

CAR SHARING IN THE EUROPEAN CITIES: THE CASE OF MILAN

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1 INTRODUCTION

Many European cities are grappling with the challenge of enhancing mobility while simultaneously improving air quality, road safety and reducing congestion. A survey of transport and mobility in the European Union (EU) found that the car is most frequently used mode of transport (56%) with average frequent trip length of 20 kms and journey times of 20 mins and occupancy rate of 1.7 persons/car (Firoello and Zani, 2015). EU urban mobility accounts for 40% of all carbon dioxide (CO₂) emissions of road transport and up to 70% of other pollutants such as nitrogen oxides (NO_x) and particulate matter (PM) (Entec, 2006; EC, 2016; EEA, 2015; 2016). An increasing number of EU cities are now adopting shared car-based mobility schemes to reduce car use, parking, vehicle emissions and to promote greener modes of transport.

The paper aims to review the current state of car sharing in Europe by: (i) a critical analysis of the literature; (ii) an overview of car sharing in the European Union; and (iii) the analysis of a detailed case study of car sharing in Milan, Italy. Finally, we discuss how Milan experience compares to other European cities.

We examine the peer-refereed articles identified through ‘scopus’ and ‘researchgate’ and scientific reports, presentations, workshop documents through a standard ‘google’ search with key words: ‘car sharing’ ‘European Union. A total of xxx article were identified, which illustrates the poor albeit increasing availability of information on the impact of car sharing in Europe.

2 CAR SHARING IN EUROPE

Car sharing allows individuals to have access to a private car when needed without the costs and responsibilities of full car ownership (Shaheen et al., 1998). Introduced as an innovative approach to urban transport problems, car sharing has evolved with the emergence of modern technology resulting in the existence of several types of car-sharing (see Table 1). Today car sharing can be seen as part of the ‘sharing economy’ which supports the increased utilization of durable assets, exchanging of services, and sharing of productive assets which claims to be fairer, environmentally friendly, participatory and socially-connected (Schor, 2014).

Car sharing users usually need to go through a pre-qualification process for verification of identity and driving record to have access to the vehicle. Users can then spontaneously use vehicles from various locations across a service or make advance reservations, if needed. Usage normally involves being billed in time increments (i.e. minutes/hours) or distance travelled (Le Vine et al., 2014).

Table 1: Types of Car sharing

<i>Round-trip</i>	Traditional car sharing requires users to return cars to the station where they were picked up. Although this may make it easy for operators to plan stocks, it is not convenient for users (Jorge and Correia, 2013).
<i>Peer-to-peer car sharing</i>	This involves individuals renting their private car to others for a fee for a round-trip use.
<i>Point-to-point Free floating car sharing</i>	As known as flexible car sharing, enables one-way journey with a specified geographic zone. This allows more trips to be captured than the alternative road-trip system, which can be only by small market share leisure, shopping and sporadic trips.
<i>Point-to-point stations based car sharing</i>	The user picks up a car from one parking station and returns it to another.

Based on Vine et al. (2014) Barth and Shaheen (2002)

The earliest European car sharing scheme was introduced in Zurich (Switzerland) in 1948 and remained in operation until 1998. Further public car sharing experiments followed in

Montpellier (France) and Amsterdam (The Netherlands) in the 1970s. By the 1980s car sharing organisations were being established in Denmark, France, Ireland, Italy, Norway, Sweden and the United Kingdom. Today an estimated 2,206,884 (2014) individuals participate in European car sharing^{1 2}. This is 79% (90%?) rise compared to 2006. Approximately 57,947 car sharing vehicles are in circulation which is a member-vehicle ratio of 38.1 (TSRC, 2016). A total of 65 per cent of Europeans are aware of the shared mobility concept with awareness is higher in those countries that have adopted car sharing schemes (i.e. Austria, Denmark, France, Germany, Luxembourg and Portugal) (Firoello and Zani, 2015). The average user of car sharing schemes tend to be young, single, well-educated males who live in locations with good public transport links (see Table 2) (Jorge and Correia, 2013; Kent and Dowling, 2013; Laurino and Grimaldi, 2012; Millard-Ball et al., 2005; Shaheen et al., 1998; Shaheen and Cohen, 2013; Vine et al., 2014).

