

Sharing Mobility: The Case of Madrid

María del Mar Alonso-Almeida
Universidad Autónoma de Madrid
Faculty of Economics and Business Administration
28049 Madrid (Spain)
mar.alonso@uam.es

Abstract. Living in mega and big cities is very hard and is changing mobility behaviour. Sharing economy has put forward mobility alternatives to traditional means among others carsharing. Madrid is the capital of Spain and the largest city in the country. It has a population of around 3.5 million inhabitants and is the third largest city in the European Union after London and Paris. Moreover, Madrid suffers all the typical problems of big cities. Features of carsharing and other type of sharing mobility will be analyzed and carsharing will be evaluated using ethnography methodology. Three different sources of data were used: researcher' notes, in-depth interviews and open conversations and focus groups with participants. Results shown people use carsharing when they perceive business and personal value in doing so. Moreover, carsharing companies will continue expanding in Madrid. Implications for management and policy makers are enunciated.

1 Introduction

Living in mega and big cities is very hard for mobility. Congestion and environmental problems are growing and transferring into a mobility problem. Sharing economy has put forward mobility alternatives to traditional means. Thus, the so-called sharing mobility enables individuals to enhance their mobility choices without the tight limits associated to traditional means of mobility ownership or public transport. The most popular of all sharing mobility choices is carsharing.

Carsharing is operating in bigger cities, all continents and gaining in popularity worldwide (Shaheen et al., 2018). It is growing in urban areas even



where there is good public transport (De Luca and Di Pace, 2015). In fact, Europe accounts for 50 per cent of the carsharing market, and growth of more than 50 per cent is forecast for 2020 (Deloitte Monitor, 2017).

However, it is not the only one. It is “one of many shared-use mobility services that are focused on transportation resource sharing” (Bellús-Amet et al 2014, pp. 27). Besides that, there are a variety of sharing mobility choices such as motorbike, bike and scooter. Dedicated ride sharing platforms and dedicated ride sharing apps are mostly supporting these initiatives. Although, another social media platforms such as Facebook could be used to post offers of seats available for sharing (Santa and Shuleska, 2019).

The aim of this paper is shed light in sharing mobility offering and impacts through the study of one of pioneers’ cities in Europe. The main reason is shared mobility is one of the most important and wide aspect sharing economy.

In this paper, by means of ethnographic analysis, sharing mobility choices in Madrid and their preliminary perceived impacts have been studied.

2 Sharing Mobility in Madrid: Current situation

Madrid is the capital of Spain and the largest city in the country. It has a population of around 3.5 million inhabitants and is the third largest city in the EU after London and Paris. Madrid suffers all the typical problems of big cities. In Madrid, the most used means of transport is the subway, followed by private cars and public transport (Alphabet, 2017).

This city offers two types of car-sharing (1) Freefloating and (2) Roundtrip, being freefloating is the most extended model. Table 1 shows the carsharing features in Madrid, whereas Table 2 shows the motosharing ones. As it can be seen, the figures reach more than 2,708 units of carsharing, 4,170 units of motosharing and more than 8,610 sharing electric scooters. Therefore, the chances for shared mobility in Madrid are huge, and it is even being called THE SHARED

MOBILITY CITY because no other city offers such a number of shared mobility choices. Such choices can be seen in Table 1 and Table 2.

The next step to push sharing mobility in Madrid is Maas initiative (Mobility as a service). It is an app which deals with public transportation, BICIMAD (Madrid bicycle sharing system), carsharing, motosharing and taxi. All these mobility choices are georeferenced. This app was launched in March 2019 and soon is expected to provide new functionalities such as calculation and comparison of routes, reservations and payments. Moreover, it will enable the selection of origin and destination with the possibility of choosing different trip types: fastest trip; cheapest trip; ecological trip or healthy trip.

Table 1. Features of the carsharing choices in Madrid

Company	Operation start year	Type of car	Number of cars (in 2019)	Number of seats	Mobility area	Other information
RESPIRO	2010	Combustion Hybrid and Electric Cars	250	5	Community of Madrid	Roundtrip
BLUEMOVE (changed name to ubeequ in 2019)	2010	Combustion Hybrid and Electric Cars	250	5	Community of Madrid	Roundtrip
CAR2GO	2015	Electric Car	500	2	Madrid Central	Freefloating; Car2Go for businesses

EMOV	2017	Electric Car	600	4	Madrid central and near surroundings	Freefloating; Emov for businesses
ZITY	2018	Electric Car	658	5	Madrid Central, wide surroundings, airport and central station.	Freefloating;
WIBLE	2018	Plug-in Hybrid Car	500	5	Madrid Central and peripheral area in certain points	Freefloating and roundtrip

Source: Based on Suarez (2018) and companies web pages in 2019.

