WP3 - GeoService

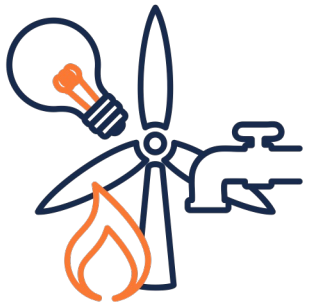
1

Receipt Scanning

2

GeoService

3

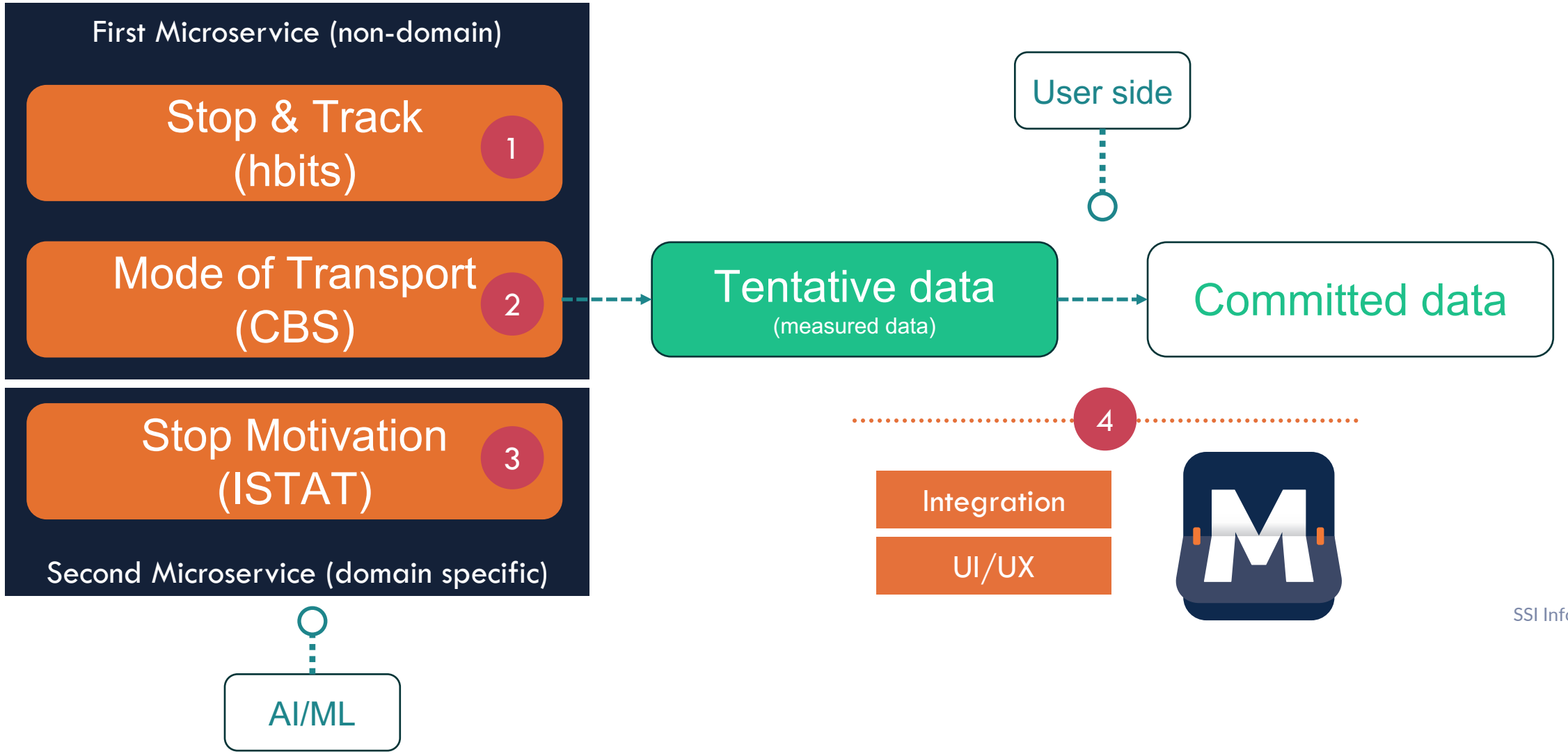


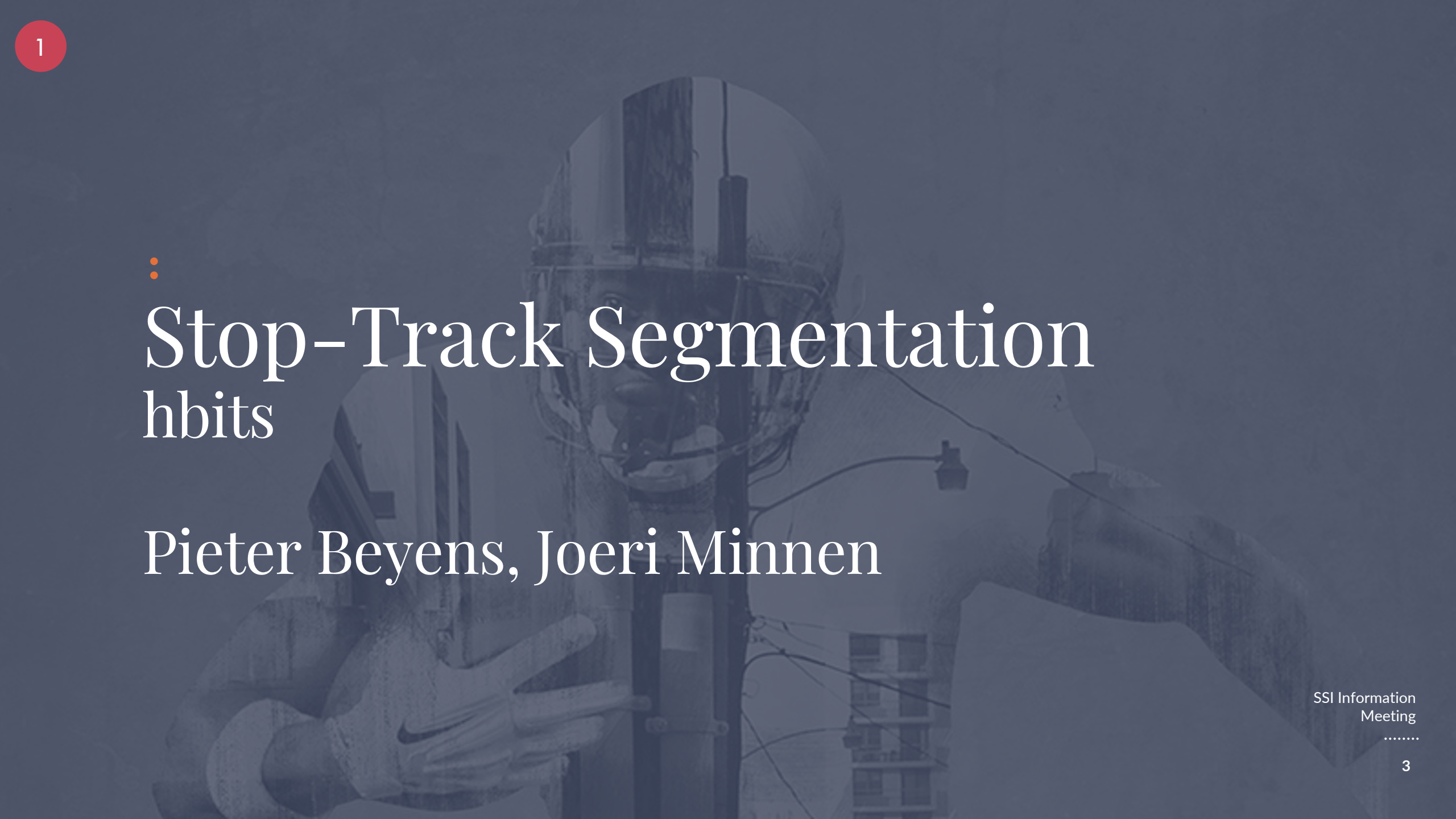
Energy usage

3 developments, one reusable and shareable architecture

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency. Neither the European Union nor the granting authority can be held responsible for them