Table 2: Characteristics of Users of Car Sharing

Characteristic	Sources
Men tend to use car sharing more than women	Steer Davis Gleave, 2015; Loose, 2010; Millard-Ball, 2005;
Average sage of car uses is 25-45 years old	Huwer, 2004; Muhr, 2009; TfL, 2008; Millard-Ball, 2005; Steer Davis Gleave, 2015
Car sharing members tend to be single and/or live in small households	Cervero and Tsai, 2003; Loose, 2010; Steer Davis Gleave, 2015; Millard-Ball, 2005
Car sharing members tend to be well-educated with average or higher income, costs sensitive and environmentally conscious	Cervero and Tsai, 2003; Synovate, 2007; Millard-Ball, 2005
Users live in locations served by public transport with char sharing seen as a means to increase individual mobility with regard to recreational/social activities	Haefeli and Matti, 2006; Millard-Ball, 2005

Source: Based on Laurino and Grimaldi (2012)

¹ Based on data of one-way car sharing.

² This includes Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, The Netherlands, Portugal, Spain, Sweden, Switzerland and United Kingdom

Motivations for participating in car sharing schemes range from personal convenience, social and environmental improvement to economic benefits derived from collaborative consumption (Shaheen et al., 1998). An examination of point-to-point station bases service *Autolib* in Paris found users are motivated primarily by economic considerations and convenience rather than environmental issues (Le Vine et al., 2014). A survey of *Carplus* members in England and Wales found that the ability to hire cars on a short-term basis and to make trips that cannot be made by other modes were main reasons for joining car clubs. This suggests that people joined to increase their travel options, rather than as a direct replacement for travel by public transport (Steer Davis Gleave, 2015). This finding is reinforced by Fiorello and Zani (2015) who found that individuals in the EU28 who are aware of car sharing are not significantly inclined towards using such schemes. In fact, one third of those surveyed are simply not interested in car sharing with half of those who are interested in car sharing do not see it as an alternative to car ownership. In general it is possible to conclude, car sharing is still not seen as an alternative to car ownership but rather to complement and extend existing mobility options.

Measuring the actual effects of car sharing on mobility is difficult, with interpretation of the impacts dependent on the methodology used (Firnorn, 2012). Graham-Rowe et al. (2012) found that out of 77 evaluations of measures to reduce car use only 12 were judged methodologically strong, and only half of these found the intervention reduced car use. However, the reported social and environmental benefits of car sharing schemes include lower greenhouse gas (GHG) emissions, reduced vehicle ownership, vehicle kilometres travelled as well as modal shift to walking, cycling and public transport (see Table 3) (Baptista et al., 2014; Fellows and Pitfield, 2000; Litman, 2015; Martin et al., 2010; Steer Davis Gleave, 2015; Shaheen and Cohen, 2013). An assessment of Car2Go schemes in five

American cities found that that car sharing resulted in a 6-16% reduction in vehicle miles travelled and a 4-18% reduction in GHG emissions per household (Martin and Shaheen, 2016).

Table 3: Social and environmental benefits of Car sharing

Characteristic	Sources
Reduction in vehicle ownership	Martin et al., 2010; Martin and Shaheen, 2010; Shaheen et al., 2008; Millard-Ball, 2005
Savings in transport costs	Barth and Shaheen, 2010; Cervero et al., 2007; Shaheen et al., 2008;
Reduction in vehicle kilometres travelled	Cervero et al., 2007; Cervero and Tsai, 2003; Koch, 2001; Shaheen and Cohen, 2007; Millard-Ball, 2005
Increase in public transport use	Koch, 2001; Shaheen et al., 2008; Shaheen and Cohen, 2007; Millard-Ball, 2005
Reduction in pollutant emissions	Martin and Shaheen, 2010
Reduction in parking spaces requirements	Sullivan and Magid, 2007

European Car Sharing Schemes

European car sharing accounts for 46% of worldwide membership and 56% of global fleets in operation (see Figure 1) with Italy having the second highest member-vehicle ratio (107:1) globally after Mexico.

