TRENDS WORLDWIDE (8/12)

Planet sustainability concerns are being felt at a global level, having a strong impact in transports regulation and new mobility services that are being developed.

5 SUSTAINABILITY

Transportation, whether of people or goods, is one the pillars of modern economy. It is also one of the major sources of pollution by means of greenhouse gasses emission.

The smog it creates can present serious harm to public-health leading the World Health Organization to conclude that, in 2014, 7 million early deaths can be credited to air pollution with a large share of it being a consequence of urban mobility. Besides air quality, urban planning rises concerns to create a sustainable city with more life quality and green spaces[1].

The United Nations are developing a *Sustainable Development Goal* focusing on developing cities and communities being sustainability the centre of attention. With this, the UN expects that by 2030 everyone has access to a sustainable transport system and increased safety in the streets[2].

[1] McKinsey & Company, 2016, *An integrated perspective in the future of mobility*
[2] United Nations, Sustainable Development Goals

1. THE FUTURE OF URBAN MOBILITY | MOBILITY TRENDS WORLDWIDE (9/12)

Artificial intelligence is changing every company in the world. In the mobility sector, accident reduction and making processes optimized will be the best advantages AI will bring to the table.

6 ARTIFICIAL INTELLIGENCE

Artificial Intelligence (AI) has been constantly growing and is now having a big impact in different industries. This happens due to the benefits its development brings to the interactions between companies and consumers making processes seamless and optimized. The advancements in processing natural language and machine learning make technologies easier to use.

AI is transforming the dynamics of every company with new offers appearing constantly – Tesla cars, Amazon's Alexa, Apple's Siri, Google Home and even Netflix or Spotify use AI to provide a better, more personalised product to customers.

In 5 years time, it is expected that half of the customers choose each company's services based on their artificial intelligence instead of the brand like today[1].

[1] Accenture, 2017, *Technology Trends*

1. THE FUTURE OF URBAN MOBILITY | MOBILITY TRENDS WORLDWIDE (10/12)

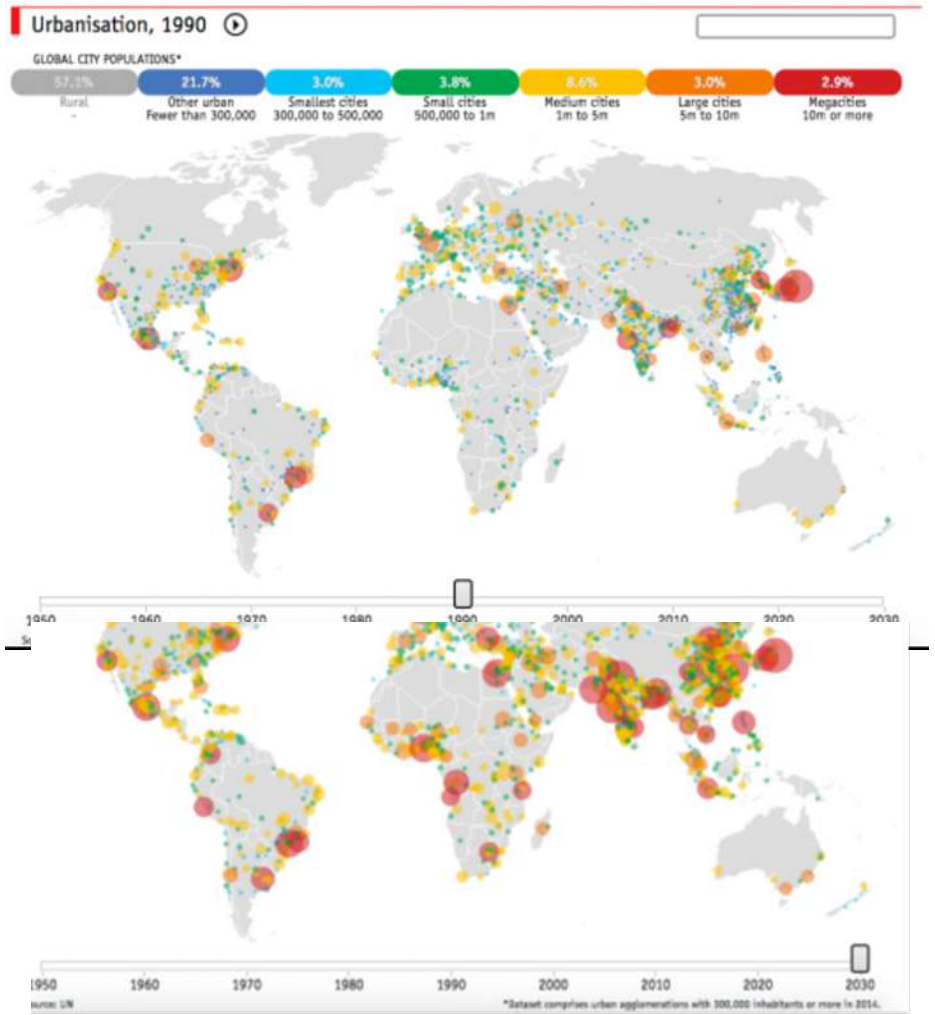
Economic development and urbanization are increasing pressure on urban mobility. In response to this challenge, cities are investing in public transports and infrastructures that optimize mobility.

7 PUBLIC TRANSIT

Urbanization and population growth will increase average density in metropolitan areas by at least 30% in the next 15 years.

As a consequence, additional pressure on the current public transit systems will occur. Cities are making efforts to expand its public transports fleets and reach to reduce waiting times and full transports.

The networks of shared vehicles will allow cities to reduce costs of ill public transports by spreading customers between different ways of transport.



Change in urbanisation from 1990 - 2030

[1] McKinsey & Company, 2015, *The consumer trends 2030*
[2] McKinsey & Company, 2016, *An integrated perspective in the future of mobility*

1. THE FUTURE OF URBAN MOBILITY | MOBILITY TRENDS WORLDWIDE (11/12)

Regulation is key for new mobility services and projects to be implemented since government policies affect heavily on new business models. Recent digital platforms facilitate the consumer decision process and allow for long-term growth.

8 REGULATION

Regulation takes on a fundamental role in implementing and developing urban mobility solutions since it shapes how new offers fit the needs of consumers.

The public sector and government regulations will have a major influence in preparing the city and its infrastructures to new business models. Also, politicians must be open to embrace the changes that are coming in the urban mobility space.

Regulation can come in various forms and regarding different topics such as the environment, data protection, incentives for the use of some transports rather than others. Shot-callers also have a key part in negotiating and collaborating with the major stakeholders in the interest of consumers.

9 PLATFORM REVOLUTION

Companies are looking for ways to enter this new generation of digital ecosystem and are creating innovative platforms with third-parties to thrive in this new environment. Being present and having a relevant goal in the digital ecosystem has been one of the focus of big corporations.

The top companies in the world no longer offer products to be bought. Instead services are sold in platforms, connecting customers and sellers in a seamless way.

New enterprises in the digital era, thrive in saturated and fragmented markets by aggregating services in one easy access platform, simplifying the whole decision and buying process.

Examples of such companies include Airbnb, Netflix, Uber and Spotify.

[1] Accenture, 2017, *Technology Trends*

1. THE FUTURE OF URBAN MOBILITY | MOBILITY TRENDS WORLDWIDE (12/12)

Consumers are now more than ever looking for personalisation and a fit-for-purpose offer in the mobility sector. Having only one moving possibility is no longer an option.

10 CONSUMER PREFERENCES

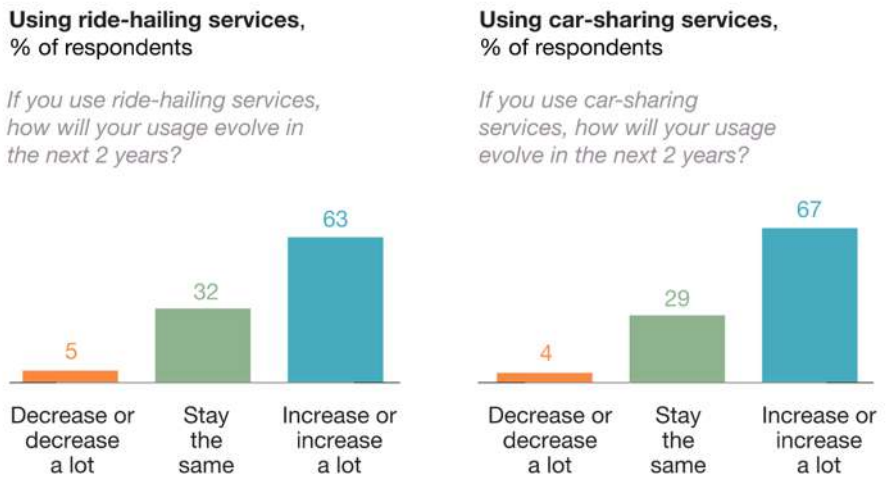
Consumer preferences, increased regulation and technological advancements are influencing major changes in individual urban mobility. Users are constantly looking for different means of transportation to complement their regular trips. This change is going to change the relationship between customers and the automotive industry as we know it.

New generations, alongside favouring to live in city centres, are seeing their own mobility changing. Instead of having one mean of commuting everywhere, they prefer a bundle of choices to choose from depending of where they are going. The internet and the technological advancements are increasingly changing how people consume mobility services since customers are constantly looking for a *fit-for-purpose* solution[1].

Car-sharing have been significantly growing, from 350 thousand consumers in 2006 to 5 million in 2014 worldwide. The same rational applies to *moto-sharing*, *bike-sharing* and *ride-hailing.*

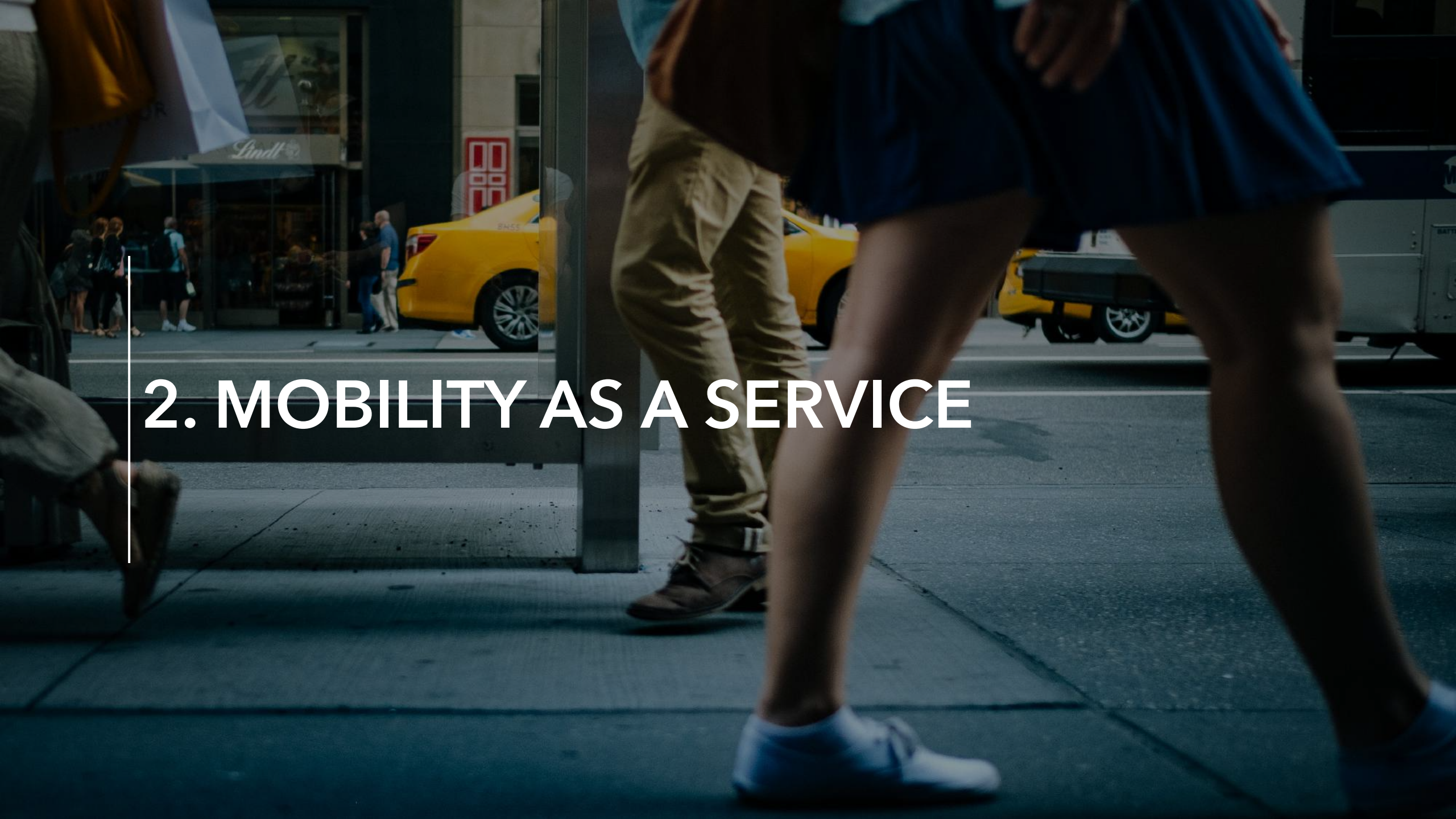
Exhibit 2

Consumer surveys indicate continued growth potential for shared mobility.



McKinsey&Company

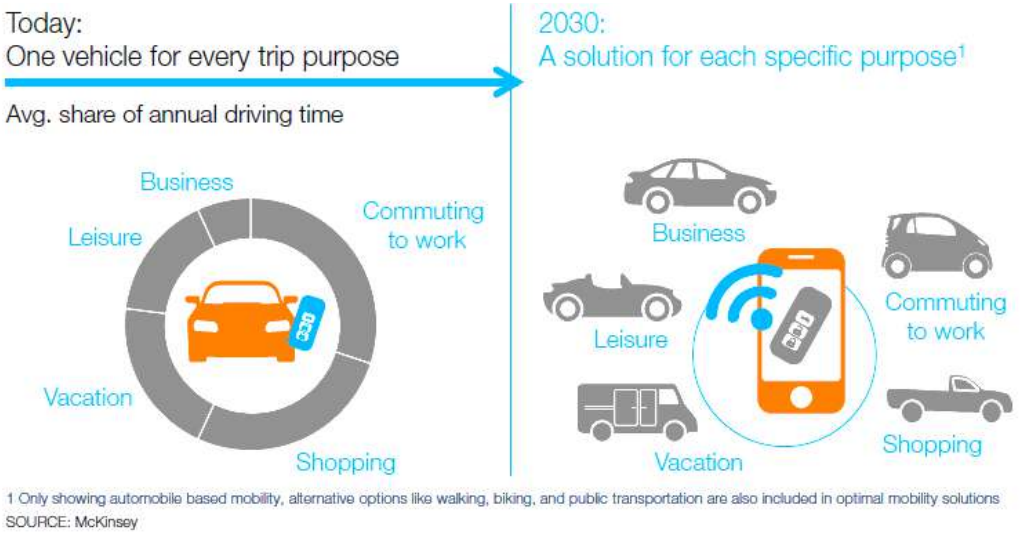
[1] McKinsey & Company, 2016, *Automotive Revolution – Perspective 2030*
[2] Deloitte, 2015, *The future of Mobility*



2. MOBILITY AS A SERVICE

2. MOBILITY AS A SERVICE | THE CONCEPT (1/10)

Based on the context of urban mobility and the trends we are seeing happening worldwide, new business models and services arise. That together with the demand for more personalized solutions in the transportation sector led to the creation of Mobility as a Service.



Mobility as a Services (MaaS) emerges as a response to the urban mobility challenges of today, creating solutions that fit the needs of both customers and cities.

MaaS is a concept that **allows consumers to have access to a wide range of mobility possibilities that varies with the type of travel a consumer needs**.
This sort of solution is regarded as best way to choose the means of transport that is more convenient to the user. Mobility as a Service leads to the reduction of use of individual vehicles, not because people are obliged but because the alternative is better.

MaaS value proposition is based on two axis:

1. It offers capabilities such as a personalised service, a dynamic journey planning and management system and flexible payment and easy transactions.
2. Provides customers with a range of possibilities such as public transports, bicycles, taxis, *car* and *moto-sharing* schemes or parking.

MAIN ADVANTAGES: Ability to aggregate the services provided by transport operators in just one platform. This can be a game-changer of the way operators connect with their consumers, proving two big strengths in this sense:

- **Servitization:** where the provider of the service puts together a *bundle* of different mobility services according to each need. This will create competing among operators, leading them to be better and more efficient
- **Data Sharing** from the MaaS provider to every operator from which they can improve their service and serve better the needs of the customers.

2. MOBILITY AS A SERVICE | IMPACT ON INDUSTRIES (2/10)

A Mobility as a Service solution has different types of impact in a wide range of industries, some of them more obvious than others, either by creating value, diminishing it or even have a mixed influence[1]

TRANSPORTATION

Vehicles present in the *sharing economy* can reduce the demand for traditional taxis or limousine services. At the same time, with the appearance of autonomous vehicles, new business opportunities arise for the movement of both people and goods.

AUTOMOTIVE

We should expect a decrease in personal vehicle ownership and a higher number of fleet cars, since individuals will shift towards shared mobility. New vehicle designs should appear in this context, appealing to a broader audience.

FINANCIAL

The financing for fleets will definitely increase but it could be balanced with a decrease in personal loans and leasing for privately owned cars.

INSURANCE

Insurance will see new opportunities by, perhaps, insurance experiences as they would with products. On the other hand, they will suffer with sales reduction due to the increased safety with the rise of interconnected autonomous vehicles.

ENERGY

The increase of environmental responsibility to reduce the carbon footprint can lead to more electric vehicles on the streets. But increased efficiency of cars can lead to lower energy consumption overall.

[1]Deloitte, 2015, *The future of Mobility*

2. MOBILITY AS A SERVICE | IMPACT ON INDUSTRIES (3/10)

A Mobility as a Service solution has different types of impact in a wide range of industries, some of them more obvious than others, either by creating value, diminishing it or even have a mixed influence[1]

MEDICAL

The increased autonomous vehicles available should lead to less accidents and fatalities on the streets reducing costs for emergency teams, medical services and legal fees.

PUBLIC SECTOR

Shifts will occur, especially regarding taxes. The impact is still unknown. On the one side, the reduction of sales of automobiles will reduce taxes obtain from licencing fees or even fuel, but on the other side, create a dynamic taxation system based on consumption can offset this decline. The effect of how consumers will choose between public and private transportation is still difficult to predict but it is certainly a topic governmental authorities should be aware of.

TELECOM

The rise of the internet of things and autonomous cars will put pressure on telecom companies to increase bandwidth necessities as connectivity needs will upsurge

MEDIA

New models and cross-selling ideas will be a subject of study. With less time spent driving, people will have more time to consume information and media, especially social media, will be one of the great benefactors. Cross-selling option in the MaaS platform can be another source of revenue since data of consumer preferences and patters will be available

TECHNOLOGY

The emergence of all these new mobility schemes will certainly boost the technology segment in both operating system players and mobility management providers

RETAIL

One industry that will suffer major value shits is the retail one. It's likely that wider mobility options will allow underserved segments such as the elderly to boost sales; home delivery options will also be enlarged and reach a larger number of customers. An impact that it is still unclear whether it will be good or bad is who retail companies will respond to city centres scenery changes.

[1]Deloitte, 2015, *The future of Mobility*

2. MOBILITY AS A SERVICE | IMPACT ON CITIES (4/10)

But a Mobility as a Service solution will not only impact customers or industries. Cities, as a whole, will experience changes in four major strands

MASS PUBLIC TRANSIT

Mass public transit will be key to move crowds while preventing road congestion. Governments need to be able to assure that collective and shared mobility will be preferred over individual, private one. This can be done by encouraging people to use mass public transit and new forms of movement through subsidies, for example. But all of this can only be possible if public transports are ready to have its number of passengers increased in the next years.

LAND USE

The growing number of parking spaces and the reduction of vehicles in the road will allow a city centre reorganization with more green spaces and walkable streets. This will all impact how politicians govern the city and how they will improve people's lives.

REVENUES

Policy makers need to take into account that the growing number of electric vehicles and the reduction of the total number of privately-owned cars will reduce city municipality's revenues. This decrease can be offset by taxing shared mobility schemes or the Internet of Things world in different ways. For that to happen, governments must be ready for these changes and prepare beforehand.

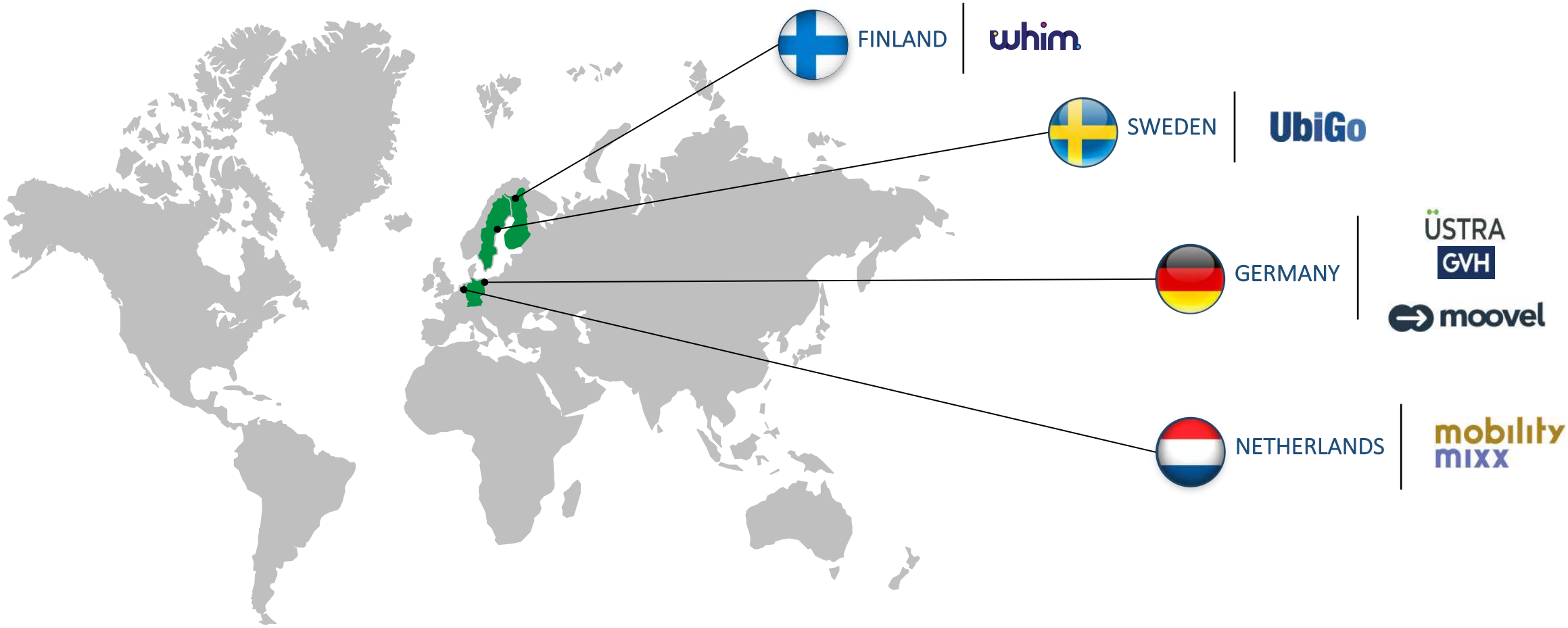
INFRASTRUCTURES

Mobility infrastructures will need to evolve to handle the new means of transportation passengers will choose. On average, a new road enters a state of regular congestion after seven years of use. Cities need mechanisms to diminish road demand. This could be done, for example, using a system of dynamic pricing as we already see with parking spaces for electric vehicles which are free. In the future, and based on this idea, we might see speedways destined only to autonomous cars where the speed limit is higher than all other roads and where the risk of accidents is much lower.

[1]Deloitte, 2015, *The future of Mobility*

2. MOBILITY AS A SERVICE | BENCHMARK (5/10)

Worldwide we can already see examples of integrators, especially in Europe. We identified five different approaches to Mobility as a Service in Finland, Sweden, Germany and in the Netherlands.



2. MOBILITY AS A SERVICE | BENCHMARK (6/10)

Worldwide we can already see examples of integrators, especially in Europe. We identified five different approaches to Mobility as a Service in Finland, Sweden, Germany and in the Netherlands.

	whim	UbiGo	ÜSTRA GVH	moovel	mobility mixx
WHERE	Helsinki (Finland)	Gothenburg (Sweden)	Hannover (Germany)	Stuttgard | Hamburg | Berlin (Germany)	Netherlands
WHEN	2016	2016	2016	2012	2000
MAIN FUNCTION	Mobility Integrator	Mobility Integrator	Mobility Shop	Mobility Integrator	Mobility Integrator
PRODUCT	Mobile App	Mobile App	Mobile App + Physical Card Pass	Mobile App	Mobile App
OFFER	• Personalised mobility packages or pay-per-ride. • Includes taxi drives, car rental, self-service rental bikes and public transports • Planning from A to B • E-ticketing	• Pay-per-ride or pre-bought tickets • Includes taxi drives, car rentals, public transports, carsharing and self-service rental bikes. • Planning from A to B • E-ticketing	• ”Integrated mobility bill” at the end of the month • Includes pre-reserved taxi drives, car-sharing service and public transports • Planning from A to B. • E-ticketing + Hannover Mobile card pass	• Pay-per-ride • Includes Mytaxi, public transports, carsharing and self-service rental bikes. • Planning from A to B • E-ticketing	• Monthly travel budgets • Includes taxi drives, car rental, public transports, self-service rental bikes and parking • Planning from A to B • E-ticketing • Option for business to encourage its employees to use public transports and helps companies increase their Corporate Social Responsibility

2. MOBILITY AS A SERVICE | BENCHMARK WHIM (7/10)

At this stage, Whim is the most developed MaaS solution. The offering of mobility packages stands it out from the competition and the fact that it is a government-backed service is what allows it to be so successful.

Offers a mobile app that allows people to buy mobility packages personalized for the own needs or just a pay-per-ride as they go. It includes the planning and e-ticket options and can be used for taxis, car rental, public transportation and bike-sharing.

It is the most developed app at this stage. With the offering of mobility packages that allow users to consume mobility according to each situation, Whim stands out from the rest of the competition.

Mobility in Helsinki, where the Whim app operates, is regulated by a governmental authority that rules all the public transport network of the city. This authority was the first public agency that understood the benefits of offering both public and private transports to customers in one service by financing the service in 50%, facilitating Whim's implementation. The other 50% come from ticket revenues.

TYPES OF TRANSPORTS IN WHIM MOBILITY PACKAGES

PUBLIC TRANSPORTS Helsinki Regional Transport Authority

- Metro, Tram – operated by HKL.
- Train – operated by VR.
- Bus
- Ferry
- City bikes – joint-venture between CityBikeFinland, HKL e HSL.

PRIVATE TRANSPORTS

CAR RENTING

TAXI

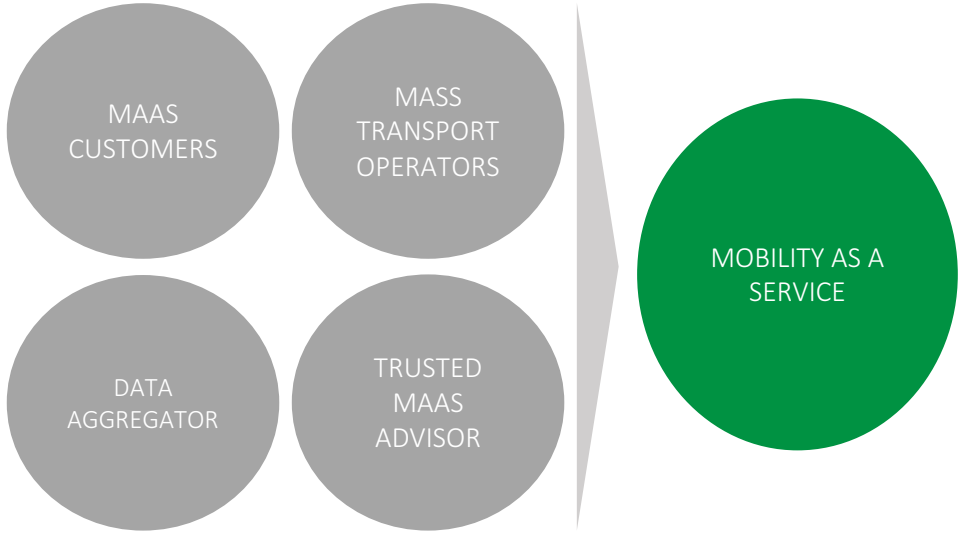
The company now offers three different mobility packages:

[1]Whim App Official Website

1) Pay-per-ride; a 2) 49€ monthly subscription that includes unlimited public transport and city bikes, 10€ taxi rides that would cost more than 10€ within a 5km radius (all others are charged at regular price) and car rental for just 49€ per day; and a 3) 499€ monthly subscription with unlimited public transports, city bikes, taxi rides and car rentals.

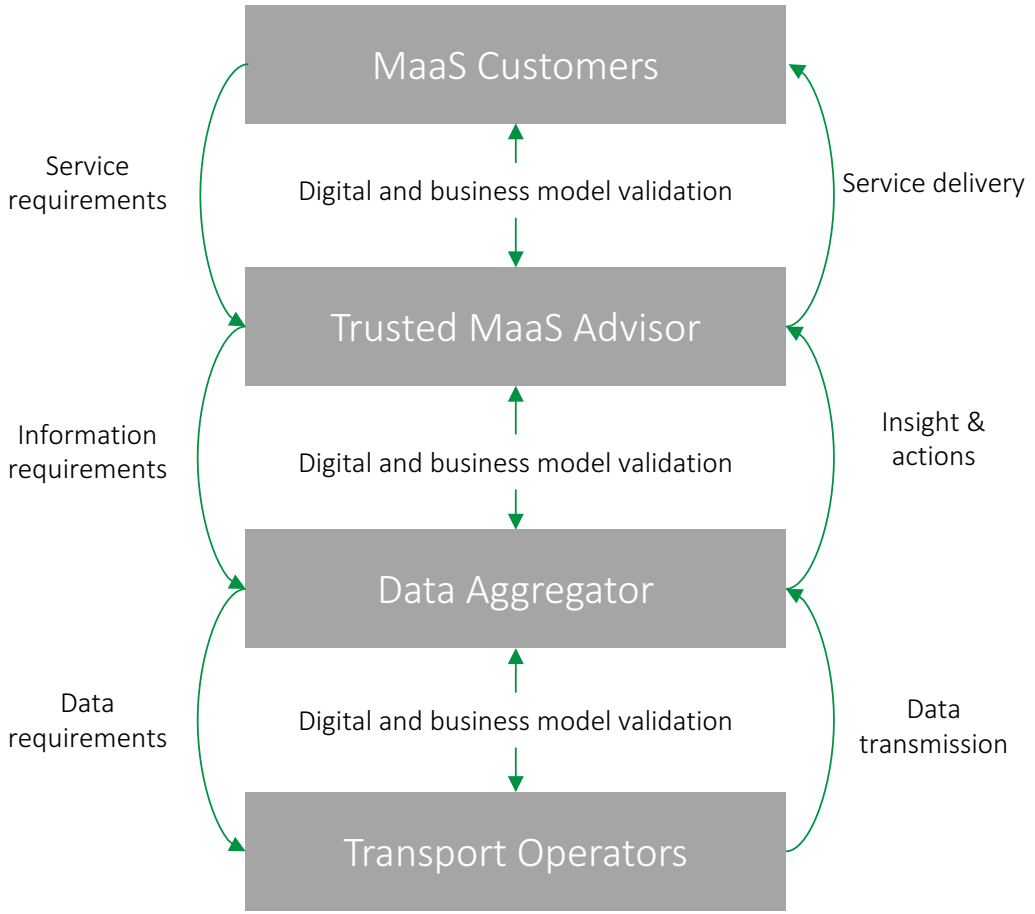
2. MOBILITY AS A SERVICE | ECOSYSTEM (8/10)

There are four main stakeholders in the Mobility as a Service ecosystem. Each one of them has a fundamental role in the development and offering of this type of service.



To develop a Mobility as a Service solution, a functional ecosystem must be in play. Several stakeholders are involved and each one of them has a fundamental role in the development and offering of this service. The four major parties are: customers, transport operators, a data aggregator and a trusted MaaS advisor that orchestrates the whole operation. All these stakeholders have different roles within the ecosystem but all of them are key to the implementation of this type of solution. As we can see in the graph, all of them are interconnected are the good functioning of one element is vital to the functioning of all others.

Catapult, 2016, *Mobility as a Service: Exploring the opportunity in the UK*



2. MOBILITY AS A SERVICE | ECOSYSTEM (9/10)

There are four main stakeholders in the Mobility as a Service ecosystem. Each one of them has a fundamental role in the development and offering of this type of service.

MAAS CUSTOMERS

Who are the potential customers?

- The ideal customer needs to be a smartphone owner, believer in new platforms and a fan of the *sharing economy*.
- They should use at least two different transportation methods and not be utterly fixated in using an individual private vehicle.
- Having environmental concerns regarding the carbon footprint made in the world should be consider a plus factor when looking into potential customers.

What do they win using MaaS solutions?

Access to a **smart journey planner** that takes into account **different criteria** such as speed, cost or comfort and a **wide range of mobility options** according to each situation and need that can be translated in future cost savings for the consumer.

TRANSPORT OPERATORS

What are the key partners?

- To serve the customers, transport operators must be present in the ecosystem.
- These should be mass public transit operators and also private mobility companies that reach a large number of customers and locations.
- For the solution to work, operators much be willing to share their data why the other stakeholders so that every player is able to optimize their routes and schedules to better serve the users.

What do they win using MaaS solutions?

