

BIG DATA AND AI FOR FUTURE MOBILITY SOLUTIONS

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PERSEUS
Doctoral programme

M  **ST**

OVERARCHING RESEARCH PROJECT

The development of **Digital Twins** (DTs) tailored for the transportation infrastructure and mobility systems in the Stor-Trondheim region.

The goal is to enhance system **efficiency** and **sustainability**, while also fostering **well-being** of the inhabitants.



BIG DATA, AI & MOBILITY

The research will focus on **distilling actionable insights** from mobility data collected from physical transportation infrastructure.

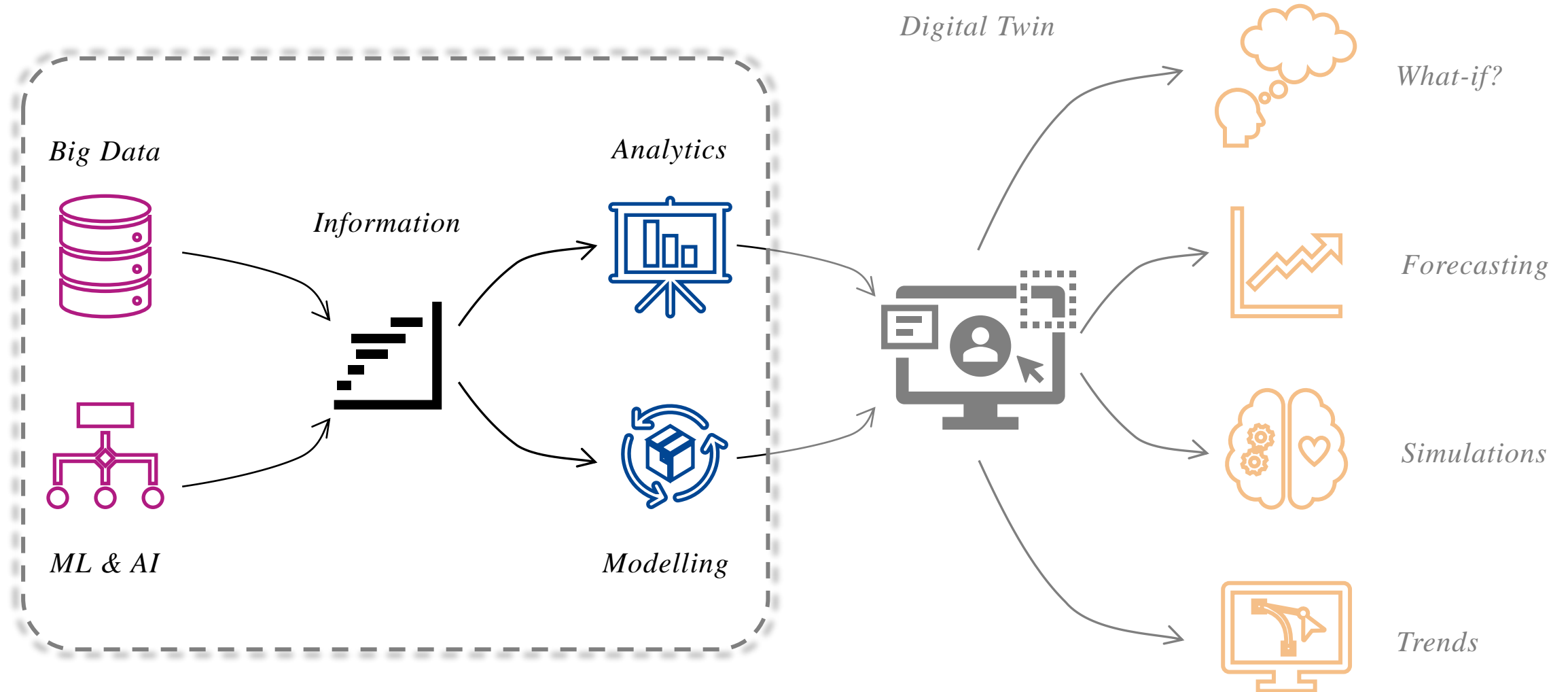
This data will be used to construct DTs of urban mobility systems for **analysis, forecasts, trends, simulations & control**.

