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Electric vehicles in the craft sector

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Source: POLIS 2015

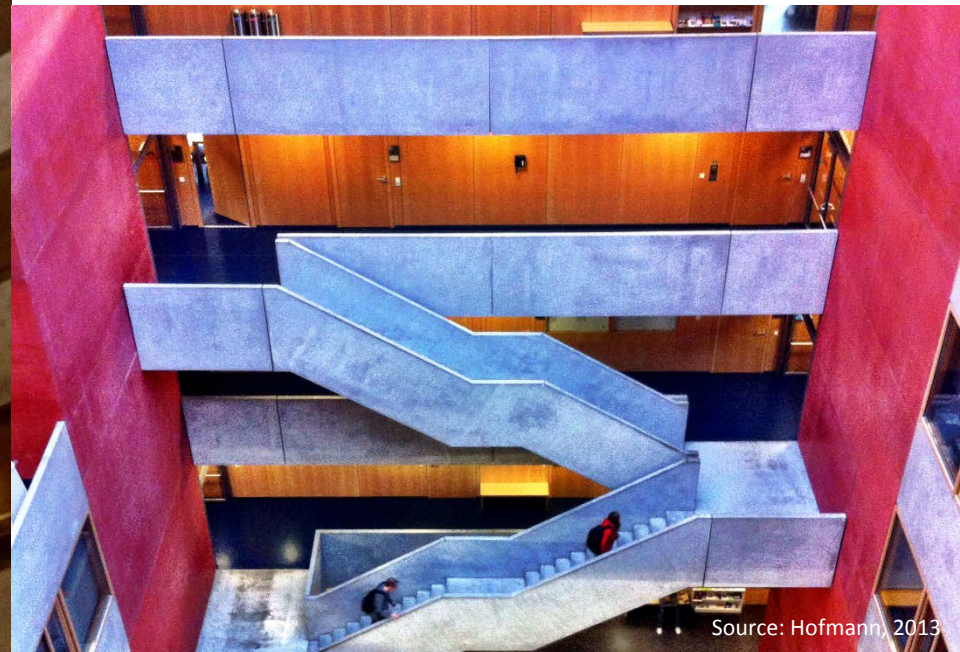
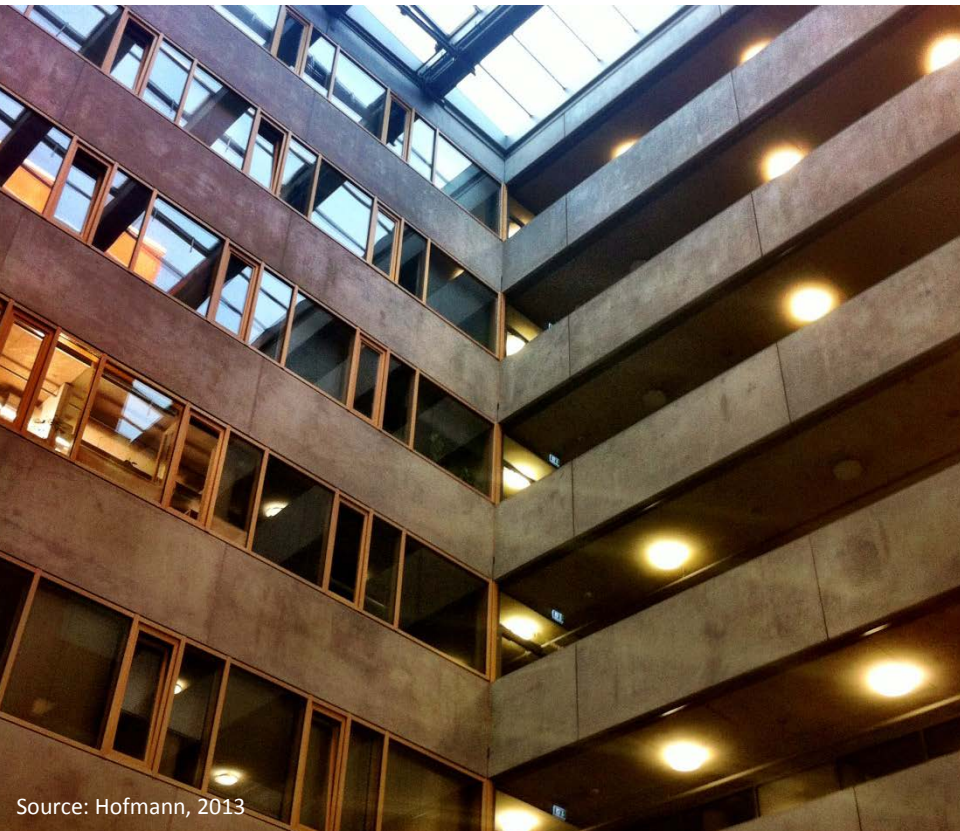
Structure