Quick overview – 4 presentations

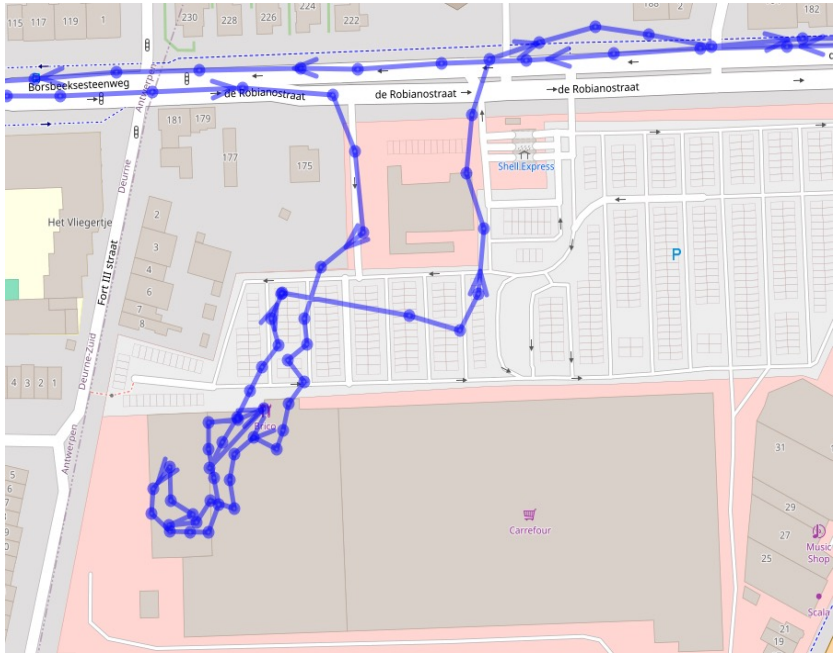


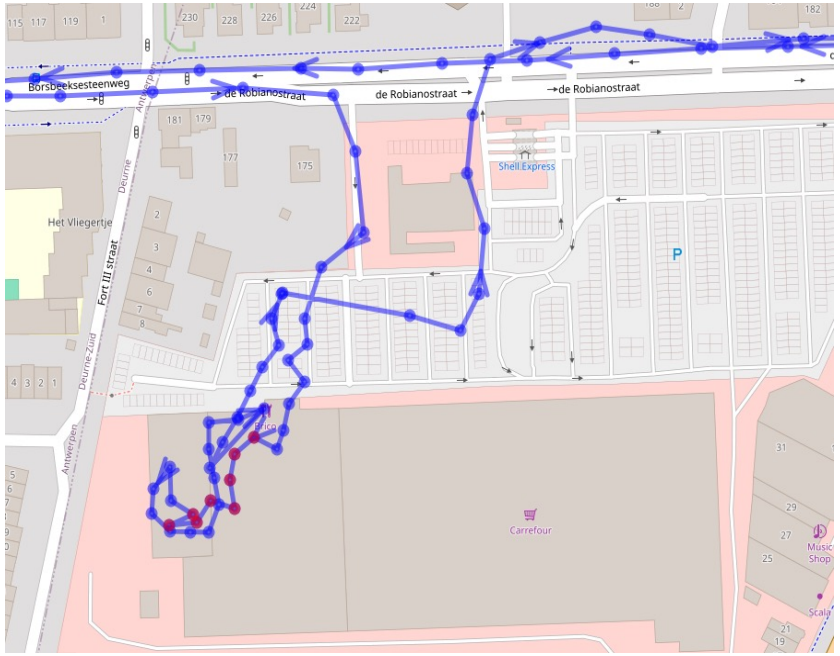


Stop-Track Segmentation
hbits

Pieter Beyens, Joeri Minnen

Trajectory segmentation: ATS-OPTICS algorithm

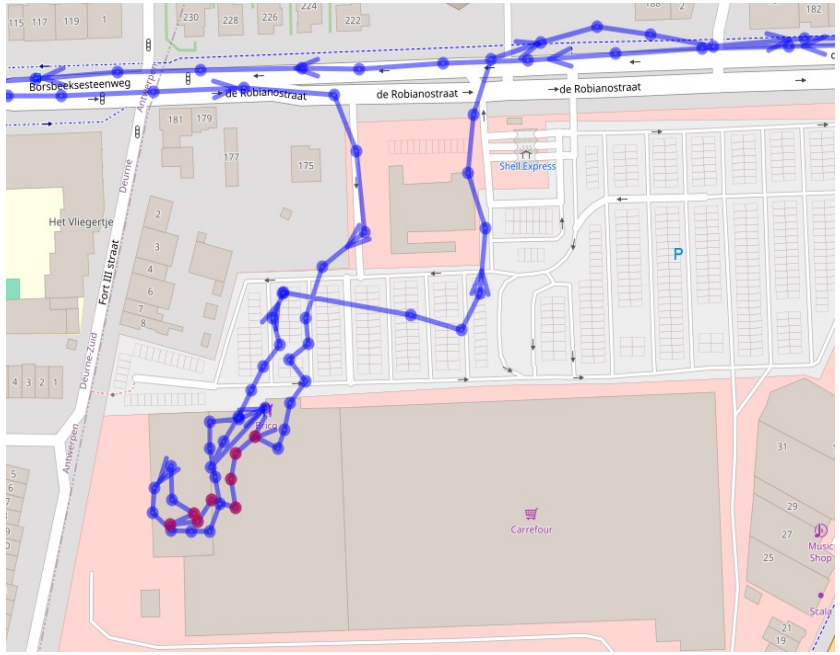


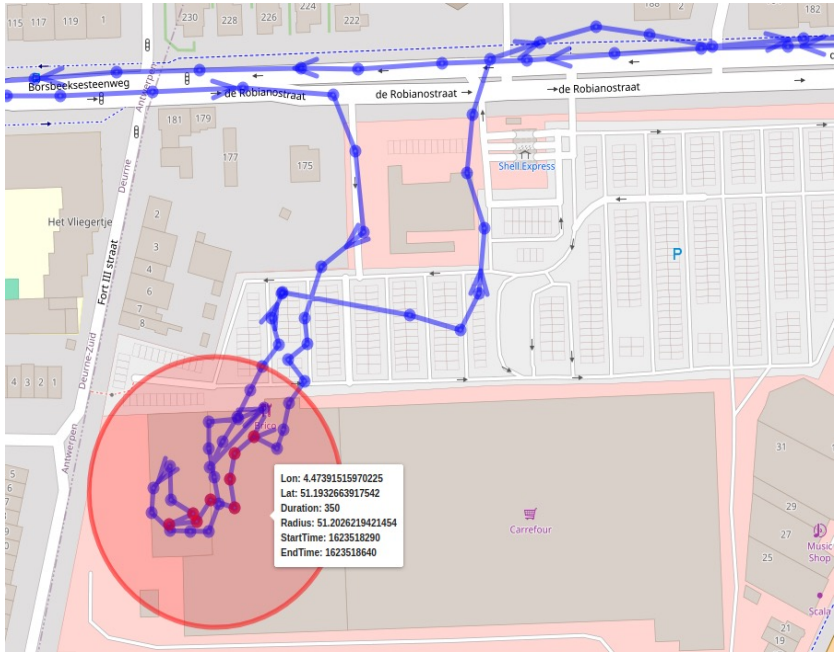


Step 1: self-**A**daptive **T**rajectory **S**egmentation algorithm

Identifies 'stop points' which are the geolocations where the respondent stays a few minutes within a certain radius e.g. 3' within 50m.

Trajectory segmentation: ATS-OPTICS algorithm

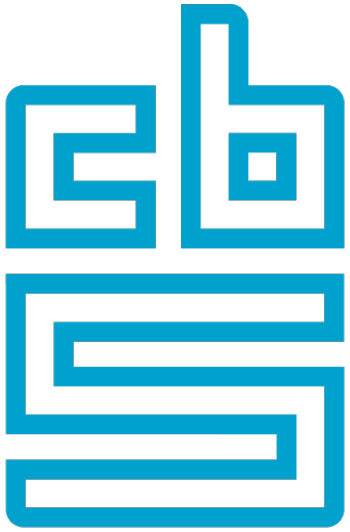




Step 2: OPTICS clustering algorithm

Makes clusters from the identified stop points.

