

A! SIMB **!**

End User Expectations on eMobility in Finland

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Research Objectives

- Identify Finnish early adopters



- Identify their expectations and demands on electric cars
 - Range expectations
 - Charging
 - Price
 - Incentives

Theoretical Background

- Rogers: Diffusion of innovations
- Based on previous studies* five early adopter type were assumed
 - **Green consumer**
 - **Technology enthusiast**
 - **Hybrid household** (owns two or more cars)
 - **City Bohemian** (wants to be different than others)
 - **Design lover** (design of product is important)

* Sources:

Kurani, K, Turrentine, T ja Sperling, D (1996) Testing electric vehicle demand in hybrid households' using a reflexive survey. *Transportation Research Part D*, 1 (2), 131–150.

Heffner, R, Kurani, K ja Turrentine, T (2007) Symbolism California's early market for hybrid electric vehicles. *Transportation Research Part D*. 12 (6). 396–413.

Kurani, K, Heffner, R ja Turrentine, T (2007) *Driving Plug-in Hybrid Electric Vehicles: Reports from U.S Drivers of HEVs converted to PHEVs, circa 2006–07*. Institute of Transportation Studies. University of California, Davis

Etrans (2010) *Seven types of consumer*.

Targeting

- Questionnaire published in several web pages
 - SIMBe.fi
 - Tekes
 - Helsingin Energia
 - Sähköautot Nyt
 - ABC
 - Yhteishyvä
- Invitation to questionnaire sent
 - O2 Media customers
 - Faculty of Agriculture and Forestry students and
 - >300 people in Facebook.

Method

- Four sum variables created to identify early adopter types
- Sum variable created to measure early adopter level for
 - Range (150km OK for my daily use)
 - Charging (6-8h home charging OK)
 - Price (I'm ready to buy an EV at current price)
- T-test and ANOVA used for analyzing

Question Areas

- Background
 - demographics
 - use of current car
- Mental picture of EV
- Respondents life style
 - Green
 - Technology
 - City bohemian
 - Design lover
- Range
 - Opinion about 150km limit
 - Expectations
- Charging
 - Place
 - Price
 - Fast charge expectations
- Price and incentives
 - current price
 - Expectations
- Willingness to buy

Respondents Background

- 1871 respondents
- 938 from Greater Helsinki Region + sähköautot.nyt used in analysis (Helsinki, Espoo, Vantaa, Kauniainen)
- **111 early adopters** were identified (value 6 or 7 from early adopter sum variable)

Gender	n	%
Male	495	53
Female	440	47

Own car	n	%
Yes	528	56
No	409	44

Live in...	n	%
Appartement	698	75
Row house	99	11
Duplex	30	3
House	102	11

Average drive distance in day	n	%
0-50 km	343	65
51-100km	142	27
101-150km	28	5
151 ->km	15	3

Results: Charging

- Most pleasant charging place (scale 1-7)
 1. **Home** (6,45)
 2. Work (5,74)
 3. Public charging point (5,46)
 4. Gas station (5,39)
- Respondents expect
 - **16min** charge in stations and
 - **38min** in shopping malls
- For **30min** charge respondents were ready to pay **7,45€**
- Most pleasant method of payment (scale 1-7)
 1. **Credit card** (6,19)
 2. Monthly bill (5)
 3. Mobile phone (3,99)
 4. Cash (3,64)

Results: EV Range

- Range expectations

100km	200km	300km	400km	500km	600km	700km
1%	20%	38%	18%	15%	3%	5%



- **59%** of respondents expect **300km** or less (BYD e6: >300km range)
- 81% of early adopters expect 300km or less

- Almost half** of respondents totally agreed (7) that **150km range will be enough** for their daily use
- 57 % of respondents totally agreed (7) that the household's second car could be an EV with 150km range

Results: Price

- Current price is too high for almost every consumer type
- "I would buy EV (range 150km) if it costs same as similar ICE car"

