



Factsheet

Valencia – Impacts, barriers and potentials of the E:Sharing system for business and private use

How can companies and individual users benefit from an electric car sharing fleet? Can electric car sharing offer a competitive alternative for sustainable mobility? The eBRIDGE Valencia pilot will show that it is possible.



eBRIDGE: Empowering e-fleets for business and private purposes in cities

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At a glance

The electric vehicle is an excellent opportunity to improve the quality of life in our cities by reducing the air pollution and damaging noises. Of course, it represents also a chance to reduce fuel consumption. According to estimations from the Institute for Energy Diversification and Saving (IDAE) depending on the Ministry of Energy, the introduction of 1,000 electric vehicles in a city would avoid 30,000 kg of greenhouse gas emissions per year and thus more than 2 tons of CO₂.

In Spain there is a commitment among the government, companies and other entities involved, for promoting and supporting the implementation of electric vehicles. This commitment has been expressed in some documents, such as the “Comprehensive strategy to boost the electric vehicle in Spain” and there is a permanent public economical support for purchase electric vehicles (Movele Plan promoted by the Ministry of Industry, for example).

Due to the barriers that are still slowing down the introduction of the electric car in our cities, car sharing can become a good instrument for companies and individual users to access to e-mobility. It also provides an opportunity for the automotive industry to introduce its models in the cities, fostering people to use this kind of technology and integrating it in everyday life.

Furthermore, the charging infrastructure is being developed all around the country, mainly with the support of public administrations. Electric companies and fuel companies have identified the market gap and set about closing it. Currently, the market of charging infrastructure and charging services is underdeveloped. Nevertheless, e-car sharing services provide charging infrastructure, partly solving this problem for their users and in some cases, promoting new charging point infrastructure in the cities.

The implementation of electric vehicles is of great interest to car sharing fleets. This way energy efficiency can be improved and emissions can be reduced. Car sharing offers a real alternative to private cars for companies and individual users.

The eBRIDGE Valencia pilot is evaluating an electric car sharing fleet for business and private mobility through the E:Sharing services provided in the Valencia Region. The lessons learnt will have influence on the system in the region itself, but will also serve as a basis for the consecutive e-mobility implementation on the Balearic Islands.

Introduction

Nowadays, people are getting more and more concerned about the environment and the general awareness about the influence of mobility patterns has increased considerably. This fact, together with the current technological development, represents an opportunity to introduce new business models, also in the field of transport, which encourage environmental-friendly habits and improve the quality of life in cities.

With this vision, E:Sharing started as the first full electric car sharing in Spain devoted to companies and individual users, operating in the Valencia Region. E:Sharing can be used in combination with public transport due to the implementation of the RFID user card, which can be used for both modes of transport. The conjunction between car sharing and electric vehicles allows for a contribution to a more sustainable mobility.

The eBRIDGE Valencia pilot offers companies and individual users the access to an electric car, avoiding barriers frequently associated with this kind of vehicles, such as initial investment, technological uncertainty, charging infrastructure, etc. So, E:Sharing covers mobility needs with competitiveness and flexibility, with added value for the environment.

After 15 months, the number of electric cars in the fleet and the number of users has increased and thus the targets have been met already. The interviews with the users have shown that their perception of electric cars changed after using them. However people are still worried about the cruising range even though electric car range fits in with their daily mobility.

This factsheet will show you how electric car sharing can be an option to serve the mobility needs in the cities for companies and individual users, helping to reduce the environmental impacts of travel activities.

Valencia Region, electro mobility and car sharing, let's tackle the challenge!

E:Sharing Valencia



Photo: MOVUS

With a population of 46 million (2012), Spain represents 9.36% of total European population (500,35 million)¹ and 90.97% of this population lives in cities that have between 50,000 and 300,000 inhabitants. Spanish modal share shows that trips are mainly walked/cycled (45.65% from Monday to Friday and 46.86% on weekend) and made by car and/or motorbike (42.29% from Monday to Friday and 46.35% on weekends).

