



**TRANSIT
DATA2017**
3rd INTERNATIONAL
WORKSHOP AND SYMPOSIUM

Insights into door-to-door dynamics of public transport riders by App, Survey and AVL data

Case of Amsterdam metropolitan area

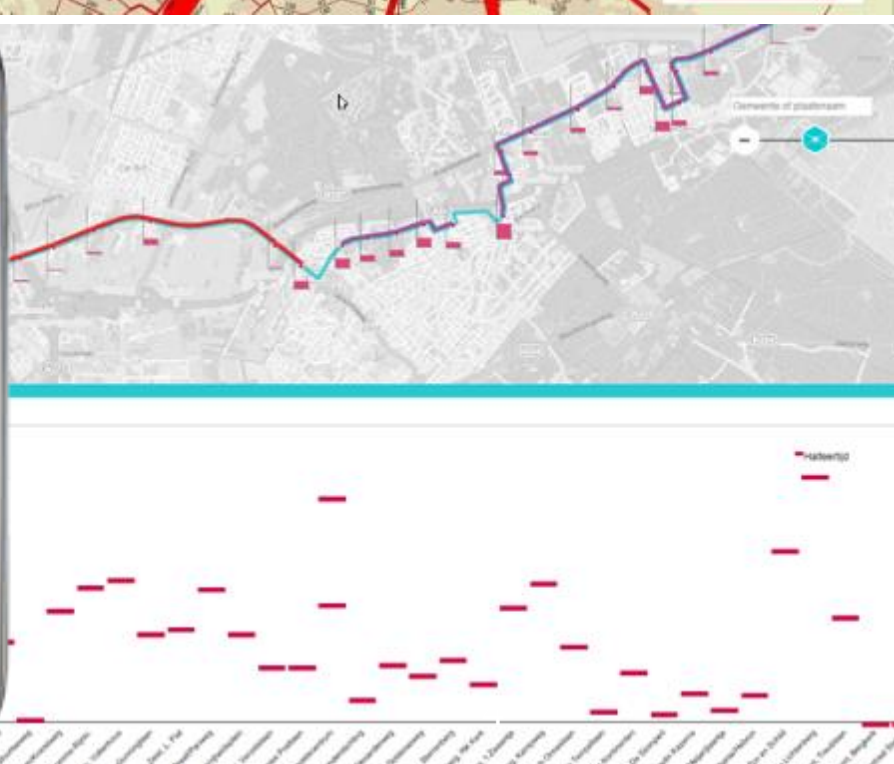
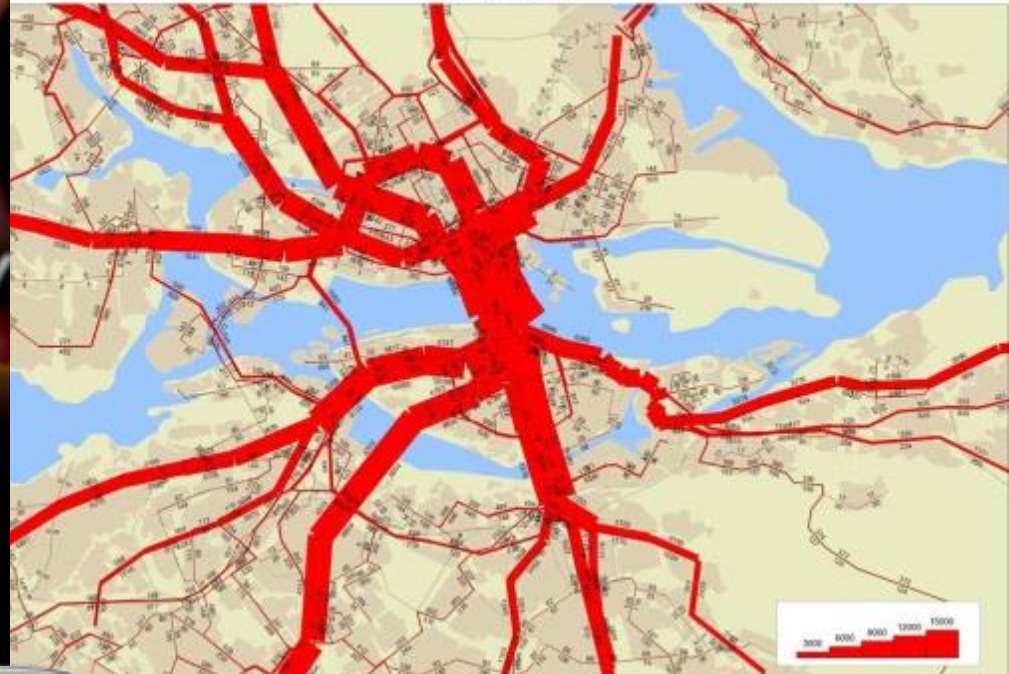
May 2017

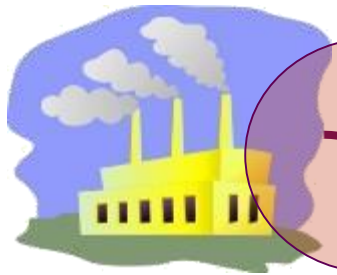
Niels van Oort
Aart de Koning
Sander vd Drift
Menno Yap