MaaS can serve as a **new commercial channel for the operators**, creating a new source of revenue they can leverage.

Data Availability that will allow routes and schedules optimization to better serve the users.

Catapult, 2016, *Mobility as a Service: Exploring the opportunity in the UK*

2. MOBILITY AS A SERVICE | ECOSYSTEM (10/10)

There are four main stakeholders in the Mobility as a Service ecosystem. Each one of them has a fundamental role in the development and offering of this type of service.

DATA AGGREGATOR

What are the main responsibilities?

- Having all transport operators interconnected, sharing data about customers, there is a need to have an entity to process all data from both users and transport operators – a data aggregator.
- This stakeholder must assure the interoperability of all information gathered and create a standard mechanism for all the other players.

What do they win using MaaS solutions?

Sell the information since it has access to mobility patterns and choices of consumers.
It can predict what needs the users will have and anticipate business opportunities, thus creating new sources of revenues.

TRUSTED MAAS ADVISOR

What are the main responsibilities?

- To make all this happen, there must be a Trusted MaaS Advisor, an entity that can be the player that orchestrates all other stakeholders. It should be the one responsible for the integration and formulation of win-win partnerships between consumers, operators and the data aggregator. It has to transmit an image of confidence and full transparency to the market.

What do they win using MaaS solutions?

Access to mobility data in a certain city or country

Profit gained from MaaS offering that differ from city to city

Catapult, 2016, *Mobility as a Service: Exploring the opportunity in the UK*

3. LISBON | THE BIG PICTURE

3. LISBON | THE BIG PICTURE (1/1)

Lisbon still has a lot of room to grow if the city wants its citizens to buy less cars such as in London or Seoul, or to have infrastructures that support a MaaS offer as we see in Helsinki nowadays.

SCOPE OF THE PROJECT

For the purpose of our study, Via Verde suggested to focus our project in Lisbon Metropolitan Area as a pioneer city for a Mobility as a Service solution in Portugal.

MOBILITY CHALLENGE

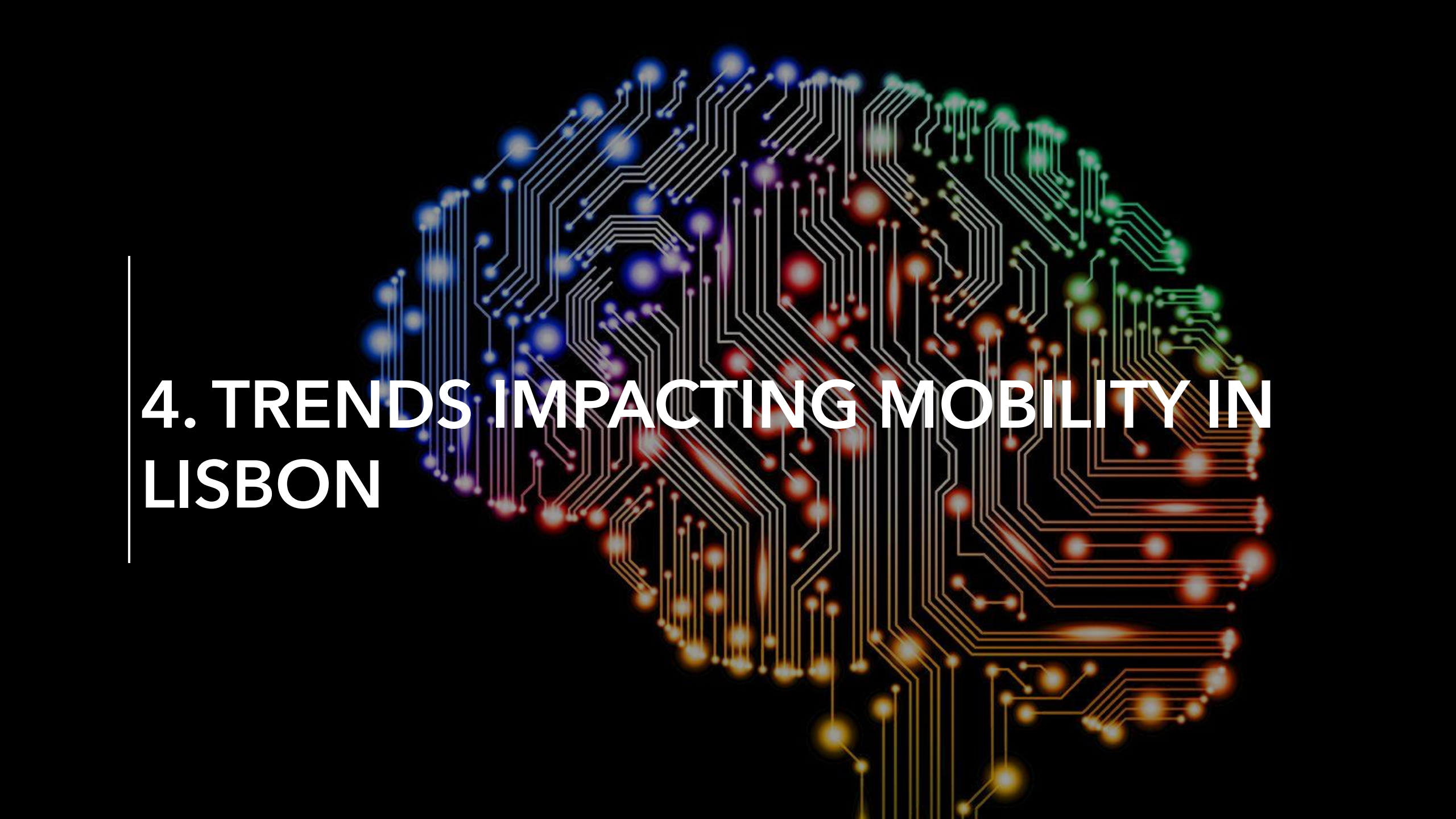
Lisbon faces a challenge much like the rest of the world in terms of urban mobility.

- In 2011, **72%** of the Portuguese population resided in urban areas, such as Lisbon, while they only represent 18% of the national territory.
- These numbers have been growing since then. Just in the city of Lisbon there are 509 thousand habitants while in the Lisbon Metropolitan Area has 2,8 million[3].
- The development of the suburban areas has increased the flow of cars that each day enter Lisbon.
- Every day, 600 thousand cars circulate the city streets with only 200 thousand parking spaces. Besides these numbers, the growing tourism trend, 8% per year, each year, is putting pressure on mass public transports that is not sustainable[3].

- Lisbon shows great opportunities in both the mobility and transportation sectors.[1]
- Lisbon is the 110th city out of 180 regarding the abovementioned sectors. It based its criteria in factors such as traffic index, traffic inefficiency, number of accidents, bike-sharing options, range of different transportation means and metro stations available.
- Lisbon as a small city with low levels of population growth, comparing it to Vienna, Amsterdam or Prague.[2]

The city needs to find sustainable ways for its citizens to increase the consumption of shared and collectively means of transportation, getting ahead in terms of being a pioneer city where a MaaS solution can be implemented.

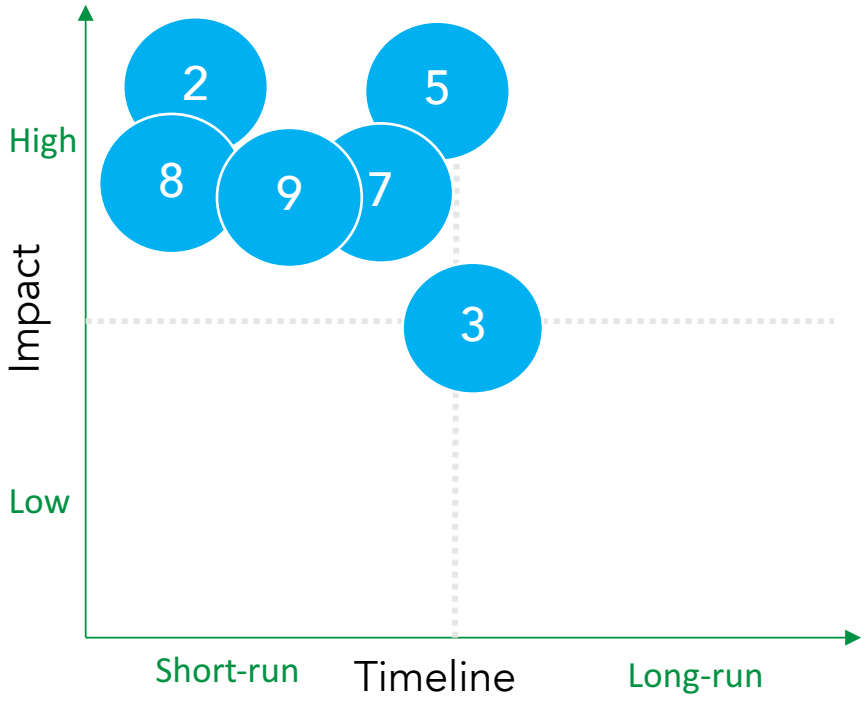
[1] IESE Business School, 2016, *Cities in Motion*
[2] Arthur D.Little, 2009, *Future of mobility 2020*
[3] Câmara Municipal de Lisboa, 2015, *Lisboa: a economia em números*



4. TRENDS IMPACTING MOBILITY IN LISBON

4. TRENDS IMPACTING MOBILITY IN LISBON (1/6)

Based on the matrix constructed for the mobility trends worldwide, we selected the six more important ones and studied them in detail for the Lisbon case-study.



1 AUTONOMOUS VEHICLES
2 SHARED MOBILITY
3 ELECTRIC VEHICLES
4 INTERNET OF THINGS
5 SUSTAINABILITY
6 ARTIFICIAL INTELIGENCE
7 PUBLIC TRANSIT
8 REGULATION
9 PLATFORM REVOLUTION
10 CONSUMER PREFERENCES

We decided to analyze only these six major trends since the other four are too similar to the worldwide trends. Autonomous vehicles, IoT and AI are too far on the horizon for the Portuguese market and consumer preferences are following the world tendencies.

4. TRENDS IMPACTING MOBILITY IN LISBON (2/6)

These two trends are very much correlated in the city of Lisbon. The growth of shared mobility services is clear and they are now part of the citizens every day lives. Electric vehicles are very much visible in shared options such as moto-sharing, e.g. eCooltra, or car-sharing, e.g. DriveNow.

2 SHARED MOBILITY

- Most of the shared mobility services are now available at a large scale for all consumers.
- *Ride-hailing* services emerged quickly in the last 3 years, such as Uber, Cabify or MyTaxi.
- Uber has grown from the ground up to having now more than three thousand drivers, 30% of the Lisbon population now use Uber showing the rapid acceptance of this type of mobility service[1].
- eCooltra, a *moto-sharing* service now has more than 170 electric scooters available in the city and was expected to have more 25 thousand users in just 7 months.
- *Car-sharing* options such as DriveNow, with more than 200 cars citywide, or *Via Verde Boleias* are appearing and being exponentially used by people who live in AML.
- *Bicycle-sharing*, with GIRA bikes and dropping-off stations is a recent introduction in the market having already a good acceptance by the customers.

IMPLICATIONS FOR THE PROJECT

A wider range of different shared mobility services allows the consumer to choose which transportation suits best their immediate need – **fit-to-purpose.**

3 ELECTRIC VEHICLES

- This trend has a very high correlation with the increase of shared mobility services, since these new offerings have an increased environmental consciousness.
- eCooltra, as mentioned before, has more than 170 scooters spread all over the city of Lisbon - all of them electric. [2]
- DriveNow, the car-sharing service, has, in its fleet, 11 electric vehicles. A small portion but still relevant to show that it is going to continue to be a trend. [3]
- Besides shared mobility, MOBI.E has now almost 600 stations to charge electric vehicles, having charged almost 500 thousand times and saved more than 2 million kg/CO2 since 2010. [4]

IMPLICATIONS FOR THE PROJECT

Customer preferences have showed that citizens are constantly more concerned about the carbon footprint they are leaving behind. Having these options allow consumers to better shift to low emission vehicles, leaving them and the city better off.

[1] Uber Official Website
[2] eCooltra Official Website
[3] DriveNow Portugal official website
[4] MOBI.E Official Website

4. TRENDS IMPACTING MOBILITY IN LISBON (3/6)

Regulators pressures in reducing the carbon footprint of European countries are changing the scope of sustainability in Portugal, with a special focus in Lisbon.

5 SUSTAINABILITY

- Being part of the European Union, Portugal and therefore Lisbon, is subject to pressures from regulators to reduce the environmental footprint, as urban mobility comprises a big portion of the pollution created in the city.
- Lisbon policy makers have been making efforts in the matter. There are now incentives from the Tax Authority for people to buy electric cars (less taxes to be paid) and from EMEL, that regulated the parking spots within the city, that allows owners of non-combustion vehicles to not pay for otherwise paid parking spots.
- A staged prohibition of old vehicles to circulate in the city centre is in place. Cars made before 2000 are now not allowed to be used in the most polluted areas of Lisbon.

IMPLICATIONS FOR THE PROJECT

Together with the consumers intention to reduce their carbon footprint, the city's sustainability measures will incentivize the use of public transports and will create a cleaner city.

8 REGULATION

- Policy makers have a lot of influence in terms of increasing the possibilities of its citizens to reduce the utilization of private vehicles in the city.
- The government is already incentivizing new intermodal integrations with ticketing, tariffs, smart-cost management with both public transportation and other complements in the shared mobility sphere.
- Multimodal hub stations are being built to ease the change of means of transportation, with the major example being the rise of parking lots near big train or metro station such as Cais do Sodré. Besides that, public transportation companies, part of the city's jurisdiction, are focusing efforts to meet customer needs with well-adjusted schedules and frequencies of its routes.

IMPLICATIONS FOR THE PROJECT

Regulation and the force of the public sector in incentivizing new options are key for the success of a new mobility offering, as seen with the Whim case. The willingness of the public authorities that control public transports to integrate them with private ones will be fundamental for the implementation of a MaaS solution in Lisbon.

9 PLATFORM REVOLUTION

- The penetration of smartphones in the Portuguese population has tripled in the last five years. Now, 60% of Portuguese citizens own a smartphone, a number that is significantly higher when talking about Lisbon since it is a much more developed are than the rest of the country[1].
- 87% of AML's habitants agree that technology and innovation can and will enhance urban mobility within their city and that less than 8% of the same sample are opposed to shared mobility services showing a high degree of acceptance towards new platforms[2].

IMPLICATIONS FOR THE PROJECT

With the increase of smartphone penetration and the believe that technology and innovation can lead urban mobility change, consumers will be more prone to accept new solutions that appear based on the digital era, such as a MaaS one.

[1] Uber Official Website

[2] Marketeer, 2017, *6,5 milhões de portugueses têm smartphone*

4. TRENDS IMPACTING MOBILITY IN LISBON (4/6)

Increased tourism, as well as greater car utilization of privately-owned cars in the city, has created a pressure in public transit. Companies live Carris and the city policy makers need to adapt to change e find solutions to this problem.

7 PUBLIC TRANSIT

Increase of congestion and traffic jams: The growing number of tourists arriving in the city each year, as well as the wide utilization of privately-owned cars, have increased the congestion within Lisbon. This puts a lot of undesired pressure in the public transit means of transportation thus redefining the status quo of public transportation is a must for Lisbon.

CARRIS

- Carris has put in motion a set of measures to **make bus trips more suitable** for every type of passenger[1].
- Secures the existence of buses that connect the key points of each neighbourhood: schools, markets, health centres, multimodal stations or parks.
- **Seven new fast-lanes** are being designed in key areas of Lisbon. With the segregation of lanes, reduction of obstacles and smart lights, Carris expects to increase its buses average speed from 14 kilometres per hour to 20 kilometres per hour.
- **High functioning bus parking lots** will be created in the next few years with the capacity to park more than 4.500 buses in relevant areas of Lisbon, creating space to increase the fleet of the company.
- Public transit operators are now developing **their own mobile applications** to show best route options and schedules and installing Wi-Fi networks in the transports. Still, not only public transports need change.

CÂMARA MUNICIPAL DE LISBOA

- The city centre landscape must change to prioritize public and share mobility operators to incentive people **to reduce the usage of privately-owned vehicles**.
- Lisbon is being requalified for this purpose: **more walkable space, more bicycle lanes or parking spots** just for area residents are some of the measures the municipality is taking[2].
- Constructions in order **to increase the quality of streets for those with reduced mobility** are in place.
- **Unpaid parking spots will become almost inexistent**. EMEL is expected to regulate more than 84.000 parking spots in 2018 thus becoming virtually impossible to park a vehicle in the city toll free[3].

[1] Câmara Municipal de Lisboa, 2016, *Carris*

[2] Câmara Municipal de Lisboa, 2016, *Eixo Central – Requalificação do espaço público*

[3] Emel, Annual Report 2016

IMPLICATIONS FOR THE PROJECT

Increasing the quality of both public transports and city streets is a priority in order to implement a new mobility solution and enhance consumers' experience of urban mobility. The better the service public transports provide, the more citizens will be willing to trade the use of privately-owned cars for mass public transit. Only with a good public transportation service it will be possible to implement a Mobility as a Service offering in the city since it is the backbone of urban mobility.

4. TRENDS IMPACTING MOBILITY IN LISBON | LISBON BENCHMARK (5/6)

It is not only in foreign countries that a Mobility as a Service offer has appeared. In the Greater Lisbon, namely Cascais, a project called Mobi Cascais was born in 2016 due to the necessity to integrate different types of transportation in one platform. It was created in three stages.

CASCAIS PRÓXIMA
Gestão da Mobilidade, Espaços Urbanos e Energias

Cascais Próxima is the public authority that manages and develops mobility in Cascais and explores the following:

- Parking spaces and lots
- City bike rentals
- Public transport

MOBI CASCAIS

1st Stage: Rebuilding and increasing Cascais' road network

- 6 new bus routes;
- Street building, pavement repairs, conservation of streets

2nd Stage: Creating parking spaces for cars

- 15 new parking lots (1857 spots);
- Rebuilding of old spaces

3rd Stage: Integrate all urban mobility

OVERVIEW

70	Kilometres of bike streets
2.000	Spots for Bike Parking
1.200	Bikes
21.090	Parking spots
71,3M €	investment

Câmara Municipal de Cascais, 2017, *Tudo Por Cascais*
Mobi Cascais Official Website

4. TRENDS IMPACTING MOBILITY IN LISBON | LISBON BENCHMARK (6/6)

Mobi Cascais includes different mobility services to offer to the municipality's citizens. These services are offered in a wide variety of bundles mixing and matching the services provided according to consumer needs.

MOBI CASCAIS

Urban mobility services *Mobi Cascais:*

- Train
- Bus
- Bicycles;
- Street parking spaces;
- Parking lots;
- Electric charging stations
- Wi-Fi;

How to use *Mobi Cascais?*

The Mobi Cascais service is the understanding of a Mobility as a Service that Cascais Municipality believes its best to serve its citizens. It provides them the possibility to buy these services in bundles by paying a monthly subscription making it available in a physical card and a mobile application.

Monthly Subscription Packages

MobiCascais - preçário

Produtos	Serviços	Preço	Preço 1 zona CP	Preço 2 zonas CP	Preço 3 zonas CP	Preço 4 zonas CP
Mobi busCar						
Mobi busCar	busCar + Estacionamento E. Leclerc S. D. Rana + biCas (30 min)	€ 20,00 / mês	-	-	-	-
		€ 1,00 / viagem	-	-	-	-
Mobi busCar CP	busCar + Estacionamento E. Leclerc S. D. Rana + biCas (30 min) + Comboio	-	€ 36,60 / mês	€ 38,40 / mês	€ 49,80 / mês	-
Mobi busCas						
Mobi busCas	busCas + Estacionamento Praça de Touros + biCas (30 min)	€ 20,00 / mês	-	-	-	-
		€ 1,00 / viagem	-	-	-	-
Mobi busCas +	busCas + Estacionamento MobiCascais + biCas (horário completo das 8h às 20h)	€ 35,00 / mês	-	-	-	-
Mobi busCas CP	busCas + Estacionamento Praça de Touros + biCas (30 min) + Comboio	-	€ 43,60 / mês	€ 45,40 / mês	€ 56,80 / mês	€ 63,40 / mês
Mobi busCas CP diário	busCas + biCas (30 min) + Comboio	-	-	-	-	€ 7,50 / dia
Mobi ParC						
Mobi ParC CP	Estacionamento MobiCascais + Comboio	-	€ 28,60 / mês	€ 30,40 / mês	€ 41,80 / mês	€ 48,40 / mês
Mobi ParC bicas CP	Estacionamento MobiCascais + biCas + Comboio	-	€ 31,60 / mês	€ 33,40 / mês	€ 44,80 / mês	€ 51,40 / mês

Câmara Municipal de Cascais, 2017, *Tudo Por Cascais*
Mobi Cascais Official Website

AGENDA

I. DIAGNOSIS | URBAN MOBILITY LANDSCAPE

1. The Future of Urban Mobility
2. Mobility as a Service
3. Lisbon: The Big Picture
4. Trends Impacting Mobility in Lisbon

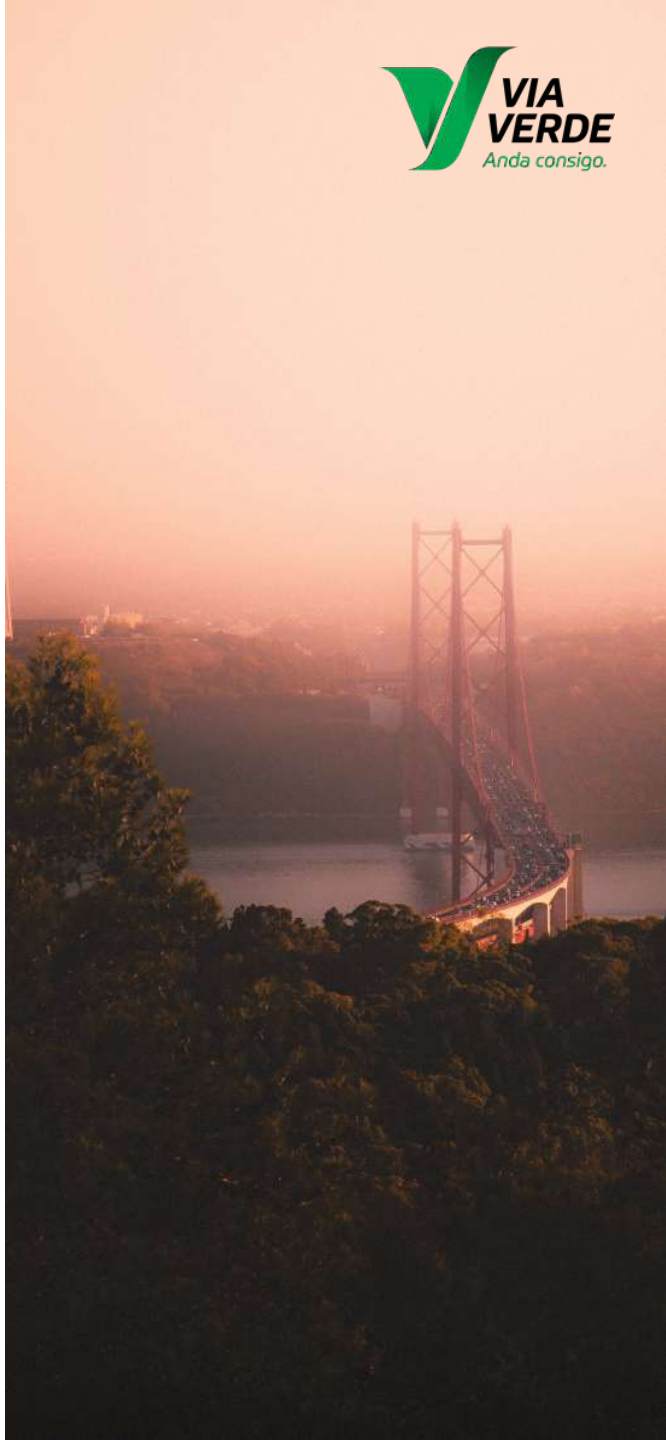
II. **ANALYSIS** | MAAS ECOSYSTEM IN LISBON

1. MaaS Ecosystem in Lisbon
   1.1. MaaS Customers
   1.2. Transport Operators
   1.3. Data Aggregator
   1.4. Trusted Mobility Advisor
2. Via Verde: A Strategic Player

III. **RECOMMENDATIONS** | IMPLEMENTATION OF A MAAS SOLUTION IN LISBON

1. How Can Via Verde Create Value?
2. Key Partnerships
3. Business Model
4. General Conditions
5. Challenges and Implementation Plan
6. Future Work

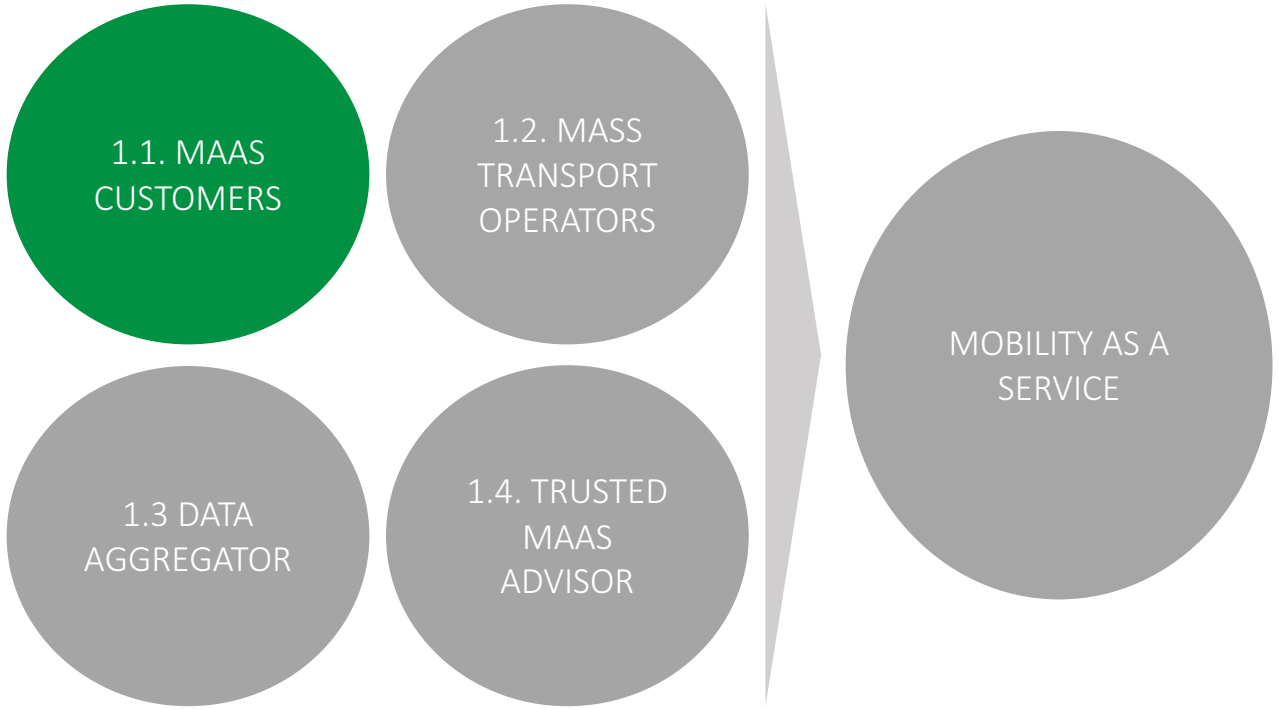
IV. REFERENCES

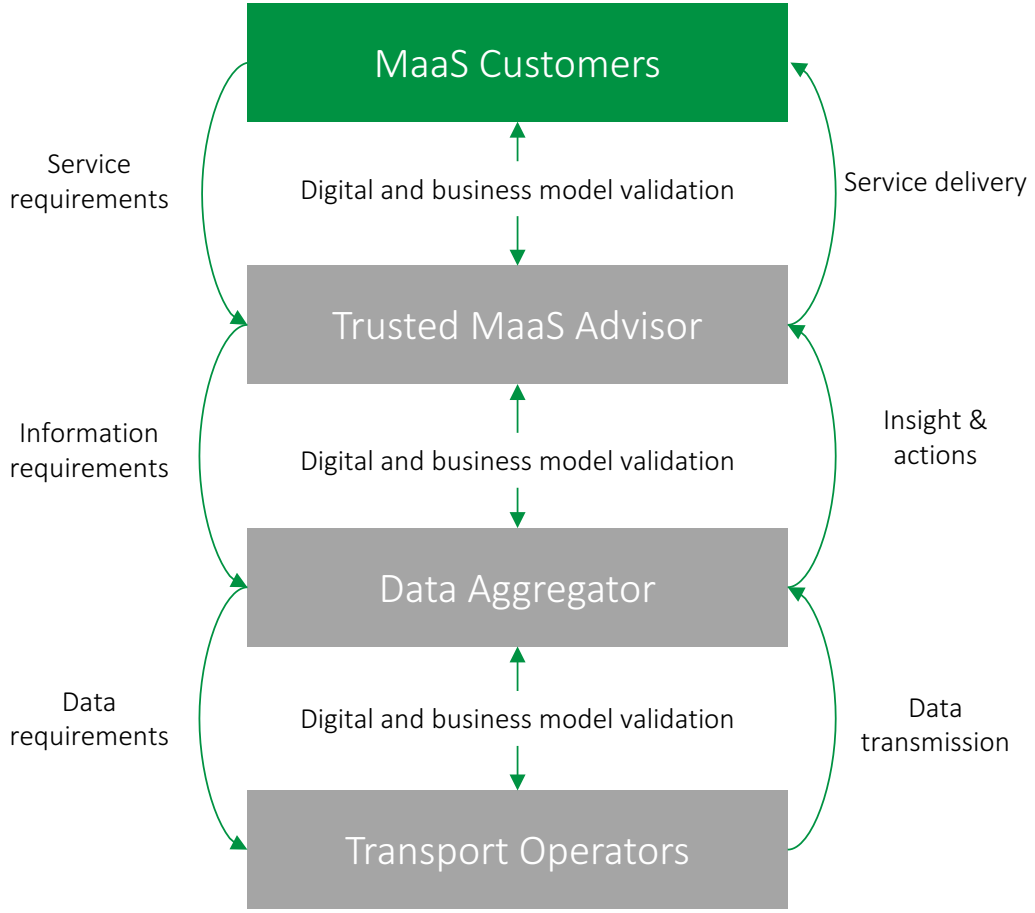


1. MAAS ECOSYSTEM IN LISBON

1. MAAS ECOSYSTEM IN LISBON

There are several stakeholders involved in the MaaS Ecosystem. Each of them play a vital role on the development and offering of these services.





Catapult, 2016, *Mobility as a Service: Exploring the opportunity in the UK*

1.1. MAAS CUSTOMERS | MARKET SIZING (1/15)

We identified two types of potential Maas costumers in Lisbon: people who live in the Metropolitan Area of Lisbon (AML) and Tourists. People who live in the AML due to their number and different mobility habits are considered an high potential segment, and the growth of tourism makes it an interesting segment to consider, which is reflected by the high level market sizing.

A. TOURISTS

20,5M €

- In 2016 **5,25 million** tourist visited Lisbon[1]
- Each tourist spends a daily average of 33,8€[2] in Portugal, of which we estimate that 5% are spent on mobility
- On average, each tourist stayed in Lisbon for 2,3 nights[3]

659,5M €

B. PEOPLE WHO LIVE IN THE METROPOLITAN AREA OF LISBON

- There are 2,8 million people living in AML[4]
- **40%** of them use regularly public transport[5]
- People spend a monthly average of 49,07€ on their mobility[6]

The mobility services offered to tourists were analysed in order to understand if this is a segment with market potential to in the elaboration of the new mobility as a service product.

In order to understand the behaviour, choice of mobility and pain points of this segment, 30 qualitative interviews was conducted. A quantitative questionnaire was then elaborated to validate the conclusions

1 – Bloomberg, 2016, *Airbnb Finds Love in Lisbon After Berlin Shies Away*
2 - PORDATA
3 – PORDATA
4 - PORDATA
5 – AMTL, 2014, *Estudo Qualitativo do Transporte Público TP AML – AMTL*
6 – Average spending in routine mobility of the 129 Quantitative Questionnaire answerers that do not use private vehicles

1.1. MAAS CUSTOMERS | A. TOURISTS (2/15)

"Turismo de Lisboa" is prepared for the tourist boom that is happening in Lisbon. In the area of tourist mobility "Turismo de Portugal" fulfils most of the tourist needs, through an integrated offer of mobility and museum tickets. Therefore, it would be difficult to another player to be competitive in this segment.

When arriving Lisbon, tourists may choose between buying **individual or daily transport** titles or "**Lisboa Card**" – a tittle that integrates mobility and museums entry.

AVAILABLE OFFER TO TOURISTS	Euro
Carris/Metro	1,45
Daily ticket (24h)	
Carris/Metro	6,15
Carris/Metro/Transtejo	9,15
Carris/Metro/CP	10,15
Zapping	1,30

Turismo de Portugal Official Website

LISBOA CARD. This card allows its bearer to:

Freely use the subway, Carris' buses and the train between Lisbon and Cascais and between Lisbon and Sintra

Free entry in 28 museums, monuments and other interesting locations, 10% to 50% discount in other touristic locations and services, and 5% to 10% discount in stores with Portuguese characteristic products.

1.1. MAAS CUSTOMERS | B. PEOPLE AML (3/15)

To understand the habits of mobility of the people who live in the Metropolitan Area of Lisbon, 30 people were interviewed and the conclusions of those interviews were validated trough a quantitative questionnaire.

