

# Predictive Digital Twins & Data

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DSBA



BDV  
BIG DATA VALUE  
ASSOCIATION

FIWARE  
FOUNDATION

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INTERNATIONAL DATA  
SPACES ASSOCIATION



DATA SPACES  
SUPPORT CENTRE



# Urban Challenges

- Urbanisation
- Aging population
- Scarcity of space
- Decarbonisation / Electrification
- Reliable & affordable energy
- Mobility / accessibility
- Air pollution / noise
- Climate Change / Urban Heat
- Legacy infrastructure / heritage
- Equity
- ..

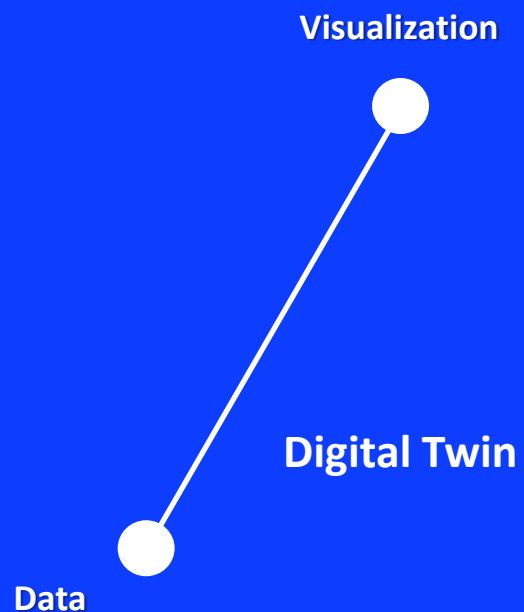
City = complex organism

Everything influences everything else

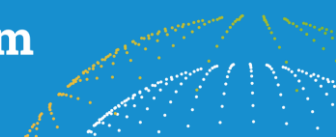
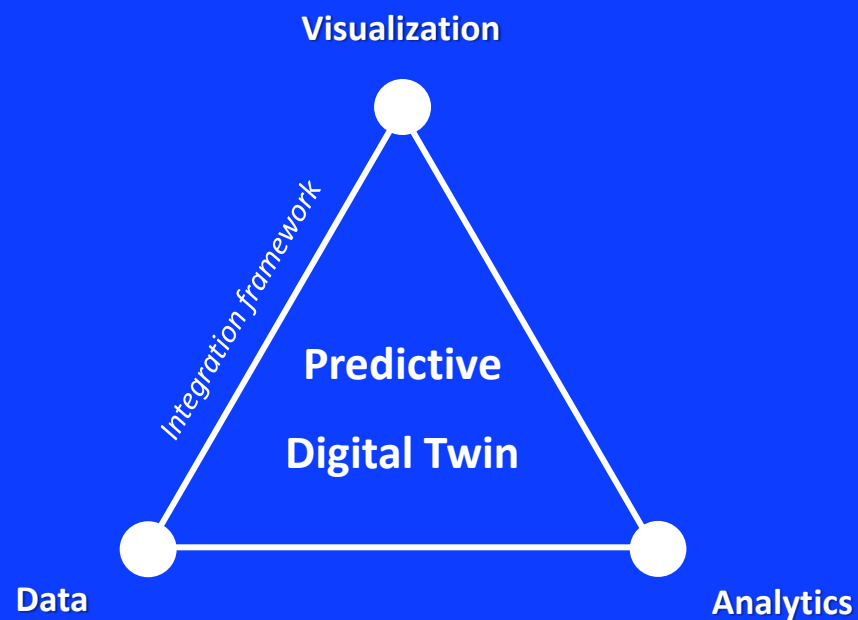




