

POLIS webinar

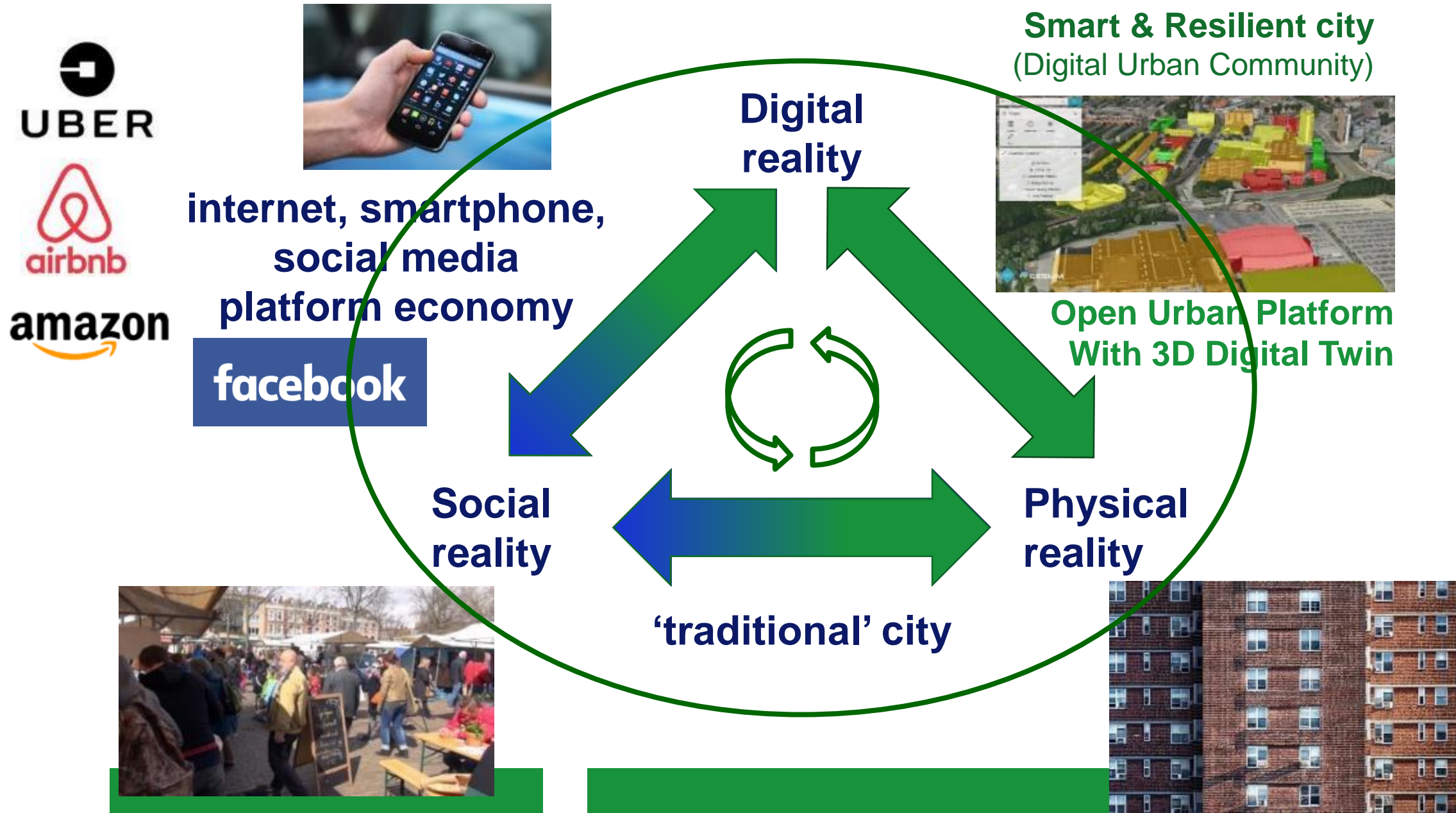
Like two peas in a pot:
Digital twins
for urban planning

