

WP3 Task 3.1.3 Societal Acceptance


Technology talk and emotional aspects: Electric mobility in the view of its (prospective) users

Chart book on results of the focus group discussions

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Exploring the societal acceptance of ZEM (3.1.3)

- Aim: explore societal acceptance, driving factors and hindrances of electric mobility and the REZIPE- implementations
- Benefits for the REZIPE project and project partners:
 1. Qualitative insight in local mind-set of public opinion on zero emission mobility
 2. Insight in opinions on project implementations and possibility to adapt design of implementation and accompanying communication measures
 3. Input to vision document

Exploring the societal acceptance: Method

- Focus group discussion
 - Structured discussion with a selected group of individuals to gain information from various perspectives about views and experiences towards a topic
 - Group setting stimulates participants to articulate ideas, beliefs and experiences that would be less accessible otherwise
 - Method is used to investigate issues which are not familiar to a broader public – which is the case for ZEM
 - Common method in social science and market research: it is possible to gain a variety of views and opinions of users/target groups in a short period of time

Empirical design

Focus group discussions in REZIPE implementation cities:

- Linz: group with interested employees of provincial administration on collective purchase action (vehicles and charging station for provincial employees)
- Győr: group with relatively environmental oriented citizens, partially everyday bicycle and public transport users (trial Pedelects and cars as well as mobile solar charging station)
- Bolzano: group with long term Pedelect users as beneficiaries of public charging station in Bolzano

Exploring views of ZEM in Linz: Topics

- How is zero emission mobility perceived among prospective users?
- What do people already know about e-mobility, about which aspects do they feel unsure, uninformed?
- What expectations do people have towards trial vehicles, support schemes, purchase promotion?
- What do specific target groups expect of the implementations?
- Which different views exist concerning ownership of EV: For whom is buying a 2-wheeler EV attractive? Under which conditions?
- What do target groups need in terms of information, P&R, introduction, training) that they want to use/try out vehicles?

Exploring views of ZEM in Győr: Topics

- How is zero emission mobility perceived among prospective users?
- What do people already know about e-mobility and renewable energy for e-mobility, about which aspects do they feel unsure, uninformed?
- What expectations do people have towards trial vehicles, test events and buying or renting EVs?
- What does the specific target group of the implementations expect of the event and the test vehicles/infrastructure?

Exploring views of ZEM in Bolzano: Topics

- How is Pedelec use perceived?
- Experience, utilisation, charging and other technical issues
- Who are the target groups for Pedelecs?
- How did mobility patterns change since using Pedelecs?
- REZIPE-implementation in Bolzano: what do users think?



REZIPE RENEWABLE ENERGIES FOR ZERO EMISSION TRANSPORT IN EUROPE

CENTRAL EUROPE

Study Design

- Conduction of one focus group in Linz
 - 15 participants
 - Duration: 2 hours
- Group:
 - 12 men, 3 women
 - Age between 30 and 65 years
 - All are employed at the Upper Austrian Administration
 - All are interested in buying a Pedelec or eScooter via the collective purchase action of the administration

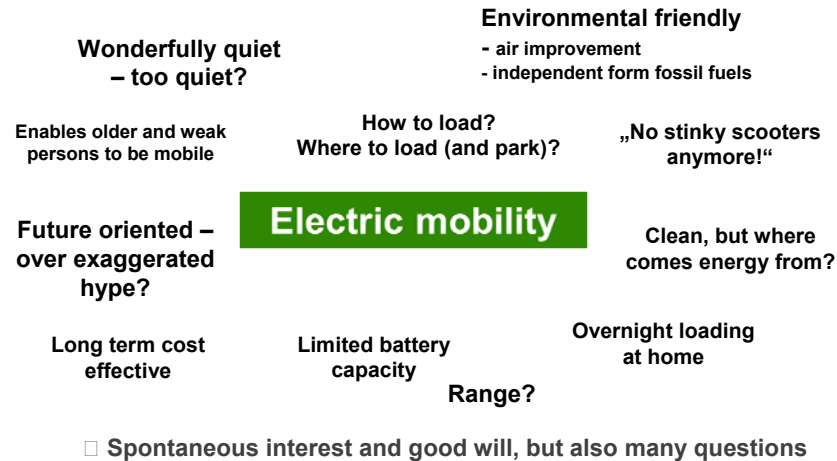
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Objectives and research questions

- To explore peoples opinions and knowledge about e-mobility and in particular on cycling, using, charging
- To explore participants' motivation and concerns
- To explore peoples' needs regarding collective purchases, in particular
 - Information
 - Selection of vehicles and testing
 - Charging/parking at the office

