Mobility Behaviour Change and Evaluation

Presentation for the TRACE-EU Take-Up Group 2nd Meeting: Evaluation of TRACE tools
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Summary

• Putting mobility behaviour change in context
• Overview of MyWay
• Evaluative Processes in MyWay
• Key learnings
Mobility Behaviour Change and Evaluation

PUTTING MOBILITY BEHAVIOUR CHANGE IN CONTEXT
Why we need mobility behaviour change

• High level problems
  – Urban congestion and air pollution
  – Public health
  – Climate change-related emissions reduction

• TRACE “expects to increase and optimise the use of ICT tracking services for cycling and walking in cities”

• TRACE develops 2 types of tracking tools to encourage the take up of walking and cycling
  – Behaviour change (Positive Drive, Traffic Snake Game, Biklio)
  – Mobility planning (Tracking for planning tool)
Mobility Behaviour Change and Evaluation

OVERVIEW OF MYWAY
Introduction

- MyWay was a user-centred project aimed at improving citizens’ mobility
- The MyWay App is a journey planner that seeks to meet user preferences and to provide holistic information about available transport modes
- MyWay also investigated how to influence mobility behaviour by providing feedback
MyWay: Personalisation in Journey Plans

Real-time information

Multi-modal

Real journey durations

Parking

Context (e.g. weather)

User Profiles

Planificador de viaje

Carrer d'Artigues, Ca l'Artigues...

La Pedrera

TODAS LAS RUTAS

- 55 min  16:46 - 17:31  16:46

- 33.97 km  6.52 CO2

- 1 h 34 min  18:14 - 19:49  18:14

- 28.42 km  2.15 CO2
MyWay: Feedback from User 1
MyWay: Feedback from User 2
## MyWay: Analysis of Feedback from Users

<table>
<thead>
<tr>
<th>Location</th>
<th>user_preferences satisfied (mean of ratings)</th>
<th>total_time realistic (mean of ratings)</th>
<th>plan_consistent</th>
<th>plan_uncomfortable</th>
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<tbody>
<tr>
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<td>4.46</td>
<td>5</td>
<td>3</td>
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<td>40</td>
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<tr>
<td>Trikala</td>
<td>2.50</td>
<td>2.50</td>
<td>1</td>
<td>1</td>
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</table>
MyWay User Statistics Dashboard

- Optional but requires Tracking
- Statistics dashboard
  - CO2 emissions
  - Calories
  - Modes used
- 49% of authenticated users opted-in to VBC
Mobility voluntary behaviour change

EVALUATIVE PROCESSES IN MYWAY
Evaluation Instruments

- Focus groups
- Travel Diaries: baseline, interim and final to measure change
  - Subjective and quantified
  - Retention problems as a burden for participants
  - Incentivised with reward scheme
- Measuring mode use through app.
  - Objective and quantified
  - Users could use MyWay without logging in AND without using Trip Follower
- Survey: Subjective and quantified, space for qualitative response
- Stakeholder Interviews: Subjective, qualitative
Early Stage User Research: focus groups

- Disruptive events
- Car-pooling
- Accessibility
- Journey planning
- EV sharing
- Points of interest
- Bike sharing
- Business travel
- Transport on Demand

14 Usage Scenarios: validated through focus groups generated requirements AND 8 scriptable scenarios for quality and usability testing
Example Scenario (#6C Catalonia): Innovative shared mobility

SCRIPT
1) User is new, so registers with MyWay and creates a user profile. Transport preferences include electric scooter.
2) Selects origin (BEST WESTERN PREMIER Hotel Dante, Carrer de Mallorca, 181 Barcelona)
3) Selects destination (La Perla de Oro, Carrer de Bailèn, 115)
4) Trip plan includes electric scooters
5) User books electric scooter

You are a business executive who is visiting Barcelona to attend an international conference.

The Government of Catalonia included information about the MyWay App in tourist and travel information leaflets that were handed to all conference delegates. You didn’t know about MyWay so you decide to try it out.

You use the MyWay app to find out how to get to the restaurant La Perla de Oro from your hotel (BEST WESTERN PREMIER Hotel Dante). MyWay shows you the opportunity of using electric scooters and you book the service.
Example of Results of this Evaluation

- Scripted Journey Plan tests confirmed users expected preferences to impact on the ordering of journey plan suggestions
- Testers made useful suggestions
- Results in Catalonia demonstrated that personalisation is easier in regions with more travel options (74% best plans in top two)
- Overall, Scripted Journey Plan testers were quite satisfied with MyWay’s ability to personalise using preferences

<table>
<thead>
<tr>
<th>Living Lab</th>
<th># testers</th>
<th># tests completed</th>
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<tbody>
<tr>
<td>Berlin</td>
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<td>11</td>
</tr>
<tr>
<td>Catalonia</td>
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<td>24</td>
</tr>
<tr>
<td>Trikala</td>
<td>9</td>
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</table>
VBC Feedback and User Behaviour

• 15 of the 39 users who were opted-in to VBC completed either an initial travel diary or a final travel diary, though none did both, so data is limited.

• In the initial travel diaries of the VBC users, there are 6 inter-modal trips involving 3 modes. There are 6 unimodal trips: either walking, using the bus or using the tram.

• In the final travel diaries of the VBC opted-in users, there are 12 inter-modal trips involving 3 modes, 3 inter-modal trips involving 2 modes, and 7 single mode trips.

• 11 VBC users completed a background questionnaire, at least one subjective evaluation questionnaire and one Travel Diary.

• Rapid analysis of the changes in reported use of different modes show that variation is very small, and attributable to normal causes, such as seasonality in use of cycling (for example).

• Nevertheless, there was variation in the self-reported frequency of use of the different modes
MyWay Effectiveness of User Feedback

• 11/39 VBC users completed a background questionnaire, at least one SEQ and one Travel Diary.
• Qualitative analysis of the changes in reported use of different modes show that variation is very small, and attributable to normal causes, such as seasonality in use of cycling (for example).
• Users were both multi- and intermodal from the start – to be expected as if not wouldn’t need MyWay.
Evaluating behaviour change

**KEY LEARNINGS**
MyWay/TRACE Comparison

• MyWay was a journey planner that sought to change behaviour by providing better information and feedback

• TRACE has several applications in the portfolio, but all rewards based e.g. Positive Drive aims to reward good behaviour by tracking the user.
  – It can detect walking, cycling, car use and most public transport.
  – It requires the user to press GO at the start of a journey and FINISH at the end.
  – Users get the mapped route, info on key metrics, distance and average speed and rewards based on mode, opportunity to use points in games, rewards and games can be linked to specific policies/campaigns
Key Learnings

• MyWay vision successfully validated using scenarios
  – Validation and eliciting requirements
  – Developing an evaluation tool (Scripted Journey Plans)
  – Discussion with stakeholders and experts
• Travel diaries burdensome, low compliance despite incentives
• Evaluation of impact on behaviour in the field – Living Labs
  – Statistical power: difficult to recruit and retain enough participants
  – Need to establish key variables AND a baseline
  – Keep it simple
  – Trials should be as long as possible
  – Analysis of in-app feedback matched to survey was interesting but inconclusive
Key Learnings

• Tracking tools offer great scope for
  – User goal-setting
  – Gamification
  – Social comparison
  – Targeted travel policy promotion

• Caveats
  – Target groups may be heterogenous (gamers, goal-setters, comparers) – does one tool fit all, and can your evaluation method detect intra-group variation that might reflect these preferences?
  – Tracking carries privacy concerns. Make sure the benefits to users are clear, and that they have given informed consent.
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