RESEARCH & METODOLOGY

Qualitative Research Structure | 30 IN DEPTH INTERVIEWS

1. Pre-recruiting questionnaire
2. Direct Method – individual interviews to differentiated and relevant sample
3. Indirect Method – Projective technique

SAMPLE DETAILS

GENDER
Female: 67%
Male: 33%

WORK LIFE
Employed worker: 60%
Unemployed: 3%
Student: 37%
Retired: 0%

EDUCATION LEVEL
University: 63%
High School: 17%
Middle School: 3%
Grade School: 10%

AGE
<30: 70%
30-45: 3%
>45: 27%

DAILY MOBILITY
Urban – Urban: 30%
Suburban – Urban: 43%
Urban – Suburban: 3%
Suburban – Suburban: 23%

Quantitative Survey Structure | 545 VALID ANSWERS

1. Convenience Sample
2. Pre-recruiting questionnaire
3. Mobility habits questionnaire
4. Demographic profile questionnaire

SAMPLE DETAILS

MOBILITY SPENDING
Routine: € 89
Non-Routine: € 36

USE OF TRANSPORT
Exclusively Car: 53%
Other: 47%

EDUCATION LEVEL
University: 86%
High School : 13%
Middle School : 1%
Grade School : 0%

AGE
<30: 70%
30-45: 3%
>45: 27%

DAILY MOBILITY
Urban – Urban: 30%
Suburban – Urban: 43%
Urban – Suburban: 3%
Suburban – Suburban: 23%

MAIN FINDINGS

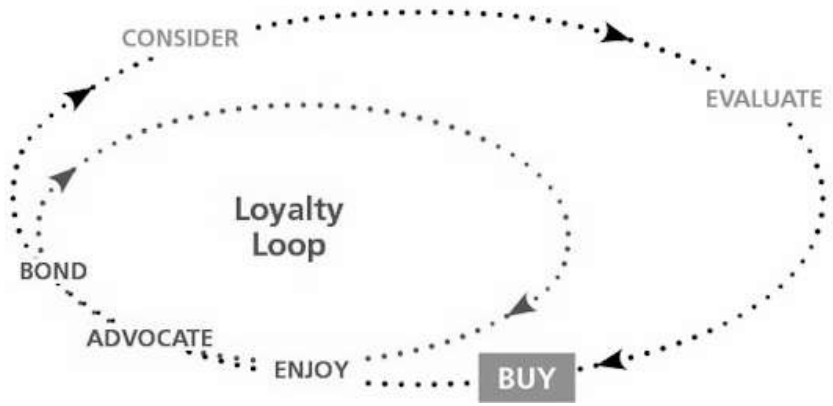
1. Consumer Decision Journey
2. Consumer Mobility needs
3. Mobility Patterns on daily routine

1.1. MAAS CUSTOMERS | 1. DECISION JOURNEY (4/15)

The routine transport decision of each customer is made when there is a change in the daily routine of the customer and thus he/she considers the different available alternatives of getting to work/main activity.

The consumer decision journey for the routine transport modes is made in the beginning of a new daily routine. This process includes three different stages in which consumers use many sources of information available, such as friends, family, internet.

Only when there is an occasional change in the daily routine consumers use different transport modes, but use also a more dynamic decision making process.



McKinsey's Consumer decision journey

NEW ROUTINE

Decision making process of the transport used in the daily routine *(Structured decision considering personal preferences and searching for information).*

OUT OF ROUTINE

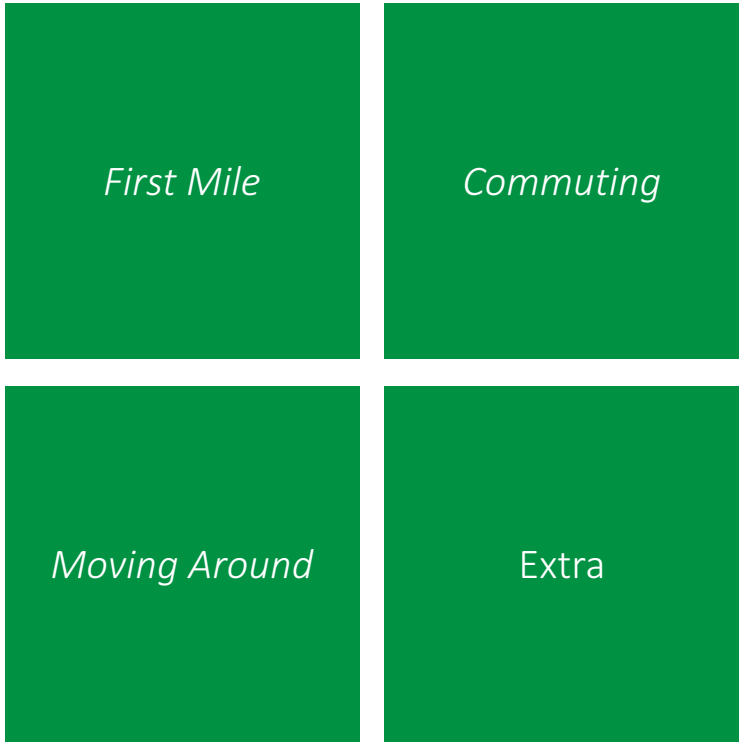
Dynamic decision process (*Quicker and less structured process*).

McKinsey, 2009, *The consumer decision journey*

1.1. MAAS CUSTOMERS | 2. MOBILITY NEEDS (5/15)

People who live in the Metropolitan Area of Lisbon' mobility needs may be divided in four different areas, depending of the circumstances of each of the mobility users.

First Mile is felt between the person's door and the beginning of one's modular journey to Lisbon.



Commuting is felt when there is the need of commuting to Lisbon.

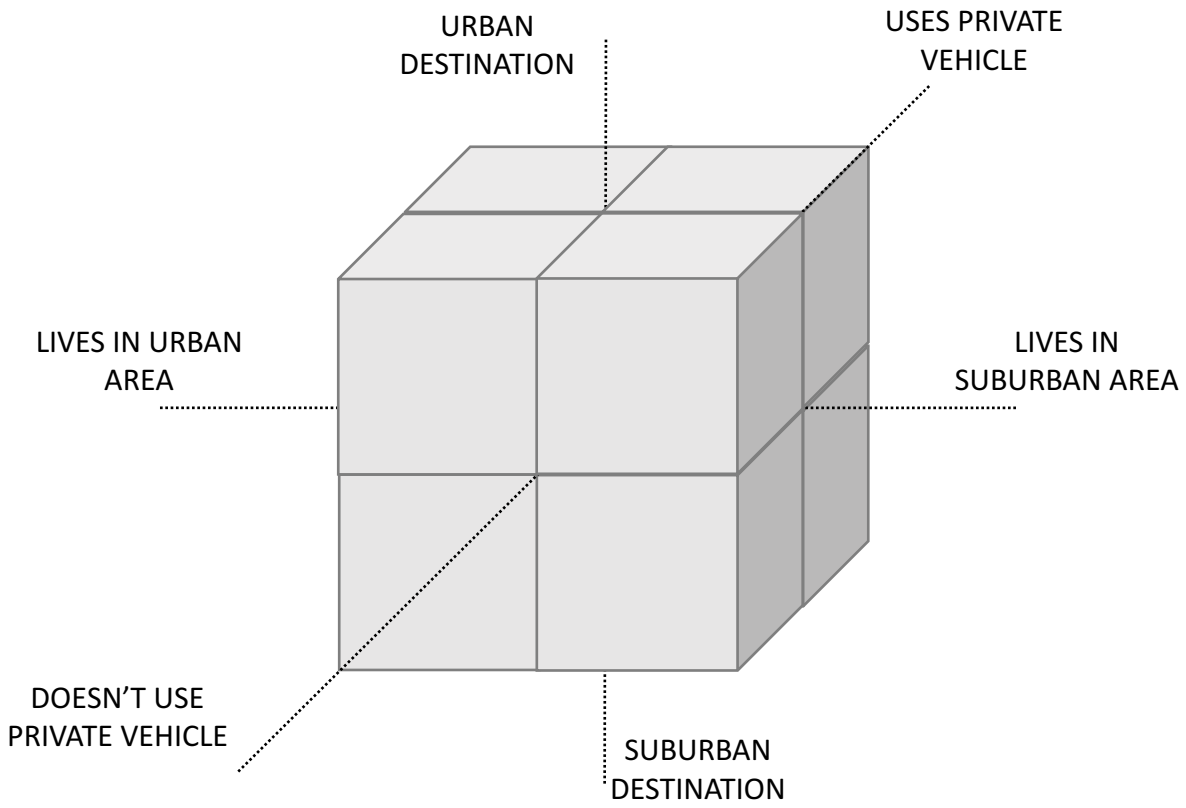
Moving Around is the need of moving around Lisbon.

Extra complements all the other, routine and non-routine.

Disclaimer:
It is worth mentioning that not everyone living in the Metropolitan Area of Lisbon feels all types of mobility needs.

1.1. MAAS CUSTOMERS | 3. MOBILITY PATTERNS ON DAILY ROUTINE (6/15)

According to our qualitative and quantitative research, the three dimensions considered relevant for the analysis allowed us to group the AML's population in eight different mobility profiles.



One of the findings of our research is that the mobility needs on daily routine and respective pain points depend on three important dimensions that we represented on a three-dimensional perspective.

1) Usage of private vehicle on the daily routine as the exclusive transportation mean;
2) Living area (urban, suburban);
3) Destination area (urban, suburban).

As such, we segmented the market according to these three variables to obtain eight mobility profiles, each of them displayed in a quadrant in the shape of a cube.

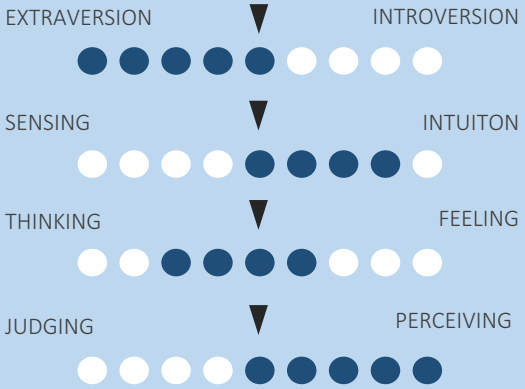
In order to simplify the reasoning, eight personas were created to represent each segment, highlighting their **mobility drivers, mobility expenses and interest in mobility packages** (results sustained by the quantitative research).

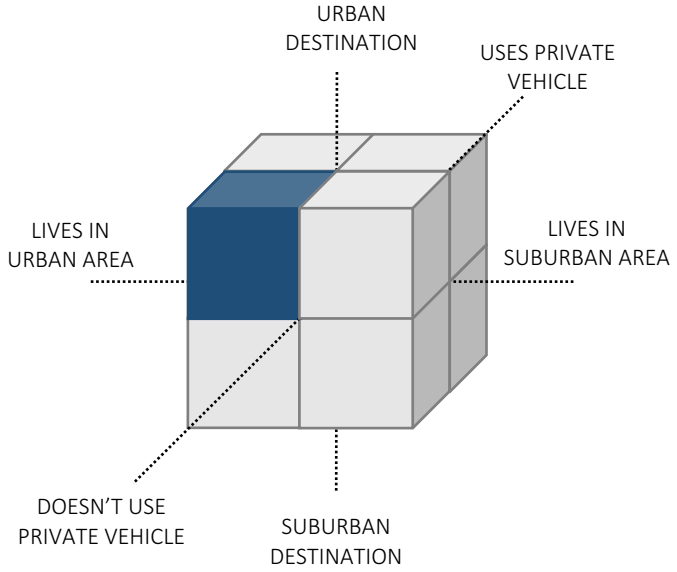
1.1. MAAS CUSTOMERS | PERSONA 1 (7/15)

VASCO TEIXEIRA
TRENDY

BIOGRAPHY

28 years old
Works in a start-up
Lives in Príncipe Real and works at the Lx Factory
Plays Paddle e considers himself a *foodie*





Urban

Urban

Without vehicle

Sample size	85
Routine expenses	44€
Extra-Routine expenses	31€
Interest in mobility packages	59%

MOBILITY DRIVERS OF CHOICE

- **Price** is one of the main drivers of choice as well as **speed** (80% of the people stated one of these drivers as the most important to themselves). They prefer having an intermodal travel pass (67% of the sample) that allows them use the subway and Carris' buses.
- Preferentially, they use the subway, though many times they need to move around in buses (Carris) when part of their route is not covered by the subway network.

PAIN POINTS

- **Crowded** transports in rush time.
- **Uncertainty** about both the traffic flow and the journey duration on the bus case.

LIFE GOALS

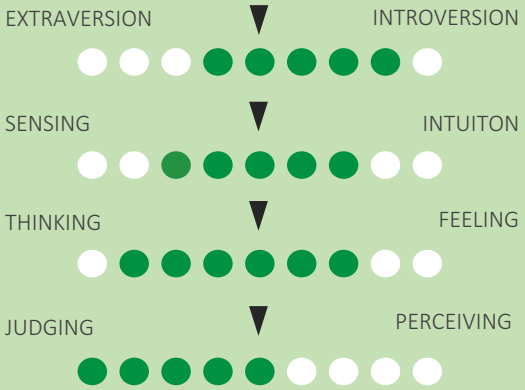
- Having his own start-up.
- Inspire and help those who want to start their own business.
- Raise a family, either in Portugal or in a foreign country.
- Always being on the coolest places.

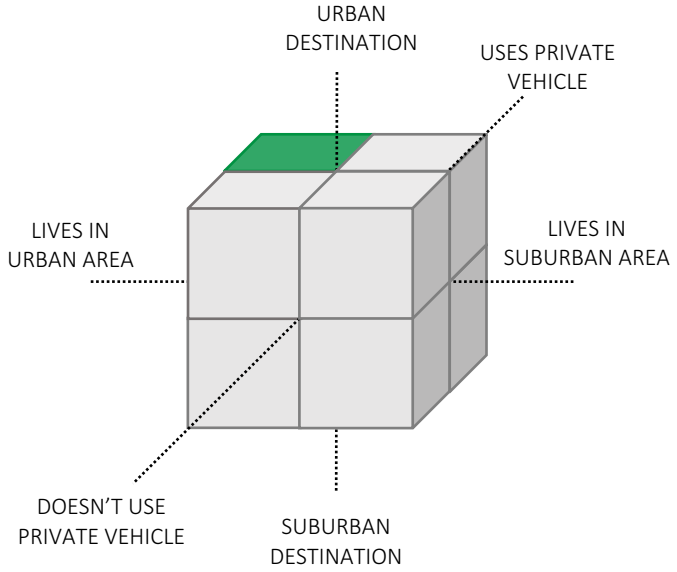
1.1. MAAS CUSTOMERS | PERSONA 2 (8/15)

ISABEL VASCONCELOS
HEALTHY LIFESTYLE

BIOGRAPHY

42 years old
CFO of a FMCG company
Lives in Rua Castilho and works at Saldanha
Healthy lifestyle





Urban

Urban

With vehicle

Sample size	171
Routine expenses	81€
Extra-Routine expenses	42€
Interest in mobility packages	59%

MOBILITY DRIVERS OF CHOICE

- Urban commuters with private vehicle generally **don't use any other transportation means**. (64% of the sample exclusively use private vehicle).
- The private vehicle is chosen since it is more **comfortable** than the available alternatives.

LIFE GOALS

- Family
- Children's education
- Work-life balance
- Social projects

PAIN POINTS

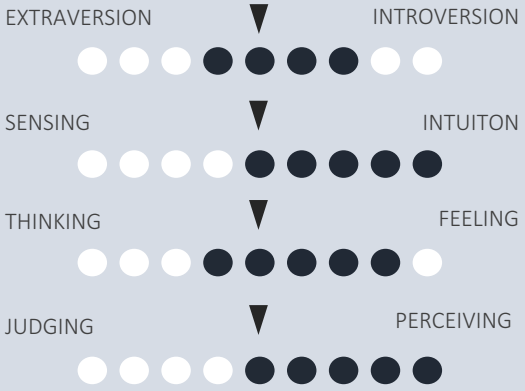
- The biggest pain-point referred by the urban commuters using private vehicle is the **traffic jams**.
- **Parking** was not mentioned as a daily routine's pain point by the interviewed sample. However, these people referred that for unusual journeys many times they would opt to use public transportation to overcome that pain point.

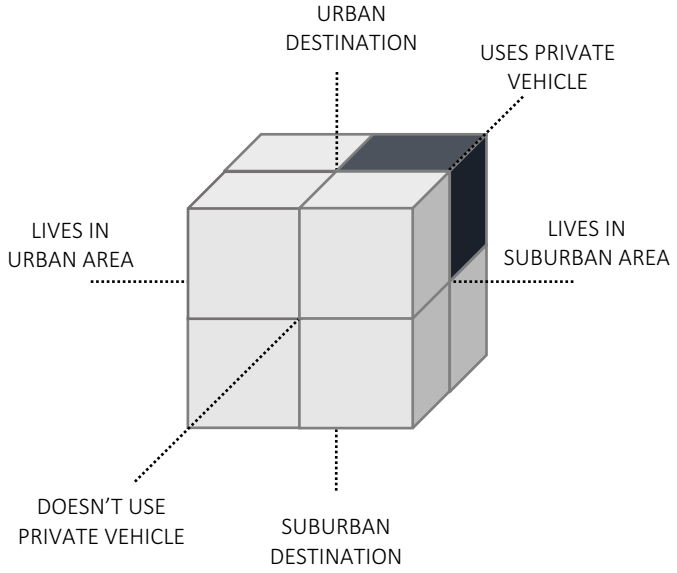
1.1. MAAS CUSTOMERS | PERSONA 3 (9/15)

TIAGO LOPES
SEIZER

BIOGRAPHY

23 years old
Designer | Musician
Lives in Caxias and works in Parque das Nações
Vegan | Martial arts and yoga practitioner





Suburban

Urban

With vehicle

Sample size	133
Routine expenses	116€
Extra-Routine expenses	33€
Interest in mobility packages	71%

MOBILITY DRIVERS OF CHOICE

- Those who have an **intermodal travel pass (25%),** and depending on the distance, usually need a first mile solution – often a private vehicle to get **to the first transport mean**. Usually those who exclusively use a private vehicle (63%) to commute to urban areas mention to do it due to the uncertainty of the time they will come back from work (sometimes late) being it faster to come back by private vehicle outside the rush hours.
- Some interviewed people refer that every time they have an important meeting/appointment **they prefer to take their private vehicle** for a matter of safety (i.e. to make sure they are on time).

PAIN POINTS

- **High parking fares** in central Lisbon and near some suburban stations.
- **Traffic jams** on the journey to Lisboa.
- **Uncertainty** on the buses' schedules – often delayed – on journeys in central Lisbon.

LIFE GOALS

- Lowering the environmental footprint
- Work-life balance
- Record his first album
- Learn mandarin

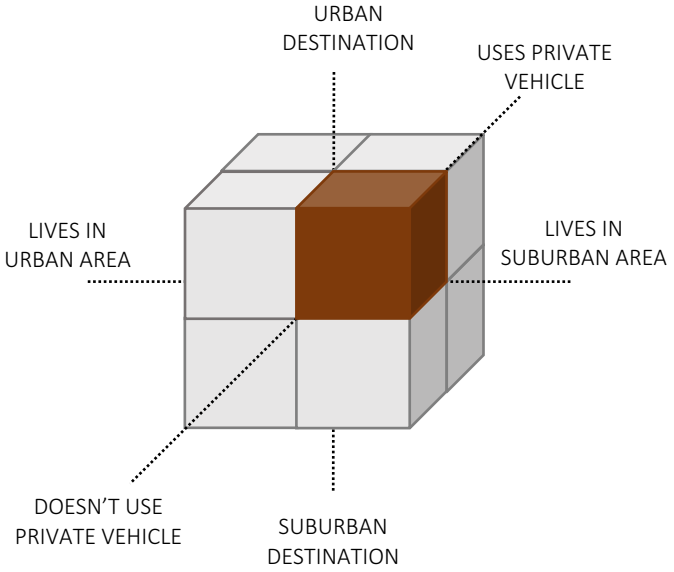
1.1. MAAS CUSTOMERS | PERSONA 4 (10/15)

RITA AZEVEDO
PRICE SENSITIVE

BIOGRAPHY

19 years old
College student
Lives in Paço de Arcos and studies in Campolide.
Writing | Volunteer work

EXTRAVERSION — INTROVERSION
SENSING — INTUITON
THINKING — FEELING
JUDGING — PERCEIVING



- Suburban
- Urban
- Without vehicle

Sample size	33
Routine expenses	61€
Extra-Routine expenses	28€
Interest in mobility packages	33%

MOBILITY DRIVERS OF CHOICE

- People who live in suburban areas that exclusively use public transportation to get to Lisbon have **price** as their main driver (70% of the sample).
- Many of them have private vehicle but prefer not to use it in order **to save time** (80%). Usually these profiles have intermodal travel pass for their daily routine's mobility.

LIFE GOALS

- Wants to work in Marketing on a MNC
- Master's degree outside Portugal
- Not needing a car to move around. She won't take the driving license.

PAIN POINTS

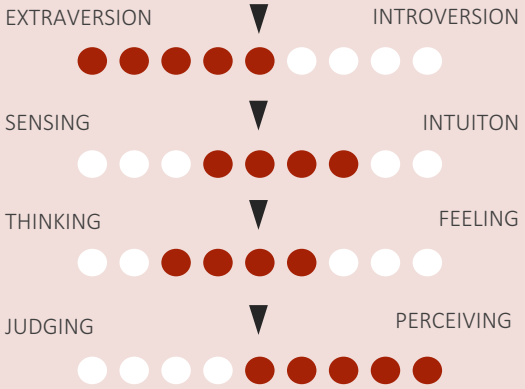
- **Lack of competitive alternatives** to the bus network on the suburban areas for the first mile need.
- Low frequency of trains out of the rush hours.
- Urban buses are usually very crowded.
- Unpredictability of the schedules and traffic flow of both urban and suburban buses.

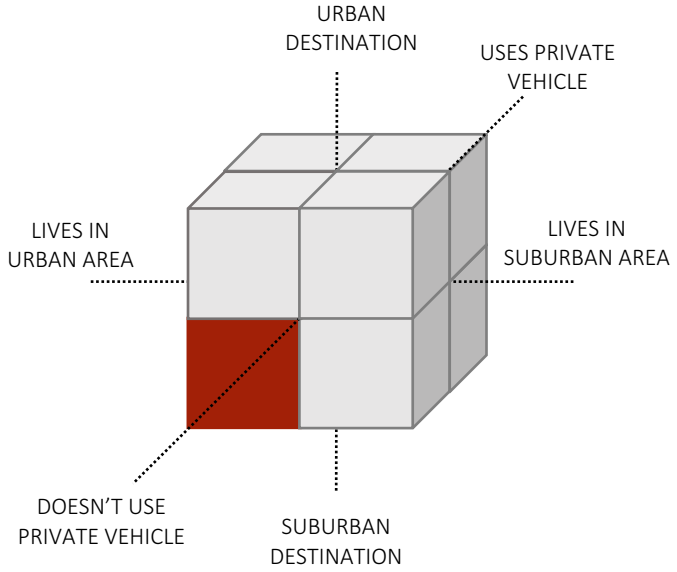
1.1. MAAS CUSTOMERS | PERSONA 5 (11/15)

JOSH KELLER
NOVA MASTERS STUDENT'18

BIOGRAPHY

Belgian | 24 years old
Masters in Management student
Lives in Saldanha and studies in Carcavelos
Learning Surf and Portuguese





Urban

Suburban

Without vehicle

Disclaimer

After interviewing 30 people and obtaining 545 valid answers on the survey, there was only one observation with this mobility profile. As such, the both drivers and pain points are assumptions made by the group.

MOBILITY DRIVERS OF CHOICE

- Lack of alternative.
- Speed.

PAIN POINTS

- Long distance between home and main activity.

LIFE GOALS

- Being a world citizen.
- Work on Digital Strategy at Google.
- Identifies himself with Patagonia's CSR policies.

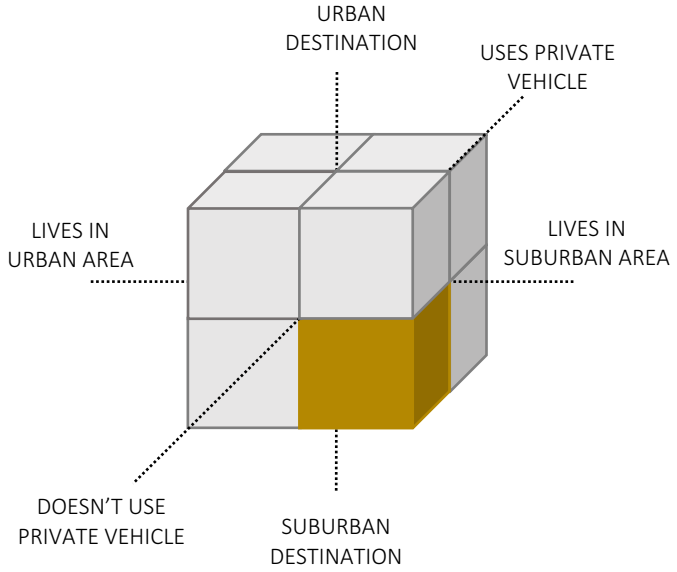
1.1. MAAS CUSTOMERS | PERSONA 6 (12/15)

MARIA JOÃO SANTOS
ROUTINEER

BIOGRAPHY

55 years old | Married | 3 kids
Works as administrative at Miraflores high school
Lives in Amadora

EXTRAVERSION — INTROVERSION
SENSING — INTUITON
THINKING — FEELING
JUDGING — PERCEIVING



Suburban

Suburban

Without vehicle

Sample size	10
Routine expenses	52€
Extra-Routine expenses	20€
Interest in mobility packages	60%

MOBILITY DRIVERS OF CHOICE

- The people interviewed that don't use private vehicle on their daily routine consider **price** as their main driver of choice.

LIFE GOALS

- Family moments.
- Having an active role in the community (volunteer in local township).
- Longs for the first grandson.

PAIN POINTS

- **Low frequency** of the existing suburban buses and uncertainties of their schedules.
- **Poor bus network coverage.**
- **Inflexibility** of the railroad network – lack of door-to-door options.

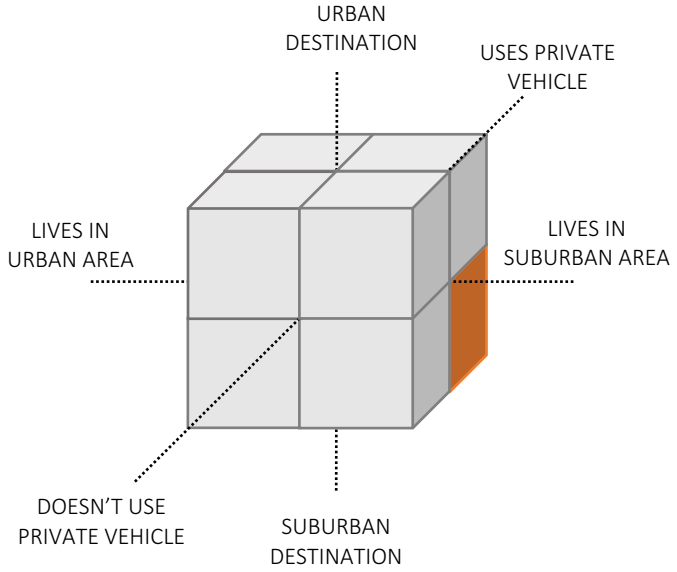
1.1. MAAS CUSTOMERS | PERSONA 7 (13/15)

FREDERICO CARVALHO
BUSINESS-ORIENTED

BIOGRAPHY

39 years old | Dad | 5 children
MBA '02
Lives in Cascais works in Setubal

EXTRAVERSION — INTROVERSION
SENSING — INTUITON
THINKING — FEELING
JUDGING — PERCEIVING



Suburban

Suburban

With vehicle

Sample size	87
Routine expenses	115€
Extra-Routine expenses	38€
Interest in mobility packages	46%

MOBILITY DRIVERS OF CHOICE

- People who live and work in suburban areas, tend to live and work in the same suburban area (58%).
- Mainly use exclusively car in their mobility daily routine.

LIFE GOALS

- Being part of a MNC's executive board.
- Providing good education to his children.
- Playing in the PGA's golf tournament.

PAIN POINTS

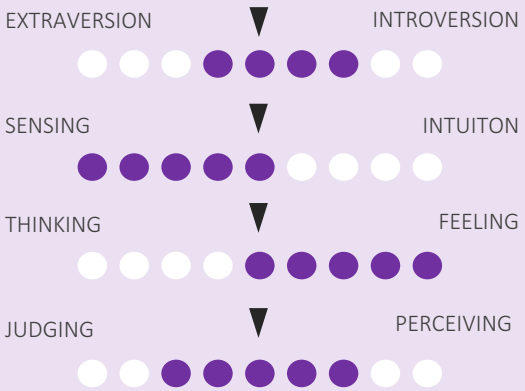
- Despite living and working in the same geographic area people who use cars are divided regarding their mobility choice, given that 31% love it but 48% would detract people from using it. Pains are the classic of car usage: traffic, parking and price.

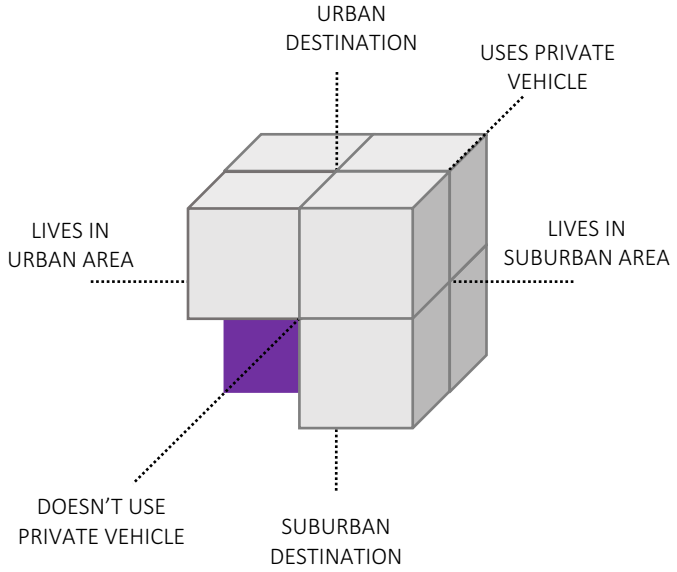
1.1. MAAS CUSTOMERS | PERSONA 8 (14/15)

TERESA GOMES
COMFORT

BIOGRAPHY

27 years old | Mother of 2 kids
Lives in Rato and works in Almada
Motorcycles enthusiast
Traveling and fitness addicted





Urban

Suburban

With vehicle

Sample size	25
Routine expenses	104€
Extra-Routine expenses	31€
Interest in mobility packages	60%

MOBILITY DRIVERS OF CHOICE

- When have access to the use of car in their daily mobility, the majority of these people use exclusively car (96%).
- They choose car because suburban inefficiencies regarding public transport.

LIFE GOALS

- Healthy lifestyle.

PAIN POINTS

- Their major pain point is the difficulty leaving Lisbon in the morning and arriving in the afternoon.
- A not felt pain point is the lack of coverage of the public transport network, pushing them into the usage of their own cars.

