



Belgisch **Wegen**congres Congrès belge de la **Route**

LEUVEN • 4-7.04.2022

Local Digital Twins: Insights & Vision IMEC





DIGITAL TWIN

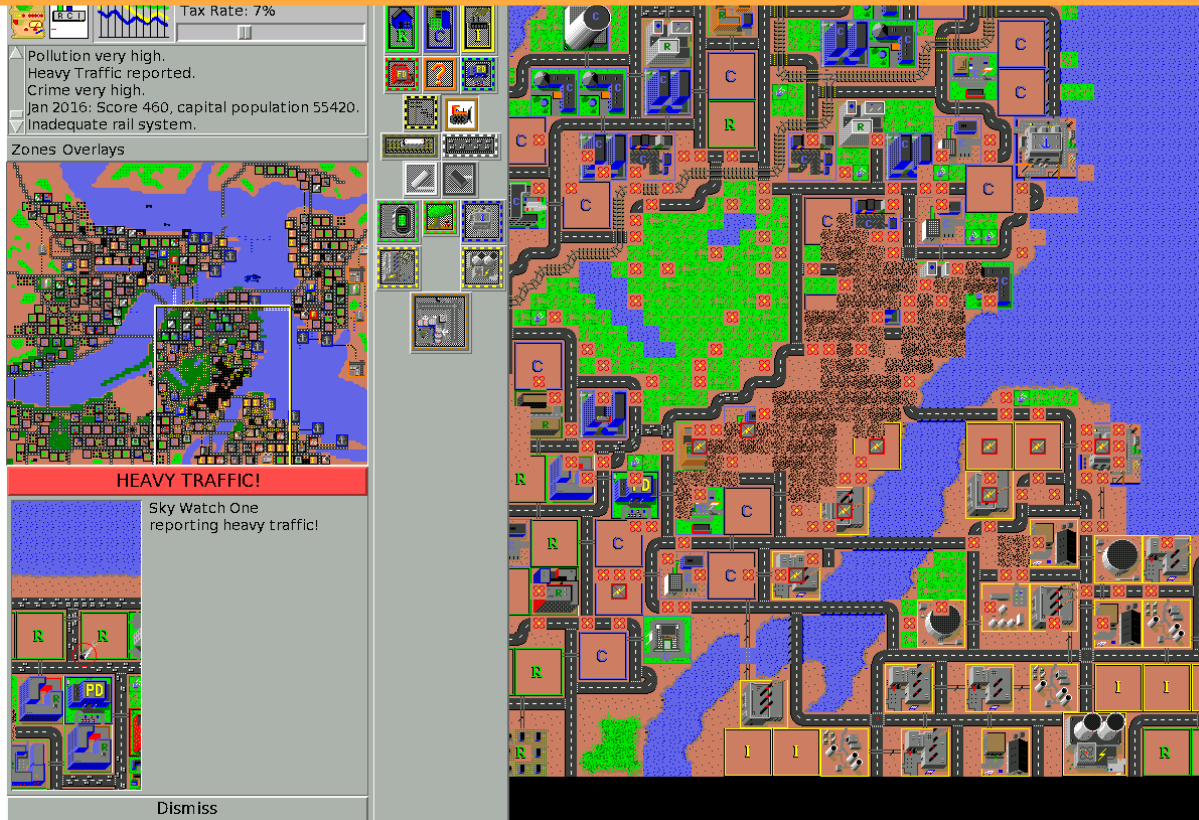
Virtual representation of a physical entity
Collects & combines data about physical entity
Uses data to learn from and to evolve
with physical counterpart
Insights about current state & predict future states



