Touchpoints for electric vehicles

Vehicle purchase process understanding to promote EV purchases in Switzerland

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Conducive conditions for EVs

- Decreasing technological barriers
- Governmental incentives
- Positive attitudes to EVs
Low customer acceptance of EVs

**EV Market Share 2018, % in the total market share**

Sources: IEA Global EV Outlook 2019; ACEA 2019
Research problem

• Attitude-behavior gap

    Positive attitudes to EVs

    ?

    Low EV purchases

• Goal: To overcome this low EV customer acceptance

• Theory to date: Mostly socio-demographic characteristics of potential EV adopters

• Taylor & Fujita (2018): Call to analyze the vehicle purchase process in its entirety
Research questions

**RQ1:** What does the consumer vehicle purchase process look like? Namely, how many stages does it consist of?

**RQ2:** What are the most important influences determining the vehicle purchase process?

**RQ3:** What are the most effective touchpoints in the process through which EV purchases in Switzerland can be fostered?
Method

- Mixed-method research
  - Narrative literature review of relevant literature
    - Consumer-behavior literature
    - Marketing literature
  - Online survey of Swiss car drivers (n=553)
# Narrative literature review

## Consumer-behavior literature

1. **Stage models**
   - 1. **Number of stages**
     - 2 – Mueller & de Haan, 2009; Xu et al. 2015;
     - 4 – Bamberg, 2013; Klöckner, 2014
     - 5 – Taylor & Fujita, 2018
   - 2. **Decision-making processes involved**
     - Pre-choice screening
     - Choice-related evaluation

## Marketing literature

1. **AIDA**
   - Awareness – interest – desire - action
   - **NAITDASE Model** – Betancur, 2014
     - need, attention, interest, trust, desire, action, satisfaction / evaluation

2. **Touchpoints**
   - Episodes of interaction – customers and the product
   - **Duncan (2005)**: 4 types: company, consumer initiated, intrinsic and unexpected
   - **Baxendale (2015)**: 6 types
Conceptual framework of the vehicle purchase process

Problem recognition

Search

Alternative evaluation

Purchase

Post-purchase

Satisfaction / Evaluation

Total choice set

Pre-choice screening of options
- Compatibility test
- Violations
- Non-Compensatory criteria
- Attributes

Consideration set

Choice-related evaluation
- Multi-attribute criteria
- Brand comparisons

Evolved set

Choice

Desire

Action

Trust

Interest

Attention

Need

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BECC 2019
Online survey – research objectives

**RO1:** Validate the generated conceptual framework of vehicle purchase process

**RO2:** Identify the most important influences in the process

**RO3:** Propose touchpoints to promote EV purchases in Switzerland
Online survey - method

- December 2018
- 553 Swiss car drivers – representative of Swiss population
- **Condition to participate:** 20-70 years old, household to posses at least 1 vehicle
- **Sections:** Simulating the vehicle purchase process
  - Car ownership
  - Individual stages
  - Individual influences
  - Number of models
  - Reasons for and against car / EV purchase
  - Influence on EV consideration
  - Socio-demographic data
- **Questions:** Single, multiple choice, Likert-scale type (5-point)
- **Analysis:** Regression analysis (ANOVA, Chi-square test)
Generated conceptual framework validated

- **Vehicle purchase process consists of 5 individual stages**
  - Need generation
  - Two core decision-making stages
  - Size of consideration and evoked set confirmed
  - Purchase – natural part of the process
  - Post-purchase stage: key, especially for EV purchase willingness
Influences - Information sources

- Potential EV adopters – see a plurality of information sources as significantly more important than EV non-adopters

*Information source seen as very important*

<table>
<thead>
<tr>
<th>Information sources</th>
<th>Consider EV</th>
<th>Do not consider EV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General information search</td>
<td>Alternative evaluation</td>
</tr>
<tr>
<td>Test drives</td>
<td>42.5%</td>
<td>59.1%</td>
</tr>
<tr>
<td>Personal discussions with car dealers</td>
<td>36.5%</td>
<td>36.5%</td>
</tr>
<tr>
<td>Promotional materials from car dealers</td>
<td>2.8%</td>
<td>6.1%</td>
</tr>
<tr>
<td>Website of the car brand</td>
<td>26.0%</td>
<td>29.3%</td>
</tr>
<tr>
<td>Swiss EnergieEtikette</td>
<td>20.4%</td>
<td>23.8%</td>
</tr>
<tr>
<td>Online car configurators (Verbrauchskatalog etc.)</td>
<td>19.9%</td>
<td>19.3%</td>
</tr>
<tr>
<td>Friends and family</td>
<td>19.9%</td>
<td>18.8%</td>
</tr>
</tbody>
</table>
## Influences - Information sources