- Introduction / Institution
- E-FACTS
- Survey “erster!” (Frankfurt)
- Conclusion

Frankfurt University of Applied Sciences

- 12.500 students from over 100 nations
- Over 30 study programs in 4 faculties

1. **Architecture, Civil Engineering, Geomatics**
2. Computer Science and Engineering
3. Business and Law
4. Health and Social Work



Department New Mobility



transport planning

mobility needs demand analysis

demographic change energy transition



public transport urban space interdisciplinary

accessibility logistics cycling intermodal traffic

rural areas carsharing parking e-mobility walking

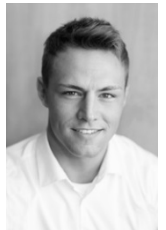
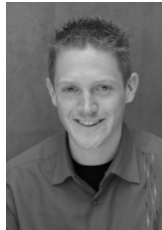
socio-scientific research alternative transport modes

university education multimodality sustainability

energy transition practical relevance ICT

major event traffic urbanization

urban planning



E-FACTS

Electric Vehicles For Alternative City Transport Systems

- funded by: ERA-NET Plus Electromobility+
- duration: July 2013 – June 2015
- partners: City of Stockholm, SWE
City of Arnhem, NL
Frankfurt Economic Development, DE
Frankfurt University of Applied Sciences, DE
- aim: speeding up the uptake of EVs
- focus: vehicles/charging infrastructure (several local projects)
-> in public and private sector

Supported by:



on the basis of a decision
by the German Bundestag

E-FACTS

Electric Vehicles For Alternative City Transport Systems

WP 4: Accompanying research

- goal: to identify possible EV-user groups and their needs
- aspects: legal, social, economic and behavioural needs of costumers
- methods: quantitative and qualitative surveys

source: Hofmann, 2013



source: Hofmann, 2013





erster! - EVs for craft businesses

Das Handwerk fährt emobil

- Handcraft companies get financial support buying EVs for their own fleet.
- 38 companies were equipped with EVs.
(supported by the State of Hesse, the cities of Frankfurt and Wiesbaden)
- First, companies could choose an EV from an explicit list, after a short period of time, companies were free to choose:
 - Battery Electric Vehicle (BEV)
 - Range Extended Electric Vehicle (REEV)
 - Plug-In Hybrid Electric Vehicle (PHEV), maximum CO₂-emission: 50 g/km

Supported by:



Quantitative and qualitative surveys

Objectives:

- Identification of handcraft companies as one of the best fitting inner-city businesses to adopt electromobility in their daily mobility.
- Make EVs visible in the cities to make them part of the urban traffic.
- Negative prejudices should be disproven.

Methods:

- Basis is a three-tier survey concept, IDs given for anonymity:
 - T0 = participation of users before the delivery of the EV
 - T1 = interim survey, after the fifth use of the EV
 - T2 = subsequent recovery, after a long term usage

Quantitative and qualitative surveys

“Smaller vehicles are preferred, but the source of energy is not *green*.”