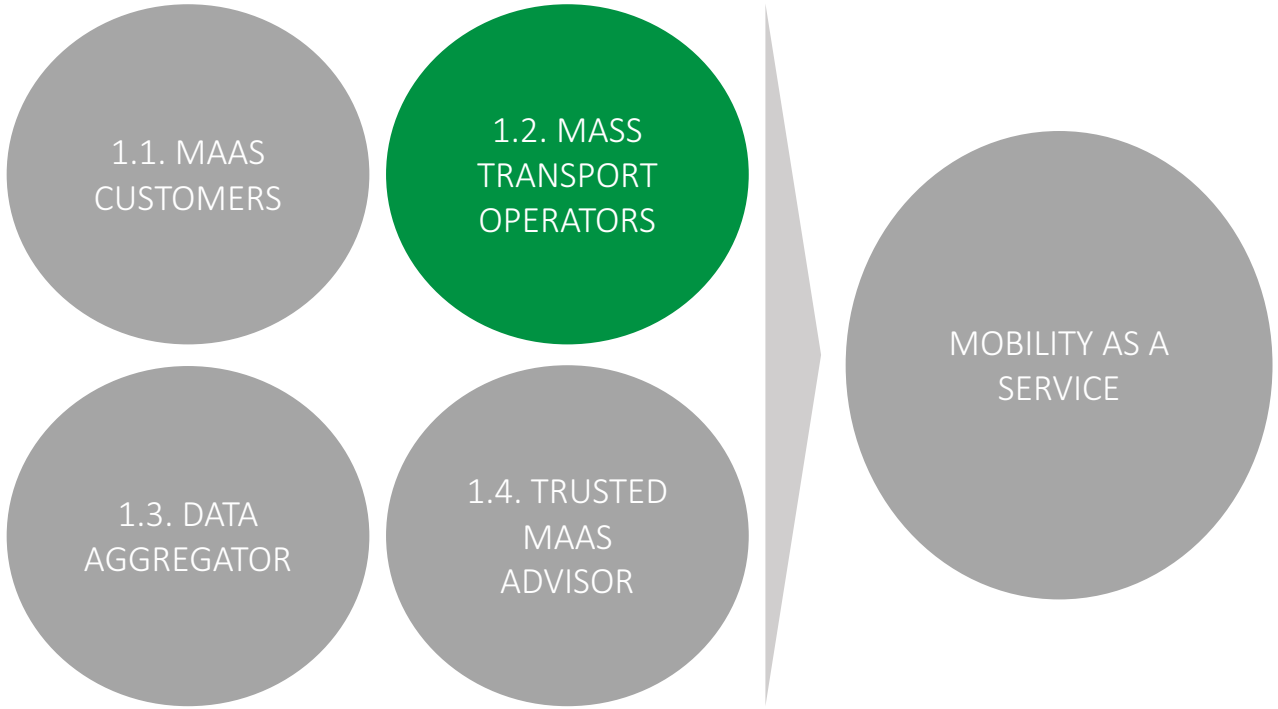
1.1. MAAS CUSTOMERS | SUMMARY PERSONAS (15/15)

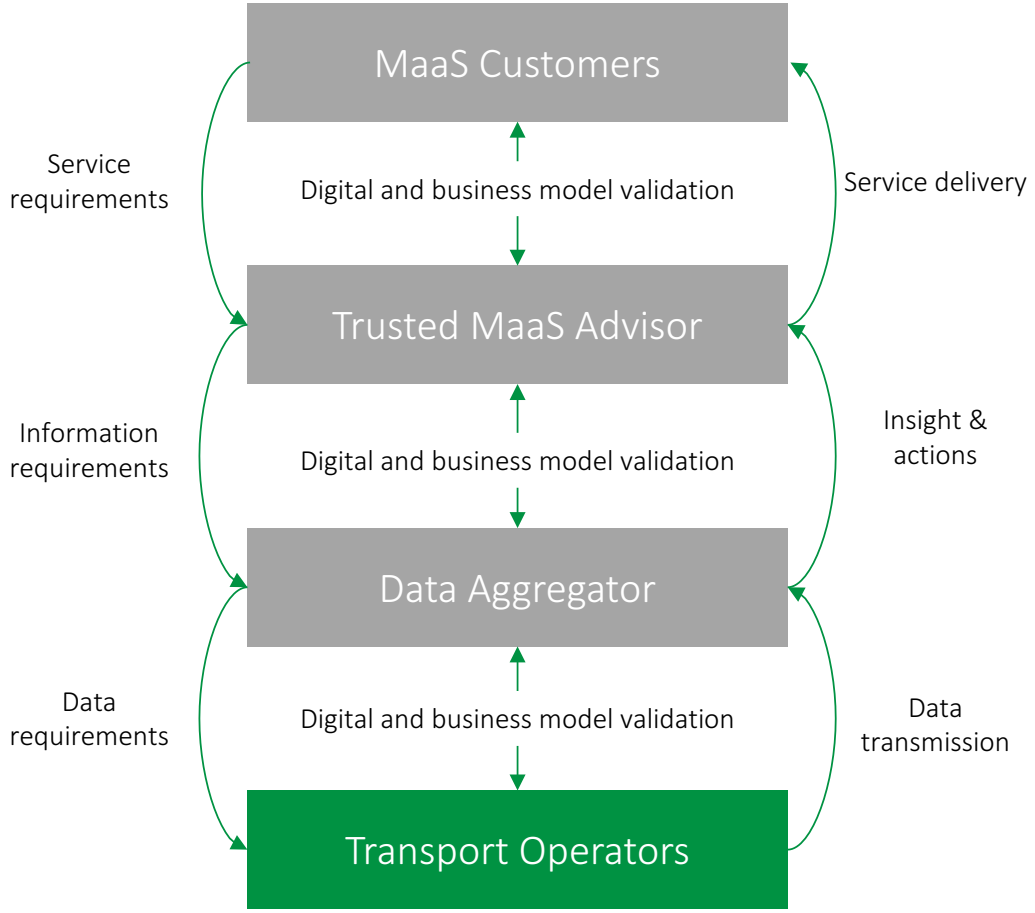
Through this analysis we concluded that each persona has different triggers (e.g. Isabel's driver of choice is comfort since she needs to drive her kids to school, while Frederico is due to the amount of time he would spend in public transportation) for their mobility drivers of choice and mobility needs. Nevertheless, in this summary it is possible to notice that different personas have similar mobility drivers of choice and mobility needs.

	PERSONA	AXIS (Living area, main activity area, private vehicle as exclusive transportation mean)	MOBILITY NEEDS (first mile, commuting, moving around, extra)	MOBILITY DRIVERS OF CHOICE	PAIN POINTS
	Vasco Teixeira	Urban, urban, without vehicle	Moving around, extra	Price, speed	Crowded transports in rush time. Uncertainty about traffic flow/bus schedules
	Isabel Vasconcelos	Urban, urban, with vehicle	Moving around, extra	Comfort	Traffic flow and parking
	Tiago Lopes	Suburban, urban, with vehicle	First mile, commuting, moving around, extra	Comfort, lack of alternative	High parking fares, traffic jams, Uncertainty about traffic flow/bus schedules
	Rita Azevedo	Suburban, urban, without vehicle	First mile, commuting, moving around, extra	Price, speed	Bus network coverage on the suburban areas. Low frequency of trains out of the rush hours. Unpredictability of the schedules and traffic flow of both urban and suburban buses
	Josh Keller	Urban, suburban, without vehicle	Commuting, moving around, extra	Lack of alternative, speed	Long distance between home and main activity
	Maria João Santos	Suburban, suburban, without vehicle	First mile, extra	Price	Low frequency of the existing suburban buses and uncertainties of their schedules. Poor bus network coverage. Inflexibility of the railroad network – lack of door-to-door options
	Frederico Carvalho	Suburban, suburban, with vehicle	Commuting, extra	Speed, comfort	Nothing significant to mention.
	Teresa Gomes	Urban, suburban, with vehicle	Commuting, moving around, extra	Speed, comfort	Nothing significant to mention

1. MAAS ECOSYSTEM IN LISBON

There are several stakeholders involved in the MaaS Ecosystem. Each of them play a vital role on the development and offering of these services.





Catapult, 2016, *Mobility as a Service: Exploring the opportunity in the UK*

1.2. TRANSPORT OPERATORS | FIRST MILE & COMMUTING (1/2)

There are different transport operators for each mode of transport that satisfy each of the above-mentioned mobility needs.

	MODE OF TRANSPORT	PAIN SOLVER	MAIN PLAYERS
FIRST MILE	PARKING	People who despite using a car in their daily mobility, prefer do avoid traffic, confuse parking or find it expensive and so solve their First-Mile need using car and parking near a intermodal station.	emel e.e.m., fertagus, empark
FIRST MILE	ROAD TRANSPORT	Road Transport operators satisfy the first mile need as they are use in short distances to train or boat stations, or bus terminals.	carris, TST Transportes Sul do Tejo, Barraqueiro Transportes, vimeca transportes, Scottúrb muito perto de si, TCB
FIRST MILE	RIDE-HAILING	Ride-hailing services are used to satisfy the first mile need because some users find them more predictable than buses, or simple don't live near any bus station.	cabify, UBER, Xmytaxi
FIRST MILE	CAR-SHARING	Car and moto-sharing services are still in an early phase of their development and thus only present in almost exclusively in urban areas, being used to satisfy the first or last-mile needs of some residents on those areas. It is expected than when the operation of such services extend to suburban areas, suburban residents begin using them more to satisfy their first or last mile needs.	eCooltra Motosharing, DriveNow
COMMUTING	WATERWAY TRANSPORT	This transport mode is quicker and more predicable than road transport, due to traffic. People satisfy their commuting need in Lisbon by boat when they need to cross the Tagus river.	TRANSTEJO
COMMUTING	ROAD TRANSPORT	Some suburban areas are not reached by Waterway Transport neither by Railway Transport and so residents satisfy their commuting need using buses.	Barraqueiro Transportes, vimeca transportes, TST Transportes Sul do Tejo, Scottúrb muito perto de si
COMMUTING	RAILWAY TRANSPORT	Railway transport allows people to reach or leave suburban areas quickly and punctually. This is the preferred mode of commuting by most residents in suburban areas.	fertagus, COMBOIOS DE PORTUGAL

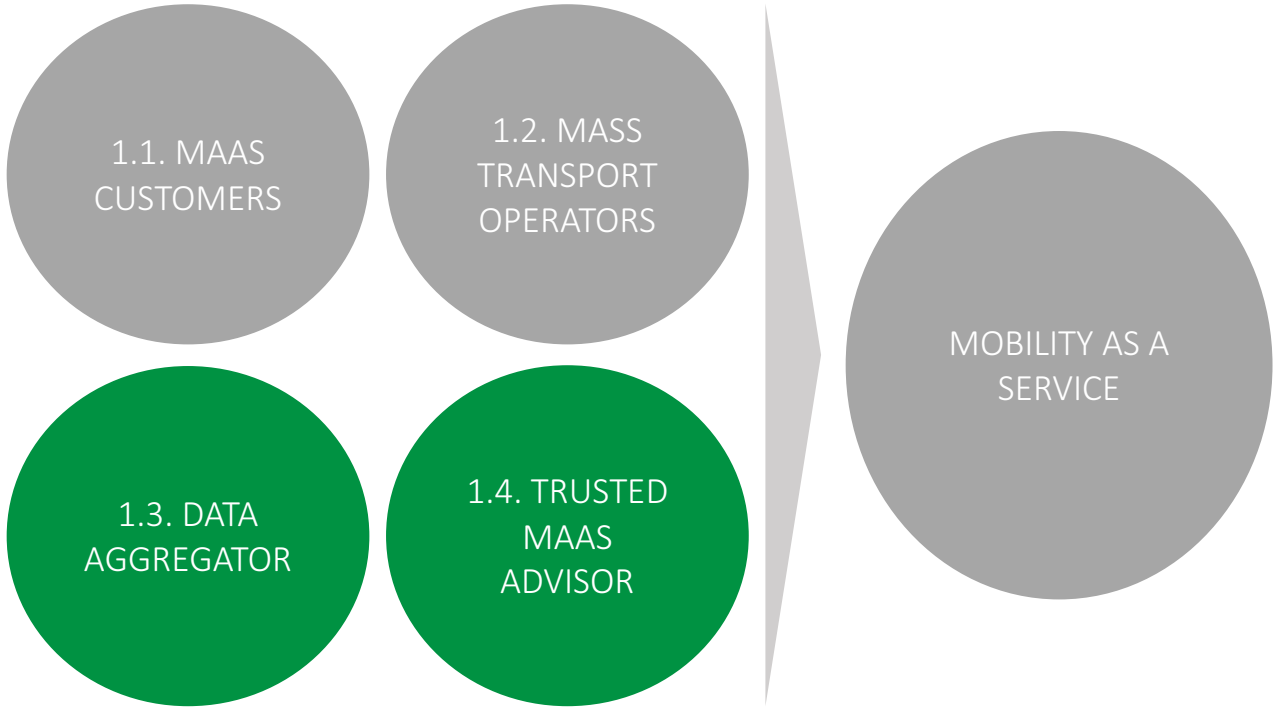
1.2. TRANSPORT OPERATORS | MOVING AROUND & EXTRA (2/2)

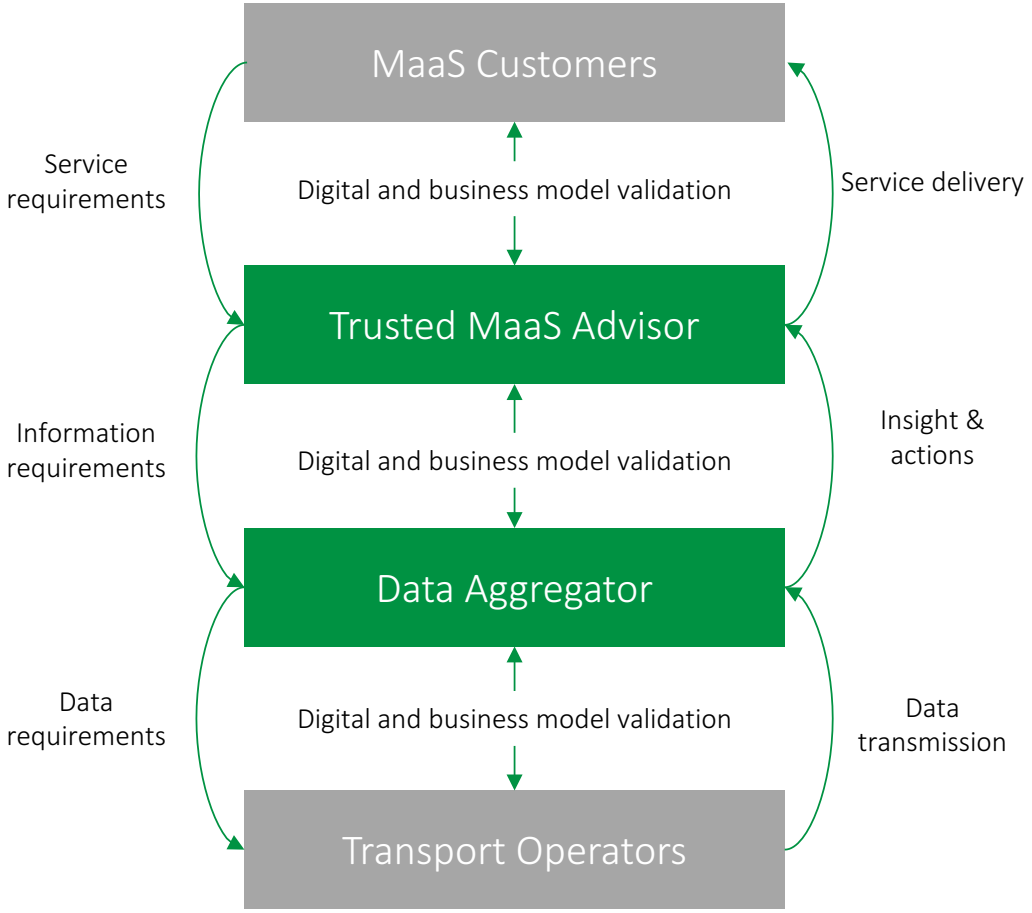
There are different transport operators for each mode of transport that satisfy each of the above-mentioned mobility needs.

	MODE OF TRANSPORT	PAIN SOLVER	MAIN PLAYERS
MOVING AROUND	SUBWAY	Subway is the quicker mode of satisfying the Moving Around need and the more used by people who have access to the subway network.	metro
	ROAD TRANSPORT	Road transport covers the majority of the urban area of Lisbon. Due to traffic and delays people tend to prefer using the subway, and the bus is used by those who don't have access to the subway network.	carris
	PARKING	People who prefer to use their car in their mobility to satisfy their moving around needs, need to park them either in street parking spots or in parking lots.	emel e.e.m. empark
	CAR-SHARING RIDE-HAILING	Ride-hailing and vehicle-sharing services are perceived as a more comfortable although expensive alternative to satisfy the Moving Around need.	eCooltra MOTOSHARING, UBER, DriveNow, cabify, Xmytaxi
	BIKE-SHARING	Bike-sharing services are a flexible alternative and complement other modes.	GIRA Bicicletas de Lisboa
EXTRA	PUBLIC TRANSPORT	Public Transports solve the extra need of people who prefer not to use cars, are price sensitive or live near a station. Normally already have intermodal travel passes but may buy independent titles.	viva viagem, metro, carris, TST Transportes Sul do Tejo, TCB, Scott Urb muito perto de si!
	PARKING	People who use car in their extra mobility the value easiness of paying or pre-paying for park.	emel e.e.m. empark
	CAR-SHARING RIDE-HAILING BIKE-SHARING	New mobility platforms with competitive prices and new forms of calling, payment and waiting periods solved some existing pain points.	eCooltra MOTOSHARING, UBER, DriveNow, cabify, Xmytaxi, BICAS, GIRA Bicicletas de Lisboa, TCBikes

1. MAAS ECCOSYSTEM IN LISBON

There are several stakeholders involved in the MaaS Ecosystem. The data aggregator and trusted MaaS advisor are extremely important to guarantee the development, implementation and monitoring of a mobility solution.





Catapult, 2016, *Mobility as a Service: Exploring the opportunity in the UK*

1.3. DATA AGGREGATOR | 1.4. TRUSTED MAAS ADVISOR | POTENTIAL PLAYERS (1/3)

Numerous players that can take the role of data aggregator and trusted MaaS advisor in Lisbon. These can be divided in international and local players.

As previously seen, the data aggregator and trusted MaaS advisor must be a strong player with expertise and know-how in fields somewhat related to MaaS. Additionally, it should be a player that has good visibility and who consumers already trust.

There are two main types of players that can take the role of data aggregator and trusted MaaS advisor in Lisbon: international players, that are important due to their visibility and expertise, and local players, that stand out for their cultural know-how.

INTERNATIONAL PLAYERS

Big international players are important due to their visibility among the consumers, strong financial capabilities and extensive know-how and expertise.
International players include the ones placed not only in mobility-related industries but also in areas such as mapping systems, payments, data, technology and innovation.
However, this type of players have a huge disadvantage related to the lack of local and cultural know-how, that can be a barrier difficult to overcome.

LOCAL PLAYERS

Local and cultural knowledge bring a great advantage to local players when comparing with international players. This is because local players already know who are the transport operators with more potential and are familiar with the habits and needs of Portuguese consumers. Additionally, local players may already have an established relationship with the Government.

Local players were divided in three groups:

STRONG PLAYERS

TRANSPORTATION

OTHER

All players are explained in detail in the following slides

1.3. DATA AGGREGATOR | 1.4. TRUSTED MAAS ADVISOR | POTENTIAL PLAYERS (2/3)

International players are considered important players due to their visibility in the marketplace and strong financial and operating skills.

INTERNATIONAL PLAYERS

MAPS	DATA	MAAS	PAYMENTS	AUTOMOTIVE	TECHNOLOGY
Players that have experience in mapping will already have access to the mobility patterns from millions of people. For this reason, they have also know-how in analysing and treating data. Additionally, these companies have already built a sense of community among its users.	Data-related firms are considered because these companies have expertise in data management and analytics. Additionally, these players are familiar with the risks of big data and how to overcome them.	Companies with experience on MaaS are already familiar with best practices and procedures, and already know what works and what does not. Additionally, all the needed infrastructure (technology and data) will be developed already.	Payments companies enable consumers, businesses banks and governments to use digital currency. These companies are important since they already have the experience in connecting millions of people and that people already trust to make payments.	Recently, automotive companies are steeping up their business due to advances in connectivity and technology. A number of carmakers have already developed innovative solutions related to MaaS – DriveNow, Daimler's Moovel, Mercedes Benz Vans.	Innovative players like technology companies are managed and driven by a disruptive and contemporary culture. This leads to cutting-edge offerings and leading-edge solutions.
EXAMPLES					
waze	G	whim	VISA	BMW	Apple

1.3. DATA AGGREGATOR | 1.4. TRUSTED MAAS ADVISOR | POTENTIAL PLAYERS (3/3)

The advantage of local players is mainly the local know-how of the Portuguese marketplace and previous relationship with the key players of a MaaS offering in Lisbon.

LOCAL PLAYERS

STRONG PLAYERS

Via Verde is in charge of the development, management and implementation of electronic toll collection systems. Recently it started working on new mobility services.

Galp is an integrated operator in the oil and natural gas sector, that develops profitable and sustainable business to create value for all its stakeholders.

EDP is a global energy company, leader in value creation, innovation and sustainability. The company has a positive awareness among the Portuguese consumers and is seen as a trustworthy player.

TRANSPORTATION

Grupo Barraqueiro was founded 1915 and is the Iberian leader in the suburban transport of passengers.

Metropolitano de Lisboa is the first subway system in Portugal serving 56 stations and 420.000 passengers per day. It is a strong player since it is used by the majority of Grater Lisbon's population.

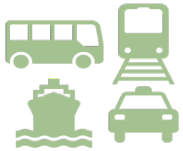
Carris is a public transportation company in Lisbon that operates buses, trams and funiculars. The company has making progress towards a more technological approach and has already developed an app.

OTHER

Mobi Cascais is the first example of Mobility as a Service developed and implemented with success in Portugal. Although it only works in Cascais at the moment, there are already plans to start negotiations with the major transport operator players in Lisbon and expand its services to the city.

SIBS is the central utility for payments in Portugal, running payment systems end-to-end. The company plays a transversal role in the payment system, presenting a one-stop-shop offer with unique innovative services. All in all, its business model works similarly to a MaaS business model.

1. MAAS ECCOSYSTEM IN LISBON | KEY FINDINGS

 LISBON	Lisbon and its Metropolitan Area are in constant change and are currently facing tough mobility challenges. Worldwide trends are affecting heavily on the city and its citizens and a shift in urban mobility offerings are in place. This means that the city need to find sustainable ways for its citizens to increase the consumption of shared and collective means of transportation
 MAAS CUSTOMER	Potential MaaS costumers living in the Metropolitan Area of Lisbon do not have their non-routine mobility habits integrated with the transport titles/means they habitually use. Thus, this establishes an opportunity to create value integrating it. Mobility habits and preferred transport operators depend heavily on the geographic origin of each costumer and if they have access to a private vehicle to satisfy their mobility needs.
 TRANSPORT OPERATORS	Transport operators satisfy costumers' mobility needs. In the Lisbon Metropolitan Area, there is a wide range of transport operators that satisfy each part of the mobility need felt in any journey.
 DATA AGGREGATOR AND TRUSTED MAAS ADVISOR	The data aggregator and trusted MaaS advisor are essential stakeholders in the MaaS ecosystem. On the one hand, a player is needed to guarantee data quality and accurate insights. On the other hand, the success of the MaaS solution depends on a trustworthy party that monitor, manages and orchestrates the ecosystem. There are a large variety of players that can take the role of data aggregator and trusted MaaS advisor in Lisbon. These players can be grouped in international and local players.

2. VIA VERDE: A STRATEGIC PLAYER

2. VIA VERDE: A STRATEGIC PLAYER (1/18)

Via Verde's is positioned in a strong organizational environment, being majority owned by the Brisa Group.

Founded in 1991, Via Verde is one of Brisa's **MOST SIGNIFICANT COMPANIES**.

Although its service originally focused on automatic toll payments alone, Via Verde is increasingly becoming a FLEXIBLE SERVICE with important advantages for several business areas.

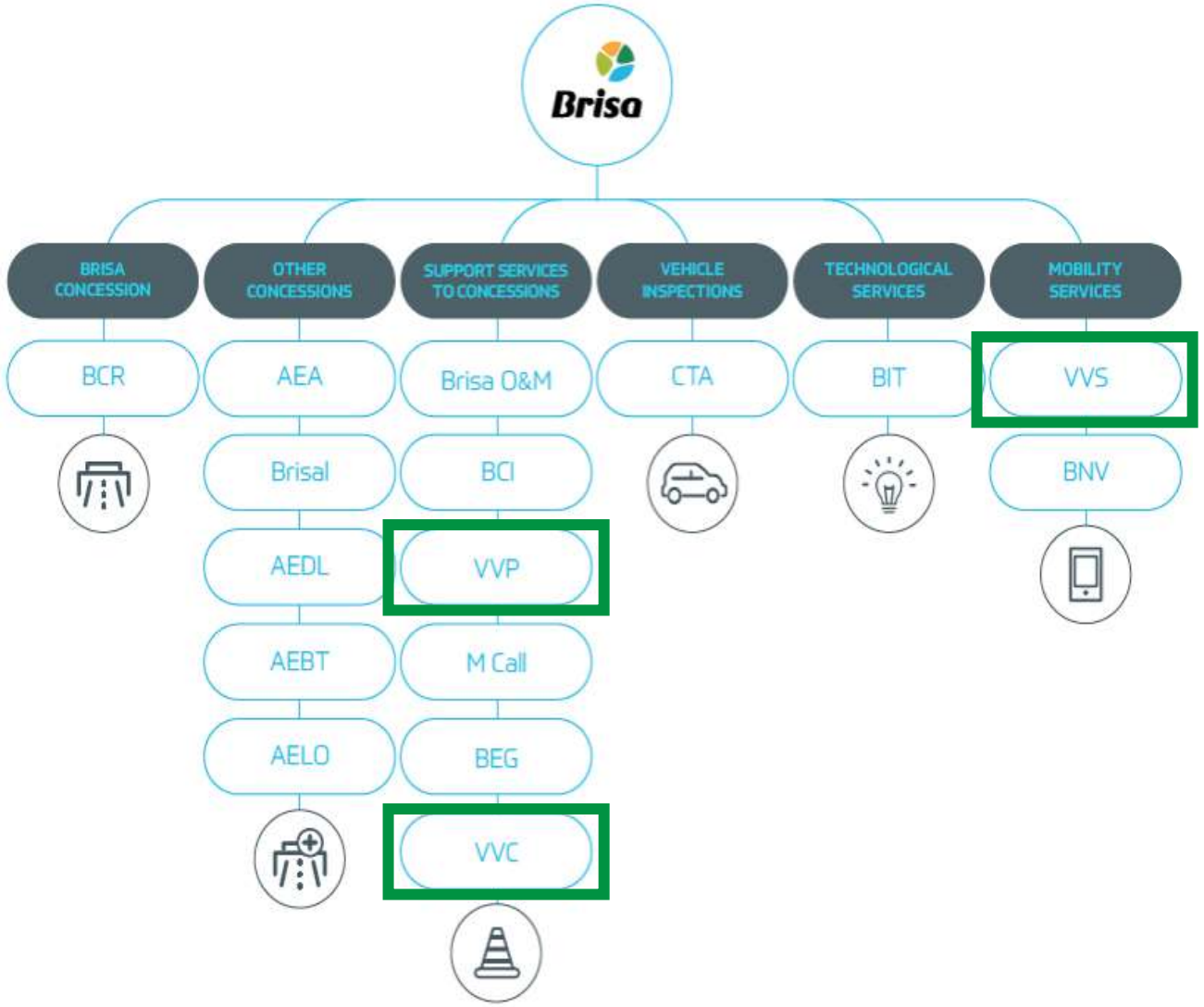
Today, it is present in different sectors and the convenience it offers is undeniable.

VV AND BRISA

Alongside with other business units, Via Verde belongs to the Brisa Group.

This **PRIVILEGED POSITION** of Via Verde guarantees access and close relationships with the other business units and a great know-how in the different sectors.

Due to the importance of the Brisa Group, it is relevant to understand and analyse it, which will be done next.



Brisa Official Website

Brisa Integrated Report 2016

2. VIA VERDE: A STRATEGIC PLAYER | BRISA GROUP (2/18)

The Brisa Group's strong organizational standing and know-how make the company a reference in the Portuguese market.

Brisa

"Brisa is one of the world's largest highway operators and Portugal's largest transport infrastructure company."

1972
Over 40 years of History

2.344
Employees

+3M
Via Verde Clients

56,2%
Market Share (in km)

1.628
Total km of concessions

Brisa Integrated Report 2016

ORGANIZATION

FINANCIALS

CULTURE

STRATEGY AND BM

BUSINESS SEGMENTS — VIA VERDE

2. VIA VERDE: A STRATEGIC PLAYER | BRISA GROUP (3/18)

The Brisa Group is held by two powerful corporations, which leverages the name and position of the group even further.

Brisa

53%	JOSÉ DE MELLO
47%	arcus INFRASTRUCTURE PARTNERS
8%	Treasury Shares
2%	OTC Free Float

- The origin of the José de Mello group dates back to the 19th Century. **It is one of Portugal's biggest corporate groups.**
- The Group plays a diversified role in the economy and its competitive position rests on three business platforms held by José de Mello: Infrastructures and Mobility (Brisa), Chemical Industry (CUF) and Health (José de Mello Saúde).

- **Arcus Infrastructure Partners** is an independent fund manager specializing in European infrastructure, which currently manages investments in the infrastructure sector with an aggregate enterprise value of circa €17 billion (as of 31 March 2017).
- Arcus aims to deliver attractive risk adjusted returns and yield over the long term through active management of infrastructure assets throughout Europe.

Brisa Corporate Profile 2016; José de Mello Official Website; Arcus Official Website

2. VIA VERDE: A STRATEGIC PLAYER | BRISA GROUP (4/18)

The Brisa Group shows strong financial and operating results and maintains its positions as Portugal's largest transport infrastructure company.

PROFIT AND LOSS STATEMENT

EURO MILLION (€M)	'15	'16	CHANGE
OPERATING INCOME	614.8	647.6	5.3%
OPERATING COSTS	164.0	163.3	-0.4%
EBITDA	**450.8**	484.3	**7.4%**
EBITDA MARGIN	**73.3%**	74.8%	**1.4pp**
AMORTISATION AND PROVISIONS	265.4	94.7	-64.3%
EBIT	**185.4**	389.6	**110.1%**
EBIT MARGIN	**30.2%**	60.2%	**30.0pp**
FINANCIAL RESULTS	-95.9	-108.4	-
EBT	89.6	281.2	**214.0%**
INCOME TAX FOR THE YEAR	68.5	-7.6	-
NON-CONTROLLING NTERESTS	23.1	32.4	40.2%
NET INCOME	**-2.1**	256.4	-

*The P&L breakdown can be analysed in the annexes.

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OPERATING INCOME

Brisa's operating income, driven by traffic, increased by 5.3% in line with a growth in traffic (+7%).

OPERATING COSTS

Brisa has accomplished a smooth optimization of operating and personnel costs.

OPERATING RESULTS AND MARGINS

The operating results grew by 7,4% due to growing operating activity and cost control.

The EBIT increased by an outstanding 110,1% due to the reversal of 2015's impairment.

FINANCIAL PERFORMANCE

The decrease of 12,5M € resulted from:

- Lower financial income due to low banking interest rates – 1,8M €;
- Increase of financial expenses due to the exercise of a call option – 2,9M €;
- Lower results from Brisa's associates – 7,8M €;

NET INCOME

The increase of 258,4M € was driven by the reversal of impairments from previous years.

2. VIA VERDE: A STRATEGIC PLAYER | BRISA GROUP (5/18)

The Brisa Group focuses simultaneously on generating value from its assets and on new growth opportunities.

Brisa's portfolio can be divided among the six following BUSINESS SEGMENTS:

- Brisa Concession (BCR);
- Other concessions;
- Support services to the concessions;
- Vehicle inspections;
- Technological services;
- Other (including mobility services).

STRATEGY AND BUSINESS MODEL

Brisa's business portfolio management aims at achieving a profitable and sustainable growth, according to strategic priorities based on three pillars, promoting a gradual evolution from the era of infrastructures to the era of mobility.

1. CORE

EXPAND AND PROTECT THE CORE BUSINESS

Careful and efficient management and operation of current assets:

- Road concessions (BCR and Other);
- Support services to the concessions;
- Vehicle inspections.

2. GROWTH

CREATE EMERGING BUSINESSES

Foster internal technological know-how:

- Traffic management;
- Toll collection;
- Urban Mobility.

3. EXPERIMENTATION

DEVELOP VIABLE SOLUTIONS THAT ARE STRATEGICALLY ALIGNED

Provide new mobility solutions:

- Meet personal mobility needs;
- Generate complementary sources of revenue through the Via Verde ecosystem.

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2. VIA VERDE: A STRATEGIC PLAYER | BRISA GROUP (6/18)

This variety of business segments gives the Brisa Group a strong operational and technological know-how.

BCR - BRISA CONCESSION

1 BCR *(Brisa Concessão Rodoviária)*

OTHER CONCESSIONS

2 AEA *(Atlântico)*

3 Brisal *(Litoral Centro)*

4 AEDL *(Douro Litoral)*

5 AEBT *(Auto-Estradas do Baixo Tejo)*

6 AELO *(Litoral Oeste)*

SUPPORT SERVICES TO CONCESSIONS

7 Brisa O&M *(Operação e Manutenção)*

8 BCI *(Brisa Conservação de Infrastruturas)*

9 VVP ***(Via Verde Portugal)***

10 Mcall (Contact Center)

11 BEG *(Brisa Engenharia e Gestão)*

12 VVC ***(Via Verde Contact)***

VEHICLE INSPECTIONS

13 Controlauto

TECHNOLOGICAL SERVICES

14 BIT ***(Brisa Inovação e Tecnologia)***

OTHER (including mobility services)

15 VVS ***(Via Verde Serviços)***

16 BNV Mobility

To better understand the Via Verde brand, the business segments 9) Via Verde Portugal, 12) Via Verde Contact, 15) Via Verde Serviços, and 14) BIT **will be analysed** in the following slides, respectively.

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2. VIA VERDE: A STRATEGIC PLAYER | VVP (7/18)

Via Verde Portugal is one of the most emblematic companies of the Brisa Group.

9 VVC - VIA VERDE PORTUGAL

Via Verde Portugal made Portugal the **FIRST COUNTRY IN THE WORLD** to have developed and implemented an integrated non-stop toll network.

The CORE BUSINESS of Via Verde Portugal is based on the development, management and implementation of electronic **toll collection systems** and services in motorways and other road infrastructures.

In Portugal, the system is available in al toll collection systems. Additionally, Via Verde became available in numerous Spanish motorways in 2016. It is expected to be extended to all motorways in Spain and France.

In 2016, Via Verde has processed over **357 MILLION TOLL TRANSACTIONS** and has registered over **3.3 MILLION ON-BOARD UNITS**.

Via Verde Portugal is 60% detained by the Brisa Group

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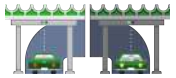
SERVICES PORTFOLIO

1991	Toll Collection System	
2002	Galp Pump Stations	
2003	Car Parks	
2013	Fertagus Ferries	
2014	McDonalds Restaurants	
2016	Mobility-Focus*	

*(will be analysed in more detail)

2. VIA VERDE: A STRATEGIC PLAYER | VVP (8/18)

Via Verde Portugal continues to push forward to being a leading and innovating company and a reference at an international level.

2016 HIGHLIGHTS
MOBILITY-FOCUS

There is an huge uncertainty as to the forms of mobility that will be adopted – autonomous vehicles, smart cities, changes in vehicle ownership. The growth of mobility-related services as been globally transversal. Via Verde has kept up with this trend and updated its business portfolio by introducing the following services:

- Via Verde Estacionar;
- Via Verde Leve;
- Via Verde Transportes;
- Via Verde Wi-Fi.

These initiatives can be seen as the first step towards the achievement of this new mobility paradigm: place Via Verde in a relevant position to expand its offer to other means of transport.

VIA VERDE ESTACIONAR

Via Verde Estacionar is a street parking payment app. It is currently available in 10 Portuguese cities: Amadora, Bragança, Cascais, Figueira da Foz, Oeiras, Portimão, Porto, Tavira, Vila Nova de Gaia and Vila Real.

