

# Rally to Brussels & Final Event

WP9.1

## How to Increase the Acceptance of EVs

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The objective of the work in WP9.1 is:

- To understand better what affects the demand for EV
- To measure individual's attitudes and preferences for specific EV features
- To compare the results of these analyses across different European nations (demo regions)
- To have a tool (mathematical model) that allows
  - (1) testing the effect of different scenarios on the demand for EV
  - (2) identifying the scenario that gives the highest increase in the demand for EV.

*N.B. Demand model* links the demand for EV to the supply and social aspects.

The survey conducted in WP9.1 (and the demand models estimated) allows us answering the following questions:

- ✓ How much does the demand for EV increase if:
  - the **price of the EV** vehicles decreases of 10%?
  - the **price of the conventional cars** increases of 10%?
  - the battery life allows **autonomy** for 1000 km?
  - the municipalities give (or remove) the incentives to **freely parking** in the cities?
  - the **parking cost** for conventional cars in the cities increases of 50%?
  
- ✓ Does the demand for EV increase more if we **reduce the purchase price** or if we **improve the battery life**?
  
- ✓ Do **attitudes** affect the demand more than the **range**?

## The survey was realised in Denmark, Italy, Ireland

However, in Denmark we were able to go further than planned.

The survey was conducted before and after individuals have experienced an EV for 3 months in their real life.



This offered a unique opportunity to measure to which extent individual preferences and attitudes are affected by the knowledge of the product.

## Comparison among Demo Regions: Preliminary Results (to be confirmed)



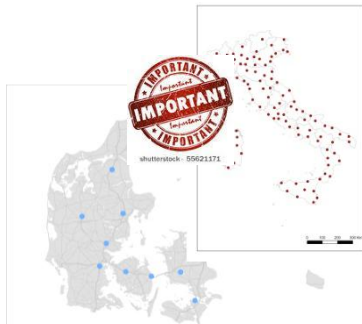
The price of the car is the MOST important attribute in all 3 DR.

- More important for small car classes.



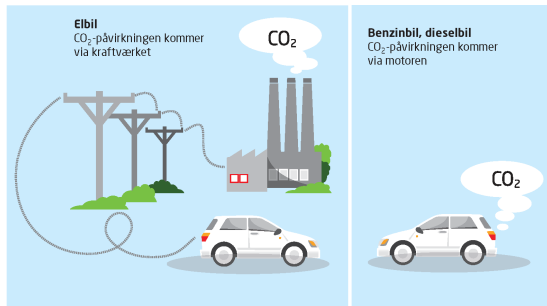
The range is highly important in all 3 DR.

- Highly important for small range, not relevant for high range.
- In Denmark more important than in Italy and Ireland.



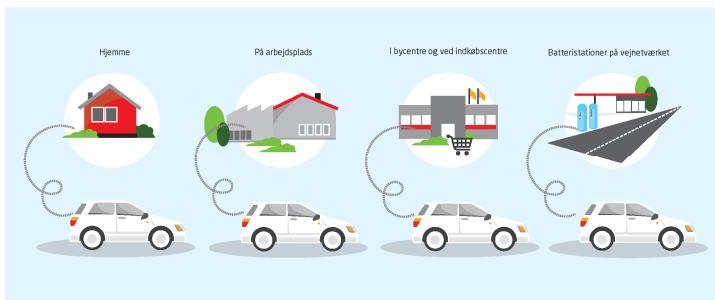
A national network to swap batteries is highly important in Denmark and Italy, not so important in Ireland.

## Comparison among Demo Regions: Preliminary Results (to be confirmed)



Carbon emission is highly important in Italy, less in Ireland, not so important in DK.

The speed of the recharge is less important than the other attributes.



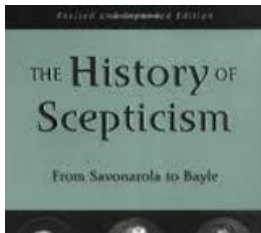
- People value positively fast recharges (110 km with 20 minutes recharge).
- People consider positively slow recharge (25 km with 20 minutes recharge) only if other characteristics (price, range) are comparable.
- In Ireland less important than in Denmark and Italy.

## Comparison among Demo Regions: Preliminary Results (to be confirmed)

Another interesting difference among the 3 countries is represented by the effect of the latent variables:



- ✓ Irish are the most affected by environment, more than Danes and even more than Italians. In Italy, being pro environment does not have a strong influence in the choice of EV.



- ✓ Danes are not sceptic (indeed “trust” is a strong *value* for the Danish society) or better being sceptic does not affect the choice for EV. Irish and Italians instead seem to be significantly affected.



## The before / after analysis: Denmark only

- On average the EV was chosen in **31%** of the cases before trying the EV and only in **17%** of them after.
- The **largest decrease** in EV share between before and after occurred in the **Mini** and **Intermediate** car classes (the car used in the trial was a small car).

After respondents gained experience, they expressed:



**less scepticism** about having to remember to charge the EV

**less scepticism** about the power of EV to make a safe overtaking manoeuvre



**more scepticism** about being able to maintain current mobility (they had to cancel some activities).



## Some policy recommendations

- ✓ The most important EV characteristics (where major differences were also observed in the preferences) are: ***purchase price, driving range, top speed.***
- ✓ The class of **cars** that the customer wishes to purchase is important:



Respondents looking for **small cars** chose EV more often than respondents looking for large cars.

**Therefore, for emerging EV providers it might be better to focus on smaller car classes initially.**

This kind of policy seems to be much **more relevant for the Irish market** than for the Danish ones.

## Some policy recommendations



- ✓ Potential customers should be well informed about how EVs work. With more experience, respondents (especially women) tend to show:
  - more positive attitude towards the driving performance of Evs
  - less concern about getting used to charging these cars.

**Hence, it is important to communicate such information (i.e. “EVs are fun to drive and easy to charge”) to inexperienced users.**

- ✓ The 3 countries show different attitudes toward environment and scepticism.  
**These results suggest that policies related to the values of a population can be effective, but need to be strongly tailored to the specific context**
- ✓ On the other hand, our respondents expressed a great concern about the ability to maintain their present mobility with an EV. Danes are more sensitive to driving range than Italians and Irish.

**Driving distance should be increased but also good communication is important to improve perception of driving performance.**

## Methodology and results can be found in:

- 1) Jensen, A., Cherchi, E. and Mabit, S. (2013) On the stability of preferences and attitudes before and after experiencing an electric vehicle. *Transportation Research D* 25, 24-32.
- 2) Jensen, A., Cherchi, E. and Ortúzar, J.de D. (2014) A long panel survey to elicit preferences for electric vehicles and charging infrastructure. *Transportation* 41(5), 973-993.
- 3) Jensen, A., Cherchi, E., Mabit, S. and Ortúzar, J.de D. (2014) Predicting the potential market of electric vehicles. Presented at the 93<sup>rd</sup> *TRB Seminar*. Washington DC, USA.

### 2 Interim Reports:

- Description of the survey methodologies and model/s.
- Results obtained from surveys.

### A Final Deliverable will be prepared by the end of 2014 which will also include:

- ✓ Results from the Demo Regions, and comparison among Demo Regions (Denmark, Ireland, Italy)
- ✓ Suggestions on how to use models to predict users' behaviour in other countries.

# Thank you



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