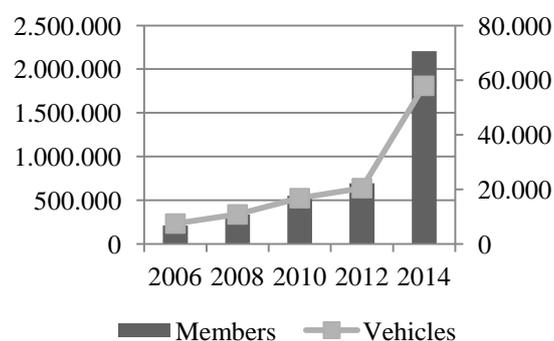


Figure 1: European car sharing trends (2006-2014)

Countries: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Hungary, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Sweden, Switzerland and United Kingdom.

Source: TSRC (2016)

Avis Budget group's Zipcar, Daimler's Car2go and BMW's are Drivenow the largest players in the private car-sharing market (see Table 4) (Automotive News Europe, 2014).³ Zipcar offers hybrids, electric vehicles, PHEV diesel and petrol cars and operates in Austria, Belgium, France, Germany, Spain and the UK while Car2go has 1.1 million members across six European countries (Austria, Germany, Italy, Netherlands, Spain and Sweden). Table 4 provides an overview of reported impacts of selection of European car sharing schemes.

3 CAR SHARING IN MILAN

Milan is the main commercial centre in the Lombardy region in the north of Italy. The city has a population of approximately 1.35 million inhabitants (approx. 7,400 inhabitants per km²) while the greater Milan Metropolitan Area has 3.2 million inhabitants (approx. 2 000 inhabitants per km²). A total of 5.3 million trips are undertaken each day in Milan with 850,000 people entering and 270,000 leaving the city. Inside the city, 37 per cent of trips are made by car (car ownership is 0.52 cars per inhabitant) or motorcycle and 57 per cent use public transport (PT), but the share of car trips rises to 62 per cent when trips between the city and the surrounding areas are considered (PUMS, 2015).

³ <http://europe.autonews.com/article/20140207/ANE/140209903/whats-next-for-car-sharing?>

Table 4: Selected car sharing schemes in the EU

Country/City	Zipcar		DriveNow			Car2go		
	Launched	Vehicles*	Launched	Vehicles	Business area (km ²)	Launched	Vehicles	Business area (km ²)
Austria	2012/14							
Bregenz	Acquired carsharing. At in 2012, which became Zipcar in 2014	2						
Feldkrich		1						
Graz		10						
Innsbruck		6						
Linz		4						
Salzburg		6						
St. Pölten		1						
Vienna		69	2014	450 (20 EVs)	93	2011	680 (mhd)	101
Wels		1						
Belgium								
Brussels			2016	300	55			
Denmark								
Copenhagen			2015	400	89			
France								
Aix-en-Provence		1						
Bordeaux		2						
Lille		2						
Lyon		3						
Marseille		1						
Nantes		1						
Paris	2014	90						
Strasbourg		1						
Toulouse		1						
Germany								
Berlin			2011	620 85 Evs)	85	2012	1100 (mhd)	160
Frankfurt am Main						2014	260 (mhd)	61
Frankfurt	2015	3						
Hamburg			2013	580 (70 Evs)	90	2011	770 (mhd)	102
Munich			2011	620 (85 EVs)	85	2013	490 (mhd)	89
Rhineland (Düsseldorf & Cologne)			2012	620 (45 Evs)	152	2012	570 (mhd)	120
Stuttgart*						2012	500 (electric drive)	153
Italy								
Florence						2014	220 (mhd)	59
Milan						2013	620 (mhd)	114
Rome						2014	570 (mhd)	89
Turin						2015	350 (mhd)	54
Netherlands								

