International Transport Forum | CPB Corporate Partnership Board

POLIS CITIES AND REGIONS FOR TRANSPORT INNOVATION | ANNUAL CONFERENCE 2019

Data-driven road safety innovations for cities

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POLIS conference 2019, 27-28 November, Brussels

OECD

Time to ask some questions

1.35 million

Road traffic death per year

25 billion

Connected devices by 2025

What can we learn from new data sources?

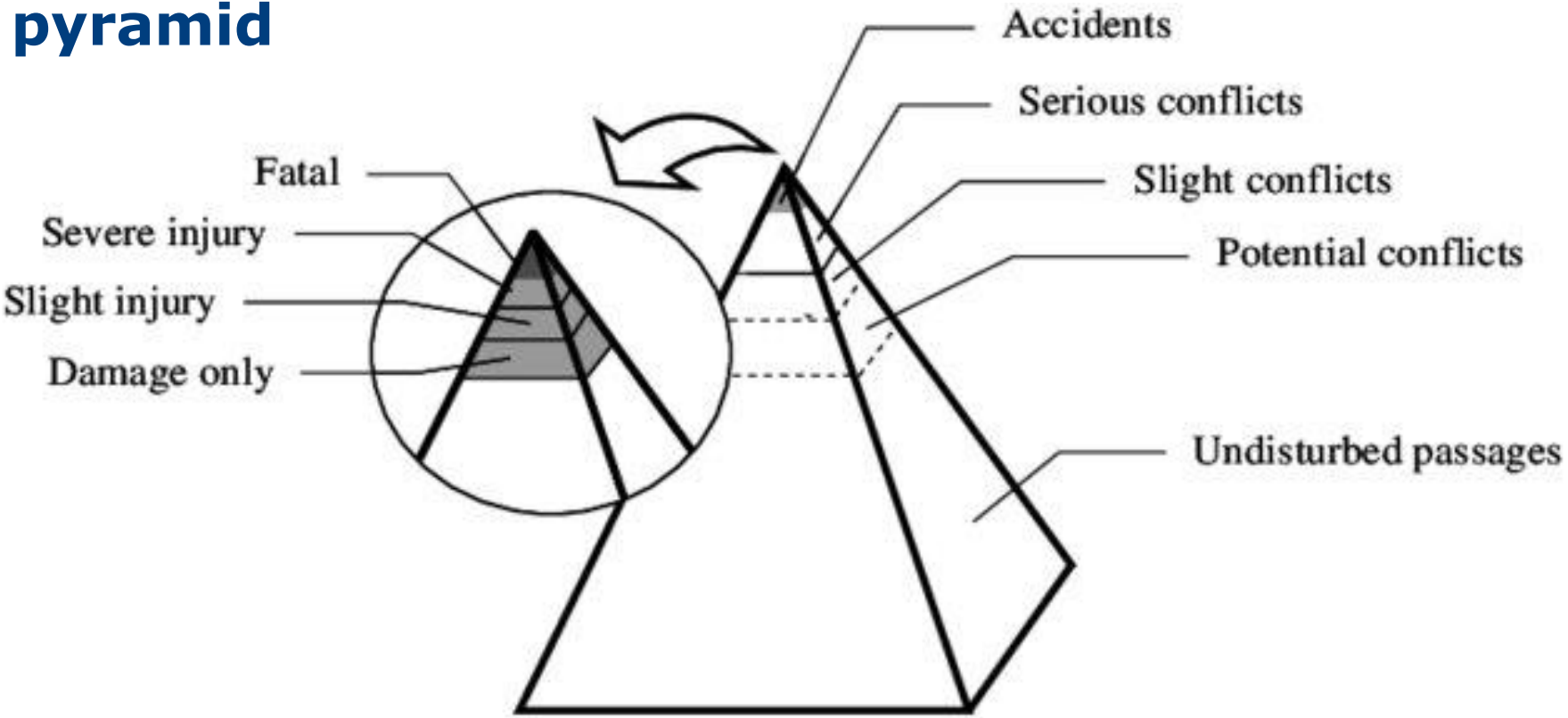
Will this data be shared?

Will privacy be protected?

