



Stopping Public Transport Coronavirus Infections with Intelligent Big Data?

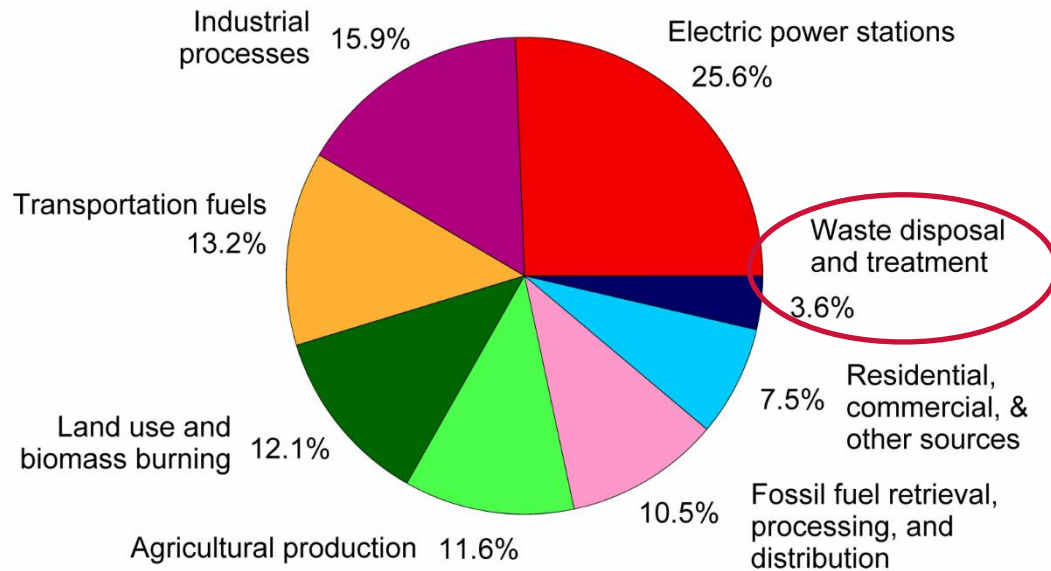


Me/Dr. Tim Frey

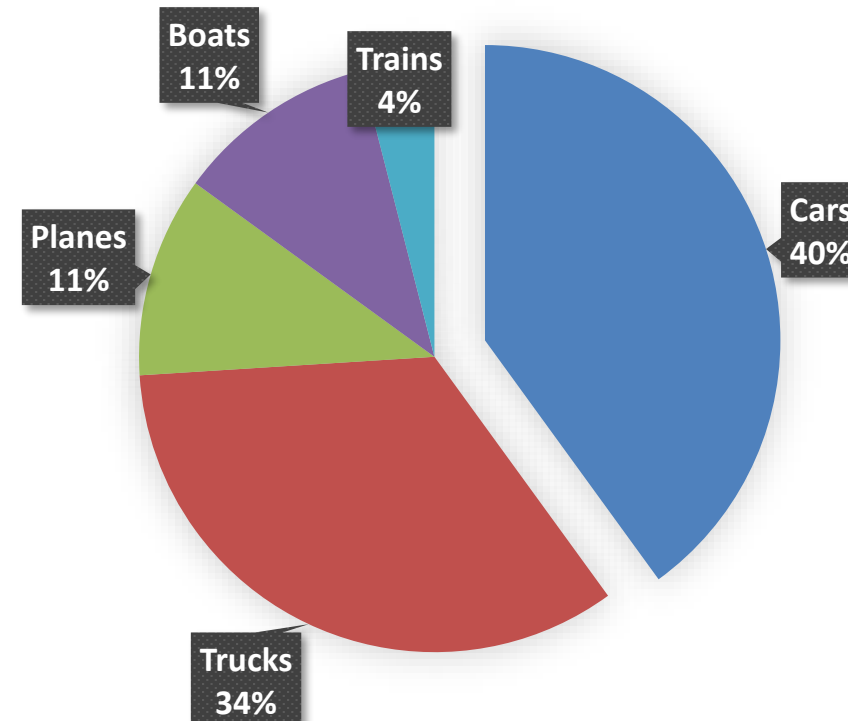
- Consultant & Software Engineer By Heart
- Big Data Scenarios As a Service
- Blockchain Believer
- Data marketplace enthusiast
- Sustainable Big Data