Data challenge

Traveller app

Door to door insights

Sense.DAT

Travel time

Bike PRINT

Reliability

GOVI

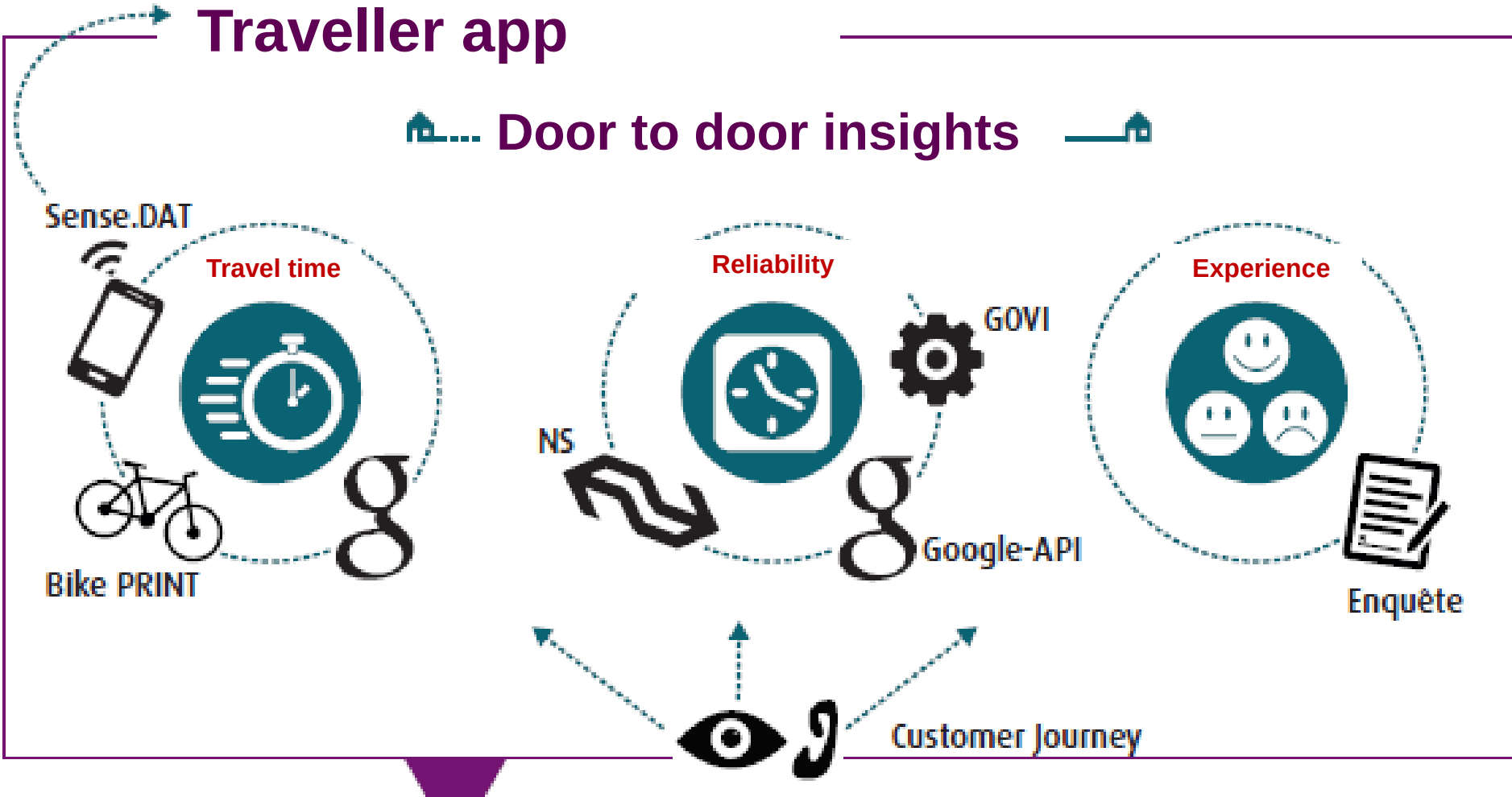
Experience

NS

Google-API

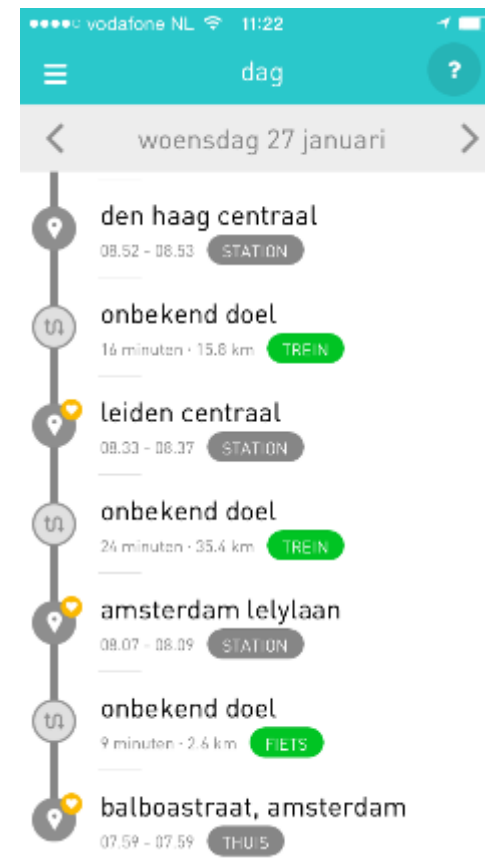
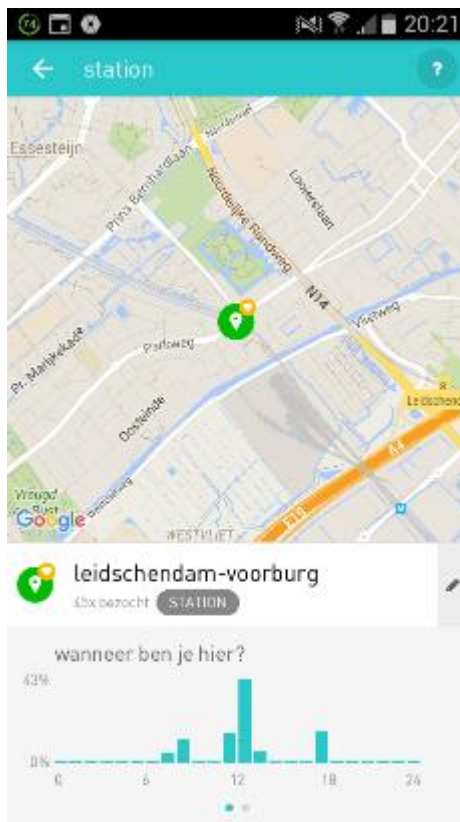
Enquête