3-4 December 2018, Paris

Workshop of the ITF Corporate Partnership Board

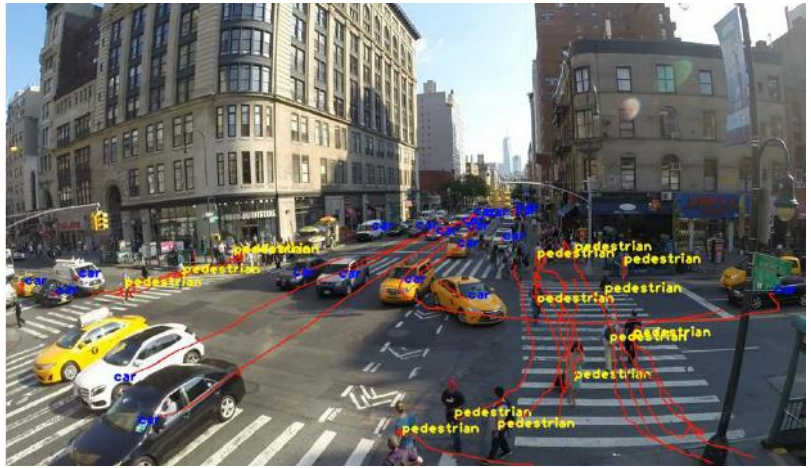
Hyden's safety pyramid



Hyden (1987)

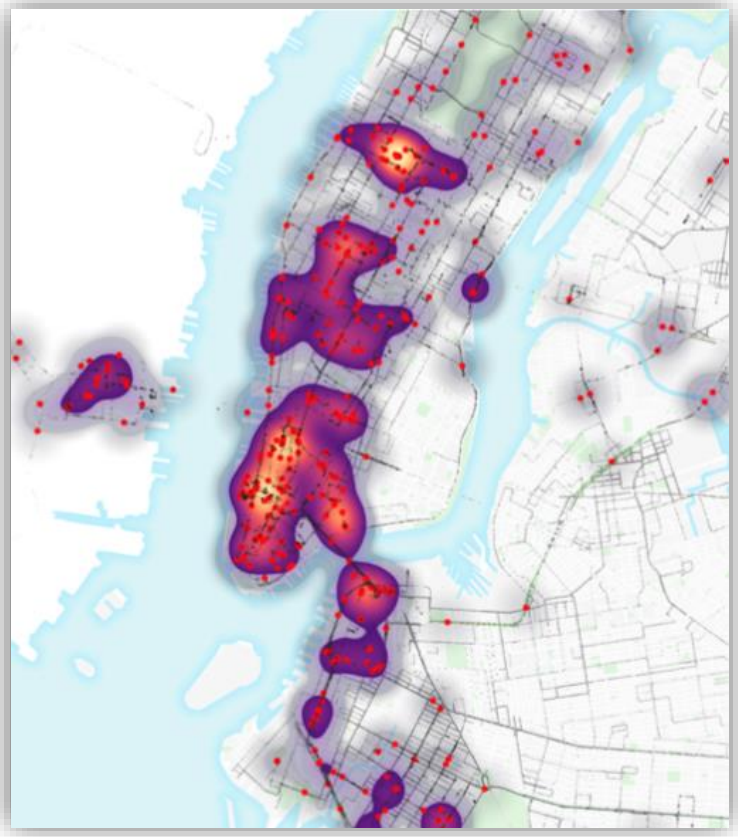
Surrogate safety metrics @fixed-location

- **Time to collision (TTC)** is the time required for two road users to collide if they continue at their present speed and on the same path.
- **Post-encroachment time (PET)** is the lapsed time between the moment that the 1st user leaves the conflict area, and the moment that the 2nd user reaches the same area.



