

Pilot Blueprint: electric car sharing

This blueprint was developed in the context of the MOVE project. The aim is to draw up a short document that gives a quick insight into the reasons why a pilot was put into place, the context and the problems it wants to tackle, and how it is done. This should give the reader an idea if the solution could be transferred to another European region and it should make clear why a specific transport solution is needed in this area. The idea is to keep it brief, but still treat many different characteristics of the pilot.

General idea

Car sharing is a mobility solution that depends on a certain population density. A shared car should have sufficient usage hours in order to create the necessary revenue to cover the costs and margin. At the same time, at one location, you should share more than one car in order to offer a sufficient offer to have a vehicle available if several customers want to use it at the same time. Both sufficient usage hours and the fact that several shared cars are needed, are more difficult to achieve in rural or peri-urban areas.

The pilot focusses on a way to have a certain level of usage to cover the costs, in particular the investment costs. This is important since it offers the opportunity to make a faster shift towards electric cars, for which the investment cost is relatively high whereas the usage costs are relatively low.

When a professional user (such as a municipality) uses a car mainly during office hours, it is possible to share it outside of office hours. At the same time this is interesting for the professional user since a part of the costs for the car are shared with other users. For a municipality, it is even more interesting, since the mission of the organisation is to offer services to inhabitants. So even for rural municipalities there is an interest in sharing one or more company cars. The purpose of the pilot is to facilitate this for municipalities.

Car sharing is in our opinion a way to solve several problems:

For end users, an electric car has a high procurement cost, but low mileage and maintenance costs. Most car users drive insufficient distances to profit from the relatively low total cost of ownership that electric driving offers when you drive more than 15.000 km per year. When a car is shared, its idle time decreases. As a consequence the benefits of cheap mileage and the costs of procurement can be shared among users. Cars can be replaced more frequently with newer and more efficient models.

In cities and villages, the spatial layout of the public domain does not allow everybody to park a car in front of their own house and charge it with their own power. Sharing a car also means sharing charging infrastructure, which has economical and practical advantages and which allows to organise the public space efficiently. As a shared car replaces up to eight privately owned cars, the spatial footprint and materials use is considerably lower.

Context

Geographic context

Describe the limits and characteristics of the area where the pilot is carried out. This could sum up the main roads, rivers, mountainous areas, etc.

The pilot takes place in the region of Mechelen in Belgium. This area consists of 12 cities and villages that are situated in the south of the province of Antwerp. The mobility in the region is very car-centred. The area is mostly peri-urban, but situated between the large urban areas of Antwerp and Brussels. This means that it is cut up by large mobility infrastructures (railroads, highways...) that are not necessarily meant to serve for the connecting local communities. At the same time these large traffic streams mean that the region suffers from congestion and cut-through-traffic.

General statistics

Give parameters such as total population of the project area, the population density, car ownership, employment situation. This could also add data collected with the MOVE survey.

The pilot area has 348.540 inhabitants (on 1/1/2021). The area surface is 480 square km, which brings the population density to 727 inhabitants per square km. Per 1000 inhabitants, 491 cars are registered, which is lower than the Flemish average (539). A survey among 587 inhabitants of the region showed that car sharing is known, that half of them can imagine that they will share a car within 5 years. Car sharing through a car sharing club is the formula that seems to be the most attractive formula.

Integration into the public transport network

People who start a trip in a shared car, will usually take the car to their final destination. This means that shared cars need to be available close to where people live. It also means the link with other means of transportation (train stations, busses...) is less important. In the survey, 37% of all respondents think that could be convinced to use a shared car if a pick up point for car sharing became available in their neighbourhood.

The added values of sharing cars is that the use of electric cars could be speeded up, that the spatial impact of parking is reduced, that less wealthy people can make use of a car etc.

Political context

The Regional Transport Board (Vervoerregio) of Mechelen has chosen not to implement car sharing as a part of the mobility plan that had been approved in 2020. However, many municipalities have proposed in their Local Climate Action Plans that car sharing should be a part of the strategy.

Still, many local communities are hesitant about the practical implementation of car sharing. One of the main barriers, it appears, is the lack of knowledge on the tendering, the contracting and the practicalities.

Pilot description

Target groups

To drive a car, there are some restrictions that limit the target group.

You need to have a drivers licence. This means that people under the age of 17 (in Belgium) have no access to this mobility solution. On top of that, most car sharing providers have conditions that exclude people under a certain age (e.g. 20 years old for Partago, 25 years old for Cambio) and people who only recently have passed their drivers licence (e.g. 6 months for Partago, 2,5 years for Cambio).

In Belgium, some car sharing providers ask for a permanent residence in the country.

