Helsinki & Utrecht Brutus model simulations of bicycle traffic, and Strava user data

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Why Helsinki needs cycling modelling

Knowledge of cyclist numbers and routes is limited.

Brutus can provide estimations of current bicycle traffic, as well as future potential

- To improve the knowledge of planners, politicians, citizens and companies when planning bicycle projects
Why developing cycling modeling in Netherlands

Lack of data about cyclists ➔ not well represented in decision making process

Cost-/Benefit analysis

Cycling taken for granted in existing models (2012 situation)

Take cycling seriously!
BRUTUS: Agent based modeling

Modeling individuals
“Monte Carlo” engine for:
– Activities
– Mode choice
– Route choice

Sample expanding to whole population
Examples where we can use Brutus

* Evaluation of infrastructure projects
* Cycling network / priority analysis
* Studying the effects of future land use scenarios
* Winter maintenance route planning
New bicycle bridge study

<- Brutus  New link  function

https://apps.strafica.fi/brutus/demo
Route choice model

**Route** stochastic assignment, not yet depending on time of day/motive
Project evaluations in Utrecht
Dafne Schippers Bridge, Utrecht

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Average 4416

Trip statistics from selected link(s):
- Total 4284 trips
- Mean trip length 10.6 km
MKBA Dafne Schippersbrug

http://www.fietsberaad.nl/library/repository/bestanden/MKBA%20Fiets.pdf
Helsinki Bicycle highway nr. 5:

<- Brutus study of effects onto cycling potential: estimating route users, if built
Helsinki main railway station underpass & options

Different locations for a bridge were also proposed as an option

<- Brutus *Link analysis* tool: estimated travel directions
Network planning
Prioritizing; which routes to improve first

Ranking routes to priority groups based on (for example) daily numbers:

1: 3000+
2: 2000+
3: 1000+
4: 500+
5: less than 500

Brutus can provide: Simulated route users now & in the future
Strava data: study on infrastructure implementation

- new bridge
- new cycle lanes

www.hel.fi/static/liitteen/kaupunkiymparisto/julkaisut/julkaisut/julkaisu-16-17.pdf