Surrogate safety metrics @network scale

- Sensors on vehicles
- Sensors on smartphones & wearable devices
- User reports, facilitated by smartphone penetration



Paris cyclist hard braking events (GeoVelo)

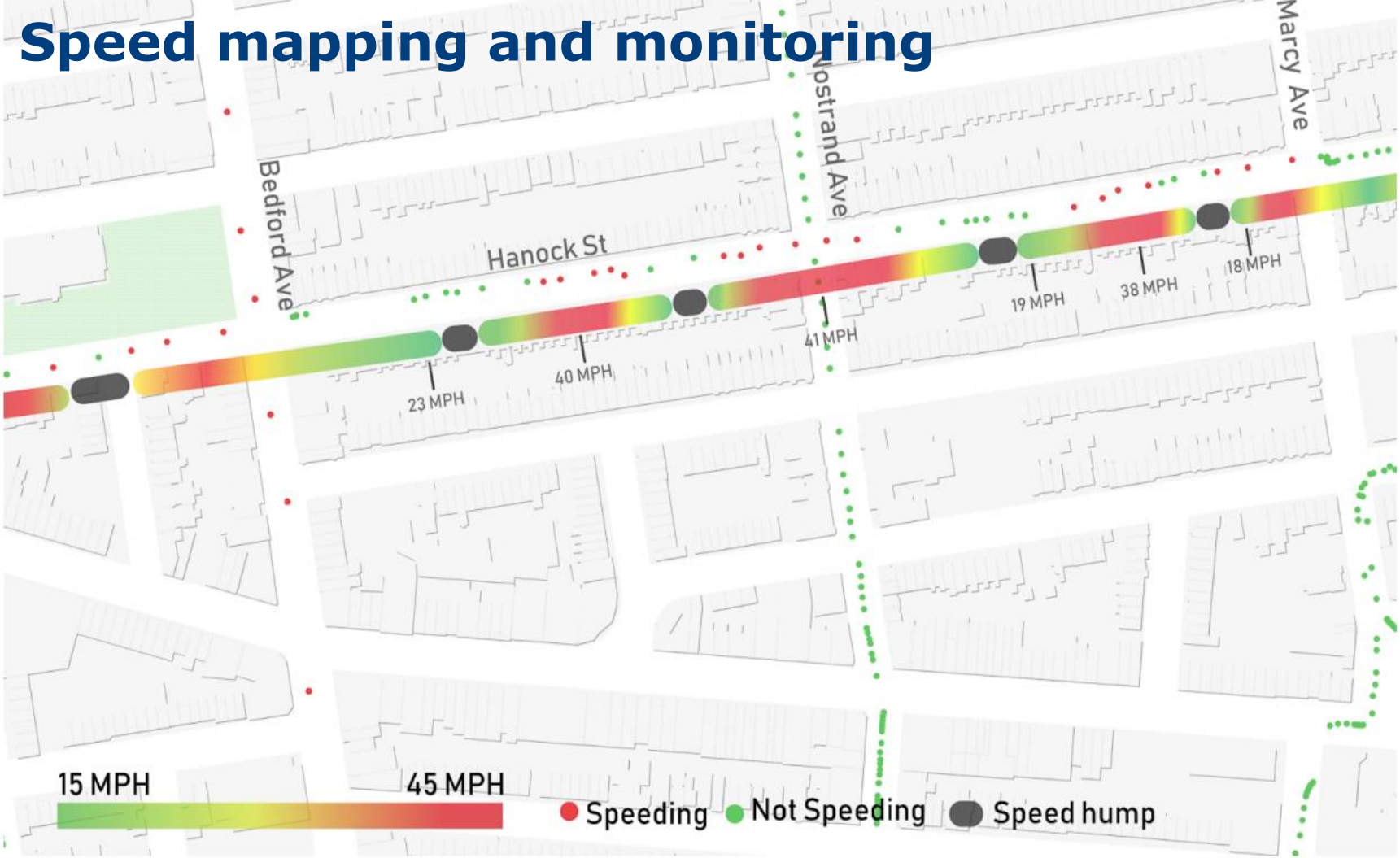