Transport matters

Annual Greenhouse Gas Emissions by Sector



By Vehicle Type



-> Car Co2 is greater than waste treatment

https://commons.wikimedia.org/wiki/File:Greenhouse_Gas_by_Sector.png
<https://theicct.org/blogs/staff/a-world-of-thoughts-on-phase-2>
https://en.wikipedia.org/wiki/Environmental_impact_of_transport#cite_note-8

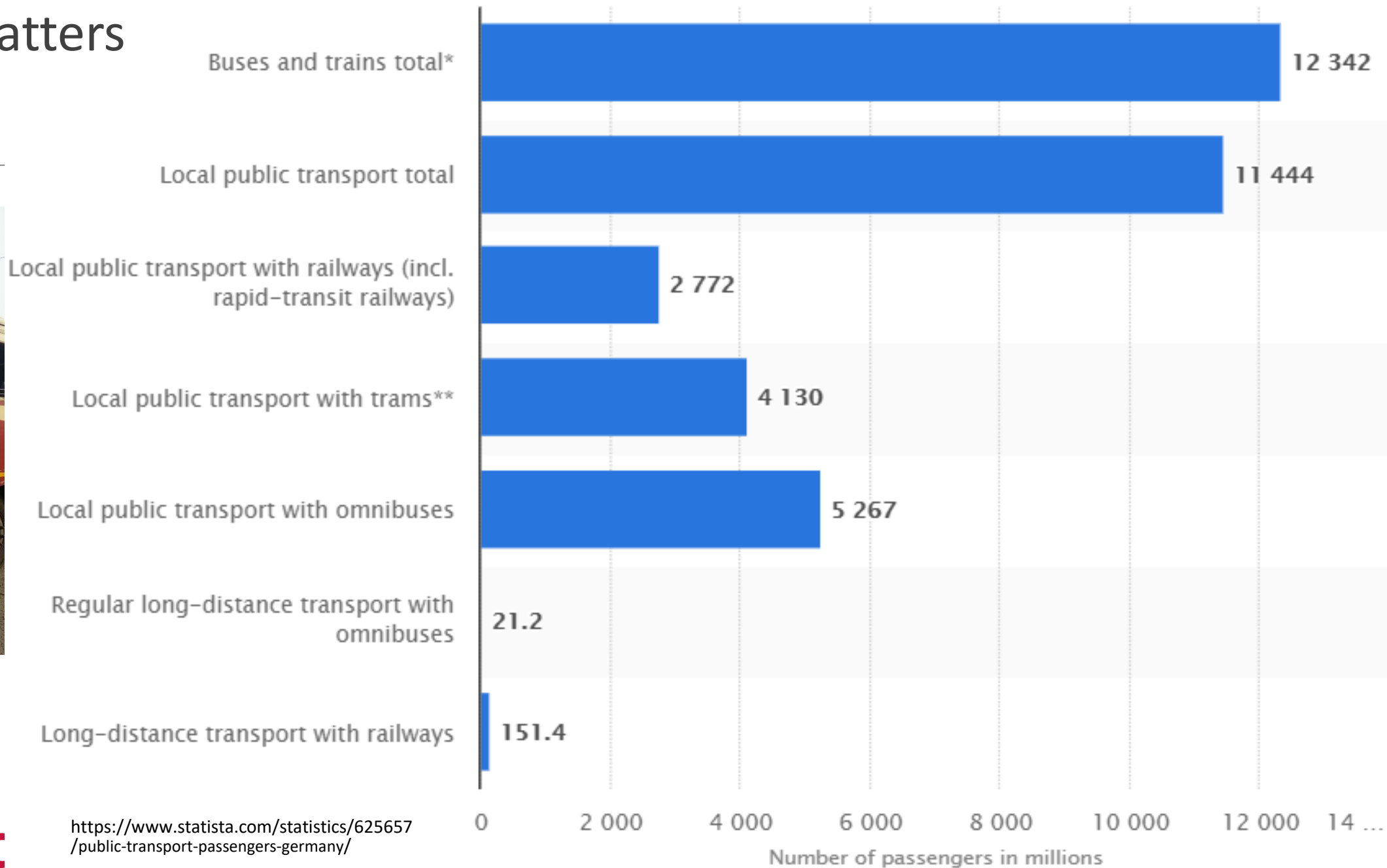
Public transport matters



Full bus



Which matters most?