Which electric vehicle did your company choose? (n=40)

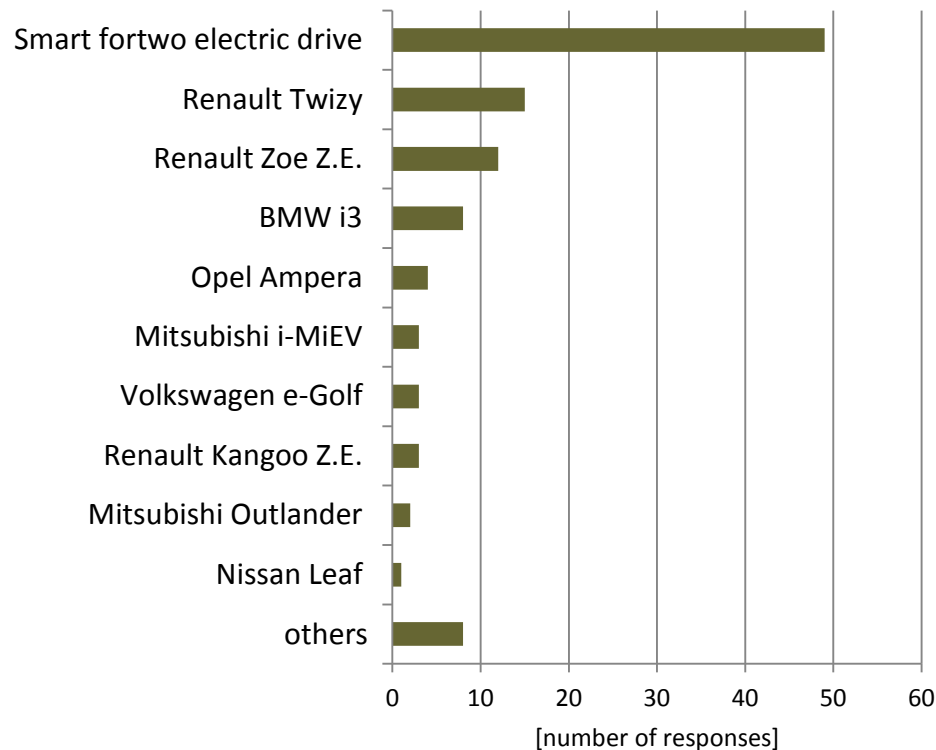


Figure 1: Type of vehicles

Do you obtain green electricity? (n=50)

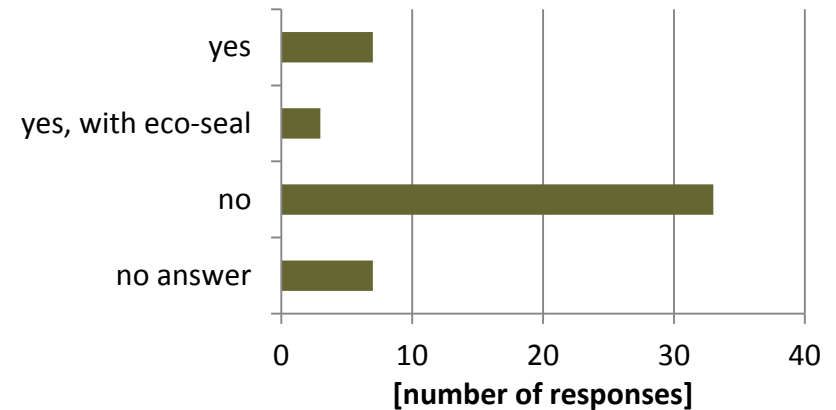


Figure 2: Source of energy

Quantitative and qualitative surveys

“A vehicle is used by several people per day on several days a week.”

