



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**

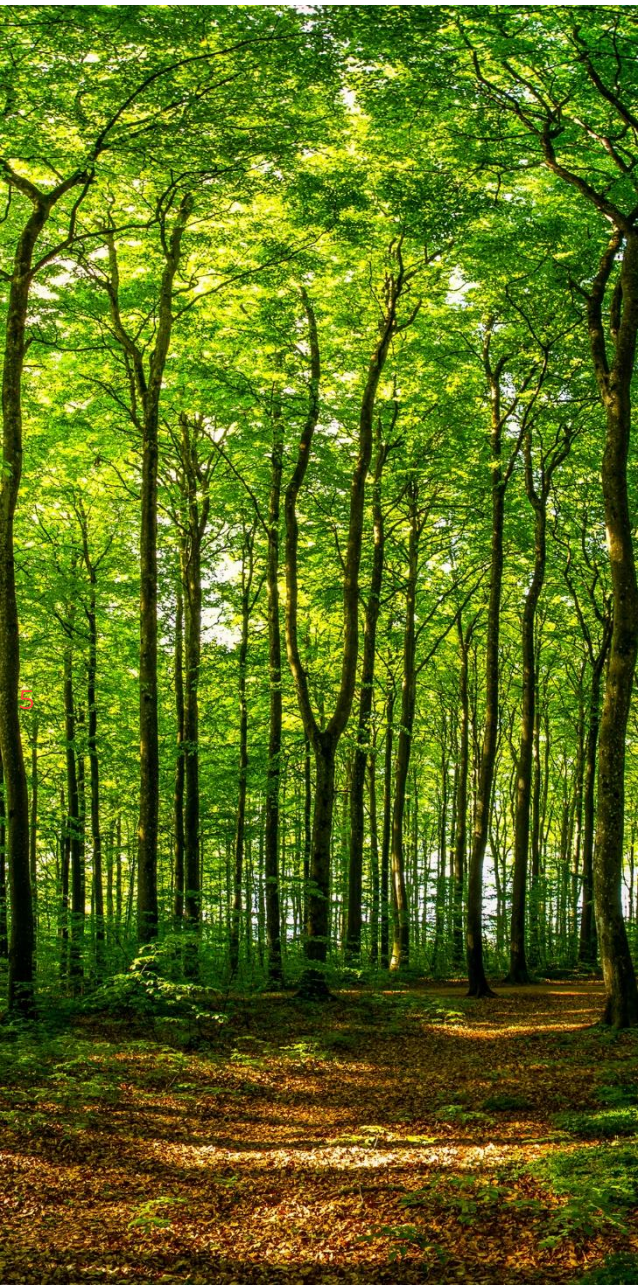
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Question today
Imagine tomorrow
Create for the future



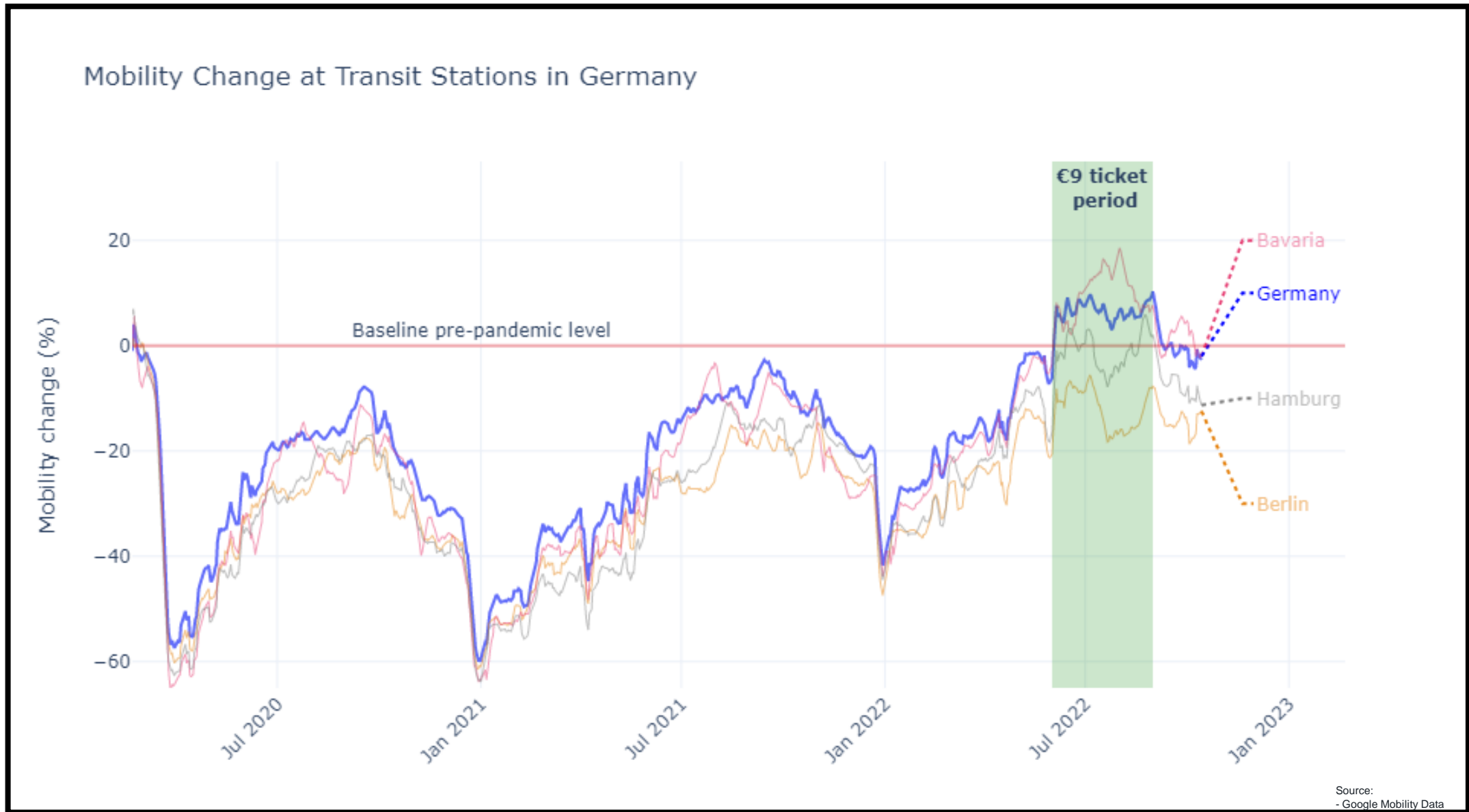
Main challenge:
**How to get
passengers
back to taking
public
transportation?**



**Why aren't
people choosing
the
environmentally
friendly choice?**

Solutions being trialled out:

Use case Germany 9 euro ticket





Public transportation is offering the same level of passenger service

Bad WiFi

Poor phone
coverage

Poor journey
information

Poor
Punctuality

wsp Packed buses, trains & overcrowded stations

10th June 2022



10th June 2022



LANG KØ: Flere måtte hoppe over i en taxi da togtrafikken ble stoppet. Det skapte lange køer.

