



Identifying and overcoming barriers to electric vehicle adoption: A case for MHC Mobility

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Background

To limit global warming below 1,5 degrees Celsius, all parties who have signed the Paris agreement of 2015 must aim for reducing greenhouse gas emissions as soon as possible. The transportation sector is the major cause of greenhouse gas emissions. Electric vehicles are identified as a solution to provide sustainable mobility, yet the adoption rate of the electric vehicle is heavily dependent on overcoming the barriers that consumers face.

Objective

A company that is also facing these barriers is MHC Mobility, a leasing company. MHC Mobility has set the goal to have its entire fleet emission-free by 2030. They have stated that its clients encounter barriers to electric vehicle adoption and therefore are reluctant in switching to electric vehicles. The aim of this paper is to identify these barriers and give advice on how to overcome them. The research question guiding this research is: *'What barriers prevent MHC Mobility's clients from adopting an electric vehicle and how to overcome these, to have an emission-free fleet by 2030?'*

Introduction

So, the penetration of electric vehicles on the market is mainly dependent the perception of consumers and how they perceive different barriers and incentives. Therefore, it is crucial to understand the barriers and drivers of electric vehicle adoption. The literature review focused on regulations and policies that are set by the government and other governing bodies. The target of the EU to be climate neutral by 2050 and the ambition of the Netherlands that 100% of the new passenger cars sold after 2030 should be zero-emission, are examples of that. Further on, known barriers to electric vehicle adoption include lack of consumer information and acceptance, purchase price and costs, range, charging infrastructure and more. Additionally, fleets related to a commercial institution are seen as ideal (early) adopters of electric vehicles because of the higher mileage and larger volume of vehicles bought.

Methods

For this research an inductive qualitative research method has been used to create an understanding of the dynamics involved in the research topic. Participants for semi-structured interviews were chosen through the purposeful sampling method. A total of eight semi-structured interviews were conducted, with mobility advisors, non-electric driving clients and electric-driving clients of MHC Mobility. After all interviews were conducted, the information was transcribed, coded and analysed with Atlas.ti.

Findings

This research has given insight in to which of the established barriers prevent MHC Mobility's clients from adopting an electric vehicle and how to overcome these, to have an emission free fleet by 2030.

Lack of consumer information and acceptance

- Clients are very active in finding their own information
- Electric driving requires a different mindset

Purchase price and costs

- Significant difference between electric and non-electric driving interviewees
- *"...often it is too expensive, simple as that. I have a certain budget, and I stick with that".*
- *"The purchase price was a barrier, but when looking at maintenance, fuel, and additional costs it compensates pretty well".*
- Policy adjustments made based on the right information and cost calculations
- Governmental incentives are considered stimulating

Range

- *"most people are simply scared to fully deplete in the middle of a trip, that is one of the greater showstoppers of these cars".*
- The type of driver makes a significant difference
- Desirable range of 500-600km

Charging infrastructure

- Charging an electric vehicle in public is considered challenging, because of the availability, the waiting time, and the costs.
- A general rule of thumb for charging stations: No possibility to charge at home = no electric vehicle
- Hydrogen is seen as a spot on the horizon

Organizational policies

- A more structured sustainability policy in general, linked to their leasing protocol.
- Employees are not actively informed about the opportunity to drive electric
- MHC Mobility is leading by example

Conclusions

The findings indicate that the range, charging infrastructure, and purchase price form the main barriers that prevent MHC Mobility's clients from adopting an electric vehicle. It is recommended that MHC Mobility educates their clients through consistent information sharing and testing phases while calculating higher residual value which ensures a lower lease rate while strongly focusing on commuter drivers.