Driving a shared car is generally cheaper than a privately owned car for people who do not drive more than around 10.000 kilometres per year. Still, for low income target groups, even the price of a shared car could be hard to afford. The target group, delimited by buying power, is thus defined as people who would drive a privately owned car, but who have a financial interest to use a shared car.

You have to be physically fit to drive a car. This excludes some of the people most in need of mobility solutions.

In the Segment Toolkit (Intelligent Energy Europe) mobility profiles of the potential users are defined for targeting potential sustainable mobility users.

The survey that has been implemented among citizens has pointed out that the potential for car sharing is the highest among the group aged 31-40 years old (60% can imagine themselves sharing a car, against 48% on average). People younger than 30 and older than 70 show the least interest in car sharing. Female respondents are more interested in car sharing. Air quality is the main reason why people think car sharing could be a good idea.

Segment and main attitudes

Characteristics (from Segment Study)

Likelihood to use shared cars

Survey results

1: Devoted Drivers

No intention of reducing car use, no interest in cycling or walking, low moral obligation to the environment

Highest percentage of men of all the segments – 46.7%

High level of full-time employment – 73.9%

Highest percentage of households with three or more cars available to them – 7.3%

Highest percentage of at least one car available to the household – 98.1%

Since this target group most likely drives far more than 10.000 km/year, there is no financial incentive to use a shared car. There is no environmental motivation to use a shared car. Still, this is the segment with the highest percentage of households with three or more cars available to them.

From the survey, it appears that 3th and 4th cars generally are used for far less distance per year. These cars should be replaced by shared cars from an economical point of view. It is possible that these 3th and 4th cars are in many cases special car types (e.g. camping cars or oldtimers). In that case they could not be replaced by shared cars.

2: Image Improvers

Like to drive and see the car as a way of expressing themselves, would cycle to keep fit, not interested in public transport

Highest proportion of 25-34-year-olds – 40.9%

Second highest proportion of employed or selfemployed individuals – 70.4%

Highest proportion of people owning two cars – 40.8%

Least likely to be a member of a car club

Highest proportion of people citing the car as their main mode of transport to visit friends and family – 86.7%

For this group a shift towards car sharing is thinkable. In this case sharing a car should become a way to express themselves.

The age segment of 25-34-year-olds in our survey is more likely to use a shared car.

It appears that people who own two cars declare that a supplementary offer of shared cars could help them to postpone the purchase of a car or even get rid of one car.

3: Malcontent Motorists

Do not like driving – find it stressful. Have a small level of environmental consciousness. Have a moderately strong intention to reduce car use, but not to increase use of public transport

Highest proportion of women car drivers

67.6% of this cohort are aged between 25 and 44 years old.

Most people within this group are unclear or unsure about making any lifestyle change in their individual car use – 42% neither agree nor disagree to making changes

This is a group that prefers to drive a car which is a motivation necessary to use a shared car. Some of the driving stress could be taken away if the car is well insured and maintained. If driving does not make you happy, it is very well possible that you do not drive more than 10.000 km/year. In that case it makes sense to shift to car sharing from an economical point of view.

Women are overrepresented among the respondents who are in favour of car sharing. Also the age cohort is the most in favour of car sharing. There is a possible match with this group.

4: Active Aspirers

Feel guilty using their car on short journeys, so would like to cut down on car use. Have a high moral obligation to the environment, therefore do not believe that more roads are necessary. Are highly motivated to use active transport modes, and to walk and cycle for fitness.

Over 87% of the segment falls within the age ranges of 25-54 years

Twice as many women as men in the segment

High proportion having undertaken further education

High proportion of individuals in full and part-time employment – low percentage retired

Highest proportion of households owning only one car – 58.6%

Highest proportion of car club members – 5.5%

This group of people certainly is a good target group to promote car sharing. However, this group possibly has already been convinced and may be using a shared car service already.

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5: Practical Travellers

Only use the car when necessary. Identify themselves as cyclists but do not see it as a form of self-expression. See local pollution and congestion as issues. Are not motivated by climate change. Have no intention of reducing car use.

81% of the segment are between the ages of 25 and 44 years old

Highest proportion still in further or continuing education at the age of 20 years – 74.9%

Highest proportion of part-time workers – 26.1%

Highest proportion using a bicycle to get to and from work/school – 50%

This is the main target group. As these people use the bicycle for their short distances, their car use will probably not exceed 10.000 km per year. It thus is economically interesting for them to share a car. It seems possible to convince this target group with ration arguments.

The survey has too little detail on the education or the professional situation of the respondents.

6: Car Contemplators

See cars as status symbols, and believe that people should be allowed unrestricted car use. Have a neutral or moderate attitude towards the environment and cycling.