<https://www.statista.com/statistics/625657/public-transport-passengers-germany/>

Corona effects

Before



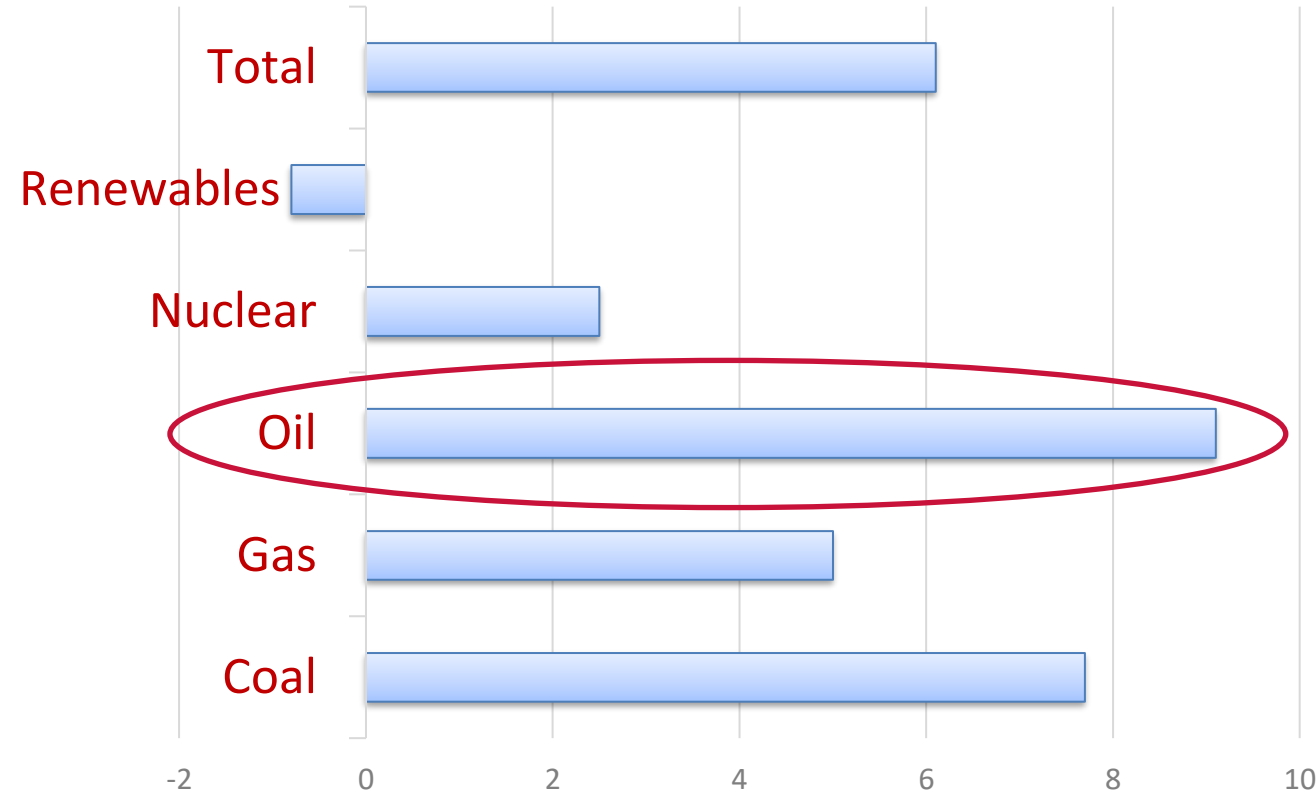
After



Corona effects – Co2 - Decreases

Global Carbon Emissions Fall in 2020

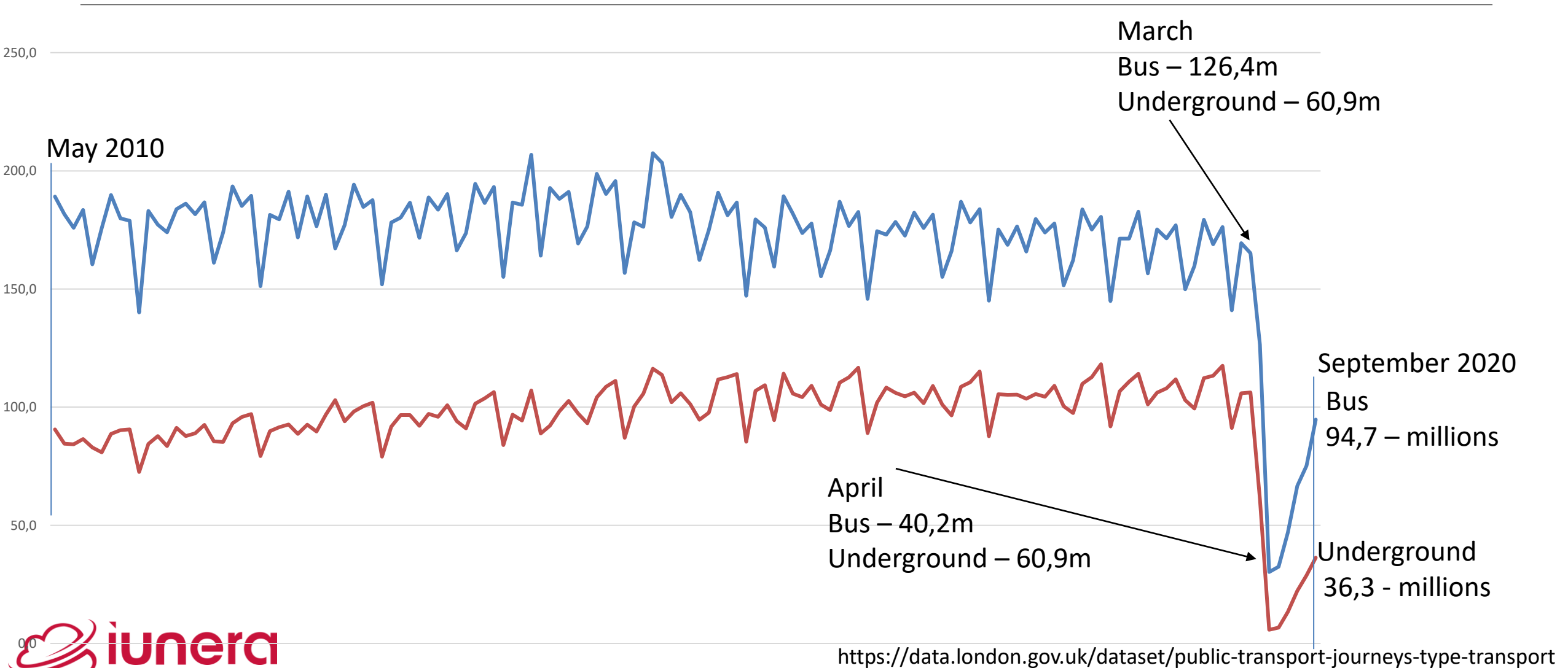
% change in CO₂ emissions in 2020 compared to 2019*



* as of September 30.
Source: Carbon Monitor

