



A more resilient public transportation
*How AI and ML can help in developing resilient strategies
to tackle changing travel attitudes*

ABOUT DESMOND



- **Lead, Analytics and Innovation**
- **20+ years experience within transportation**
- **Passion for future forecasting, data visualisation and data analytics**
- **Interests are Formula 1/e and music production**

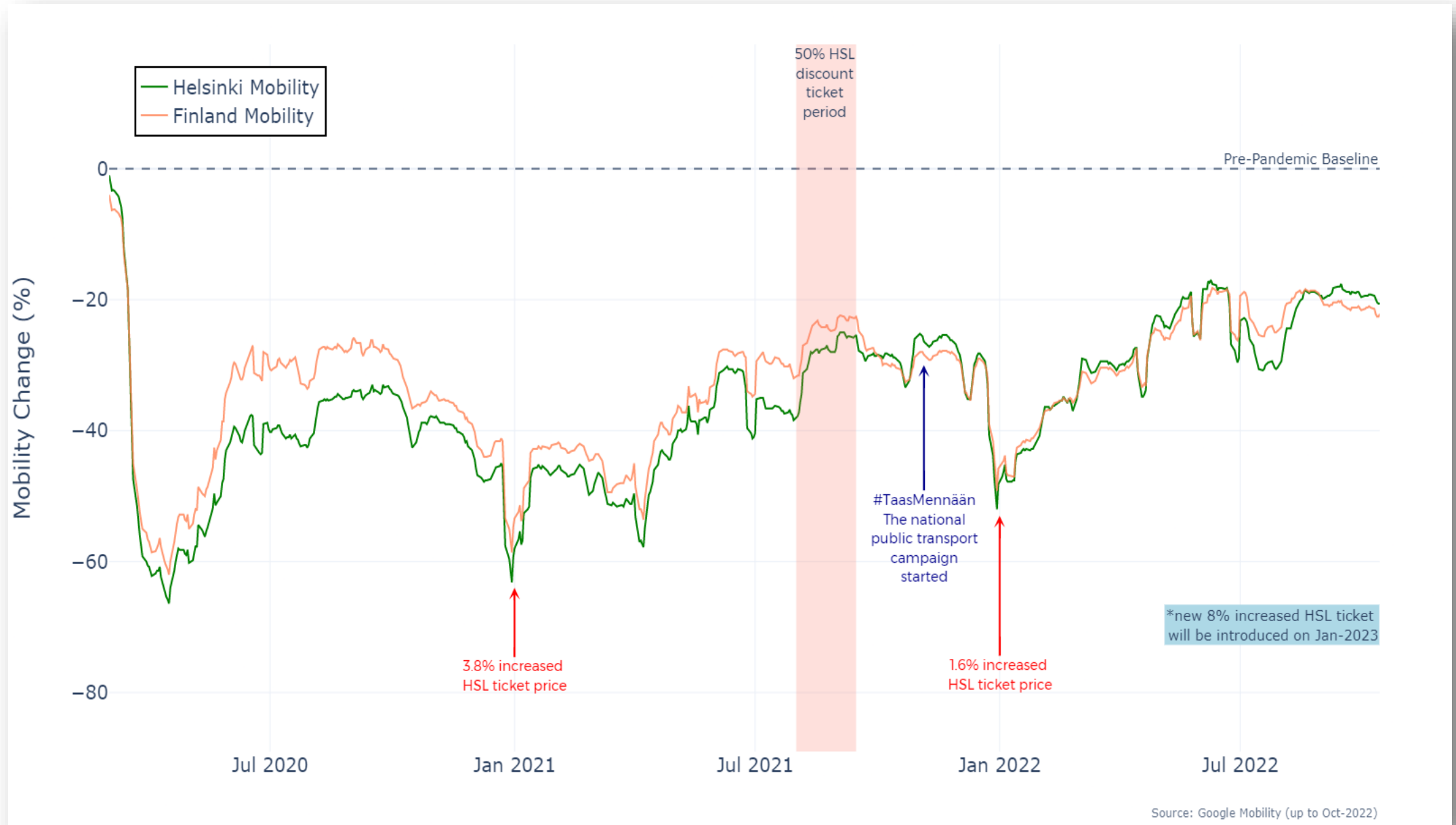


Question today
Imagine tomorrow
Create for the future



Main challenge:
**How to get
passengers back to
taking public
transportation?**

Mobility change at Transit Stations





Public transportation is offering the same level of passenger service

Patchy journey information

Poor Punctuality

Irregular WiFi

Poor phone coverage

WSP Shortage of drivers, price increases & system failures

Iso joukko metrovuoroja perutaan nyt päivittäin, koska kuljettajia ei ole – eikä tilanne parane ennen ensi kevättä

Joinain päivinä 12 prosenttia kuljettajista on ollut poissa töistä. Matkustajat saavat totutella epäluotettaviin aikatauluihin muutaman kuukauden ajan.

"A large number of subway lines are now canceled every day because there are no drivers - and the situation will not improve until next spring"



Seltemän prosenttia metrovuoroja perutaan nyt päivittäin, koska kuljettajia ei ole – eikä tilanne parane ennen ensi kevättä. Kuva: Jorge Gonzalez / Yle

18.11.22

Over 200 bus, train cancellations in Helsinki

A shortage of drivers, snowy conditions and a fallen power pole impacted hundreds of HSL bus and train routes.



HSL's app will be constantly updated to include new times and alternative route options, the transport authority said. Image: Sakari Piiippo / Yle

9.12.22

HSL:n digipalveluissa häiriöitä, maksaminen hidastuu – ongelmaa ei saada suljettua pois

HSL kehottaa varaamaan enemmän aikaa lipun ostamiseen sovelluksesta. Kyse saattaa olla palvelunestohyökkäyksestä.

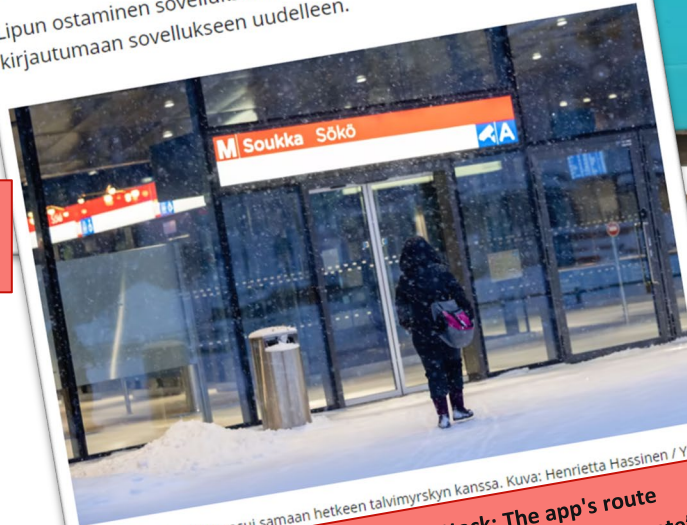


Kausiliput näkyvät HSL-sovelluksessa normaalisti, mutta yksittäisen lipun ostaminen on hidastunut. Kuva: Alexander Ugglä / Yle

"Disruptions in HSL's digital services, payment is slowing down - the problem cannot be ruled out"

HSL:n palvelunestohyökkäys: Sovelluksen reittiopas ei toimi vielä, korjausarviota ei ole

Lipun ostaminen sovelluksen kautta toimii, mutta käyttäjä voi joutua kirjautumaan sovellukseen uudelleen.



Palvelunestohyökkäys osui samaan hetkeen talvimyrskyn kanssa. Kuva: Henrietta Hassinen / Yle

DON LEHTINEN

15.12. 12:32

"HSL denial of service attack: The app's route guide still doesn't work, there is no fix estimate"

18.11.22

Kuopion seudun kaupunkiliikenteessä ei anneta arvonlisäveron poistoa asiakkaille lippujen alennuksena

Lippujen hinnoissa on korotuspainetta ja hintoja saatettaisiin joutua korottamaan jo arvonlisäverotuksen alennuksen aikana, mikä tekisi hinnoittelusta sekavaa.



"In urban transport in the Kuopio region, customers are not given a VAT write-off as a ticket discount"

Helsinki transport authority raises some fares, ends free school trips

The fiscal responsibility for school groups' travel will be handed over to municipalities in 2024. HSL will also raise some ticket prices next year - while lowering others.



