

3 Target Groups of Different Modes of Electric Mobility

The key to success of measures and campaigns handling with the promotion of electric vehicles lies on the unconditional focus on the demand of the potential target groups. For that reason, target groups need to be segmented into homogeneous groups sharing similar characteristics, preferences and requirements. Experience has demonstrated that people respond better to messages that are tailored and relevant to them. The more segmented the potential user groups are, the more information can be obtained which will result in the development of more relevant messages, communication strategies and incentives; thereby in realization of a successful outcome of the campaign. The perspective of users should be integrated into the development of context from the beginning.

The following chapter introduces the different modes of EVs and their associated users in detail, namely e-cars, electric two-wheelers, but also rickshaws, segways and seniormobiles. Regarding the target groups, three categories will be further segmented: citizens, businesses & institutions as well as tourists & visitors.

3.1 Citizens

Citizens, seen as a potential user group, will have the largest share of the EV users; especially when the used car market is coming up by the year 2018. The rising operational costs of conventional cars in terms of rising fuel costs and oil prices can be a push for citizens to change their type of driving system. A continuously growing environmental awareness can be seen within the society that may even further enhance the replacement of conventional into emission free vehicles and it might raise ecological requirements. Amongst others, these factors are simultaneously the reason for the steadily decreasing number of car drivers and an increasing number of cyclists and “intermodal persons” using different transport modes on a trip and being member of a car or bike sharing organisation. The ecological advantage in terms of the projection of the annual kilometers driven is an argument to favour electric against combustion engines, hence for purchasing e-cars, light commercial vehicles and e-motor bikes. Technological savvy and curiosity are linked with the attraction to new and innovative technology. The outlook for the image-oriented persons, wishing to possess for the latest model of car, is mostly an additional incentive, but not a real decisive factor for purchase (Peters, Düttschke 2010).

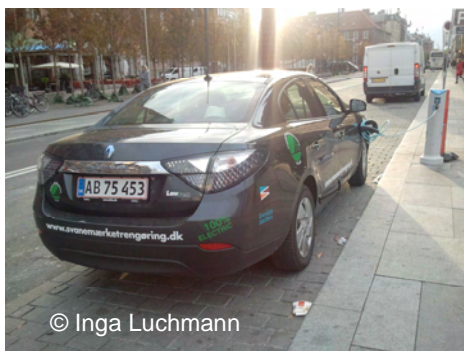
The first upcoming analysis of private early adopters of electric cars describes the users and interested persons as typically middle-aged, well-educated male customers with a salary above the average. The higher and longer the market penetration is, the broader can be the user groups characterized, because new consumer groups will follow the early adopters. It is estimated that more and more women will buy and drive e-cars. In fact the age of female users will also be spread (IREES GmbH, Fraunhofer ISI 2012). As soon as a second hand market for e-cars is realized, lower income classes could also be addressed.



In the following years, four different types of e-car user groups among the citizens will be expected:

1. Long distance commuters

This group includes people driving more than 25 kilometers to work by car. These persons will have high annual kilometers and typically have a fulltime job with an adequate salary. Additional trips are limited, so that the range of an EV is sufficient. Due to these personal circumstances, their cars typically have a low average age, so the potential of purchasing in the coming years may be high. Total cost of ownership pushes economical motives.



2. Professional high kilometer drivers

This group has high annual and moderate daily kilometers and will assess an e-car due to its economical advantages for their trip purposes and distances, since they manage private and professional trips with one vehicle. This group is formed by representatives, architects, journalists, manager as well as other freelancers and self-employed belong to this user group.

3. Other private users

Ecological, technical or image reasons for using outweigh the cost factors by this segment of the society, since they have a private garage to charge the car overnight. Household income allows a willingness to pay beyond economical calculations. It does not exclude the presence of an alternative car that can be applied to holidays and other long distance trips. It might be a households second or third car.

