Scuola universitaria professionale della Svizzera italiana
Dipartimento ambiente costruzioni e design
Istituto sostenibilità applicata all'ambiente costruito

SUPSI

GoEco!

A community based eco-feedback approach to promote sustainable personal mobility styles

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The project background

- Private motorised transport still being perceived as positive and desirable
- Mobility patterns are strongly embedded in everyday life
- Changes in mobility behaviour are hindered by social and psychological barriers
  - the fear for sacrifices
  - the fear of returning to the past
  - the fear of losing social prestige (the car as a status symbol)

The project background

Even though effective alternative mobility options to reduce energy consumption are already available!

Our research questions

Can eco-feedback information and social interaction (social comparison and peer pressure) be effective triggers to:

- foster changes in personal mobility behaviour?

- facilitate the long-term challenge to reduce private motorized transport ?

- promote a transition to more energy efficient mobility options, such as vehicle-sharing, intermodal use of means of transport, public transportation and slow mobility?

We run a medium-to-large-scale Living lab experiment

with a significant number of users

sharing information about their mobility behaviour

and receiving feedback on their choices

LIVING LAB

The activities we envision

- Participants to the Living lab test a smartphone *app* developed on purpose, that:
  - tracks their trips
  - provides them with eco-feedback on their mobility performances
  - suggests alternative, low-impact modal options
  - lets them define personal reduction objectives and targets
  - sets up a social comparison rewarding scheme within the community of the users

- The Living lab is run both in Canton Ticino and in the City of Zürich: we can thus take into account differences in the supply of mobility options and in the socio-cultural attitude of the population towards mobility

- To get a deeper insight into perceptions and attitudes, a selection of participants is closely followed with focus groups and interviews
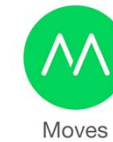
Moves

The *GoEco! app* is based on the existing *Moves app*

**City of Zürich**
↕
Canton Ticino

Our approach

- An inter-disciplinary, bottom-up approach, based on direct interaction with the end-users

- At the crossroads of different research branches

    - energy sciences: going beyond the traditional awareness raising approach

    - behavioural sciences and sociology: assessing the effectiveness of eco-feedback and competitive schemes in triggering collective behaviour change (persuasive technology approach)

    - "gamification" techniques: using game design elements in non-leisure contexts

    - information and communication technologies: exploiting smart mobile devices as tools to provide inexpensive sensing of mobility behaviour (crowdsourcing) and to suggest energy-efficient alternative mobility options (intelligent transport systems ITS)

    - geomatics and artificial intelligence: using machine learning and data-mining techniques to understand mobility patterns (trajectories and motivations)