Table 2. Features of motosharing choices in Madrid

Company	Operation start year	Type of motor bike	Number of motos (in 2019)	Autonomy	Availability	Other information
ECOOLTRA	2017	Electric L1	1000	80 Kms	24 hours	Freefloating; 2 motorcycle helmets; 18

		(50 cc)				years old for use required; regular driving licence.
MUVING	2017	Electric L3 (125 cc)	170	45-55 Kms	24 hours	Freefloating; 2 motorcycle helmets; 21 years old for use required; B1 driving licence or regular driving licence plus 3 years of experience
IosCOOT	2017	Electric L1 (50 cc)	1000	80 Kms	24 hours	Freefloating; 2 motorcycle helmets; 18 years old for use required; regular driving licence.
Movo	2018	Electric L3 (125 cc)	1000	65 Kms	6:00 am to 3:00 am	Freefloating; 2 motorcycle helmets; 21 years old for use required; B1 driving licence or regular driving licence plus 3 years of experience
COUP	2019	Electric L1 (50 cc)	850	100 Kms	24 hours	Freefloating; 1 motorcycle helmet; 21 years old for use required; regular driving licence.

Source: Xanaka.com (2019) and companies web pages in 2019.

Thus, there is a several choices of sharing mobility mainly pushing by local government. All those initiatives have public license, used public space for parking included in the price of service and assigned a certain area to move.

Following, it will be analyzed using ethnography method sharing mobility in Madrid.

3 Methods

Ethnography is a method very suitable when researchers want to explore the nature of a particular social phenomena when little information exists; work with unstructured data; investigate a number of cases and researcher participate in the observation of the phenomena (Aktinson and Hammersley, 1998). Researcher captures and provides neutral information through observation or having open conversations with phenomena' participants. For that reason Feagin et al. (1991) asserted that ethnography allows "an in-depth, multifaceted investigation, using qualitative research methods, of a single social phenomenon".

Thus, in order to conduct this study, three different sources of data have been used: researcher' notes, in-depth interviews and open conversations and focus groups with participants. Following, some results will be presented.

4 Results

Each type of source has been analysed and main results will be exposed. Firstly, researcher observation' notes. These notes have been suitable to explain how carsharing has been introduced in Madrid. First, it is important to differentiate among carsharing, personal vehicle sharing and ridesharing (Shaheen and Cohen, 2013; Shaheen et al., 2015).

Like Alonso-Almeida (2019, pp. 39) explains "in carsharing, the cars are used by a group of members for short periods and ownership, management and operations are run by a third party. Income is generated by charging club members a fee as well as charging for car use by time, distance or both". On the one hand, personal vehicle sharing works when people share their own car with other drivers for a price. Some of the platforms with this service runs in Madrid are Amovens and Socialcar. On the other hand, ridesharing consists in renting a seat for a certain journey but the vehicle is owned by a private citizen (Alonso-Almeida,

2019). In this type of service carpooling and vanpooling are included depending the type of vehicle used and the number of seats shared. Blablacar is the most known platform of this kind of service. Nor personal vehicle carsharing, either ridesharing is included in this study.

As it is possible see in table 1 are three critical moments in the deployment of carsharing in Madrid. First, two roundtrip companies –Respiro and Ubeeqo- started their activity in Madrid. Respiro has 250 vehicles in more than 100 parkings inside M30, the main road in Madrid. UBEEQO has similar characteristics but is a company with cars in Barcelona, Brussels, Copenhagen, London, Paris, Milan and Hamburg.

In order to understand what the impact of sharing mobility is in Madrid, two different actions are being developed: firstly, in-depth interviews with key players such as carsharing companies, policy makers and public transportation representatives; and secondly, sharing mobility users are being interviewed too.

Second critical moment was in 2015 when CAR2GO entered in Madrid like the first free floating solution. CAR2GO has 500 electric cars of 2 seats. It works together with local governments and legal street parking is free. Finally, in the period 2017-2018, three new companies started their operations in Madrid –EMOV, ZITY AND WIBLE- with the same characteristics than CAR2GO but with different operations area.

