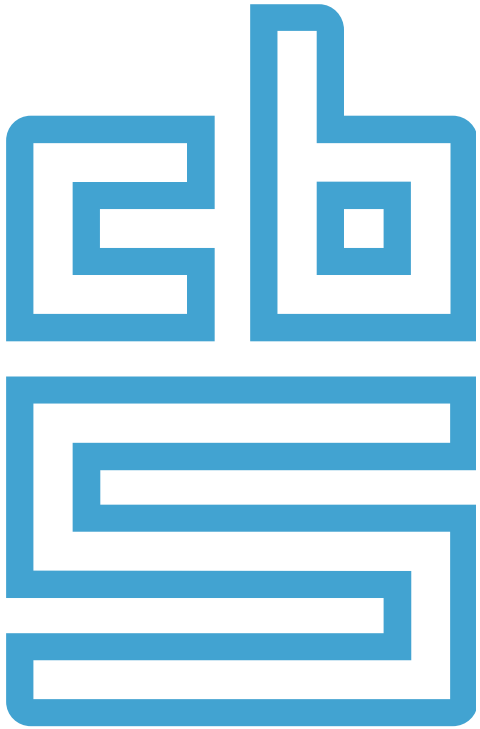

Combining TomTom & CBS data: early insights & possible uses for mobility statistics

Douglas Gilmour, Yvonne Gootzen and Maartje Tummers

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Agenda

1. Introduction
2. TomTom - CBS collaboration
3. The Study
4. The Data
5. The Model
6. The Results
7. What have we learned?
8. The road ahead

CBS - TomTom collaboration

Mission CBS:
"…to enable people to have debates on social issues on the basis of reliable statistical information."

Mission TomTom:
"…to create the most innovative technologies to help shape tomorrow's mobility."

Explore the opportunity to use TomTom floating car data (FCD) for data driven policy-making:

- Representativeness
- Integration with other data sources
- Coverage and data quality

Exploration of alternative applications of FCD to mobility in the future: is the future in fixed or moving sensors?

The Study: objectives & scope

Problem: Sensors are sparsely distributed. FCD is ubiquitous, but also a sample of total vehicle fleet

Research ars on roads wh

Aim: Com

First step ific use case: A79

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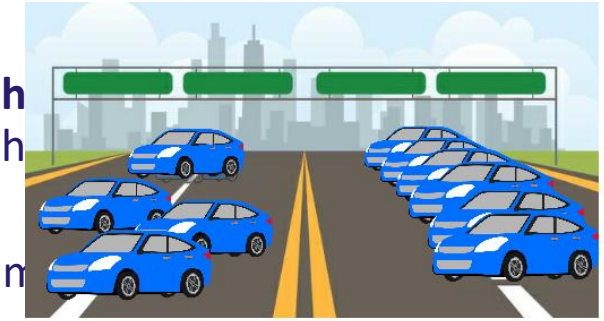
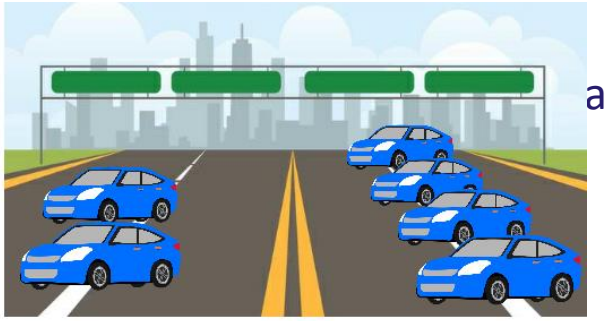