IN THE GRAND SCHEME OF THINGS

- MoST Focus Area 3 (*Digital Technologies for Green Mobility*)
- PERSEUS Thematic Area 1 (*Big Data and Artificial Intelligence*) and Area 2 (*Digital Twins*)



TL;DR



WHAT DATA ?? HOW MUCH ??

As much **volume** as possible from as many **sources** as possible.

TRANSPORTATION MODES

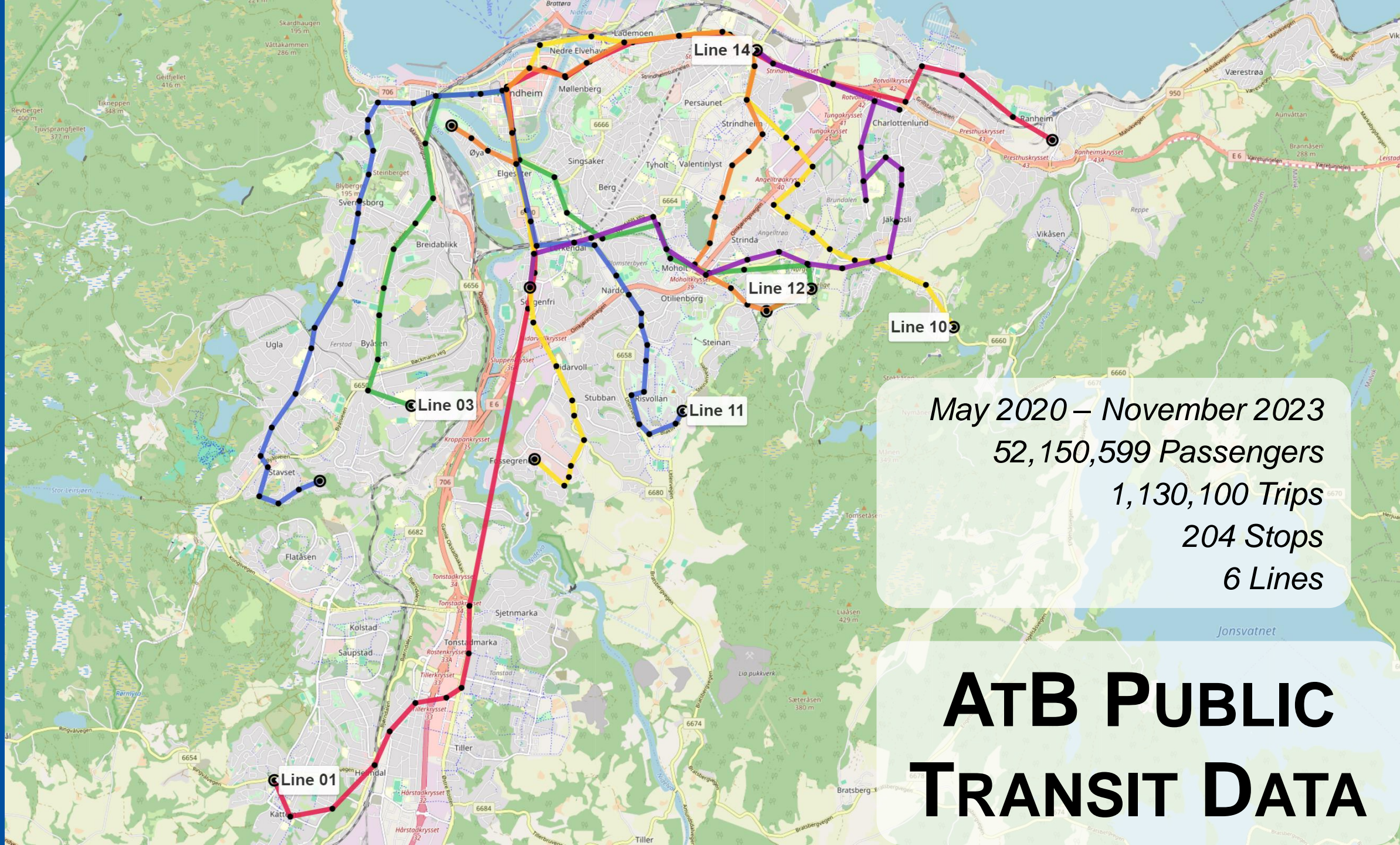
- Public Transit, AtB
- Private & Commercial Vehicles
- Bicycles & Scooters
- Pedestrians
- *Telia Crowd Insights