4. Private carpooling, car rental & carsharing users

Persons living with sharing or renting opportunities mainly have economic and ecological motives concerning a pragmatic choice by means of transport. Because of their low annual kilometers (under 10.000km), a private electric car would not be an economically clever option. Thus these persons mainly rely on bike and public transport, or go by foot. They are the so-called “car-free choosers” as well as “public transport dependents” due to their limited budget (Ladbury 2013). Carsharing users show a high share of irregular ways for leisure, shopping or transportation activities. Private carpooling is of interest for workers sharing a similar origin and destination at a similar time of travel. The number of persons using carsharing is rising significantly, especially in the bigger cities, where free floating carsharing as an additional option is offered.



While the sales of e-cars has a very slow start and people overestimate the limiting factors, the sales of pedelecs have been increasing rapidly since 2008 (round about 50% growth a year). The average distance taken by pedelecs is more than 3 kilometers longer compared to the range with a conventional bicycle (9,8 km against 6,3 km). The average speed of pedelecs with 24km/h makes trips up to 15km one way are within reach (DIfU 2011).

The project PRESTO identifies the following reasons for citizens using pedelecs (Roetync 2010):

1. Conventional cycling is (will become) too difficult 66%
2. Make cycling with headwind easier 52%
3. Be able to cycle over longer distances 46%
4. Make it easier to climb hills 29%
5. Sporty exercise 17%
6. Cycle faster without extra effort 11%
7. Alternative for environmentally-friendly means of transport 10%
8. Get to work without sweating 8%



There is an equal distribution between man and women, even if within the 20-40 year old generation, the female customers are dominating, and in the group of 65+, men are over represented. In the first years pedelecs came up, the users belonging to high income households. Recently the number of persons with high income is decreasing, but still unemployed people are underrepresented in the group of current users of pedelecs.

The rising number of pedelec users is accompanied by a trend of cycling and supported by a changing attitude to healthy lifestyles and environmental awareness. The pedelec market sector widens in terms of sales numbers, new designs and more powerful motors. These factors causing a turn in the trend and open up new customer groups for cool urban or electric mountain bikes as well as different types of e-cargo bikes.

A Belgium study, done by the Vrije Universiteit Brussel “De elektrische fiets als duurzame mobiliteit in steden”, identified a wide spectrum of typical pedelec users (Roetync 2010):

- 61% Commuters (trips up to 15km)
- 33% Elderly people
- 25% Less sporty people who want to exercise more
- 13% People who live in a hilly area



- 12% Everybody
- 11% Physically impaired people
- 7% Sporty people
- 6% Shoppers
- 5% People who want to cycle without too much effort
- Others

3.2 Businesses & Institutions

In the coming years, businesses and institutions are estimated to be an important car user group. Although the highest share of e-vehicles is to be seen as private cars, business fleets with their high annual kilometers driven, therefore generating a huge impact on the ecological effects, have a dominating proportion of new car registration.⁴ Cars and light commercial vehicles enhance the quick market penetration in terms of their short average useful life and their possible second life in other user groups. Although companies consider sustainable criteria by their fleet selection, economic reasons in purchasing special cars and integrating in the existing fleet will outweigh. In rare cases, sustainable and technical branches will purchase an e-car against the background of a fitting image.



With regard to cars and utility vehicles, enabling factors for electric engines are the high annual kilometers and limited daily distances. A high share of inner city driving increases the efficiency of the electric engine (Wietschel, Gnann 2012; Fraunhofer ISI 2011). Predictable tours as well as trips within sensitive areas (like pedestrian zones or nature conservation zones, which are allowed only by “no emission vehicles”) would push diffusion. Nevertheless, there are some

factors that limit the potential of usage. A high cargo load weight and volume is still a problem for the battery capacities of the heavy duty trucks. The high investment cost could probably not be paid by small and middle-sized companies. Businesses will not be able to change their tour planning because of recharging their battery in-between two trips. It has been suggested that companies will predominantly charge their electric fleet overnight on the company



⁴ In Germany, commercial cars have a 60% share of new car registrations moreover 90% of EV registrations is done by companies (IREES GmbH, Fraunhofer ISI 2012).



ground. As an alternative, Plug-in-Hybrids can be used for companies which cannot plan their trip length exactly, or need a higher volume weight.

