Smart Parking
Maastricht, The Netherlands

EPA Award 2013

Category 4 – Innovation

QPARK Quality in parking

Smart parking Maastricht

- It is difficult to find a parking spot in Maastricht during the weekends and peak days.
- There is enough parking capacity but people drive en masse to the same parking facilities in the city centre.
- Dynamic PRIS information is available in Maastricht.
- Realtime incar information may substitute or complement PRIS information in the future. It is expected that rich incar information impacts parking behaviour and results in:
  - A better distribution over the available parking facilities.
  - Reduction of 'cruising' in the city centre of Maastricht.

Smart parking Maastricht

- Governmental and commercial partners united in 'Maastricht Bereikbaar' to keep Maastricht accessible for visitors.
  - Several projects started.
  - One project is Smart Parking, an experiment to investigate the impact of rich incar information on parking behaviour.
    - Q-Park and the municipality of Maastricht are in the lead for this project.
    - University of Amsterdam (VU) is responsible for the research.

MAASTRICHT-BEREIKBAAR.nl
SLIM WERKEN SLIM REIZEN

Smart parking
Objectives

- Main experimental objective.
  - Guide visitors of Maastricht in the most efficient way to available parking facilities in the city centre or periphery.

- Secondary objectives.
  - Improve the distribution of parked cars in Maastricht through realtime incar parking information.
  - Improve (the perception of) parking facility accessibility.
  - Gain insights in stimuli that influence parking behaviour.

- Target group: People who visit Maastricht by car for leisure purposes.

Smart parking
Project design

- Dynamic smartphone app to distribute incar information and navigate to a parking facility.
  - Four experimental groups receive different levels of information.
  - Static and realtime parking information distributed.
    - Available parking spots, tariff, distance to destination.
  - Detailed registration of parking behaviour: app usage and GPS tracking.
  - Focus on shopping nights and weekends.
  - All parking facilities in Maastricht: Q-Park and non Q-Park.

Smart parking
Project design

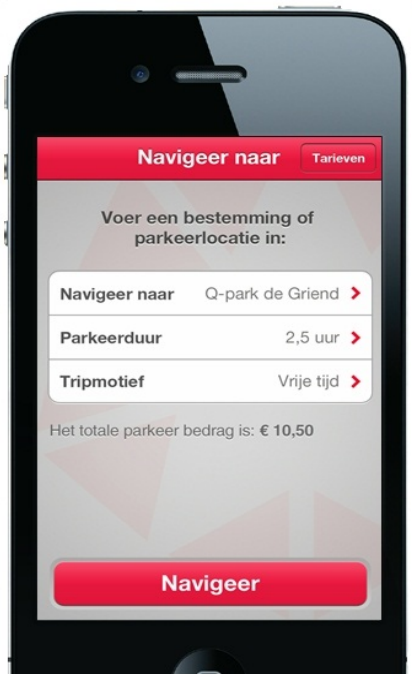
- Subjects were recruited in- and outside Maastricht using:
  - Banners on several websites, press releases, flyers, mailings and QR-code posters in parking facilities.

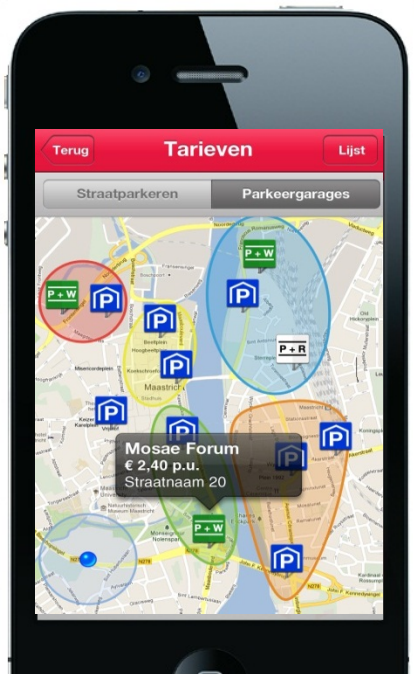
- Subjects were invited to:
  - Download and use the research app.
  - Fill in an online questionnaire for extra qualitative research.

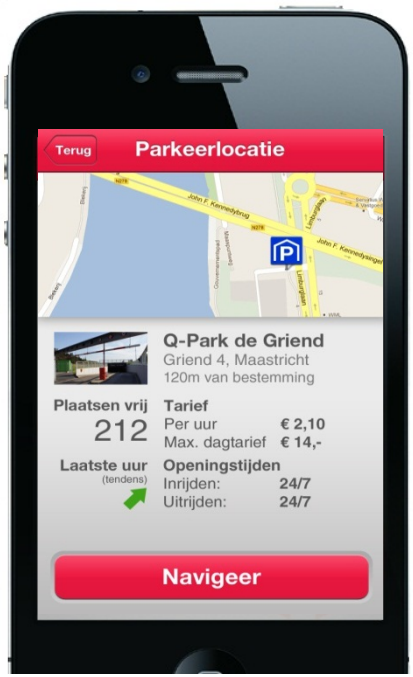
- Timelines
  - Experimental design and app development: Q3/Q4 2011.
  - Implementation and 'go live': Q1/Q2 2012.
  - Close experiment, evaluation and reporting: Q3/Q4 2012.

Smart parking
Criteria

- 450 apps downloaded and accounts activated.
- 93 online questionnaires completed.
- Total number of parking spots: > 7000
- Different tariffs for onstreet parking, P+W, P+R and 'traditional'.







Smart parking Achievements

- Results online questionnaire
  - 20% of the respondents is willing to change the desired time of arrival to park at the desired parking facility.
  - 23% of the respondents don't drive to the desired parking facility because they think there is no spot available.
    - So, (some) parking behaviour is based on expectations.
  - 47% of the respondents consult traffic information.
    - Only 6% pays for this information.
    - All others obtain information through free channels as their car radio, smartphone and internet.
  - Motivation to use traffic information (several reasons):
    - 51%: feels good to be informed.
    - 56%: helps to find the fastest route.

Smart parking Achievements

- App
  - When using the app, subjects mostly drive the most optimal route to an available parking spot (46 out of 55 trips).
  - Most drivers start-up the app 15 minutes before the end of their trip, probably for relevant parking information.
  - When the app is NOT used, the percentage on-street parking is higher.
  - Subjects mostly search for parking facility names, instead of an address. (It was not possible to search for POI's)
  - Automated re-routing wasn't very successful. When a parking facility became not available during the trip, another parking facility was suggested. Not many drivers accepted this recommendation.

Smart parking
Conclusions

- Parking availability information contributes to a better distribution over parking facilities (for leisure visitors). Price incentives contribute as well.
- Subjects seem to choose parking facilities based on availability information. They rarely drive to full parking facilities.
- Drivers mostly deviate from their original parking choice because of unexpected parking availability on the route.
- Parking capacity is unevenly utilized in Maastricht. Regularly only centrally located parking facilities are fully occupied during leisure traffic times.
- The need for information / app usage is higher at Thursday till Saturday, days with high probability on fully occupied parking facilities.

Smart parking
Next Steps

- Winter 2013/2014: Smart Parking integration into other Maastricht Bereikbaar Service 'Personal Travel Advice'.
  - Complement public transport information.
- Short term (2013): Focus on an additional online parking reservation system to decrease cruising and improve the distribution of parked cars in Maastricht.
  - Development business case.
  - Focus on backend and open API. Third parties can build their own reservation user interface (webpage, app, etc.).


QPARK
Quality in parking