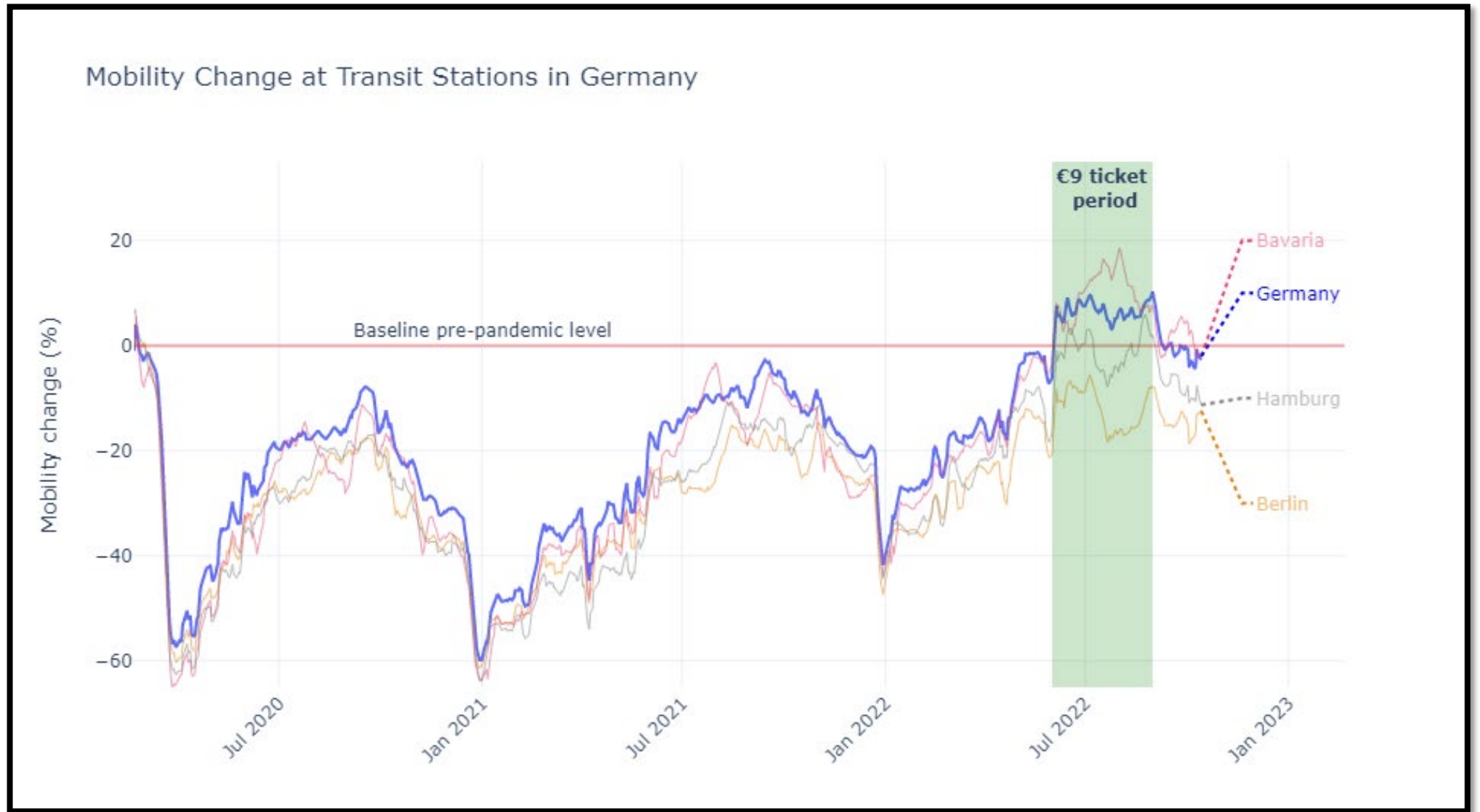
HSL serves nine municipalities in the capital region. Image: Henrietta Hassinen / Yle

YLE NEWS

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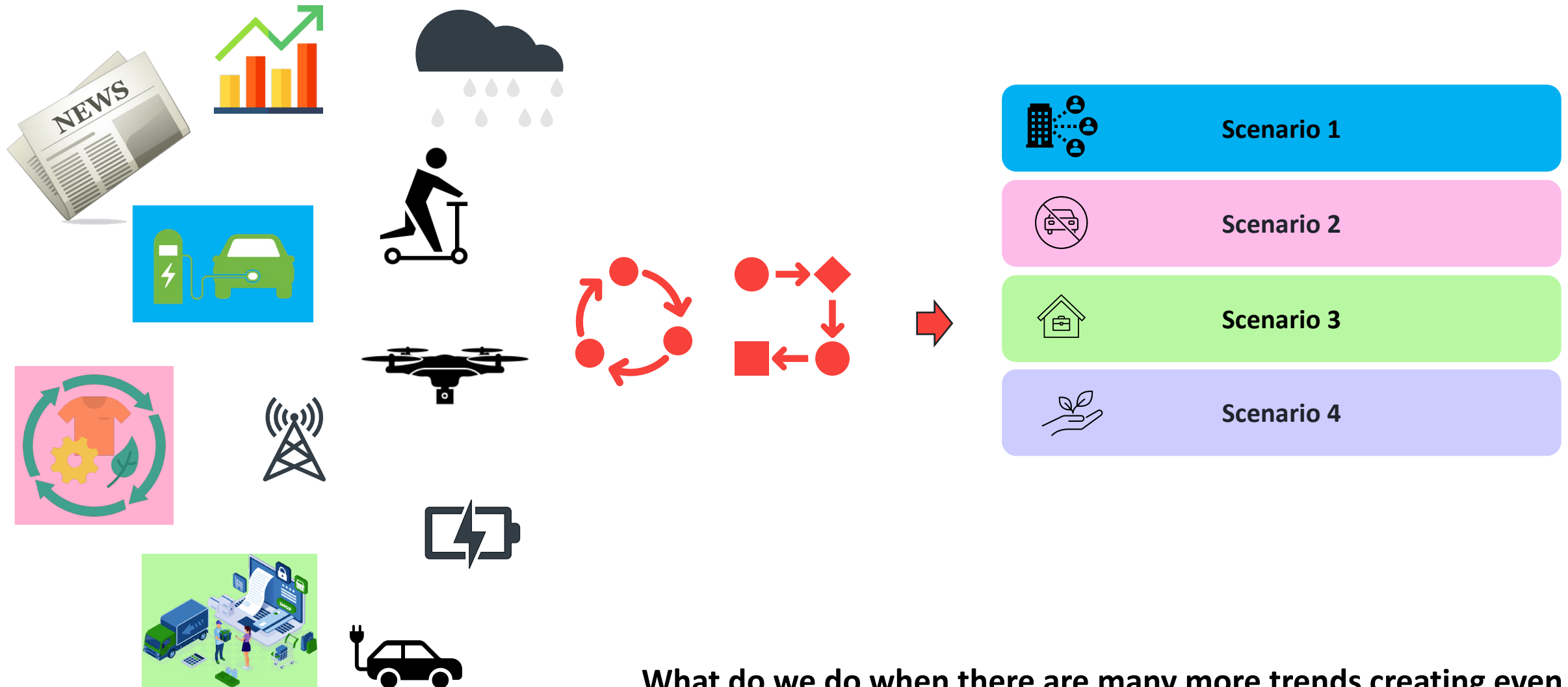
Use case Germany €9 ticket