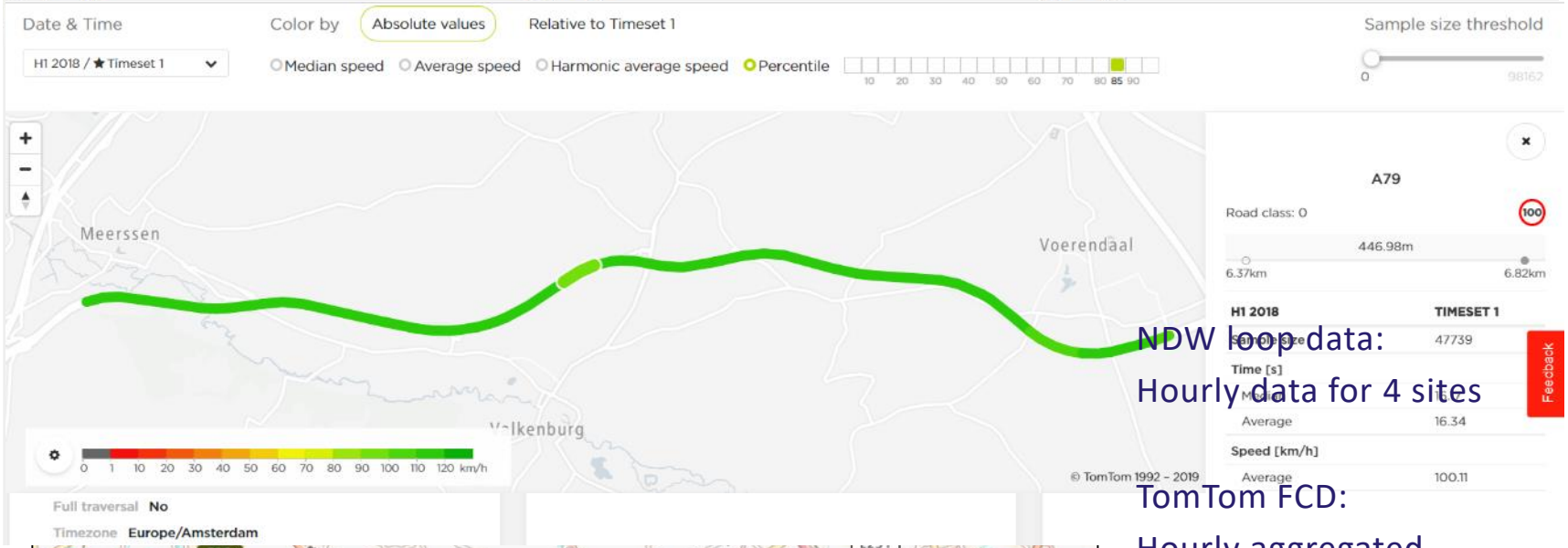
Road sensor data



Floating car data

TOMTOM

The Data: A79 Maastricht-Heerlen



NDW loop data:

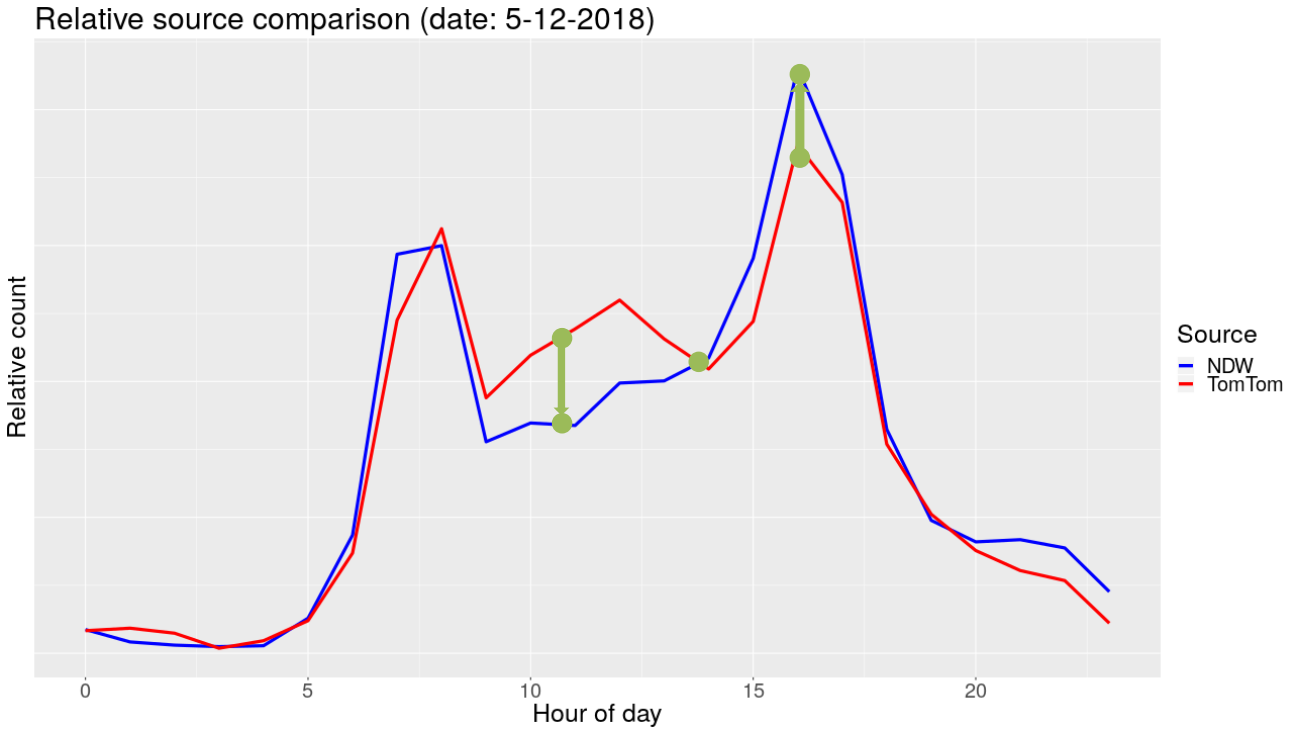
Hourly data for 4 sites

TomTom FCD:

Hourly aggregated, anonymised, average speed, travel time and GPS “hits” data

Step 1: Compare counts

Both sources show similar intensity patterns



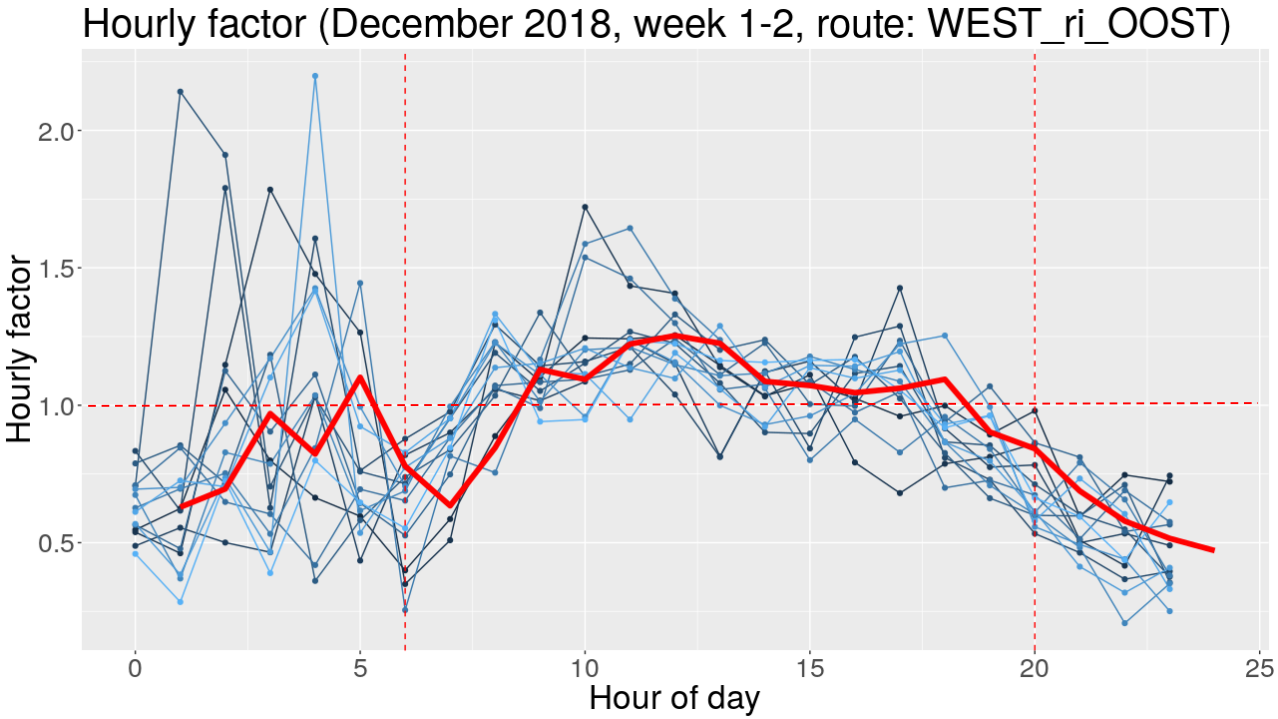
TomTom counts are relative

↑

*daily factor

Step 2: Calculate relative hourly factors

Stable patterns of factors on selected routes



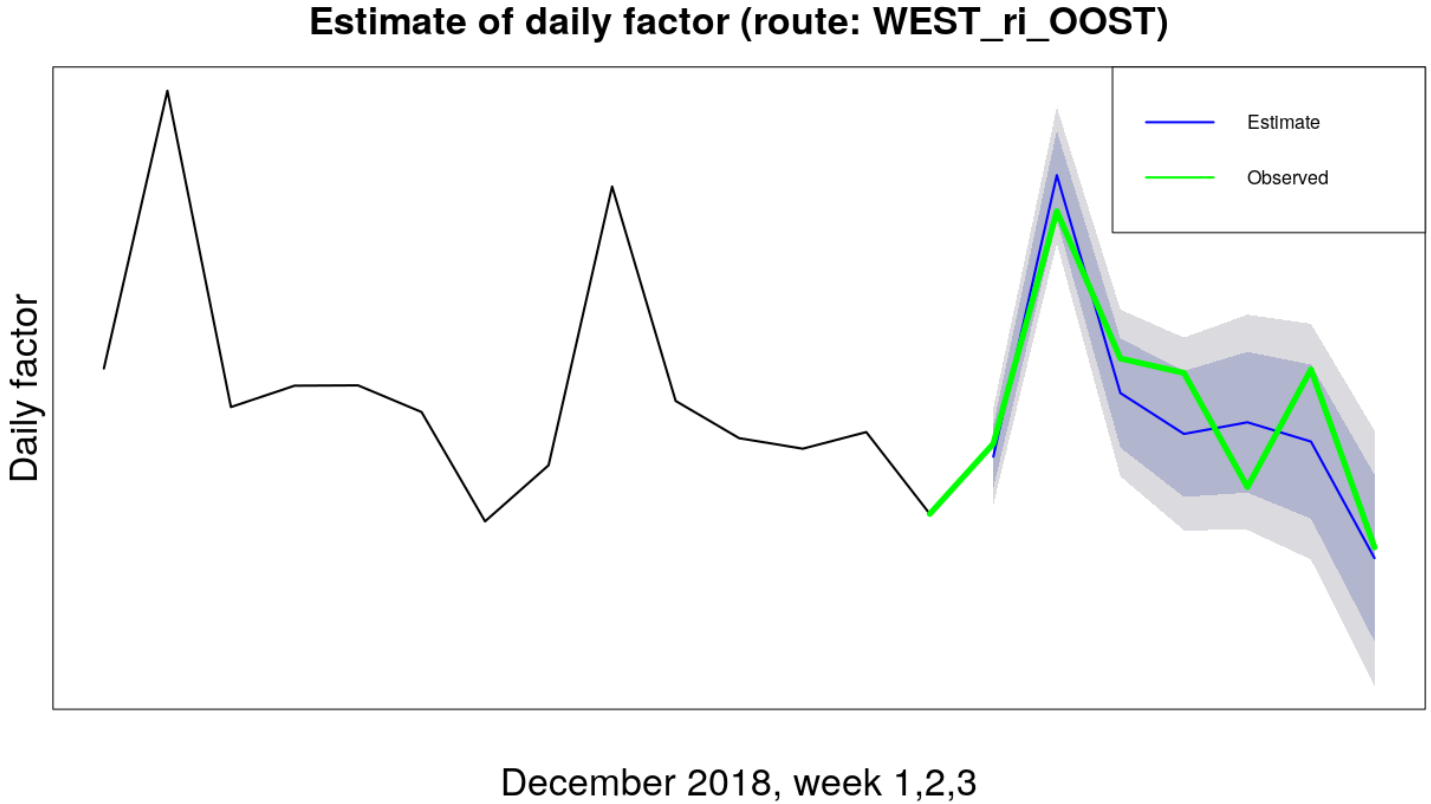
(Relative) factors indicate relationship between NDW counts and TomTom “hits”.

Each blue line represents a day.