ROAD CONDITIONS MAPPED ACROSS THE CITY

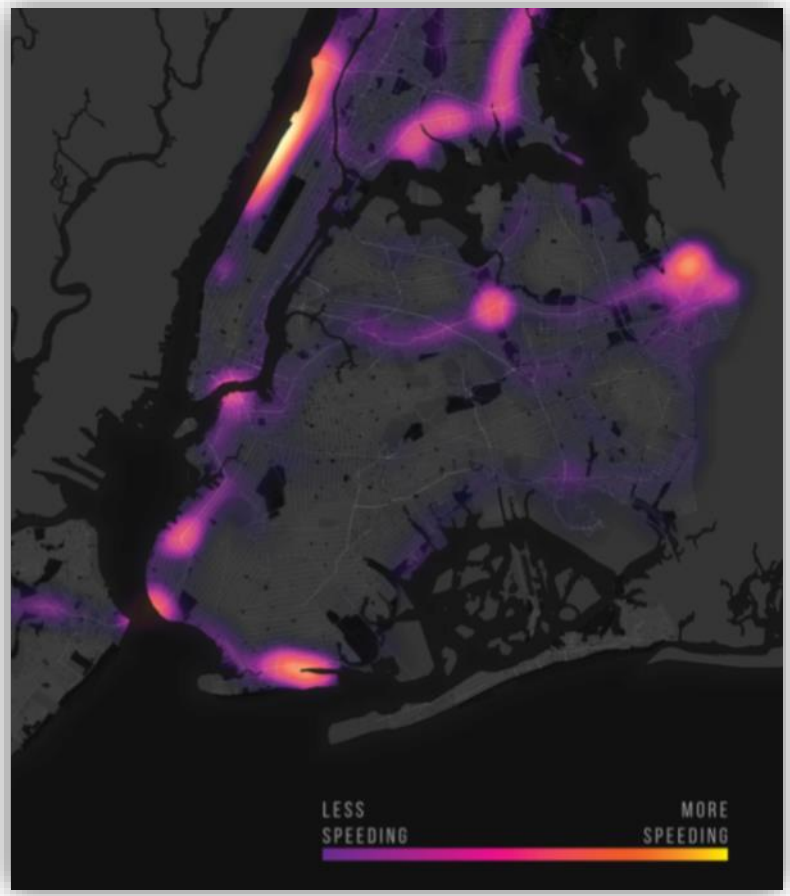
Our road conditions data strongly correlates with visual, on site, inspection - highlighting areas of road roughness which may be detrimental to the experience of cycling in the city.