Aiming to improve, facilitate and simplify parking, Via Verde Estacionar allows payments through smartphone and end the user's concerns of having coins. Other functionalities include adding vehicles to the same account and paying for more than one car at the same time.

In 2016, there were 47.000 registered downloads and 16.000 registered payments.

The ultimate objective of the company is to expand Via Verde Estacionar to all Portuguese cities.

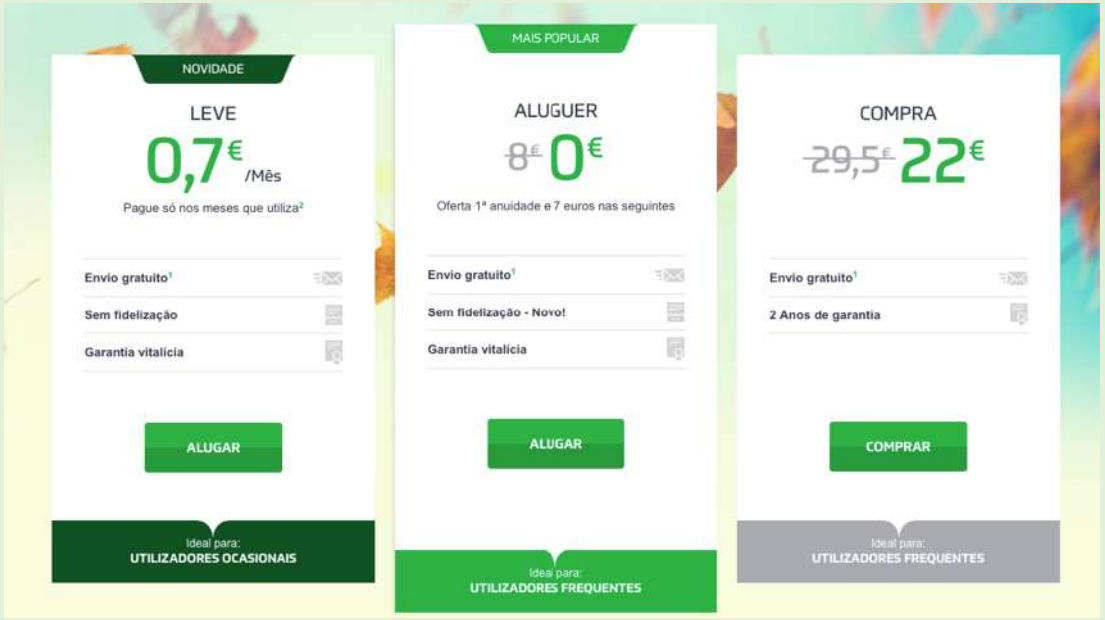
2. VIA VERDE: A STRATEGIC PLAYER | VVP (9/18)

Via Verde Portugal continues to push forward to being a leading and innovating company and a reference at an international level.

2016 HIGHLIGHTS
MOBILITY-FOCUS

VIA VERDE LEVE

With the objective to target more users, the company decided to launch a new form of subscription targeted to the occasional motorway users.



Due to this successful launch, Via Verde registered over 52.400 subscriptions in the first month of the campaign.

VIA VERDE TRANSPORTES

The app Via Verde Transportes is a cooperation between Via Verde Portugal and Novabase – technology company.

The app allows Via Verde subscribers to access and to pay trips in public transportation in Lisbon – at the moment it is only possible in **FERTAGUS** ferries. In this pilot phase, the access and payment is done through reading a QR code with a smartphone.

Via Verde Transportes represents a first step in modernizing public transport mobility in Lisbon by introducing E-TICKETS AND E-PAYMENT.

VIA VERDE WI-FI

Via Verde launched Via Verde Wi-Fi service since now more than ever, connectivity and mobility are inseparable concepts.

Via Verde Wi-Fi is a free Internet access for **VIA VERDE SUBSCRIBERS EXCLUSIVELY**. It will be available on Brisa's service stations and on Via Verde stores – Oeiras, Porto, Feira, Leiria, Carregado, Palmela and Saldanha.

2016 was marked by 400.000 registered single users and 2.000 daily accesses.

2. VIA VERDE: A STRATEGIC PLAYER | VVC (10/18)

Via Verde Contact emerges as a new brand to manage and monitor the contact services of the Brisa Group.

12 VVC - VIA VERDE CONTACT

The creation of Via Verde Contact occurred in 2015, to **MANAGE THE CONTACT SERVICES** to clients of all Brisa Group companies.

BEFORE

Several areas were designed to provide customer services, depending on the type of customer. Different areas meant **DIFFERENT PROCEDURES AND DIFFERENT STYLES OF COMMUNICATION** – several email contacts, telephone numbers and websites.

NOW

In 2015 a new DIGITAL ECOSYSTEM was created, more flexible and user-friendly, consisting of a website, mobile apps and social networks.

- VVC is the preferential point of contact with clients, having as goal to ensure the optimisation of customer service and respective operational efficiency.
- VVC made it possible to offer clients a uniform and integrated experience, through a single contact, centralizing different client service channels.

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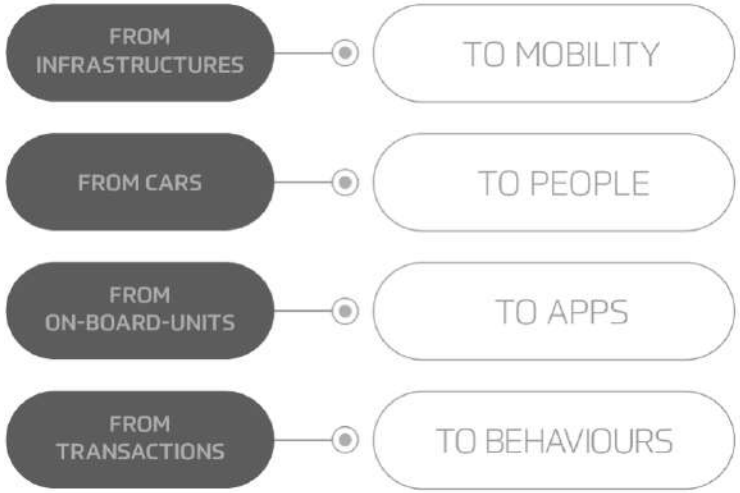
2. VIA VERDE: A STRATEGIC PLAYER | VVS (11/18)

Via Verde Serviços is the first step towards an established position in the mobility industry.

15 VVC - VIA VERDE SERVIÇOS

With the objective to strengthen and empower Brisa's commitment to mobility, Via Verde Serviços was created in 2015.



Via Verde Serviços has a focus on designing, marketing and managing products and services in MOBILITY-RELATED AREAS.

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VVS has developed technological solutions that are used by several in-group companies and external partners in their products and services.
An example is the Travel & Advantages programme.

TRAVEL & ADVANTAGES

Travel & Advantages is a 100% digital programme through which Via Verde offers CUSTOMISED SERVICES PACKAGES.

The program simultaneously creates new forms of interaction with the Via Verde brand and awaken the curiosity of its users to discover Portugal.

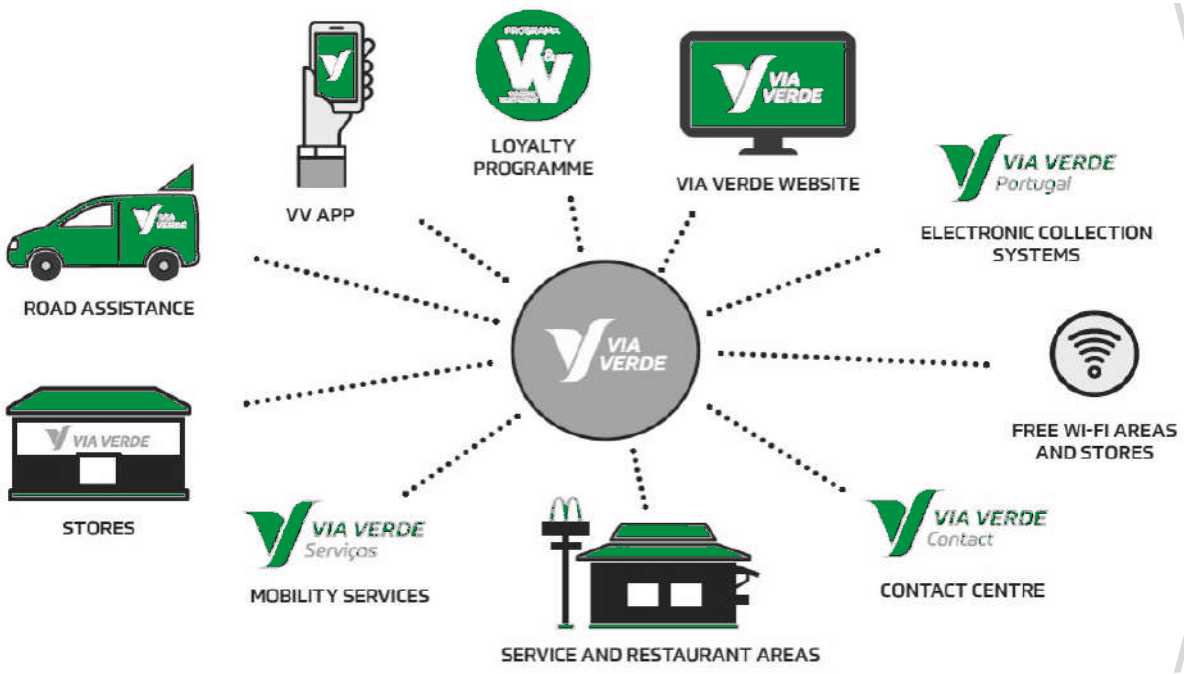
2. VIA VERDE: A STRATEGIC PLAYER (12/18)

Via Verde has access to resources, capabilities, expertise and know-how in a variety of sectors in the Portuguese marketplace.

Collaborative processes play an essential role in the value creation in mobility models, as in all models. An ecosystem creation supposes an advantage for both Via Verde and its subscribers:

- For Via Verde, complementary resources and capabilities will foster and strengthen the business models of its offerings and provide a more customer-facing solution.

- For Via Verde's subscribers, a more diversified and solid offer with serve their interests in the most efficient way.



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Via Verde Ecosystem

Via Verde Portugal, Via Verde Contact and Via Verde Serviços together form the VIA VERDE ECOSYSTEM inside the Brisa Group.

This ecosystem gives Via Verde a privileged position with access to resources of people, capital and know-how in different and complementary sectors.

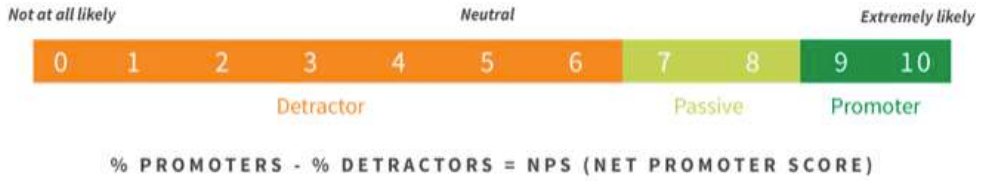
Additionally, the existence of the ecosystem allows a transference of expertise and capabilities needed to foster the development of new industries and new ways of doing business.

2. VIA VERDE: A STRATEGIC PLAYER | TRUSTFUL BRAND (13/18)

Via Verde is perceived positively among the Portuguese consumers, whether they are users or non-users.

The NPS (Net Promoter Score) is a tool that measures customer experience, by asking a question: **How likely is it that you would recommend [brand] to a friend or colleague?**
Respondents are grouped as follows:

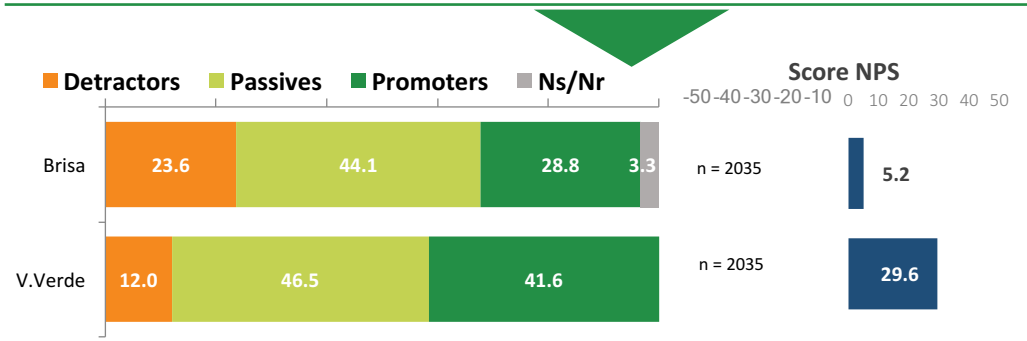
- **Promoters** (score 9-10) are loyal enthusiasts who will keep buying and refer others, fueling growth.
- **Passives** (score 7-8) are satisfied but unenthusiastic customers who are vulnerable to competitive offerings.
- **Detractors** (score 0-6) are unhappy customers who can damage your brand and impede growth through negative word-of-mouth.



The Net Promoter Score can range from a low of -100 (if every customer is a Detractor) to a high of 100 (if every customer is a Promoter). (*Satmetrix, What Is Net Promoter?*)

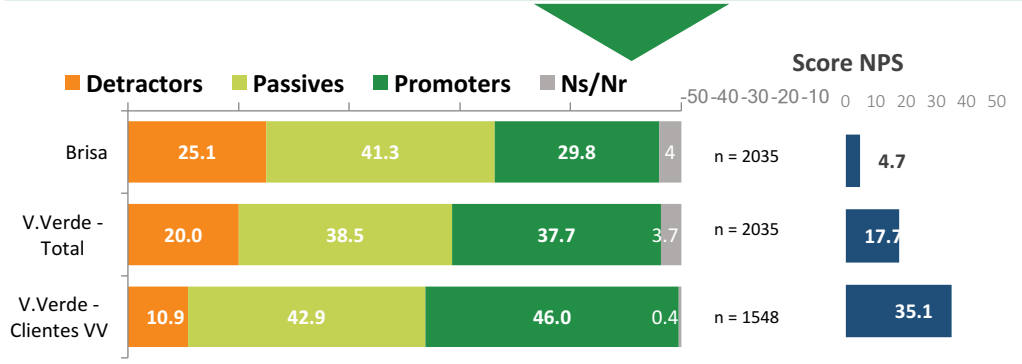
Estudo Perceção Clientes Brisa 2016

SATISFACTION



Via Verde holds a NPS score higher than the Brisa Group. The brand has a better and more positive perception among the Portuguese consumers.

RECCOMENDATION

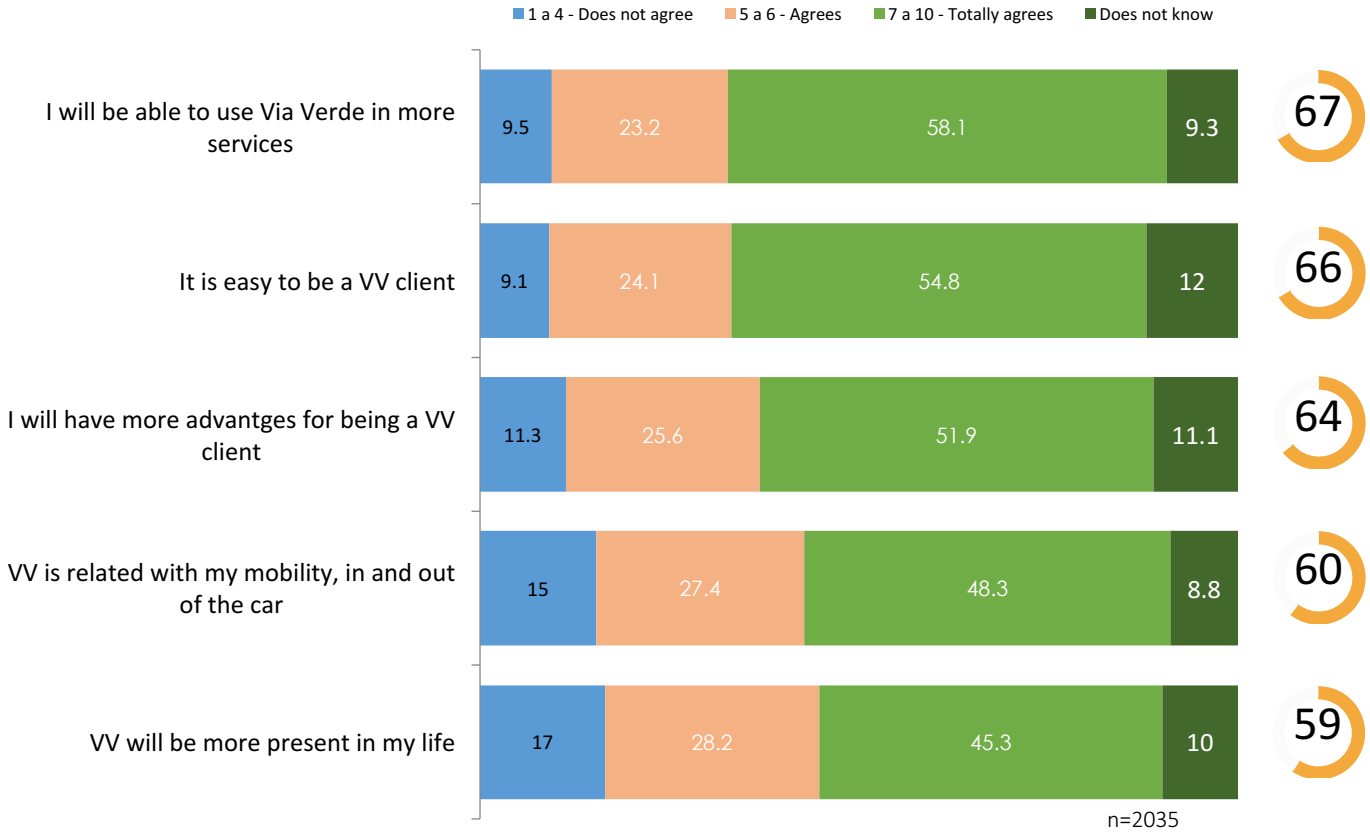


Again, Via Verde holds a NPS score higher than the Brisa Group. The score increases when asking VV Clients since it does not consider angry ex-clients as detractors.

2. VIA VERDE: A STRATEGIC PLAYER | TRUSTFUL BRAND (14/18)

Via Verde is growing in mobility-related areas, which is strongly felt by the Portuguese consumers

POSITIONING VIA VERDE



Via Verde is not only perceived as a payment method but also as a MOBILITY PLAYER. 60% of the interviewed agrees that VV is related to mobility, inside and OUTSIDE the car.

Additionally, the Portuguese consumers recognize that Via Verde will be more present in their lives by developing more products and services.

These results show that Via Verde is in a position of trust among the Portuguese consumers and THERE IS AN OPPORTUNITY AND SPACE FOR THE BRAND TO GROW AND TO EXPAND ITS PORTFOLIO EVEN FURTHER.

Estudo Perceção Clientes Brisa 2016

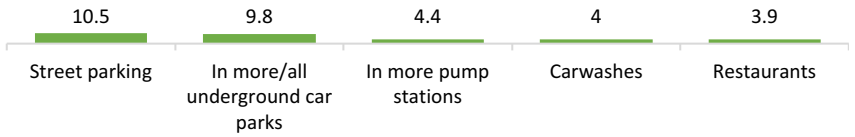
2. VIA VERDE: A STRATEGIC PLAYER | TRUSTFUL BRAND (15/18)

Via Verde's clients are open to new services related to mobility and with a stronger technological approach.

NEW SERVICES (by VV clients)

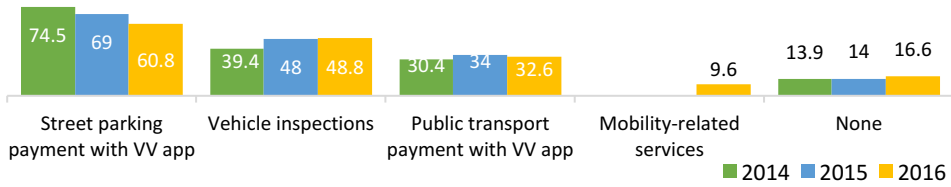
TOP 5 NEW SERVICES WHERE YOU WOULD LIKE TO USE VV (SPONTANEOUS)

n = 1548



TOP 5 NEW SERVICES WHERE YOU WOULD LIKE TO USE VV (SUGGESTED)

n = 1548



Spontaneously, Via Verde clients agree that they would like to use Via Verde in services that complement the car – street parking, in more/all underground car parks and in more pump stations. Results show that the brand is highly associated with people's personal vehicle and its environment.

When dealing with suggested answers, results are slightly different. On the one hand, Via Verde clients agree that it would be beneficial to USE THE BRAND IN MORE MOBILITY-RELATED SERVICES, such as paying public transport. On the other hand, results show that the ACCESS TO VIA VERDE'S SERVICES THROUGH AN APP IS HIGHLY DESIRABLE among its current clients.

All in all, the new services proposed by Via Verde seem to be well perceived by its actual client base.

Estudo Perceção Clientes Brisa 2016

2. VIA VERDE: A STRATEGIC PLAYER (16/18)

BIT and A-to-Be are at the forefront of innovation of mobility solutions in Portugal and international markets.

14 BIT – BRISA INOVAÇÃO E TECNOLOGIA

BIT is in charge of the coordination of innovation activities and its range of products and services include R&D, supply, implementation and maintenance.

The company develops the theoretical concepts of its solutions in partnership with Portuguese universities and highly specialized suppliers. BIT has been focusing its innovation projects on computer vision, optical recognition, radio-frequency and V2X communication systems (Vehicle-To-Infrastructure and Vehicle-To-Vehicle). Expertise in these areas make **BIT an important player in mobility-related areas.**

Additionally, the technology developed by BIT helps to improve toll operations and collection, seek efficiency, control of operating costs, fraud detection, and control of cash transactions and equipment.

RECENTLY, THE COMPANY STARTED WORKING CLOSELY WITH VIA VERDE TO DEVELOP INNOVATIVE TECHNOLOGY TO SUPPORT THE DEVELOPMENT, IMPLEMENTATION AND MAINTENENCE OF NEW MOBILITY SERVICES.

A-to-Be Powered by Brisa

In March 2017, BIT launched a new commercial brand to expand the company internationally.

As BIT, A-to-Be is at the forefront of innovation and technology. The company has been working on solutions regarding the following:

- **Mobility Payments** – for smart cities players, for road operators, for public transit, for smart parking, for commuting services.
- **Mobility Operations** – traffic management, revenue assurance.

Brisa Integrated Report 2016

A-to-Be Official Website

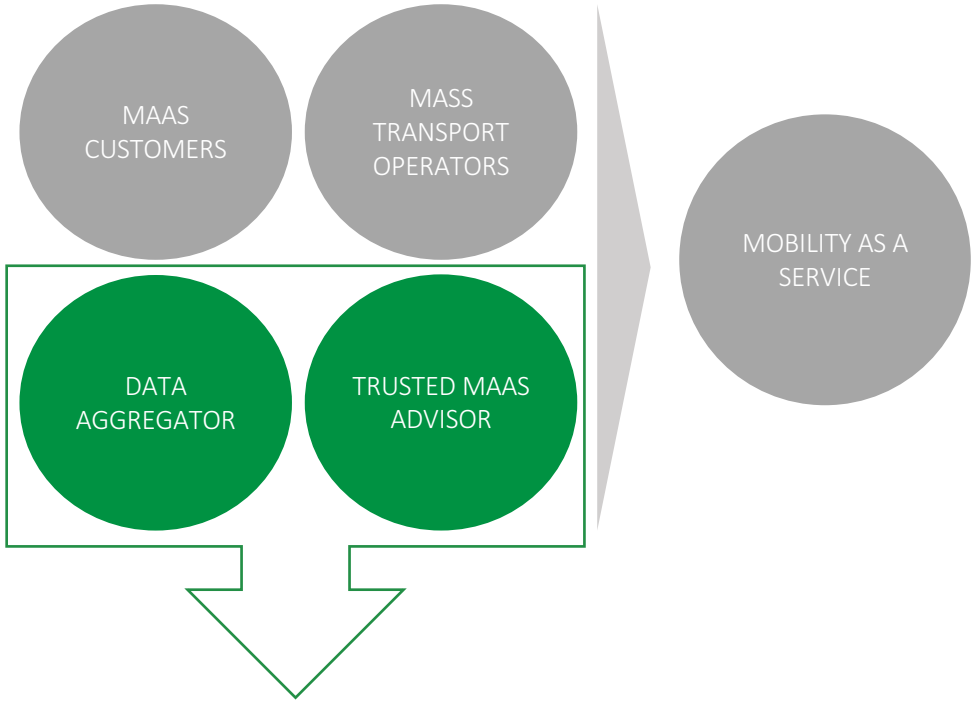
2. VIA VERDE: A STRATEGIC PLAYER | MAIN TAKEAWAYS (17/18)

Via Verde has the resources and capabilities needed to develop new solutions in the mobility area.

PRIVILEGED POSITION	Via Verde belongs to the powerful Brisa Group, giving the company a privileged position in Portugal. Not only the group works as a support system – organizational and financial-wise – but also gives Via Verde the access to a number of companies from different sectors and industries.
MOBILITY EXPERTISE	The brand has been working for more than 20 years in mobility-related areas and is one of the Portuguese experts in these fields.
TECHNOLOGY ACCESS	By belonging to the Brisa Group, Via Verde has access to state of the art technology and software from BIT – Brisa Inovação e Tecnologia and from A-to-Be, which is specialized in the mobility field.
TRUSTED PARTY	Via Verde is a very well known brand in Portugal and is trusted as a payment method in a variety of services. Its long time clients are loyal to the brand and recommend it to a great extent. Results also show that Via Verde is fully supported by its current clients in the development of new services, especially related to mobility.
LOCAL KNOW-HOW	Being Portuguese, the brand knows extremely well the culture of the country and how Portuguese people, companies and organizations move and work. Additionally, Via Verde and the Brisa Group have historically and successfully worked with several transport companies in Lisbon, the government, and mobility-related parties.
NEUTRAL BOND	Although has worked with several transport operators in the past, the brand it is not associated with any of them. In this way, it has a neutral association that can provide benefits when starting negotiations for new mobility services with them.

2. VIA VERDE: A STRATEGIC PLAYER | MAIN TAKEAWAYS (18/18)

As the pioneer of a MaaS provider in Portugal, Via Verde will benefit from first-mover advantages and sustain its position in the current marketplace.



This research shows that Via Verde **has the needed resources and capabilities** to take upon the role of data aggregators and trusted MaaS advisor in Lisbon.

After this research, it is possible to conclude that Via Verde is an important player in the Portuguese mobility industry and has powerful inputs – privileged position, mobility expertise, technology access, trusted party, local know-how, and neutral bond – that can make the company a successful pioneer as a Mobility as a Service provider in Portugal.

By becoming the pioneer, Via Verde will benefit from first-mover advantages that can strengthen its position in the marketplace even further. These first-mover advantages include:

- Make a good impression on customers and benefit from brand loyalty.
- Establish exclusive contracts with transport operators and other needed partnerships.

Other benefits from becoming the pioneer will be explained in detail in the Value Creation section.

AGENDA

I. DIAGNOSIS | URBAN MOBILITY LANDSCAPE

1. The Future of Urban Mobility
2. Mobility as a Service
3. Lisbon: The Big Picture
4. Trends Impacting Mobility in Lisbon

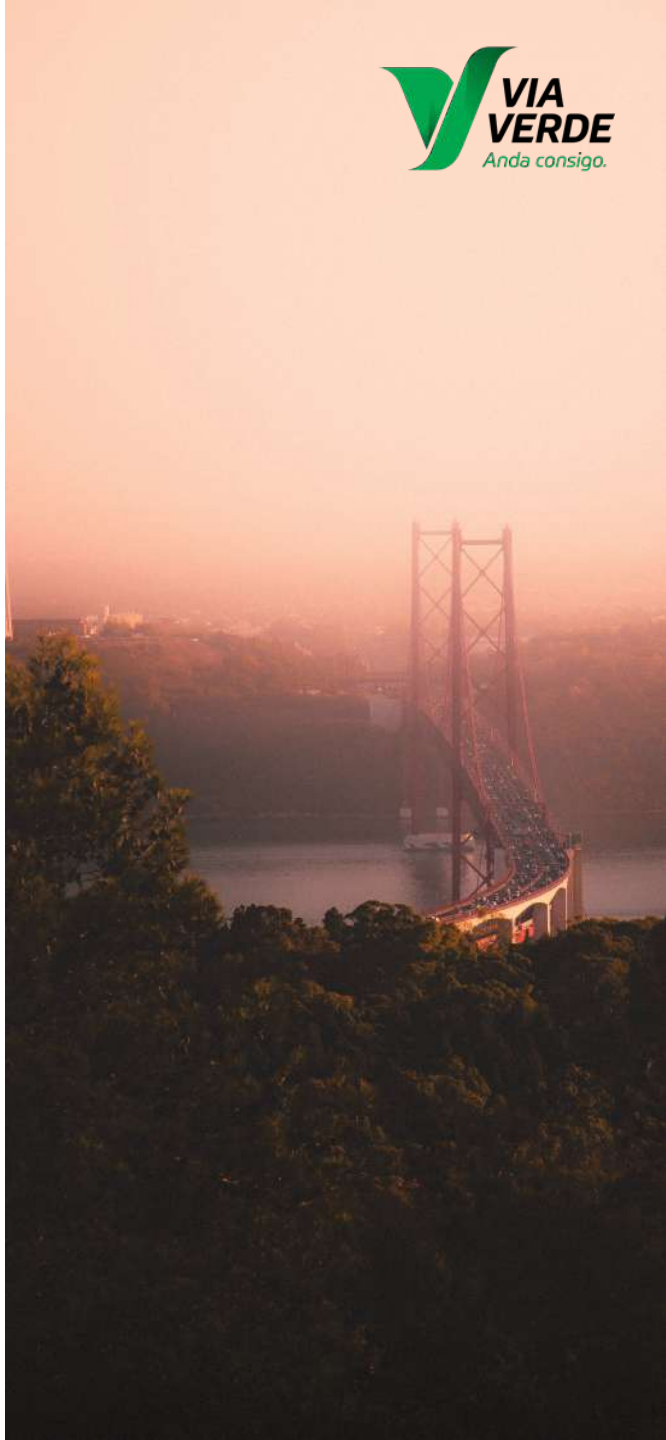
II. ANALYSIS | MAAS ECOSYSTEM IN LISBON

1. MaaS Ecosystem in Lisbon
   1.1. MaaS Customers
   1.2. Transport Operators
   1.3. Data Aggregator
   1.4. Trusted Mobility Advisor
2. Via Verde: A Strategic Player

III. RECOMMENDATIONS | IMPLEMENTATION OF A MAAS SOLUTION IN LISBON

1. How Can Via Verde Create Value?
2. Key Partnerships
3. Business Model
4. General Conditions
5. Challenges and Implementation Plan
6. Future Work

IV. REFERENCES



1. HOW CAN VIA VERDE CREATE VALUE?

1. HOW CAN VIA VERDE CREATE VALUE? (1/14)

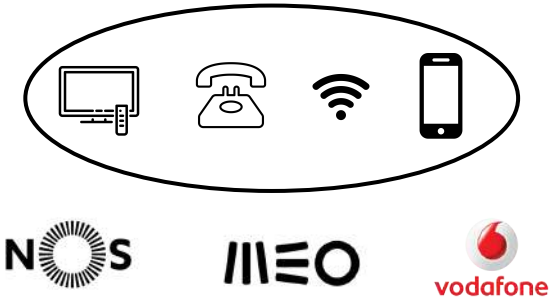
In the last years the telecom operators became disruptive in this industry by integrating the fragmented offer of communication services (TV, internet, telephone, mobile phone). Players such as NOS, MEO and Vodafone created a competitive advantage by selling packages that integrate all these communication services at a lower price.

BEFORE

Fragmented offer

NOW

Who won?



- Integrated offer: access to a wider content in one single pack (TV, telephone, internet and mobile phone);
- Payment of a subscription;
- Cheaper than if bought separately.

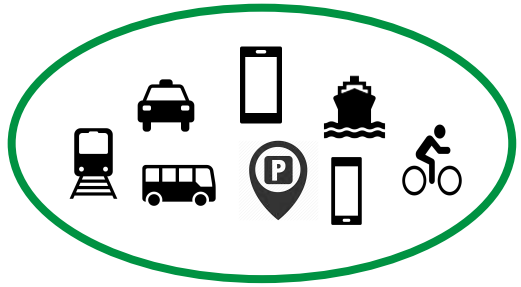
Until 2007 in Portugal, the telecommunications, internet and television service offerings were highly fragmented. For each kind of service (TV, voice, internet) , there was a different operator that offered an exclusive type of service. In 2007, MEO emerged after the spin-off of the company that, by that time, owned TVCabo. While PT Multimedia changed his name to ZON Multimedia, Portugal Telecom (PT) created a service that groups the three functionalities TV, Telephone and Internet with the name MEO. The same happened some years later with NOS (ZON Multimedia + Optimus) and Vodafone, both of them offering the same bundle of integrated services. While before the consumer had to pay each service separately and have a bill for each service, nowadays the landscape changed. The consumer pays a subscription of a package, that is less expensive than paying for the each service separately. What we can see from the actual panorama is that the players who won this “battle” were the ones who were able to integrate the fragmented offering and offer competitive prices.

1. HOW CAN VIA VERDE CREATE VALUE? (2/14)

Nowadays, mobility services offering is highly fragmented in Lisbon. Via Verde can take advantage of this challenge by offering a platform that provides integrated mobility services that allow commuters to plan their trips from A to B in the most efficient way according to their drivers of choice.

TODAY

FUTURE



Following the same reasoning, we can look at the transportation industry as being highly fragmented. For each transportation mode there are several players that cover different geographical areas in Lisbon Greater Area (*AML*).

