

Customer acceptance of electric mobility

Vehicle purchase process understanding for a more efficient EV promotion in Switzerland

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About the speaker

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 - Prof. Dr. Rolf Wüstenhagen
 - Social acceptance of renewable energies
- **Customer acceptance of electric mobility**

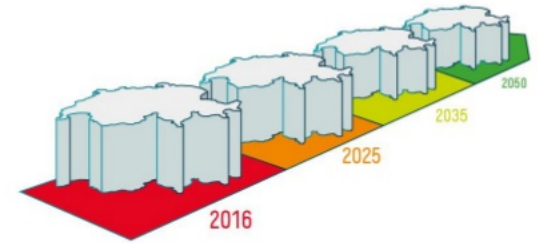


Agenda

- **Research context**
- **Purchase process of vehicles in Switzerland – study results**
- **Conclusions and policy recommendations**
- **Questions and discussion**

Research context – problem recognition

- Energy Strategy 2050
- Electric mobility in Switzerland
- Share of electric vehicles (EVs) small – only 1.17% of sales in 2017
- **Nudges** – possible alternative to incentives and regulation
 - “...aspects of choice architecture that alter people’s behavior in a predictable way without forbidding any options or significantly changing economic incentives”



(Thaler, & Sunstein, 2008)

Research context – problem recognition

- To propose effective nudges – need to understand:
 - What is happening in the field – choice architecture to date
 - Barriers to EV purchases

➔ **Arrive to the understanding what is the reason of the small share of EVs, so that effective nudging interventions can be proposed to policy makers to promote their purchases**

State of the field analysis

- **2018**
- **Mixed-method research:** semi-structured interviews, ethnographic observation, analysis of relevant documents
- **Main results:**
 - Large number of support measures
 - Large number of stakeholders involved
 - Electric mobility experiences a special momentum

Applying nudging techniques to promote fuel-efficient car purchases – State of the field analysis

- Transport sector emitting more than 1/3 of Swiss CO₂ emissions,¹ the share of fuel-efficient cars has to increase to fulfill national climate goals.
- Despite increasing supply and support measures in place, the share of fuel-efficient cars remains only 5,1%.²
- Joint research project has been outlined, investigating and testing the potential of nudging techniques as an alternative support measure.
- First phase analyzing the current state of the field concludes that plurality of actors and alternative support measures are involved.
- For better support of fuel-efficient car purchases, cooperation with the plurality of stakeholders and focus on electric mobility is recommended.

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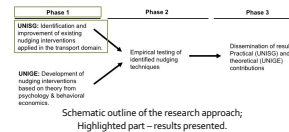
Introduction

With more than one third of Swiss CO₂ emissions resulting from the transport sector (individual mobility being responsible for almost two thirds of them), the purchases of fuel-efficient cars have to significantly increase to fulfill national climate and energy goals. Despite their increasing supply and support measures in place, their limited share of 5,1% within Swiss fleet³ suggests that more effective tools are needed for their successful penetration. One such possibility is represented by nudging techniques, aspects of choice architecture that alter people's behavior without limiting freedom of choice or significantly changing economic incentives.¹



Research approach

To understand the potential of nudging techniques to promote fuel-efficient car purchases, a joint, three-stage research project between the University of St.Gallen (UNISG) and the University of Geneva (UNIGE) was outlined. The first phase analyzes the current state of the field, investigating stakeholders involved and interventions implemented (UNISG) and studying relevant theory (UNIGE). Thus obtained results will inform the following stages of the project, namely the testing of identified nudges (Phase 2) and results dissemination (Phase 3).



Research question and methodology

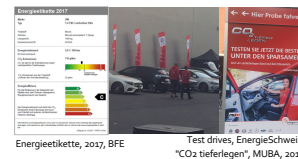
To deliver its goals, the first phase of the project conducted by UNISG has asked the following questions:

1. What is the current state of the field of the fuel-efficient car sector, i.e. what actors are involved and what type of support measures are mainly implemented?
2. What lessons can be learned from these findings to better promote fuel-efficient car purchases in Switzerland?

To answer these questions, a mixed-method research consisting of semi-structured interviews with relevant stakeholders, ethnographic observation at events and qualitative analysis of appropriate documents (online and print) was undertaken.

Results

1. Support of fuel-efficient vehicles is significantly increasing. Electric cars experience special momentum, with the majority of measures and car manufacturers focusing on this technology.
2. Besides regulatory and market-based instruments, the promotion of fuel-efficient cars mainly merges marketing and nudging techniques. The most common interventions are provision of information and test drives.



3. A plurality of stakeholders (public as well as private) is involved, ranging from traditional transport sector actors (car manufacturers, importers and dealers) to actors from related fields. This is particularly relevant for electric mobility, with actors from energy (electric utilities), finance (insurance companies), real estate (property owners) and many other fields involved.