\\ CLUSTER MAPS OF ROUGH ROADS

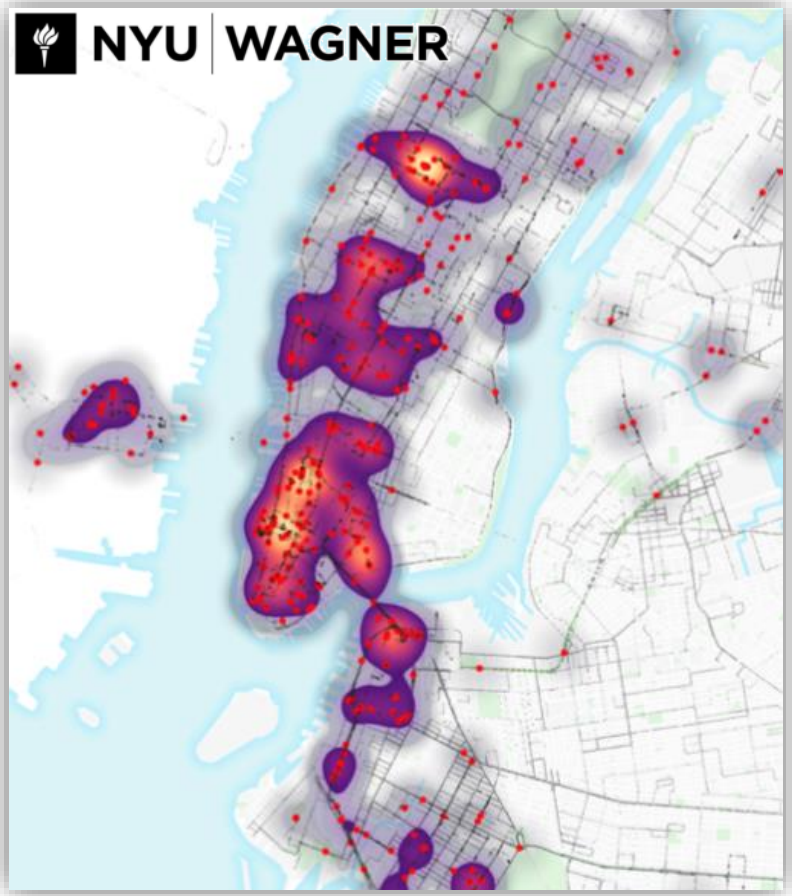
\\ CORRELATION WITH POTHOLES

Speed mapping and monitoring





Hot spots of speeding events



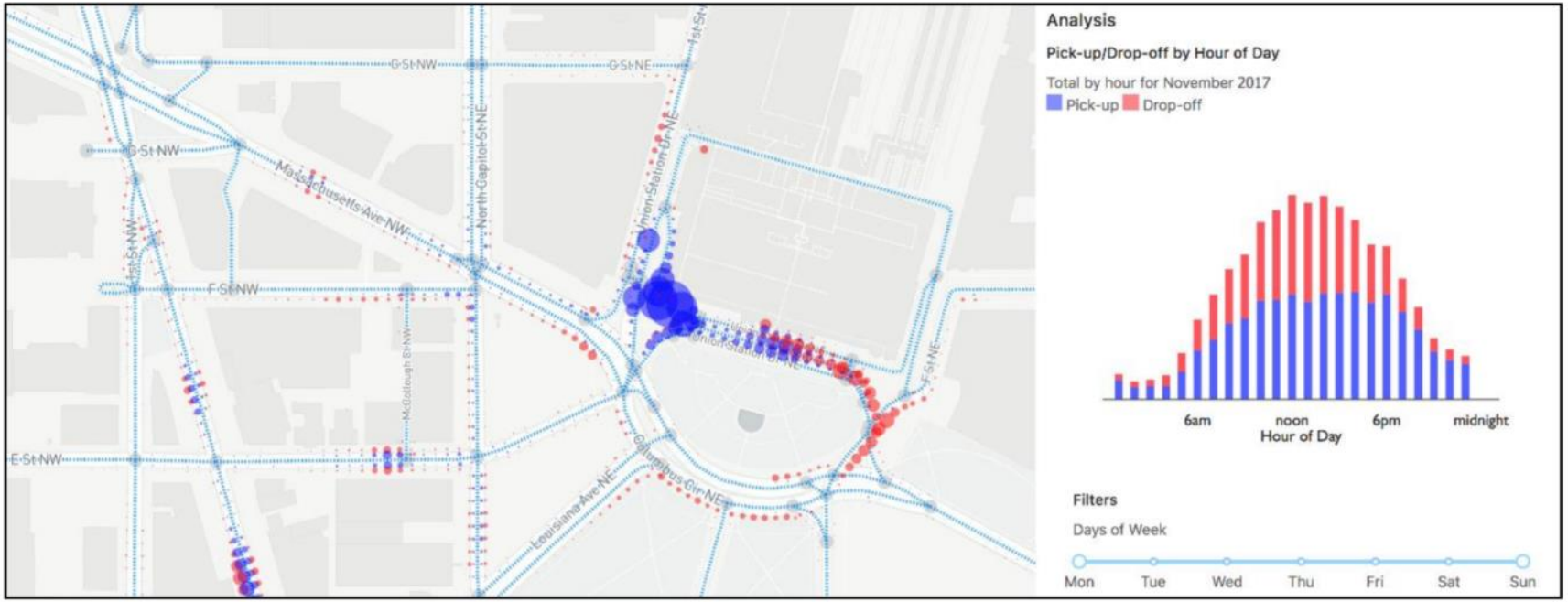
Top 2% of braking events

Surrogate safety metrics: a summary

- Identify problems before serious harm has to be reported
- Evaluate benefits of an intervention within days
- Collect trip data at the same time

Sharing or selling?

Figure 7. Passenger pick-up and drop-off locations provided by ride-sourcing companies



Source: adapted from SharedStreets (n.d.).