Amsterdam*						2011	340 (electric drive)	59
Spain								
Barcelona		301						
Madrid*	2014	40				2015	480 (electric drive)	53
Sweden								
Stockholm			2015	300 (30)	50	2014	250 (gasoline)	39
United Kingdom								
Bristol	2008	10						
Cambridge	2008	14						
Edinburgh	2008	1						
Glasgow	2008	1						
London	2008	5000 (2008)***	2014	300 (5)	84			
Maidstone	2008	3						
Oxford		8						

*whole fleet with smart electric vehicles *Figures taken from Zipcar website August 2016

Mhd (microhybrid vehicle) *** <https://org.elon.edu/sustainability/documents/Zipcar%20FAQs.pdf> Source: Car2go (2016)⁴

⁴ https://www.car2go.com/media/data/germany/microsite-press/files/fact-sheet-car2go_august-2016_en.pdf

Table 5: Reported Impacts of European car sharing

Impact	Country	Source
Vehicle Ownership		
CS replaces at least 4-8 personal vehicles	Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy,, The Netherlands, Portugal, Spain, Sweden, Switzerland, UK	Momo (2005)
CS 1 to 6 ratio	Portugal	Baptista et al. (2014)
CS replaces 2,295 cars over a 5 year period	Germany	Finkorn & Miller (2011)
Kilometres travelled		
27% reduction (5,500- 4,000 km)	Switzerland	Interface (2010)
33% reduction in car mileage	The Netherlands	Meijkamp (2010)
Emission Reduction		
35-65% reduction in CO2 emissions	Portugal	Baptista et al. (2014)
300 kg Person/CO2/year	Switzerland	Interface (2010)
3.5 t CO2e/year	Austria	Steininger & Bachner (2014)
312-146 kg/CO2/year *	Germany	Finkorn & Miller (2011)
31% reduction CO2 emissions*	The Netherlands	Meijkamp (2010)
86kt/year of CO2 emissions*	Ireland	Rabbitt and Ghosh (2013)
36 to 84 m2 public freed*	Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy,, The Netherlands, Portugal, Spain, Sweden, Switzerland, UK	Momo (2005)
7000m2 per 1,000 households*	The Netherlands	Meijkamp (2010)

*estimated

The public transport system consist of four underground lines and 154 surface lines for a total of 1 286 km, producing approximately 120 million vehicle km/year. The problems of Milan's mobility and transport system are the increase in private transport demand due to the functional separation between the city centre and the hinterland; the lack of planning of goods transport and logistics activities; road congestion; and inefficient allocation of public space.

Air quality xxxx black carbon

Car sharing in Milan is part of the national *Iniziativa Carsharing* (ICS) system supported by the Ministry of the Environment, which brings together and coordinates the Italian cities participating in the service (see Table 6). ICS has promoted free access for car sharing users to Limited Traffic Zones (LTZs), use of reserved bus lines, free city centre parking and discounts on the annual CS fee if users have a public transport season ticket (Laurino and Grimaldi, 2012).

Table 6: Overview of car sharing in Italian Cities (2015)

City	Launch date	Members	Vehicles	Stations
Bologna	2002	1261	41	31
Brescia	2010	88	6	5
Florence	2005	420	15	15
Genova/Savona	2004/2009	2,542	52	44
Milan	2001	6274	141	85
Padua	2011	163	11	13
Palermo	2009	1625	100	63
Parma	2007	328	11	11
Rome	2005	3430	124	86
Turin	2002	2795	122	78
Venice	2002	3,574	43	16

Source: <http://www.icscarsharing.it>

The environmental association *Legambiente* introduced Milan's first car sharing scheme (*Carsharing Italia*) in 2001. In 2004 the City of Milan introduced *GuidaMi*. In 2007 ATM, a local public transport company, took control of *GuidaMi* and later *Carsharing Italia* (2010) merging the two schemes.