Results

First spontaneous associations „electric mobility“



First Pros and Cons

Pros

- Enhancing air quality in urban agglomerations
 - „No stinky moped anymore!“
- Solves inner urban parking conflicts
- In long term: independence from fossil fuels possible
- Helps to improve mobility chances of elderly, ill and invalid people
- High-end technology that should be used more widely

Cons

- Exaggerated E-Bike Hype
 - „For leisure it is better to use a conventional bike and use own muscles, but trips to work everybody is doing with the car.“
 - Not for use in levelled landscape: there a normal bike is better
- Too quiet, not possible to hear, a risk in traffic
 - But: aversion to noise-design for electric cars – this would be “totally paradox”
- It stays unclear, where the enegry should come from. But there is consensus that it would be contra productive if from fossil fuels
 - „risk, that something could be promoted, that should be avoided.“



Open questions & requirements: a sign of a differentiated picture

- How is it with...?
 - range
 - acceleration
- How does charging work?
 - Especially in tenement blocks?
- E-Bikes only make sense if one reduces car use
 - Contra productive of cyclists would only use e-bikes
- Attractive: „To set a pole against car use, to convert car freaks“
- Invest more in research and development
 - Austria is THE place, because of water power
- *„It is a huge innovation step for us. The only problem is the bad battery storage. But I think that the government puts in not enough money. Environmental protection, independence of fossil fuels, there is so much but who takes the money and we would be 100 steps further.“*



Almost all who tried a Pedelec are keen on it

- Important for success of Pedelec & Co: own experience
 - *„It is very important for awareness. Because for many it is not to imagine how good you move“*
 - *„It is almost like a drug. You feel good. I only can encourage anyone to try it out once.“*
 - *„It is a dream. Up to Grünberg village I am faster like the bus.“*
 - *„trendy, agile, speedy and it is like flying!“*
- ... and “oral propaganda”
 - People who tried it, are convinced and tell others in their social network
 - *„It is like the effect of tail wind. Certainly, the bikes are heavy, but in reality it gives you a lot of tail wind, that you can drive hills and mountains you never thought you will, where you said earlier: no, this I don't make, I have to walk.“*



Pedelects: Advantages and expectations

- Cycling gets less strenuous and taking power
 - Overcome hills and ascending slopes easily
 - Big advantage in Austria and Linz: the motor enhances cycling as there are many slopes and a strong topography
 - In the Linz region: *„Usually nobody is cycling there, as there is only up and down.“*
 - In principle: it is a good possibility, but the question how long the battery lasts when cycling many slopes.
 - When cycling longer distances and having head wind
 - Arriving not sweaty at work or at meetings
 - To pull better the trailer with children
- Improves health and rises satisfaction through motion
 - Healthy exercise, *„you arrive more contently at work as with the car, when you stand at each traffic light and wait and be in congestions...“*
- In comparison to the car it is a cheap means of transport
 - It amortises after some year, as fuel costs are reduced



Pedelects: Disadvantages and problematic aspects

- Reduced range
 - It would be important to have an easy battery system, that can be charged easily at work etc.
 - *„Take it to the office, plug it in and cycle further.“*
- Pedelects are getting too fast, by this the travel safety is reduce, there is a higher risk in road traffic and on cycle paths
 - *„The pensioners buy themselves such speedy E-bikes and step on it – but they stay bravely on the bike path (where there are too fast for others)...“*
- It should be proofed where E-Scooter und Pedelects should drive – in cases of bike paths, narrow roads etc.
- In single cases there are conspiracy theories
 - The oil lobby is working against it, they want to prevent e-mobility



New target groups and a positive image

- Pedelecs reach new target groups away from today's cyclists
 - *Only in my social network I know four persons living in the rural area, they shifted to Pedelecs because without it, they would not be able to cycle at all.*
- A promising market
 - *„As an alternative to the car and to get to work, I think it has a big future.“*



Planned utilisation of Pedelecs

- Individually very different possibilities:
 - Work context:**
 - whole distance from home to work (partially over 20 km)
 - *„Until now it was at the edge of being feasible, but such a e-bike would really support me.“*
 - Instead of car pooling it is better to drive individually
 - To reach the bus, a station or do park and ride for daily commuting and then use public transport
 - Only for private use:**
 - For buying groceries and running errands in the village/neighbourhood when it is steep and hilly
 - For partner
- But: Pedelecs cannot replace the car totally
 - Winter, bad weather, you need a car then ...