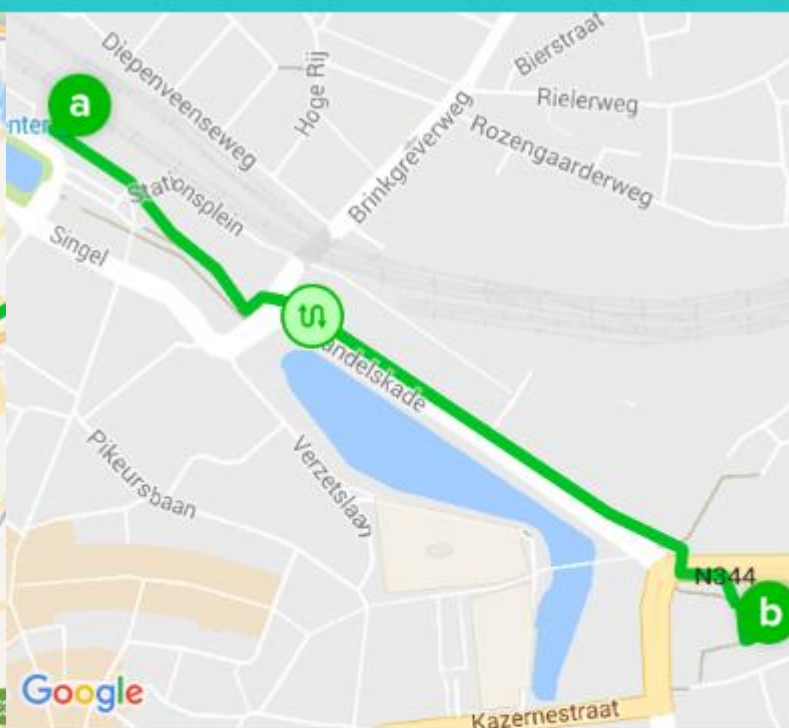
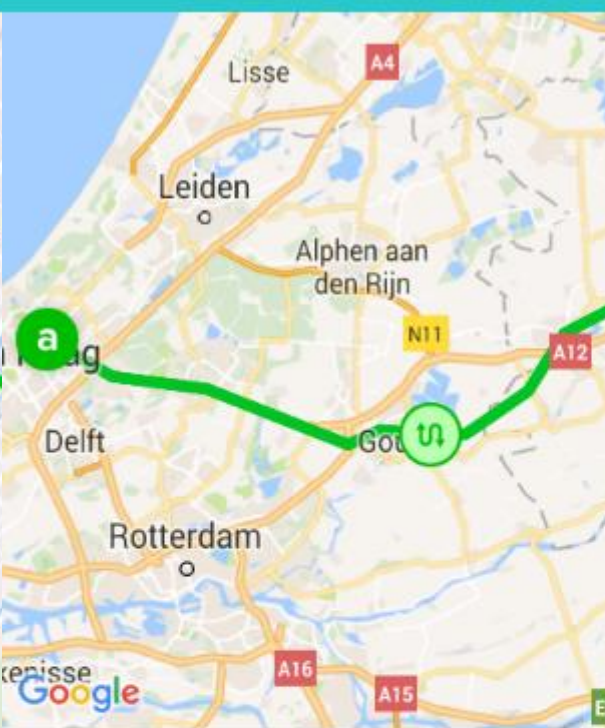
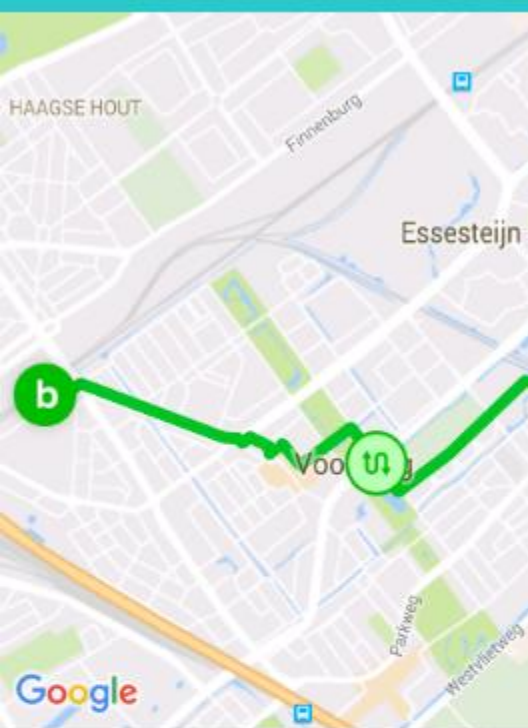
Customer Journey



