

Can we use cyberspace to fix spatial and temporal problems in urban transport?

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Introduction



MyWay
EUROPEAN SMART
MOBILITY RESOURCE
MANAGER

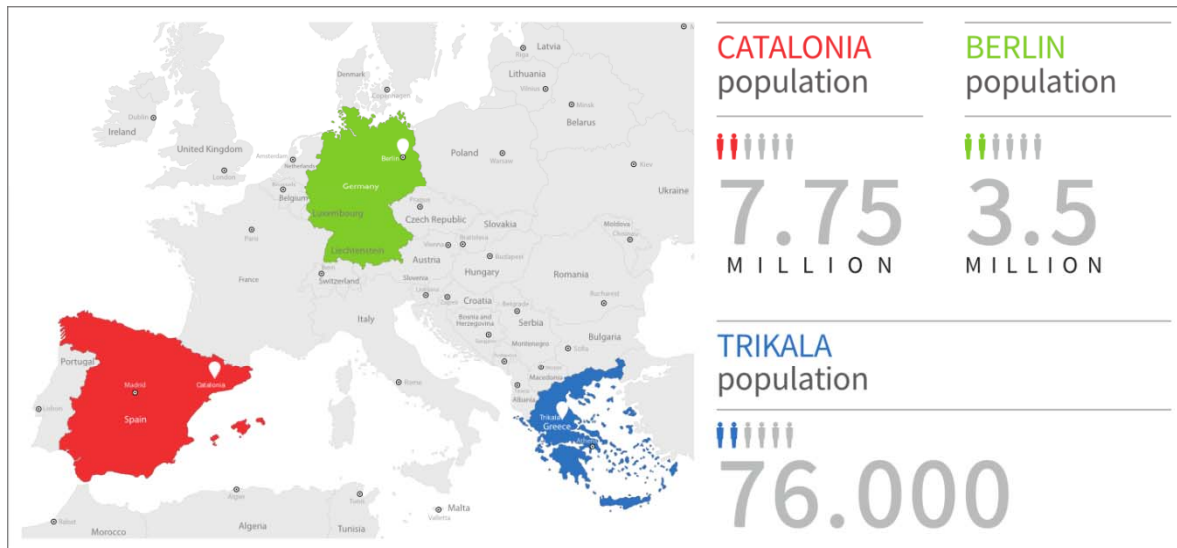
		
	<p>MULTI-MODAL JOURNEY PLANNING MADE EASY TO ENCOURAGE THE USE OF SUSTAINABLE MODES OF TRANSPORT</p>	
 <p>Co-funded by the Seventh Framework Programme of the European Union.</p>		

- About the project
- Living Labs
- Challenges
- Methodology for user research
- Usage scenarios
- Focus groups
- Influencing behaviour
- Segmentation
- Next steps

About the project

- Project runs until early 2016
- Vision
 - ‘place the traveller at the heart of mobility’
 - ‘create a seamless point-to-point mobility service’
- Assumes technology can contribute to solving intractable urban transport problems
- Objectives with targets are ambitious

Living Labs Demonstration Approach



The MyWay personalised multi-modal journey planner will be tested in three living labs in Catalonia (Spain), Berlin (Germany) and Trikala (Greece). The combination of large and dense cities along with a smaller test site reflects the ambition for the European Smart Mobility Resource Manager to be applied in varying urban conditions. Whilst Barcelona and Berlin living labs are examples of large and densely populated cities with an extensive mix of transport modes on offer, Trikala is an example of a small urban area with fewer transport options.