Input for Mode of Transport prediction.

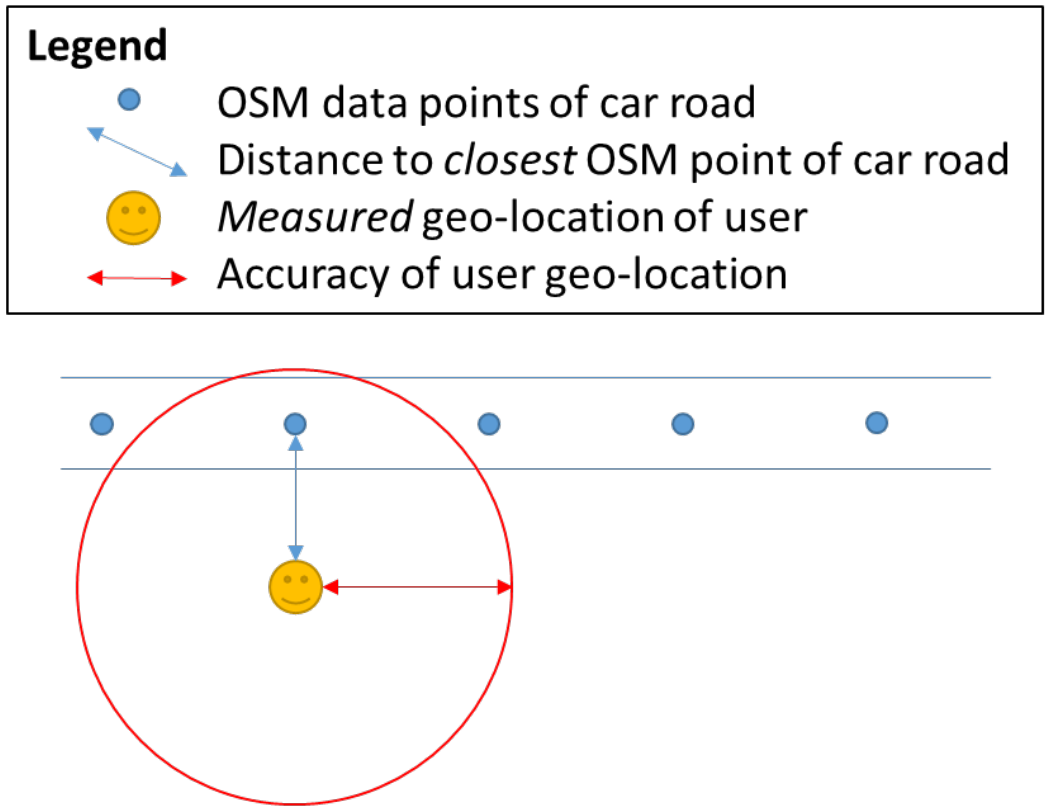


Mode of Transport prediction

Maaike Kompier, Jonas Klingwort, Mike Vollebregt

Method – for each track cluster

1. Input data: user geo-locations classified as tracks
2. Calculate minimum distance to each transport mode using OSM infrastucture
3. Determine whether geo-location is close enough to the mode (accuracy < distance)
4. Calculate proportion per transport mode = nr_inRad/nr_obs
5. Choose transport mode with highest proportion



Next steps

1. Improve current OSM method
   - Minimum proportion in order to be chosen?
   - Handling of multiple equal propotions?
   - Define quality criteria
   - ….
2. Developing rule-based transport determination
   - Length of track (m, time)
   - Average/Max/Min speed of track
   - Define quality criteria
   - …