In 2013 the Municipality of Milan launched a public tender to obtain new private operators to extend car sharing schemes in the city. This resulted in Car2go and Enjoy and Twist introducing new schemes. In 2015 Share'ngo initiated the first electric free floating car sharing pilot project in Milan while Twist suspended its service and ACIGlobal, a subsidiary of the Italian Automobile Club, bought *GuidaMi* (see Table 7). The next section will examine

the experience of Car2G0 and Enjoy schemes in Milan from data collected during the period August 13- June 15.

Table 7: Car sharing schemes in Milan

	<i>GuidaMi</i>	<i>Car2Go</i>	<i>Enjoy</i>	<i>Share'ngo</i>
Operating Service	2004	2013	2013	2015
Vehicles	Various	700 Smart Fortwo	800 Fiat 500 44 Fiat 500L	650 ZD Icaro
Members	~ 6,000	~ 100,000	~230,000	~25,000
Driving rate (per minute)	from € 2,20 to €3,00 per hour	€0.29	€0.25	from €0.13 to €0.28 per minute
Kilometric rate (+50km)	from € 0,45 to € 0,80 per hour	€0.29	€0.25	€0.00
Reservation	App/Website	App/Website	App/Website	App/Website
Opening vehicle	App/Card	App/Card	App	App/Card

Profile of Users

Since the inception of *Car2G0* and *Enjoy* schemes in Milan in 2013, there has been a steady growth in the number of subscribers to the car sharing scheme. In the same period the vehicle fleet has also increased with a pronounced increase occurring in the first three months of service (see Figure 2).

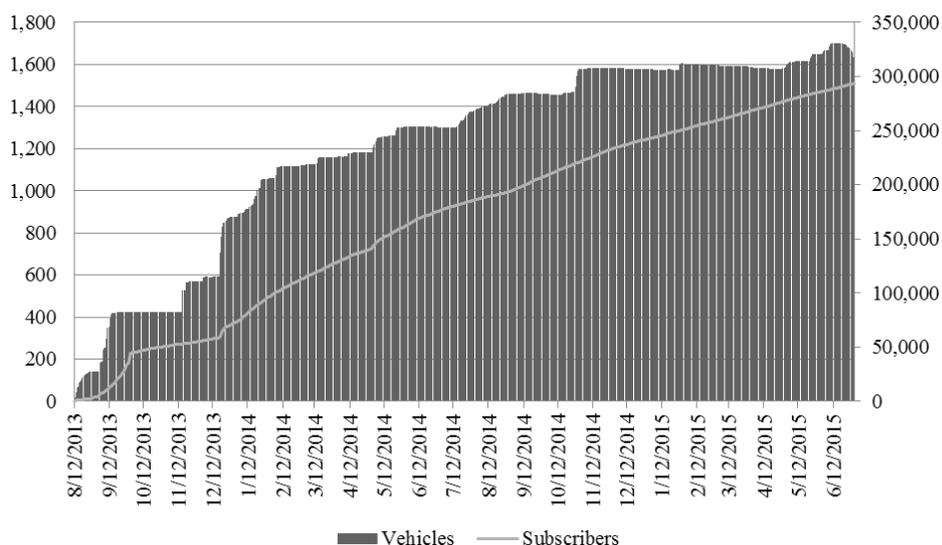


Figure 2: The growth in car sharing subscribers and vehicles in Milan (2013-2015)

The majority of the subscribers to the car sharing schemes are male (67%) compared to female (33%) and live in Milan city centre (55%) (see Figure 3). With the highest number of subscribers is between the ages of 26 – 32 years old. However, while age/gender of subscribers it does indicate the actual gender of the driver (e.g. a different family member may use subscription of another).