LOCAL DIGITAL TWIN

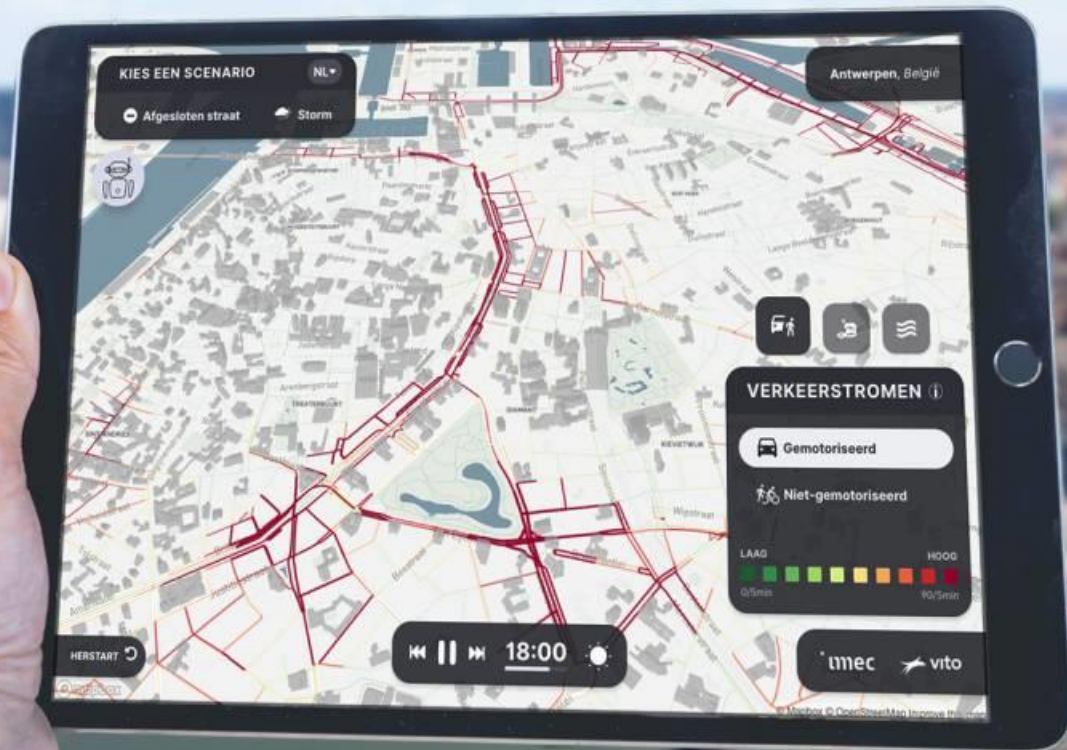
Physical living environment
Built & Natural Environments