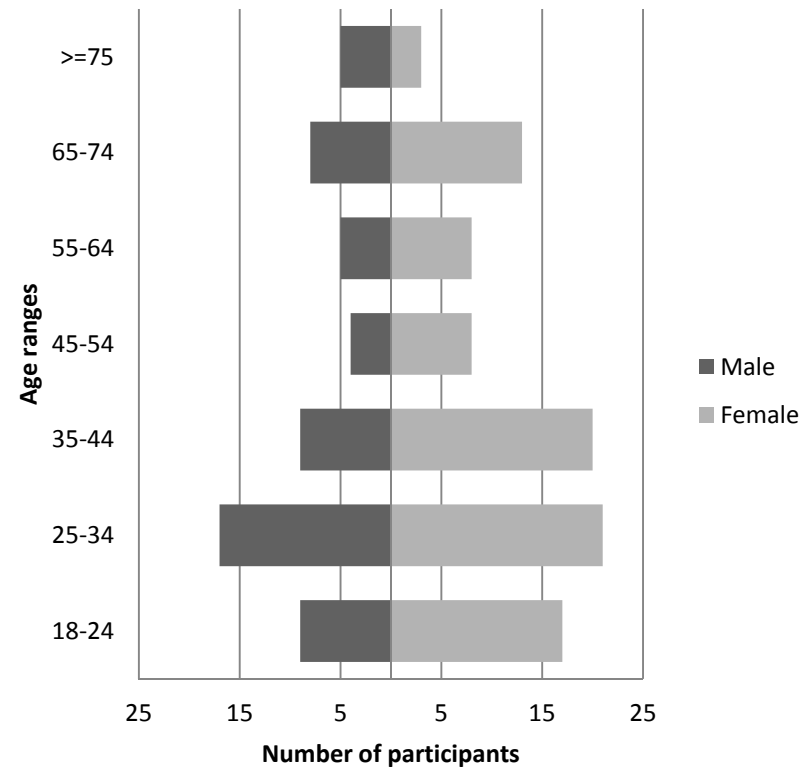
Challenges

- Non-trivial technical challenge
- Many sources of data to be integrated
- Data from modes and innovative operators never before integrated to a journey planner
- Front-end must convey a seamless impression to the end-user
- Ultimately users should be able to use MyWay anywhere in Europe, matching their preferences to available transport modes
- Personalisation of journey plans to user preferences
- Effective Voluntary Behaviour Change (VBC) features are essential to achieve the project success measures

End-user Research: Methodology

- Focus groups with target user groups: students, commuters, retired people >60 yrs
- 16 usage scenarios developed by project team reflect planned MyWay functionalities
- Validated with target user groups across the Living Labs (total 164 participants)
- Non-generalisable but formative
- Segmentation of focus group participants (Anable 2013)
- Segmentation helps interpret the variation in focus group views
- Priority segments identified by partners

Age and gender distribution across all focus group participants



Example scenarios

S2 Mrs Peach and Mrs Orange

Public transport disruption

Mrs. Peach is travelling by Tram back from the city centre to her apartment. She has bad luck, since there is a car accident on the route, which has blocked the Tram route. So she opens the MyWay App and requests another way to get home. She is offered two alternatives that match her profile preferences. One possibility is to share a ride with another MyWay user, Mrs Orange, who is nearby in her car and heading for a location near to Mrs Peach's home. Another alternative is to get a bike from a bike-sharing provider, which has bikes available near the next Tram stop. Mrs. Peach chooses the bike option. However, as a result of the disruption, other people on the Tram are also using MyWay to help them get to their destinations more quickly, and some choose the bike-sharing option. MyWay uses their preferences to direct them to different bike stations according to their mobility needs and destinations. Mrs Peach is directed to a bike-station a two minute walk further away than the nearest, but it is on her suggested route home, that MyWay maps for her.

Functions and services that MyWay provides/supports in this Scenario: multi-model journey planning during disruption; disruption notification; navigation (walking and cycling); bike-sharing; real-time location and capacity information

S7 Lluís

Cyclist with a flat tyre

Lluís often uses his own bike when travelling around Barcelona. Today he finds his bicycle has a puncture, but he is in a hurry to get to work/university. He uses MyWay to find out the state of shared bikes, and he can see there are lots of available bikes in slot near his house and it looks as if he will have no trouble returning the bike to a slot near his destination. He decides to go with the shared bike this morning, and fix his own later. At the end of the day, Lluís is tired but remembers that he still has to fix his puncture. He decides to find a faster way of getting home than using the shared bikes again. MyWay recommends electric scooter, which he has never used before. Lluís decides that it looks fun, and doesn't cost very much. He uses MyWay to book an electric scooter and arrives home with enough energy to fix his bike tyre the same evening.

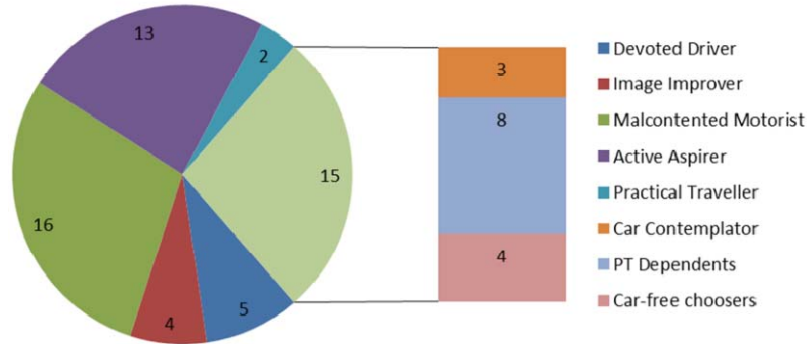
Functions and services that MyWay provides/supports in this Scenario: flexible transport availability (shared bike); flexible transport booking (electric scooter);