Valencia Region has 5,120,266 inhabitants, representing 10.85% of the Spanish population. The region conform a territory highly industrialised, a strong tourism industry and a high weight of the agricultural sector.

Valencia Region has an extended background related to

¹ Eurostat, (2013b). Population on 1 January.



e-mobility and especially to electric car sharing, being one of the most active Spanish regions in this field. Since 2010, the Regional Government has supported the development of a regional strategy for electric mobility in the frame of the national funding E4 Programme – Energy Efficiency and Savings Programme. In particular, the Valencian Energy Agency, belonging to the public entity Valencian Institute for Business Competitiveness (IVACE-Energía) of the Regional Ministry of Industry, has funded different actions in this field: installation of charging infrastructures, acquisition of electrical fleets and deployment and validation of pilot experiences.

Furthermore, IVACE has participated in the European project INT-CARSVAL funded by the FP7-CIVITAS-CATALIST, aimed at the development of an interoperable and standardised electric car sharing system in the Valencian region. In the frame of this project, an Electric Car Sharing Committee was constituted which is coordinated by AVEN - IVACE. Now, this experience will be reproduced thanks to eBRIDGE in the Balearic Islands.

IVACE is also official partner of the European DOROTHY project and will coordinate the activities of the Valencian Region in order to implement new sustainable transport services for urban logistics, in particular, new electric mobility services.

In addition, the non-profit association “Valencian Electric Vehicle Association” (AVVE) was created in 2012 in order to foster the implementation of electric mobility in the region. The presidency of AVVE is hold by Renault, one of the most important manufactures of electric vehicles in Spain.

Even though the public administration put effort in promoting electric vehicles, only 298 units were sold during the first six months of 2014, 20 of them in the Valencia Region. This is 10% less than in the same period in 2013. In addition, the concept of car sharing is not widespread in Spain, especially in medium-size cities such as in the Valencia Region.

Consequently, this can represent an opportunity to position E:Sharing as a reference brand in electric car sharing services.

Since July 2014, the Valencian Health Regional Ministry has implemented an electric car sharing fleet in the Alcoy’s Hospital to provide sustainable mobility services for the home-care unit. This service is being rendered as new service inside E:Sharing, with a total of 8 full electric cars.

The use of electric fleets in companies will bring closer the use of e-vehicles to company managers but also to people, showing that it is possible to tackle the challenge of an efficient and eco-friendly mobility. The example of companies joining E:Sharing will show how it can be possible to include sustainable fleets with an innovative management for working trips. Furthermore, the employees can test the e-mobility, which facilitates the removal of some declared barriers to e-mobility. For example, users of E:Sharing declared some fear about the range of the electric vehicles, but after using the service and experience how it cover their daily mobility needs, this psychological barrier disappears. The local dissemination (mainly based on social networks and local press) of the project activity becomes crucial to reach the target.

E:Sharing, let's try a new mobility!

Electric car sharing is a possible way to reach more sustainable mobility patterns in the cities. For companies, it represents also an opportunity to introduce e-mobility as an added value by reducing fleet cost. The use of electric car sharing fleets not only has advantages for the companies, but also smoothens the integration of electric vehicles in everyday life.

E:Sharing, the pilot of Valencia is a full electric car sharing focused on companies and individual users. Presently, the E:Sharing fleet consists of 9 electric cars of different models and stations in Valencia, Sagunto, Paterna and Alcoy.