Packed trains, but fewer tourists

26th August 2022



Trains were often crowded as people rushed to enjoy close-to-free transport.

26th August 2022



Togkaos fører til flykaos – flere fly på bakken

Etter at togtrafikken sto stille på Oslo S i to en halv time, fører det til store forsinkelser i flytrafikken.

10th of June 2022

Busskaos sedan järnvägen stängdes mellan Kristinehamn och Karlstad

UPPDATERAD: 2022-07-26 PUBLICERAD: 2022-07-11



Tågkaos i Skåne efter flera timmars stopp

MALMÖ Publicerad 15 aug 2022 kl 17.41



Det är smockfullt i Lund på måndagseftermiddagen.

Foto: LOUISE LENNARTSSON

WSP Public Transportation Challenges

23rd October 2022

– Vi risikerer enda flere feil og mer togstans

2023 kan bli enda mer frustrerende for togpassasjerene enn 2022, hvis det ikke bevilges mer penger til vedlikehold av jernbanen, advarer divisjonsdirektør Martin Olsen i NRC Norge.



Det har blitt naturlig å velge bort bussen



Aldri har det vært mer tungvint å komme fram med kollektivtrafikk, mener Terje Fossum i dette debattinnlegget. Foto: Stein Nervik

Oslo Venstre frykter for trikk og bane og mener statsbudsjettet setter hovedstaden tilbake i klimakampen

– Oslos innbyggere må innstille seg på en halvering av trikketilbudet og halvtimesruter på T-banen. Det ville være et enormt tilbakeskritt, med flere biler i gatene og kø og trengsel i kollektivtrafikken.

Krever strømstøtte til kollektivtrafikken - Sporveien varsler rasering av trikk og T-bane

Sporveien kan få en halv milliard kroner i økte strømudgifter neste år. Det kan få dramatiske konsekvenser for trikk og T-bane. Nå krever kollektivtrafikken strømstøtte i statsbudsjettet.

Gratis buss ga 60 prosent flere passasjerer

De to siste månedene har det vært gratis å reise med buss i Ålesund, Sula og Giske. Første måneden med tilbudet ga 60 prosent flere busspassasjerer.

Kutt elbil-subsidiene

Elbilsubsidiene utgjør nesten 40 milliarder i år og kan bli 50 milliarder neste år. Subsidiene gjør det mer attraktivt for folk å kjøre elbil enn å ta tog og buss, dele bil, sykle eller gå.

1 MIN | PUBLISERT: 20.10.22 — 14.11 | OPPDATERT: 11 DAGER SIDEN



Står hundrevis av Teslaer på en parkeringsplass like ved Birger N. Haug i Røyken. (Foto: Javad Parsa)



FORSLAG: Byrådet foreslår å gjøre det billigere å reise kollektivt i Oslo. Foto: Vidar Ruud

Vil gjøre det billigere å reise kollektivt

Byrådet setter av 200 millioner budsjett kroner til å gjøre det billigere å reise kollektivt i Oslo.

Nå blir dette billigere

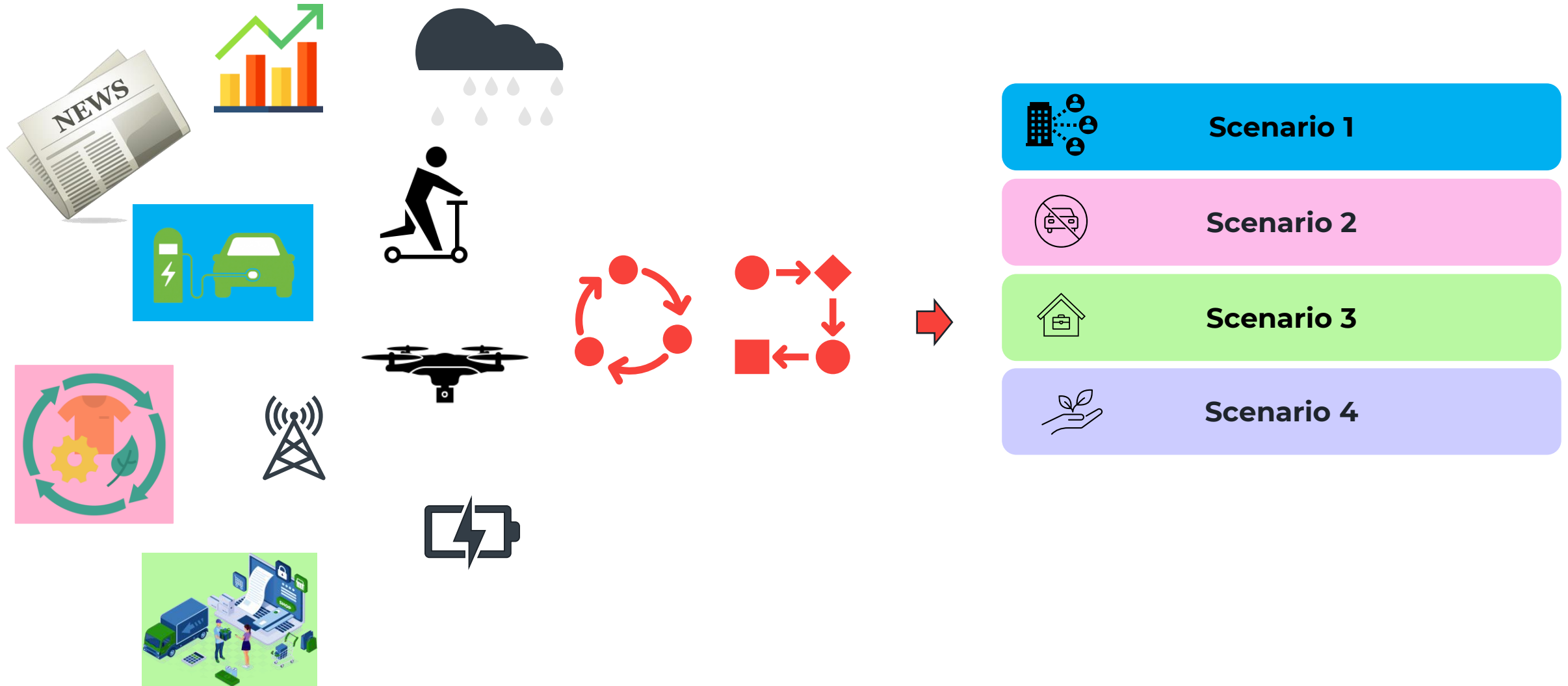


TA. BUSSEN: Det har vært budskapet fra denne gjengen lenge. Nå håper de billigere bussbilletter kan stimulere flere harstadværinger til å la bilen stå. Fra venstre: Hugo Thode Hansen, Geir Hartz Jørgensen og Kari-Anne Opsal. Foto: Hanne Gideonsen

How should
Public
Transport
Authorities
plan ahead?