Thus, Madrid has a large offer of carsharing with different characteristics (see Figure 1) to comply the requirements of potential customers. The offer is very focused in the city center, surroundings and other relevant places such as Madrid airport or central train station. Moreover, this type of transportation is widening to businesses. Therefore, although slowly and very depending of local government and local laws promulgation, carsharing is introducing in Madrid since the viewpoint of the offer.

Secondly, in-depth interviews were conducted with key players: local government and carsharing companies. Some of the main preliminary results are

outlined below. From key-players interviews, the following positive impacts were identified:

- 1 More rational use of transport.
- 2 More use of public transportation in Madrid Central and surroundings (approx. 35% more).
- 3 Reduction on the total number of cars.
- 4 Increase of carsharing users.
- 5 Reduction of levels of pollution.
- 6 Decrease in the number of private cars in Madrid Central.
- 7 More public space for citizens.
- 8 Real possibilities to transform the city: more green and walking spaces, clear air and improvement in perceived of quality of life, among others.
- 9 Decrease of CO2 emissions.

Thus, key players stressed the positive impacts derived from carsharing. Especially, they emphasized two main impacts: benefits for the environment and benefits for citizens. Regarding environment, it is relevant in order to comply the European Union directives in this issue. Pollution levels in Madrid, as other big European cities, is high and measures to control and reduce it are needed. Carsharing contributes to control pollution in two ways: 1. Promote the use of electric cars with zero CO2 emissions and 2. Reduce the number of vehicles, as consequence the pollution. Regarding benefits for inhabitants are obvious: less pollution, less problems of health, more open spaces for walking among others.

Nevertheless, carsharing could have excess of offer at this moment and environment impacts could not be so clear. More research regarding carsharing use is needed to understand in depth the impacts.

Thirdly, focus groups were conducted with carsharing users and open conversations were maintained with carsharing users and other third parties affected such as merchants, shops in the city center and inhabitants. This latter information was completed with news in newspapers, media or webpages.

Shared mobility users and affected people contribute with others perceived positive aspects:

- Savings: more money for users.

- Flexibility: more choices for users.
- Feelings of freedom.
- No economic burden.
- Contribution to improve planet sustainability.
- Need to expand operations to more areas in Madrid.
- Possibility of baby seat in cars and other cars complements.
- However, they also asserted some disadvantages:
- Car not always is available close to the user.
- Some experience is needed to drive electric car.
- Complaints of the merchants, who have been denouncing the fall in sales.
- Inhabitants have changed their own mobility patterns.

Thus, carsharing users see carsharing like a choice to have flexibility and save money. Nevertheless, Alonso-Almeida (2019) found that carsharing users are influenced by business platforms and personal factors when they use carsharing. These author asserted that personal feelings about the advantages of using a carsharing are less important than the nature of the business model. Carsharing users need to obtain market advantages and utility to continue using carsharing.

Carsharing companies are working to provide more market advantages and better utility. Thus, some mergers are taking place among biggest companies. For example CAR2GO and DRIVE NOW are joining forces and become in SHARE NOW, the largest carsharing company in the world. Some advantages are: More than 20,000 cars worldwide with the combined international fleets of car2go and DriveNow; a greater variety of high-end vehicles to choose from smart, Mercedes-Benz, BMW, MINI; there will be more cities with carsharing, a total of 30 cities on two continents and access them with just one application (Car2Go, 2019).

Therefore, carsharing companies are changing and adapting to users' requirements by means innovation. Research about how the carsharing key

players will be in the near future and how they will change mobility is a priority line of research.

5 Conclusions

Some conclusions can be emphasized as follows: On the one hand, sharing mobility in Madrid is growing in cars number and type of sharing mobility choices and probably it will continue growing in the near future. In fact, Madrid is pushing sharing mobility launching new services. An example of it is an app which deals with public transportation, BICIMAD (Madrid bicycle sharing system), carsharing, motosharing and taxi. All these mobility choices are georeferenced. This app was launched in March 2019 and soon is expected to provide new functionalities such as calculation and comparison of routes, reservations and payments.

A number of reasons are guiding the local government decision to promote carsharing and other types of shared mobility. Among the most relevant are to comply the European commission directives regarding environment and provide more public space for citizens.

On the other hand, sharing mobility is changing the way citizens move in Madrid as citizens use more public transportation and other sharing mobility choices. Besides, there is a trend for people to delay the purchase of a car, being the main reason avoiding debts and costs associated to ownership. Like Alonso-Almeida (2019, pp. 41, 44) asserted “The emergence of a new materialism implies a change in consumers’ behaviour and their way of relating to companies. Today’s consumers perceive products and services differently”. Accordingly, “new materialism could represent a new paradigm in travel and transportation behaviour”. Thus, these assertions open the door to some new ways to mobility, new business models and new patterns of behaviour. Carsharing users perceive carsharing like a valuable choice in both the business model and personal utility.