The GoEco! Living lab

Overall 600 active participants (testers) + 200 passive participants (control group)
     in the City of Zürich and in Canton Ticino
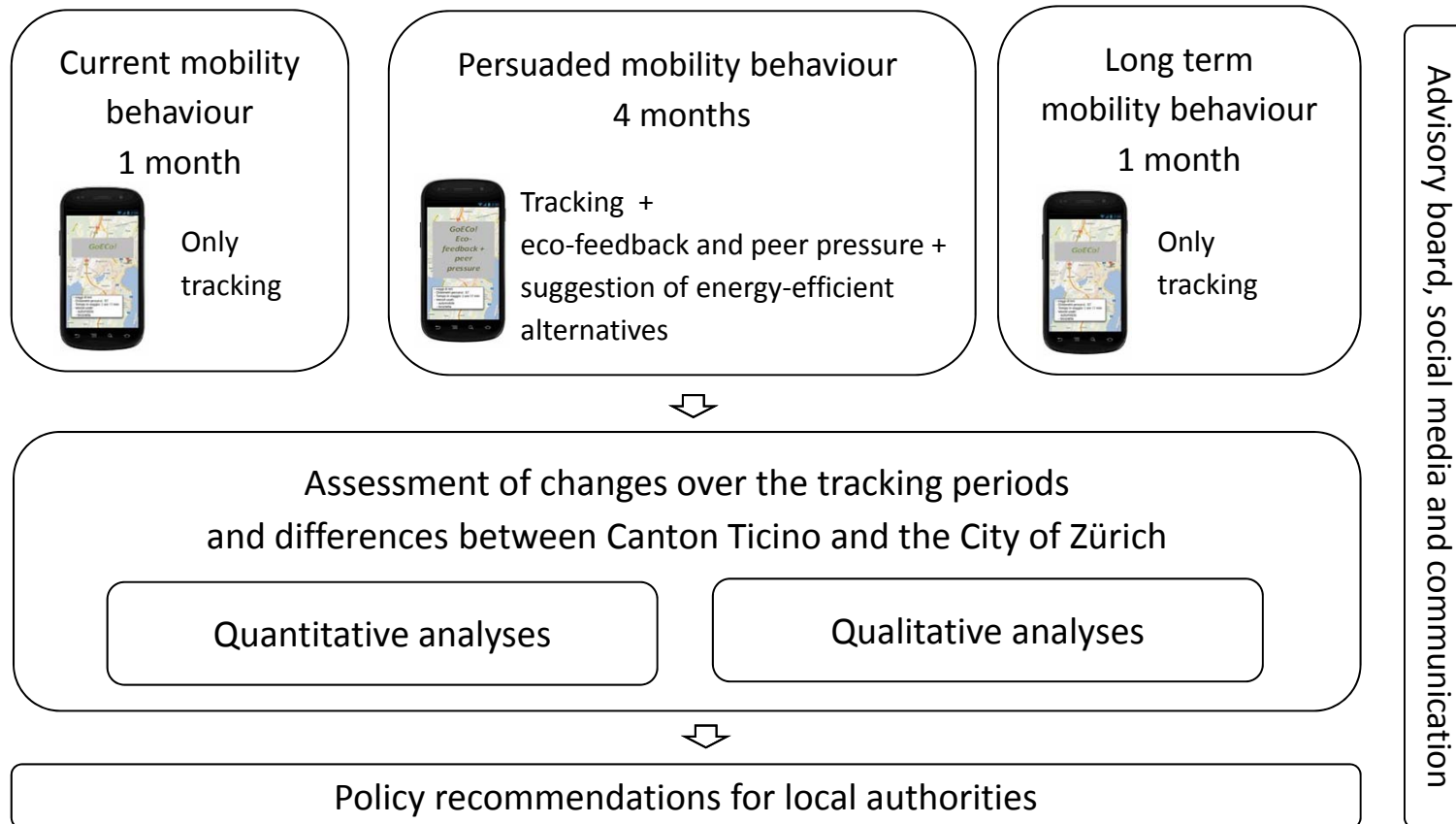
The implementation activities

- An advisory board follows the whole project – from the very beginning
  - Federal authorities in the mobility, energy and sustainability fields, including SwissEnergy
  - experts from the academic world: energy competence centre SCCER "Efficient Technologies and Systems for Mobility"
  - transport associations: Pro Velo, VCS Verkehrs-Club der Schweiz, TCS Touring Club Schweiz

- A project website and accounts on major social networks are activated and regularly updated

- Periodic dialogue with local mass-media is performed, starting with a communication campaign for the recruitment of the participants

- A final project conference is held, for the presentation of the „Policy recommendations for local authorities" and the release of the *GoEco!* smartphone *app* to the general public

- Scientific publications and participation to conferences are guaranteed throughout the project

Our research group

- SUPSI

  - Institute for Applied Sustainability to the Built Environment – ISAAC

  - Laboratory of Visual Culture - LCV

  - Dalle Molle Institute for Artificial Intelligence - IDSIA

- ETHZ

  - Institute of Cartography and Geoinformation – IKG

- External researchers involved:

  - Kay Axhausen - Professor of Transport Planning at ETHZ
    (Institute for Transport Planning and Systems): measuring and modelling travel behaviour

  - Christoph Hölscher - Professor of Cognitive Science at ETHZ
    (Department of Humanities, Social and Political Sciences): designing and performing field tests

  - Piero Fraternali - Professor of Web Technologies at Politecnico di Milano
    (Dipartimento di Elettronica Informazione e Bioingegneria): developing and testing of the conceptual framework for the gamification activities