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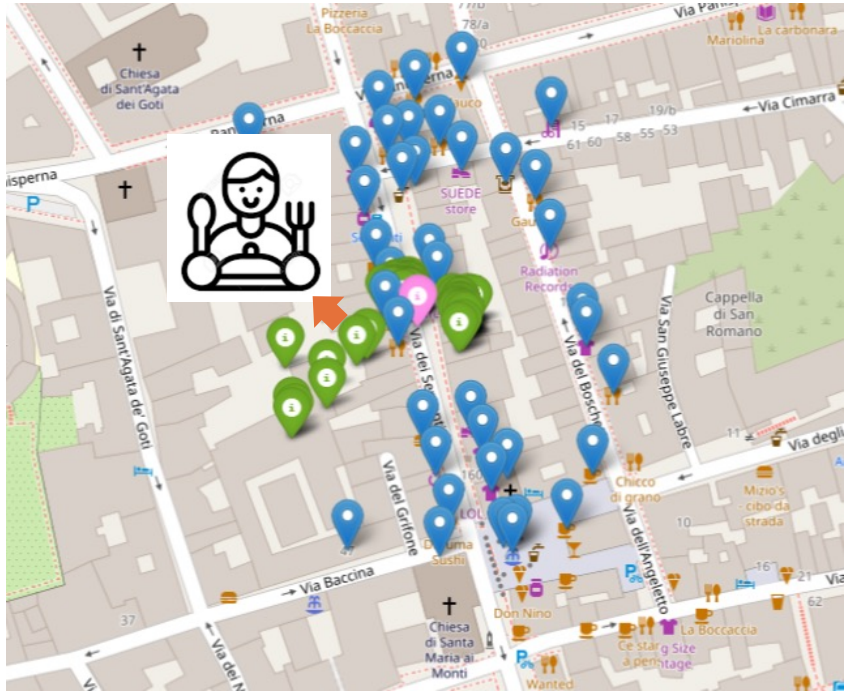
Hetus Activity Prediction

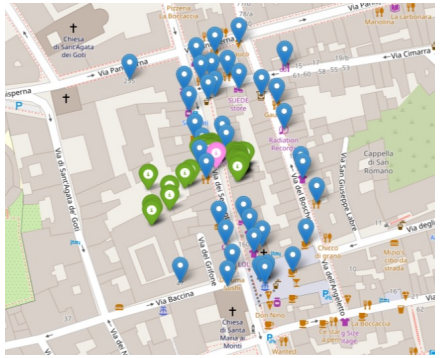


F.De Fausti, C. De Vitiis, F. Inglese, A. Pappagallo, M.D. Terribili

Method – for each stop

In order to identify activity, a statistical approach based on TUS aggregated data from previous ISTAT surveys is employed.

- Points of interest (POIs) are obtained from the map service (OSM or GP) within a radius that depends on the characteristics of the stop.
- A short list of candidate POIs is then selected based on the POI-score.
- For each POI on the shortlist, a TUS classification of places is applied to the tag.
- A statistical model based on TUS aggregated data then returns an activity score, which is calculated by combining the characteristics of the stop, the TUS place type of the POI, and the characteristics of the user.
- Finally, a rank of the HETUS activities is assigned to the stop, calculated by aggregating the probabilities of the activity weighted by the POI-score.