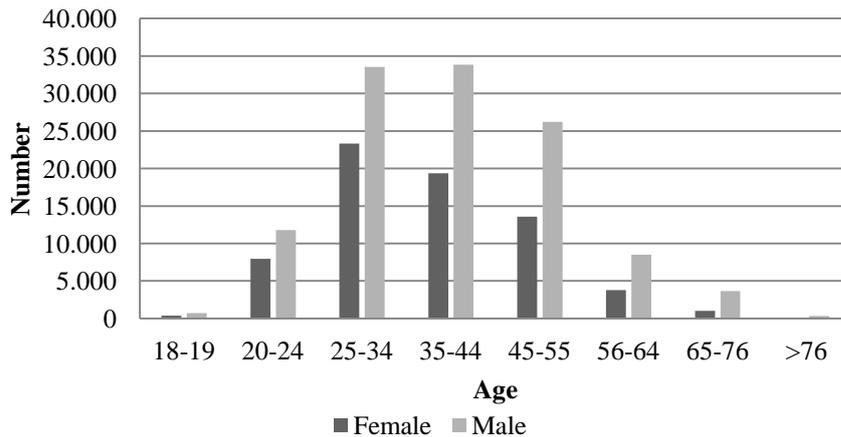


Figure 3: Subscribers by age and sex

Level of use

The average distance travelled by car sharing users 128 kms in Milan centre, 8 kms in the Metropolitan Milan and 102 kms in the surrounding areas (over what period?). The highest number for rentals is for 12 minutes while the average rental time over the 23-month period is 28 minutes. However, this time may not necessarily mean that the car is actually a travelling. The majority of car rentals take place in the Milan centre (72%) while 4% occur in the wider Milan metropolitan and 24% in other areas. Car rental use is higher during the week (78%) with little change in usage on Saturdays (77%). There is a small reduction (6%) in car rentals on Sundays (72%) but a high percentage of the fleet is still used (see Figure 4). The average distance travelled per car rental is 4, 6 and 5 kms for Milan, Metropolitan City and other, respectively.

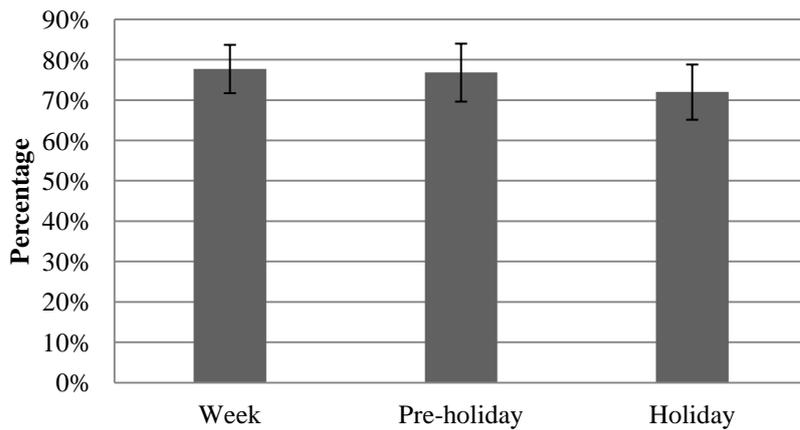


Figure 4: Percentage car use on by day

The number of car rentals increase at the beginning of the week on Monday (75.5%), peak on Friday (79%) and decrease to 73% on Sunday. More than 75% of the vehicle fleet is being from Monday to Saturday (see Figure 5).