E:Sharing Valencia



Photo: MOVUS

E:SHARING STATIONS		
Address	Station configuration	
	Number of electric car sharing places	Number of public charging places
C/ Chile, 15 (public car park), Valencia	1	6
C/ Jerónimo Muñoz, 15. Public Parking, Valencia	2	6
C/ Cronista Chabret, 11. Sagunto (Valencia)	4	4
Av. La Hispanidad en plaza Manuel Azaña. Puerto de Sagunto (Valencia)	4	4
C/ Manyà, 24. Business Park, Paterna (Valencia)	1	1
Alcoy's Hospital (Hospital Virgen de los Lirios) Polígono de Caramanchel,s/n. Alcoy (Alicante)	8	0
Total	20	21

Source: Own table

E:SHARING FLEET	
Car	Number
Think City	4
Renault Fluence	3
Peugeot Ion	2
Total	9

Source: Own table

As it can be seen from the previous tables, the number of car sharing places is much higher than the number of cars. In fact, the service was planned to have more parking spaces than vehicles to facilitate the movement between stations. On the other hand, the service was



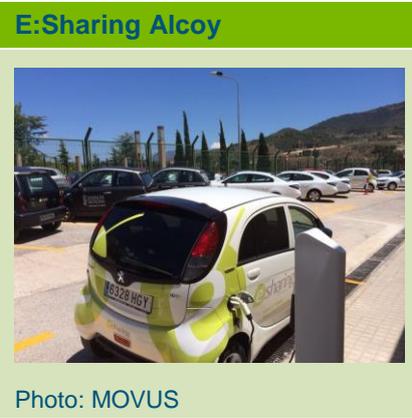
planned five years ago and the growth of the fleet size has been lower than expected, so the number of parking spots is now overstated.

In the frame of the eBRIDGE project, the electric car sharing concept was introduced to companies and public entities. The Regional Ministry of Health launched a public tender to cover the fleet supply and management for a new service of a home-care unit. This tender included the use of electric cars for that fleet and E:Sharing (MOVUS) won the bidding. The cars are located in Alcoy’s Hospital, being the first Hospital in Spain with an electric fleet. A total of 12 people have access to 8 electric cars.

At present, the main part of the E:Sharing users are employees of public administrations, but one of the targets of the project is to attract more users with different characteristics (private and professional/business profile).

E:SHARING USERS	
Type	Number (August 2014)
Employees of public administration	54
Employees of private companies	8
Individual users	0
Total	62
Source: Own table	

The eBRIDGE project will allow the validation and optimisation of the E:Sharing services. This way the service can be further improved and new instruments can be identified to make car sharing more attractive. Furthermore, a behavioural change will be promoted by the E:Sharing users and other companies, Automoviles Sagunto S.A. and GND S.A., with 1 and 3 e-cars respectively with electric fleets that have been involved in the project. These two companies, which are using the e-cars in their company fleets, agreed to collaborate with eBRIDGE sharing its experience and participating in the interviews and surveys developed in the frame of the project.



In collaboration with IVACE–Energía, CAIB will be responsible for the creation and coordination of the local authorities through the “Electric Car Sharing Committee” (ECSC). IVACE-Energía created this Committee in 2012 in the frame of FP7-INT-CARSVAL European project which brings together municipalities, political representatives and relevant stakeholders (including associations representing the citizens and specific user groups) for deployment of electric car sharing system in the region. The creation of this Committee in the Balearic Island will give a common point for discussion and promotion of electric mobility in the region, taking advantage of the previous experience of the ECSC of the Valencia Region.

In addition, the possibility of the expansion and replication of the E:Sharing business model in other cities will be illuminated during the eBRIDGE project.

Impacts, barriers and potentials of the E:Sharing system for business and private use

The sales figures of e-vehicles are far behind the expectations, even though the public administrations put effort in promoting sustainable mobility. One of the main barriers is the high price of the cars, but there are also other restraints. For example, the introduction of the E:Sharing services to new customers always needs to analyse their mobility needs in order to explain how the electric vehicle range fits with the daily mobility of the future drivers. Other barriers mentioned by the E:Sharing users are: the lack of a range of models, the cruising range, the long time needed to charge the vehicle and the lack of charging points.