<table>
<thead>
<tr>
<th>Information sources and purchase stage (S= search, AV = alternative evaluation)</th>
<th>Mean and standard deviation</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>EV adopters (<strong>EV</strong>))</td>
<td>EV non-adopters (<strong>NEV</strong>))</td>
<td></td>
</tr>
<tr>
<td>* Website of the car brand (S)</td>
<td>M = 2.08, SD = 0.91</td>
<td>M = 2.27, SD = 0.94</td>
</tr>
<tr>
<td>**Website of the car brand (AV)</td>
<td>M = 2.00, SD = 0.89</td>
<td>M = 2.23, SD = 0.95</td>
</tr>
<tr>
<td>**Energy label for cars (Swiss EnergieEtikette) (S)</td>
<td>M = 2.31, SD = 0.98</td>
<td>M = 2.55, SD = 0.95</td>
</tr>
<tr>
<td>* Energy label for cars (Swiss EnergieEtikette) (AV)</td>
<td>M = 2.26, SD = 1.01</td>
<td>M = 2.49, SD = 0.98</td>
</tr>
<tr>
<td>+Online car configurators (i.e. Verbrauchskatalog) (AV)</td>
<td>M = 2.28, SD = 0.96</td>
<td>M = 2.44, SD = 0.97</td>
</tr>
<tr>
<td>+Personal meetings with car dealers (AV)</td>
<td>M = 2.03, SD = 0.99</td>
<td>M = 1.86, SD = 0.91</td>
</tr>
</tbody>
</table>

** Confidence interval of 99% (p < 0.01); * Confidence interval of 95% (p < 0.05); + Confidence interval of 90% (p < 0.1);
Influences – Car dealers

• Role across all vehicle purchase process stages
  • Generate the need for the new vehicle
  • 94% of respondents have been to a car dealer
  • Main purchase channel (73% of vehicles in the sample)
  • Post-purchase – service and maintenance 4th most important reason
• Main information channel
Influences – Car dealers

• Main information channel

*Given information source seen as very important*

<table>
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<th>Information sources</th>
<th>Respondents</th>
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<td>3.6%</td>
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<tr>
<td>Website of the car brand</td>
<td>21.3%</td>
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<tr>
<td>Swiss EnergieEtikette</td>
<td>14.6%</td>
</tr>
<tr>
<td>Online car configurators (Verbrauchskatalog etc.)</td>
<td>14.1%</td>
</tr>
<tr>
<td>Friends and family</td>
<td>16.3%</td>
</tr>
</tbody>
</table>
Car dealers – barrier to EV purchases

- Hesitant to offer EVs
  - Only 5.3% of respondents were offered an EV during their visit of a car dealer related to the purchase
  - Statistically significant association: EV consideration – EV being offered by car dealers

<table>
<thead>
<tr>
<th>Car dealers</th>
<th>EV offered at the last visit</th>
<th>EV not offered at the last visit</th>
<th>Do not remember if EV was offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consider EV</td>
<td>13.8%</td>
<td>82.5%</td>
<td>3.7%</td>
</tr>
<tr>
<td>Do not consider EV</td>
<td>0.5%</td>
<td>94.8%</td>
<td>4.7%</td>
</tr>
</tbody>
</table>
Car dealers – barrier to EV purchases

- **Reinforce ICE lock-in**

<table>
<thead>
<tr>
<th>Good experience with a car dealer a reason to purchase a vehicle</th>
<th>Same car brand</th>
<th>Different car brand</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>42.6%</td>
<td>11.2%</td>
</tr>
</tbody>
</table>
Conclusions

• Newly generated conceptual framework of the vehicle purchase process validated by the online survey
  • 5 stages
  • Critical importance of the post-purchase stage for EV consideration
• Role of additional influences – especially information sources and car dealers x Car dealers represent a barrier to EV sales

How to leverage these findings to promote EV purchases?
Policy recommendations

Problem recognition

Search

- Pre-choice screening of options
  - Compatibility test
  - Violations
  - Non-compensatory criteria
  - Attributes

Alternative evaluation

- Choice-related evaluation
  - Multi-attribute
  - Compensatory criteria
  - Brand comparisons

Purchase

Post-purchase

Use-based incentives

Satisfaction / Evaluation

Car dealership EV trainings

Foster consultation of a plurality of information sources

Need

Attention

Total choice set

Total choice set

A B C D E

Consideration set

A B C D E

Evoked set

A B

Choice

A

Action

Desire

Trust

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Thank you!

Any questions?