Concerning pedelecs and e-cargo bikes for businesses and institutions, the decisive factors are very similar to the ones by citizens. Workers of enterprises, who need to travel a lot over short distances are predestined to be pedelec or e-cargo bike users. They may be branches like home delivery, mail, post logistics services as well as hotels and other tourist businesses. Emergency services could use pedelecs during large events like concerts, fairs and sport events; where car usage is hindered or traffic is extremely dense. Police officers patrolling with e-bikes may be more approachable due to easiness to maneuver. Police, civil servants and politicians could improve their image by the usage of pedelecs.



Different types of branches could be identified, these are

1. **Courier and Parcel-, Express Services**
last mile transportation of the Post/DHL, UPS, airport and event logistics etc.
2. **Firms with a huge and differing vehicle fleet**
like energy companies, telecommunication etc.
3. **Public authorities and service vehicles**
e.g. public administration, utility and housing companies, street cleaning cars, police and ambulance
4. **Mobility providers**
from rental services until bike- and carsharing providers as well as taxi companies
5. **Other commercial vehicles**
like mobile nursing, social, technical and delivery services



Automobile manufacturers offering a carsharing fleet, rely on this marketing effect. E-carsharing and car rental providers are seen as an important user group. Their car fleets are estimated to get into the “second market” quickly, since the vehicles have a high visibility and the more environmentally friendly electric cars fit better into the branches’ image. Additionally automakers can offer test rides before purchasing electric cars. Many potential buyers will have their first

experiences with lending or renting electric vehicles as customers of a sharing service provider. According to the survey on user acceptance of the innoZ, 40% of the asked persons used an electric carsharing option to try this type of drive system. The two most open-minded groups for e-carsharing are the so-called environmental public transport affine user groups, and the so-called innovative technological multioptional user groups. The first group consists of persons that predominantly use the bicycle as well as mass transit, and the fun of car driving is rejected by the majority. This user group is primarily living in the urban space and does have a high level of education and income. The people of the second group are also having a positive attitude towards environmentally friendliness. They are very open towards every innovative and networked means of transport (innoZ 2013).



In general, the highest potential for e-mobility amongst businesses and institutions will be achieved, as long as different types of vehicles will be in operation and can be chosen for the special trip or daily tour. This target group is highly susceptible to different kinds of financial stimulation.

3.3 Tourists & Visitors

Many people have their very first experience with e-mobility on their holiday, like participating in a segway sightseeing, lending pedelecs to facilitate cycling against headwinds at the coast, or renting an electric car to be flexible in the choice of destinations during the stay while vacation.

The target group of tourists and visitors are potential users, who primarily lend or rent electric vehicles in case they do not arrive with their own vehicle. Tourists and visitors will be given information and experiences on driving an electric vehicle. They are furthermore multipliers of the city's image. The image of a city can be positively pushed by operating an electric vehicle through tourist shuttle services, as well as pedelec or e-car rentals. Moreover, the rental services dedicated primarily to guests can be used by citizens as well. As sustainable tourism is gaining higher and higher importance, electric mobility can be one component of the sustainable tourism concept of the cities.

Tourists are looking for a comfortable, ecological and individual mobility option when renting a car, a pedelec or even a seniormobile for disabled. Electric scooters or mountain bikes can be used for fun-oriented or sports activities, while rickshaws, segways or e-cargo bikes are predominantly used for sightseeing or shuttle services within the scope of events.

Different type of tourists and visitors can be distinguished:

- **Singles, couples and families** are lending, renting cars or pedelecs, using free floating carsharing or participate in segway or rickshaw sightseeing tours



- **Sporty tourists** are mainly younger persons using e-bikes for climb up mountains, driving long distances by pedelec
- **Elderly and disabled people** will be offered an alternative, environmental friendly way of being mobile individually for their daily activities. They demand seniormobiles, as well as all other types of electric vehicles.
- **Business people** using all kind of electric vehicles for professional ways as well as for private usage.

