Cycling happiness
Construction and application of an attractiveness index

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1 A new challenge: cycling attractiveness

2 Methodology

3 Utrecht case study

4 New issues
A new challenge: cycling attractiveness
From luxury to challenge

**Figure:** Pyramid for successful space for cyclists

Source: Scheltema, E.b (2012) "ReCycle City: Strengthening the bikeability from home to the Dutch railway station"
A new challenge: cycling attractiveness

Working on attractiveness, what for?

- Improving cyclists well being
  - Happiness when commuting in the daily life
  - Is the quality of cycling threatened?

- Increasing the number of cyclists on the road
  - A new approach of time travel
  - The quality of the environment as a new determinant of route choice
A new challenge: cycling attractiveness

A collaborative project

Psychological research

Transportation research

Behavioural economics research

Urban space research

Sociological research

Environmental research

ATTRACTIVENESS

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Methodology

Attractiveness matrix

Source: A.Pettinga, Cyclemotions/Utrecht, nov 2017

- How to define an attractiveness cycling environment? How to deal with "detailed design"?
- Where to find the data?
- How the spatial analysis should be conducted?
How to define an attractive cycling environment

Attractiveness: cycling infrastructure is designed and fitted in the surroundings in such a way that cycling is attractive

- The level of stress
- The pleasure experienced

A double relationship

- The cyclist and the surrounding
- The cyclist and the other road users
Methodology

The cyclist and the surrounding

Subjective safety: the feeling of being safe

Figure: Locations perceived unsafe by cyclists in Utrecht

- the fear of traffic as a first barrier to cycling
- how to measure it?
  - proximity with houses: social control
  - location of perceived unsafe areas
The cyclist and the surrounding

Spatial integration: how cyclists experience the urban fabric?

- cyclists develop cognitive maps
- cyclists memorize striking elements: landmarks (visual, cognitive and structural)
- better legibility and findability of the space

Figure: Landmarks in the Province of Utrecht
The cyclist and the surrounding

Spatial experience: different spaces creating different "sensescapes"

- lively surrounding
- various landscapes
- beautyness

Figure: Different sensescapes in the Province of Utrecht
The cyclist and the other road users

Nuisance: the quality of the environment

- the air quality
- the level of pollution
- the level of noise
- the level of odour
The cyclist and the other road users

Visibility: interactions with the other road users

- good lighting is highly valued by cyclists
- attractiveness by day and by night
Unattractive cycling environments

Figure: Close to Utrecht Central station

Legend
Perceived safety
- Safe
- Unsafe
- Dangerous
- Very dangerous

Railways, highways and airport

Bike attractiveness
Index
- 0.8 to 1
- 0.6 to 0.8
- 0.4 to 0.6
- 0.2 to 0.4
- 0 to 0.2

Nature area 0.50
Trafficways 1.00
Park and garden 0.50
Sport facilities 0.50
Agricultural area 0.50
Semi-built area 0.30
Built area 0.50
Subjective safety 0.25
Landmarks 0.50
Bridges 1.00
Tunnels
Intersections 0.75
Weighted index 0.37

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Attractive cycling environments

Figure: South of Houten
Main results

Two main obstacles:

- roadway
- main cycle lanes and local lanes connected to them
At which level should attractiveness be implemented?
- road surface level
- intersection level
- road level
- network level

Who is responsible for an attractive surrounding?
- governmental institutions: municipalities, provinces, State
- private stakeholders: associations, civilians, inhabitants
Bibliography

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The End