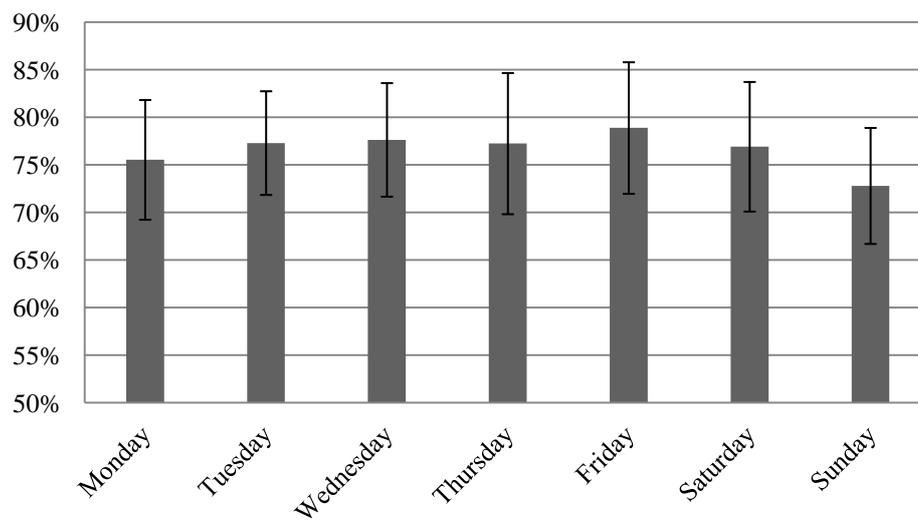


Figure 5: The percentage of vehicle fleet by weekday

Customer Satisfaction

A survey of customer satisfaction of *Car2go* (3,700), *Enjoy* (500) and *Twist* (4,400) users was undertaken in 2015 using CAWI (Computer Assisted Web Interview). Responses were weighted by the gender, users and age and residence. User were made aware of the car

sharing schemes by seeing the vehicles around the city (30%) followed by word-of-mouth (25%), advertising (22%) and in the press (18%) and on TV (1%) (Loporcaro et al., 2016).

The main motivation for using car sharing was access to LTZ/free parking (27%) and easy (14%) of which it was possible to use 'free floating' vehicles (i.e. not having to return the vehicle to the same base station). A total of 33% use the car sharing sporadically with 32% using the service a few times a month. Only 2% of respondents stated they use the service everyday while 14% used in more than once a week.

The use of the car sharing scheme by the respondents has an inverse relationship with the number of cars available in the user's family (47% of respondents have a car, 26% have two cars, 5% have three cars and 1% have four or more cars) and shows 21% of users do not own a car ownership, or do access to car. .

A total of 18% of respondents had already given up on owning a private car in Milan and use the car sharing instead while another 5% were interested in given up the car in the near future. However, 77% of users were not currently willing to give up their car. In addition, 65% of users have decreased the use of taxis to make those journeys Car Sharing and only 1% has increased the use. The remainder, 34% did not change the preferences.

If car sharing were not available in Milan, almost half of the respondents would have used local public transport instead, followed by private car use (26%) and taxi (18%) while 5% of users would walk or cycle. The use of a mobile app (96%) was the main way users reserved the car, followed for only 3% from the website operator, and from 1% through the Call Centre.

Overall users were satisfied with the level of car sharing schemes rating different attributes of service (e.g. speed and ease of booking, locating the vehicle, etc.) from Good to Excellent. However, users rated the availability of immediate vicinity of the place they live as ‘sufficient together with the cost of service. With regard to the issue of affordability of the service, 70% of respondents felt the fees were appropriate while 25% felt they were expensive with and the remaining 5 % believe it was cheap.

In terms of improving the car sharing in Milan, 34% of users stated the service could be improved by increasing the number of vehicle followed by 27% who requested more promotions and special offers.

4 ENVIRONMENTAL IMPACT OF CAR SHARING IN MILAN (NEW SECTION TO BE RE-WRITTEN)

An assessment of the environmental impact of car sharing can be determined by changes in three indicators: modal shift, vehicle ownership and annual vehicle kilometres travelled. Table 8 presents the impact of car sharing for these three indicators. The reduction in car-sharing ownership corresponds to a replacing ratio of 1:20, which has direct energy and environmental impacts.