Focus Groups: General Conclusions

- Participants not fully aware of *all* transport options that are available to them
- Participants prefer not to have to switch modes
- Some participants have very particular issues with *certain* transport services; more to do with operator than with PT *per se*
- Technology adoption is lower amongst the retired people over 60
 - in Trikala none have smartphones, 28% have internet at home
 - in Catalonia 39% have smartphones, 72% have internet at home
- Mobile/Internet coverage may be a problem with some locations
- Poor range of transport options affects potential viability of MyWay outside major urban centres
- Validating usage scenarios guides design of the basic functionalities of multi-modal journey planning prioritising for user preferences

Moving on: using segmentation in behaviour change

Travel Attitude Segments Catalonia



Voluntary Behaviour Change (VBC)

Using early results we believe that there is an opportunity to use VBC to

- influence Malcontented Motorists and Active Aspirers to switch modes
- *prevent* Car Contemplators from getting a personal vehicle
- provide Car-free Choosers with more choice
- identify behaviour change triggers for Practical Travellers and Image Improvers.

ID	Date	Population	Scenarios applied	Destination/Origin
COW_01	Feb 21	Workers of GenCat who live in Barcelona	2, 7, 8, 12	Single destination/within city
COW_02	Feb 20	Workers of Gencat who live outside Barcelona	2, 4, 12	Single destination/ multiple origins outside city
COW_03	Mar 18	Workers who live Vall del Tenes	4, 12, 13	Multiple destination/Vall del Tenes area
COW_04	Mar 13	Workers of UAB university	2, 3, 4	Single destination/Multiple unspecified origins
CST_01	Mar 11	Students who live in Vall del Tenes	3, 5, 13	Multiple destinations/Vall del Tenes area
CST_02	Mar 13	Students of UAB university	2, 3, 5	Single destination/Multiple unspecified origins
CRO_01	Feb 26	Elderly people of Vall del Tenes – 1	6, 8, 13	Multiple destinations/Vall del Tenes area
CRO_02	Feb 27	Elderly people of Vall del Tenes – 2	6, 8, 13	Multiple destinations/Vall del Tenes area

Segmentation approach from SEGMENT project (Anable 2013)

Segment number and name	Summary Descriptor
Segment 1: Devoted Driver	Prefers the car over any other mode and has no interest in changing behaviour.
Segment 2: Image Improver	Likes driving, doesn't want to be restricted but recognises that it might be good to drive a little less for various reasons. Doesn't relate to bus-users
Segment 3: Malcontented Motorist	Drives a lot but finds it stressful. Finds it difficult to cut down.
Segment 4: Active Aspirer	Wants to cut down car use, especially for short journeys. More likely to walk or cycle than use the bus, because these active modes are healthier. Environmental issues may be a motivator.
Segment 5: Practical Traveller	Mode choice is driven by practicality; bus may be considered inferior as it is slower. This person thinks they have already optimised their travel.
Segment 6: Car Contemplator	Doesn't have a car but aspires to have one soon. This person has quite negative perceptions of cycling.
Segment 7: PT Dependent	Not opposed to cars, but dependent on public transport. Doesn't identify as a cyclist and not very interested in environmental issues.
Segment 8: Car-free Chooser	Opposed to car driving, and committed to healthier, more environmentally friendly modes.

From user preferences to influencing behaviour

- Influencing behaviour change through MyWay is a separate problem to creating an integrated MMJP
- Currently finalising a behavioural model and behaviour change strategy for MyWay
- Several strategies can be used
 - The MyWay algorithm for prioritising journey options can use a ‘nudge’ approach
 - Tailored messages can be pushed to users who have not opted out of VBC
 - Asking for satisfaction feedback, and giving weekly trip metrics can encourage reflection
- Messages (e.g. ‘why not cycle for short journeys’) need to be SHORT, targeted by ‘persuadable’ segments, local priorities and personality, repeated optimum times
- Effectiveness needs to be monitored

Next Steps: Investigating Modal Shift Messages

- Existing evaluations of travel behaviour change interventions do not seem to consider the detail of form and content of the message
- We will investigate which VBC messages are most effective for each priority segment in the target user groups
 - To understand what makes an effective message of 7-10 words, perhaps with a 'tell me more' button
 - To understand the role of attitude segment and personal characteristics (high persuadable versus low persuadable) in acceptance of messages (e.g. environmental, egoistic or altruistic framing, descriptive norm, injunctive norm)
 - To understand the role of journey context in receptivity to mode shift messages
- In addition to semi-structure interviews and focus groups, we are using techniques and frameworks from computing science (argumentation, human-computer interaction, persuasive effects)

References

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Thank you!

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