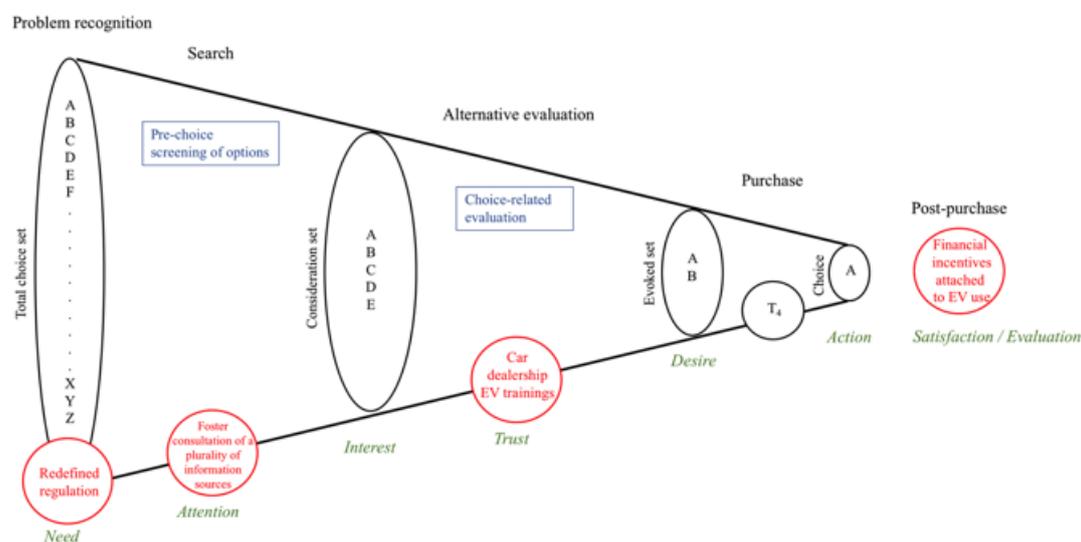


Capacity Area B2 Topic 1.3 Deliverable 1

Public workshop on investment decisions in electric mobility at the St. Galler Forum for Management of Renewable Energies

Our previous and current work addresses the domains of investor as well as customer acceptance of electric mobility. The topics are elaborated in two major research streams.

In the first research stream, we investigated the customer purchase processes of electric vehicles. The goal of the study by Plananska (Plananska, 2019) was to understand the complexity of the vehicle purchase process and to identify touchpoints, the points of contact through which electric vehicles could be most effectively promoted. The study firstly delivered a more complex, novel model of a vehicle purchase process, identifying five major touchpoints through which vehicle purchase can be influenced. The elaborated vehicle purchase process is illustrated in the figure below. Secondly, it provided insights on how customers evaluate their need for a vehicle, where they seek information for car offers, with which type of retailer they get in touch with and which offers they have been provided, among others. The investigation revealed that only a very minor share of customers was actually offered an electric vehicle (EV) when visiting a car dealer, highlighting the car dealer's central role in the customer purchase process. Customers who consider purchasing an EV see a plurality of information sources as more important. To increase the likelihood of customers deciding for an EV, several interventions within individual touchpoints in the car purchase process have been proposed, namely: shaping the choice set by regulation, fostering the consultation of multiple information channels, EV training for car dealers as well as financial incentives for EV use.



The model of the vehicle purchase process elaborated in the study Plananska (2019).

In the second research stream, we investigate the innovation ecosystem for business model development in the domain of smart EV charging. A qualitative system dynamics model was built based on the inputs from several expert interviews as well as the insights gained during a workshop with 22 practitioners of the electric mobility field. The preliminary results gained so far highlight a) the local aspect of grid impacts from EV charging, b) solar charging at companies as a promising avenue for matching photovoltaic generation with EV charging, c) that smart charging solutions will have to target optimal coordination of charging time and power, but also the simultaneity effect, and d) customer

acceptance as an absolutely central aspect for developing smart charging business models, about which so far only little is known.

The conducted work is of particular relevance for the SCCER Mobility since it demonstrates leverage points where customer purchase behavior towards electric mobility can be stimulated. Furthermore, the work explores the underlying dynamics of business model development for smart EV charging. Both aspects are central for successfully managing the Swiss mobility transition towards sustainable solutions. The gained results were presented in two workshops during the #REMforum and discussed with experts, facilitating the knowledge transfer to the industry. Beyond this the #REMforum also showcased a keynote speech by Christina Bu, general manager Norwegian EV Association, on “Electric Transport in Norway and beyond – what others can learn” providing best practice examples for policies fostering the EV diffusion.

The two research streams will be continued within the SCCER Mobility framework. The first research stream will expand its work to the effects of bundled offers between EVs and EV charging stations. Concretely, the tested bundle will consist of a private charging station and its installation, access to public charging networks combined with an app and certificate for charging with renewable electricity. The topic will first be investigated by means of an online experiment, combining a between-subject design and a choice-based conjoint analysis. Later on, results are planned to be tested in a field experiment in collaboration with an electric utility company.

The second research stream will be continued by applying the developed qualitative framework to a cross-country analysis for how and why smart charging pilot projects were implemented. Beyond this, we target a quantitative simulation of the business development dynamics for smart EV charging.

Regarding the deliverable “Scientific publication on interplay of rational and affective factors in the decision process to buy an electric vehicle” for 2020, the research stream on the customer purchase process provided results that were already submitted to the journal *Energy Policy*. Furthermore, we expect that the planned research on customer preferences for EV bundles as well as on the innovation system for smart EV charging will lead to additional publications in the coming year.

Reference

Plananska, J. (2019). Touchpoints for e-mobility: Understanding the vehicle purchase sales of electric vehicles process to promote sales of electric vehicles. *Energy Policy, Submitted*.