Shared Mobility with Light Electric Vehicles (ePTW)
Let's look at the mobility in Barcelona

Barcelona has a high population density, with 1,600,000 inhabitants on 100 km². (Density: 16,000 inhabitants/km²)

Barcelona is the center of one of the biggest metropolitan regions in Europe with 164 municipalities and 4,4 millions inhabitants. (Density: 1,359 habitants / km²)

0,57 millions trips per day (40% of private) are done by Powered Two Wheels (PTW)
(a picture is worth a thousand words)
Relevance of PTWs in Barcelona

Looking at the ratio of PTWs to Cars sold we can identify that Spain has a strong market share for PTWs.

The PTWs registered in Barcelona Metropolitan Area represent the 22% of the total amount of vehicles.

BUT,… the amount of Electric-PTWs is almost the same as the number of Electric-Cars

Sources: European environment agency, International Transport Forum, Live Platform
ePTWs success in Barcelona
Shared Mobility Systems

![Car sharing innovation curves – Selective](image)

- **Demand**
- **Car sharing 1.0: Eco niche**
- **Car sharing 2.0: OEMs get on**
- **Car sharing 3.0: Mass market**

**Features**
- Station based model
- Complicated customer processes: reservation, information provisioning
- Target group – Eco-oriented customers

**Source:** Arthur D. Little

- Free floating & private P2P models
- Smart phone based
- Premium cars pilots
- Is it about community?
- Is it about seamless and integrated solutions?
- Is it about convenience?
Why not an ePTWs Sharing System?

- Car sharing innovation curves – Selective
  - Demand
  - Car sharing 1.0: Eco niche
    - zipcar
    - Hertz
    - Hertz
  - Car sharing 2.0: OEMs get on
    - Quicar
    - DriveNow
  - Car sharing 3.0: Mass market

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Only cars?
In 2011 Creafutur and LIVE Platform decided to launch a project in order to attack “the economic, sanitary and social problems that the traffic, pollution and use of public space provoke”.

The project main idea was to create a public service based on share a fleet of electric vehicles (cars, motorcycles and bikes) in an open regime, this mean that it can be taken and left at any time and place. At the end of the use it would not be necessary to return the vehicle to a station to recharge the batteries.

The critical point of this business model was how to solve the recharging of vehicles. The development of a system of swapping of batteries became essential.
Motit was the first company to offer the motosharing service in 2012 (Creafutur+GoingGreen)

- Partially founded by EU projects (Molecules, SmartCEM, MyWay, Gmotit)
- The motorcycle was specially designed to give the motosharing service and has a GPS device installed (evolved to Galileo)
- Two kinds of motorcycles: equivalent to fuel versions 49cc and 125cc
- 200 motorcycles around the city
- Different packs to satisfy customer needs and differentiated rates for weekly days and weekends
- Also offers the service in other cities in Europe like Milan and Paris
- A good-looking motorcycle in a retro style (German supplier EMCO)
- The motorcycles have more autonomy than Motit: 60 km (37.3 miles)
- Only 60 motorcycles around the city of Barcelona
- The app is the most intuitive, easy and fast in the Spain market
- Gives bonus packs to the customers in order to decrease the service cost
- Only presence in Spain but in main cities: Barcelona, Madrid, Sevilla, Zaragoza and Valencia
- The newest company offering the service. April 2017.
- **The most competitive cost (0,18c/min)** and also gifts to the new customers (15 free minutes)
- Up today 50 motorcycles Torrot around the city, but increasing to 300.
- Only presence in Spain but in main cities: Barcelona, Cadiz, Malaga, Sevilla and Madrid
- A low investment to operate in Barcelona: 200,000 euros
- **Two removable batteries** that allows an autonomy of 60 km (37,3 miles)
- A maximum speed of **70 km/hour** (43,5 miles/hour)
Coup

- The service is offered in Berlin with 1,000 motorcycles and in the summer of this year will be launched in Paris with 600 scooters. Coming soon to Barcelona.
- The service cost 3 euros for 30 minutes of riding or 20 euros for a full day.
- No subscription is required and the rates include insurance.
- The company Bosch is the owner and work with the Taiwanese motorcycles builders Gogoro.
- The batteries allow an autonomy of 80 km (50 miles).
- Vehicles with a maximum speed of 45 km/hour (28 miles/hour).
The biggest number of motorcycles around the city of Barcelona: 360 (640, end 2017)
'Sustainable mobility 360° vision, the charges of the batteries are made with energy from renewable sources and the vans used for the maintenance of the motorcycles are also electric
Based on an intuitive app that also allows to the customer to see all the motorcycles available around the city, the distance to reach it and the level of battery
A wide service area of 40 km2 (15,5 square miles)
eCooltra is part of the Cooltra group, a strong and established company of BikeRental in Spain
Also offers the service in other cities in Europe like Madrid, Rome, Paris and Lisbon
eCooltra, a success that points the way

eCooltra is the mirror where to look talking about operations and business model:

- Investment done to operate in Barcelona, Madrid, Roma, Paris and Lisbon: 7.5 million euros
- Vision of the company: “To become the leader of the motosharing with more than 20,000 motorcycles and presence in more than 15 cities in the next 5 years”.

Approximate Revenues of **235,000€** per month in Barcelona
Conclusions

- Europe and especially dense cities like Barcelona are an enabling environment to promote electric systems motosharing.

- Development of specific electric motorbikes with swapping battery capabilities are crucial to develop a successful business model.

- The motosharing business has been growing rapidly in recent years in Barcelona, going from near zero in 2015 to about a thousand electric vehicles available in 2017.

- With the increase in the number of motosharing users, the offer is also increasing with new and competitive solutions and with a more accessible cost.

- In order to succeed with the sharing solutions, it is necessary to understand the behavior of the users and the city to give customized solutions.

- The culture and behavior of mobility are changing, so it’s time to implement green solutions and ecosystems in strategic plans for small and large cities.