Measuring bike and PT usage: Traveller app

Sense.DAT





 **onbekend doel**
13 minuten · 4.0 km **FIETS**

 **onbekend doel**
36 minuten · 60.2 km **TREIN**

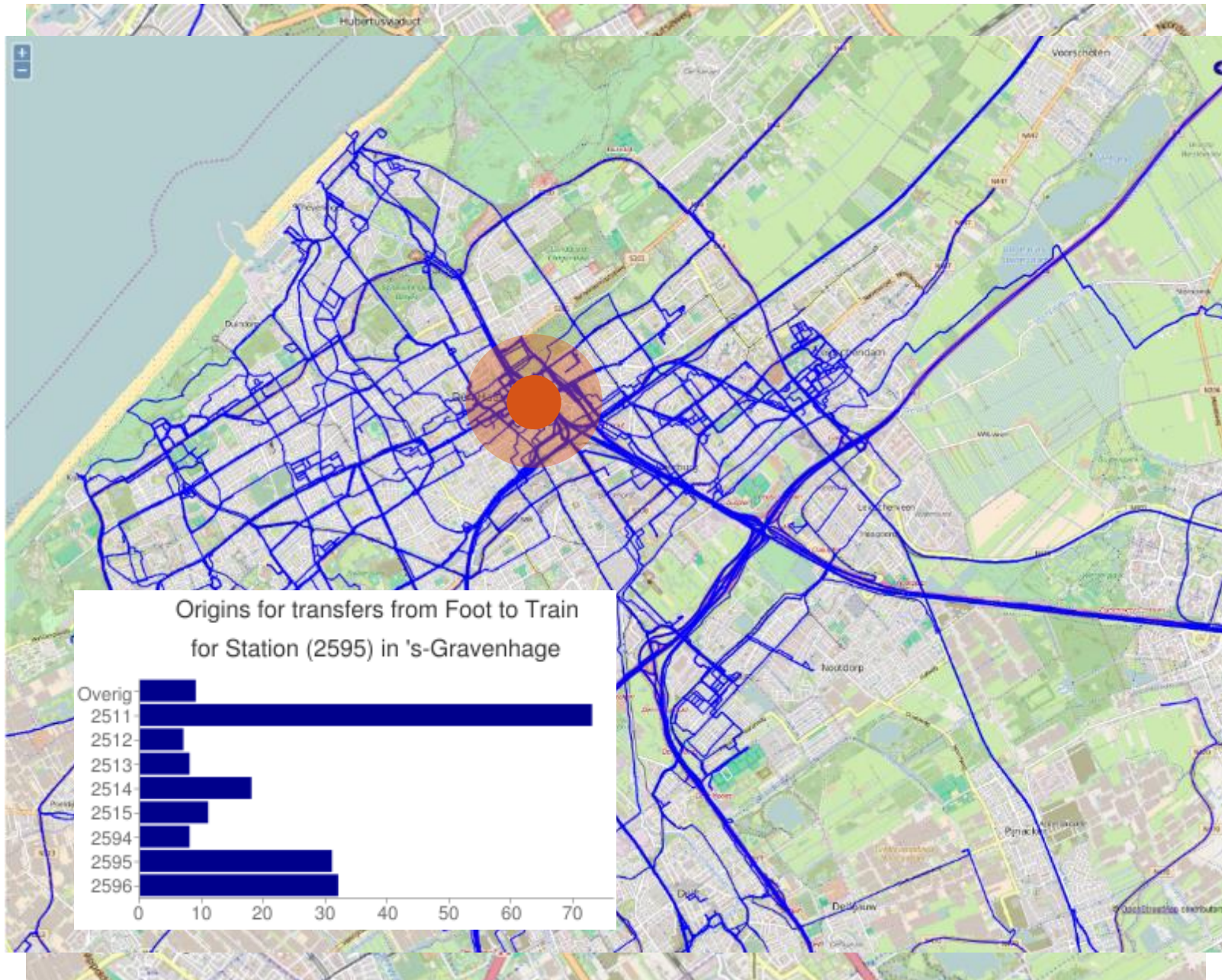
 **onbekend doel**
9 minuten · 870.0 m **VOET**

08.12 johannes poststraat, leids
08.25 parkeren bij voorburg
rol Bestuurder
goed gemeten

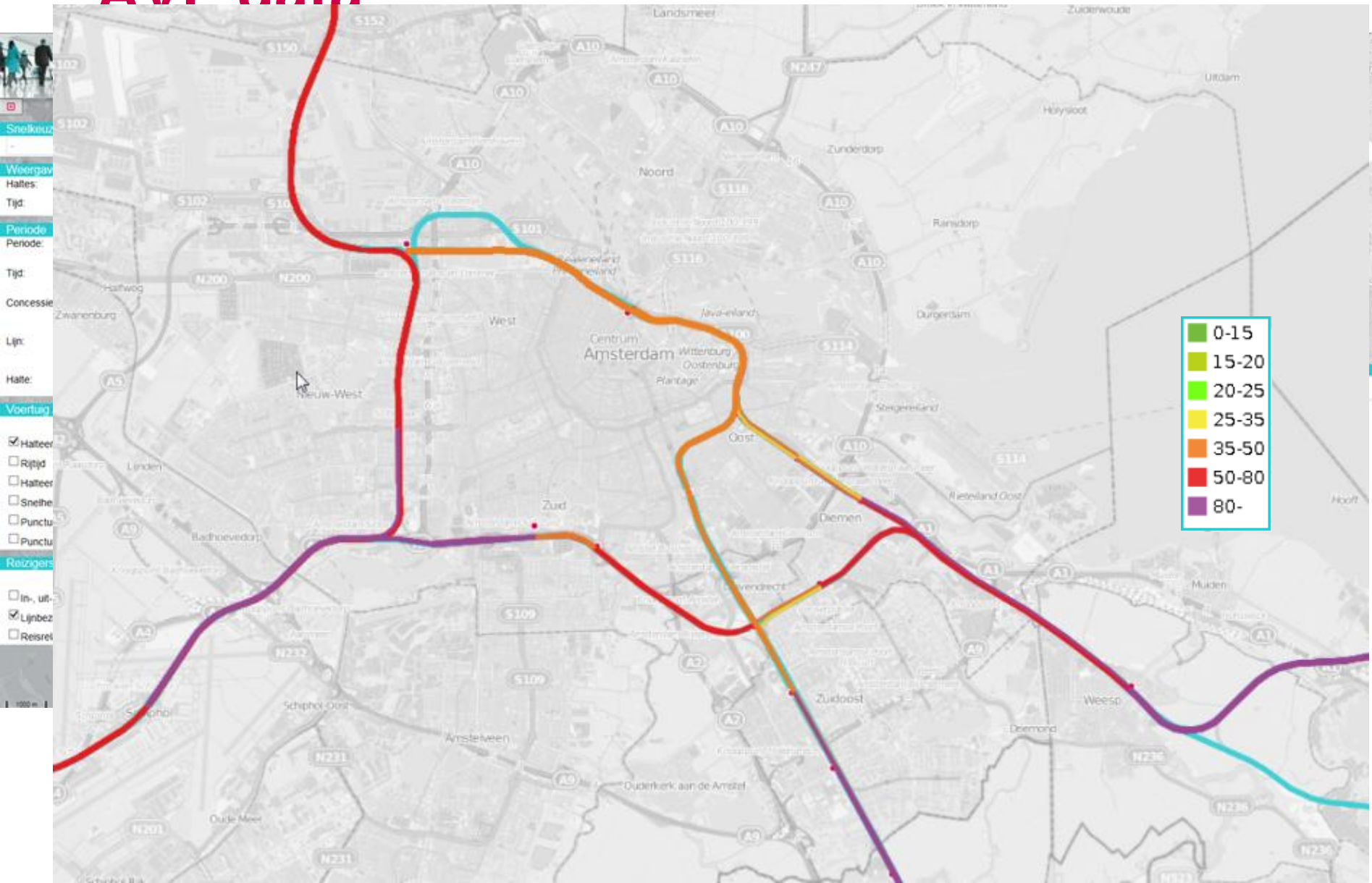
08.53 tram 17
09.29 stationshal, utrecht
rol Passagier
goed gemeten