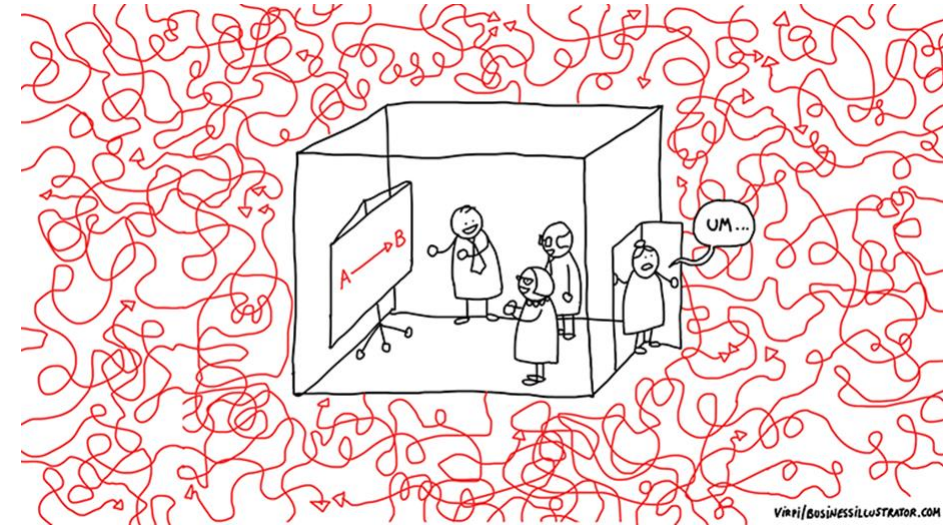
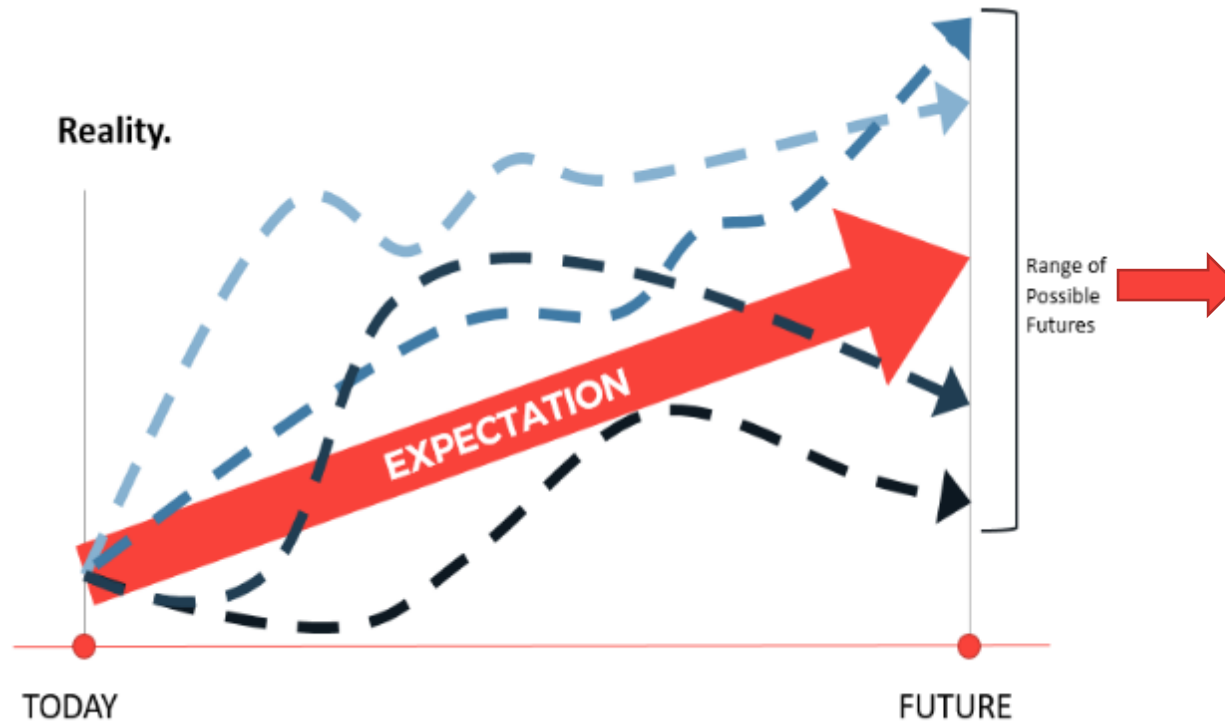