The collective purchase action of the administration in Upper Austria

Opinion on collective purchase programme

- Crucial: to offer a high quality of the e-bikes und scooters
 - On the market there is a high variety of quality standards und specifications, especially with the batteries
 - *„You will see e-bikes for 630 €, that it most likely rubbish and the wrong way. My parole is optimal quality, I think this will proof and pay out for sure.“*
 - *„I think we should afford and count on quality, because we will get earlier as we like it cheap products from the Chinese market, which will bring the market in discredit!“*
- Installation of photovoltaic facilities on public buildings shall help to solve the electricity gap
 - „We do have enough sun!“
- An important precondition: To offer safe parking and charging facilities
 - Because of high risk vandalism and theft
 - On site at the working place
 - At stations, Park & Ride places
 - *A bike, that costs about 2.000€ I would not like to place just so at the station“*
 - *„... and that there is any type of parking in a closed area for the ebikes and escooters, to secure them, plug them in and charge.“*
 - Free charging at the work place (as a mobility management measure).
- Others see no special promotion measures for this type of cycling

Collective purchase of Pedelecs and e-Scooters

2 possible variations have been discussed

- A specific number of quality checked models shall be offered in the purchase action
 - Concentration on a few models
 - Controversy discussion on how wide the variety shall be:
 - Different types of bikes
 - Different producers
 - Different price segments
 - Important: to define a cost-benefit ratio, „that you can chose, because of your personal cost limit and affordability, to buy also the second-best.“
- To get a lower fare at this traders, who take part at the purchase action:
 - Individual advice at the bike retail trader
 - High thematic expertise
 - Wide variety in products and models
- In general: there is high interest in the test report the technical office is conducting with the bikes
 - But: all test results should be transparent, also the ones of bikes that didn't pass the test, that you will not buy such a bike by coincidence
 - The test criteria should be published within the administration

Financial support schemes for Pedelec & Co?

YES!



NO!

- It makes sense to get a bonus
 - As pioneer for the new means of transport as there exist few experiences yet
 - For a intermodal mobility, e.g. with Pedelec to Park & Ride, then PT
- It motivates low income groups to switch, as they can afford only with support
- Important for many when thinking about buying a pedelec:
 - How much is the abatement, is it worth buying now or better waiting until general prices go down?
- Missing need, as it is used privately and not only for commuting no need to support this
 - Only for trips to work or trips during work
- In general not useful as people can used normal bikes when it is not hilly and people will still have a car



REZIPE RENEWABLE ENERGIES FOR ZERO EMISSION TRANSPORT IN EUROPE

CENTRAL EUROPE

Study design

- Focus group in Bolzano
 - Eight participants
 - duration: 2 hours
 - bilingual (German/Italian) with simultaneous translation
 - March 2011
- Socio-demographic composition and bicycle use:
 - 4 men, 4 women
 - between 26 and 73 years old
 - All use regularly a Pedelec bike
 - Different access to the Pedelec: 6 use the Pedelec privately, 1 participant uses it as company bicycle, 1 participant is a producer of Pedelecs – he contributes background information

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Objectives and research questions

- Personal experiences with Pedelecs:
 - Positive and negative
 - Operation purpose and uses
 - Charging, range, handling the battery
 - Environmental relief as personal issue
- What are target groups for Pedelecs?
- To what extent did the traffic behaviour change due to the use of the Pedelec?
- REZIPE-implementation in Bolzano
 - Opinions and assessments to the planned Pedelec-charging stations

Results

Cycling a Pedelec – a strong emotional factor

- Gives a feeling of **freedom**
- **Enjoying** the ease of getting ahead and the good acceleration
- **Having fun** with being speedy
 - „How fast can I reach the place?“
- **Satisfaction** to get ahead of others
 - Especially cars in a traffic jam
 - Possible due to good cycling paths in Bolzano
- Relaxed cycling and without any effort
 - Not arriving sweated any more: one can cycle in business wear and take part in business meetings – ideal for commuting

➔ **High resonance of positive emotions and enthusiasm**

Utilisation of Pedelecs

- Two main utilisations of Pedelecs in Bozen
 - On the one hand for routinised routes in every day life:
 - E.g. to the work
 - On the other hand for making transports with a bike:
e.g. transporting children, shopping and errands
 - Excursions or tours in leisure time play only subordinated role:
 - Younger people and more sportive ones use the normal bicycle
 - during (shorter) excursions the range restriction must always be taken in account
- Different uses
 - The ones use the Pedelec only for their individual trips
 - Others share a Pedelec with their partner, if it is primarily intended for transporting and collect-and-bring services

➔ **The Pedelec in Bolzano is primarily an every day vehicle in urban transport**



The Plus of a Pedelec

Managing steep hills easily

Less effort needed – and nevertheless sportive exercise

No helmet

Being not caught up in a traffic jam

No searching for parking lots

Environmental-friendly

Saving money

Great acceleration

Relaxing while cycling

China as precursor

- The advantages focus especially the every day requirements
- The references are cars, mopeds and motorbikes, but not that much conventional bicycles