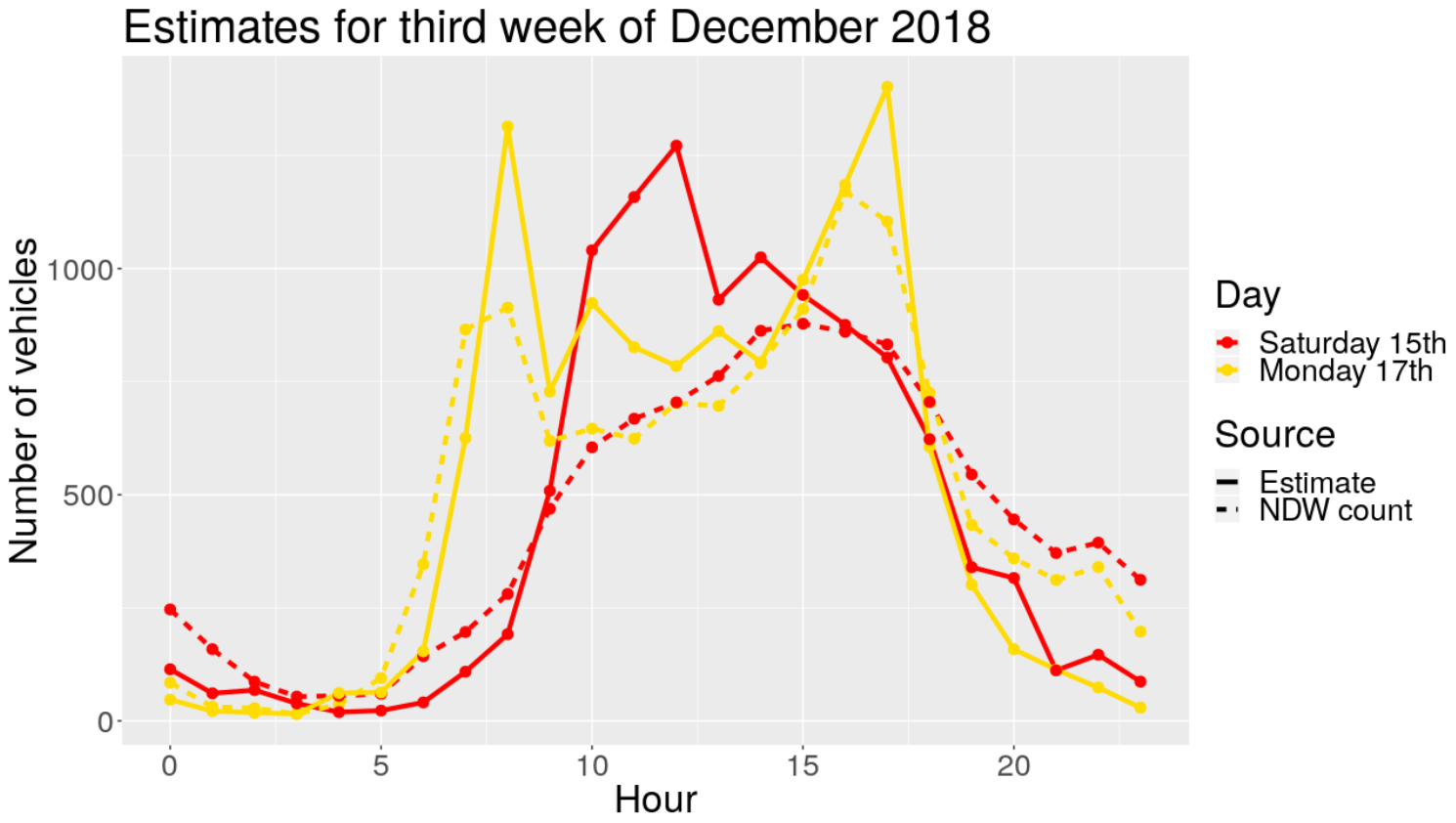
More stable factors over time

=> better estimates of traffic intensity

Steps 3 and 4: Train model + Estimate factors

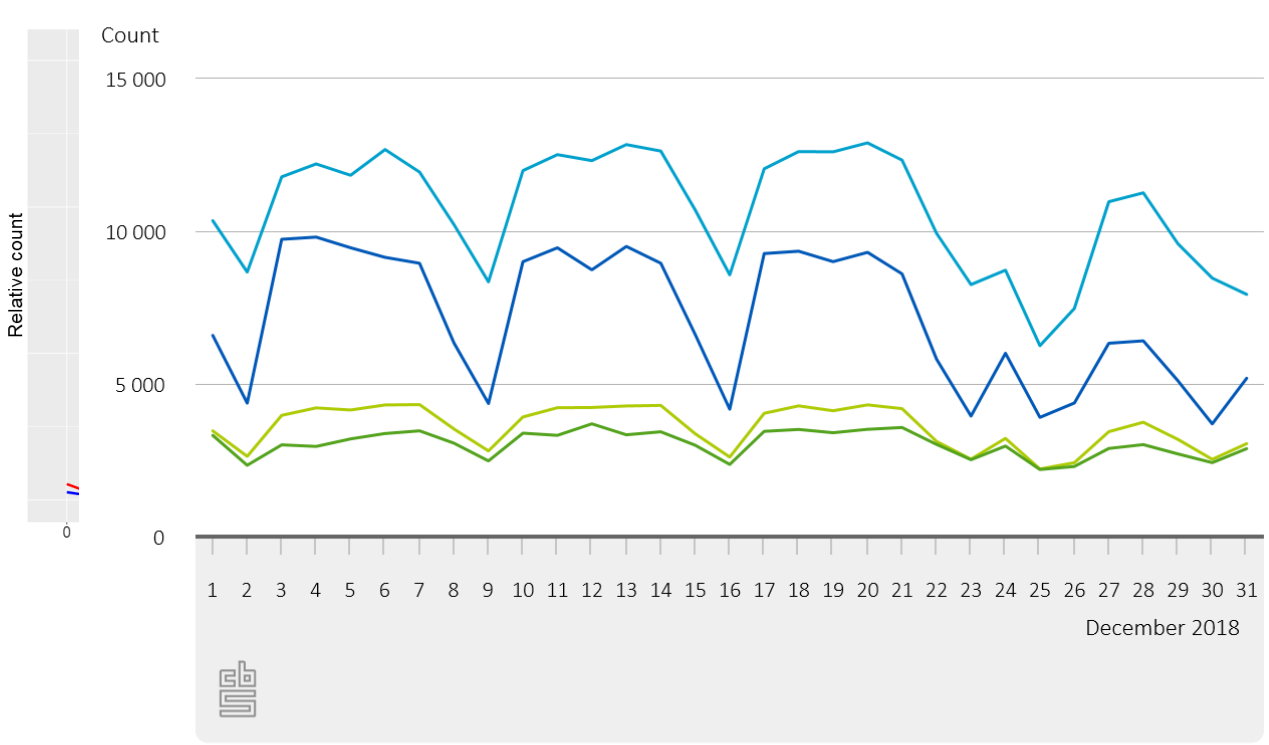


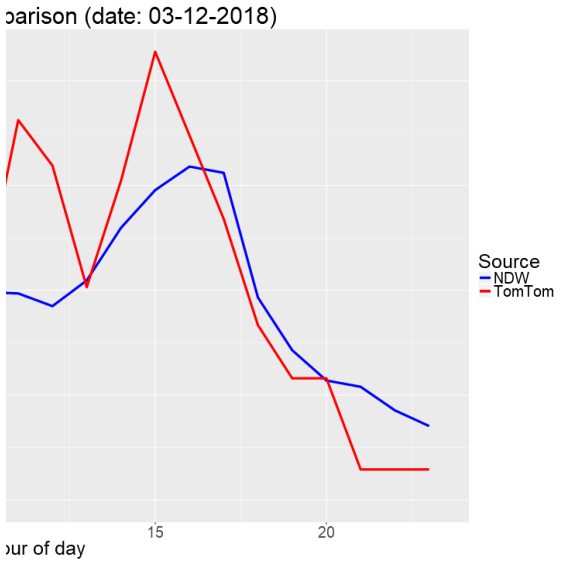
Step 5: Estimate counts



Smaller roads

Counts by road sensors (NDW) in December 2018 by road type





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What have we learned?

- Preliminary results are encouraging: FCD enables estimation of the number of cars on roads where no road sensor data are available