Future planning - Scenario development

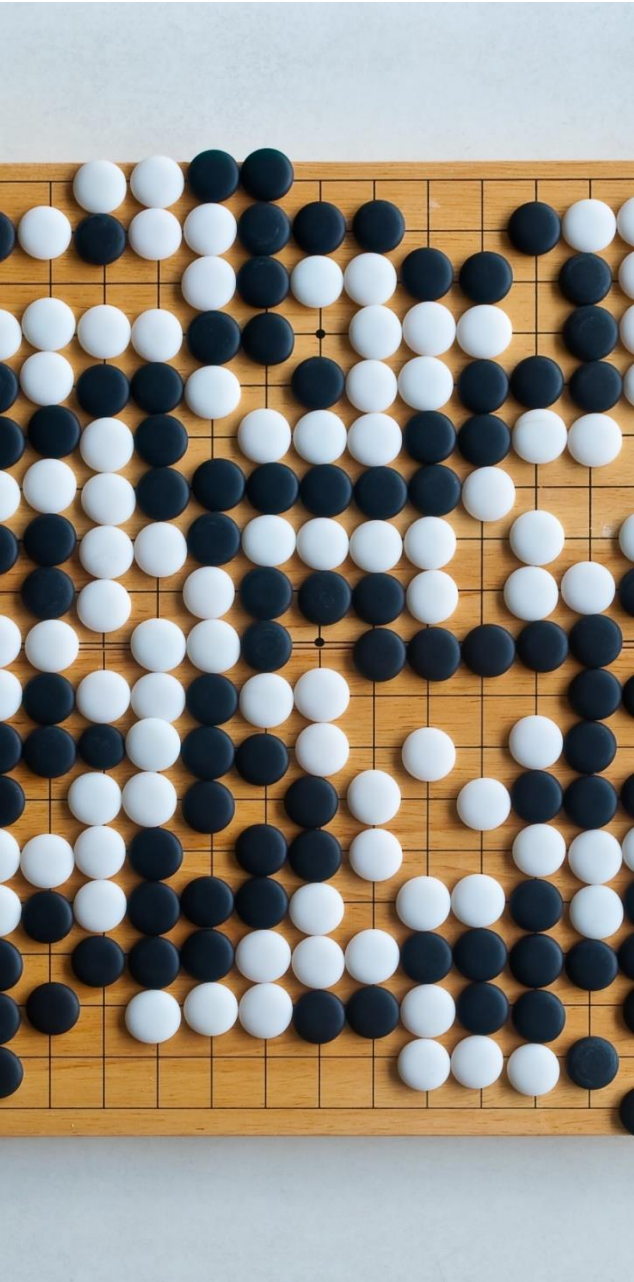


But what do we do when there are many more trends creating even more scenarios

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



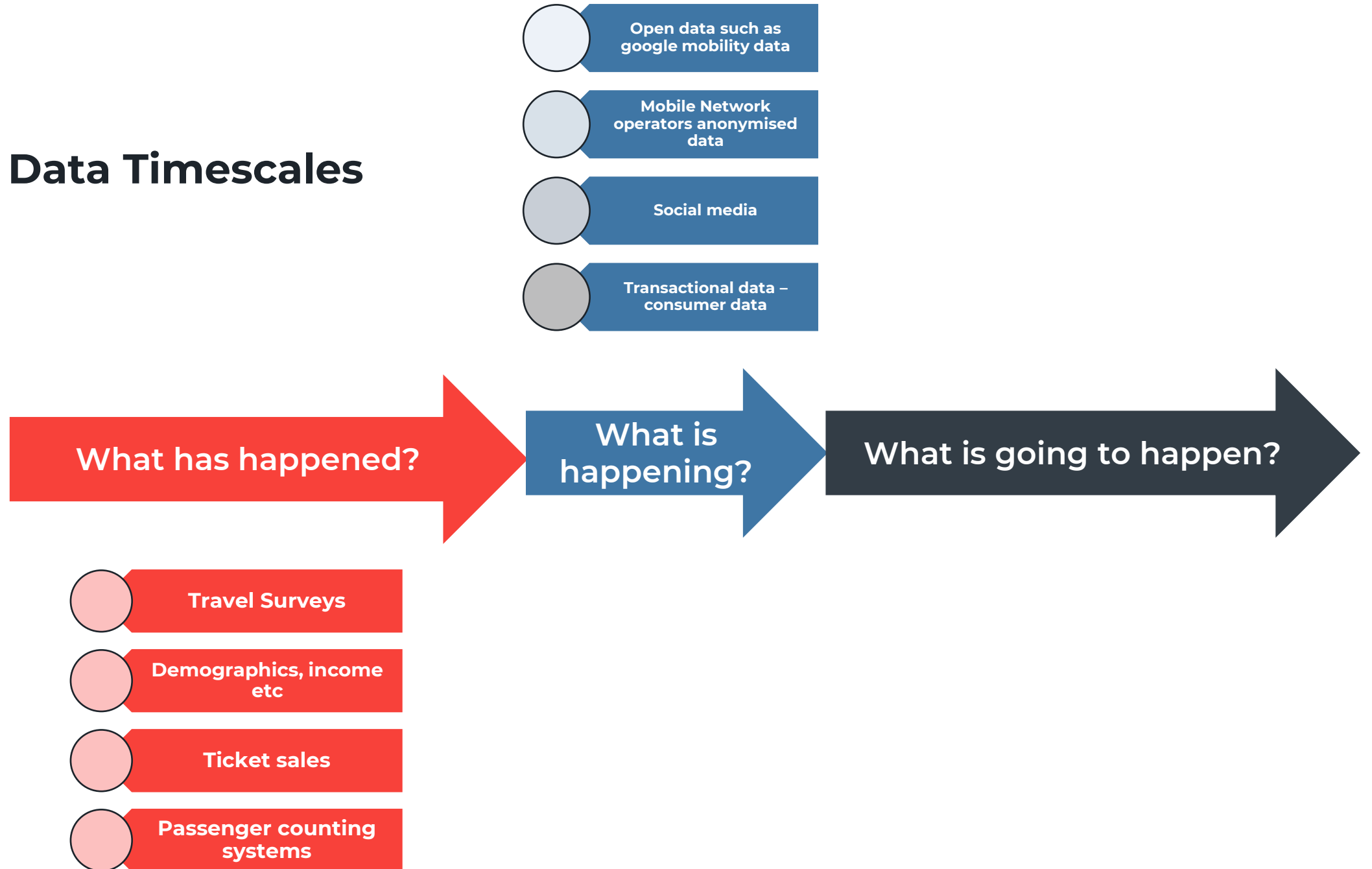
Short term flexibility

Understanding

now!