**How should
Public Transport
Authorities plan
ahead ?**

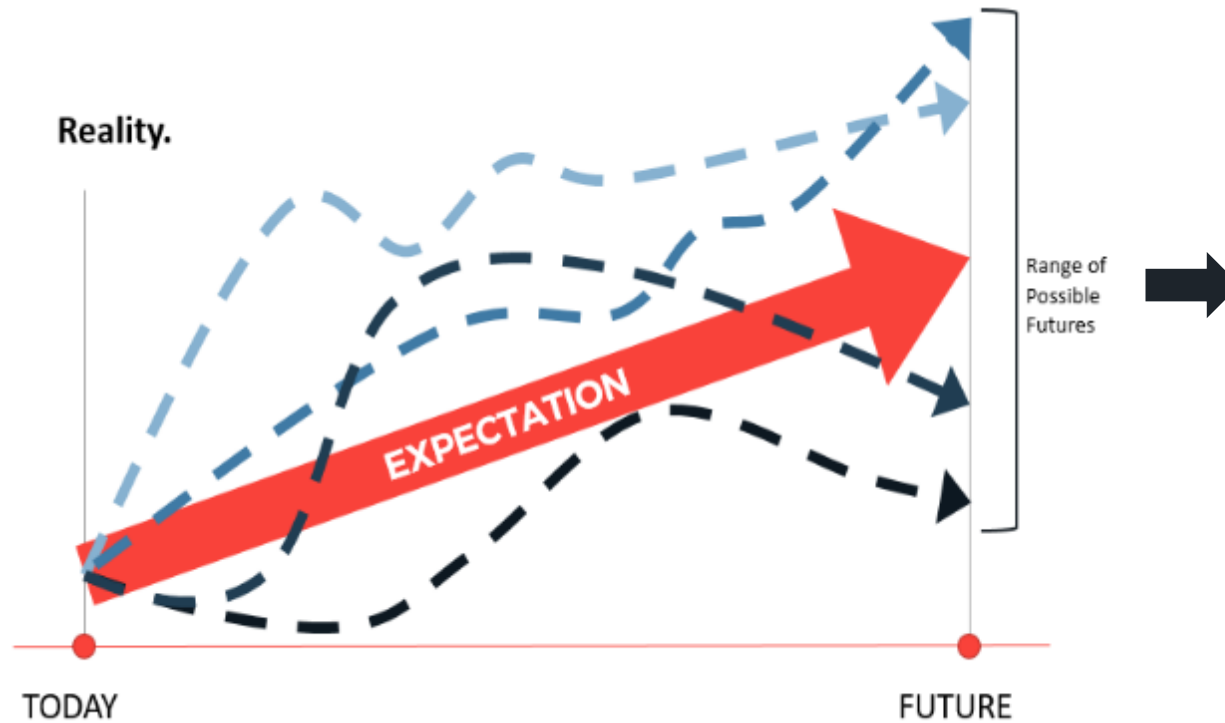


Future planning - Scenario development

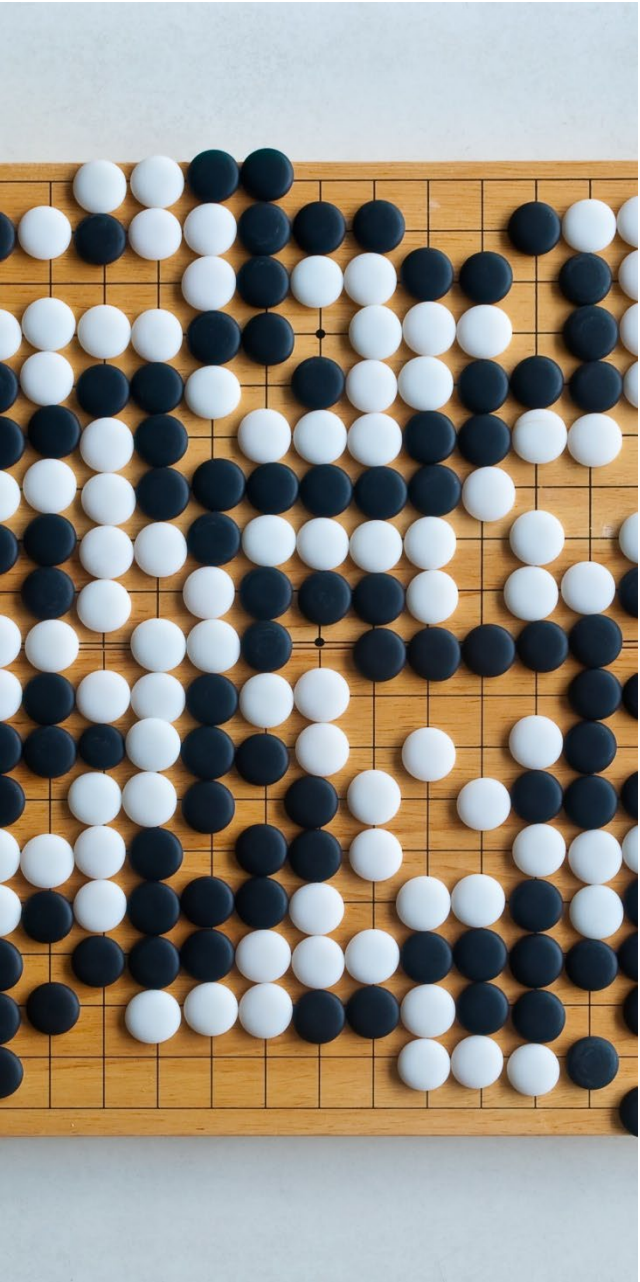


What do we do when there are many more trends creating even more scenarios?

Foresight even more important today



**Big data and AI helps us to
make sense of this
complex future**



Developing resilient strategies with AI



Medium to long term focus



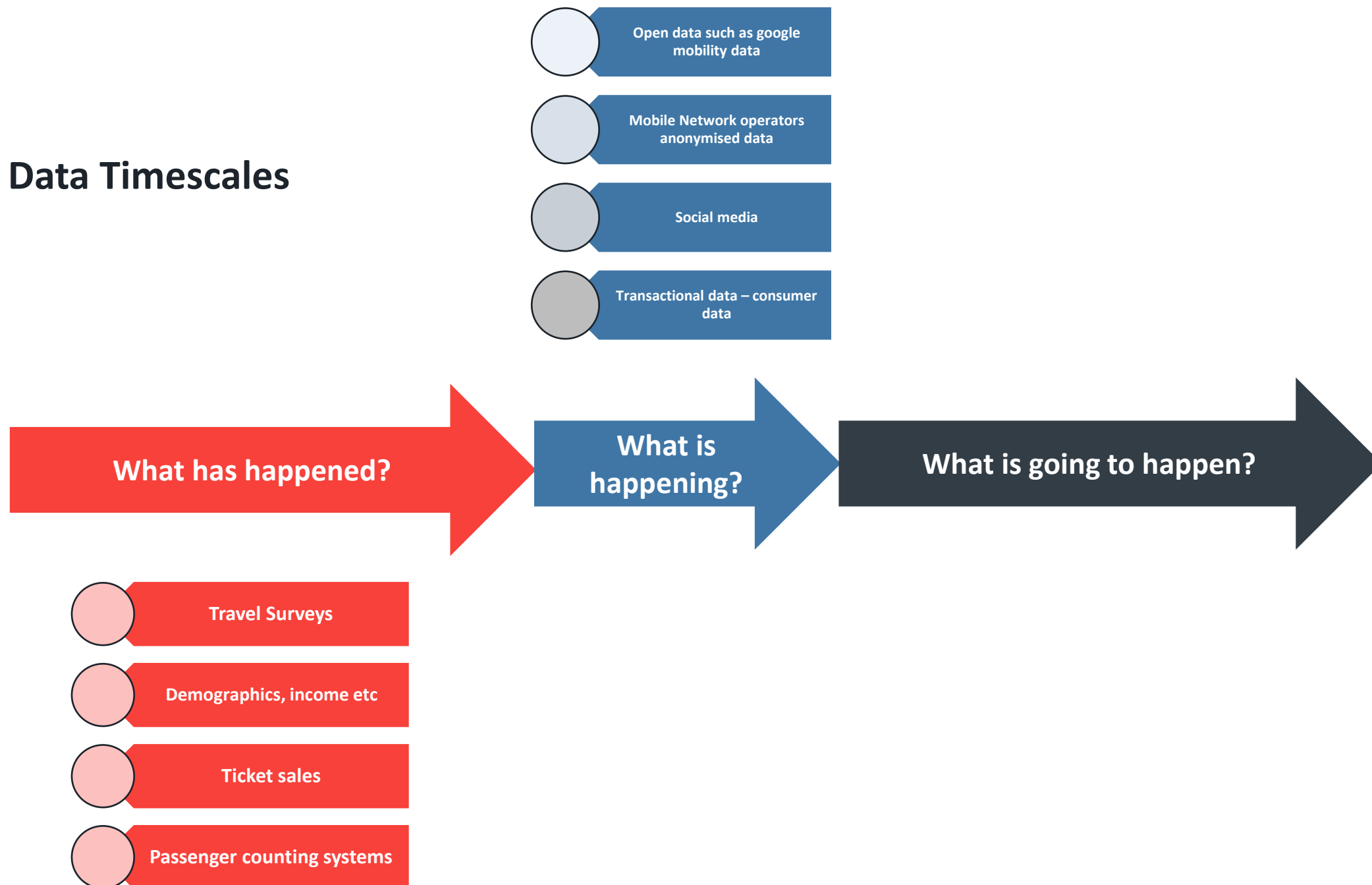
Short term flexibility

Understanding

now!