We believe, in this project, that Via Verde can leverage its position by doing what NOS, MEO and Vodafone did in the telecommunications sector. By integrating the fragmented service offering in a single platform, **Via Verde can create mobility packages tailored to each individual's specific needs.**

1. HOW CAN VIA VERDE CREATE VALUE? | THE PRODUCT (3/14)

By creating an integrated offer in a single platform, Via Verde can improve its users' mobility experience in their daily lives. This offer includes mobility packages and an algorithm offered through an app that is free of charge.

By creating an integrated offer in a single platform, Via Verde can improve mobility experience in everyday lives.

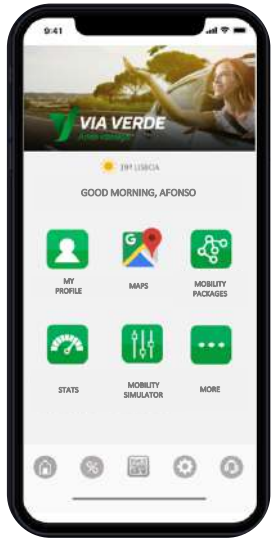
How?

Integrating the fragmented mobility offer in Lisbon in a single platform, ***Via Verde can create mobility packages tailored to each individual's specific needs that will improve their daily lives and improve the city mobility experience.***

A. MOBILITY PACKAGES

The product consists of mobility packages which will aggregate different transport operators (from the traditional public transportation to the new mobility platforms). These mobility packages will allow consumers to aggregate their routine and extra-routine mobility needs.

B. FREE MOBILE APP



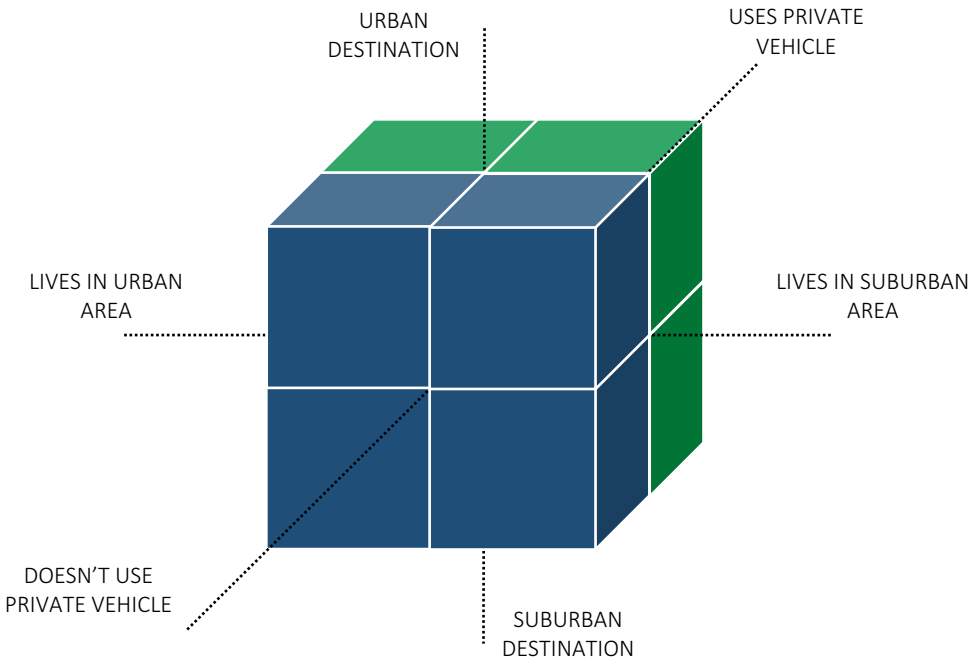
C. ALGORITHM

The product will be supported by a powerful algorithm that will improve the customers' mobility experience. By aggregating and processing daily data, people will be able to move from point A to point B in a more efficient way according to their mobility drivers of choice (price or duration).

1. HOW CAN VIA VERDE CREATE VALUE? | A. MOBILITY PACKAGES (4/14)

Nowadays, the current offer of mobility services is highly fragmented in Lisbon. Via Verde can take advantage of this challenge by offering a platform that provides integrated mobility services that allow commuters to go from point A to point B in the most efficient way according to their drivers of choice.

Integrated offer of mobility services that **allow commuters to go from point A to point B on the most convenient way, according to their preferential criteria (cost/speed/comfort) and their geographical area**. Thus, Via Verde can offer mobility packages that adjust to each mobility profile, considering the consumer's routine and extra-routine needs.



The market was segmented in **eight mobility profiles**, each of them described as a different persona.

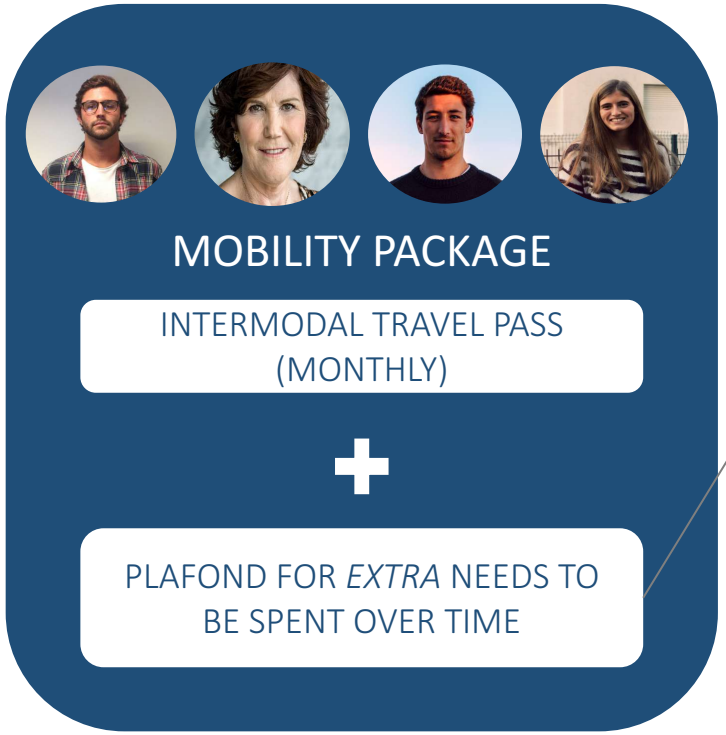
As mentioned in the summary of personas, different personas have similar mobility drivers of choice and mobility needs. This similarity is highly influenced and can be explained by the usage (or not) of private vehicle in the daily routine.

Thus, we were able to group the eight segments (personas) in two, according to the dimension **"Uses private vehicle in his/her daily routine" or "Doesn't use private vehicle in his/her daily routine".**

As such, by having **two target markets** Via Verde will have to offer a **different value proposition for each of them**.

1. HOW CAN VIA VERDE CREATE VALUE? | A. MOBILITY PACKAGES (5/14)

To the first target market – commuters that don't use private vehicle on their daily routine – the components of the mobility package are an intermodal travel pass (according to the user's geographical area) and a plafond of mobility complements (extra needs).



POSITIONING STATEMENT

To the commuters that live in Lisbon greater area (AML) that don't use private vehicle on their daily routine (*target market*), Via Verde mobile app (*frame of reference*) provides a platform of integrated mobility where people can acquire to intermodal travel passes with additional benefits (e.g. free Spotify) and a plafond for extra needs at discounted prices that allow them to move around in a more convenient way than the alternatives *(POD)* due to the app's functionalities, that include a powerful algorithm that works as a mobility simulator and also cashless payments *(reason to believe)*.

10€

Includes discount*:

- 2% off eCooltra
- 2% off MyTaxi
- 5% off DriveNow
- 5% off Gira Lisboa

25€

Includes discount*:

- 5% off eCooltra
- 5% off MyTaxi
- 7,5% off DriveNow
- 7,5% off Gira Lisboa

45€

Includes:

- eCooltra insurance**

Discount*:

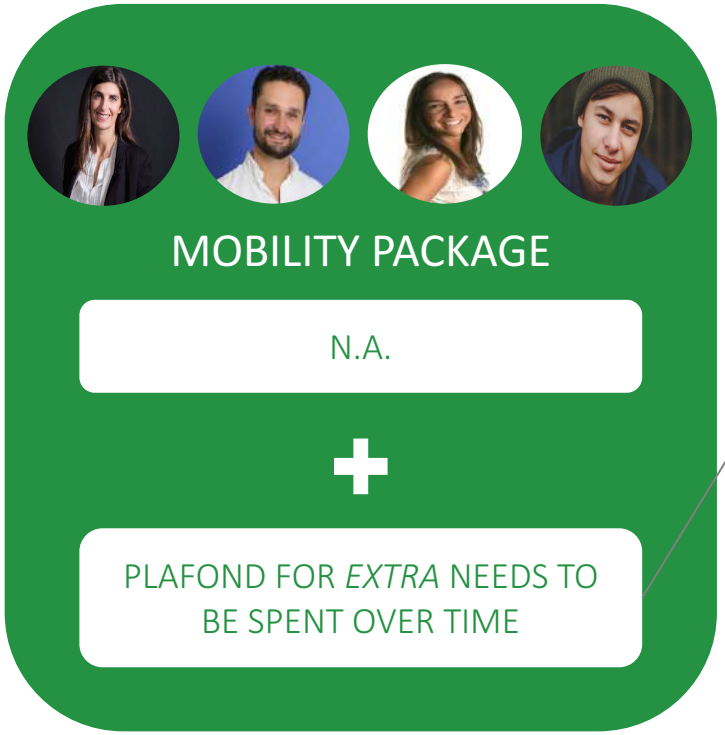
- 10% off MyTaxi
- 10% off DriveNow
- 10% off Gira Lisboa

The above-mentioned prices were settled according to the quantitative research conducted in this project. For the 545 valid answers, we made a quartile analysis for the extra-routine expenses and the prices 10€, 25€ and 45€ reflect the Q1, Q2 and Q3, respectively

* The players eCooltra, Mytaxi, DriveNow and Gira Lisboa are merely illustrative and others could also constitute a valid option
** in case of accident, the user is charged 100€ instead of 500€

1. HOW CAN VIA VERDE CREATE VALUE? | A. MOBILITY PACKAGES (6/14)

To the second target market – commuters that only use private vehicle on their daily routine – the mobility package is only composed by a plafond of mobility complements (extra needs).



POSITIONING STATEMENT

To the commuters that live in Lisbon greater area (AML) that use private vehicle on their daily routine (*target market*), Via Verde mobile app (*frame of reference*) provides a platform of integrated mobility where people can acquire plafonds for extra needs at discounted prices that allow them to move around in a more convenient way than the alternatives *(POD)* due to the app's functionalities, that include a powerful algorithm that works as a mobility simulator and also cashless payments *(reason to believe)*.

10€

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- 7,5% off DriveNow
- 7,5% off Gira Lisboa

45€

Includes:

- eCooltra insurance**

Discount*:

- 10% off MyTaxi
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* The players eCooltra, Mytaxi, DriveNow and Gira Lisboa are merely illustrative and others could also constitute a valid option
** in case of accident, the user is charged 100€ instead of 500€

1. HOW CAN VIA VERDE CREATE VALUE? | MOBILITY PACKAGES (7/14)

For both components of the mobility packages – intermodal travel pass and plafond for extra needs – there are many combinations that each user can use, making the mobility packages tailored to their routine and extra routine needs.

TRANSPORT OPERATORS
INTERMODAL TRAVEL PASS

metro
carris
fertagus
COMBOIOS DE PORTUGAL
BARRAQUEIRO TRANSPORTES, SA
sulfertagus
RODOVIÁRIA DE LISBOA
TST TRANSPORTES SUL DO TEJO
MTS Metro Transportes do Sul
vimeca transportes
SCOTTURB muito perto de si!
TCB
TRANSTEJO

TRANSPORT OPERATORS
EXTRA NEEDS

mytaxi
viva viagem
MOBI CASCAIS
CITYDRIVE TU CHOFER 24/7
cabify
GIRA
UBER
empark
BICAS
TCBikes
eCooltra MOTOSHARING
DriveNow
emel e.e.m.

1. HOW CAN VIA VERDE CREATE VALUE? | B. MOBILE APP (8/14)

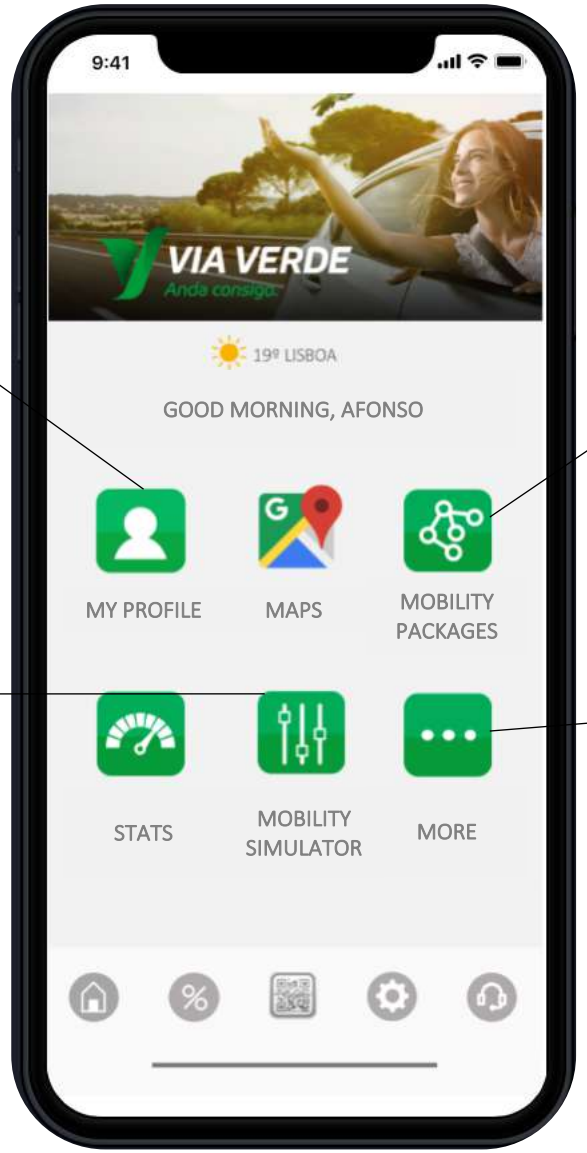
These are some of the mobile app's functionalities.

MY PROFILE

- Creating a profile (name, surname, birth date, address);
- Nº of Via Verde account (if any);
- Payment method;
- Vehicle specification (brand, engine, model).

MOBILITY PACKAGES

- Current mobility package;
- Display of *extra* mobility consumption and amount that is left to spend.



MOBILITY PACKAGES

- History of mobility packages used until the present;
- List of all the existing mobility packages.

MORE

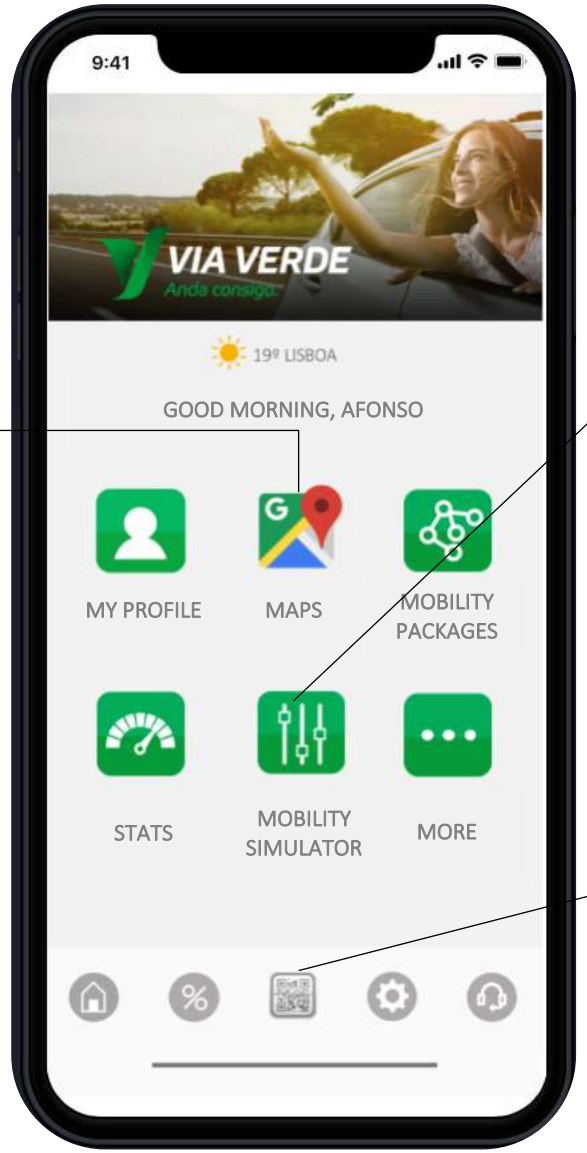
- Road assistance;
- Client support;
- Contacts;
- Settings;
- Logout.

1. HOW CAN VIA VERDE CREATE VALUE? | B. MOBILE APP (9/14)

These are some of the mobile app's functionalities.

MAPS

- Set your home and work;
- Get information about a place;
- Traffic (see estimated travel times);
- Transit info (find departure times on public transportation and station information);
- Get directions and start navigation;
- Mobility alternatives considering different transport operators and means of transportation for every route. For each alternative, the user can see the duration, distance and price;
- Mobility alternatives can be sorted by price or duration, which are the main drivers of choice.



MOBILITY SIMULATOR

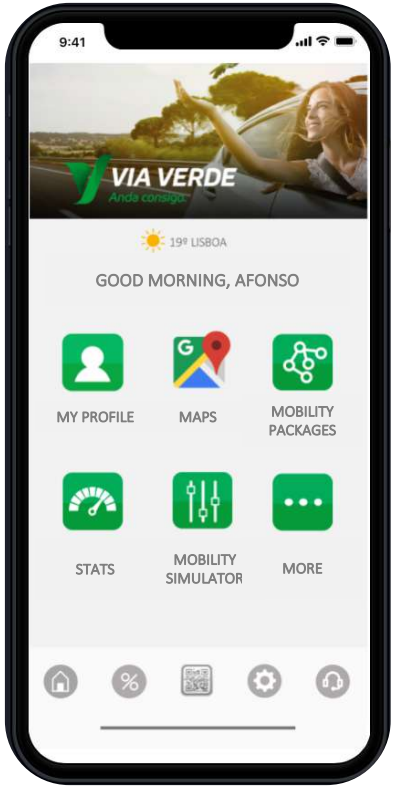
- Characterization of the user's routine;
- Setting the routes and number of times per week the user completes that route;
- Setting the budget for extra routine mobility;
- With this information, the algorithm selects the package that best satisfies these needs.

QR CODE / NFC

Allows the access and validation of the tickets in every transport operator.

1. HOW CAN VIA VERDE CREATE VALUE? | B. MOBILE APP (10/14)

These are some of the mobile app's functionalities.



FAMILY ACCOUNT

Creation of a **family profile**, that gives any family the possibility to share one account, allowing any member on the list to pay for the packages with the family profile instead of their own credit card. This profile allows the account owner to have a higher control on the mobility expenses of the family.

INTERMODAL TRAVEL PASS UPGRADE

Every time users exceed the limit of their mobility package, the app suggests them the upgrade to a new package that is more adjusted to the new budget. This way, the user's mobility expense is optimized, so he/she is never overcharged.

VIA VERDE BOLEIAS

Via Verde Boleias will be fully integrated in the app as a mobility alternative. This platform allows the passengers to find a ride to where they want to go and save money by doing it. For drivers, it allows them to fill empty seats and share costs.

SYNCHRONIZATION OF THE APP AND MOBILE PHONE'S CALENDAR

Synchronization of the app and mobile phone's **calendar**

E.g. "Moderate traffic. Leave home now to be on time on your doctor's appointment."

Pop up messages

E.g. "You should not drive if you had drinks (Friday and Saturdays' nights). Call instead an Uber/Cabify/Mytaxi."

E.g.: "Last train to Cascais departs in 10 minutes." (The algorithm recognizes places such as Home, Work, or even the daily routine. It can understand when the user is not in any of these usual places.)

1. HOW CAN VIA VERDE CREATE VALUE? | C. ALGORITHM (11/14)

The algorithm will aggregate and process data about the user: mobility patterns, preferences and needs and data about the transport operators: prices, routes, schedules, real-time information.

MOBILITY PACKAGES

- The user is able simulate his routine and extra-routine mobility needs over the month (e.g. from point A to point B five times per week + from point C to point D three times per week + 25€ average expenses on extra routine mobility) and the algorithm suggests the proper mobility package for the user taking into account his/her preferences.
- Packages upgrade: similarly to what Via Verde already does with the Fertagus' partnership, if a user starts using pay-as-you-go for each trip, Via Verde automatically upgrades for the intermodal pass when the user reaches its value.

MAPS

- When the user searches for a place and a route, the algorithm efficiently calculates the best routes between point A and point B sorted by price or duration (major mobility drivers of choice).
- Additionally, for every mobility alternative the algorithm calculates the exact cost of a trip, including if you use private vehicle (which you can specify on "O meu perfil". e.g. *brand*: Volkwagen| *range*: Golf | model: iv | engine: 1.4 | fuel type: petrol.
- The algorithm will provide the user both the schedules and real time information about public transportation and traffic flow.

DATA AGGREGATION AND PROCESSING

By processing information about mobility patterns of each user, the app is in constant optimization of routes and can trigger change in the Portuguese society by promoting shared mobility. (e.g. We have seen that you and person X, from your contacts' list, make the same route 4 times per week. Why not going together?). With data, VV will be able to be continuously improving both consumer and the city mobility experience.

1. HOW CAN VIA VERDE CREATE VALUE? | FOR ITSELF (12/14)

Via Verde should consider its potential data value as a composite of three sources of value: the asset, or stock, value; the activity value; and the expected, or future, value.

1) DATA ABOUT MOBILITY IN LISBON – HOW MUCH IS THIS DATA WORTH?

According to research conducted by the MIT Sloan[1], data value is a composite of three sources of value: (1) the asset, or stock, value; (2) the activity value; and (3) the expected, or future, value. Here's a breakdown of each value source:

1. Data as Strategic Asset

For most companies, monetizing data assets means looking at the value of customer data. Customer data can generate monetary value directly (when the data is sold, traded, or acquired) or indirectly (when a new product or service leveraging customer data is created, but the data itself is not sold). Companies can also combine publicly available and proprietary data to create unique data sets for sale or use.

2. The Value of Data in Use

Data use is typically defined by the application — such as a customer relationship management system or general ledger — and frequency of use. The frequency of data usage brings up an interesting aspect of data value. Data has the potential — not always, but often — to increase in value the more it is used. And this would be valid for Via Verde's case. That is, data viewed as an asset can exhibit increasing returns to use and network externalities. The major costs of data are in its capture, storage, and maintenance. The marginal costs of using it can be almost negligible. An additional factor is time of use: The right data at the right time — for example, transaction data collected during the Christmas retail sales season — may be of very high value. For Via Verde, as mentioned before, this data can provide information that will enable the company to look for new business opportunities.

3. The Expected Future Value of Data

Although the phrases "digital assets" or "data assets" are commonly used, there is no generally accepted definition of how these assets should be counted on balance sheets. In fact, if data assets are tracked and accounted for at all — which does not happen that often — they are typically mixed with other intangible assets, such as trademarks, patents, copyrights, and goodwill. There are a number of approaches to valuing intangible assets. For example, intangible assets can be valued on the basis of observable market-based transactions involving similar assets; on the income they produce or cash flow they generate through savings; or on the cost incurred to develop or replace them.

[1]Short J. & Todd S., 2017, *What is your data worth?*

Via Verde will create value by obtaining information relative to urban mobility in Lisbon (on its pilot phase, the goal is to expand this MaaS solution to the whole country). With this type of data, Via Verde **will have access to the mobility patterns of the Portuguese commuters but also about their drivers of choice among the fragmented offer.**

On the one hand, this data can be of extreme value to improve customer experience by knowing each user in a better way, which helps VV to tailor the offering to match their exact needs. On the other hand, the data is valuable to **identify new business opportunities** (e.g. mobility stations that are currently being tested in Munich; building parking lots near the most crowded subway stations, among others) for VV, as the company **is looking for a way to reinvent its business model** in order to remain competitive on the following years.

1. HOW CAN VIA VERDE CREATE VALUE? | FOR ITSELF (13/14)

Via Verde can create value by obtaining notoriety for environment sustainability, by benefiting from cash in advance (from the mobility packages) and by reinventing its core business when entering the MaaS market.

2) NOTORIETY FOR ENVIRONMENT SUSTAINABILITY

By implementing a solution like this, Via Verde will be actively contributing to the improvement of the city experience, by reducing the number of private vehicles that circulate on the city and, thus, reducing the carbon footprint. This can be something to leverage Via Verde's corporate social responsibility.

3) CASH IN ADVANCE – *"NEGATIVE OPERATING CYCLE"*

Via Verde's mobile app users will be offered the three alternatives for extra mobility that provides different discounts for each player. As each user is paying in advance for services that will be used throughout the following month, Via Verde receives cash in advance, which gives the company a higher margin to negotiate with the mobility platforms.

4) BROADENING THE SCOPE OF VIA VERDE'S CORE BUSINESS

By having a key role in a Mobility as a Service solution in Lisbon, Via Verde enlarges the spectrum of its core business, which is, until now, the automated toll collection.

1. HOW CAN VIA VERDE CREATE VALUE? | FOR THE CONSUMER (14/14)

On the short term, consumers will benefit mainly from the mobile app's functionalities, namely by having a single platform for mobility services that allows them to have monthly bill and discounts for extra mobility complements. On the long term, the consumers will benefit from an even more optimized algorithm and a broader spectrum of choices regarding transport operators.

1) SINGLE PLATFORM OF PLANNING, BOOKING, E-TICKET AND CASHLESS PAYMENTS FOR MOBILITY SERVICES

Integrated offer of mobility services that **allow commuters to go from point A to point B on the most convenient way, according to their preferential criteria (cost/speed/comfort) and their geographical area**. Thus, Via Verde can offer mobility packages that adjust to each mobility profile, considering the consumer's routine and extra-routine needs.

2) CONVENIENCE OF HAVING A MONTHLY MOBILITY BILL

Which will help consumers to make a more efficient planning on their mobility budget, while keep tracking of their routine and extra routine mobility expenses.

3) DISCOUNTS FOR EXTRA MOBILITY COMPLEMENTS

That the company will obtain by negotiating with each player. In exchange, VV is providing each player a new channel to attract new clients. E.g. an old person can be sceptic about new platforms such as Uber, Cabify, DriveNow. If these car pooling and ride hailing services are offered through a mobile app that is owned by Via Verde, the consumer might change his perception and his aversion and start using them because they're offered under the name of a trustful Portuguese brand.

4) INTERMODAL TRAVEL PASS

SHORT TERM

In the short term, VV can create value for the consumer only through:

1) Plafond for extra needs (discounts).
2) Algorithm that increases his/her mobility experience through the app.

LONG TERM

In the long term, and under *vanilla* conditions, Via Verde will be able to negotiate with quantity discounts with ALL transport operators to offer competitive fares to their clients. Thus, Via Verde can create value for the consumer by:

1) Fully integrating each user's routine and extra routine mobility needs. This means that the mobility packages' composition and price will be completely customized for every user. E.g. Two brothers living in the same house and studying in the same school would have slightly different mobility packages with different prices if one of them goes to school 4 days per week and the other one 5 days per week.
2) An even more optimized (due to the longest records of mobility data) algorithm that increases his/her mobility experience and makes the above-mentioned scenario possible.

2. KEY PARTNERSHIPS

2. KEY PARTNERSHIPS (1/22)

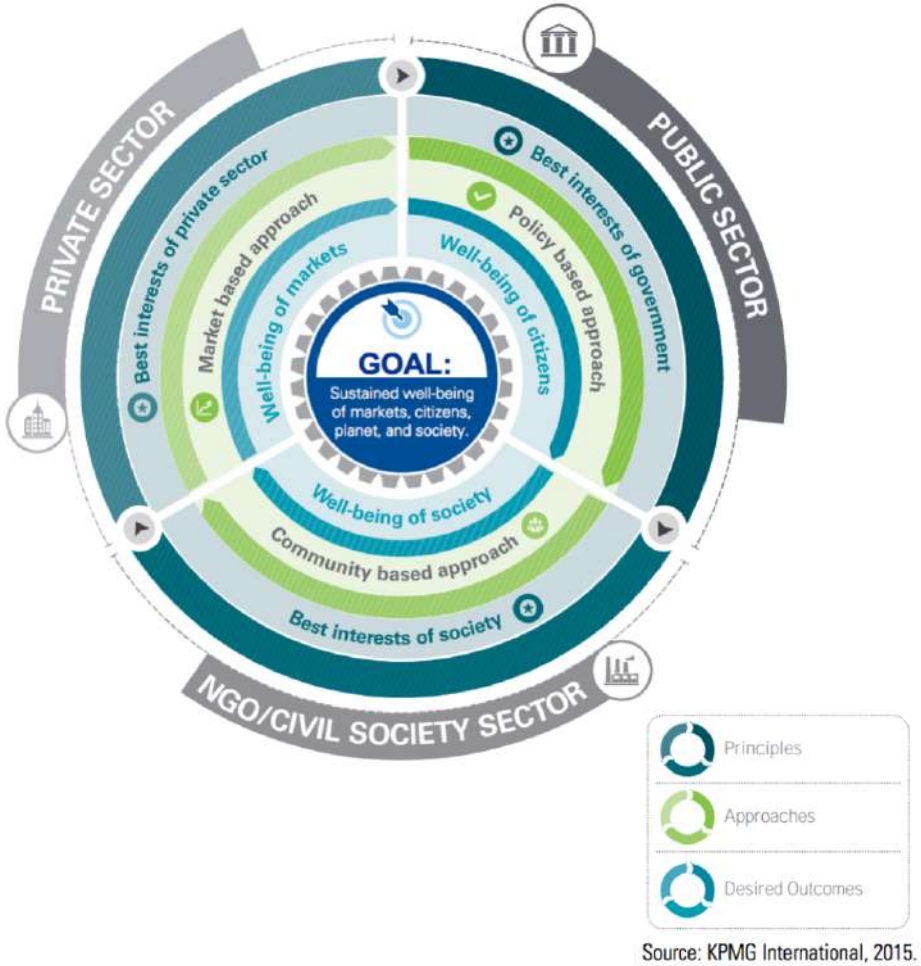
A successful partnership is set in the point where expectations and interests of different entities meet.

- A partnership is about more that collaborating on individual projects. It involves assuming more than the responsibilities to reach individual results. It involves co-creation, shared risks and shared responsibilities. A partnership goal is to reach objectives that would not be reached individually by any of the partners.

- Different sectors are more and more understanding sustainability, the citizens and markets. Through a shared value lenses, the private sector may find opportunities to approach social problems. In order to make successful partnerships it is fundamental that every part involved in the deal win and become better off than alone.

- There are two main groups of partnerships to establish in this project:
  - Private Sector – Private Transport operators;
  - Public Sector – Public Transport Operators and Government institutions related with transports and mobility.

- In order to analyse the relevance and define the main partnerships to make in the short-term, we developed a criteria to analyse two big groups:
  1. Transport Operators
  2. Public Entities



Source: KPMG International, 2015.

KMPG International, 2016, *Unlocking the power of a partnership*

2. KEY PARTNERSHIPS (2/22)

In order to define which partnerships are strongly relevant for our project, evaluation criteria for transport operators and public entities were settled.

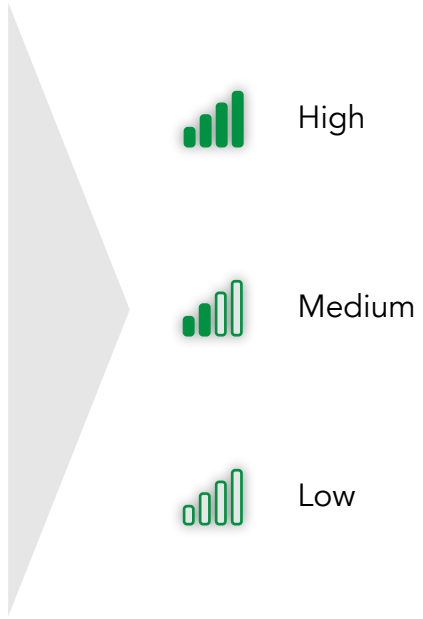
1. CRITERIA FOR TRANSPORT OPERATORS PARTNERSHIPS

PARTNERSHIP RELEVANCE
In which level this partnership is relevant?

- **Current number of passengers** – How many passengers this transport operator serves per year / Scale 1 to 5: 1(<25M); 2(25M-50M); 3(50M-75M); 4(75M-100M); 5(>100M).
- **Relevance of the operator in the transport mode/geography** – How many competitors and players exist in this type of transport mode and in the same geography.

ABILITY TO WIN
How likely this partnership will happen?

- **Business Goals alignment with Via Verde Mission** – The transport operator also have business goals related with sustainability and technology Scale 1 to 4: 1- not aligned at all; 4- totally aligned.
- **Historical Relationship with Via Verde** - Partnerships established in the past and Success of established partnerships.
- **Need for partnership:** Financial evolution in the last years, Technological stage (App + tickets system); Current state of the sector and mode of transport (which means, if the sector is suffering with technological evolution and the need to reinvent the business).



2. CRITERIA FOR PUBLIC ENTITIES PARTNERSHIPS

MISSION / POTENTIAL IMPACT IN THE PROJECT

- The mission of the public entities has impact within our project scope (Mobility, Transport and infrastructures) and decision power in issues that can be important for the implementation to our project.

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (3/22)

Fertagus has seen an increase in revenues in recent years. Since 2016 it has reversed the trend of passenger loss that was rule since 2013. A partnership of high relevance by having a high number of passengers in commuting.