wsp

Data Timescales



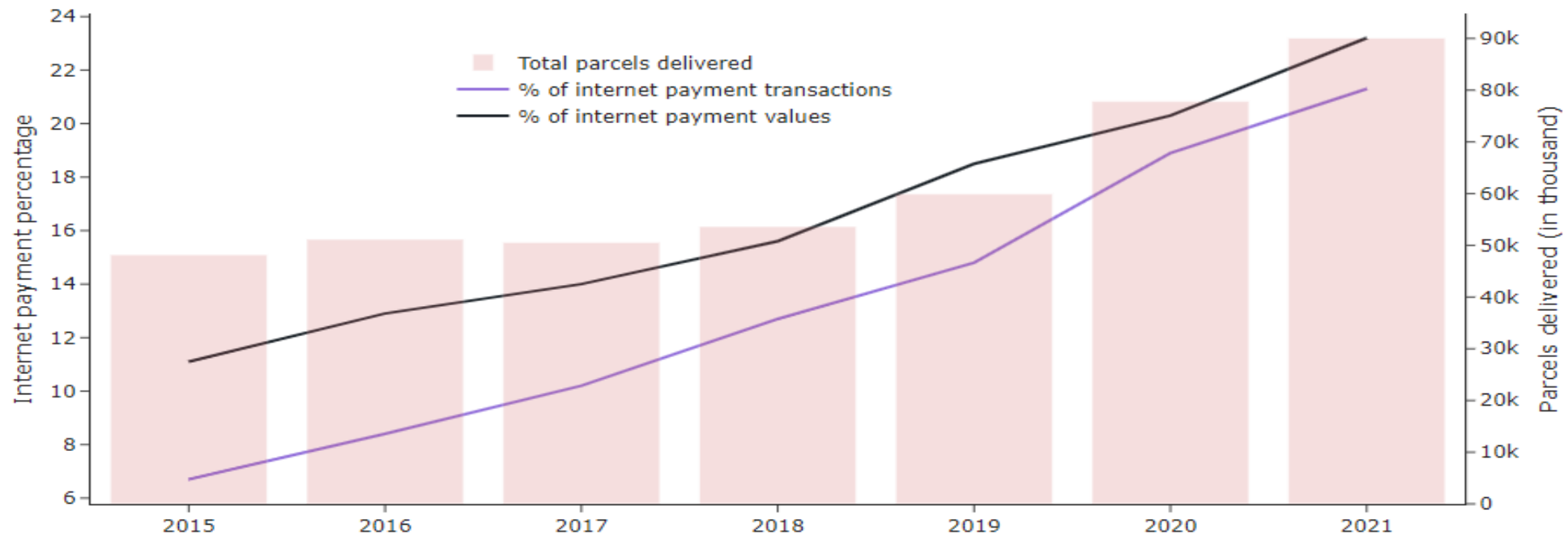
Uncovering

Insights

wsp

E-Commerce payments and packages delivered

Online payment and number of parcels delivered by Posten in Norway



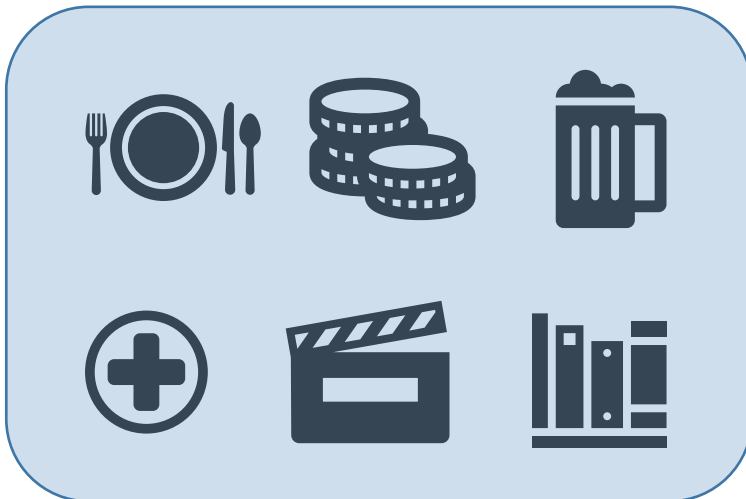
Source: Posten Norge, Norges Bank



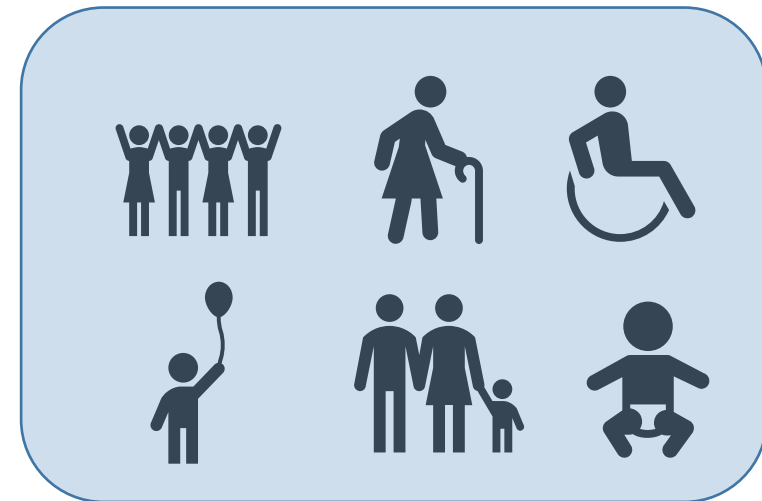
People to
places
(for goods
and
services)