wsp

Data Timescales



Uncovering

Insights

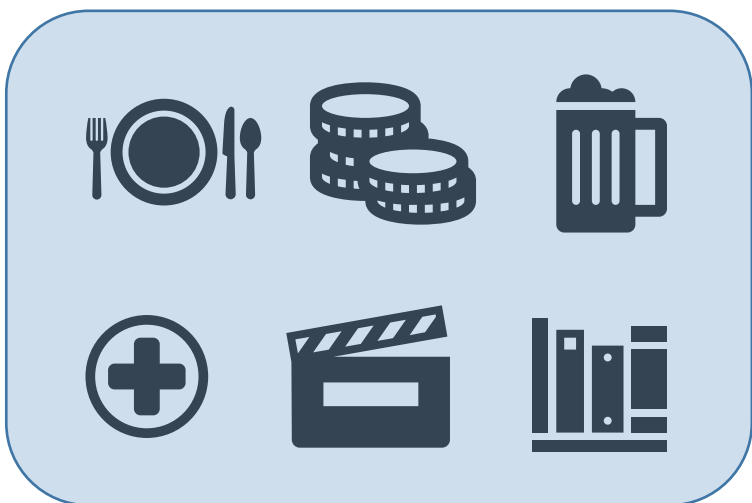
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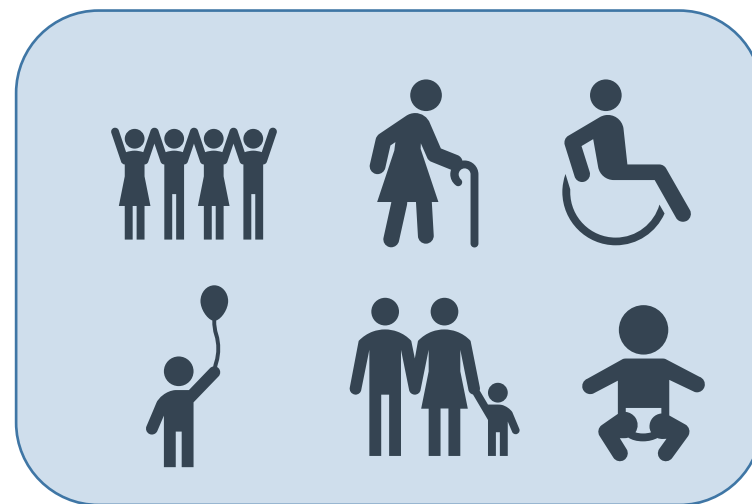
People to
places (for
goods and
services)