# Digital Twins: insight in complexity

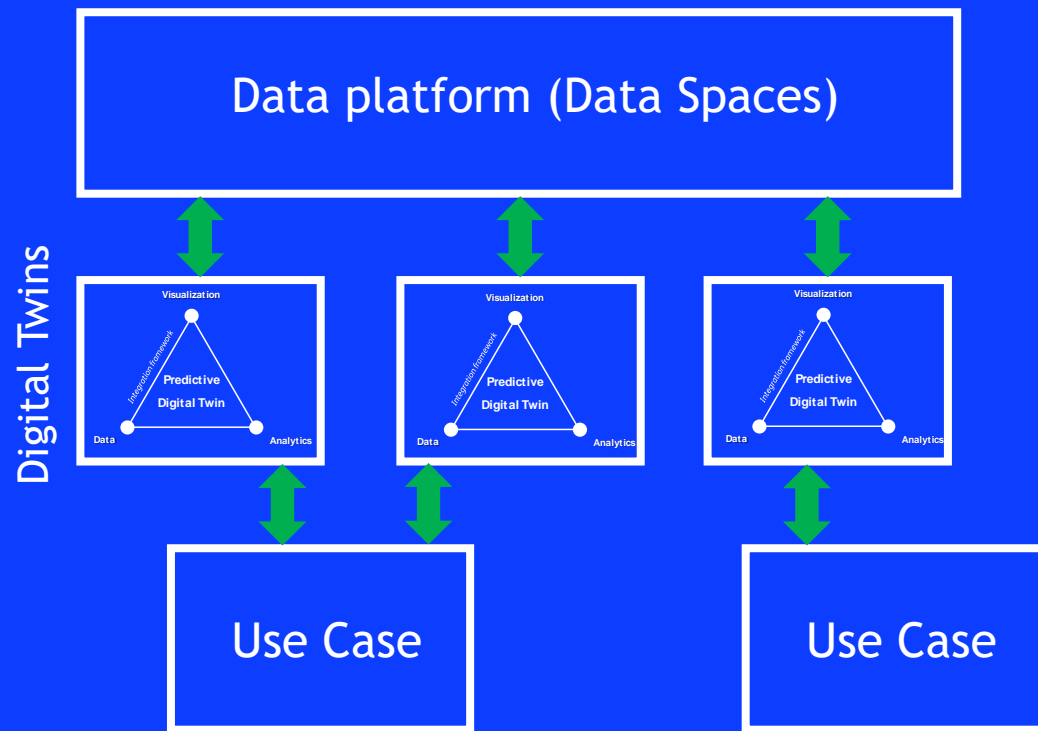


# Predictive Digital Twins: managing complexity





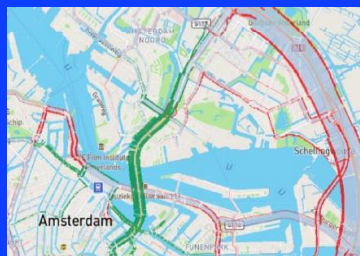
# Data Spaces Predictive Digital Twins &



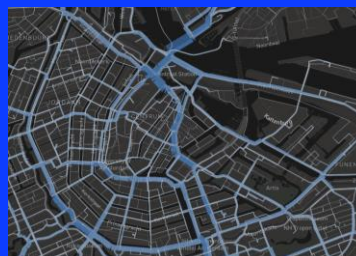
# Urban Strategy Digital Twin simulation modules



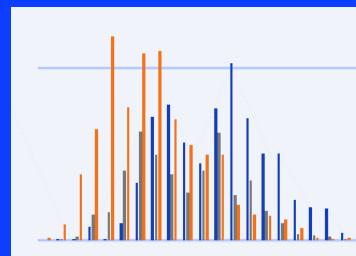
**Mobility  
Demand**



**Multi-mode  
network allocation**



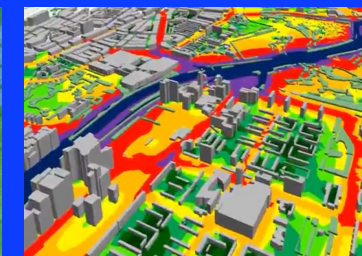
**Active transport  
cycling & walking**