Regarding electric fleets, the situation in Spain shows that in 2008-2009 only individuals/families and companies registered EVs. Nevertheless, in 2010, administration and public bodies registered 35.20% of the EVs, in part due to the implementation of the Action Plan 2010-2012 for the Electric Vehicle, MOVELE Plan (Source: Automotive Research Institute (IDEAUTO) - 2013).

A good point relating to the electric fleets is that in 2012, company ownership represented a high percentage (87.70%) of the new registrations.



On the other hand, there are not many carsharing operators in Spain (Avancar, Respiro Carsharing, Bluemove Carsharing, Clickcar, Cochele, Ibilek carsharing, Zem2all and E:Sharing-Movus). Thus, the general public hardly knows these services. As with the use of electric cars, it is necessary to put emphasis in explaining the benefits of car sharing to potential clients – may it be companies or individual users.

Another point that represents a barrier to introduce car sharing models in Valencia Region is the size of the cities. Considering that the cities in this area are medium-sized, the traffic and parking problems are not as big as they are in big cities and that fact promotes the use of private cars.



With this frame work, the implementation of policies to promote sustainable mobility becomes crucial. The Ministry of Energy, through IDAE (Institute for Energy Diversification and Saving), has published the document “Guide for the promotion of the electric vehicles in the cities”, which defines the strategies that can be followed classified into “Demand promotion”, “Development of infrastructure” and “Economical promotion”.

From the point of view of the E:Sharing experience, the biggest potential to continue with the expansion of the service is to involve companies to substitute their traditional fleets by an electric car sharing fleet. The diversity of tariffs is an attractive point because the services can be chosen according to their mobility needs. For example, a company can just have some cards for their employees (sharing the car with other companies and private users), but can also have exclusive access to a specific car for some days by week. This fact allows to suit companies with different sizes. Nevertheless, the main factor to attract companies is the proximity to the car station.

It is also possible to implement an electric car sharing fleet within the E:Sharing services only for one company. That means that some cars are located inside the company and only the employees of that company have access to the car. This has been the case for the Alcoy’s Hospital due to the intensive demand of vehicles.

During the pilot, the users have been interviewed. The poll revealed that 77% of the users do not plan the trip in advance and the main trips are urban (that fits in the km per trip registered). It has to be mentioned that all users made a positive valuation of their experience with the electric car, but none of them declared interest in buying an electric vehicle. The main reasons declared was the high price and the difficulty to have a charging point at home.

When did you plan this trip?	
During the day (1)	77%
1-2 days ago (2)	8%
During this week (3)	15%
1-2 weeks ago (4)	0%
3 or more weeks ago (5)	0%
Source: Own table	

What was your main electric vehicle use?	
Urban (mainly town / city centre) (1)	54%
Suburban (mainly suburbs) (2)	8%
Interurban (between towns / cities) (3)	38%
Motorway (mainly motorway) (4)	0%
Source: Own table	

General experience with the vehicle	
Very negative (-3) (-3)	0%
(-2) (-2)	0%
(-1) (-1)	0%
Neither negative nor positive (0)	0%
(+1) (1)	23%
(+2) (2)	31%
Very positive (+3) (3)	46%
Source: Own table	



Results

The main activity during the first months of the pilot in the frame of eBRIDGE has focused on collecting data on user feedback regarding the electric vehicle and car sharing perception to adapt and improve the business model of the service as it turned out to be primarily more useful to focus on companies instead of particular users. Private users should have a car sharing station near their home which requires more infrastructure deployment. Company fleets, for its characteristics, can have the infrastructure more localized achieving economies of scale for the electric fleet management.

Currently, the main users of E:Sharing are companies that want to include sustainable mobility in their daily work trips, and at the same time achieve economic savings over the purchase of a vehicle, a conventional rent or payment of mileage to employees.

Up to now, each use of the electric vehicles covers approximately 25 km. In one year, there was not any incident of running out of batteries.