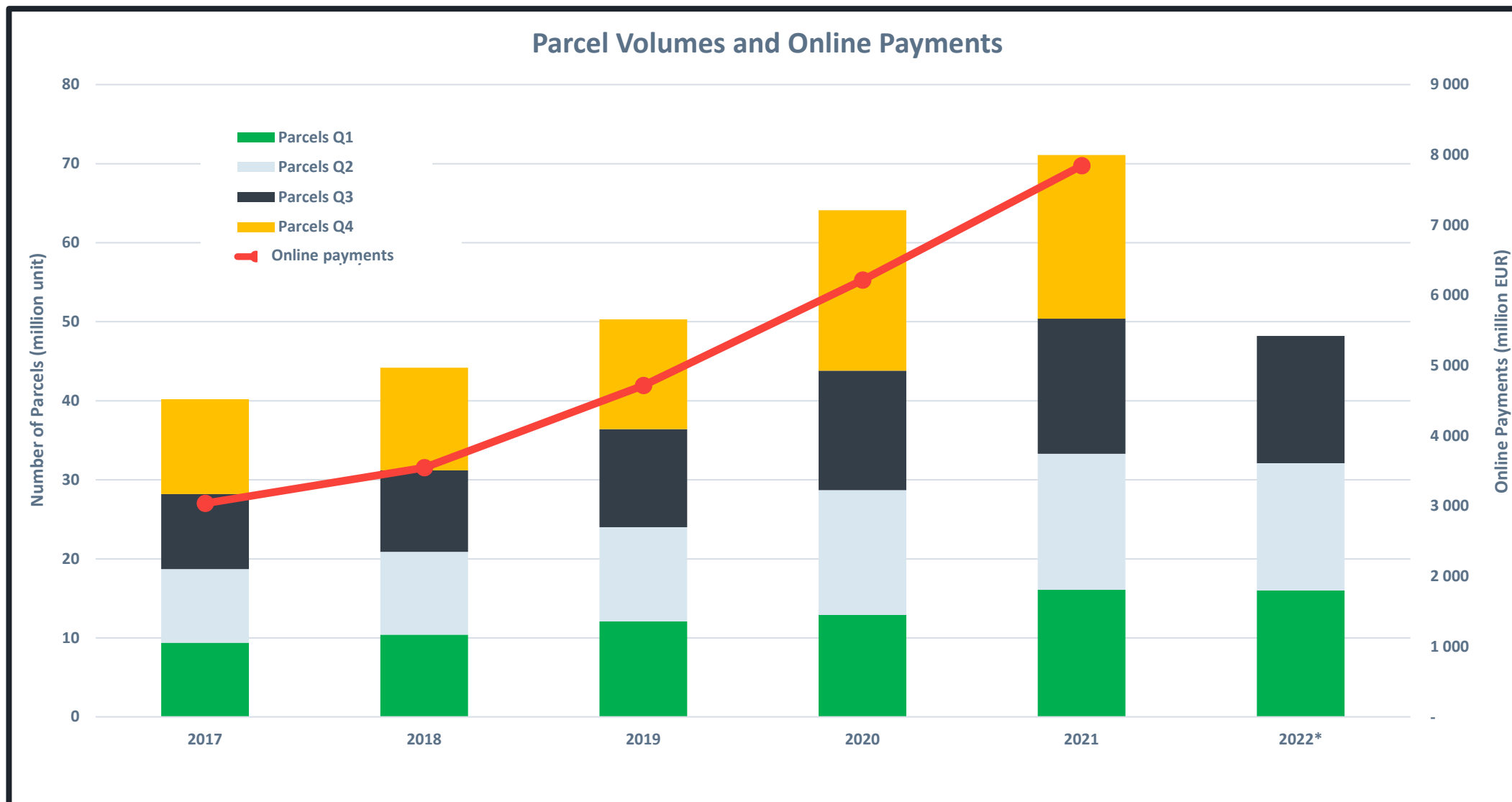
New paradigm



Goods and
services to
people

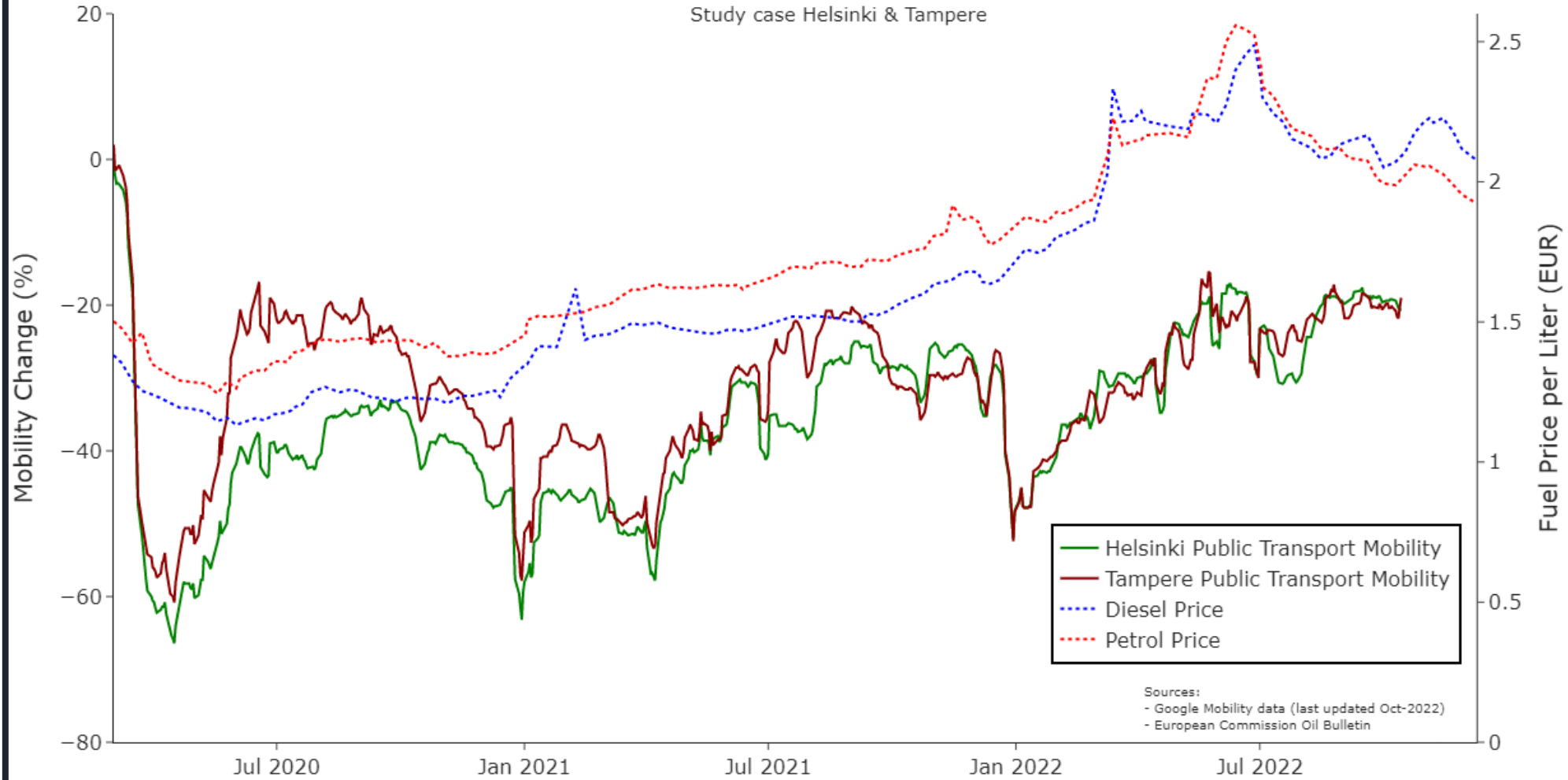


Increasing parcel volumes

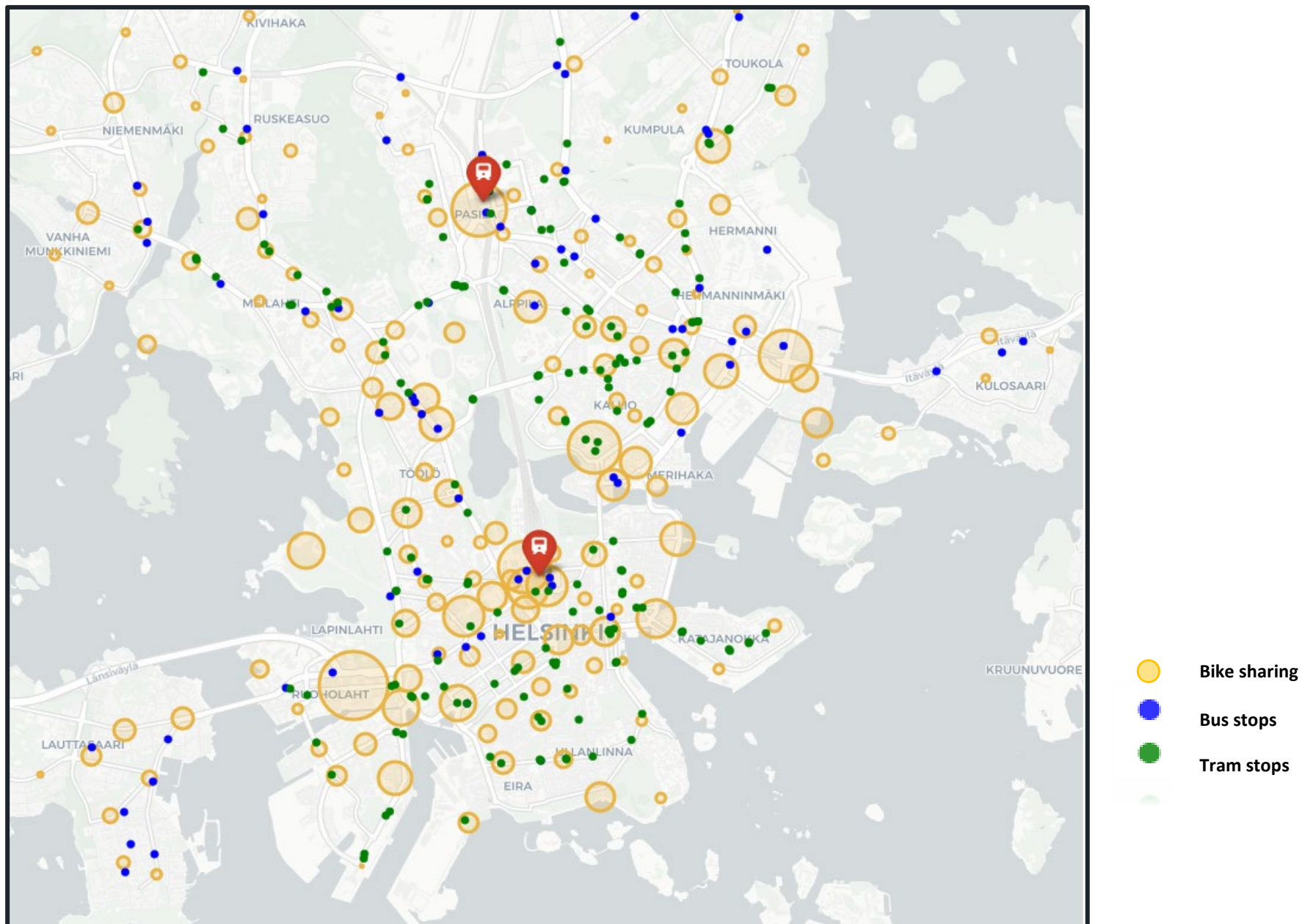


Is high price of fuel driving people towards public transportation in Finland?