Early SIM CITY

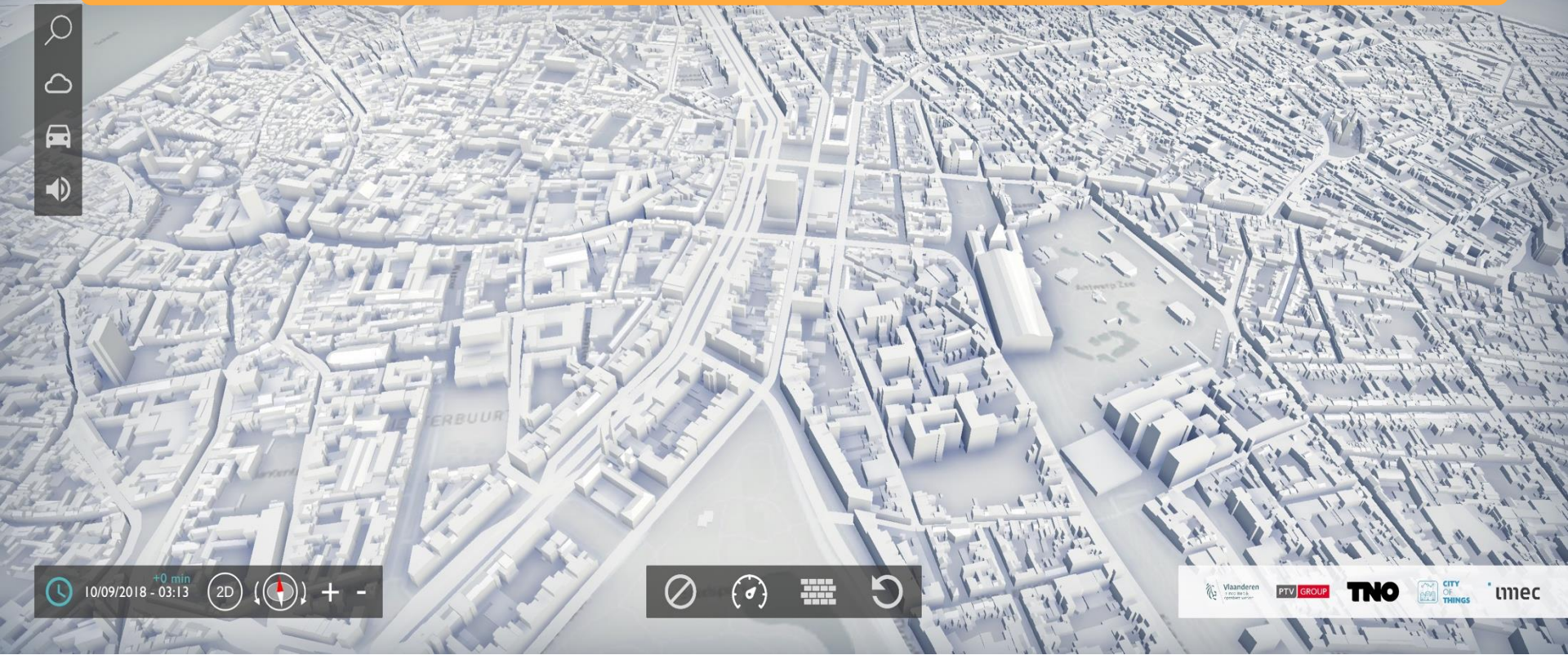


Source: By Will Wright, Maxis Software/Electronic Arts (original software); Don Hopkins, DUX Software (Unix port); Tomhannen (take screenshot); bayo (remove last reference to SimCity)
<http://wiki.laptop.org/go/Micropolis> http://wiki.laptop.org/go/Image:Simcity_screenshot2.png