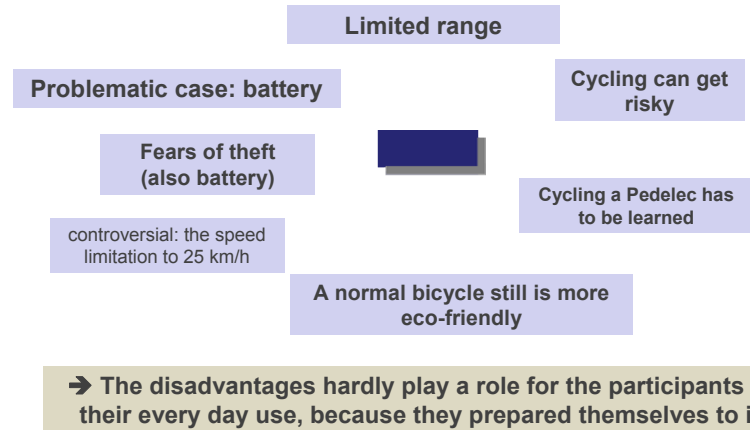


Advantages of Pedelecs

- **No searching for a parking lot**
 - Possibility to drive close to final destination
 - Thereby less time effort
 - Is very advantageous in urban traffic
- **Not caught up in a traffic jam**
 - Get ahead fast(er) - „also if one is not that sportive“
 - In Bolzano thanks to the many bike paths and the privilege at traffic lights
- **Also: At kindergardens and schools less traffic jam caused by parents who bring and fetch their children:**
 - Many Pedelecs with child seats
- **Better acceleration**
 - Less changing the gears, just accelerate
 - Start up faster after a stop
- **The relaxed and healthy alternative to the car**
 - Casual movement instead of sitting along
 - Less concentration needed
 - Also in winter: you will not get cold by pedalling
- **The eco-friendly alternative to the combustion engine**
 - Replacing car/ motorbike / moped / scooter
 - No environmental and air pollution
 - A flexible alternative to public transport
 - Directly starting at home, without waiting at public transport any more
- **Saving money**
 - Basically less attendant costs as for a car
 - „At the end of a year one has saved a nice sum in the pocket “
- **China as precursor of the Pedelec-use**



... but also disadvantages and problematic aspects



Disadvantages and problematic aspects

- Limited range
 - A fully charged battery has a range of about 40 km
 - Everybody who comes close to the maximum range with his/her daily trips, always takes care not to discharge the battery totally because driving with an empty battery is very exhausting
 - For longer excursions standard batteries are not appropriate
- Problematic case battery
 - Especially the lead batteries which are common in Bolzano:
 - Heavy weight
 - Where to dispose?
 - Environmentally problematic?
 - It's a question of money, if one can afford lithium batteries
- Risky cycling
 - Pedelecs tempt someone to drive too fast and to outpace uncontrollable; „one has to be more attentive.“
- Cycling a Pedelec has to be learned
 - To find the right relation of pedalling and accelerating with the electric motor for not using too much electricity
- An eco-friendly alternative for motorised vehicles
 - Normal bicycles are still more eco-friendly
- Controversial: the limitation to 25 km/h
 - Awkward: the motor logs off at the maximum speed
 - some (e.g. racing cyclists) would like to cycle faster



Charging, range, handling the battery

- Long charging time
 - When charging overnight it is not relevant, but it is a strong constraint if one has to recharge being on the way
- But: Contrary to electric cars or eScooters one can reach the destination with the Pedelec also with a flat battery
 - That is calming, „so one is sweating a little bit more.“
- For the ones who do not have a garage or a parking with electric connection, it is getting a little bit annoying:
 - Especially if one has to unhinge the heavy lead battery and bring it upstairs
 - „I live at the 3rd floor and have to unhinge the battery for me and my wife every day and carry it up and down“
- Quite a few participants in Bolzano have got Pedelecs of the 1st generation
 - In the meantime they do have the third lead battery already: „They do not sustain that long time.“
- According to the information of the producer the durability of the battery is very dependent on its handling
- Also problematic: the output of the battery in winter at low temperatures
 - It is bad to charge at low temperatures
 - about 20% less output
 - Also a ride at low temperatures reduces the output heavily



„An e-bike for everyone“ – potential target groups

- Wide spectrum of potential Pedelec users:
 - Seniors, as assistance for their mobility
 - ... for whom cycling is difficult otherwise or infeasible because of illness
 - „An e-bicycle allows now all people who could not cycle anymore to have this joy again “ (male, 30)
 - Parents, especially mothers, to transport their children with a bike seat or trailer
 - Especially for daily routes to the day nursery, kindergarten, school
 - Everybody who has to manage regularly altitude differences
 - Who lives „on the mountain“
 - Everybody who is willing to manage shopping and running errands without a car
 - Employees who like to use the bike but do not like to arrive sweated
 - Everybody who wants to combine a moderate sportive exercise and getting ahead speedy
- ➔ **A wide spectrum of target groups, emphasis on seniors, parents, employees – all who use the Pedelec in every day routines**