How many different drivers use your electric vehicle per day? (n=40)

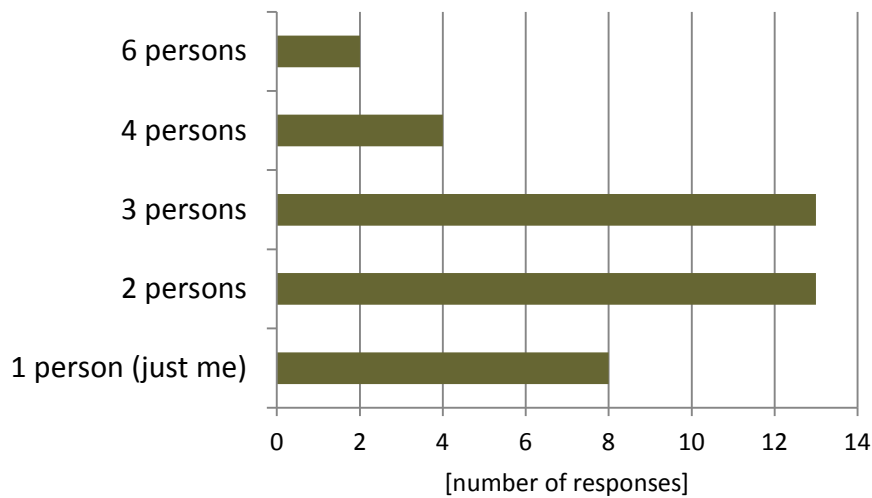


Figure 3: Users per day

How often have you used the electric vehicle until now? (n=38)

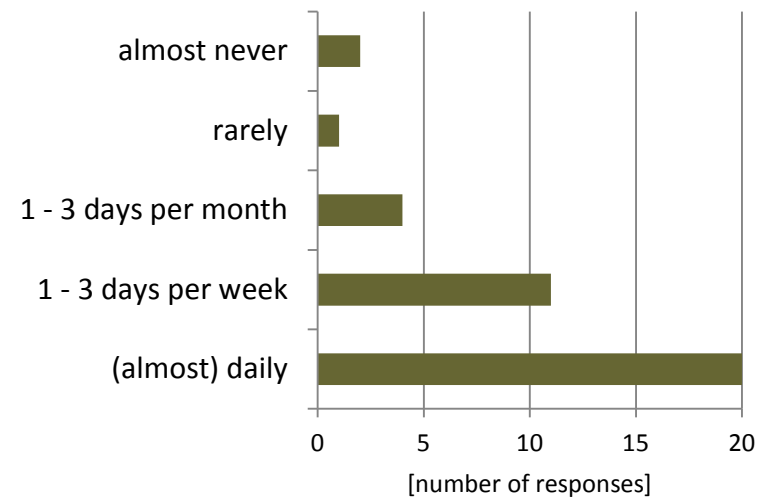


Figure 4: Usage of electric vehicle

Quantitative and qualitative surveys

“Craft businesses are a perfect target group for the usage of EVs, because they drive a short daily distance.”

Which range should an electric vehicle at least cover, to be an option for you? (n=24)