Local Digital Twin as a cross-domain decision support tool



3D interactive environment for urban planning & real-time monitoring



Real-time data & models provide insights about current state

KIES EEN SCENARIO

NL

— Afsloten straat

Storm

Antwerpen, België

VERKEERSSTROMEN ⓘ

 Gemotoriseerd

 Niet-gemotoriseerd

LAAG

HOOG



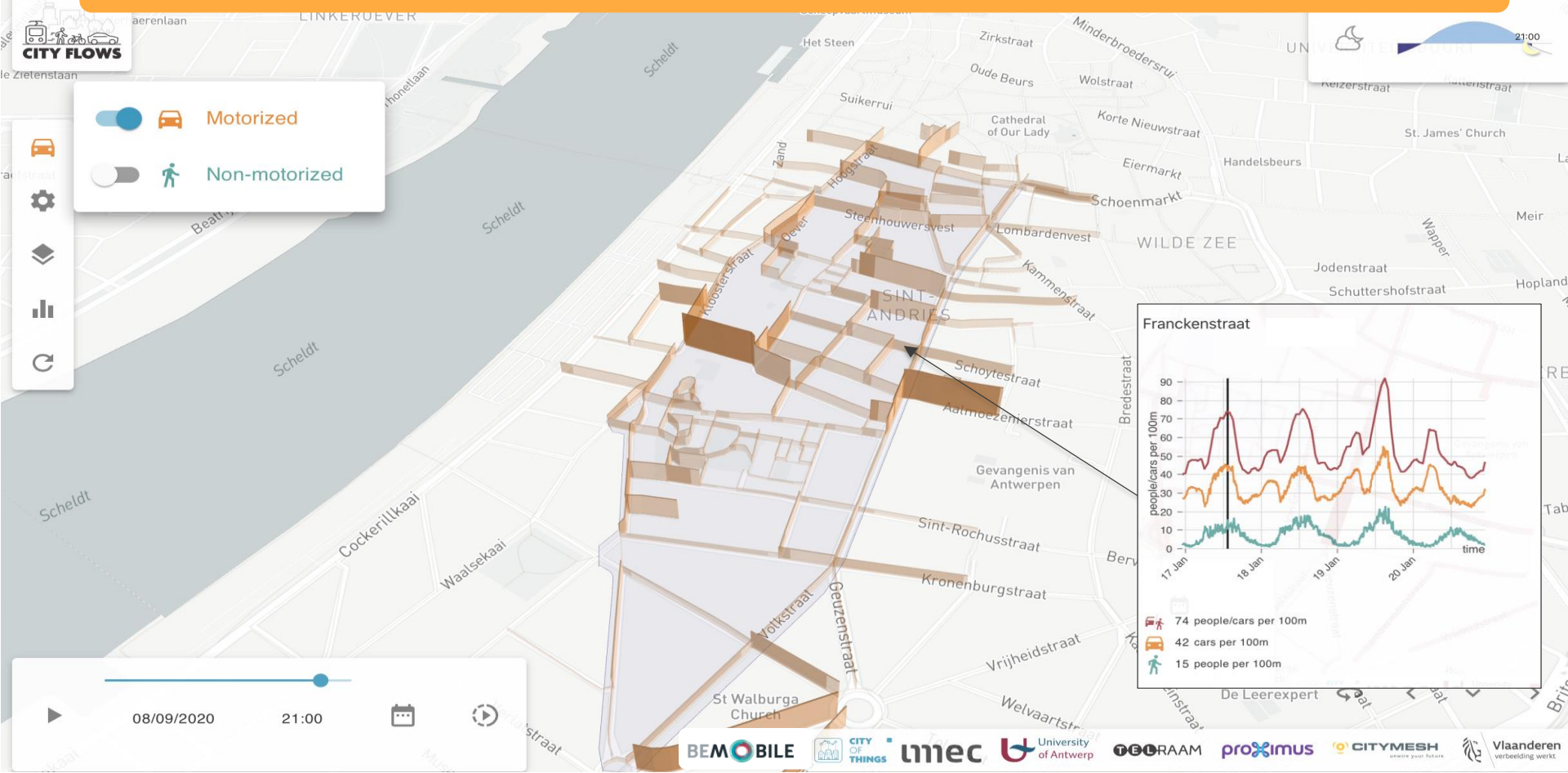
HERSTART

09:00

imec

*Disclaimer

vito



Air quality

KIES EEN SCENARIO

NL

— Afgesloten straat

Storm

Antwerpen, België

LUCHTKWALITEIT ⓘ

 Stikstofgehalte (NO₂)

 Fijn stof (PM₁₀)

 Fijn stof (PM_{2.5})