<https://www.iea.org/reports/global-energy-review-2020/global-energy-and-co2-emissions-in-2020>
<https://www.statista.com/chart/23217/co2-emissions-annual-change-by-country/>

Corona Effects - London



Corona Challenges in public transport



Infection chains?



Mask percentage?

Fear of losing frightened customers?

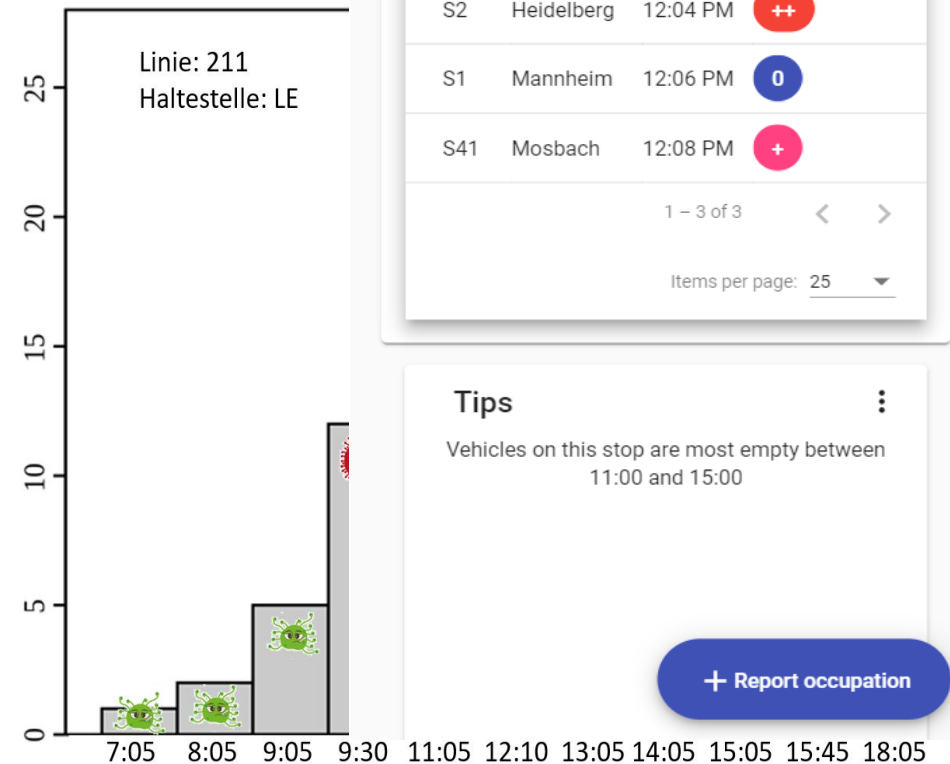


Risk groups?