Sector of activity	Type of actor	Sub-type
Public governance	Public	Federal level
		Cantonal level
		Municipal level
Transport	Private	Car manufacturers
		Car dealers
		Car importers
		Charging stations operators
		Associations
		Associations
Research	Public	Academia
		Academia
Energy	Private	Electric utilities
		Electric utilities
Appliances	Private	Electric hardware providers
Finances	Private	Banking and insurance
		Property owners
Property market	Private	Property owners

Actors involved - schematic outline

Recommendations

For more effective support of fuel-efficient car purchases, consideration of the plurality of stakeholders involved and recognition of their diversified interests is necessary. Considering the current momentum of electric cars, further measures to promote fuel-efficient car purchases could focus primarily on this technology.

The identification of information provision and test drives as main non-regulatory, non-market based support measures of fuel-efficient car purchases provides information for the second phase of the project, in which selected nudging techniques (purchase convenience, power of free, information provision via labeling - attribute measurement and touchpoint analysis), will be empirically tested. Thus obtained results will provide data on which nudging techniques would most effectively promote fuel-efficient car purchases in Switzerland.



References

1. Bundesamt für Umwelt (BAFU). (2018). Emissionen von Treibhausgasen nach revidiertem CO₂-Gesetz und Kyoto-Protokoll, 2. Verpflichtungsperiode (2013-2020).
2. EnergieSchweiz. (2018). *Energieeffiziente Fahrzeuge, Markttrends 2018*.
3. Thaler, R. H., & Sunstein, C. R. (2008). *Nudge: Improving decisions about health, wealth, and happiness*. London: Penguin Books.

Partners

State of the field analysis - Results

- **Additional results of the state of the field analysis:**
 - EV prices are falling, total cost of ownership (TCO) lower than for internal combustion engine (ICE) vehicles
 - Charging infrastructure developing
 - Range of EVs sufficient to cover most of customer needs

State of the field analysis - Results

- ➔ Technical barriers to EV purchases are rapidly decreasing
- ➔ Reasons for the low share of EVs have to lie within customer preferences
- ➔ Need to understand customer preferences, attitudes and individual vehicle purchase process

State of the field analysis - Results

- Literature on customer motivations towards pro-environmental products: **Attitude-behavior gap**