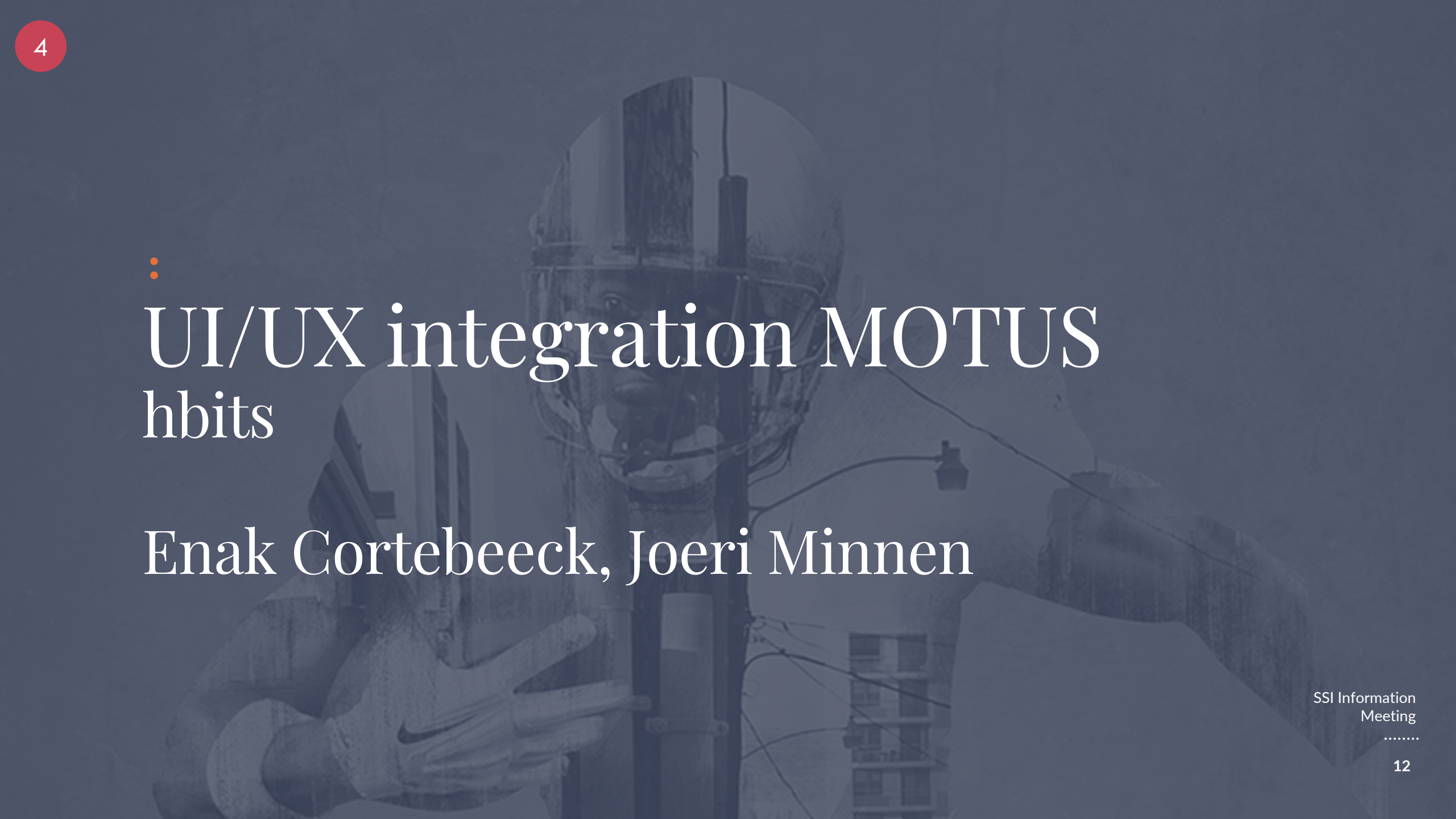


HETUS	ActivityScore	Descr
021	7.400402e-02	021 Eating
361	4.739460e-02	361 Shopping (including online/ e -sho
519	3.842740e-02	519 Other or unspecified social life
032	3.437884e-03	032 Personal care servi ces
732	1.588585e-03	732 Parlour games and play
513	1.237589e-03	513 Celebrations
821	1.227424e-03	821 Watching TV, video or DVD
522	3.925254e-04	522 Theatre and concerts
343	3.686005e-04	343 Caring for pets
831	3.219861e-04	831 Listening to radio or recordings
383	1.547464e-04	383 Reading, playing and talking with c
811	8.229526e-05	811 Reading periodicals

Next steps

Assessment and fine tuning of the algorithm

- The predictions made on the data collected with the application of CBS will be evaluated.
- The mapping between tag and TUS place will be improved
- The predictive ability of the model will be evaluated as a function of input features (e.g. user profile, time slot)
- The impact of the map service on the quality of prediction will be evaluated
- Evaluate changes to the predictive model



UI/UX integration MOTUS
hbits

Enak Cortebeeck, Joeri Minnen

Some screenshots UI/UX MOTUS

SCAN ME

Timeline | Measured data | Detailed view | Adding context | Map visualisation