

Electric motorbikes sharing in Barcelona: the implementation of Motit service

Bicing, the public service of bicycle sharing, began to operate in Barcelona in 2007. While it is true that the topography of the city - with some neighborhoods located on small hills with slopes hardly unbridgeable with a bicycle-, did not seem the more appropriate to convert the bicycle in a starred mean of transport, eight years later, the project can only be described as successful. With over 95,000 subscribers, 6,000 bicycles, 420 points distributed throughout the city and an average of over 1,000,000 trips a month, the service, besides, has incorporated, since the month of December 2014, electric bicycles to its offer.



Bicing, the successful service of bicycle sharing of Barcelona

The first step in the commissioning of the electrical Bicing consisted of a pilot in which only a limited number of users (1,500 enrollees) had access to this service. Currently, the service has 46 stations, 41 of them in underground car parks. It is still early to assess the results and the reception given by the service users. And, however, an electric bicycle proposes only help pedaling, which differs quite of what a motorcycle can offer.



The electric model of Bicing

A successful sharing project as Bicing raised the possibility to provide a similar service with electric motorcycles. In a city as motorbike friendly as Barcelona - there are about 3,000 registered-, the chance to turn towards a mode of transportation more sustainable, but so in keeping with the traditional barcelonese mobility, is highly interesting for both policy-makers and professionals in the sector. Among the advantages of electro-mobility, there are noise reduction and the improvement of the quality of the air.

The company Going Green already has a project underway in Barcelona. It is Motit BCN, the first system of sharing of electric vehicles (whether cars or bikes) based on the concept of "mobility on demand" developed by the MIT of Boston. It involves an evolution with respect to current sharing systems in the sense that the user can make their urban routes with total freedom and flexibility, taking and leaving vehicles where suits him. And is that if any criticism can be done at the service of Bicing is that many users know how hard it is to be able to find a

free spot for the bike at according to which sites of the city at certain times. The system that Motit proposes, therefore, does not connote such problem, while it is true that it has against the issue of immediacy when it comes to use and that the area in which you can collect and return the vehicle is bounded and, for the time being, does not match the width of the city.

The design of a service that improves the mobility of citizens based on sharing a fleet of electric vehicles that can be picked up and left at any place and at anytime needed the development of a vehicle specially designed for this purpose. A vehicle that was electric, recyclable, urban and electronic. This was accomplished with the design The Core, a model of motorcycle that Going Green entirely manufactures in its factory in Palau-Solità i Plegamans (Barcelona). The model The Core for Motit is black and pink and, though it could reach 90 km/h, is limited to 65-70 km/h. It has a range of 40-45 km, allowing it to scroll smoothly through the city. Batteries are removable and can be changed in a few seconds. The motorcycle incorporates a helmet and a 7" screen

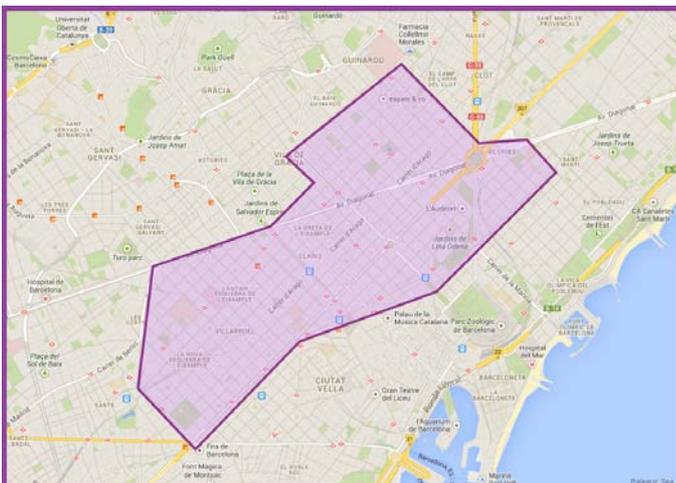
with a browser that guides the users to the destination of their choice. It runs without keys, since it is handled through the user's smartphone, which is a great convenience, and also an important technological innovation.



To access the service, the user must register through the web or the smartphone application. Once the user is registered, he can send a planned demand to the system through the smartphone application. The user indicates the origin and destination of the displacement and the system responds with the exact location of the vehicle that has been assigned, that will always be the closest and with enough battery to ensure the realization of the requested journey. Once at the destination, the user parks the vehicle and is available to meet the demand of another user. It is, without a doubt, a boost to the collaborative consumption. In any case, the service recommends making the reservation in advance (the day before) to ensure the availability of the service.

The reservation can be done per kilometre travel from one point to another, from €0.45, or by time of use of the electric bike, from €4 per hour. The insurance coverage is included in the price. The user can also invoke certain discounts if he rents a motorcycle regularly for his daily trips. There is even a fixed cost rate for tourist routes in Barcelona from €12. On the browser screen, the user receives instructions of which places to visit and how to get to them.

The project has the support and collaboration of companies and institutions such as the Barcelona city council, Creafutur Foundation or Nektria. The service is part of the European programme Molecules, in which participates the Barcelona City Council, and also the Ele.C.Tra project, which is the issue at hand. The first pilot tests were started in Barcelona in January 2013. In April went to trial and was in November of that year when the service was opened to all citizens. The data from the first months of operation were also taken into account by the project smartCEM which highlighted some of the benefits of a service such as this, like the reduction of CO2 emissions and the visibility given to electric vehicles.



The area of the city where Motit operates



The Core, the specially designed model for Motit service

For Gonzalo Alonso, CEO of Going Green, it is important to note that "is not a rental service of motorcycle, but a sharing: a motorcycle which is shared. Once it is used, it is parked and left available to the next user. The concept of Bicing, but with electric motorbikes." Another aspect that Alonso stands out from the service is the important role of new technologies in it. "It's a motorbike handled via smartphone, with which the user can turn on or turn off the bike, make or cancel the reservation and report issues".

In the presentation to the media, the former Mayor of Barcelona, Xavier Trias, highlighted the service as "a clear example of the commitment of the city to become smart city and put technology at the service of citizens". He also pointed out the innovation that involves the design of a motorcycle as the Motit, robust and able to adjust to the needs of a service like this. In fact, the particular design of the motorcycle makes it easily recognizable and acts as a deterrent against theft while the absence of chassis makes it little vulnerable in case of accident.

On the other hand, smartCEM project, which in addition to Barcelona, launched pilot tests in San Sebastian (Spain), Newcastle (United Kingdom) and Reggio Emilia (Italy), proved that one of the issues that acts to the detriment of the deployment of electric vehicles is the range anxiety, the fear that vehicle would leave us stranded or of being unable to find spots in which leave it charging. It would not be a concern that should be faced by Motit users since they can leave the motorcycle where they want (within the established area) and are the operators of the service who are responsible

for replacing empty batteries from vehicles by other loaded.

Motit service currently has 70 motorbikes. Initial estimations were of 500 motorcycles in a relatively short period of time; but they are not meeting these expectations. The zone in which Motit gives service is, for the moment, very limited. It is a central area which is well covered by the usual means of transport (underground and bus) and that, in addition to being very flat, has a proper number of bicycle lanes. We will be attentive to the development of the service.

In any case, initiatives such as this and the landing of rental companies of electric motorcycles with a more traditional profile have made of Barcelona one of the European cities where more vehicles of these characteristics circulate.



Former Mayor of Barcelona in the presentation of Motit to the media