Solution: “Corona” occupation indicator



- Use public transport occupation data like in Korea
- Provide a progressive web app with indicators for citizens
- Enable transport companies in data driven forecasting and analyzing



☰ Distance First

Departures near me

Line	Destination	Departure	Occupation
S2	Heidelberg	12:04 PM	++
S1	Mannheim	12:06 PM	0
S41	Mosbach	12:08 PM	+

1 - 3 of 3 < >

Items per page: 25 ▾

Tips ⋮

Vehicles on this stop are most empty between 11:00 and 15:00

+ Report occupation

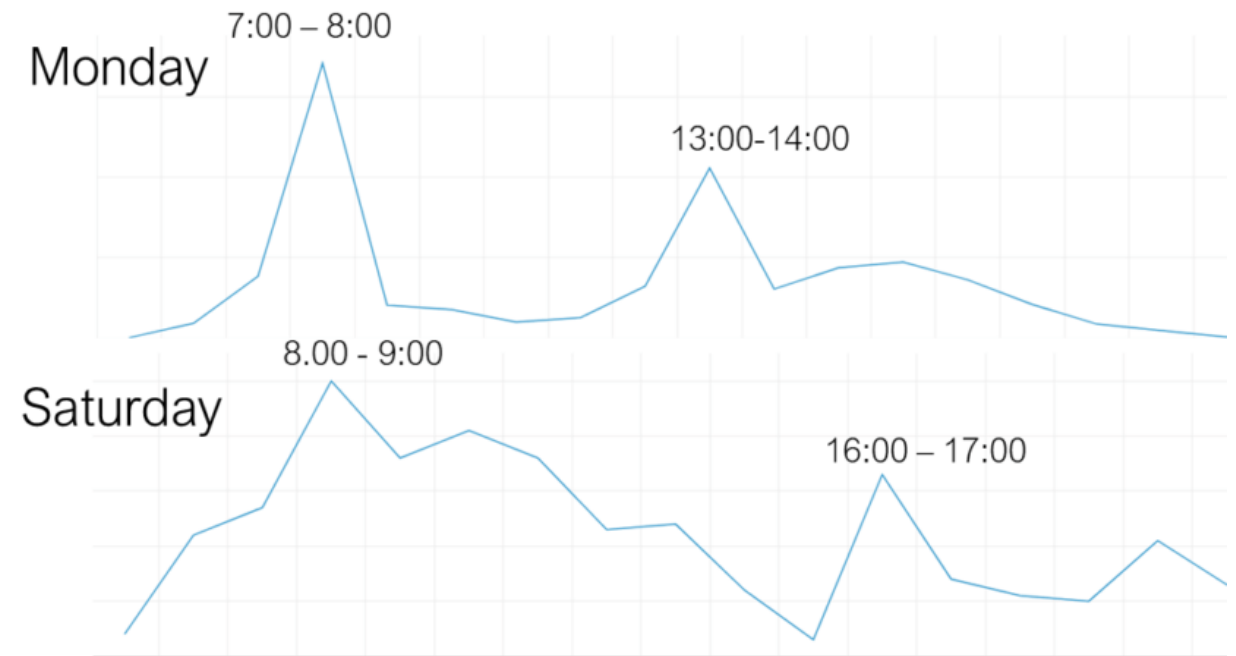
Data source jungle

- People counter challenges
- Queries for connections as indicator?
- Ticket sales?
- Data ownership and legality
- Spare Wifi Hotspots
+ Unknown vehicles
- Federalism
- GDPR