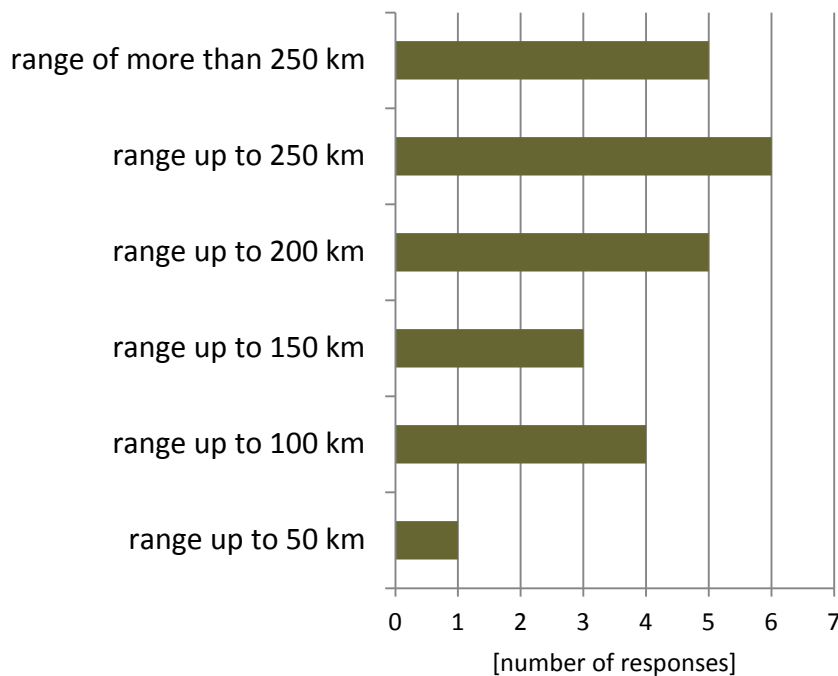


Figure 5: Distance on business per day (T0)

Which distance do you cover on business with the electric vehicle per day? (n=38)

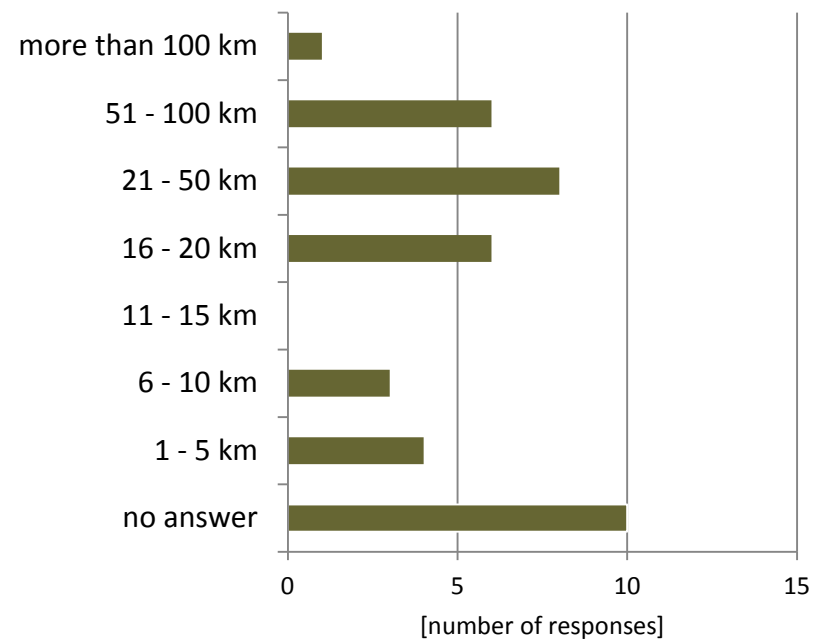


Figure 6: Necessary range (T1)

Quantitative and qualitative surveys

“The overall assessment of the EV is mostly positive.”

How do you evaluate the electric vehicle's driving performance? (n=24)

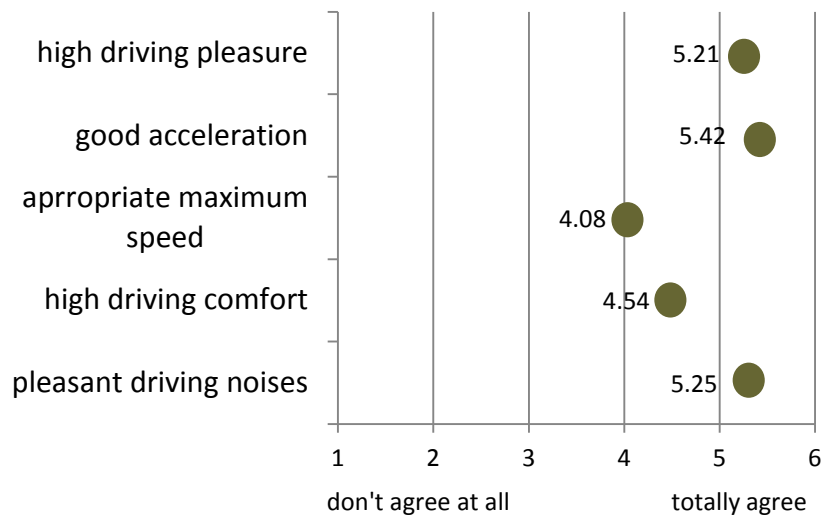


Figure 7: Driving performance (T0)