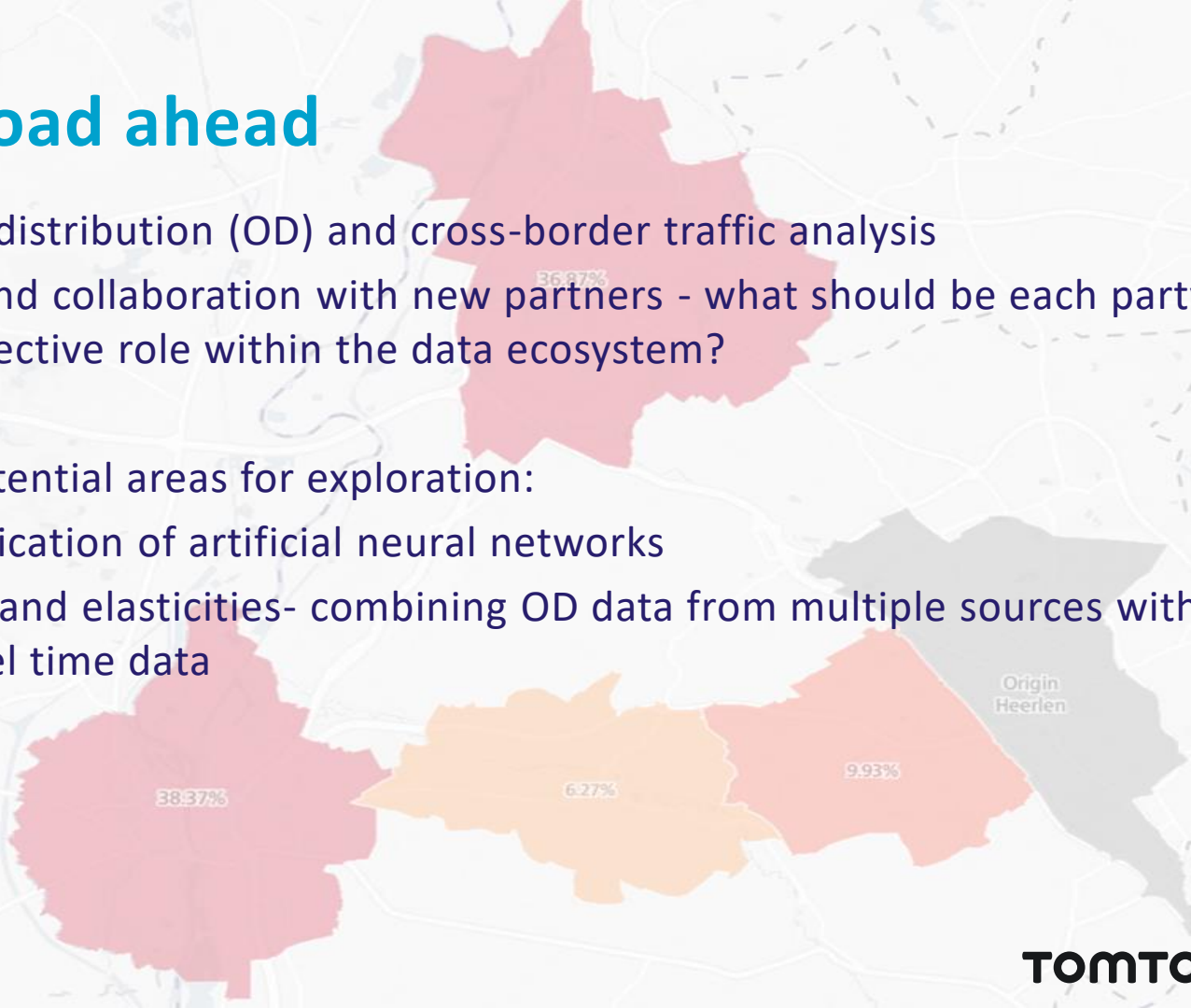
- Further study and validation is necessary for:
  - Low intensities (night, weekend, smaller roads)
  - High intensities (rush hours, tourism)
  - Holidays and special events → use previous years (time period)
  - Locations

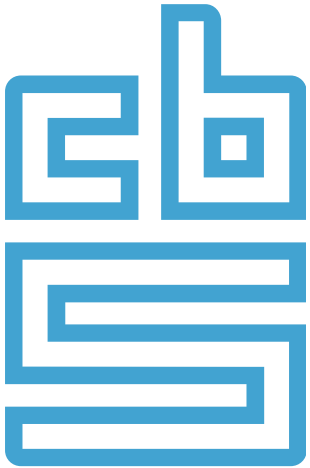
The road ahead

- Trip distribution (OD) and cross-border traffic analysis
- Extend collaboration with new partners - what should be each party's respective role within the data ecosystem?

Other potential areas for exploration:

- Application of artificial neural networks
- Demand elasticities- combining OD data from multiple sources with travel time data



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