Individual benefit and impact on mobility behaviour

high



low

- All people who replaced car trips with Pedelec trips
 - the daily ride to the working place is becoming a routine
 - Bring-and-collect services for children are getting routines with a Pedelec
 - If shopping and running errands are managed with a Pedelec
- New travel routines
- Can lead to surrender a second car or a moped/ motor bike

- People using the Pedelec only sporadically
 - e.g. for (shorter) excursions
- All people who do not manage to use the Pedelec in a daily routine and decide each time again on the alternative of using the car
- Also all people who use the (normal) bicycle as often as possible
 - The Pedelec only for transporting heavy loads
- missing routines

PEDELECS IN BOLZANO

Bolzano – the city of Pedelecs

- In Bolzano are about 4'000 Pedelecs in use
 - That corresponds to a quota of 4% of the inhabitants
- The bicycle infrastructure and the image of cycling has been largely improved during the last years – „*the bicycle has right of way here*“
 - A network of bike paths, as far as possible without traffic lights for a faster movement and comfortable right of way for cyclists were established
- In Bolzano the use of a Pedelec is possible over all seasons (up to a few days with snow and low temperatures)
- Most of the Pedelecs in Bolzano originate from the local Pedelec producer „TC-Mobility“
 - His FRISBEES are present in the town, also by a network of service-stations
 - „*They almost have the monopoly here*“

Pedelecs from „TC-Mobility“ in Bolzano

- It is TC-Mobility's aim to produce affordable and robust Pedelecs for every day use
„*the VW-beetle of the Pedelecs*“
 - Basic model with lead battery (battery weight: 11,5kg) costs about 1.000 €
 - Lithium battery weighs only 3kg, with a surcharge of about 300 €
- In Bolzano most Pedelecs in use run with lead batteries
- The FRESBEES are thought as a all-purpose bicycles run by multiple users
 - Easy adjustable saddle: People of different height can use the Pedelec. This is advantageous for the utilization as office/company bike.
 - The Pedelecs must be suitable for a child seat and two bags /baskets in order to use it for the most important daily trips



Source: www.frisbee.eu

➔ In northern Italy the Pedelecs seem to be more an alternative for mopeds or scooters, and less an alternative for the normal bicycle (on which very individualized requirements exist)

Reactions to the planned REZIPE charging stations in Bolzano

Reactions to the charging stations in Bolzano (1)

- Within REZIPE two charging stations each with two plug in places for Pedelecs are planned:

- ┆ One in the public space: it is projected at the station
- ┆ One on urban ground: for the utilization by employees of the urban administration

□ Spontaneously more sceptic reactions

➔ A lot of barriers and problematic starting points are mentioned:

- The greatest challenge seems to be the required **rechargers**
 - There exist any number of types, depending on producer and battery type (similar like batteries and charging cables for mobile phones), „every *Pedelec model has got its own charging system.*“
 - Therefore users have to bring the recharger with them. Up to now this is unusual and would mean to carry additional weight.
 - Battery recharging gear is not weather-proof
 - ...and have to be installed accurately and in the right order

Reactions to the charging stations in Bolzano (2)

- Few individuals need
 - Up to now trips with the Pedelec are planned in a way that one battery is sufficient (around 40 km): *„The battery will be charged overnight at home and suffices for one day“*
 - An extension of the usual radius user risk only, if the access to a charging station would be guaranteed
- Charging makes only sense if it is done over more hours
 - Minimal charging is not worthwhile
 - Short time charging is damaging the battery: *„If you charge only one hour, you damage the battery system in the long term.“*
- Precondition: Pedelec user stays in the vicinity over some hours (minimum 4 hours)
- Supplying only two plugs seems problematic
 - If there is a real demand one cannot rely on getting a plug in place, *„it is pure coincidence, if you get a site“*
 - The Pedelecs require the place for several hours, thus a little turnover is possible
- Several participants were interested, if the charging station would be near their working place
 - ... and their daily battery-radius is at the limit

Reactions to the charging stations in Bolzano (3)

- The planned location at the station is not absolutely reasonable
 - Commuters who would potentially like to use a Pedelec charging point there overnight, avoid the risk of theft
 - It is questionable who the potential users would be at the station?