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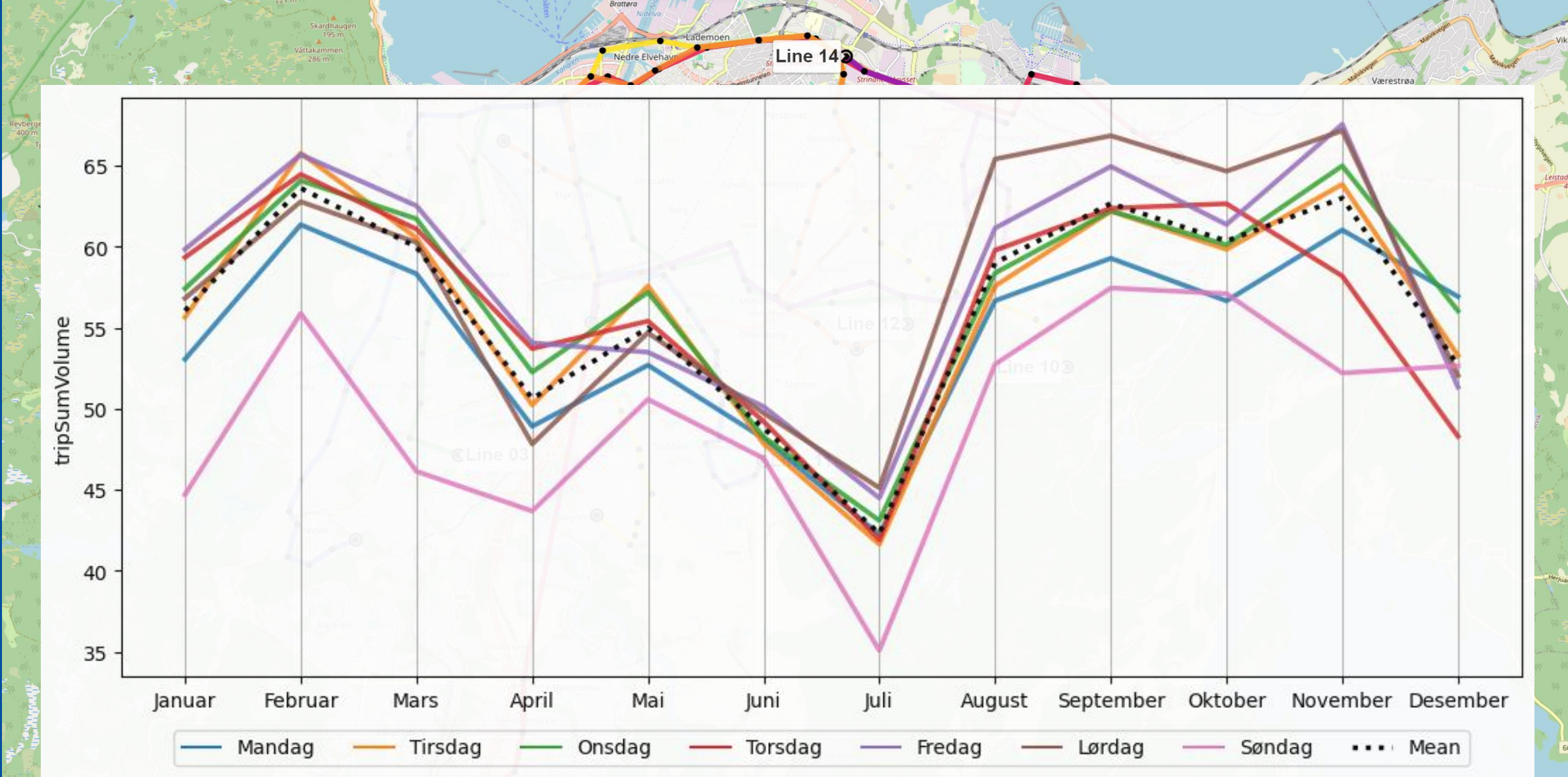
May 2020 – November 2023
 52,150,599 Passengers
 1,130,100 Trips
 204 Stops
 6 Lines