➔ Need to understand vehicle purchase process

- External influences
- Decision processes
- Stages

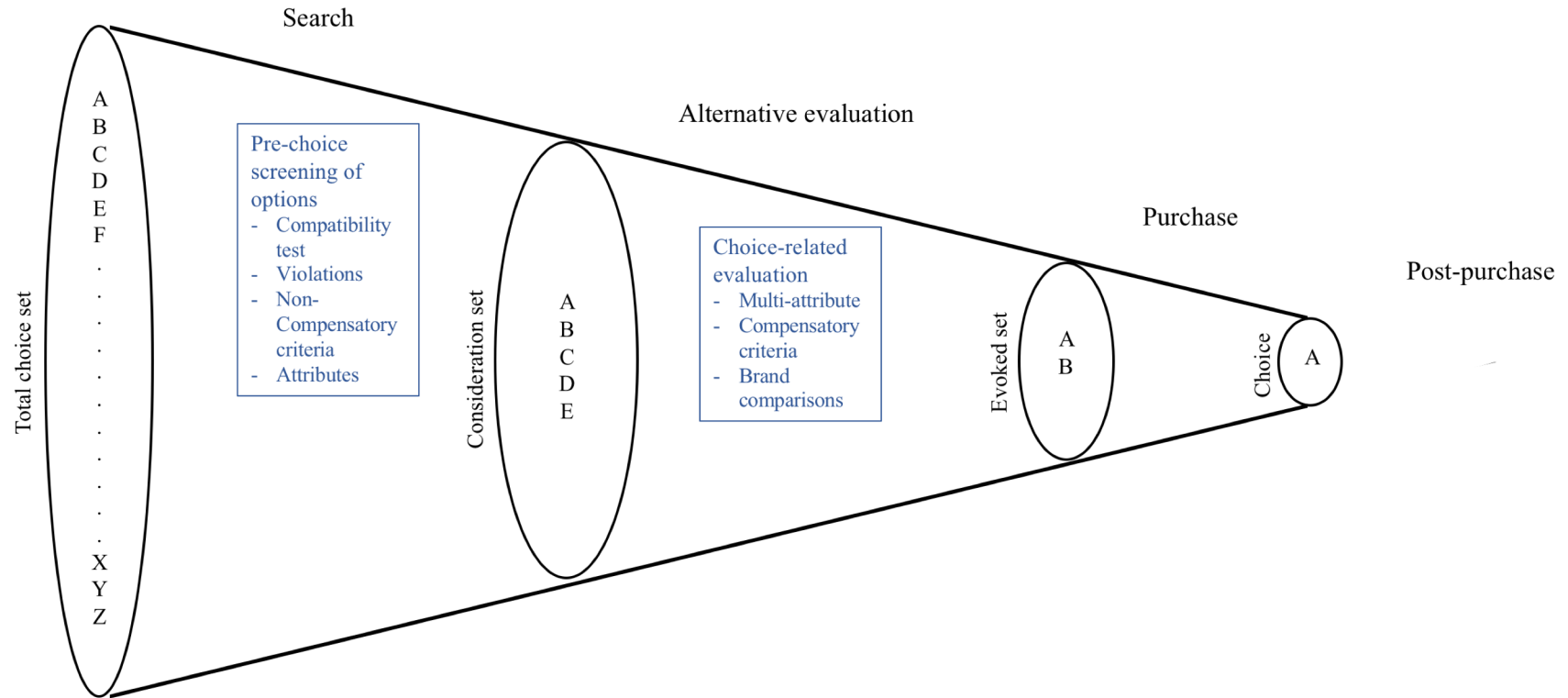
Study of the vehicle purchase process

- **Method of study**
 - **Study of relevant literature**
 - Consumer behavior
 - Marketing literature
 - Role of car dealers
 - **Online survey**
 - December 2018
 - 553 Swiss respondents