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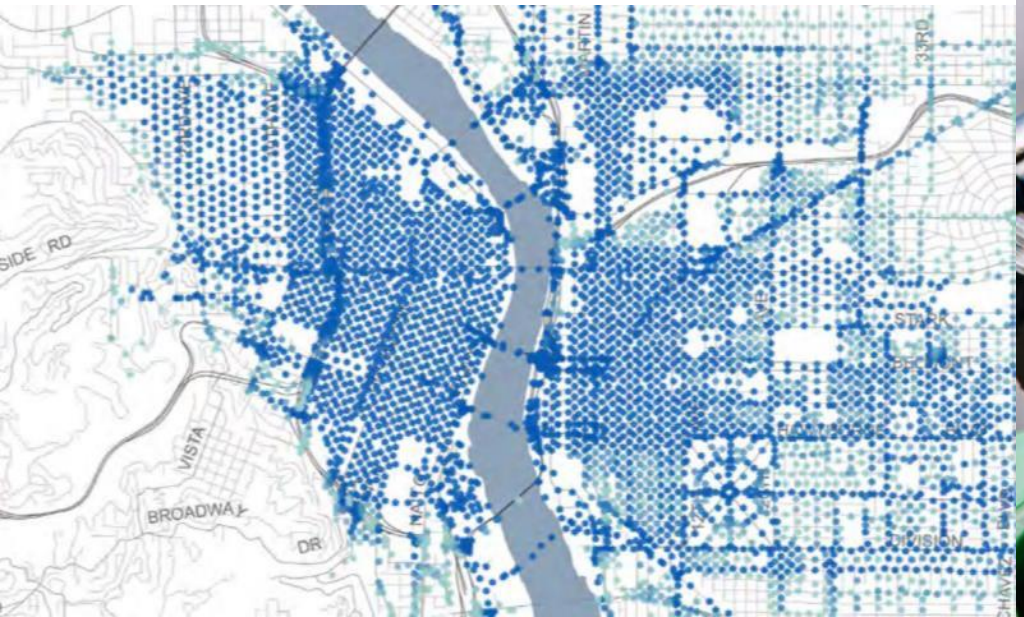
Sharing or selling?

Total Number of Trips

250 1000



Portland BOT

Privacy

- Big data also creates privacy threats, especially with the growing risk of **re-identification** of individuals in anonymised data sets.

- Solutions exist e.g. de-identification, data swapping, variable sampling, encryption, edge computing