ATB PUBLIC TRANSIT DATA



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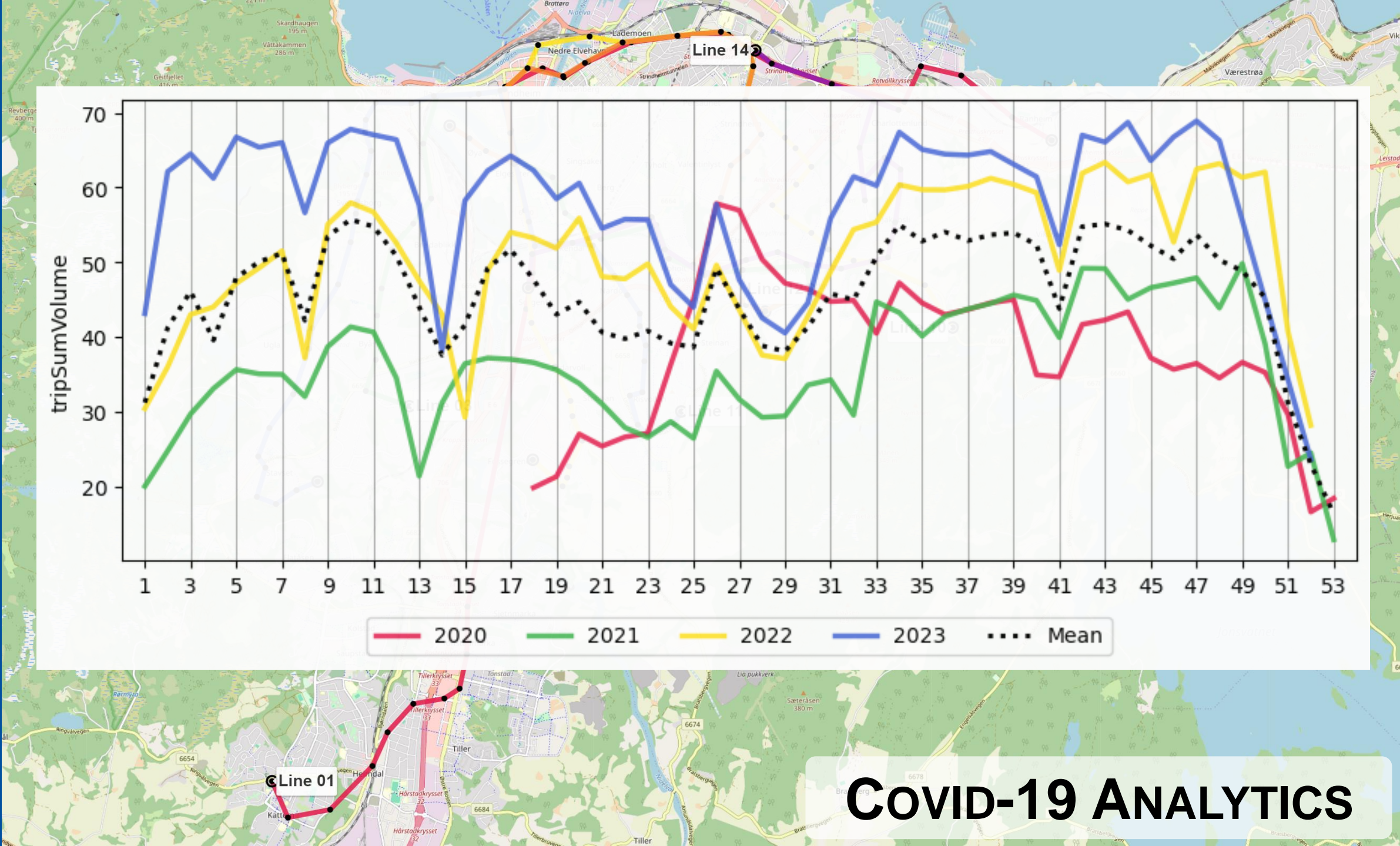