Study of the vehicle purchase process – Results

I. Vehicle purchase process very complex

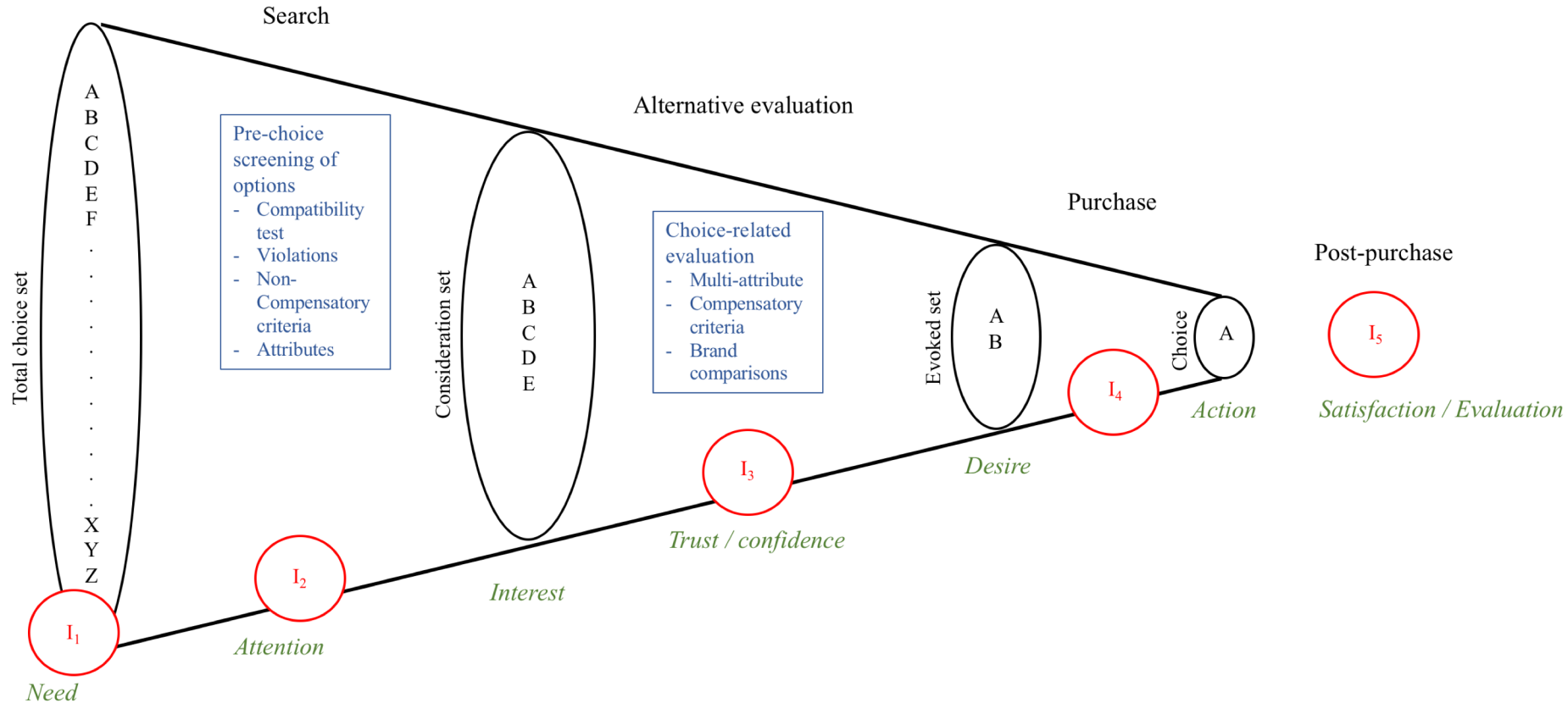
Problem recognition



Study of the vehicle purchase process – Results

I. Vehicle purchase process very complex

Problem recognition



Study of the vehicle purchase process – Results

II. Role of car dealers primordial

1. 94% of respondents have been to a car dealer

- 64.9% - 1 car dealer they trust
- 57.7% - consulted car dealer for the last vehicle purchase

2. Main purchase channel

- 73% of vehicles were purchased at a car dealer

Study of the vehicle purchase process – Results

3. Main information channel

- Given information source seen as very important

Information sources	Respondents	
	General Information search	Alternative evaluation
Test drives	42.3%	52.1%
Personal discussions with car dealers	29.3%	38.7%
Promotional materials from car dealers	3.6%	7.6%
Website of the car brand	21.3%	24.1%
Swiss EnergieEtikette	14.6%	17.0%
Online car configurators (Verbrauchskatalog etc.)	14.1%	16.1%
Friends and family	16.3%	16.1%

Study of the vehicle purchase process – Results

II. Role of car dealers primordial

1. **94% of respondents have been to a car dealer**
2. **Main purchase channel**
3. **Main information channel**
4. **Influence across all stages of the purchase process**
 - Post-purchase – service and maintenance

Study of the vehicle purchase process – Results

III. Car dealers – represent a barrier to EV sales

- Only 5.3% of respondents were offered an EV during their last visit of a car dealer
- Correlation - Consider EV x car dealer offered EV

		Car dealers	
		EV offered at the last visit	EV not offered at the last visit
Customers	Consider EV	14.3%	85.7%
	Do not consider EV	0.5%	99.5%

Study of the vehicle purchase process – Results

III. Car dealers – represent a barrier to EV sales

- Consider EV more likely trust 1 car dealer x end up visiting more car dealers in relation to their last vehicle purchase

		Consider EV	Do not consider EV
1 trusted car dealer		71.5%	61.5%
Car dealer visited in relation to the last vehicle purchase (if car dealer visited)	1	54.1%	60.2%
	2	27.5%	26.2%
	3	7.3%	11.0%
	4	6.4%	1.0%
	5 and more	4.6%	1.6%
	Average	1.8	1.6

Study of the vehicle purchase process – Results

IV. Plurality of information sources increase EV consideration

- Given information source seen as very important

Information sources	Consider EV		Do not consider EV	
	General information search	Alternative evaluation	General information search	Alternative evaluation
Test drives	42.5%	59.1%	42.2%	48.7%
Personal discussions with car dealers	36.5%	36.5%	30.6%	39.8%
Promotional materials from car dealers	2.8%	6.1%	4.0%	8.3%
Website of the car brand	26%	29.3%	19.1%	21.5%
Swiss EnergieEtikette	20.4%	23.8%	11.8%	13.7%
Online car configurators (Verbrauchskatalog etc.)	19.9%	19.3%	11.3%	14.5%
Friends and family	19.9%	18.8%	14.5%	14.8%

Conclusions

- Vehicle purchase process complex
- Role of external influences - especially car dealers
 - Car dealers represent a barrier to EV sales
- Consultation of a plurality of information sources increase likelihood to consider EV

➔ **How to motivate people to consult more sources?**

➔ **How to make car dealers a lesser barrier to EV sales?**

Policy recommendations

1. Information platform for consumers and car dealers

- Convenient, all information sources together

2. Incentives to car dealers upon participation and successful completion of EV trainings

- Coordination with current training programs (Elektro-Material, Electrosuisse etc.)
- In the framework of Roadmap Elektromobilität



Thank you!

Any questions?

Annex - Survey data

Characteristics		Survey sample (N=553)	Swiss average
Gender	Female	51.5%	50.4%
	Male	48.5%	49.6%
Age	21-30	11.6%	18.7%
	31-40	18.3%	21.2%
	41-50	20.4%	21.5%
	51-60	20.8%	22.4%
	61-70	28.8%	16.3%
Language region	German	72%	70.65%
	French	25%	24.72%
	Italian	2%	4.3%
	Rhaeto-Roman	1%	0.3%
Education	Primary education	14.1%	12.2%
	Secondary education	41.3%	45.2%
	Tertiary education	44.7%	42.6%