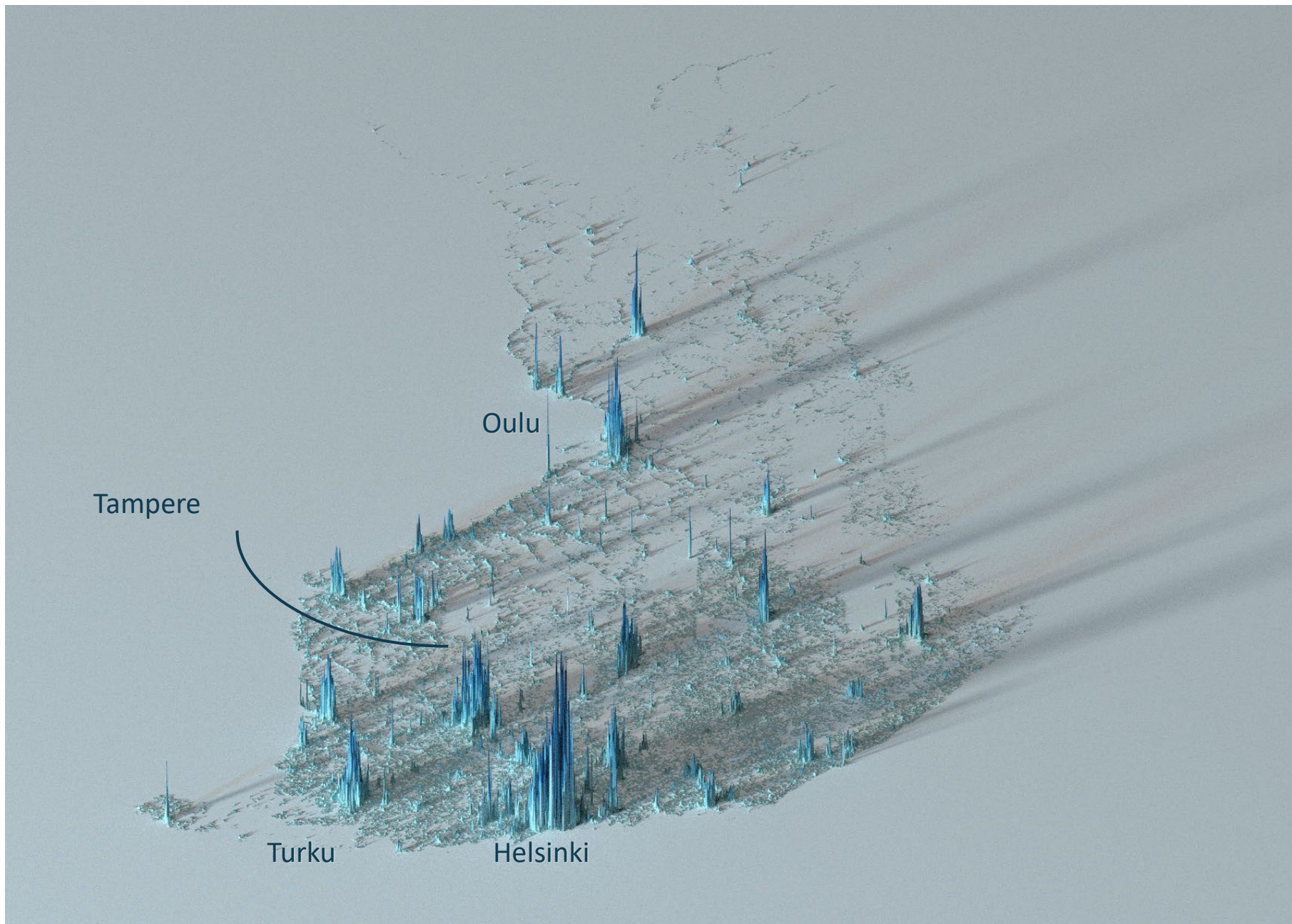
Study case Helsinki & Tampere



Overlaying different transport modes to find gaps

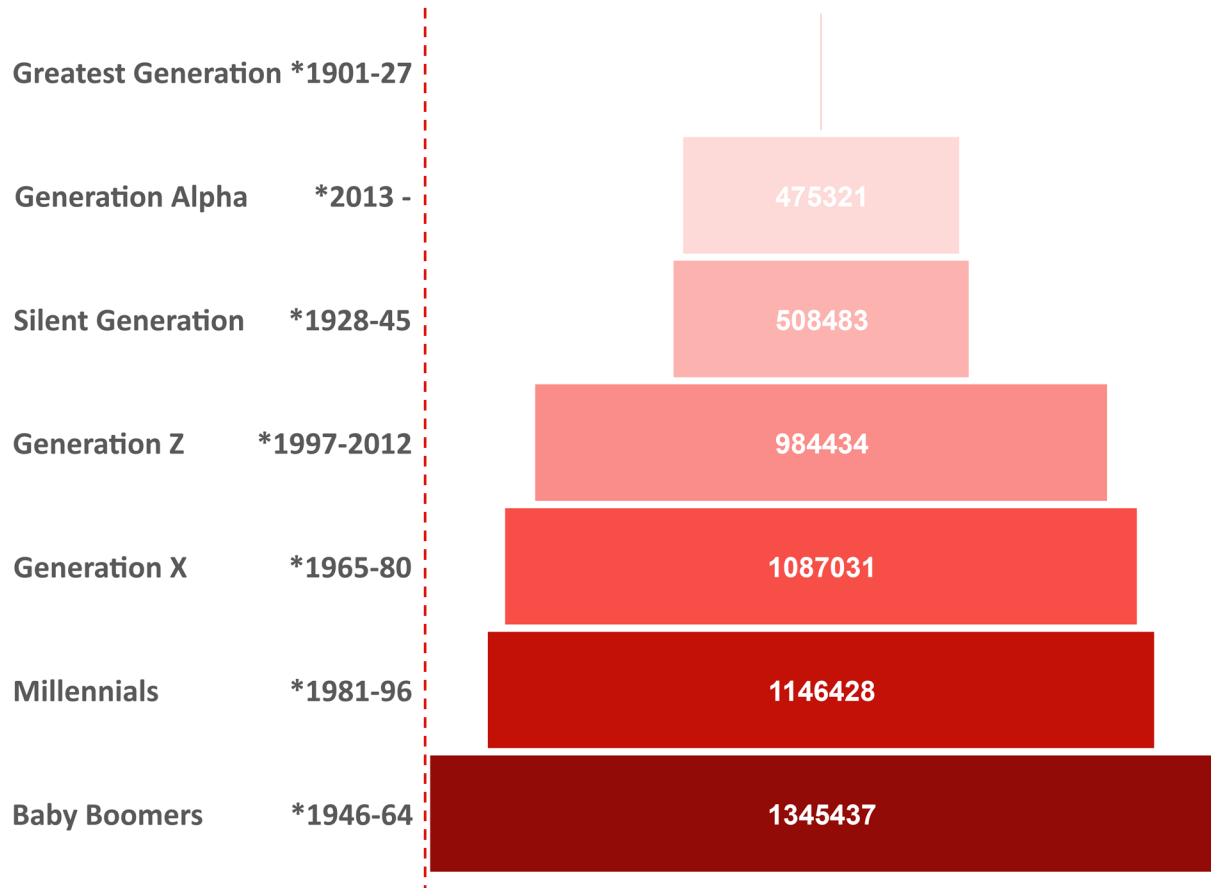


Interconnectivity Population distribution across Finland

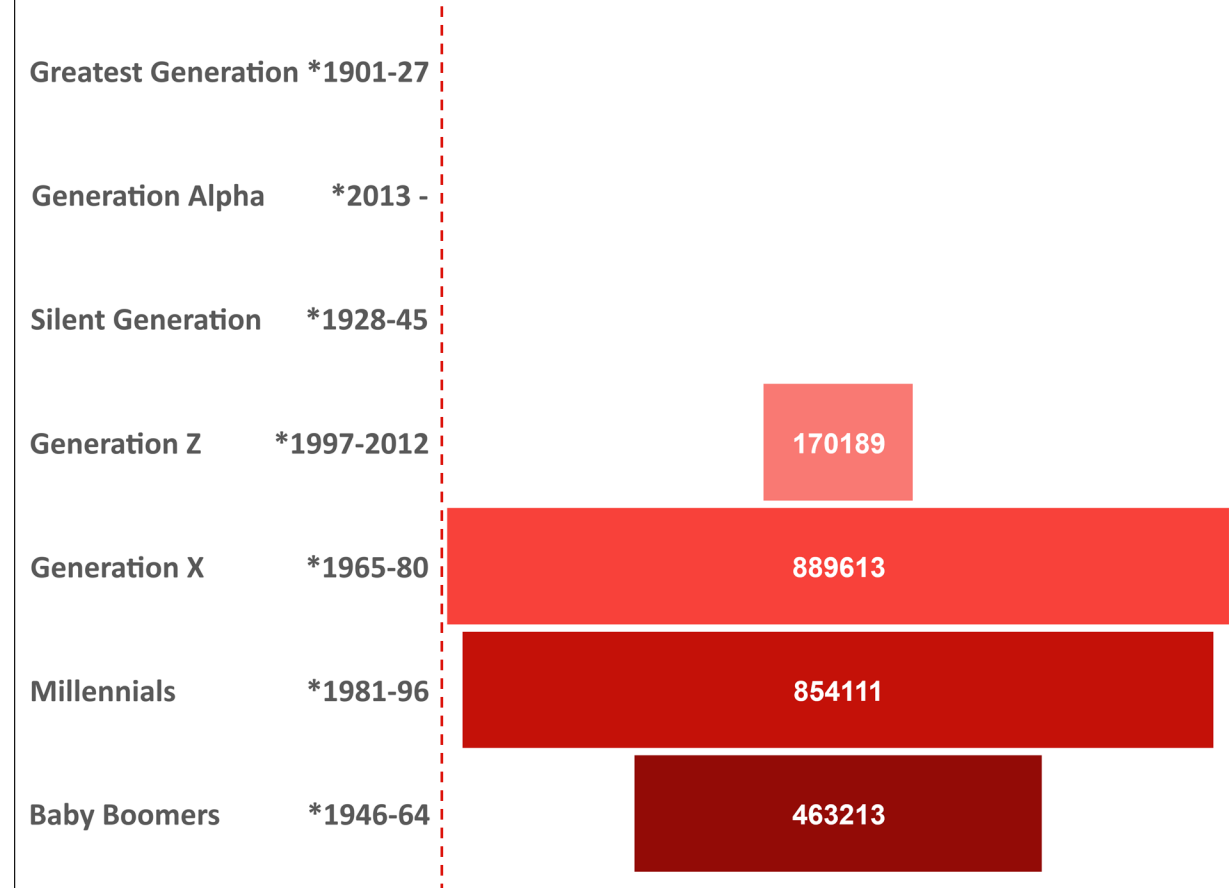


Baby boomers - the main population

