ELECTRIC MOBILITY IN GERMANY: UNDERSTANDING PIONEERS AND MARKET NICHES IN COMMERCIAL TRAFFIC

Motivation
Electric mobility is an innovation which can turn the today's mobility into a sustainable mobility. However, it is also an innovation which obviously requires a great technological transition. Many nations invest much on the support of the diffusion of electric mobility since 2009. In case of Germany the public investment comprises approx. 1.6 Bn $ for 200 projects. Innovations theories focusing on Technological Transition assume niches to be an initial point for social changes and innovations' development becoming a mass market. This research supports future public investments in investigating the niches realized to date and their potential to grow.

Methodological highlights
- Group electric vehicle users in commercial traffic by their user behavior (cluster analysis)
- Apply group characteristics on a national representative survey to assess the potential (analysis of the niche expansion potential)

Results
1. Cluster analysis: four realized niches (user groups) of electric vehicle usage in commercial traffic are identified.

   Figure 1: Current niches of commercial electric mobility in Germany

   ![Figure 1](image1.png)

   Commonalities of niches:
   a) 3/4 niches operate vehicles not on a cost-covering base
   b) Most relevant drivers of purchase are interest in innovative technology and reduction of environmental impact of mobility in all niches

   Differences of niches:
   a) Use profiles and vehicle types chosen
   b) Image is relevant for Green sport car users and Small distance users

2. Analysis of the niche expansion potential: Up to 20 % of the commercial deployment of ICEVs directly fits to the described niche profiles.

   Figure 2: Realized niches and its expansion potential

   ![Figure 2](image2.png)

   Four branches fit to three of four niche profile:
   - Electricity, gas, steam and air conditioning supply
   - Water supply, sewerage, waste management, remediation activities
   - Real estate activities
   - Human health and social work activities

Major concluding remarks
1. Concerning niches realized:
   a) Financial incentives do not effectively affect today's drivers of purchase
   b) Current electric ranges deal with current niche requirements (development of loading infrastructure is mid-term requirement)

2. Concerning niche's potential to expand
   a) Public and public related branches are high potentials for niche expansion
   b) Niche demand can be expanded up to 20% what could be a critical mass. For more growth a loading infrastructure is needed.