Finally, people feel they are contributing to curb climate change by using sharing mobility. Carsharing is perceived as useful, the sustainability benefits of carsharing is very highly valued. One possible reason for this is that the carsharing service model in Madrid often uses electric cars, which are much less polluting than conventional cars. In addition, this service model maximises the use of cars, according to new materialism paradigm. Thus, carsharing could convert “the preferred choice for short urban trips, particularly as some of the world’s main cities are closing their city centre to cars with internal combustion engines in order to reduce CO2 emissions” (Alonso-Almeida, 2019, pp. 43).

This insight also shows that deeper studies are needed to analyse sharing mobility positive and negative impacts regarding city spaces, citizens, and traditional automotive industries among others.

Acknowledgements

This study is part of a larger research project entitled “ECOINNOVATION AND CIRCULAR ECONOMY Y SECTOR INDUSTRIES” (ECO2016-79659-R), which is financed by the Ministry of Science and Innovation within its aid programme for research & development projects inside Societal Challenges Program. This research has been also partially funded under the funding of the Spanish Ministry of Education, Culture and Sport within the framework of the State Program of Promotion of Talent and its Employability in R+D+i, National Mobility Subprogram, of the State I+D+I Plan.

References

Alonso-Almeida, M.M. (2019). Carsharing: Another gender issue? Drivers of carsharing usage among women and relationship to perceived value. *Travel Behaviour and Society*, 17, 36-45.

- Alphabet (2017). Foro de Movilidad. Available in: https://www.alphabet.com/files/2018-01/final_foro_movilidad_2017-es-es-1.pdf
- Atkinson, P., & Hammersley, M. (1998). Ethnography and participant observation. *Strategies of Qualitative Inquiry*. Thousand Oaks: Sage, 248-261.
- Ballús-Armet, I., Shaheen, S., Clonts, K., & Weinzimmer, D. (2014). Peer-to-Peer (P2P) Carsharing: Exploring Public Perception and Market Characteristics in the San Francisco Bay Area. *Transportation Research Record: Journal of the Transportation Research Board*, No. 2416, Transportation Research Board of the National Academies, Washington, D.C., 2014, pp. 27–36.
- Car2Go (2019). Car2Go joins to DriveNow. Available in <https://www.car2go.com/ES/es/joining-forces.html>. Revised July 28, 2019.
- De Luca, S., & Di Pace, R. (2015). Modelling users' behaviour in inter-urban carsharing program: a stated preference approach. *Transp. Res. Part A* 71, 59–76.
- Deloitte Monitor, 2017. Car Sharing in Europe Business Models, National Variations and Coming Disruptions, Available in: <https://www2.deloitte.com/content/dam/Deloitte/de/Documents/consumer-industrial-products/CIP-Automotive-Carsharingin-Europe.pdf>. Revised July 23, 2018.
- Feagin, J., Orum, A., & Sjoberg, G. (1991). *A Case for the Case Study*. North Carolina: University of North Carolina Press.
- Mijalche Santa, M., & Shuleska, A. (2019) Usage of Facebook for Inter-city Ride Sharing in North Macedonia. *Case Studies Series*. Available in: <http://sharingandcaring.eu/node/401>. Revised on July, 24, 2019.
- Shaheen, S., Cohen, A., & Jaffee, M. (2018). *Innovative Mobility. Carsharing Outlook*.
- Shaheen, S., & Chan, N.D., Micheaux, H. (2015). One-way carsharing's evolution and operator perspectives from the Americas. *Transportation*, 42 (3), 519–536.
- Shaheen, S., & Cohen, A.P. (2013). Carsharing and personal vehicle services: worldwide market developments and emerging trends. *International Journal of Sustainable Transportation*, 7 (1), 5–34.

Alonso-Almeida (2019). Sharing mobility: The case of Madrid.

Suarez, S. (2018). Carsharing en Madrid. Análisis de la Movilidad Urbana. Bachelor Thesis.

Xanaka (2018). Motosharing in Madrid. Available in: <https://www.xataka.com/vehiculos/motosharing-madrid-comparativa-todas-apps-motos-compartidas-para-moverse-capital>. Revised on July, 24, 2019.