New paradigm



Goods and
services to
people

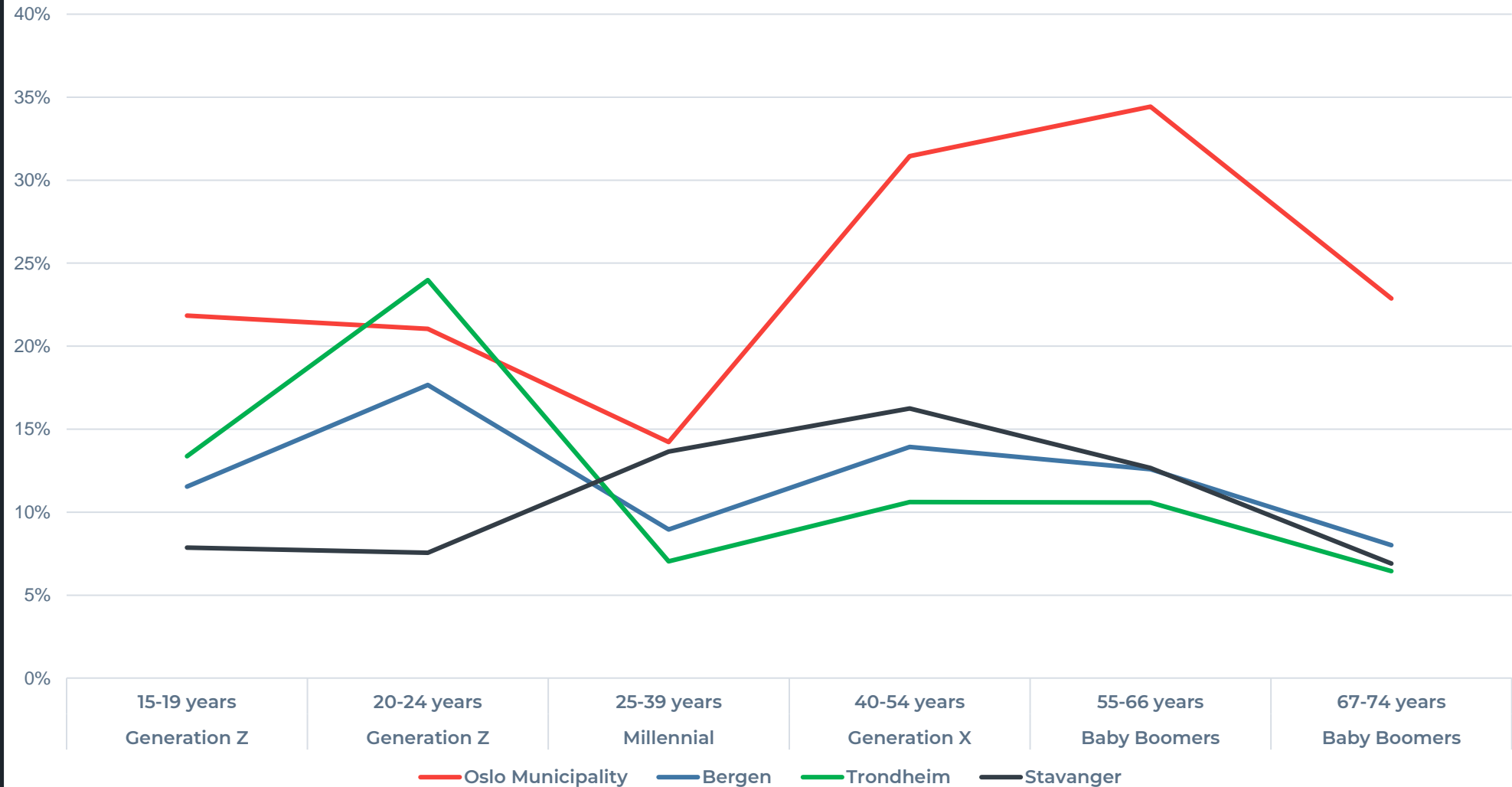


Is high price of Petrol & Diesel driving people towards public transportation in Norway