10.32 deventer
10.40 twentolplein, deventer
rol Niet van toepassing
goed gemeten

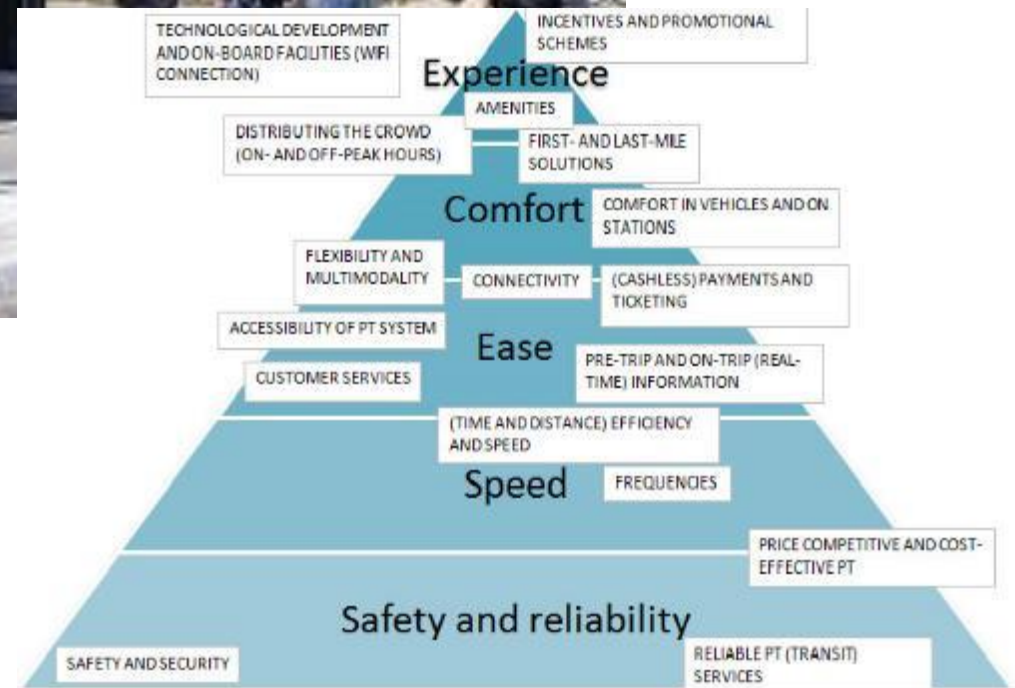
afstand	afstand	afstand	0.87 km
snelheid	snelheid	snelheid	5.4 km/h