LAAG

HOOG

Minimum

Maximum



09:00

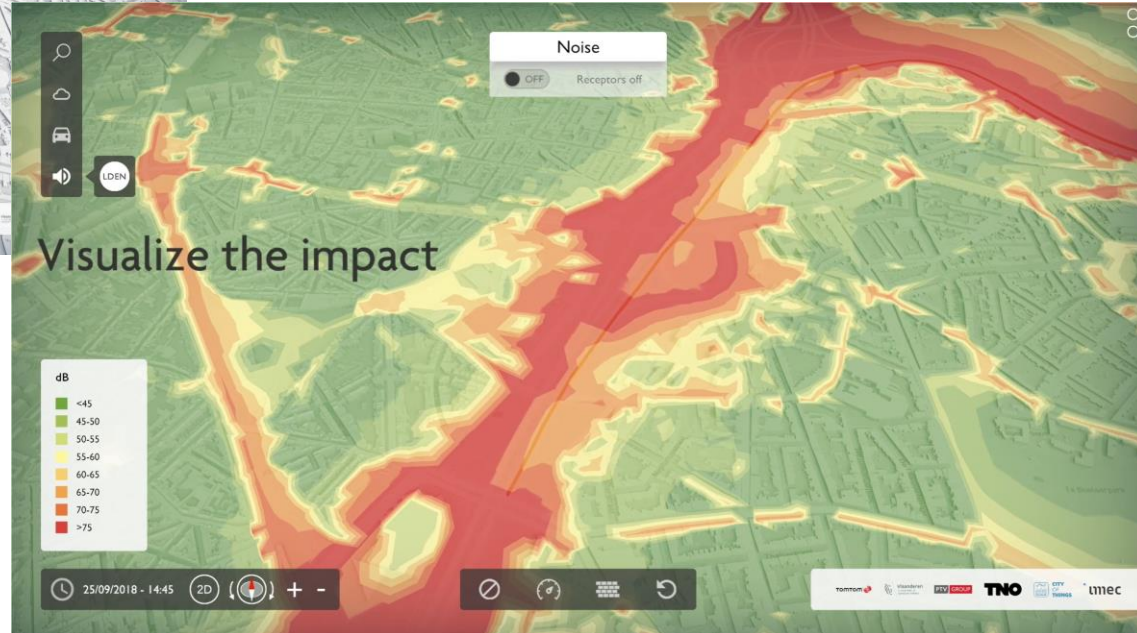
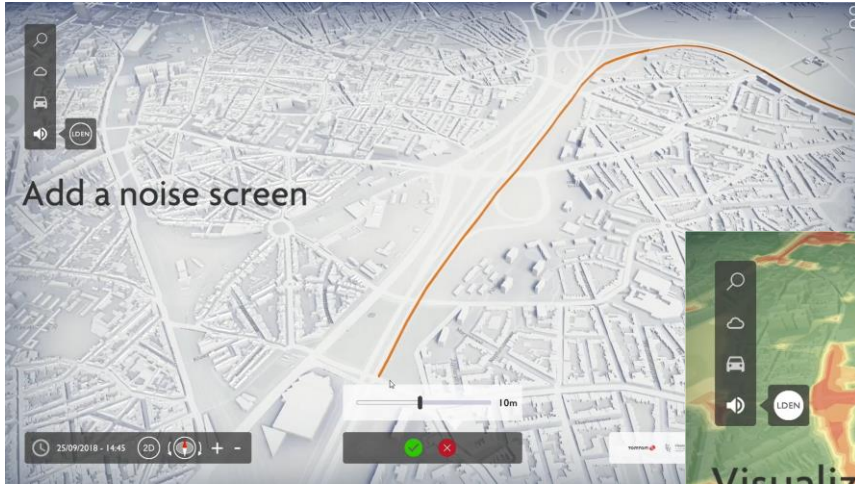