Important for the planned charging station:

- Crucial: compatibility for different rechargers
- Only reasonable: lockable and weatherproof boxes
- More interesting: if fast charging would be technically feasible
- Pedelec owners who reach the daily limit of their battery signalize some interest in possibilities for charging during their working hours
 - The plug-in places must be easily accessible, reliably available and safe
 - This also applies to charging stations for company/administration Pedelecs. Plug-in places in subterranean garages or scruffy storage rooms will rather be avoided: *„you do not like going to the cellar“.*

First conclusions

- Pedelects in Bolzano are first of all every day vehicles which make fun and simplify the daily routines
- The possible radius feasible with the battery plays an important role
- Environmental aspects of using a Pedelect are important motives
- The issue of the origin of electricity plays hardly a role (at least in Bolzano) as the local electricity supplier offers hydro power
 - In general it should be implicitly communicated how important renewable energy is therefore
- Battery and charging are (still) afflicted with several deficits but the users are coping with them in every day use
- The battery will be charged overnight, a charging on the way is mostly not necessary
 - It also seems difficult because charging only seems reasonable if done over several hours
- Therefore charging stations are reasonable primarily for the utilization during working hours. For this purpose there must be indeed a reliable access and sheltered boxes
- One difficulty is to construct a charging station compatible for a wide variety of rechargers
- Location and equipment of the planned charging stations in the context of REZIPE should be reconsidered in this regard

Acceptance and attractiveness of Electric Mobility

Results of a focus group discussion in Győr



Study Design

- Conduction of one focus group discussion in Győr, Hungary
 - 10 participants
 - Duration: approx. 2 hours

- Socio-demographic composition
 - 10 inhabitants of Győr (7 male, 3 female)
 - Age between 18-60 years
 - Various educational levels and professions
 - Partly households with children
 - Interested in ecological issues

- Mobility behaviour characteristics
 - 7 of 10 group person own a car (small and mid-size)
 - Vehicle Preference: 3 intensive car drivers, 3 combined cyclists/car drivers, 2 intensive cyclists, 2 participants use public transport and are pedestrians most of the time
 - All of the participants ride a bike at least occasionally
 - No experience with electric vehicles

Objectives and research questions

- Acceptance and general attitude of the participants towards electric mobility
- Attractiveness of electric vehicles (e-bikes and e-cars)
- Exploration of constraining and supporting factors of e-Mobility in Hungary from a consumer perspective
- Recognizing demands in the field of ...
 - Information
 - Infrastructure
 - Usage/user models
 - the REZIPE-implementation in Győr

Results

Electric mobility – spontaneous associations

E-cars

Electric mobility

Electric lift trucks

Railway and
trolley
busses

Renewable Energies (wind
power and photovoltaic
systems)

- Electric mobility as a term is not familiar in Hungary: “electric transport” was used instead
- Participants took part at the discussion rather modest and cautious

Pedelec/E-bike

- Input:
 - Explanation of difference between PEDELEC and E-Bike; details of a Pedelec; technical features (electric driver support, Li-batteries, charging, range, speed, braking; description of different models)
- Questions:
 - Why does electric motor stop at 25 km/h?
„but also with a bicycle we can go faster than 25 km/h“
 - Technical questions: Is energy recuperation possible?
 - why is it not possible to produce energy during normal cycling, when the electric motor is not switched on?

Pedelecs: Advantages

- It is not exhausting: ideal for convenient cycling or elderly people
- Heavy things (bike trailers, children (seats) are easy to carry
„...I could take my stuff for the weekend to home, without parking the car far away, for me it would be perfect.“
- Ride a bike without sweating
„...going to the office in tie without sweating“

→ Ecological advantages are not mentioned



Pedelecs: Disadvantages & problems

- Limited range: unsuitable for sports and longer tours
„you can't go in the nature with it.“
- Charging out of home is impossible
„...in Hungary nobody would allow you, please, let me plug in my bike... and later nobody knows who will pay for it“
- The Pedelec is regarded as a comfortable bike, but it is too expensive: It is also competing with scooters, motorbikes, mopeds
- Fear of theft:
„it is not sure, that it wouldn't be stolen, when I come out from somewhere“
- Maintenance of the Pedelec is probably too complicated and expensive