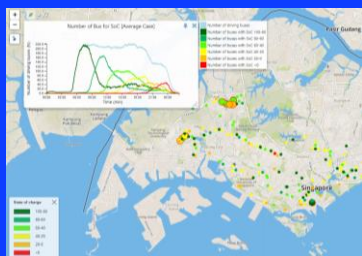
**Distribution  
of accessibility**



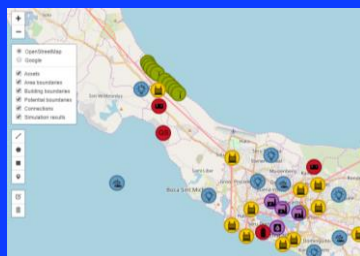
**Air quality  
(road & Industry)**



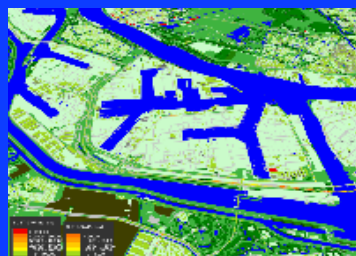
**Noise (Road, Rail  
& Industry)**



**Electric fleet  
simulation**



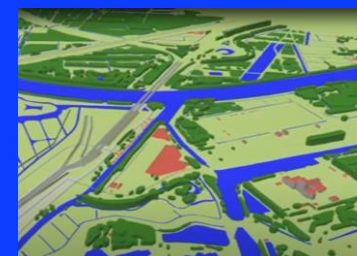
**EV - power grid  
Interaction**



**Greenhouse gas  
emissions**



**Infrastructure  
Resilience**

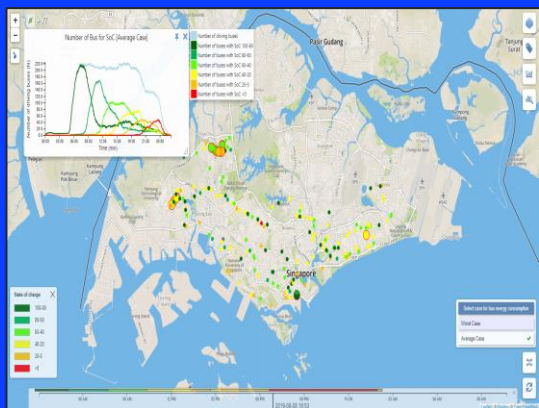


**Spatial  
impacts**

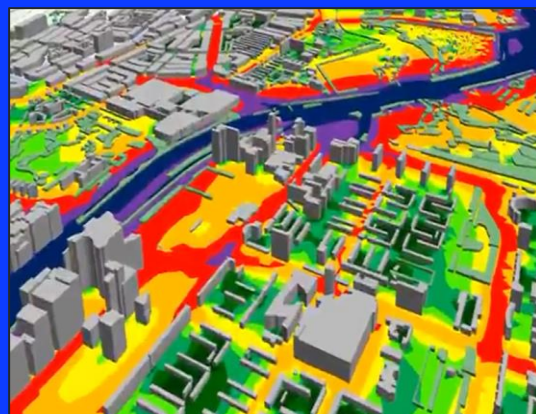


**Well-being  
indicators**

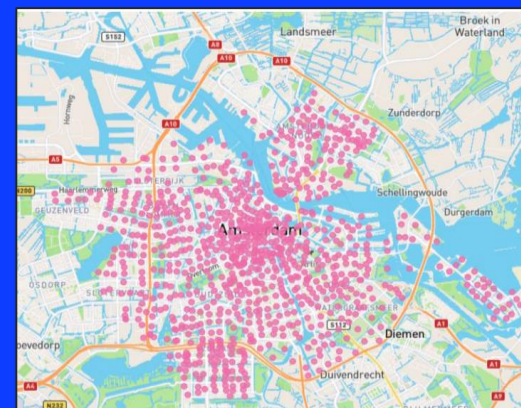




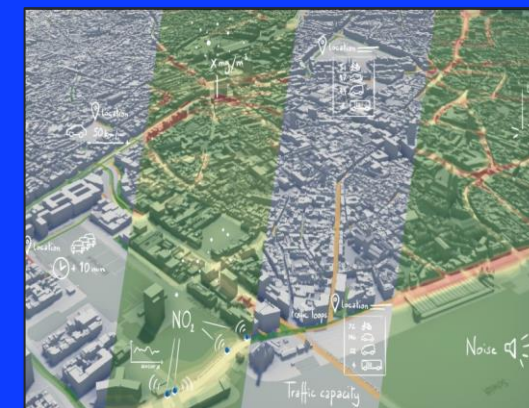
Optimal E-bus Implementation,  
Singapore



Integral Urban City Planning,  
Amsterdam



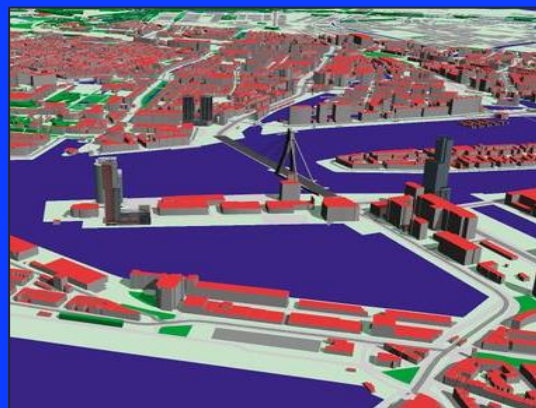
Shared Mobility Implementation,  
Amsterdam



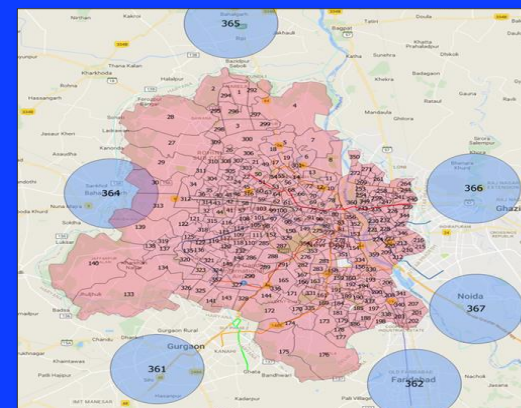
Realtime Traffic & Air Quality ,  
Antwerp