AVI data



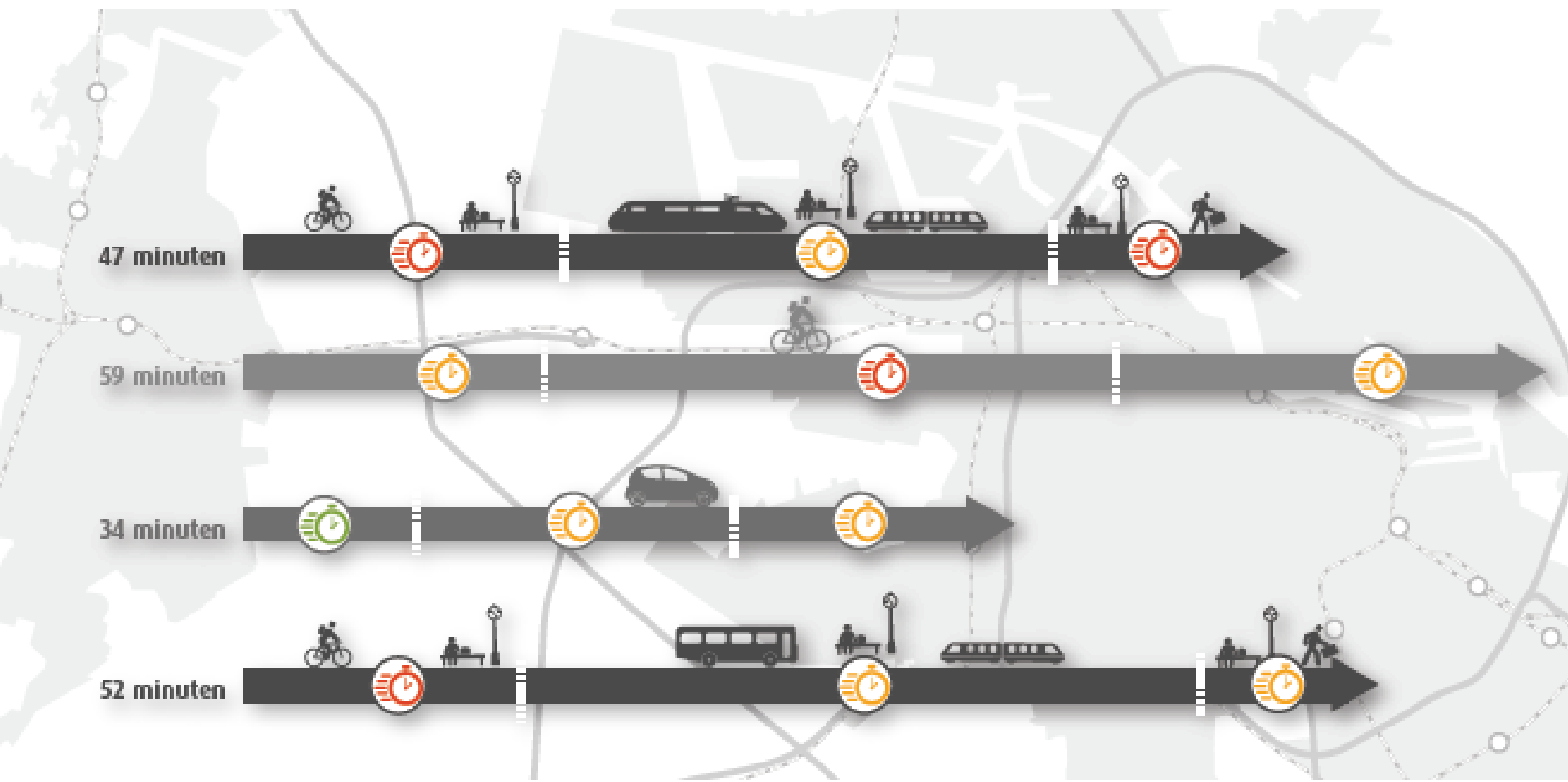
Passenger surveys



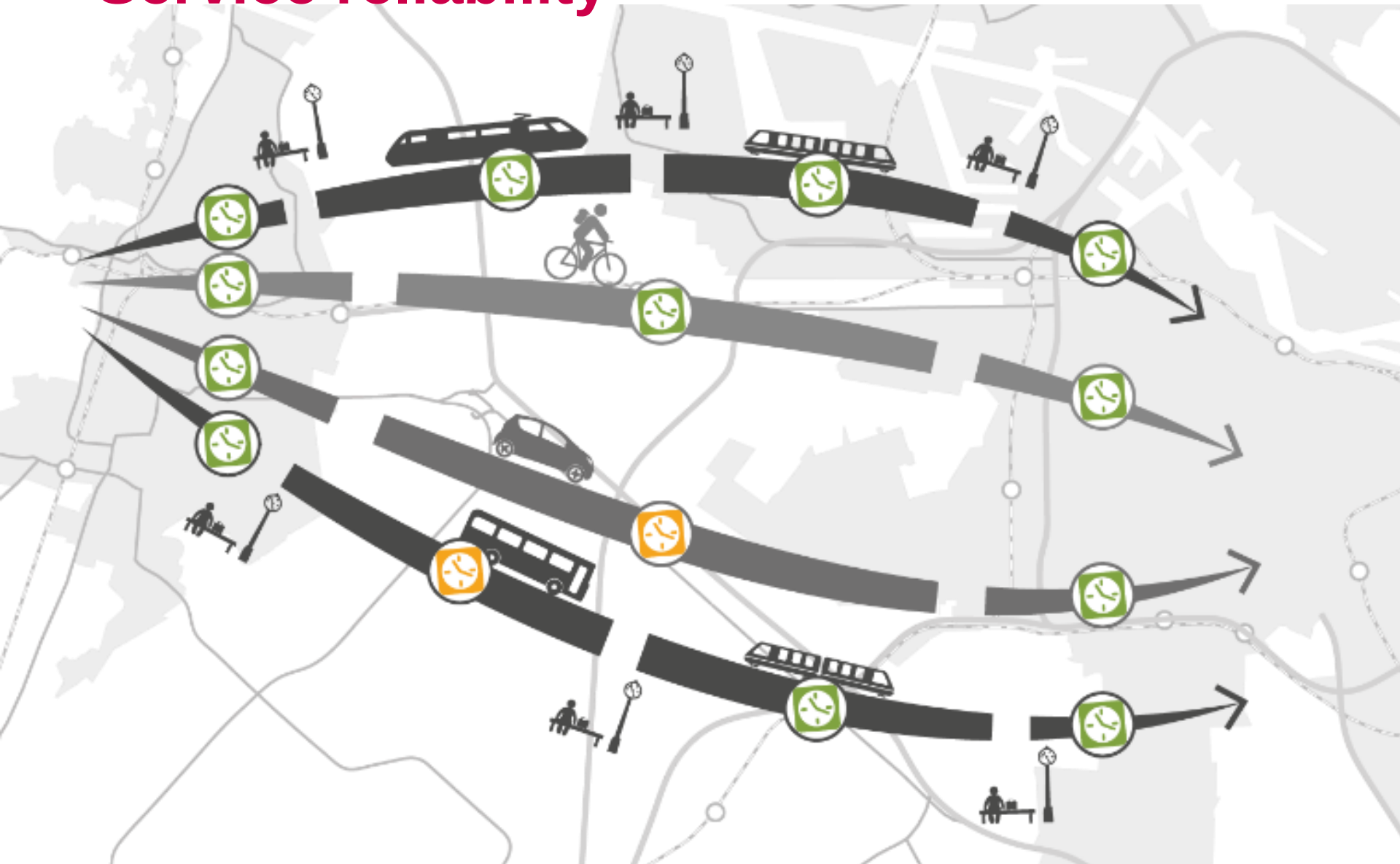
Case Amsterdam



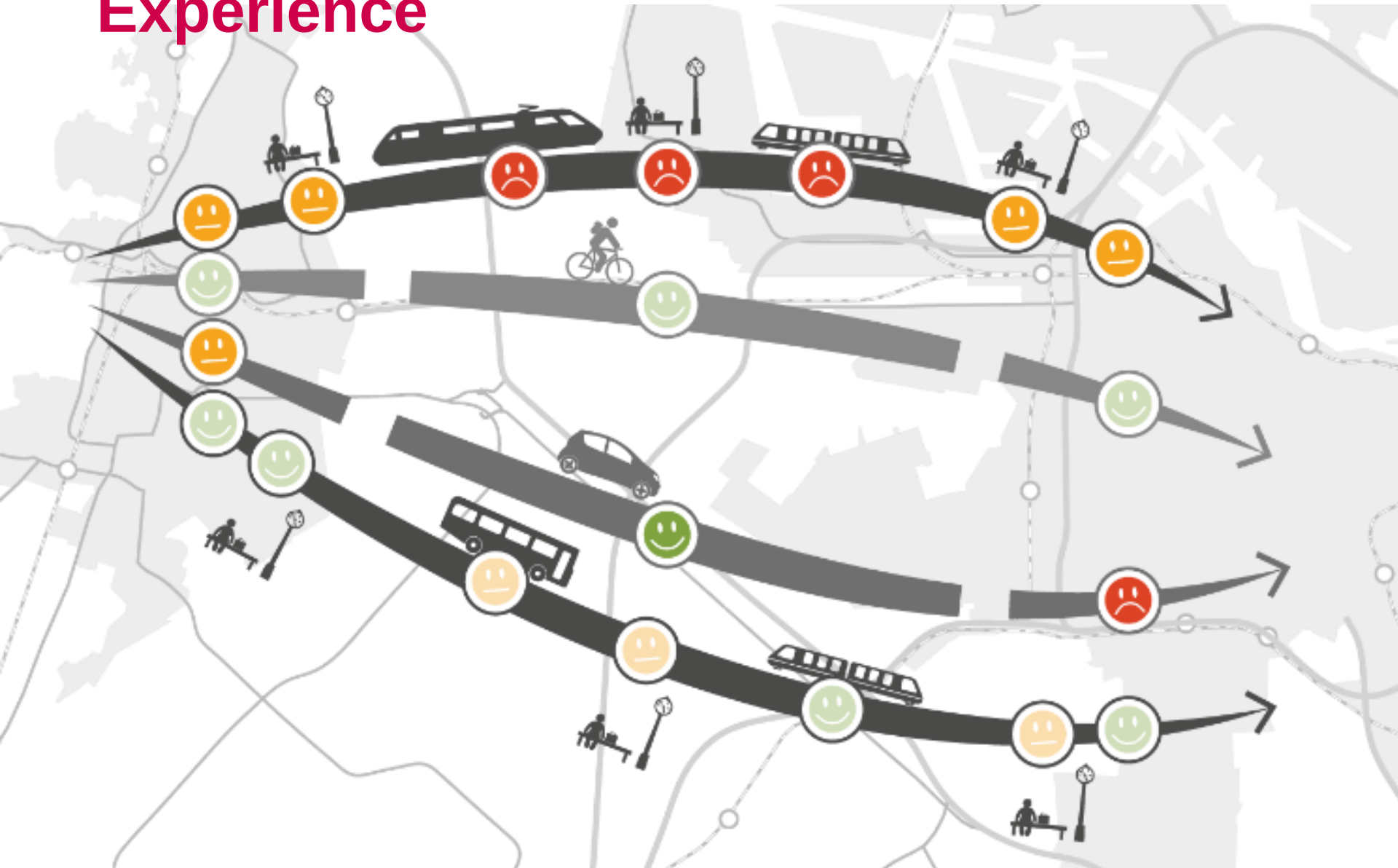
Travel time



Service reliability

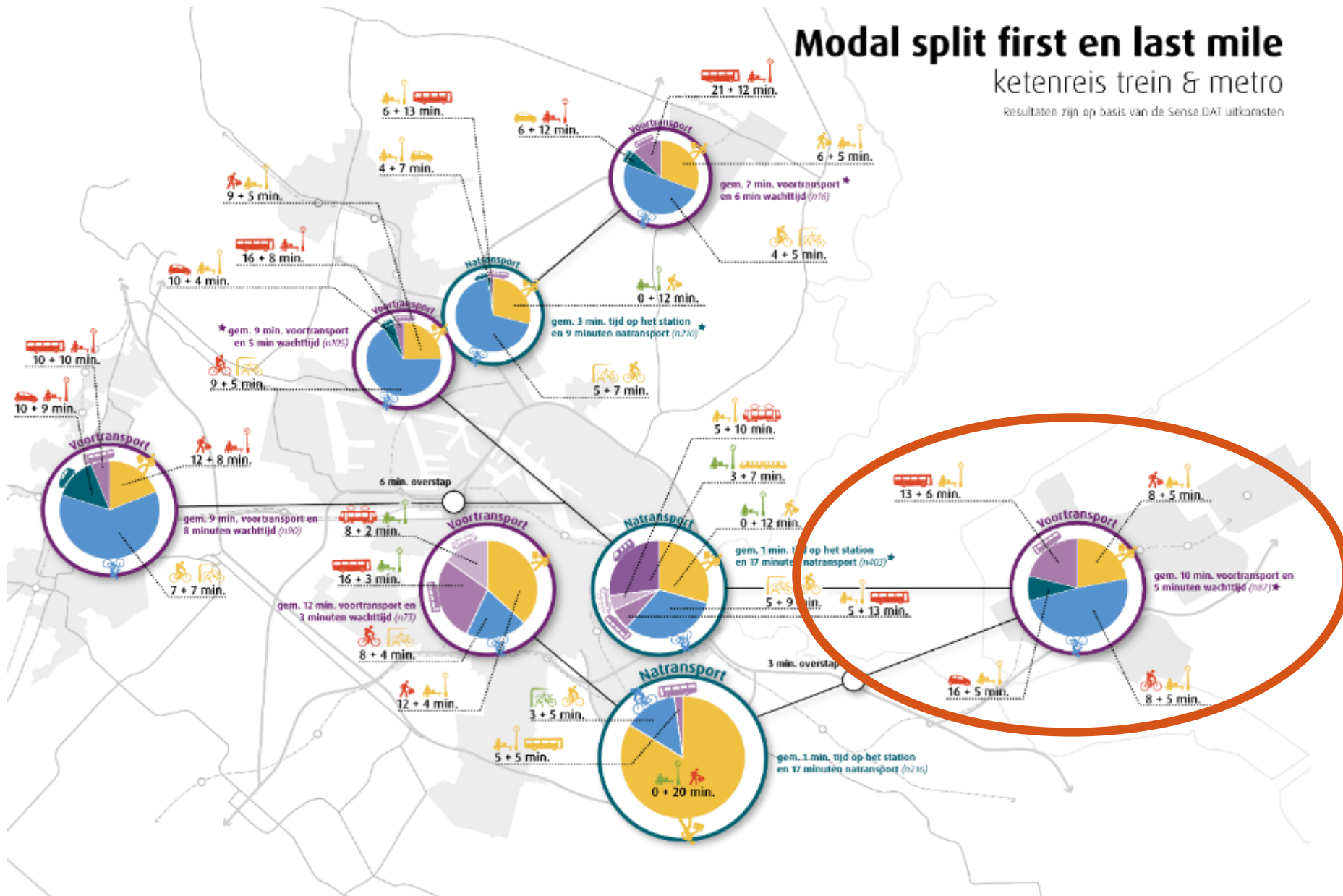


Experience

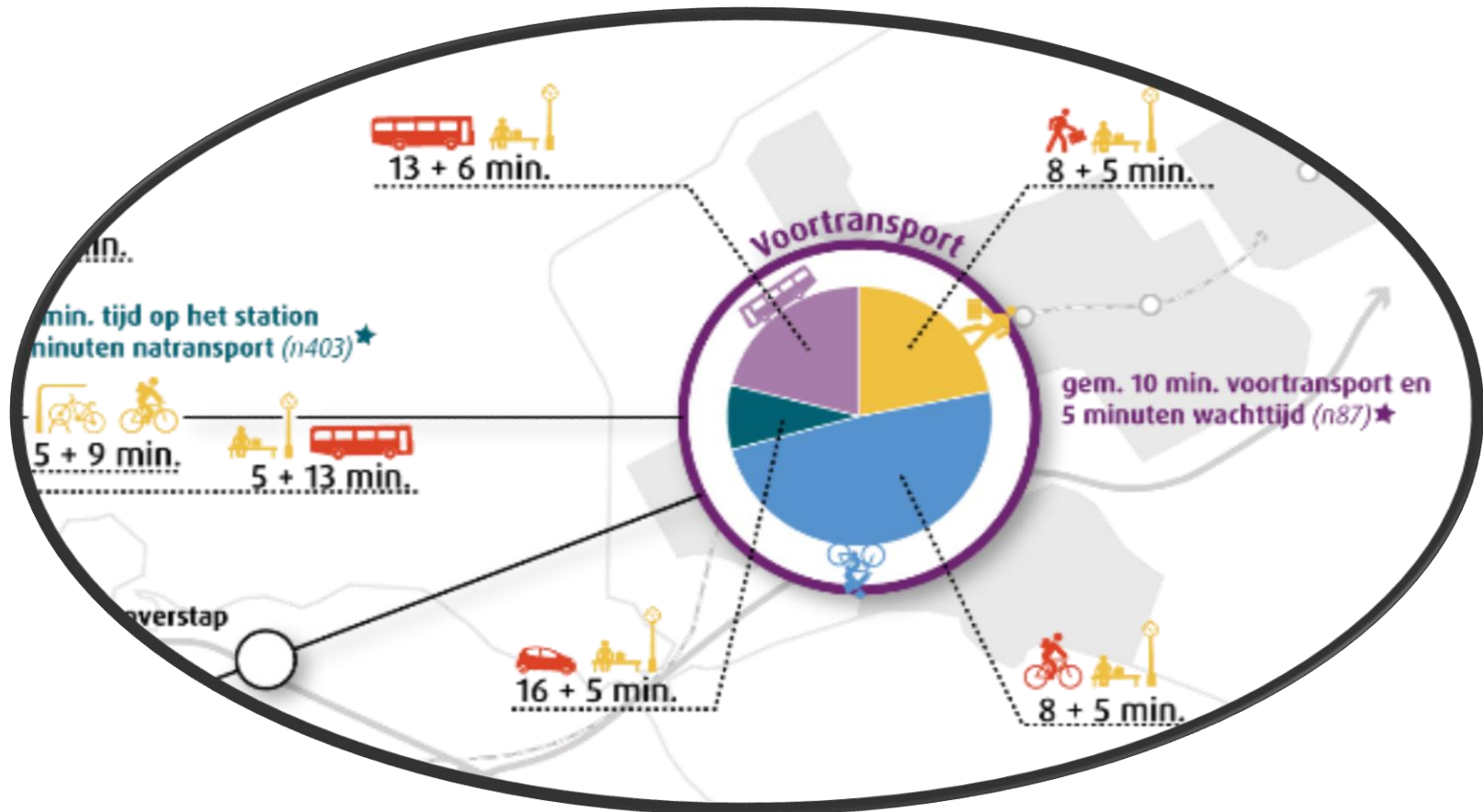


Modal split first en last mile ketenreis trein & metro

Resultaten zijn op basis van de Sense.DAT uitkomsten



Access insights



To conclude

1. New insights into door to door mobility
2. Combination of data sources: AVL, survey and app
3. Supports understanding of traveller behaviour
4. Enables improving:
 1. Policy making and planning Bike AND Transit
 2. Modelling