HERSTART ↺

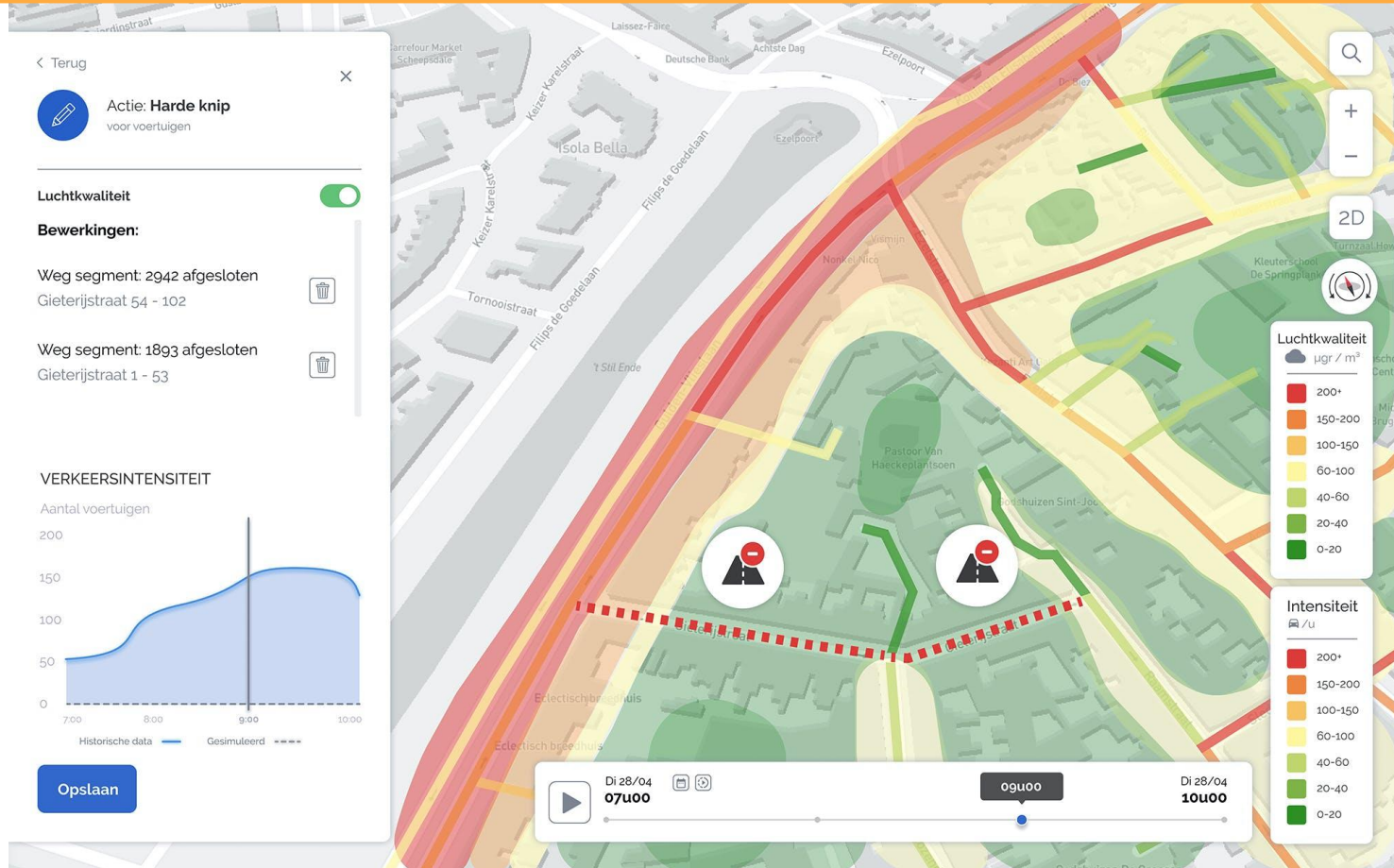
imec
*Disclaimer



Implement what if scenario's and study their effects



What if scenario: Street closed – Traffic – Air quality



What if: Rainfall - Flood prediction – Effect on critical infra

KIES EEN SCENARIO

NL

— Afsloten straat

Storm

Antwerpen, België

WATER ⓘ

Overstromingsrisico

LAAG

HOOG

Minimum

Maximum

HERSTART ↺



17:00



imc

[*Disclaimer](#)