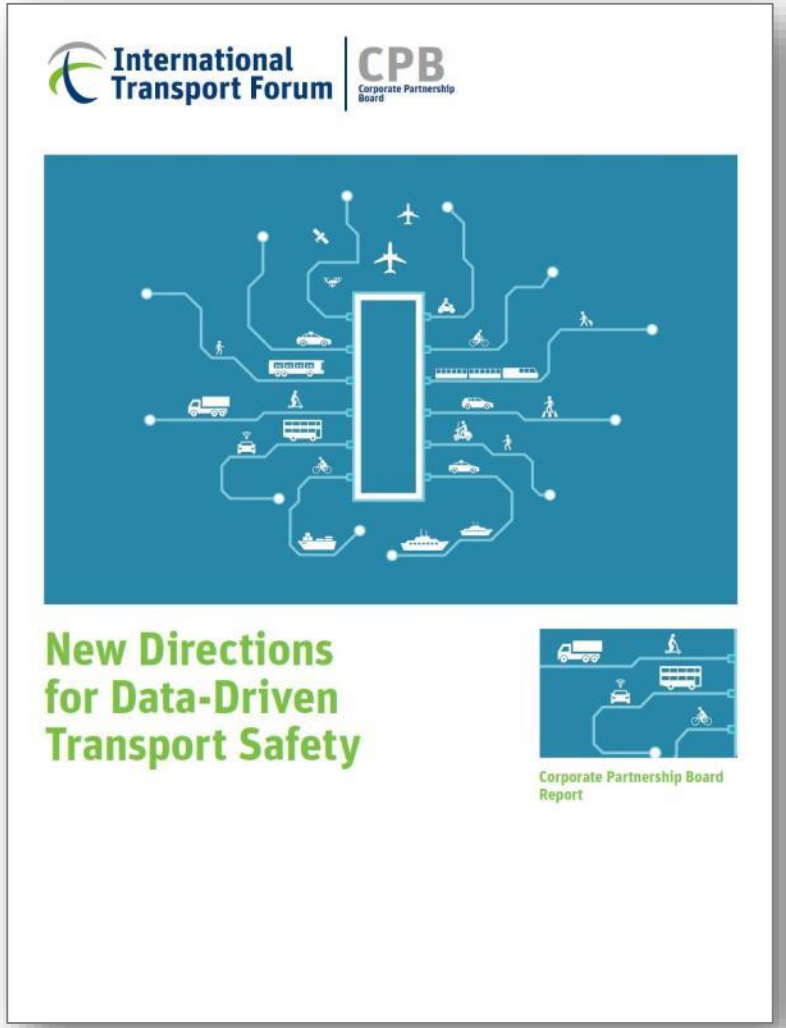
Cities need to invest in training

- Harness surrogate safety metrics
- Correct the biases found in big bata
- Protect privacy
- Exchange data with third parties (e.g. algorithmic governance)

Why read our report?

Learn more about:

- Innovative sources of **exposure** data
- Data-driven safety innovations from the **bus**, **rail** and **airport** industries
- Connected vehicles (**C-ITS**)
- E-call and EDR technologies
- Emergency response and crash data collection



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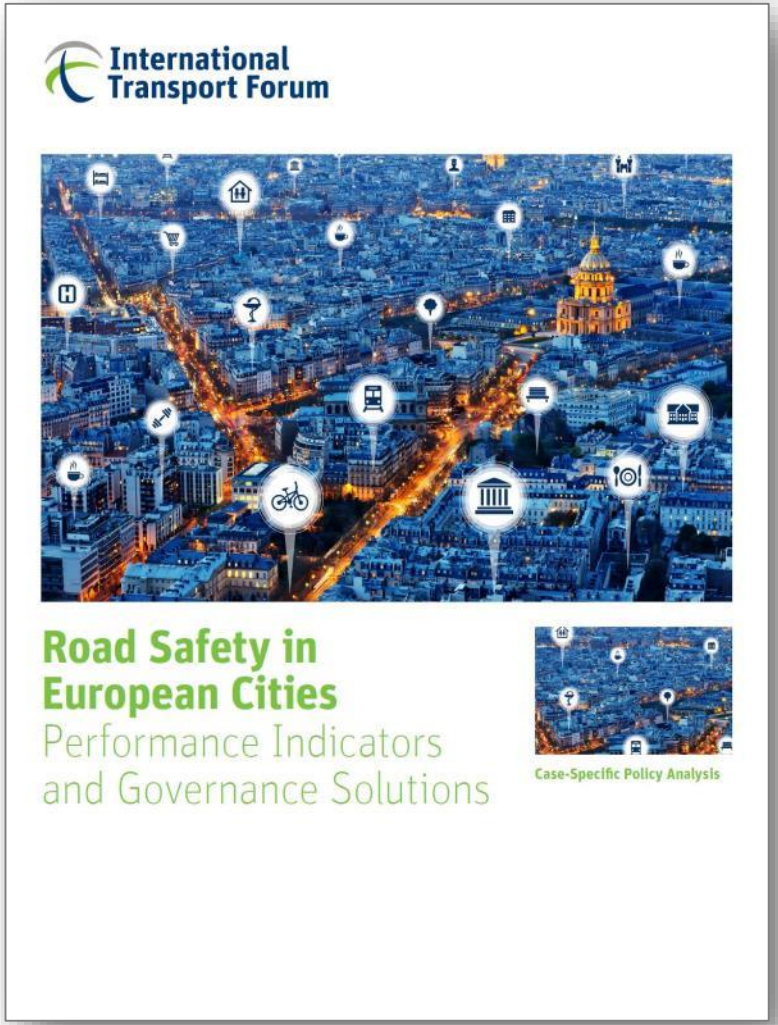
What more will you find on the ITF website?