Population Age Distribution in Finland (by 31 Dec 2021)



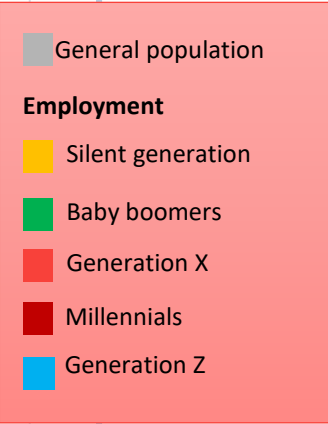
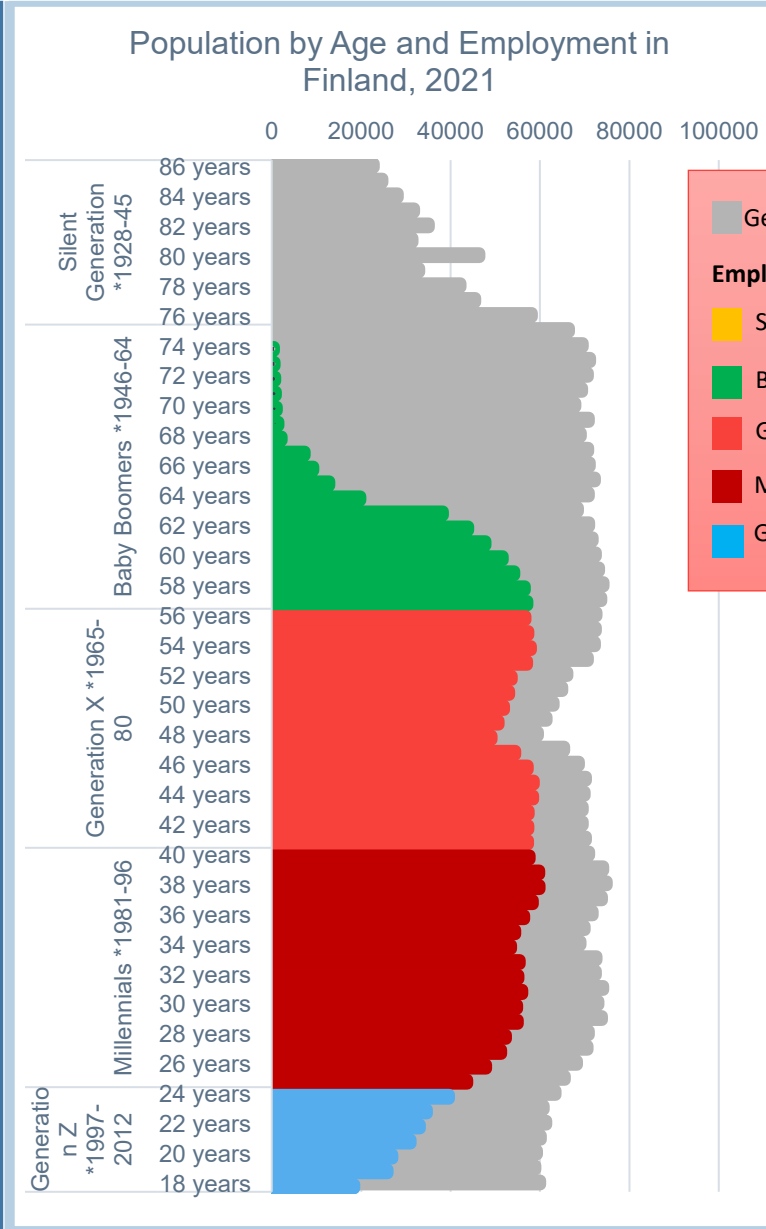
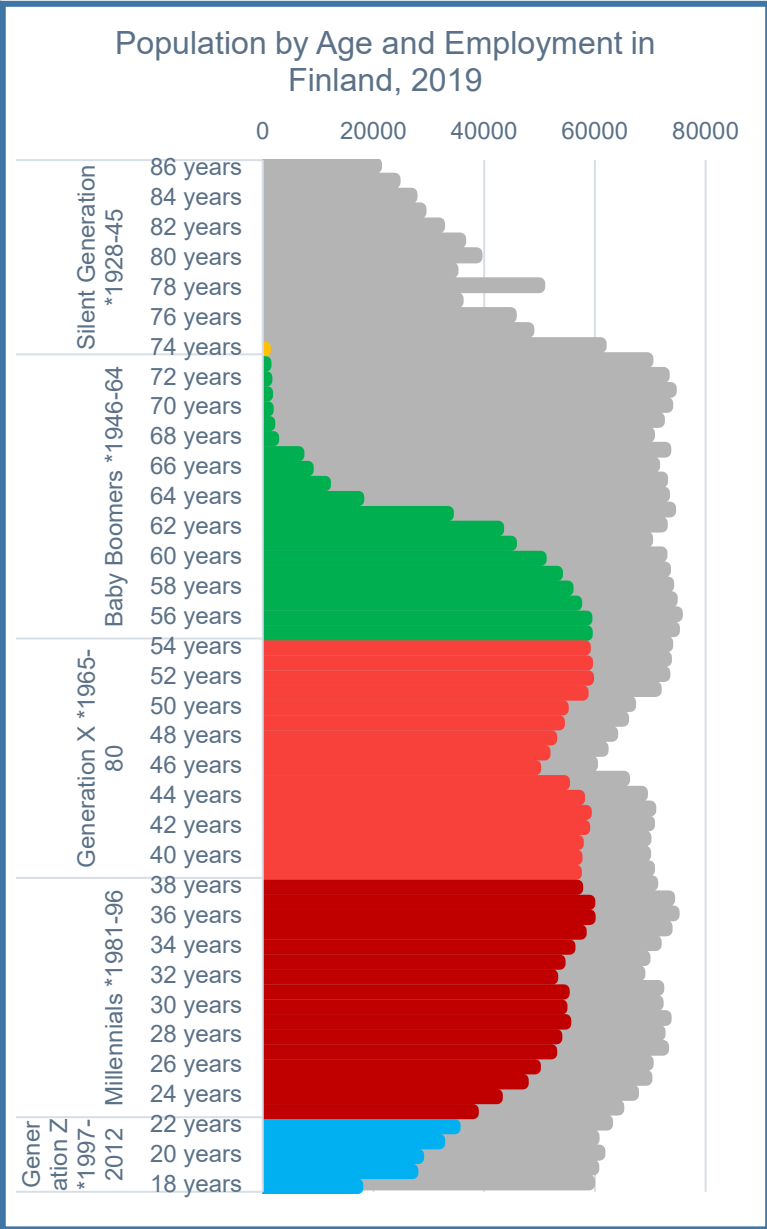
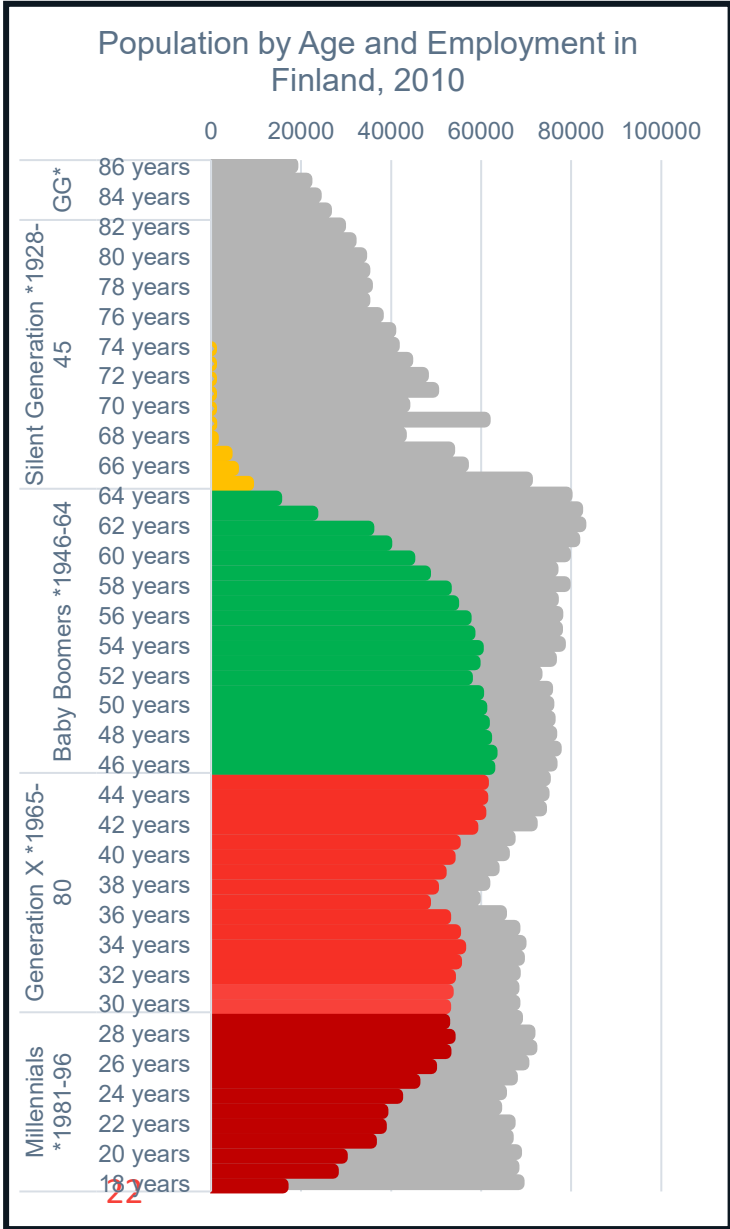
Employment Age Distribution in Finland (by 31 Dec 2021)