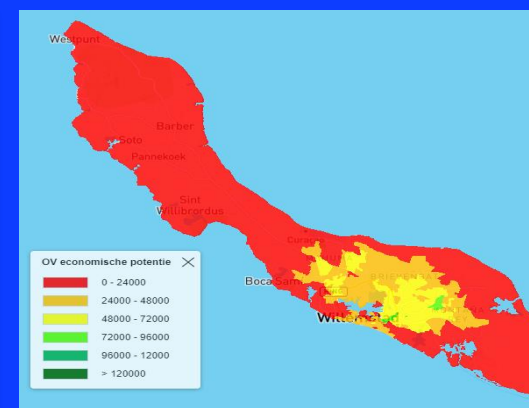
Improve Modal shift to public  
transport, Dutch Railways



City Port transformation, Rotterdam



Environmental Impact  
Urban Logistics, New Delhi

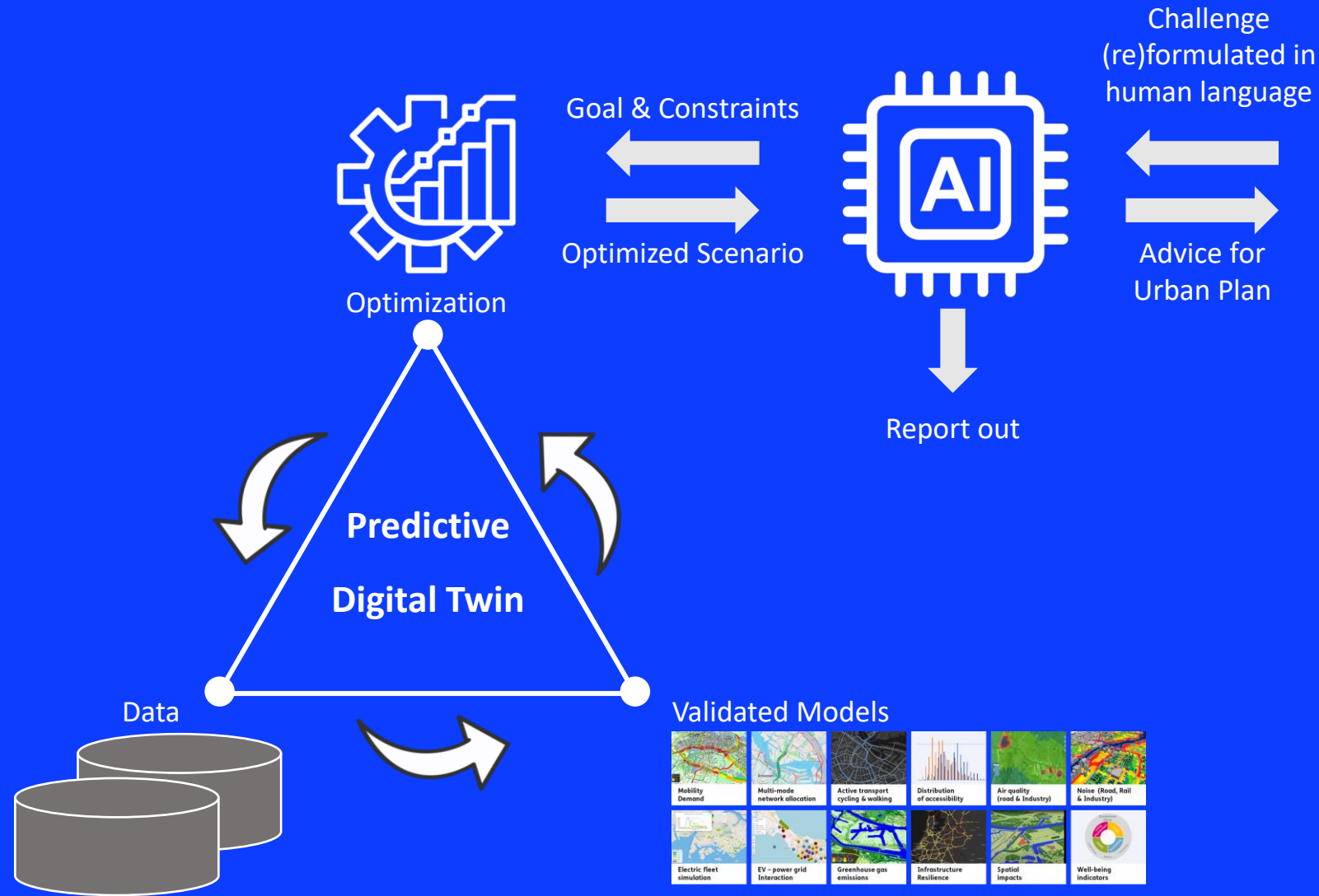


Transition to inclusive & Electric  
Mobility, Curacao









**...from simulation  
to AI powered  
optimized  
planning support**

# Thank you!

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**TNO** innovation  
for life



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## Data Spaces Symposium

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