



e-mobiliTI

A living lab to investigate the transition towards electric mobility

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1. Background and research questions

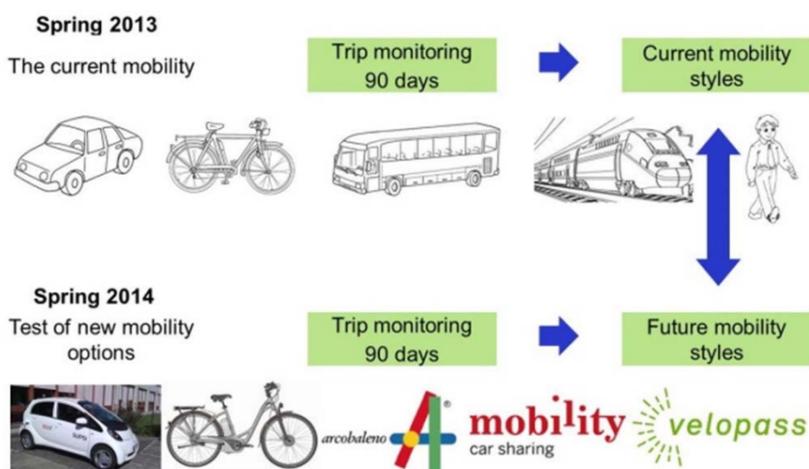
New mobility options are arising:

- slow mobility
 - inter-modal use of the means of transport
 - sharing of individual transportation vehicles
 - electric vehicles
- Can we take such opportunities in Southern Switzerland?
 - What happens when a family is endowed, at no cost, with an electric vehicle for a long period?
 - Does a *substitution* between the conventional and the electric vehicle happen?
 - Or does the electric vehicle act as a leverage, favouring a *modal transformation* towards more ecological mobility choices?

2. Design of the e-mobiliTI living lab

A living lab: real-life users explore new mobility options in complex, real-world settings

Sixteen families in the Lugano Region (TI), in total twenty-seven participants
We are aware *this is not* a representative sample of the Lugano population



Two phases:

- Phase 1 - Spring 2013: monitoring of the users mobility patterns, simply observing their behaviour, without any attempt at influencing it
- Phase 2 - Spring 2014: each user is endowed with alternative mobility options (e-car, e-bike, public transport, car-sharing and bike-sharing season tickets)

Two monitoring approaches, integrating each other:

- quantitative, automatic monitoring of all their trips through the e-mobiliTI smartphone application (*app*), developed on purpose
- qualitative monitoring of the reasons for their mobility behaviour through individual interviews, group meetings and focus groups

Two categories of users:

- *new users*: they have no previous experience with electric mobility and, in Phase 2, they are endowed with electric cars, electric bikes and season tickets for public transport, car-sharing and bike-sharing
- *old users*: they already own an electric vehicle and in Phase 2 they are only endowed with season tickets for public transport, car-sharing and bike-sharing

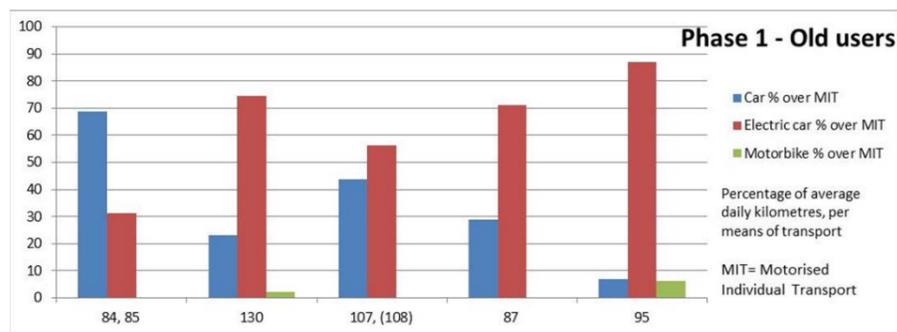
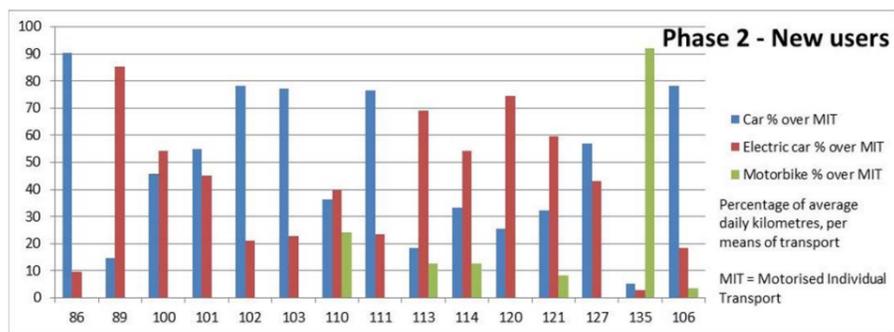
3. Challenges in data collection and preliminary assessments

In a living lab, control of experimental conditions is difficult.

Both the app and the users themselves are source of potential errors: poor GPS and Internet connectivity, battery problems, lack of direct compensation for the efforts of the participants to use the *app* properly

Further, from Phase 1 to Phase 2 six users (22%) changed home or place of work : quantitative data we monitored for them are useless

We are now validating the data collected, discussing them with each user: at this stage we can only provide preliminary assessments



- Considering the average daily percentage of kilometres driven, the electric car is more used than the conventional car in 64% of the families of our sample (55% of *new users* families in Phase 2 and 80% of *old users* families in Phase 1): the substitution process happens, even though it is not complete
- The electric car substitutes the conventional car for 50% of the daily average percentage of kilometres in *new users* families and for 59% in *old users* families
- Differences between *old* and *new users* families suggest to investigate whether the electric car requires a longer adaptation period than three months
- Reasons for incomplete substitution, as emerged from the first e-mobiliTI focus group, refer to already well-known limitations of electric vehicles: limited autonomy, long recharging times, need to plan trips in advance. All in all, the e-mobiliTI users indicate the electric car as a good option as a second family car
- The modal transformation process is, instead, more difficult to achieve
- Preliminary results show that giving free electric cars, (electric bikes) and season tickets to public transportation, car-sharing and bike-sharing, is not enough to favour the decrease in the average daily percentage of motorized individual kilometers
- For 16 users out of 21 (76%), no modal transformation happens
- Therefore, favouring ecological mobility choices requires stronger policies than offering free alternative options to private vehicles
- Above all, it requires increasing flexibility and capillarity of the new mobility options

Effects on Motorized Individual Transport (MIT) Differences between phase 1 and Phase 2	New users [%]	Old users [%]	All users [%]
Probability that MIT increases	53.3	16.7	43.0
Probability that MIT remains constant	20.0	66.7	33.0
Probability that MIT decreases	26.7	16.7	24.0
Probability that MIT increases or remains constant	73.3	83.3	76.0