At the Alcoy's Hospital (Hospital Virgen de los Lirios), 16 employees have access to the electric vehicles during their work hours to cover the home health care service. At first, these persons raised their concern about the range of the vehicles, but after one month of trial, their worries had disappeared. Another curious fact could be registered: At the beginning the users preferred the largest vehicles from the models available, but later the use of the more compacts ones increased. The vehicles were used for business trips only.

The target customers of the service are companies and individuals. However, it has achieved a major increase in the number of companies, but the number of individual users stagnated. This can be explained partially by the cultural factor, where vehicle ownership is closely linked to their use and new services such as car sharing are being introduced in the market very slowly. For professional users, it results easier to join the service, because this decision is taken by the company fleet managers. For private users, we have to tackle with cultural aspects and it is necessary to explain the benefits of the service, to provide a realistic calculation of the costs of private transport and to have other pull factors such as parking or access policies.

Potential users want to have a station with quick and easy access to the vehicle, and located very close to their place of residence or work. Given the size of the current E:Sharing fleet and the number of stations, the attraction of such clients is complicated.

In the case of company fleets, the factor of the situation remains critical, but it is easier to generate new bases for parking and charging if the size of the company is big enough and expenses can be covered with a high use of the cars, as in the case of Alcoy Hospital.

The car sharing service release the customer of the uncertainties relating to the acquisition of an electric, but even more than with normal cars, the service reliability is key point. In this sense, the use of electric vehicles needs a little learning effort for the driver (vehicles with automatic gear, different response to the accelerator, limited autonomy, etc.), combined with the difficulty of finding points to recharge. At the same time, individual users who choose to access the service tend to have a positive mindset towards electric mobility and consider the service as a way to access this type of vehicle. However, in the case of companies, the service is provided to the employees, the reliability of it is a prerequisite for success and



acceptance of the service.

Conclusions

The current outcome of the case study shows that electric mobility is attractive to end customers. After learning short adaptation phase, the users get used to the vehicle and become familiar with it. They become aware of the reliability of the vehicles and they feel confident with the electric mobility. However, there are some barriers relating with the cultural frame work, the lack of a developed market and the lack of infrastructure. Car sharing can answer some of these problems because it releases the user from the purchase and maintenance of the vehicle and provides the charging infrastructure. The following steps will be aimed at raising awareness of the car sharing and e-car sharing, showing how the service can meet the mobility needs on a cheap and easy way.

The customers of E:Sharing appreciate the high reliability of service and they are also committed to the environmental benefits. In addition, they value positively the experience of driving an electric vehicle, pointing at this fact itself as an attractive element for the service.

The greatest progress achieved within the pilot has been implication of a public administration that has supported the implementation of a new system of home care attendance with electric vehicles in the Alcoy's Hospital. This initiative has also had an impact on press, which has served to disseminate the project.

The E:Sharing is in constant adaptation and evolution to be able to provide a quality service that meets the demand. Within eBRIDGE, the business model has been adjusted to enhance the fleets for companies' management. The mixed use of the vehicles for businesses and for individual users gives a greater number of uses per vehicle, which is quite crucial in order to balance the costs.

The Project



eBRIDGE is a co-funded EU project to promote electric fleets for urban travel in European cities. The project aims to bring innovation and new technologies to make today's mobility cleaner, more efficient and sustainable.

The project explores alternatives to the current mobility patterns and evaluate whether electric mobility is a feasible option to make cities cleaner and more sustainable.

The seven pilots, Berlin (Germany), Milan (Italy), Lisbon (Portugal), Vigo (Spain), Valencia (Spain), a selection of Austrian municipalities and Carmarthen (Wales) are developing actions to optimise operational fleet performance, test and launch solutions to increase the convenience and ease of use of car sharing offers and finally, raise awareness among the target groups through engaging marketing approaches on the suitability of electric mobility for urban transport and commuting.

The eBRIDGE team involves technical experts, academics, associations, public administrations, mobility providers and public transport and car sharing operators.



Global challenges need smart solutions.

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