→ The participants emphasise disadvantages more than positive aspects



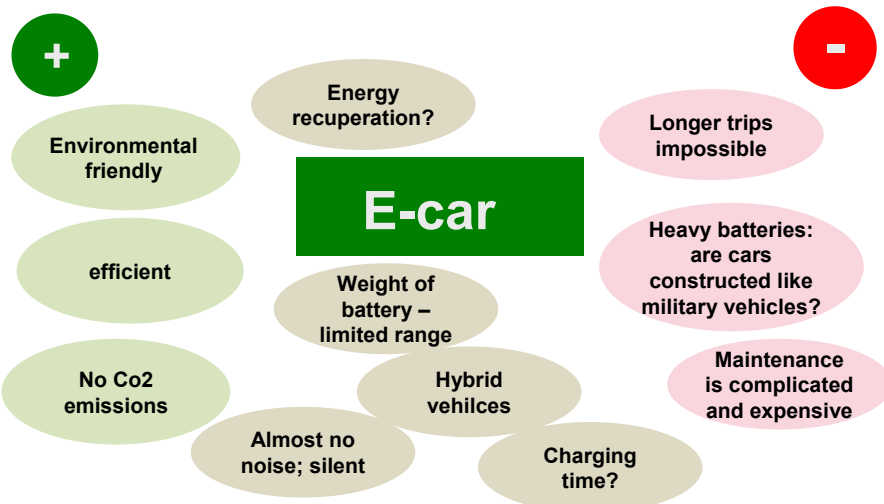
Planned utilisation of a Pedelec

- Individually: for shopping trips but not for leisure excursions
- Commuting: ideal for the daily trips to work
„...in concentric circles, within a certain range useful“
- Primarily companies and public administrations should introduce Pedelecs and make it available for employees (company bikes)
„...I wouldn't purchase one now, but I would use it if possible, just like as an advertisement.“

Requirements

- A general investment in bike infrastructure is necessary: bike paths and safe parking:
„it must be solved, that people can park the bikes safely, to be able to go home with it, and not with a taxi ...“
- More on-the-road charging possibilities are required
„...the Pedelec needs such a place, where it could be charged all the time...“
- Technical needs: some participants would like to have a detailed display showing the actual charging stage of the batteries.

E-cars – spontaneous associations and questions



Elements and variations of e-cars

Input on e-cars: description of different models und technical parameters

- range, speed, sizes, purchase price, batteries and way of charging

Charging

- Duration of charging considered as too long
- More flexibility with charging: participants would prefer charging possibilities during activities like shopping etc. when car is parked for a while
- Concept of the battery-change instead of charging is generally welcomed
- Charging in tenement blocks is hardly imaginable
„You should consider, how many people are living in ten-storey blocks, most of them without an own garage... where should they plug in the car?“
- But: Carrying the charging cable and the charging process itself are not the greatest problems:
„If this was the only question, it wouldn't be a problem for me ...“

Range

- The duration of charging and the lack of the charging stations are seen as the most serious problems and **not** the limited range
 - „... and what, if I wanted to visit some relatives, who are living 600 km away... do I have to make a stop and wait for hours and while it is charging?“
- Optimistic view about the future, about technological developments
 - „the batteries are going to be better and better, year by year... just like it was with cell phones“

Additional equipment of the e-cars

- Turning on headlights is not necessary over the day (it is mandatory in Hungary)
- Inside lighting is not important
- Music/radio are seen as essential
- Air condition is not strictly necessary

Ecological impact of the e-car (1)

- Compared with Pedelec the participants associated e-cars with ecologic benefits
- The discussion shows the complexity of the topic: It is determining for the group, where the electricity is produced:
„We would not say, yes, we are big fans of environmental protection, until we don't know, where the power we use was produced, because it could cause a bigger damage on the other side ...”
- The participants also mentioned the problematic of the battery disposal:
 - *„...and what happens then with the old batteries?“*
 - *„...they should all be disposed. Or do you want to take them to your living room?“*
 - *„... that isn't a solution, carrying them all somewhere abroad! It's our rubbish!“*

→ **Recycling was not explicitly named, but the participants care about a long-term, ecologically harmless waste disposal**

Ecological impact of the e-car (2)

- Discussion of the energy politics and the production of renewable energies in Hungary:
 - No trust in policy makers in the energy sector
 - The production of energy is confusing: several participants think, that the potential of wind energy is not well utilized – on the other hand they ask, why nuclear power plants in Hungary will be extended.
- Some participants mentioned the competition for land use between agriculture and energy production



Design and driving experience

- An e-car is not a vehicle with a slow, idle, unsexy image. But one thing is sure: all participants are keen on the symbolic speedy image of some specific e-cars (e.g. Tesla Roadster)
- Mini and micro car concepts are less attractive:
„I couldn't imagine this mini morris-cars for me“.
With small car categories people worry about not being able to travel around with the whole family and with a lot of baggage.
- The participants think, there would a different driving experience connected with the e-car, caused by the e-motor:
 - Silence: it is positive in the view of the driver
 - Dynamic acceleration

**„it needs an other driving style“... „but it's a matter of habits“
→ the participants expect to accommodate themselves easily to it**



Price, subsidies and provider image

- Information on the current price was not commented
- Viewpoint on high investment costs of an e-car:
 - the lower operating costs should compensate the higher purchase price
 - Amortization within 2-5 years to make resale possible
- Some concerns: With driving an e-car one could make a fool on him/herself - because the owner invested a lot of money in such an extraordinary and not fully useful vehicle.
- For that reason e-vehicles should be supported by state subsidies:
 - Financial support from the government for the purchase of an e-car
 - As stimulus for replacing the second car in households by an e-car by a financial incentive
 - Other incentives: e.g. free parking for e-cars
- Production: rather global companies with a presence in Hungary
 - Domestic products are popular, but in the automotive branch *“they doesn't have a name” “they don't have a brand equity”*