vito

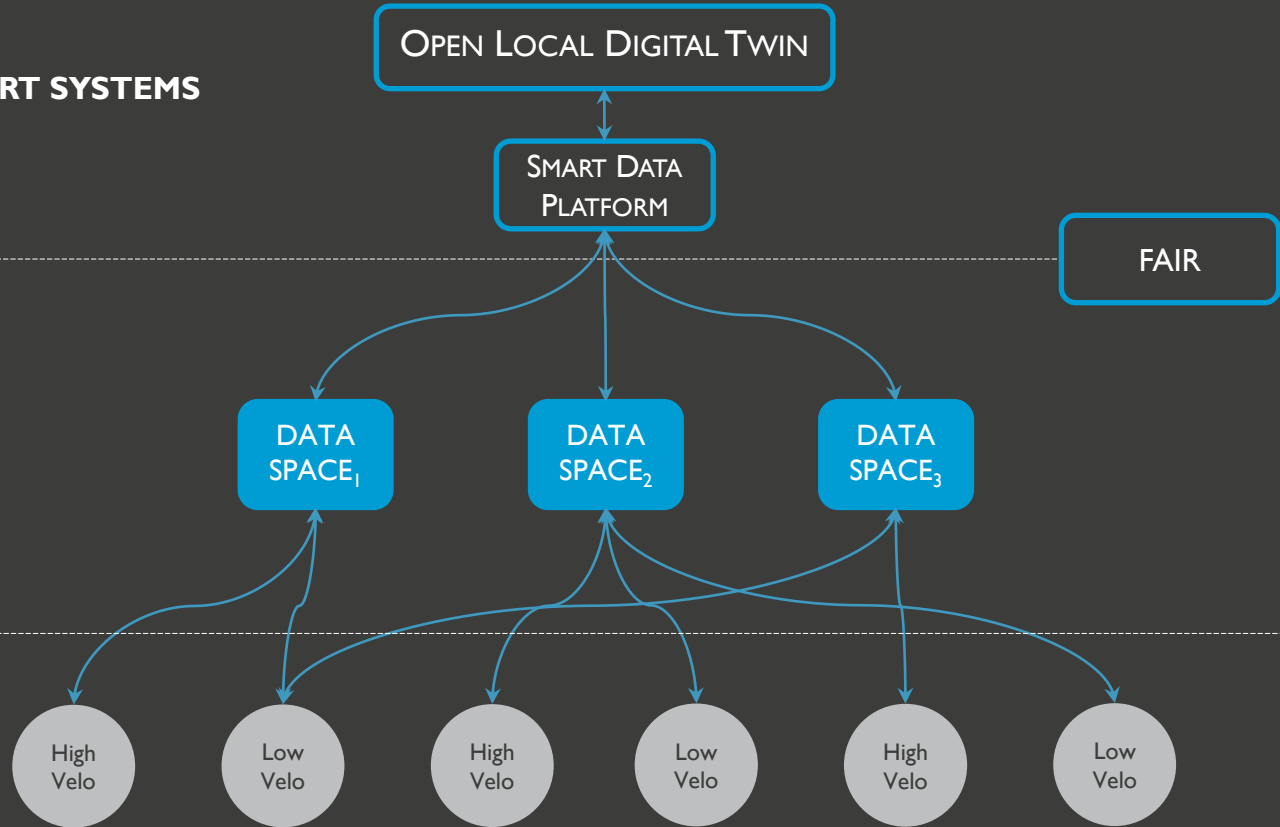
© Mapbox © OpenStreetMap Improve this map

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**DECISION SUPPORT SYSTEMS
DIGITAL TWINS**

**DATA
SPACES**

**DATA
PLATFORMS**





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EEN ORGANISATIE VAN



BWV

Belgische
Wegenvereniging



AGENTSCHAP
WEGEN & VERKEER

MET DE STEUN VAN



Opzoekingscentrum
voor de Wegenbouw



BRUSSEL MOBILITEIT

GEWESTELIJKE OVERHEIDSDIENST BRUSSEL



Wallonie
mobilité infrastructures
SPW



BFAW

Belgische Federatie van Aannemers van Wegenwerken vzw

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