 1. Acces and egress (e.g. Brands et al. 2014)
 2. Unreliability (e.g. Van Oort et al. 2015)
 3. Crowding (e.g. Cats and Hartl. 2016)
 4. Experience (e.g. Van Hagen 2011)

References

Biking and transit

Shelat, S., R. Huisman, N. van Oort (2017). Understanding the Trip and User Characteristics of the combined Bicycle and Transit Mode. Thredbo conference Stockholm.

Brand, J., N. van Oort, B. Schalkwijk, S. Hoogendoorn (2017), Modelling Multimodal Transit Networks; Integration of bus networks with walking and cycling, MT-ITS Conference Napoli.

Data and transit

De Regt K., Cats O., van Oort N. and van Lint H. (2017). Investigating Potential Transit Ridership by Fusing Smartcard Data and GSM Data. *Transportation Research Record*, No. 2652

Cats O. and Hartl M. (2016). Modelling Public Transport On-board Congestion: Comparing Schedule-based and Agent-based Assignment Approaches and their Implications. *Journal of Advanced Transportation*, 50 (6), 1209-1224

Van Oort, N., D. Sparing, T. Brands, R.M.P. Goverde (2015), Data driven improvements in public transport: the Dutch example, *Public Transport*, Vol 7(3), pp.369-389

Van Oort, N., T. Brands, E. de Romph, J.A. Flores (2015), Unreliability effects in public transport modelling, *International Journal of Transportation*, Vol.3, No.1 (2015), pp.113-130

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