Reactions to the planned REZIPE event in Győr

Implementation in Győr – Ideas an suggestions

- Input: description of the project and the event in Győr:
 - 3 E-vehicles + 1 solar charging station is presented within a public event for trial
 - Summer 2011, at the University-Campus.
- The participants considered it as a exciting event, they would like to take part
- They think there is a big interest: „*the people will come in crowds*“
- About the test driving: „*one circle in the courtyard is not enough*“
- Promotion: local journals, TV, adverts on busses and in bus stops
- The e-vehicles could drive around the city before to rise attention
- The event should be combined with other environmental actions: e.g. battery recycling etc.

Summary Györ (1)

- In general
 - the participants were critical most of the time, negative aspects were always emphasised
 - There is no previous experience with e-mobility and not so much basic knowledge
 - Hungarian transport policy circumstances concerning environmental development are considered as very bad. Participants praise the countries western from Hungary.
 - There is a general contradiction visible in the opinions of the participants: this points to an indecisiveness of the participants, there was not yet a real opinion development. The topic is apparently not in the public discussion.
- Pedelects
 - Pedelects and E-Bikes would only make sense, if cycling was supported in general and more would be invested in infrastructure.
 - Pedelects are considered as comfortable bicycles: As incentive, companies and public administrations should offer Pedelects as company bikes for employees. Otherwise it would be too expensive. Some participants would rather purchase a scooter for this amount.

Summary Györ (2)

- E-cars
 - Participants had much more knowledge regarding e-cars than Pedelects
 - There is a huge discrepancy regarding the environmental potentials between e-cars and Pedelects: it was discussed by e-cars in much detail, from energy production of to disposal of dangerous components.
 - E-cars should be supported by the government in the first years. There are no concerns, that such subsidies would be not a useful investment by the government (not a waste of fiscal money).
- Recommendations on the event
 - The first results offer advice what kind of information campaign would be necessary to promote the event in the region
 - An ex post survey (short questionnaire) could explore after the event in Györ, how the participants developed their opinion, after having had some practical experience with e-vehicles.



CONCLUSIONS



Recommendations towards the implementers (1)

- In general:
 - The origin of the used energy has to be communicated from the beginning – otherwise users are making up their own rumours on zero emission mobility
- Events or ppp-models for testing vehicles (Győr, Klagenfurt, Ljubljana, evt. Linz):
 - Planning of testing-events: test drives shall allow users to get a real impression (not to short course)
 - good visibility of promotion activities in all media and for several target groups necessary (information has to reach younger and older people, environmentally oriented people but also technical fans etc.
 - Possible to combine events with other environmental activities



Recommendations towards the implementers (2)

- Pedelec-charging stations (Bolzano, Ljubljana, Linz) should take into consideration:
 - Safety for parking, e.g. parking box for bikes,
 - Weather protection, e.g. parking box
 - Compatible with different charging and battery systems, to avoid that users have to carry around their charging gear
 - Unsolved question: payment?



Synthesis (1)

- In general: There are **many open questions** towards e-mobility:
 - ... within the topic of **e-bikes**: the technical development and of charging and batteries are crucial for the practicability and benefit in every day use.
 - E-cars: it is **difficult for the participants to imagine the second step of further future development**: What most participants assess are the current “preliminary” products, their high price and the non existing infrastructure. What they cannot consider: how ZEM would look like in 10 years, with more infrastructure, other market prices and variety of products
- It makes obvious the **relevance of target groups** for ZEM:
 - there are early adopters who do not mind being “nerds” and buying a perhaps not yet perfect vehicle
 - there are mainstreaming seekers and late comers
 - infrastructure and communication measures have to consider this!
 - REZIPE aims mainly to early adopters
- **Even environmental oriented groups have not a lot of background knowledge**
 - promotion, discussion the complexity of zero emission mobility, its benefits and its limits – is necessary!

Synthesis (2)

- Pedelec users:
 - Know exactly how and when they use their Pedelec
 - They also know which infrastructure really would assist Pedelec use – problem: can the implementations take this knowledge into account?

- Non Pedelec users:
 - On many technical issues exist rumours and concerns are in the foreground. Much lesser the individual benefits, the emotional aspects and what could be the “cool” thing trying a Pedelec are discussed □ communication strategies must focus who innovation can be transported as something which makes fun
 - Concerns are raised on needs which are in most cases not relevant in real life. This is due to the circumstance, that the participants do not yet know a lot about it. One example is the necessary range of a Pedelec battery in comparison to the personal daily range one cycles on a working day.
 - The environmental benefit of Pedelec use (if replacing car trips) is not discussed strongly among non users.