Table 8: Key environment

Indicator	Impact
Modal shift	26% of CS users would have used a private if CS were not available
Vehicle ownership	5% of CS users were willing to give up the car in the future A replacement ratio of 1:20
Annual vehicle kilometres travelled	anno 2013: 48 km anno 2014: 100 km anno 2015: 115 km

How does this compare to 15-25% lower CO2 emissions (MOMO, 2010)

Car sharing has the potential to reduce emissions from 40-50% (MOMO, 2005)

- *Of private customers 26% would have used a private car if the car sharing scheme was unavailable. This data can be extrapolated to the entire mobility private customer cohort (estimated. 360,000)*
- *Using the energy use and carbon emissions of individual modes of transport, it is possible to calculate the environmental impact of the car sharing scheme based on the distances travelled with and without car sharing (for one base year).*

Downward effect on motorised private transport and a stimulatory effect on public transport use.

6 RESULTS

- *Presentation of general results: daily car rentals, age and type of users, time of use, duration of use, and distance travelled.*
- *More detailed spatial analysis of the car use and movement across the city.*
- *Results (if they exist) on changes to traffic congestion, air pollution and public transport use because of the scheme*
- *Consumer attitudes and satisfaction survey and changes in behaviour*
- *A summary table of key indicators*
- *Ideas for analysis:*
 - *e.g. comparison with European mobility data coming from survey or data itself most frequent trip and its characteristics in term of distance, speed and duration, multimodal trips and number of modes of the most frequent trip, average distance by mode, average number of trips per car and day*

- *percentage of fleet used for each day of the week to identify if there is a day in which the service is more used. Exploring different weeks to identify if any special event influences the use of the service;*
 - *combining cars number and subscriptions in one plot versus the years of the service (two y-axis: one number of cars, the other subscriptions , both versus the years). This will allow us to see crossed trends;*
 - *number of subscription by year divided by gender and age*
 - *distribution of the rental time duration, to see how long for, min, max etc.*
 - *car sharing hot spots: number of trip for origin /destination in one week for instance or versus time to see the highest requests*
 - *distribution of costumer or car use for city area: centre, suburbs etc.*
 - *distance driven in relation to the origin of the customer as reported in the database of the users if available*
-).

7 DISCUSSION

- *In this section, the result from car sharing is discussed in more depth especially the relationships between different indicators*
- *Reported data from other car sharing schemes is presented (e.g. in a summary table listing key indicators as outlined above).*
- *Commonalities and differences between Milan and other European cities are identified and discussed.*
- *The challenges of implementing car sharing in Milan are outlined and whether other cities have similar problems.*
- *How does Milan's experience compare to other European cities: What has worked well? What hasn't worked so well?*
- *How did/can car sharing contribute to improving urban mobility/environmental issues in Milan*

8 CONCLUSION

- *What are the lessons that can be taken from the car sharing in Milan?*
- *What are the potential benefits of extending the scheme?*
- *How would the scheme benefit from using all electric vehicles, and would there be constraints/disadvantages of such a change?*
- *Can car sharing meet the challenge of urban mobility in the future?*

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Table 9: Estimated reduction in carbon dioxide emission of car sharing in Milan

CS Provider Country	Number of car sharing vehicles	Specific CO ₂ emissions of car sharing fleet	Specific CO ₂ emission of the average personal car in Italy	Reduction in emission of the car sharing fleet	Reference Year	Source
Milan Italy	700 <i>(Smart Fortwo)</i>	94 g/km	114.8 g/km	-18%	2015	
	880 <i>(Fiat 500)</i>	119 g/km	114.8 g/km	+3%	2015	
	600 <i>(ZD Icaro)</i>	0 g/km	114.8 g/km	-100%	2015	
<i>Data from previous studies</i>						
Germany	1,042	129 g/km	165 g/km	-21.2%	2009	Momo 2009
Belgium	248	117 g/km <i>(Flanders)</i> 120 g/km <i>(Brussels)</i> 122 g/km <i>(Wallonia)</i>	155 g/km <i>(new cars only)</i>	-21.3-24.5%	2008	
Switzerland	2,200	151 g/km	183 g/km <i>(new cars only)</i>	-17.5%	2008	
UK	-	110 g/km	171 g/km <i>(assuming replacement of persona cars after 6 years)</i>	-36%	2007/2001	