Did the usage of electric vehicles generate any problems in the operational process? (n=24)

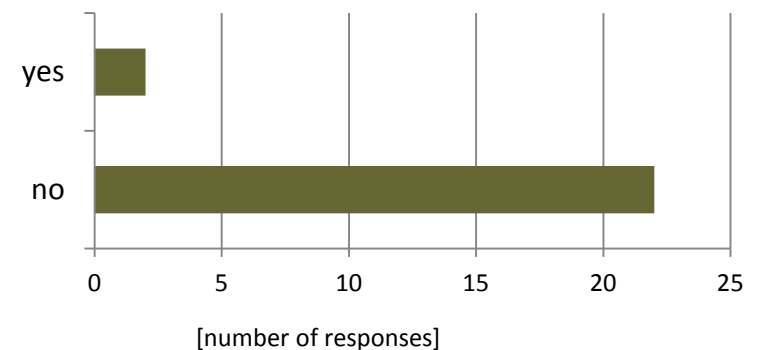


Figure 8: Problems in the operational process (T2)

Quantitative and qualitative surveys

Demographic data

- 44 of 57 respondents were men
 - More than half of them were between 41 and 60 (13 were between 21 and 40, 2 were younger than 21)
- > reflects the average person, working in that business

Communication

Do you communicate your experiences with electromobility in your personal environment? (n=38)

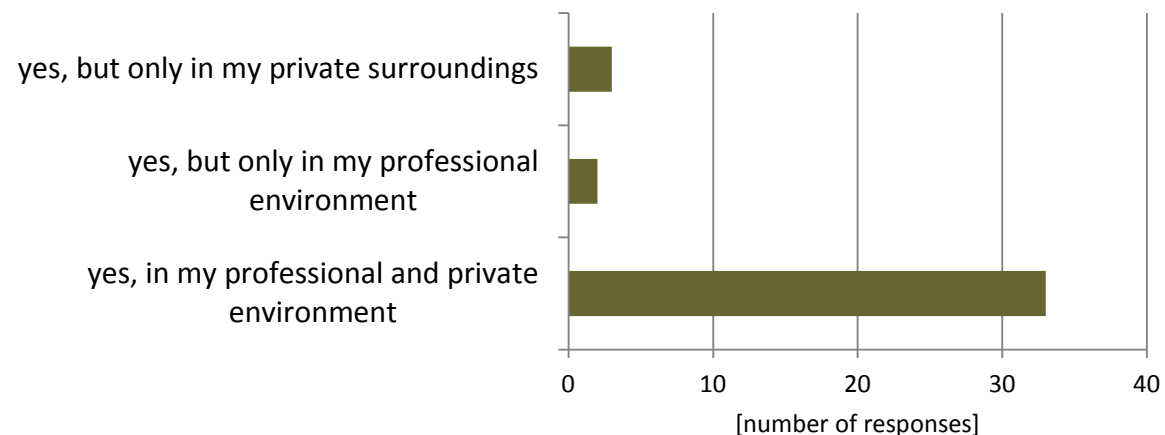


Figure 9: Communication of the experiences (T2)

Conclusion

- Handcraft companies are a perfect target group for the usage of inner-city electromobility
- Disprove of hard facts like:
 - problems with range
 - issues with charging infrastructure
 - negative influence on the daily operations
- *“eFlotte”*
followup-project of the Federal state of Hesse
= 2-week test drive for any hessian company



Thank you for your attention!



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