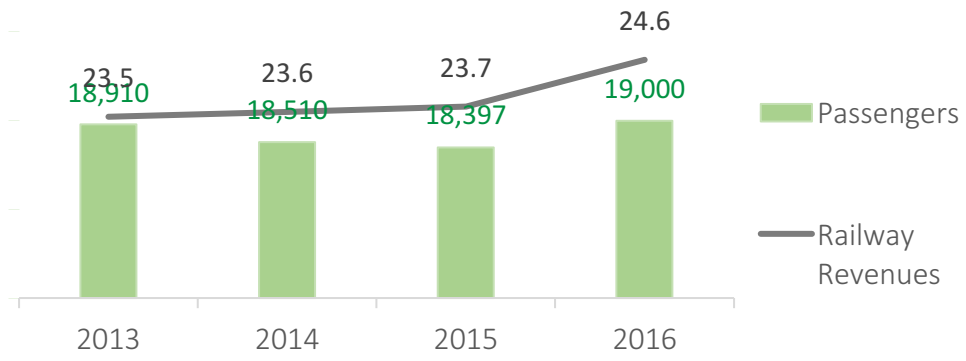
RAILWAY TRANSPORT

OVERVIEW

- Fertagus makes part of Grupo Barraqueiro, it's the first private operator exploring a railway line in portugal.[1]
- Fertagus supply 14 stations in a railway line of 54 km[1]
- Connects Setubal (suburban area) to Roma-Areeiro Station (Center of Lisbon) in 57 minuts[1]

FINANCIAL SITUATION

Passengers transported and operating revenues (000; €Mn)[2]



PAIN SOLVER

- Commuting
- Extra

PARTNERSHIP RELEVANCE

- High number of passengers (4)
- Strong relevance of the operator in the transport mode/geography (5)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (3)
- Need for partnership
  - Financial evolution in the last years (Positive)
  - Technological evolution (Positive)
  - Current state of the sector and mode of transport (static)

CONCLUSION

- This transport operator is highly relevant due to the high number of consumers it serves and also due to the strong relevance of the operator in south bank of Lisbon.
- In the past, Via Verde already stablished some successful partnerships with Fertagus.
- In short-term this partnership is strongly relevant and there is a good probability to win this partnership.

1 – Fertagus Official Website
2 – Grupo Barraqueiro Annual Report 2016

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (4/22)

The CP is a deficit company that in the metropolitan area of Lisbon has gain more and more passengers and greater revenues. Recently it has participated in projects MaaS, and given the high number of passengers and relevance of the operator, this partnership has a high relevance.

RAILWAY TRANSPORT

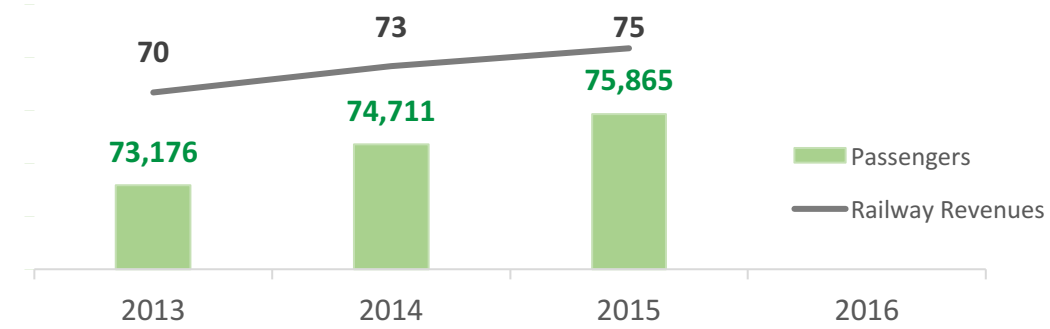
COMBOIOS DE PORTUGAL

OVERVIEW

- CP is a Public company, explores three train lines in the Metropolitan Area of Lisbon (Cascais, Sintra and Sado) and also it is responsible for connections between North and South of Portugal. [1]
- The Cascais Line has 17 train stations and connects Suburban Area Cascais to Cais Sodré.[1]
- The Azambuja/Sintra line connects Azambuja to Sintra, passing by Alcântara, Rossio, Santa Apolónia and Gare do Oriente.[1]
- The Sado line connects Setúbal to Barreiro, an intermodal station.[1]
- Despite the volume of operational income, CP registered a **chronically negative** net income. [2]
- CP has a partnership with CM of Cascais and ParC "Park&Ride" integrating parking near train stations.[1]

FINANCIAL SITUATION

Passengers transported and operating revenues (000; €Mn)[2]



PAIN SOLVER

- Commuting
- Moving Around
- Extra

PARTNERSHIP RELEVANCE

- High number of passengers (4)
- Strong relevance of the operator in the transport mode/geography (5)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (2)
- Need for partnership
  - Financial evolution in the last years (Positive)
  - Technological evolution (Positive)
  - Current state of the sector and mode of transport (static)

CONCLUSION

- This transport operator is highly relevant due to the high number of consumers it serves and also due to the strong relevance of the operator for connecting Lisbon to Suburb area.
- In the past, Via Verde already stablished some partnerships with CP.
- In short-term this partnership is strongly relevant and there is a good probability to win this partnership.

1 – CP Official Website
2 – CP Annual Report 2015

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (5/22)

The Lisbon metro is the busiest transportation operator in the Lisbon Metropolitan Area, with more revenues and a positive net profit. Given the number of passengers and geographical relevance, it is strongly relevant.

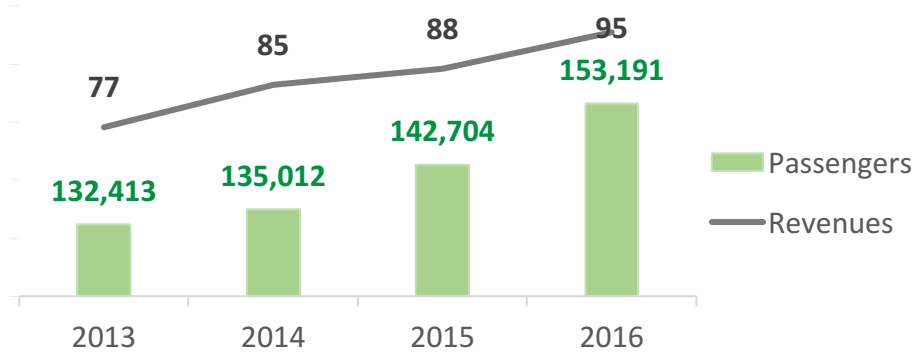
SUBWAY

OVERVIEW

- Metro of Lisbon it's a 100% public company that serves Metropolitan Area of Lisbon.[1]
- The metro network has 44,2 kilometres of extension with 56 metro stations in the 4th lines. It has some plans for future expansion, but it depends in the budget available next years. [1.]

FINANCIAL SITUATION

Passengers transported and operating revenues (000; €Mn)[2]



PAIN SOLVER

- Moving Around
- Extra

PARTNERSHIP RELEVANCE

- High number of passengers (5)
- Strong relevance of the operator in the transport mode/geography (5)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (4)
- Need for partnership
  - Financial evolution in the last years (Positive)
  - Technological evolution (Positive)
  - Current state of the sector and mode of transport (static)

CONCLUSION

- This transport operator is highly relevant due to the high number of consumers it serves and also due to the strong relevance of the operator in connecting people inside the city.
- In the past, Via Verde already stablished some partnerships with Metro.
- In short-term this partnership is strongly relevant and there is a good probability to win this partnership.

1 – Metro de Lisboa Official Website
2 – Metro de Lisboa Annual Report 2016

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (6/22)

Carris has been losing customers for the past 4 years. In addition, despite operating revenues increase, net profit has been negative - a situation that Carris / Estado has sought to reverse. It is of high relevance and has sought to modernize itself, making it possible to take an interest in our product.

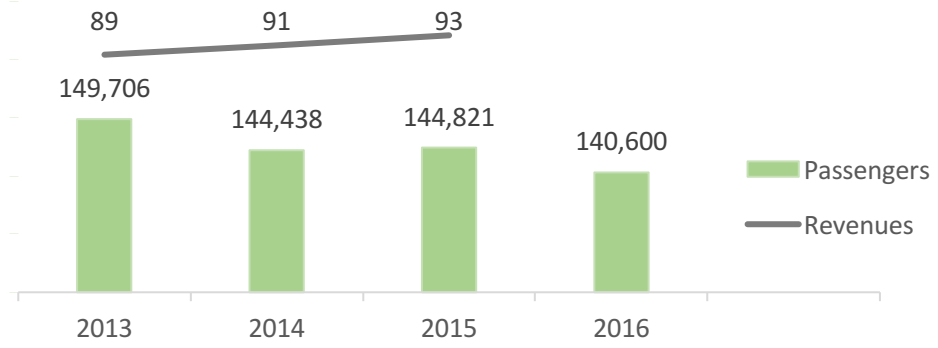
ROAD TRANSPORT carris

OVERVIEW

- Carris is the biggest road transport operator in AML. [1]
- In 2017, Carris returned to be managed by Câmara Municipal de Lisboa, after 41 years under the government management.[1]
- Carris buses connect Lisbon all over, and a lot of times they create interfaces with other transports. [1]
- Despite the growth in operating revenues, Carris has had negative net profits in recent years[2]

FINANCIAL SITUATION

Passengers transported and operating revenues (000; €Mn)[2]



PAIN SOLVER

- Moving Around
- Commuting
- Extra

PARTNERSHIP RELEVANCE

- High number of passengers (5)
- Strong relevance of the operator in the transport mode/geography (5)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (5)
- Need for partnership
  - Financial evolution in the last years (Negative)
  - Technological evolution (positive)
  - Current state of the sector and mode of transport (changing)

CONCLUSION

- This transport operator is highly relevant due to the high number of consumers it serves and also due to the strong relevance of the operator inside the city that serve areas without subway.
- In the past, Via Verde already stablished successful partnerships with Carris.
- In short-term this partnership is strongly relevant and there is a good probability to win this partnership.

1 – Carrls Official Website
2 – Carris Annual Report 2016

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (7/22)

The Barraqueiro Group is the largest private operator in the public passenger transport service. It serves several municipalities in the north of the Lisbon Metropolitan Area, operating 6 companies in total. As a whole, the partnership makes sense, as it is very relevant in suburban areas of Lisbon.

ROAD TRANSPORT

OVERVIEW

- Grupo Barraqueiro owns different private road transport companies, all of them operate in suburb areas and are small companies: Barraqueiro Transportes, Isidoro Duarte, Rodoviária de Lisboa, St. António Lisboa, HLM e Sulfertagus. [1]
- Barraqueiro transportes operates in AML through companies: Barraqueiro Oeste, the Boa Viagem, Mafrense and Ribatejana Verde[1]. Connects Lisboa to West, Alenquer, Vila Franca de Xira and Mafra, and also ensure the suburban connections in this areas.[1]
- Henrique Leonardo Mota and JJ Santo António are both from Grupo Barraqueiro[1]. They connect Lisboa to Loures, Odivelas to Santo António dos Cavaleiros. They are also responsible for interurban connections outside Lisbon.[1]
- Isidoro Duarte it's a family business, with 40% owned by Grupo Barraqueiro[1]. Explores 7 concessions of road transport in public sector, connecting Lisbon to Póvoa da Galega, serving passengers in Mafra and Loures.[1]
- Rodoviária de Lisboa serves Lisbon, Bucelas, Caneças and Santa Iria da Azoia. It has 94 bus lines with 1.300 kms network total, served by 375 buses.[1]
- Sulfertagus makes part of Fertagus, owned by Grupo Barraqueiro[1]. It serves 5 counties in the south side of Tagus River: Pragal, Corroios, Amora, Fogueteiro, Coina[1]. Connects each municipalities with Fertagus railway line and also makes some inter suburban connections. [1]

PAIN SOLVER

- First Mile
- Commuting
- Extra

PARTNERSHIP RELEVANCE

- High number of passengers (4)
- Strong relevance of the operator in the transport mode/geography (5)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (1)
- Need for partnership
  - Financial evolution in the last years (Positive)
  - Technological evolution (Negative)
  - Current state of the sector and mode of transport (changing)

CONCLUSION

- This transport operator is highly relevant due to the high number of consumers it serves in suburb areas and also due to the strong relevance of the operator connecting suburbs with centre of Lisbon.
- Via Verde never established a partnership in the past
- In short-term this partnership is strongly relevant as a group, because it has a lot of small players of road transport.

1 – Grupo Barraqueiro Official Website

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (8/22)

Metro Transportes Sul every year increases the number of passengers transported, many in transit to reach Lisbon in other ways, alone is not relevant, but because it is part of the bus group, it will be encompassed in the same partnership

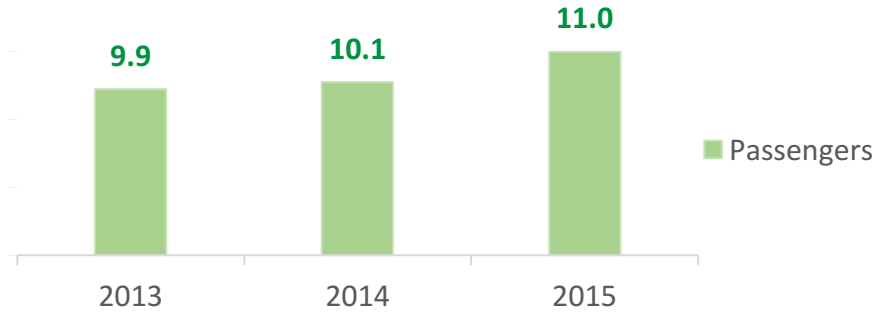
SUBWAY

OVERVIEW

- Metro Transportes do Sul serves the South Bank of Tagus River and it's owned by Grupo Barraqueiro[1]
- It's composed by 3 lines and serves the municipalities of Almada, Seixal and Barreiro[1]
- It's has 18 metro stations, where 16 are intermodal[1]

FINANCIAL SITUATION

Passengers transported and operating revenues (000; €Mn)[2]



PAIN SOLVER

- First Mile
- Extra

PARTNERSHIP RELEVANCE

- Low number of passengers (1)
- Low relevance of the operator in the transport mode/geography (2)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (1)
- Need for partnership:
  - Financial evolution in the last years (Positive)
  - Technological evolution (Stagnated)
  - Current state of the sector and mode of transport (static)

CONCLUSION

- This transport operator is not relevant to the low number of consumers it serves in suburb areas and also due to the low relevance of the operator connecting suburbs with the centre of Lisbon.
- Via Verde never established a partnership in the past
- In short-term this partnership is not relevant, because it's too small.

1 – Grupo Barraqueiro Official Website
2 – MTS Annual Report

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (9/22)

Transportes Sul Tejo is part of an international passenger transport group. It has had negative net profits in recent years and serves Setubal. It has a small number of passengers and geographical relevance, and is not very relevant at least in the first stage.

ROAD TRANSPORT

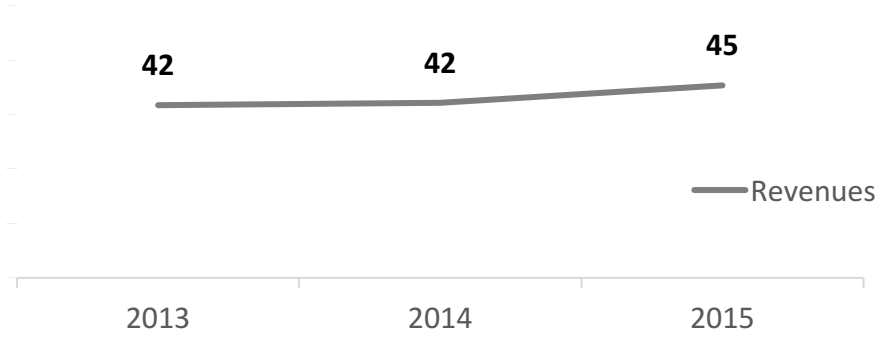
TST TRANSPORTES SUL DO TEJO

OVERVIEW

- Transportes Sul do Tejo it's a private company owned by Arriva Transportes da Margem Sul, SA and makes part of Deutsche Bahn AG, one of the biggest international groups of transportation.[1]
- TST operates in Península de Setúbal, mainly in municipalities of Alcochete, Almada, Barreiro, Moita, Montijo, Palmela, Seixal, Sesimbra and Setúbal[1]
- The TST has had negative net profits in recent years, and negative 373 thousand euros in 2015[2]

SITUAÇÃO FINANCEIRA

Passengers transported and operating revenues (000; €Mn)[2]



PAIN SOLVER

- First Mile
- Commuting
- Extra

PARTNERSHIP RELEVANCE

- Low number of passengers (1)
- Low relevance of the operator in the transport mode/geography (2)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (1)
- Need for partnership:
  - Financial evolution in the last years (Positive)
  - Technological evolution (Positive)
  - Current state of the sector and mode of transport

CONCLUSION

- This transport operator is not relevant to the low number of consumers it serves in suburb areas and also due to the low relevance of the operator connecting suburbs with the centre of Lisbon.
- Via Verde never established a partnership in the past
- In short-term this partnership is not relevant, because it's too small.

1 – Company website
2 – TST Annual report 2015

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (10/22)

The Transportes Colectivos do Barreiro is owned by the Barreiro City Council. It has a small number of passengers and geographical relevance and is not very relevant at least in the first phase.

ROAD TRANSPORT

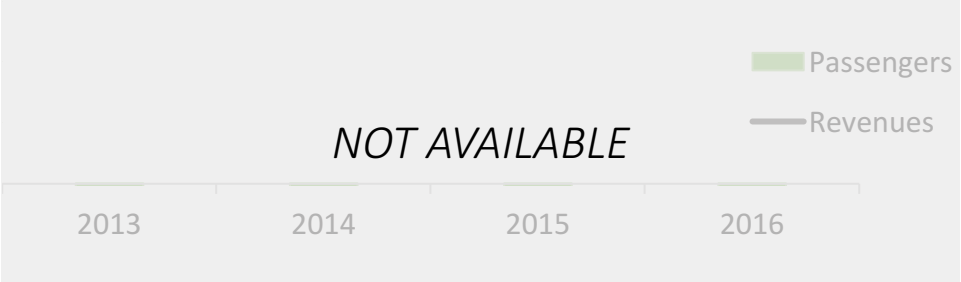
TCB

OVERVIEW

- The Collective Transport of Barreiro are owned by the Barreiro City Council and operate mainly in this municipality, but also arrive at Moita and Coina.[1]
- The company had a positive result of 450 thousand euros in 2015[1]

FINANCIAL SITUATION

Passengers transported and operating revenues (000; €Mn)[2]



PAIN SOLVER

- First Mile
- Extra

PARTNERSHIP RELEVANCE

- Low number of passengers (1)
- Low relevance of the operator in the transport mode/geography (2)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (1)
- Need for partnership
  - Financial evolution in the last years (N.A)
  - Technological evolution (Positive)
  - Current state of the sector and mode of transport (static)

CONCLUSION

- This transport operator is not relevant to the low number of consumers it serves in suburb areas and also due to the low relevance of the operator connecting suburbs with the center of Lisbon.
- Via Verde never established a partnership in the past
- In short-term this partnership is not relevant, because it's too small.

1 – TCB Official Website

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (11/22)

Vimeca is a private company that serves the municipality of Oeiras. Its relevance is average, given the current number of passengers and the geographic relevance.

ROAD TRANSPORT

OVERVIEW

- Vimeca it's a private company which serves Oeiras municipality. [1]
- Vimeca plans to have all buses with GPS in order to make decisions in real time, having in mind the traffic.[1]

FINANCIAL SITUATION

Passengers transported and operating revenues (000; €Mn)[2]

PAIN SOLVER

- First Mile
- Commuting
- Extra

PARTNERSHIP RELEVANCE

- Medium number of passengers (3)
- Low relevance of the operator in the transport mode/geography (2)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (1)
- Need for partnership
  - Financial evolution in the last years (N.A)
  - Technological evolution (Negative)
  - Current state of the sector and mode of transport (static)

CONCLUSION

- This transport operator is relevant due to the moderate number of consumers it serves in suburb areas and also due to the relevance of the operator connecting inter-suburbs.
- Via Verde never established a partnership in the past
- In short-term this partnership is relevant.

1 – Vimeca Official Website
2 – Vimeca does not share financial information. We contacted the company directly and we didn't have a response.

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (12/22)

ScottUrb operates in Cascais, Sintra and Oeiras. It has a partnership with Mobi Cascais, offering a Maas service in the municipality of Cascais. It has a small number of passengers and geographical relevance and is not very relevant at least in the first stage.

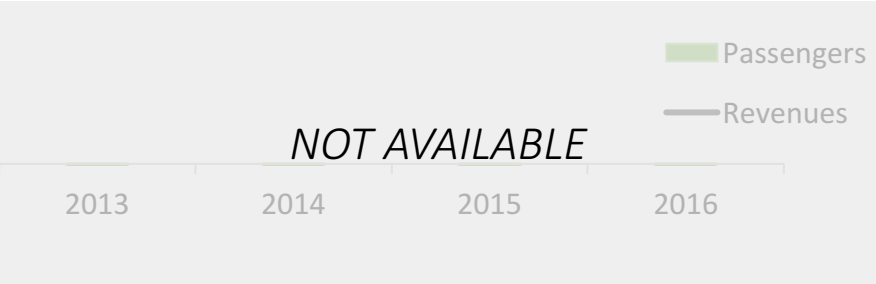
ROAD TRANSPORT

OVERVIEW

- ScottUrb operates in Oeiras, Cascais e Sintra[1]
- It has more than 2000 stops and 19 terminals[1]
- It has a partnership with Mobi Cascais that aims to offer a MaaS Service in Cascais Municipality. [1]

FINANCIAL SITUATION

Passengers transported and operating revenues (000; €Mn)[2]



PAIN SOLVER

- First Mile
- Extra

PARTNERSHIP RELEVANCE

- Low number of passengers (1)
- Low relevance of the operator in the transport mode/geography (2)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (1)
- Need for partnership
  - Financial evolution in the last years (N.A)
  - Technological evolution (Negative)
  - Current state of the sector and mode of transport (static)

CONCLUSION

- This transport operator is not relevant to the low number of consumers it serves in suburb areas and also due to the low relevance of the operator connecting suburbs with the centre of Lisbon.
- Via Verde never established a partnership in the past
- In short-term this partnership is not relevant, because it's too small.

1 – Company Website
2 – Scotturb does not share financial information. We contacted the company directly and we didn't have a response.

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (13/22)

Soflusa and Transtejo offer six connections between both margins of Tagus river by boat, with a small number of passengers and geographical relevance, not being very relevant at least in the first stage.

FLUVIAL TRANSPORT

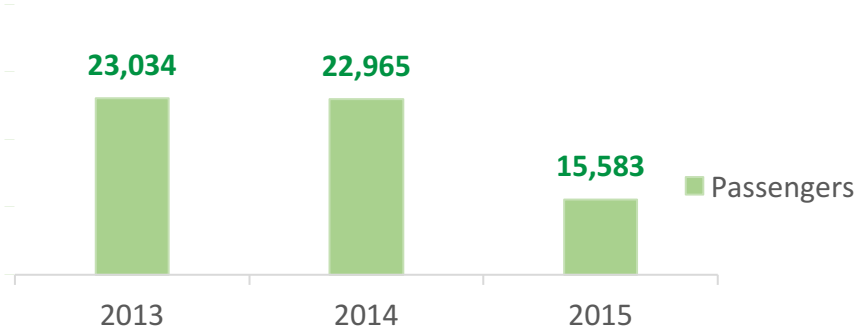
SOFLUSA TRANSTEJO

OVERVIEW

- Transtejo and Soflusa are public companies responsible to connect Lisbon with south bank of the Tagus river by boat. [1]
- The group has 6 terminals and 3 stations, with 30 boats in order to serve consumers. [1]
- There are 5 connections between Tagus margins, all of them supported by transports in both margins.[1]

FINANCIAL SITUATION

Passengers transported and operating revenues (000; €Mn)[2]



PAIN SOLVER

- Commuting
- Extra

PARTNERSHIP RELEVANCE

- Low number of passengers (1)
- Low relevance of the operator in the transport mode/geography (1)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (1)
- Need for partnership:
  - Financial evolution in the last years (Negative)
  - Technological evolution (Negative)
  - Current state of the sector and mode of transport (Stagnated)

CONCLUSION

- This transport operator is not relevant to the low number of consumers it serves in suburb areas and also due to the low relevance of the operator connecting suburbs with the centre of Lisbon.
- Via Verde never established a partnership in the past
- In short-term this partnership is not relevant, because it's too small.

1 – Transtejo Official Website
2 – AML Official Website

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (14/22)

Emel is the management company of the public parking spots inside the city of Lisbon. Their revenues have grown, as did the amount of places available. The partnership is of great relevance, by the number of users, although there is a history of difficult establishment of partnerships with this operator.

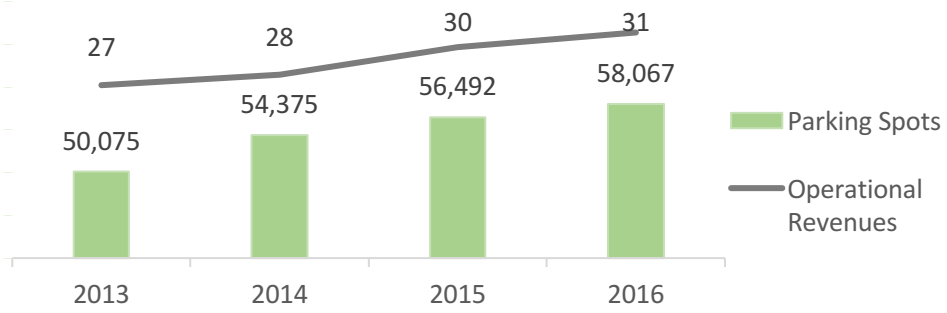
PARKING

OVERVIEW

- Emel it's owned by Câmara Municipal de Lisboa who is responsible by public parking spots. [1]
- Manage the parking spots inside the city of Lisbon and classify areas and is also responsible for resident cards. [1]
- Emel also allows charging electric cars in Lisbon, with 500 spots of charging around the city. [1]
- It plans to have more 30 000 parking spots until 2018.[1]
- Emel has an application– a ePark – which allows to pay the parking spot with a smartphone. [1]

FINANCIAL SITUATION

Parking spots and operational revenues (parking spots; €Mn) [2]



PAIN SOLVER

- Extra

PARTNERSHIP RELEVANCE

- High number of passengers (5)
- Strong relevance of the operator in the transport mode/geography (5)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (1)
- Need for partnership (2)
  - Financial evolution in the last years (Positive)
  - Technological evolution (Positive) (App)
  - Current state of the sector and mode of transport (growing)

CONCLUSION

- This transport operator is strongly relevant due to the high number of parking spots inside the city and the high umber of cars that need to park in Lisbon.
- Via Verde already tried to establish a partnership in the past but it wasn't successful. Although in the last months some progress were made.
- In short-term this partnership is strongly relevant but there is a low probability to win.

1 – Emel Official Website

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (15/22)

Empark is very relevant inside the city of Lisbon, with a significant number of parking lots that serve a significant number of consumers.

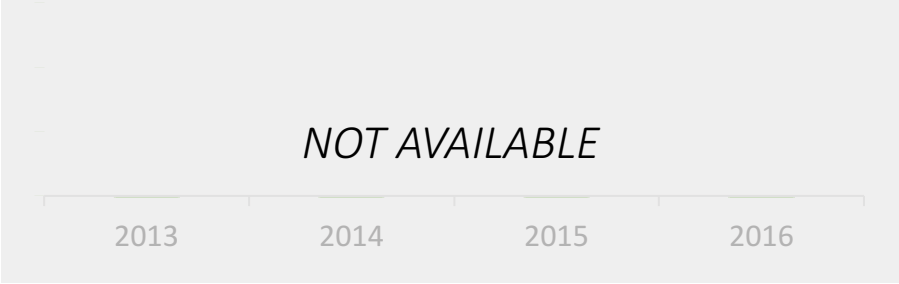
PARKING empark

OVERVIEW

- The Empark has 50 parking lots in AML, 43 of which one in the North of Tagus.[1]
- Most of the parks, serve intermodal stations with boat and train, such as Cacilhas, Barreiro Transtejo, Santa Apolónia and Campo Grande [1]
- Via Verde already stablished some partnerships with Empark allowing automatic payment inside this parks.[1]

FINANCIAL SITUATION

Parking spots and operational revenues (parking spots; €Mn) [2]



PAIN SOLVER

- Extra

PARTNERSHIP RELEVANCE

- High number of passengers (3)
- Strong relevance of the operator in the transport mode/geography (3)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (5)
- Need for partnership (4)
  - Financial evolution in the last years (N.A)
  - Technological evolution (Positive) (Payment system)
  - Current state of the sector and mode of transport (growing)

CONCLUSION

- This transport operator is relevant due to the high number of parking spots inside the city and the high umber of cars that need to park in Lisbon.
- Via Verde already established a successful partnerships in the past.
- In short-term this partnership is relevant but there is a high probability to win.

1 – Empark Official Website

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (16/22)

Fertagus owns six parking lots along stations in the South Bank, in order to allow the parking of train passengers. As it is said by the Barraqueiro Group, within this area Fertagus is of extreme relevance.

PARKING

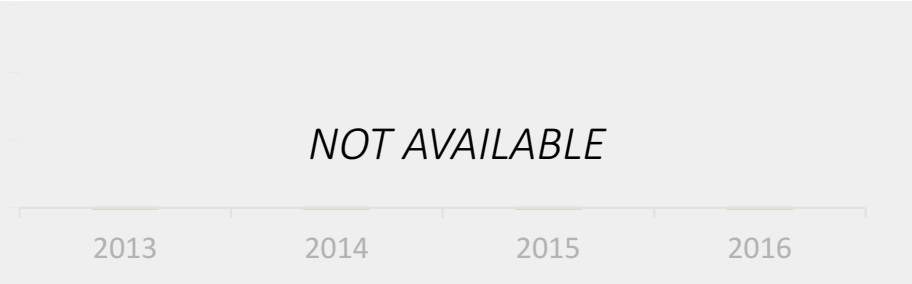
fertagus

OVERVIEW

- Fertagus offers to his costumers, 6 200 parking spots in 6 train stations of the South Bank.[1]
- Customers who enjoy Fertagus parking services can get discounts when buying a train ticket, promoting intermodality [1]

FINANCIAL SITUATION

Parking spots and operational revenues (parking spots; €Mn) [2]



PAIN SOLVER

- First Mile
- Extra

PARTNERSHIP RELEVANCE

- Medium number of passengers (3)
- Low relevance of the operator in the transport mode/geography (2)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (5)
- Need for partnership (4)
  - Financial evolution in the last years (N.A)
  - Technological evolution (Positive)
  - Current state of the sector and mode of transport

CONCLUSION

- This transport operator is strongly relevant due to the number of parking spots in suburb areas.
- Via Verde already established a partnership in the past but it wasn't successful. Although in the last months some progress were made.
- In short-term this partnership is relevant but there is a medium probability to win.

1 – Fertagus Official Website
2 – Fertagus does not share company financial data. We tried to contact the company but we did not have an answer.

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (17/22)

Traditional taxi services have suffered with the appearance of new ride-hailing offers. MyTaxi has emerged with the aim to help this sector survive in the new technology era of platforms. Taking into account the importance of taxis in mobility in Lisbon, this is of great importance.

RIDE-HAILING

mytaxi

OVERVIEW

- In August 2016 there were 4,654 licensed taxis in the Lisbon Metropolitan Area, where there are 4886 attributable licenses.[1]
- Traditional taxis estimate that they have lost 20% of the market in the last three years, and so many have joined Mytaxi [2]
- Mytaxi was founded in June 2009, with Mytaxi the international taxi market was transported into the 21st century and redefined worldwide.
- The concept lives on the idea of creating a direct link between the taxi driver and the customer, so as to provide both parties with a modern alternative in the booking process.
- The application for this development (iOS, Android) has been downloaded to date more than 10 million times, being available in more than 40 cities and with more than 45,000 registered taxis. Since September 2014, Mytaxi has been 100% owned by Moovel GmbH (Daimler AG).
- This represents a very important step forward, which aims to make real the vision of transforming this application of taxis into the biggest and most successful in Europe.

PAIN SOLVER

- First Mile
- Extra

PARTNERSHIP RELEVANCE

- Medium number of passengers (3)
- Strong relevance of the operator in the transport mode/geography (5)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (1)
- Need for partnership (4)
  - Financial evolution in the last years (N.A)
  - Technological evolution (Positive) (App + payment method)
  - Current state of the sector and mode of transport (fast changing)

CONCLUSION

- This transport operator is strongly relevant due to the number of passengers it serves inside the city and relevance within this type of transportation.
- Since we don't know how will be the future of the new ride-hailing companies, a partnership with taxis it's strongly relevant.

1 – Estudo da Autoridade da Mobilidade e Transportes sobre os Táxis de Lisboa de 2006 a 2016
2 – Jornal de Negócios, 2016, *Interview with Antonio Cantalpiedra*

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (18/22)

Uber and Cabify are new services of ride-hailing that appeared in the last years with competitive prices and new functionalities. This platforms are increasingly relevant for consumers, that's why it is so relevant this partnership.

RIDE-HAILING

UBER cabify

OVERVIEW

- Uber started operating in Portugal, Lisbon in 2014 and since then the application has already been downloaded by more than one million people [1]
- In 2010, Uber started working in a solution for an easy problem: How to ask for a trip through just a click? In the end of 2015, reached an important milestone: One Billion trips. 6 months later, exceed the two Billion trips. In 2017, reached five billion trips around the world.
- In the last year, Uber was used 750 thousand times by tourists in Lisbon.[2]
- Cabify started to operate in Lisbon in 2016. [3]

- Uber and Cabify have been in the last months having some legal issues regarding their product, since it's a completely new business didn't exist legislation. There is a high risk that in the future, this kind of companies will be unable to operate as we know today in Portugal, following the trend n another European countries (Finland, Ireland and United Kingdom)

PAIN SOLVER

- First Mile
- Moving Around
- Extra

PARTNERSHIP RELEVANCE

- High number of passengers (4)
- Strong relevance of the operator in the transport mode/Geography (5)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (1)
- Need for partnership (1)
  - Financial evolution in the last years (N.A)
  - Technological evolution (Positive) (App + payment system)
  - Current state of the sector and mode of transport

CONCLUSION

- This transport operator is strongly relevant due to the high number of passengers and also with the offer aligned with MaaS principles. Even with the risk with the changing legislation, it's still strongly relevant.
- Via Verde never tried to establish a partnership in the past.
- In short-term this partnership is strongly relevant.