Source: Statistics Finland
Note: the latest update of employment ratio by age is 2021



Population evolution

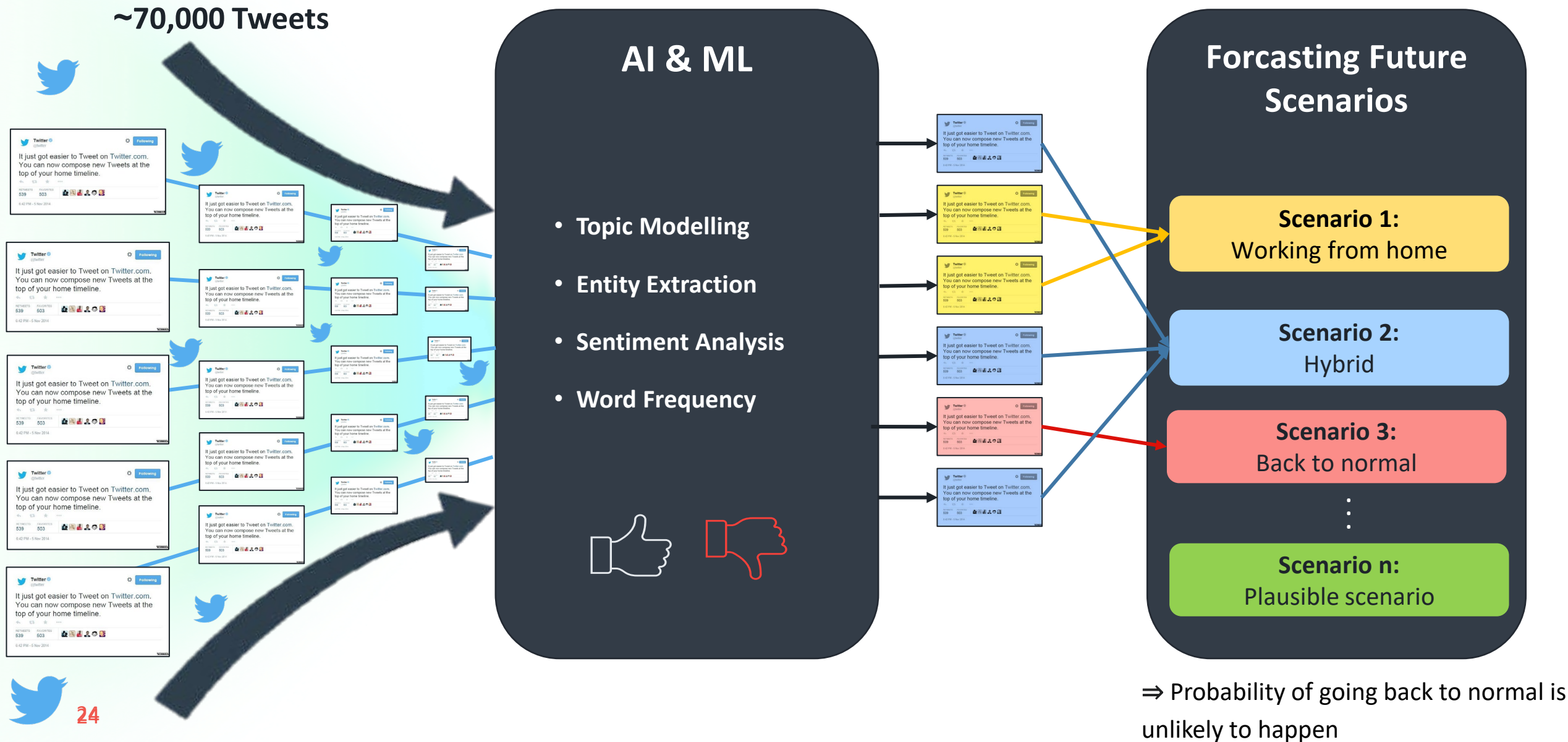


Prioritising

Future scenarios



WSP Horizon Scanning and Future Forecasting



**What can we
take away from
this?**





We can add resilience to our strategies with the help of AI by

- 1. Understanding now!**
- 2. Uncovering key Insights**
- 3. Prioritising future scenarios**

Thank you

Contact us

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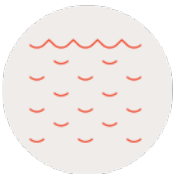


WSP – Future Ready

Climate



Warmer



Wetter

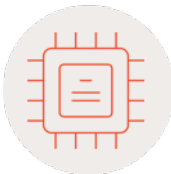


Extreme Weather

Technology development



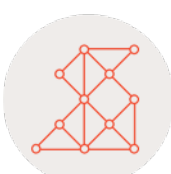
Electification



Digitalisation and automation



New production methods



New materials

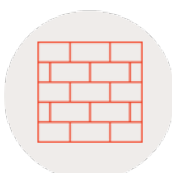
Changes in society



Urbanisation



Demographic changes



Segregation, loneliness and insecurity

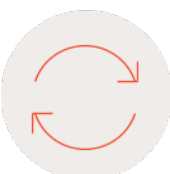


Digital relations

Resource Usage



Climate neutrality



Circular economy



Changing energy systems



Threatened Ecosystems

Public Transport and Parking Lot around Restaurants & Bars in Helsinki

Is it easier to go eating and drinking by public transport or bringing your car