Study case Viken & Agder region

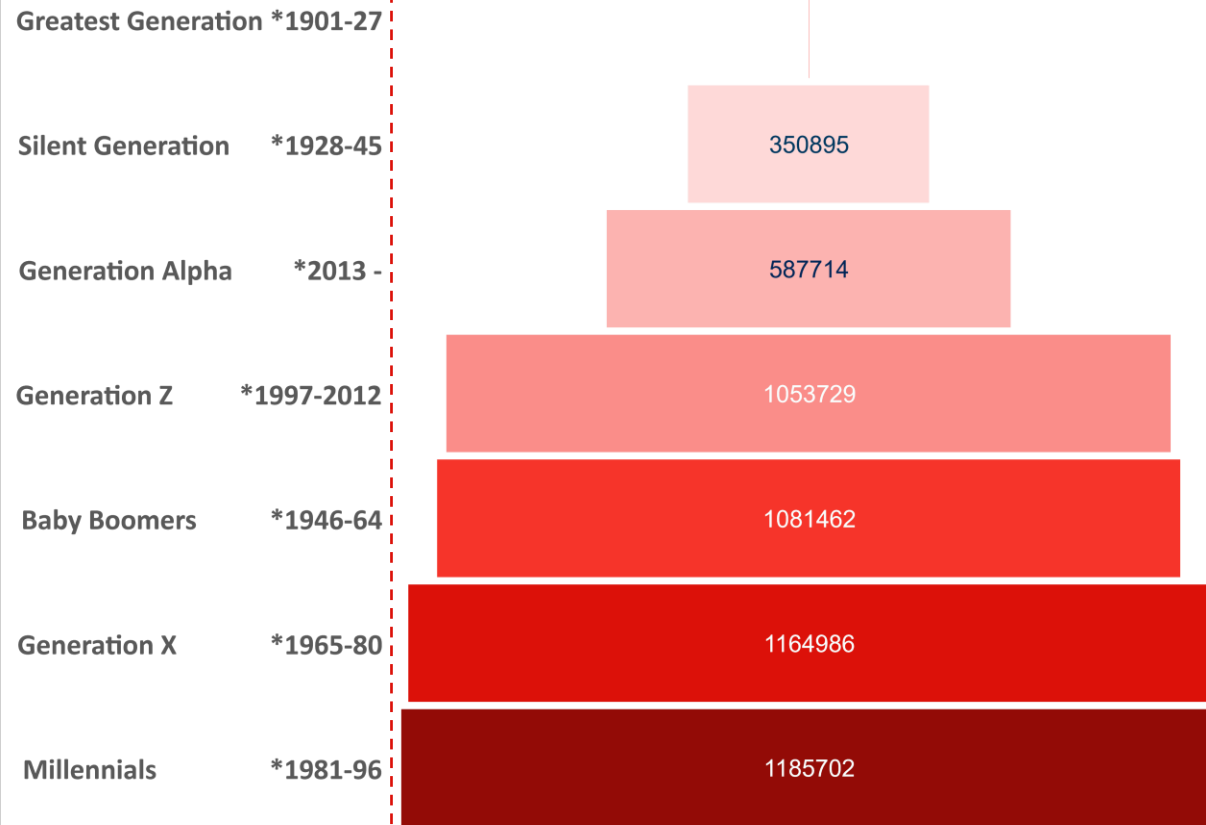


Proportion of People Travels into the City for Work by Age, 2021

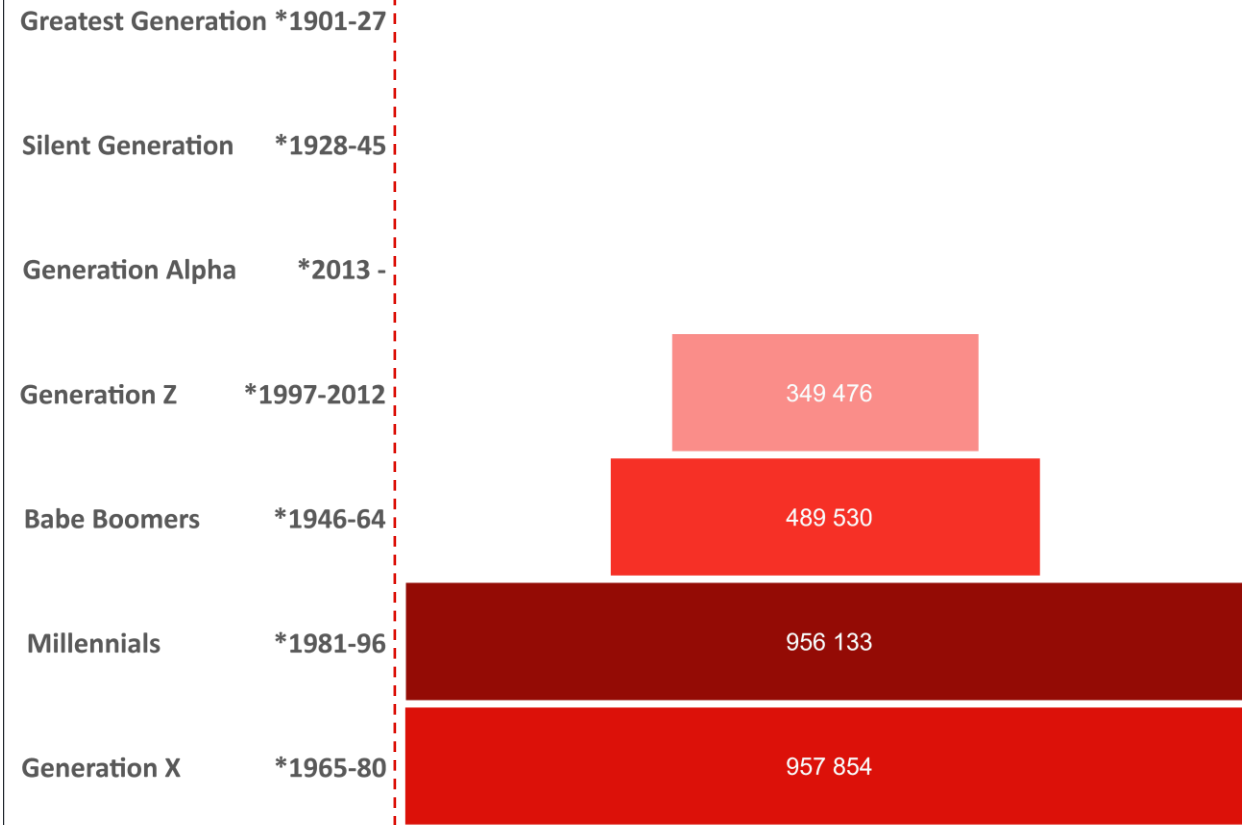


Millennials - the main population

Population Age Distribution in 2022 in Norway

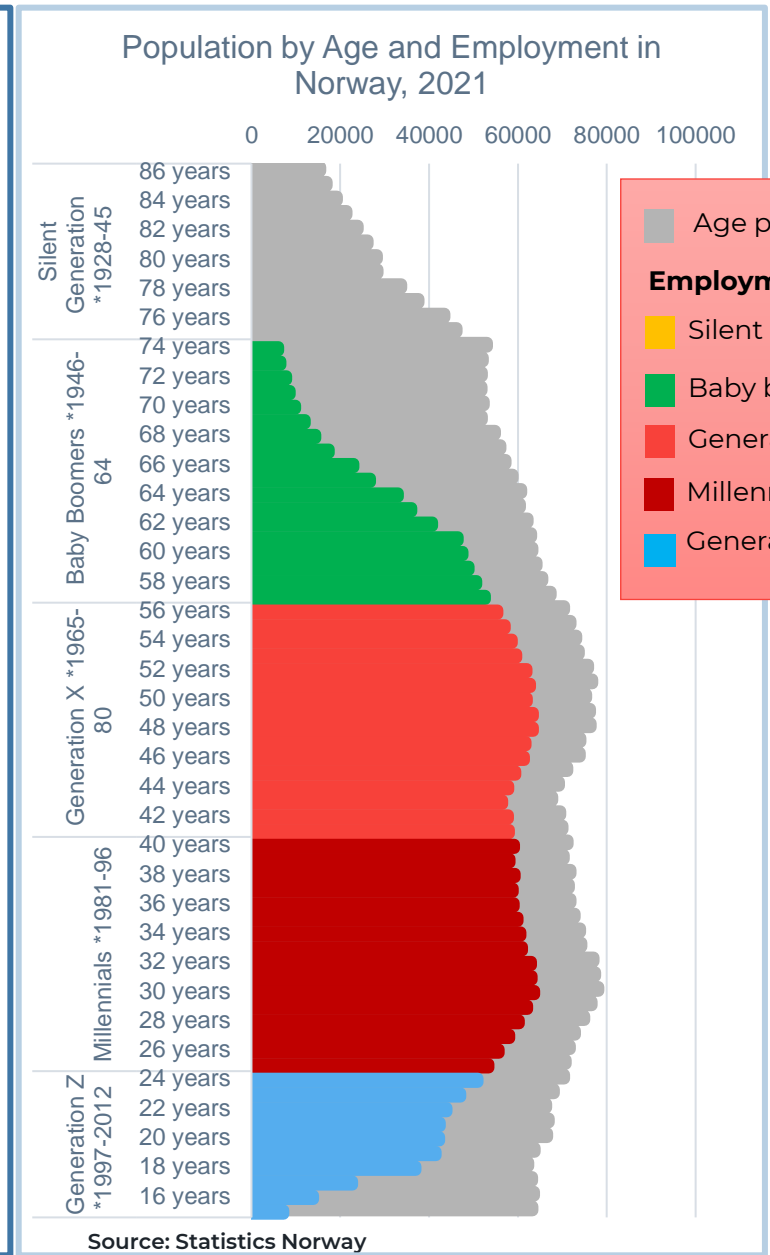
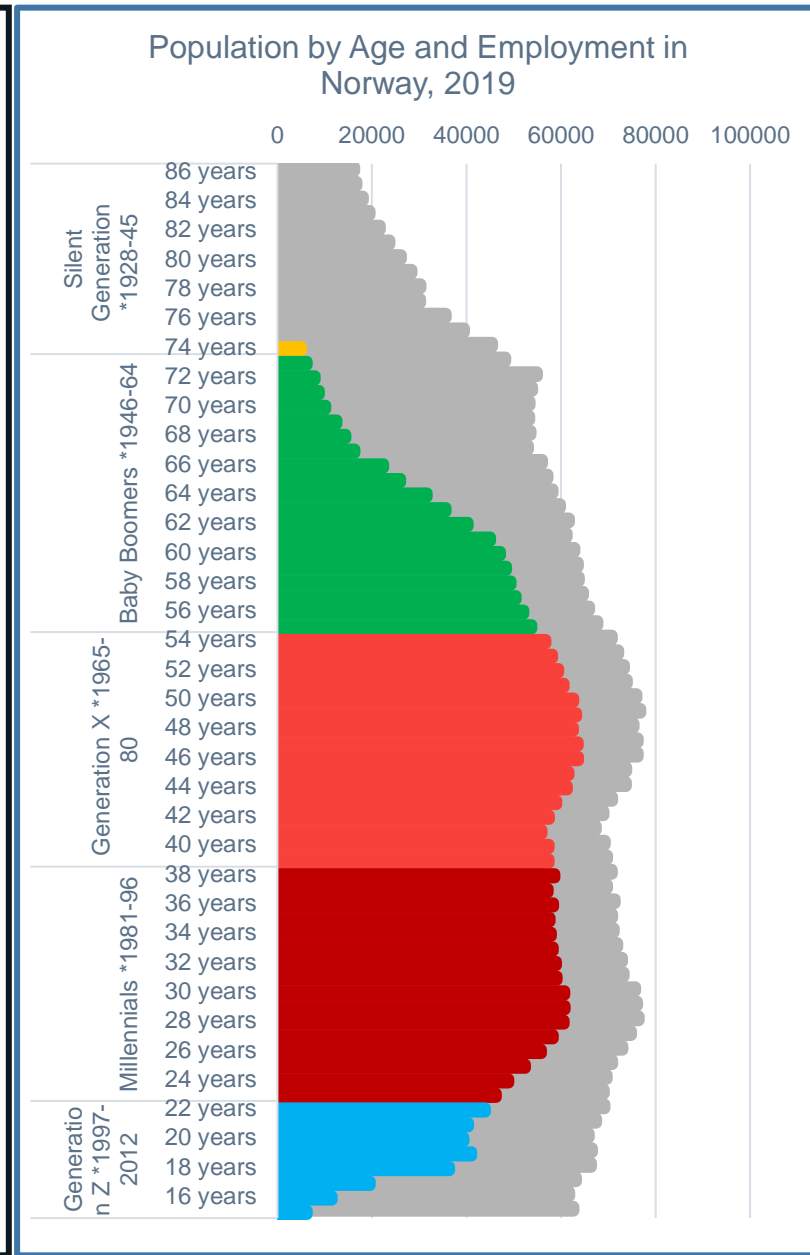
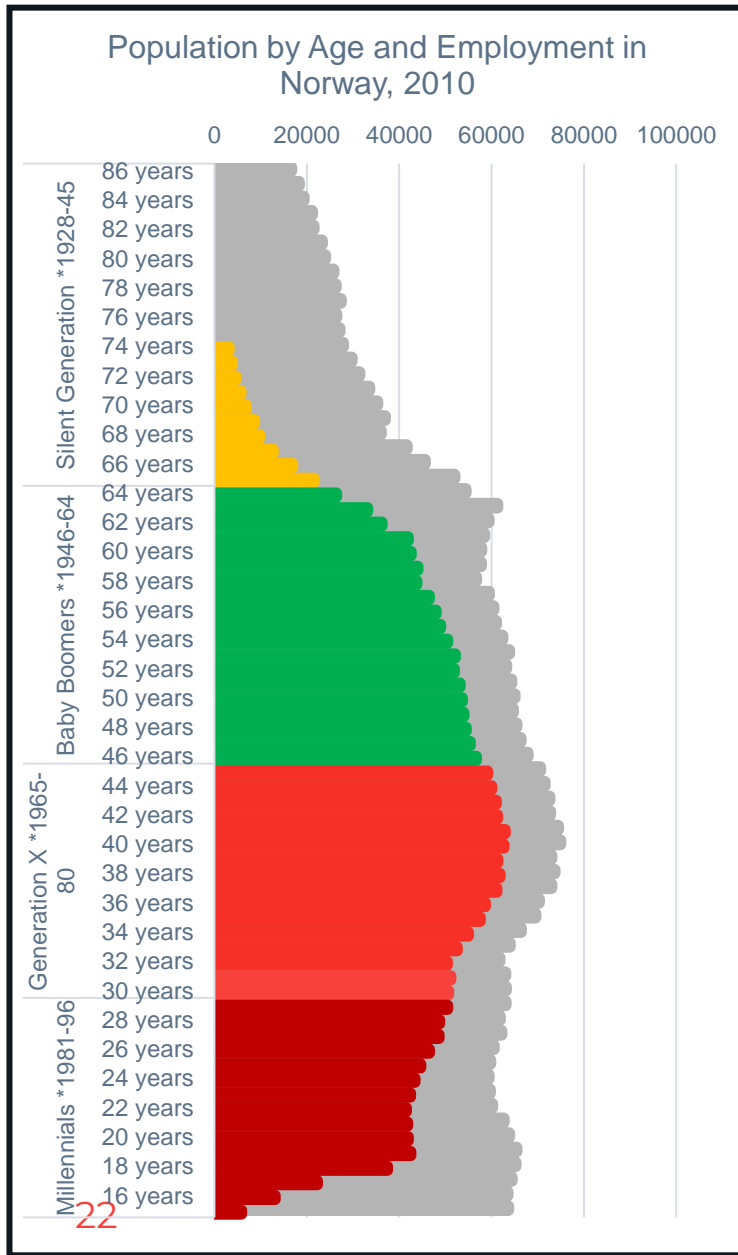


Employment Age Distribution in Norway, 2021



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

WSP Population Change from Silent Generation to Generation Z



Source: Statistics Norway

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

Prioritising

Future scenarios

WSP Horizon Scanning and Future Forecasting

~70,000 Tweets

AI & ML

- Topic Modelling
- Entity Extraction
- Sentiment Analysis
- Word Frequency



Forecasting Future Scenarios

Scenario 1:
Working from home

Scenario 2:
Hybrid

Scenario 3:
Back to normal

Scenario n:
Plausible scenario

⇒ Probability of going back to normal is unlikely to happen

What can
we take
away from
this?





In summary we can add resilience to our strategies with 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

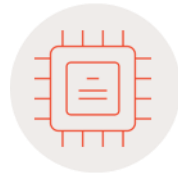


Extreme
Weather

Technology development



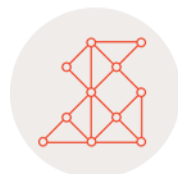
Electification



Digitalisation and
automation



New production
methods



New materials

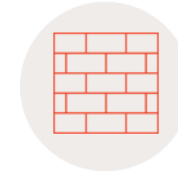
Changes in society



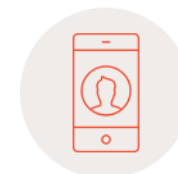
Urbanisation



Demographic
changes



Segregation,
loneliness and
insecurity

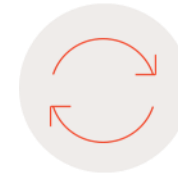


Digital
relations

Resource Usage



Climate
neutrality



Circular
economy



Changing
energy systems



Threatened
Ecosystems