1 – Marketeer, 2017, *Três anos da Uber em Portugal em números*
2 – Uber Official Website
3 – Cabify Official Website

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (19/22)

Drive Now and eCooltra are new platforms of moto and car sharing that appeared last years, offering competitive solutions comparing with another traditional ways of transportation. They solve different pain-points in the city and they are future oriented for mobility trends that's why it's so relevant.

CAR-SHARING & MOTO-SHARING

DriveNow eCooltra

OVERVIEW

- Drive Now is a joint venture between BMW Group and Sixt SET. Through it's subsidiary Via Verde Car Sharing, Brisa is responsible for the operational management of the business, as well as customer service, fleet management, marketing and communication in Portugal. In Lisbon there are 211 BMW and MINI models located all around the city just waiting to be driven.[1]
- All of the cars are ready for spontaneous rentals, no need to pre-book the ride.
- eCooltra is the leader in scooter sharing in Europe , it has 170 motorcycles around Lisbon, that passenger can rent by 0,24€/minute or 0,29€/minut.[2]
- There's a lot of traffic in Lisbon, this kind of options allow passengers to go from A to B in a fastest and more comfortable way.

PAIN SOLVER

- Moving Around
- Extra

PARTNERSHIP RELEVANCE

- High number of passengers (4)
- Strong relevance of the operator in the transport mode/geography (5)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (4)
- Need for partnership (4)
  - Financial evolution in the last years (N.A)
  - Technological evolution (Positive) (App and payment methods)
  - Current state of the sector and mode of transport

CONCLUSION

- This transport operators are strongly relevant due to the potential it has in the future to be used for a lot of passengers.
- Drive Now since its managed by Via Verde it will be easy to make this partnership.
- In short-term this partnership is strongly relevant.

1 – DriveNow Official Website
2 – eCooltra Official Website

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (20/22)

These bike sharing platforms offered competitive solutions in some areas of the city. Due to sustainability issues it's very relevant to have this kind of partnerships within our transport operators offer.

BIKE-SHARING

OVERVIEW

- In AML each bike sharing service is managed by each municipality.[1]
- In Lisbon, the Câmara Municipal de Lisboa put EMEL in charge of offering this service of bike-sharing (Gira Bikes of Lisbon). In October 2017 Gira already had 140 stations and 1.410 bikes ready to use. [2]
- In Cascais there are 20 bike stations, but they have planned to have an additional 100 more. [3]
- In Barreiro, the Transportes Colectivos do Barreiro created a bike sharing service with 3 stations. [4]

PAIN SOLVER

- Moving Around
- Extra

PARTNERSHIP RELEVANCE

- Low number of passengers (1)
- Strong relevance of the operator in the transport mode/relevance (5)

ABILITY TO WIN

- Business Goals aligned with Via Verde Mission (5)
- Historical Relationship with Via Verde (1)
- Need for partnership (3)
  - Financial evolution in the last years (N.A)
  - Technological evolution (Positive)
  - Current state of the sector and mode of transport (Growing)

CONCLUSION

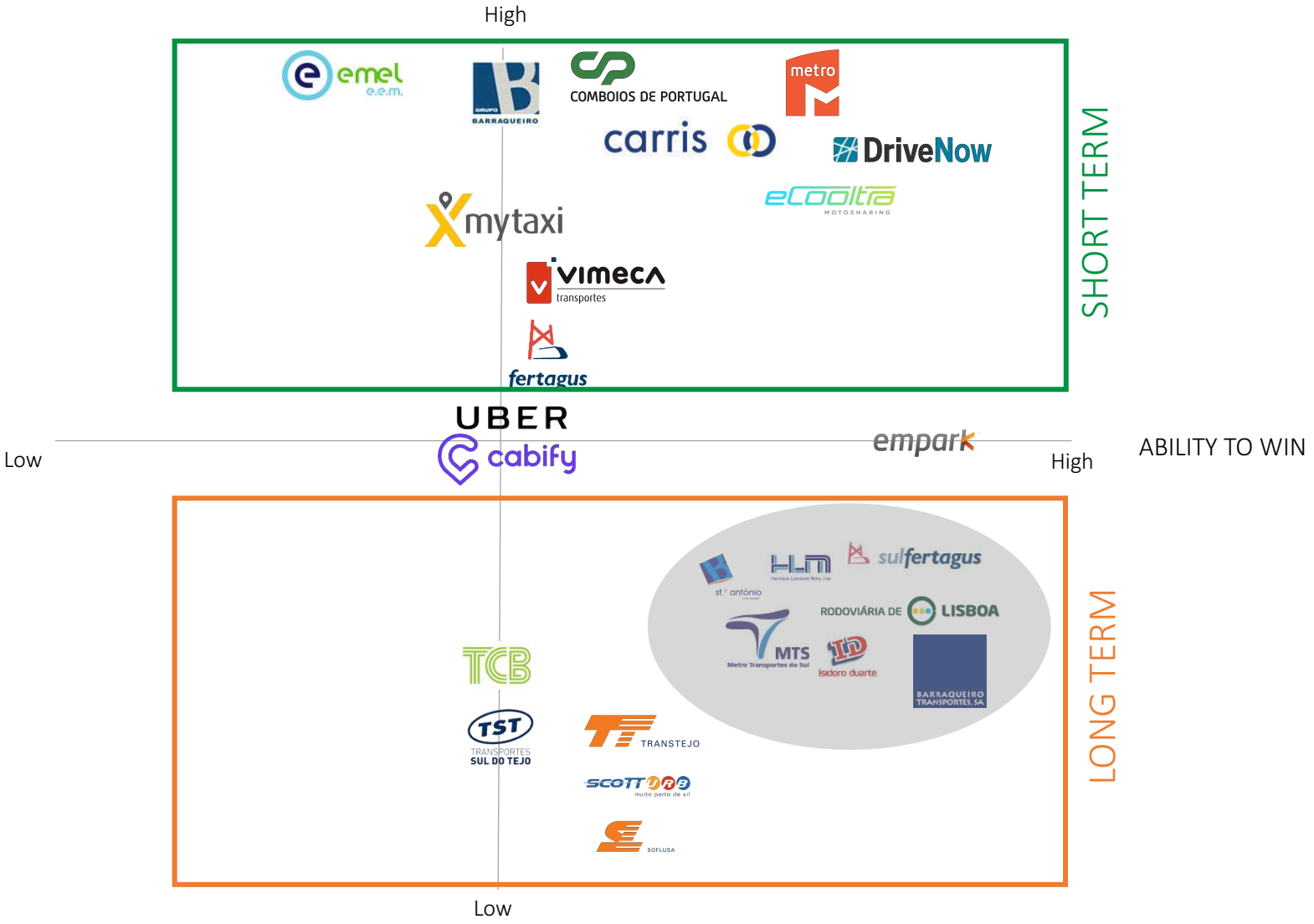
- This transport operator is strongly relevant due to the sustainability concerns and also due to the high number of bike roads appeared lately in Lisbon.
- Via Verde never tried a partnership in the past.
- In short-term this partnership is strongly relevant and there is a high probability to win.

1 – AML Official Website
2 – TimeOut, 2017, Gira – Bicicletas de Lisboa arranca terça-feira
3 – MOBI Cascais's Official Website
4 –Câmara Municipal do Barreiro Official Website

2. KEY PARTNERSHIPS | 1. TRANSPORT OPERATORS (21/22)

Take into account the relevance of each partnership and the ability to win, we designed a matrix with these two axis in order to understand which partnerships are a priority in the short, medium and long term.

- In the first stage of the project, it is essential to establish partnerships with key transport operators for the consumers, being the only way to guarantee the creation of value of this product for the users.
- Different types of transport operators (public and private) were selected. The Barraqueiro group owns small road, rail and subway companies that operate in suburban areas that are not individually relevant but the group as a whole is very relevant to our offer.
- We believe that in the long term, it will be possible and relevant to include all AML transportation operators.



2. KEY PARTNERSHIPS | 2. PUBLIC INSTITUTIONS (22/22)

	MISSION / RESPONSABILITIES	POTENCIAL IMPACT	RELEVANCE FOR THE PROJECT
IMT	Technical regulations, licensing, coordination, supervision and planning in the transport sector (terrestrial, fluvial and related infrastructures) and in the economic aspect of the commercial ports and maritime transport; The management of concession contracts in which the Government is granting, in those sectors or in other sectors, namely in relation to air transportation and airport infrastructures, in order to satisfy the mobility needs of people and goods.[1]	▪ Strong regulatory authority in the area of mobility ▪ Important relationships with different transport operators, both public and private	✓ High relevance for the project ✓ Need for the support of this entity as a key factor in the implementation of our mobility solution through the relationships and importance in approving all existing mobility services
a. . . . m. área metropolitana de lisboa . l. .	Preparation of plans and programs of public investments with incidence in the metropolitan area; planning and management of the economic, social and environmental development strategy of the covered territory; Articulate municipal investments with metropolitan character; management of regional development support programs, namely within the scope of the National Strategic Reference Framework (NSRF); definition of metropolitan services and equipment networks; Participate in public entities of metropolitan scope, namely in the field of transport, water, energy and solid waste treatment; Plan the performance of public entities of metropolitan character.[2]	▪ The Metropolitan Area of Lisbon participates in the preparation of plans. ▪ One of the government's program projects involves the promotion and implementation of new integrated mobility solutions. [2]	✓ High relevance for the project to have the sponsorship of the AML since it regulates mobility initiatives and helps to develop project with within our scope in AML. ✓ Need for support to facilitate the implementation of partnerships with the transport services available in Lisbon (Public and private)
GOVERNO DE PORTUGAL	The Area of the Government of Planning and Infrastructure aims to formulate, conduct, implement and evaluate development and cohesion policies, including regional development, as well as the definition of infrastructure policies in the areas of construction, real estate, transport and communications, including the regulation of public procurement. The XXI Government Program 2015-2019 aims to promote efficiency in the way we move. Particularly in cities, it is necessary, on the one hand, to encourage the sharing of means of transport and the use of less polluting vehicles (such as electric vehicles) and to make public transport more attractive by promoting intermodal and, where possible, complementarity with soft means of transport (such as bicycles). In this way, it will be possible to reduce urban congestion and achieve a more efficient mobility, providing greater comfort, speed and quality of life with a lower consumption. In short, sustainable mobility. [3]	▪ The government program contains directives that meet the goal of our product and can be facilitated and help address the challenges of government in the area of urban mobility. ▪ One of the government's program projects involves the promotion and implementation of new integrated mobility solutions.[2]	✓ High relevance for the project to have the sponsorship of the government for being of both interest in the implementation of a MaaS solution in Portugal ✓ Need for support to facilitate the implementation of partnerships with the transport services available in Lisbon (Public and private)

1 – IMT Official Website
2 – AML Official Website
3 – Programa do XXI do Governo Constitucional (2015-2019)

3. BUSINESS MODEL

3. BUSINESS MODEL | ALTERNATIVES (1/3)

There are two main options for Via Verde's business model: either through brokerage or bundling.

Business Models define not only how a company **makes money** but also how is the **relation with the partners structured.**
There are two possible relationship structures with partner transport operators, each one with its own revenue and cost structure:

	BROKERAGE	BUNDLING
	Bring together buyers and sellers, charging a **fee per transactions.**	Package related goods and services together. The *Bundler* buys products **with quantity discounts.**
EXAMPLES	VIA VERDE Anda consigo. · airbnb	
REVENUE STRUCTURE	A fee per transaction made by the users to buy products owned by partners	Selling bundles to costumers for less than they would pay for each unitary purchase
COST STRUCTURE	Brokers do not buy anything and thus have less risk. Main costs come from maintaining the platform where buyers and sellers meet	Bundlers negotiate with suppliers buying products in large quantities to pay less than the market unitary price
PROFIT CONDITIONS	**The sum of all the fees would have to be greater than the maintenance costs of the platform**	**The average unitary selling price of each individual unit would have to be greater than the average unitary buying price**

[1] Ovans A., 2015, *What is a Business Model?*
[2] Osterwalder A., 2013, *A Better Way to Think About Your Business Model*

3. BUSINESS MODEL | TRANSPORT OPERATORS' TIMINGS (2/3)

Bundling allows Via Verde to fully tailor mobility packages to each individual consumer. This is always possible when dealing with private transport operators. However, when dealing with public transport operators and due to uncertain regulation, Via Verde may have to use a brokerage BM in short-term.

SHORT-TERM

- Transport Operators that provide **public transport services** should be targeted through a **brokerage system**, as the regulations are not clear on the possibility of using quantity discounts.
- Negotiations with **private operators** should aim **discounts with quantity buying**, as it is vital to construct **bundles and increase costumer satisfaction**.

BROKERAGE:

Bring together buyers and sellers, charging a **fee per transactions.**

Companies to implement this business model

BUNDLING:

Package related goods and services together. The *Bundler* buys products **with quantity discounts.**

Companies to implement this business model

LONG-RUN

Favourable regulations and **clear deciders**, Via Verde should try to negotiate quantity discounts with all Transport Operators, public and private. Despite increasing risks, it increases potential revenues and costumer satisfaction.

BUNDLING:

Package related goods and services together. The *Bundler* buys products **with quantity discounts.**

3. BUSINESS MODEL | RELATIONSHIP WITH COSTUMERS (3/3)

When presenting its products to customers, Via Verde may choose between two more business models, which are offering a subscription or individual titles.

Regardless of the outcome of the negotiations with Transport Operators, Via Verde should **present their offer to costumer** using **two alternatives**, which revenues and cost structure depends on whether Via Verde is capable of becoming a Bundler of the Transport Operators' offers or if Via Verde must assumer a broker role.

SUBSCRIPTION

Charge a subscription fee to gain access to a service

NETFLIX

Via Verde could **offer a subscription** for all the products in their portfolio, offering them as a **personalized bundle** when possible, i.e, when Via Verde could negotiate quantity discounts with Transport Operators. If the **role of Broker** would be assumed, Via Verde would **offer the available subscriptions** (e.g. Intermodal Travel Pass) charging a fee for that service.

PAY AS YOU GO

Charged for actual metered usage

edp

Another alternative is to Via Verde to **offer independent titles** and charge according with the negotiation outcome with each Transport Operator. Via Verde could offer **discounts trading the titles per subscriptions** depending on the quantity of titles bought per a particular client **when playing as a bundler**, as brokers cannot do it.

1 Johnson M., 2010, *Seizing the White Space*

4. GENERAL CONDITIONS

4. GENERAL CONDITIONS TO SUCCEED (1/1)

01

KEY PARTNERSHIPS

It is essential to create partnerships with mobility operators in order to be able to offer a relevant service to the consumers. Partners may be public or private entities, transport operators or regulatory entities.

02

TECNHNOLOGY

Via Verde must be technologically able to gather all the data from transport operators and consumers to feed the algorithm and so it works. Partners, mainly transport operators, must also be also compatible with the new forms of payment and ticketing .

03

GOVERNMENT SPONSORSHIP

The Portuguese government program mentions the creation of new types of integrated mobility. Government sponsorship ensures that regulatory entities and public transport operators have their expectations and interests set on creating partnerships.

04

WIN-WIN PARTNERSHIP

The basic criteria to ensure the success of a partnership is that all partners win with it. Thus, it is vital to create business models personalized to each partner, ensuring that their expectations are met.

5. CHALLENGES AND IMPLEMENTATION PLAN

5. CHALLENGES | TRANSPORT OPERATORS FRAGMENTATION (1/11)

Lisbon is characterized by its fragmentation in operators of public transportation, which can be a barrier when trying to develop and implement a MaaS solution in the city.

CHALLENGE 1

T.O FRAGMENTATION

The reality of Lisbon's public transportation is extremely different form other cities due to its high fragmentation and lack of regulated and organized management. This can be a difficult problem to overcome when implementing a MaaS solution.

In Lisbon, each mode of transport is covered by a number of transport operators with different routes and prices. Additionally, depending on the municipality, the transport operators are extremely different which makes it difficult and pricier for people to move around Lisbon.

The complex tariff system of public transportation is another difficult barrier to overcome. At the moment, the available tariffs is divided in four types of transport titles:

1. **Combined travel passes** – 307 possibilities resulting from agreements between two or more transports operators.
2. **Intermodal travel passes** – 10 possibilities across the different geographic areas.
3. **Individual travel passes** - 302 monomodal possibilities only valid in the selling transport operator).
4. **Individual tickets** – includes pay-per-ride and zapping and are only valid in the selling transport operator.

The existence of combined and intermodal travel passes makes revenue sharing between transport operators a sensitive and important matter. The actual revenue sharing was established a long time ago and does not take in consideration the actual numbers of each transport operator.

AML, 2016, Adequação da oferta da rede de transportes colectivos e simplificação do sistema tarifário da AML

5. CHALLENGES | TRANSPORT OPERATORS FRAGMENTATION (2/11)

The banking industry created a new entity to overcome the problem of fragmentation at the time.

CHALLENGE 1

T.O FRAGMENTATION

To overcome this problem, **a new entity could be created** to aggregate the transport operators and to manage and regulate their businesses in a organized way. This could be done similarly to what happened in the banking industry.

Portugal was one of the latter countries to install Automated Teller Machines (ATM). The banks in Portugal were very fragmented and each had its own different needs, objectives and priorities. To solve this, SIBS was created as a new entity owned by all the banks operating in Portugal and that owned all the Portuguese ATM machines. SIBS was responsible for the initial investment in installing ATM machines and for its maintenance and charged small fees to each bank per money withdrawal.

SIBS FORWARD PAYMENT SOLUTIONS

MB MULTIBANCO

MB NET

HOW CAN THIS BE APPLICABLE TO MAAS AND TO VIA VERDE?

5. CHALLENGES | TRANSPORT OPERATORS FRAGMENTATION (3/11)

The creation of a new mobility entity would function as an integrator of the most important parties needed for the establishment of a MaaS solution in Lisbon.

CHALLENGE 1

T.O FRAGMENTATION

Likewise, Via Verde could create a completely **new mobility entity**, whose owners would be Via Verde itself and all key partners. This new entity would be the Data Aggregator and Trusted MaaS Advisor and would be **managed and orchestrated by Via Verde**. Additionally, Via Verde would be in charge of negotiating the equity of each party in the entity.

NEW MOBILITY ENTITY

VIA VERDE

+

BENEFITS

- The negotiations with each Transport Operator will be easier to start and to maintain.
- The entities will be motivated to be a part of the offer.
- The interests of each party will be better served.
- The revenue sharing will be fairer and a more organized process.
- The investment costs will be easily shared among the players.

5. CHALLENGES | FAST FOLLOWERS (4/11)

Despite an enormous technological and customer uncertainty, there is a mad rush by hundreds of firms to enter the market with a new tech product or service.

CHALLENGE 2

FAST FOLLOWERS

Via Verde's proposed positioning as a mobility integrator does not only present first mover advantages. History shows examples of numerous technology pioneers that were surpassed by fast followers – which is known as the BURNOUT OF PIONEERS.

WHY

There are two major forces that explain why firms act as fast followers:

INFORMATION CASCADE
The more risk-seeker firms enter, the more risk-averse firms will believe it is a good business opportunity and enter as well.

PROVISION OF INFRASTRUCTURE
New markets require new types of production skills, specialized inputs and the education of buyers. Once new entrants develop these, others can free ride.

WHO

There are three kinds of new entrants according to their provenience:

1. Entrepreneurs operating in horizontally linked markets
   - High understanding of the business and are able to spot profitable opportunities.
   - Have necessary skills.

2. Entrepreneurs operating in vertically linked markets.
   - Suppliers or buyers.
   - Are a privileged source of information.

3. Entrepreneurs who know the new technology by virtue of working on technological trajectories close to the market.

Markides, C. & Geroski, P., 2005, Fast Second: how smart companies bypass radical innovation to enter and dominate new markets

5. CHALLENGES | FAST FOLLOWERS (5/11)

Despite an enormous technological and customer uncertainty, there is a mad rush by hundreds of firms to enter the market with a new tech product or service.

CHALLENGE 2

FAST FOLLOWERS

All in all, being a first mover is not a guarantee of success. The firms that will win the battle are the ones that are able to set a DOMINANT DESIGN.

DOMINANT DESIGN → Configuration and features of a product that the majority of an industry (producers and consumers) accept as a standard. It represents the **MASS MARKET SOLUTION**.

In order to sustain its advantages of a first mover, Via Verde is advised to establish a dominant design with its product. Thus, Via Verde should work on accomplishing the following:

NETWORK EXTERNALITIES

It occurs when the product's benefits to each individual user increases with the number of other users.

There are several app functionalities that can make the users benefit from network externalities. One example is ***VV BOLEIAS***. The more users, the more available rides.

LOCK-IN EFFECT

It occurs when it is **cheaper** for users to stick with the actual product than switching to (even) superior technology. That is, the lock-in effect occurs when switching costs are high.

Via Verde is advised to influence the switching costs of its users. This could be done by attributing **POINTS** for each trip, that can be exchanged for parking minutes.

Markides, C. & Geroski, P., 2005, Fast Second: how smart companies bypass radical innovation to enter and dominate new markets

5. CHALLENGES | ACCOUNT SHARING (6/11)

The emergence of new technology-based services brought with you the account sharing challenge.

CHALLENGE 3

ACCOUNT SHARING

Services such as Netflix and Spotify have been suffering from account sharing from a significate amount of its users.

"Twenty-one percent of streaming viewers ages 18 to 24 said they had accessed at least one digital video service such as Netflix, HBO Now or Hulu by using **LOG-IN CREDENTIALS FROM SOMEONE OUTSIDE THEIR HOUSEHOLD** at some time. Overall, 12% of adults said they did the same thing"[1]

As our recommended solution requires a profile creation (individual), it is essential for Via Verde to take in consideration that its users may share their profiles with non-users. Additionally, **there are two main problems that derive from account sharing**:

- Regarding REVENUE, account sharing may make Via Verde lose potential revenue from the non-users that are accessing the app.
- DATA-wise and due to account sharing, Via Verde may have distorted information regarding the actual mobility preferences and mobility patterns of its users, since one account may be used by more than one person.

There are two technologies that can be used to tackle the problem of account sharing:

SINGLE LOGIN

It is technologically possible to limit an app access to a single smartphone or tablet.

However, this would limit extensively the app usage in the case of users that have more than one smartphones (or a smartphone and a tablet).

FINGERPRINT FACE ID

Not all smartphones have this kind of technology.

Nevertheless, the rapid smartphone evolution will allow this technology to protect the apps that require an individual login.

[1] *Fortune, 2017, People Sharing Passwords Are a Growing Problem For Netflix*

5. CHALLENGES | BIG DATA (7/11)

Organizations constantly face challenges when implementing their big data strategies.

CHALLENGE 4

BIG DATA

As previously seen, having access can bring advantages to its owner. However, this advantages are only valid if its managed and treated correctly, which can be quite challenging.

Via Verde will need to tackle several challenges to fully take advantage of the available data. These challenges are mainly the following:

DEALING WITH DATA GROWTH

The principal challenge of big data is storing and analysing all the information.

Companies are developing and implementing different technologies to deal with the data growth. Regarding storage, there are a variety of technologies – compression, deduplication and tiering – that can reduce the amount of space and costs of big data storage. Regarding management and data analysis, companies can find the best insights with analytics software, artificial intelligence and machine learning.

ENSURING GOOD QUALITY

The growth of companies impacts positively the amount of data produced. Consequently, inconsistent data, duplicates and missing data may arise from the large amounts of data, resulting in poor quality data. Since the data obtained is used to make predictions and decisions, it should be as accurate as possible. For this reason, Via Verde must make data testing a high priority issue to ensure the optimization of the algorithm.

Datamation, Big Data Challenges
SAS, Five Big Data Chalenges

5. CHALLENGES | BIG DATA (8/11)

Organizations constantly face challenges when implementing their big data strategies.

CHALLENGE 4

BIG DATA

RECRUITING AND RETAINING TALENT

Via Verde will need professionals with big data skills in order to develop and implement the best practices of big data. Due to the increasing demand of big data experts, salaries have increased dramatically.

SECURING BIG DATA

Security has become a huge concern for companies with big data stores. The large amounts of data generation can make companies unable to maintain regular checks. Due to the importance of the data in this offer, Via Verde must guarantee that all the big data is immune to security threats, risks and vulnerabilities.

VALIDATING DATA

Data governance is the process of accepting big data insights as accurate, usable and secure. Since big data is relatively a new concept, new regulation is expected to arise. Thus, Via Verde should set up a team to oversee data governance and keep up with the development of new policies and procedures and guarantee the accuracy and usability of the data.

Datamation, 2017, Big Data Challenges
SAS, Five Big Data Chalenges

5. CHALLENGES | BATTERY AND MOBILE DATA (9/11)

It is important to ensure that consumers can always stay connected, since it impacts the performance of the app and the user experience of the clients.

CHALLENGE 5
BATTERY AND MOBILE DATA

Mobility devices are being used for everything we do nowadays. For this reason, the battery life and mobility data of smartphones and tablets is essential and is becoming a big challenge for the industries and activities that are present in mobile.

Focusing on our offer, the need of a smartphone of tablet to access the mobility packages is mandatory since it is done through an app. For this reason, Via Verde should take in consideration the challenge of battery and mobile data since it can compromise the the user experience and consumer satisfaction.

A couple solutions can be implemented to tackle and diminish the effects of both challenges:

BATTERY

I. Develop of a complementary card that allows the access to pubic transportation when the battery dies.
II. Build power stations in the principal interchange zones and inside the trains, buses and ferries.
III. The app should be developed to consume minimal battery.

MOBILE DATA

I. Available Wi-Fi inside public transportation and in the stations and interchange zones.
II. Agreements with the main telecom companies to include the access to the app in some of the available deals – students, companies, etc.

We believe that the rapid digital and technological evolution will tackle this challenge itself, since more smartphones with better battery life will de developed and 5G will soon be a reality.

AndroidPub, 2016, Solving the issue of mobility app battery drain

5. IMPLEMENTATION PLAN | PARTNERSHIPS (10/11)

The implementation of the partnerships is divided in four stages: identifying and developing, implementing and managing, assessing and revising, and sustaining impact.

	1) IDENTIFYING AND DEVELOPING	2) IMPLEMENTING AND MANAGING	3) ASSESSING AND REVISING	4) SUSTAINING IMPACT
ACTIVITIES	▪ Identify potential partnerships in the needed segments ▪ Map the resources and capabilities of each potential partnership ▪ Start discovery meetings with each partner to build relationships ▪ Develop the business models for each partnership (functions and gains of each party) ▪ Select the most suiting partners according to Via Verde's interest	▪ Conclude the partnership agreements ▪ Co-design and co-create each partnership ▪ Elaborate a governance framework ▪ Acknowledge individual and partnering objectives ▪ Install the needed infrastructure – physical and technological ▪ Launch the communication of each partnership	▪ Monitor and evaluate the partnerships ▪ Fine-tune processes and practices ▪ Evaluate consumers' feedback	▪ Invite new partners ▪ Scale up ▪ Institutionalize the partnerships ▪ Learn lessons from each partnership ▪ Assess exit possibilities
OUTPUTS	○ Potential partners in each segment ○ Business model for each potential partner ○ Due diligence of the partners ○ Pilot product ○ Implementation Plan - physical and technological infrastructure and product ○ Communication Plan – product and partnerships	○ Finalized agreements with the different partners ○ Product launch with offers respective to the chosen partners ○ Metrics for evaluation	○ Evaluation report ○ Feedback ○ Financial return	○ Financial analysis ○ Know-how in the partnerships segments

KPMG, Unlocking the Power of Partnership

5. IMPLEMENTATION PLAN | PRODUCT (11/11)

The implementation of the product is divided in three phases: analysis, set-up and pilot.

	1) ANALYSIS	2) SET-UP	3) PILOT	ROLL OUT
ACTIVITIES	▪ Analyse the market trends and the consumer preferences in the mobility sector in Portugal ✓ ▪ Conduct a national and international benchmark ✓ ▪ Define the market potential ✓ ▪ Assessment of potential relevant partnerships ✓ ▪ Establish the implementation needs and standards at an operational level (Data Aggregator, Infrastructure, Processes and Players) ✓ ▪ Define the business plan guidelines	▪ Agree the terms of each partnership ▪ Conclude each partnership ▪ Prepare the needed infrastructure – physical and technological ▪ Product development – app and algorithm ▪ Design the marketing plan ▪ Design the communication plan	▪ Communication Plan take-off ▪ Product launch ▪ Monitor results ▪ Customers' feedback ▪ Fine-tune processes and practices ▪ Consider expansion to other transport operators and geographic areas	
OUTPUTS	- Consumers' trends and preferences - Best Practices - #Current and potential customers - Potential key partners - Business Model - Implementation plans - Pilot project	- Agreement with each partner - Implementation of infrastructure – physical and technological - App - Algorithm - Marketing and communication deliverables	- Feedback - Improved predictions - Financial return	
QUICK WINS	o Business Plan guidelines o Via Verde's potential partners o Via Verde's functions and needs	o Model for each partnership o Corporate Governance outline o App	o Established partnerships o Effective penetration in AML consumers	

6. FUTURE WORK

6. FUTURE WORK (1/1)

1. STRATEGIC MARKETING PLAN FOR THE PRODUCT

- Product (Target Market, segmentation and Positioning)
- Pricing
- Promotion (Integrated communication plan)
- Place (Distribution Channels)

2. CORPORATE GOVERNANCE MODEL

- Definition of rights and responsibilities of each player in the new structure

3. BUSINESS PLAN

4. DEVELOPMENT OF THE MOBILE APPLICATIONS (iOS e Android)

AGENDA

I. DIAGNOSIS | URBAN MOBILITY LANDSCAPE

1. The Future of Urban Mobility
2. Mobility as a Service
3. Lisbon: The Big Picture
4. Trends Impacting Mobility in Lisbon

II. ANALYSIS | MAAS ECOSYSTEM IN LISBON

1. MaaS Ecosystem in Lisbon
   1.1. MaaS Customers
   1.2. Transport Operators
   1.3. Data Aggregator
   1.4. Trusted Mobility Advisor
2. Via Verde: A Strategic Player

III. RECOMMENDATIONS | IMPLEMENTATION OF A MAAS SOLUTION IN LISBON

1. How Can Via Verde Create Value?
2. Key Partnerships
3. Business Model
4. General Conditions
5. Challenges and Implementation Plan
6. Future Work

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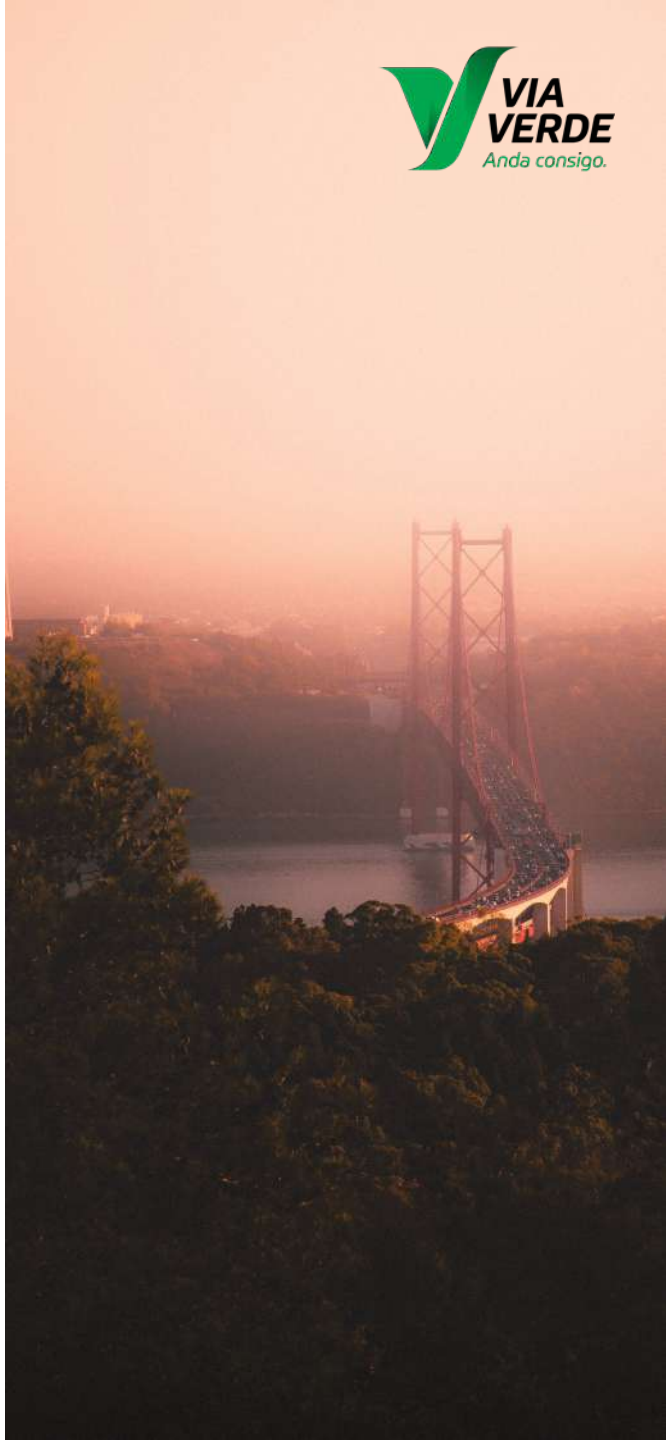

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