TEMPORAL ANALYTICS

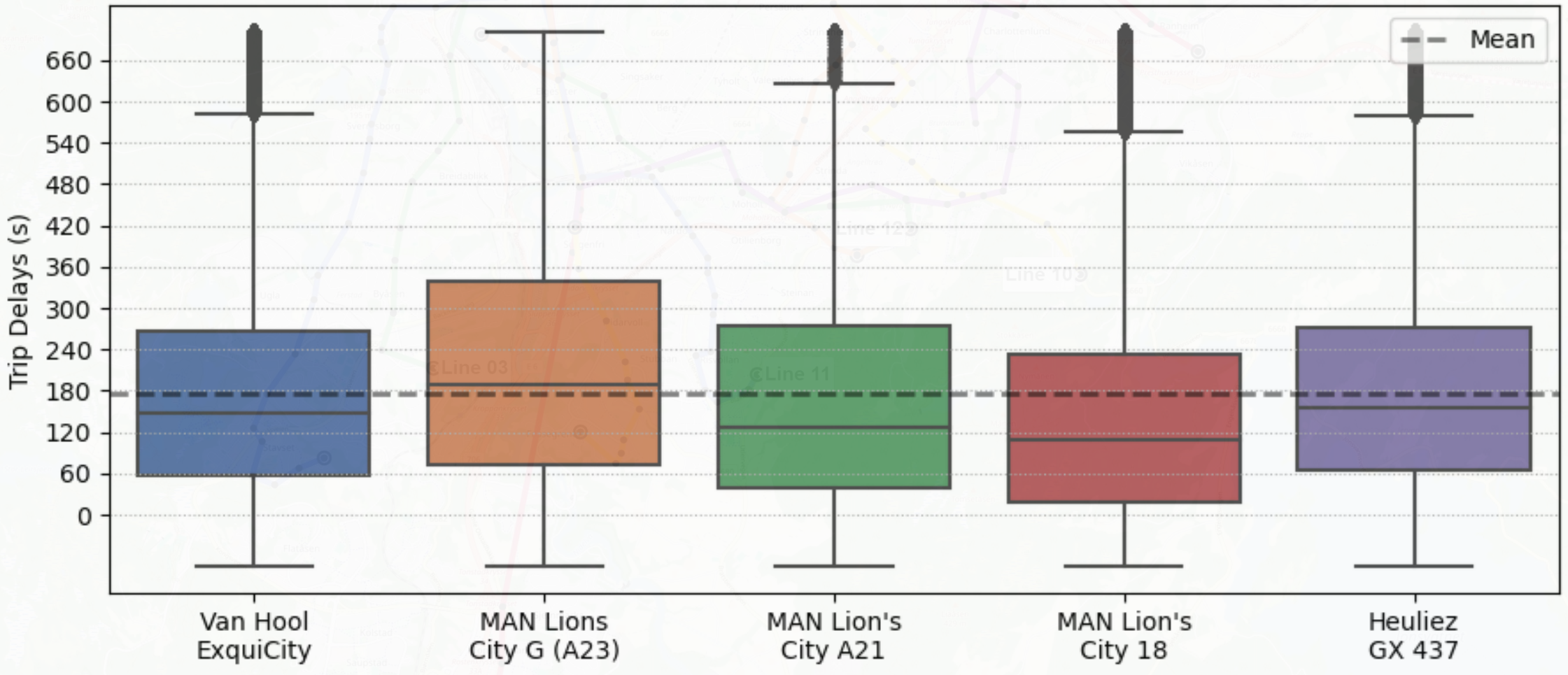
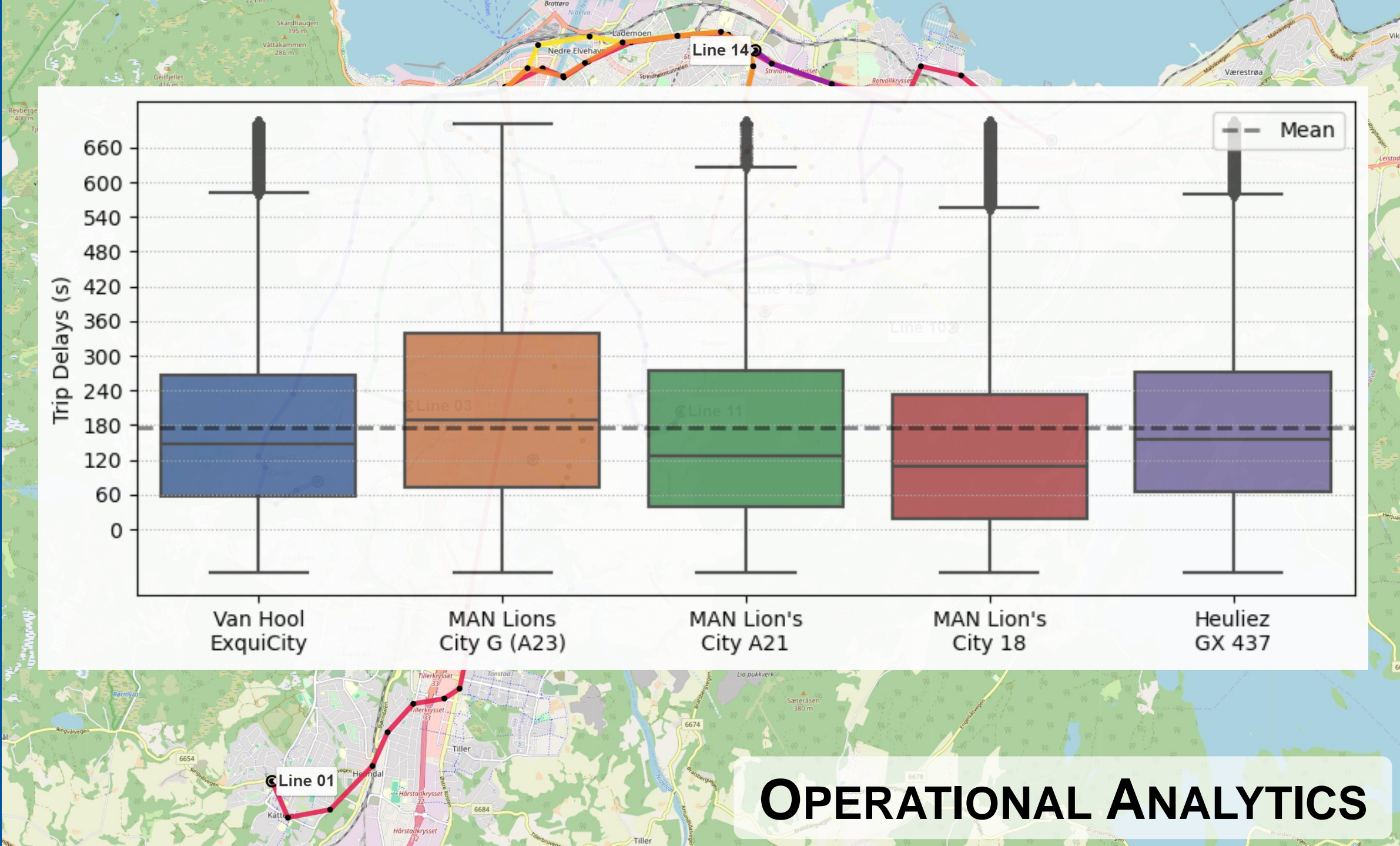


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COVID-19 ANALYTICS



OPERATIONAL ANALYTICS

FUTURE WORK

- Advanced [Temporal, Geospatial & Operational] Analytics
- Data Refinement & Predictive Modelling
 - $P @ \{ Stop_i, Line_j, Time_t, Day_d, \dots, Month_m \}$
- Incorporate other Transportation Modes
 - Historical Analytics
 - Predictive Modelling
- FUSION!



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