Forecasting and Adaptation Challenges

- Packed hours shift
- Lockdowns
- > Concept drifts

- Resources (Drivers, busses)
- Dynamic carriages
- Data availability



Solution: Enable solidarity

- No legal issues
- No other tech needed
- Working worldwide
- -> Spam as risk

☰ Distance First

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Tips ⋮

Vehicles on this stop are most empty between 11:00 and 15:00

+ Report occupation

☰ Distance First

Altstadt

Enter departure station
Destination

Hauptbahnhof

Line
S8

Empty

Half

Full

Crowded

Nobody wears masks

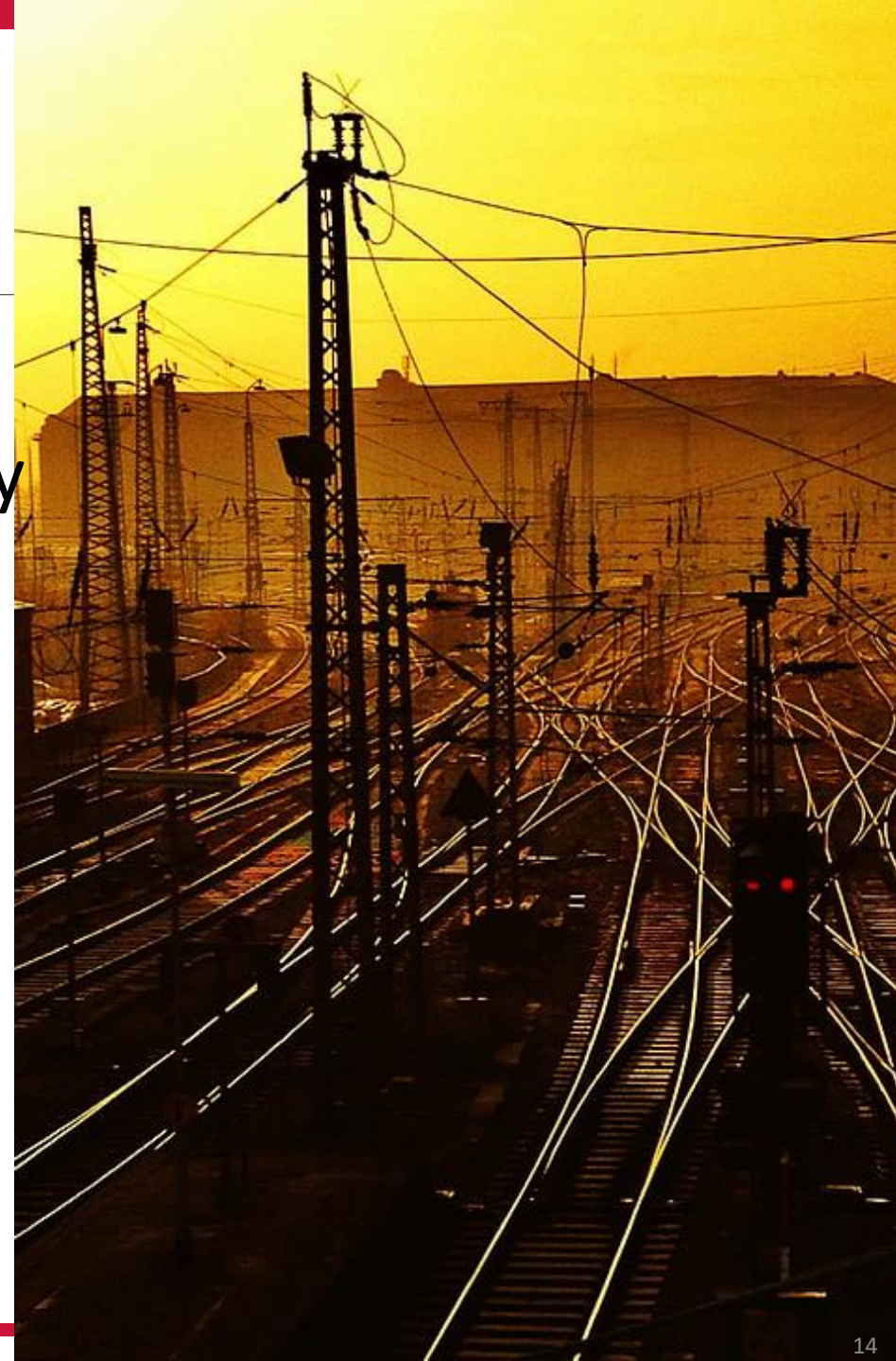
Medium masks

All wear masks

Submit

Our next station

- Final collaboration discussions with public transport and health ministry
- Data integration
- Roll-out the prototype
- Open source the Angular webapp
- Iterate



Summary

- Public transport matters for corona and global warming
- Supporting public transport with big data is (sadly) not only technology
- The first release will happen soon





We are hiring



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