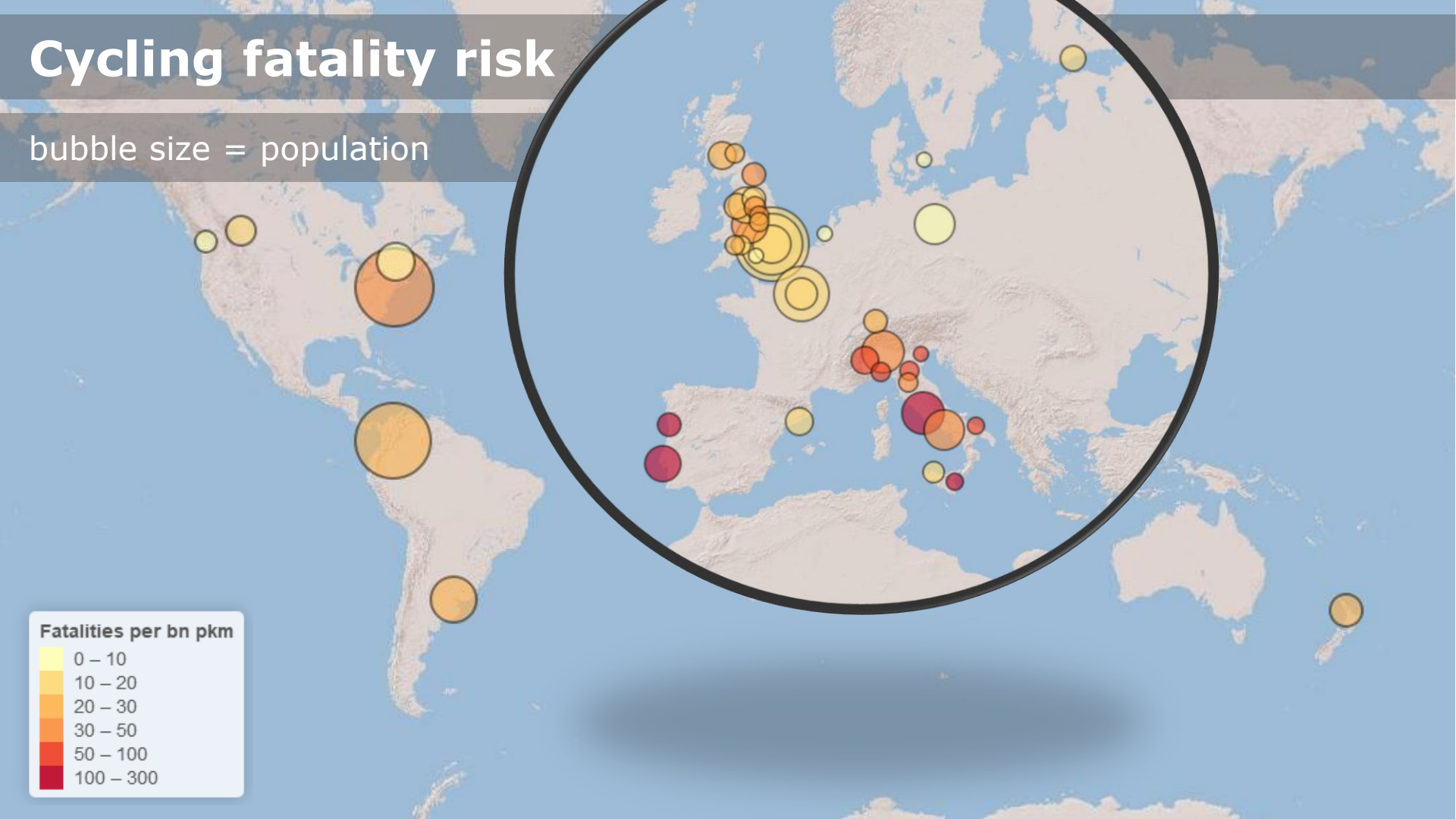
"Road Safety in European Cities" is a report which:

- Benchmarks the risk of fatality across cities … for each mode
- Compares the risk of fatality across modes
- Demonstrates how mode shift makes a city safer
- Explores safety in numbers



Cycling fatality risk

bubble size = population



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FIA ROAD SAFETY GRANT PROGRAMME

FIA FOUNDATION

Safer City Streets

the global traffic safety network for liveable cities

- **49 cities**
- **Network of experts**
- **Global database**

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Thank you

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