Highest proportion under 24 years old – 36.9%

Highest proportion unemployed/seeking work – 21.4%

Highest proportion without a driving licence – 67.9%

Cost, availability of a car and not having a licence seem to be the main barriers to increased car use among this segment

This group should be a target group, since these are young people who could adapt to a life without a privately owned car. However, their limited financial means and lack of a drivers license could hamper their ambitions to drive a car.

In our survey, we notice that the very few young people who have responded, show little interest in car sharing. This confirms the findings of the Segment study.

7: Public Transport Dependents

Think people should be allowed to use cars and would like to travel more by car. Believe that more roads are needed to relieve congestion. Are not motivated by the environment.

Highest proportion of women – 81.1%

Highest proportion of those aged over 55 years – 13.8%

Least likely to have continued full-time education beyond the age of 18 years – 41.5%

Highest proportion retired

Most likely to have a disability that affects travel options – 8.9%

This target group probably is a very hard to reach.

Our survey points out that older people show less interest in car sharing.

8: Car-free Choosers

Do not like driving and think that cars lead to unhealthy lifestyles. See cycling as beneficial for many reasons and as a route to self-expression. Feel a high moral obligation to the environment, and believe that reducing their own car use will make a difference.

70.7% women make up the vast majority of the segment

74% of segment is under the age of 34 years – one of the youngest groups

16% still involved in studying with 19% full-time student at college or university

Two-thirds do not hold a driving licence – by far the largest group of non-licence holders

Very likely to have had a plan to reduce car use before they moved to their current home

This target group probably is a very hard to reach.

In our survey, we notice that the very few young people who have responded, show little interest in car sharing. This confirms the findings of the Segment study.

Partners

In this pilot, we work with a sector federation of car sharing providers, Autodelen.net. They help us with the step by step approach of finding out what the ambitions of municipalities are, and, with the translation of these ambitions into tender documents.

A second partner is of course a provider of car sharing services. Through a public procurement procedure, we have selected a provider.

Since we have focussed on electric cars, we also need a provider for charging infrastructure. In many cases, charging infrastructure is already available, but not everywhere. A joint procurement of charging infrastructure by municipalities can lead them to better offers and can add unity to the available charging infrastructure in the region.

Communication

Our communication has two target groups.

Municipalities. They should be aware of the possibility to offer car sharing services in their municipalities, without administrative burdens and at a very convenient price.

The general public. They should be aware of the advantages of car sharing and make use of these services. We hope that through experience, some people will delay or cancel the procurement of a privately owned car.

Our main strategy for the general public is to work with local ambassadors for car sharing. If we convince local aldermen, mayors, and other public figures to use the shared cars, we think people will be inclined to try car sharing too.

The communication strategy for the pilot remains yet to be drawn up.

Service description

Booking of the shared car should at least be possible through a smartphone app. Payment should work through an automated system, based on mileage and time. The cars should be available at all times.

Most municipalities want to start small, with two cars at a central location. We advise the municipalities to offer at least two vehicles within a walking distance range. Municipalities also want to block reservations for their own use during office hours. Experience in other regions points out that this is not necessary. Cars are more frequently in use if municipal services have to book the vehicles just like any other user.

The types of cars that municipalities want to offer and to use, are mainly small urban vehicles and small vans.

Financial aspects

A shared car can be seen as a leasing car, which is available to municipalities from around 600 EUR per month. When this car is used and paid for by other customers than the municipalities, this price could drop. If a municipality uses the car frequently, this price could rise. We have made a simulation, based on the following assumptions: Renault Zoë, internal use by the municipality: 80h and 640km. Use by external customers: 35 h and 280 km. Vehicles also can be booked by external users during office hours. Price offers for this scenario varied between around 600 EUR and 1100 EUR. Per vehicle, there is a start-up cost of between 500 and 1500 EUR.

External users pay a fixed subscription cost per month, a fee per kilometre and a fee for the time that the car is in use.

We have made a scenario in which during a month, a user uses the car for these trips:

Travel of 15 km in a weekend, with a fully electric city car with departure at 10 am and end at 11:30 am.

Travel of 15 km in a weekend, with a fully electric small van with departure at 10 am and end at 11:30 am.

Travel of 30 km with a fully electric city car, departure on a weekday at 7 pm and end at 10 pm.

Travel of 30 km with a fully electric small van, departure on a weekday at 7 pm and end at 10 pm.

Travel of 100 km, in a weekend, with a fully electric small van with departure at 10 am and end at 9 pm.

Displacement of 200 km, on a weekday, with a fully electric city car departing at 2 pm and ending the journey the next day (also a weekday) at 2 pm.

The cost for this scenario varies between 150 EUR and 175 EUR.