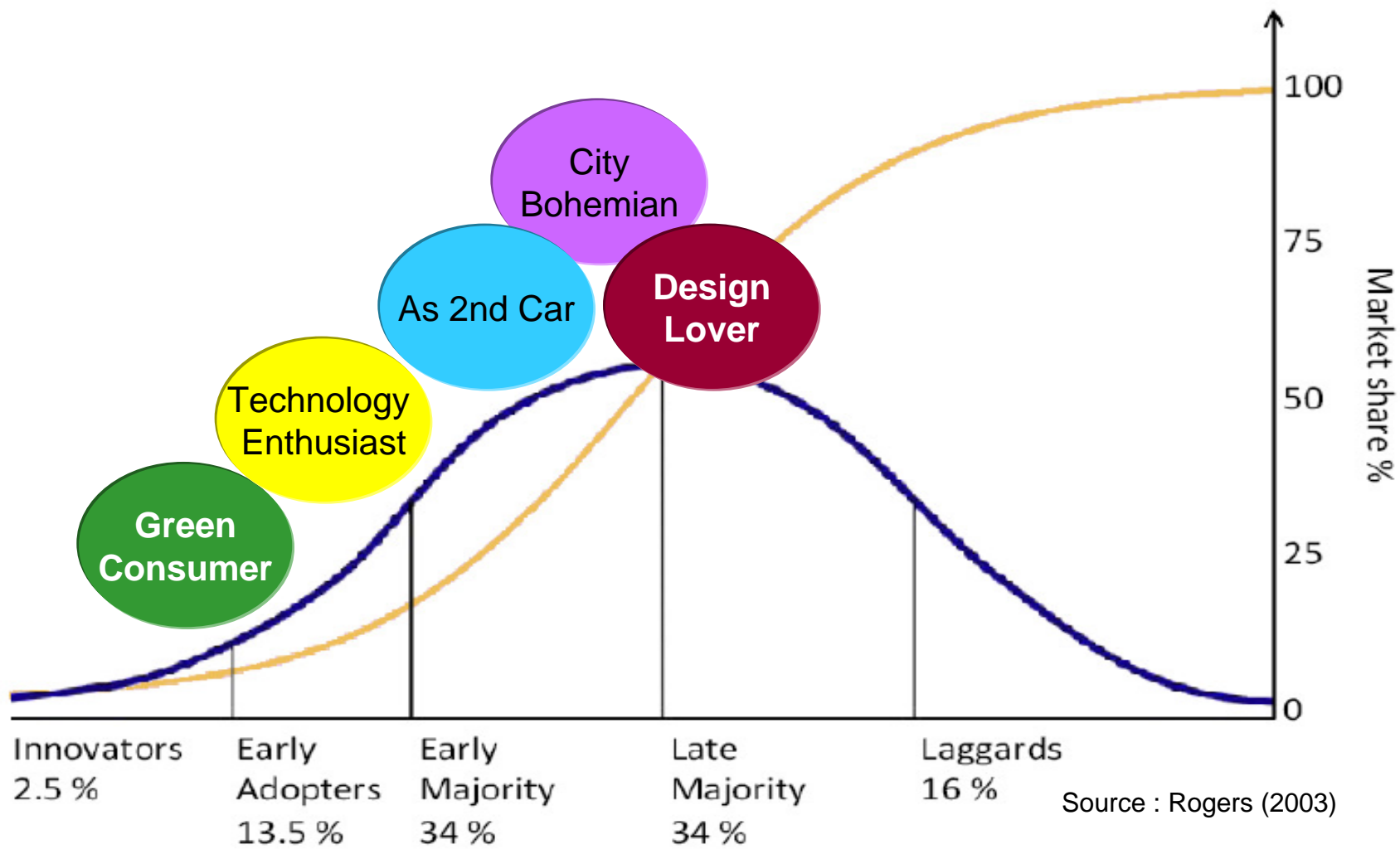
1. Totally disagree	2	3	4	5	6	7. Totally agree
8%	11%	10%	18%	20%	14%	19%





- 53% of respondents selected option 5, 6 or 7
- 84% of early adopters

- Respondents were ready to pay on average **4656€ more for EV** (range 250km) than similar ICE car
 - Early adopters 7213€

The Early Adopters in Finland



Synthesis

- Typical early adopter
 - 30-35 years old
 - Lives in detached house in Espoo
 - Earns average income as a minimum
 - Drives less than 50km per day
 - Is protective about environment and/or keen on technology
- **Price is the biggest barrier for the diffusion of electric cars**
 **not technical limitations**
- Green consumers and technology enthusiasts find e-cars attractive
 Use these themes in marketing!
(environmental friendly and latest technology)

Visit www.SIMBe.fi