November 10th, 2020

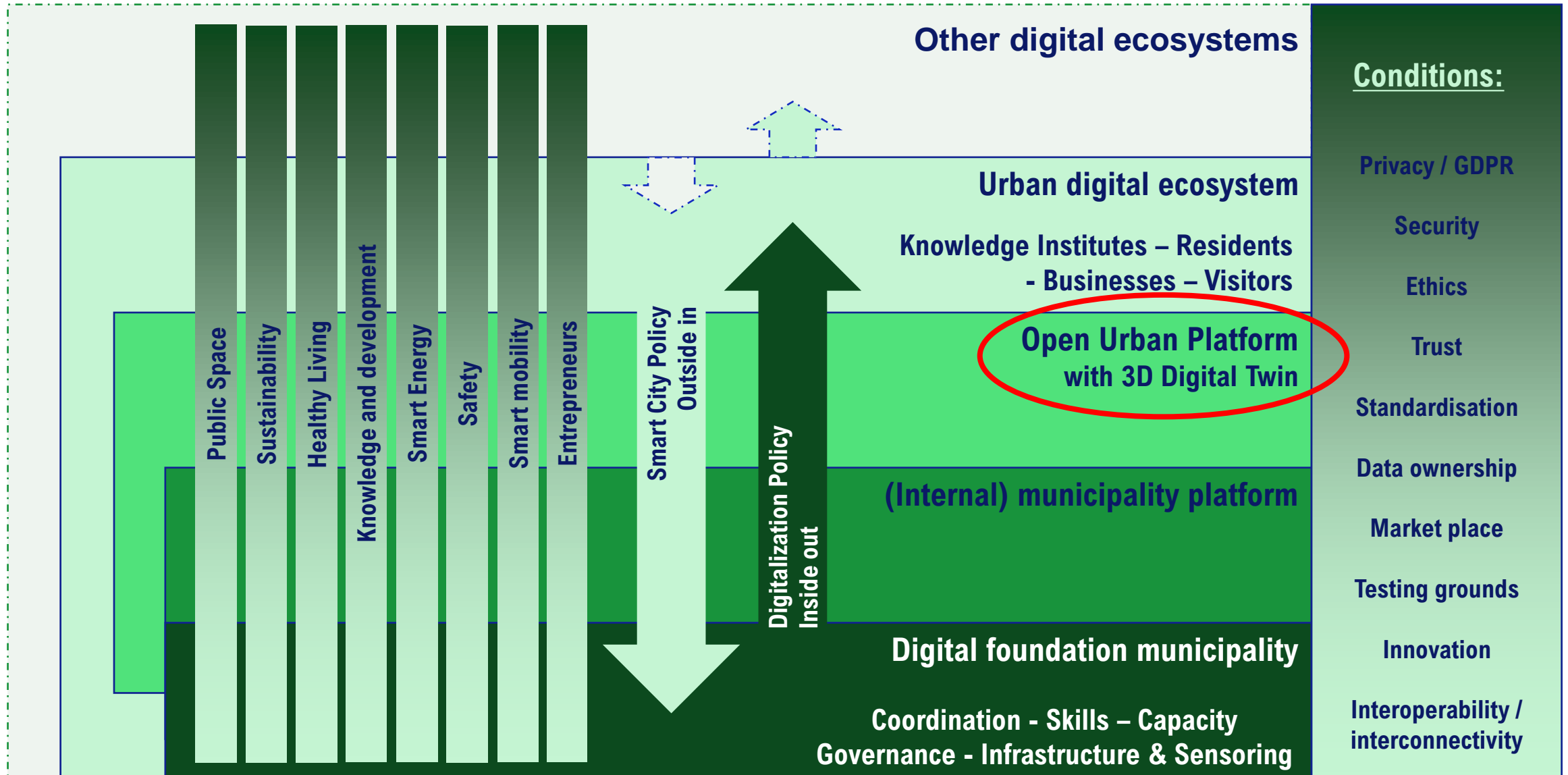
Roland van der Heijden
Program manager Digital City



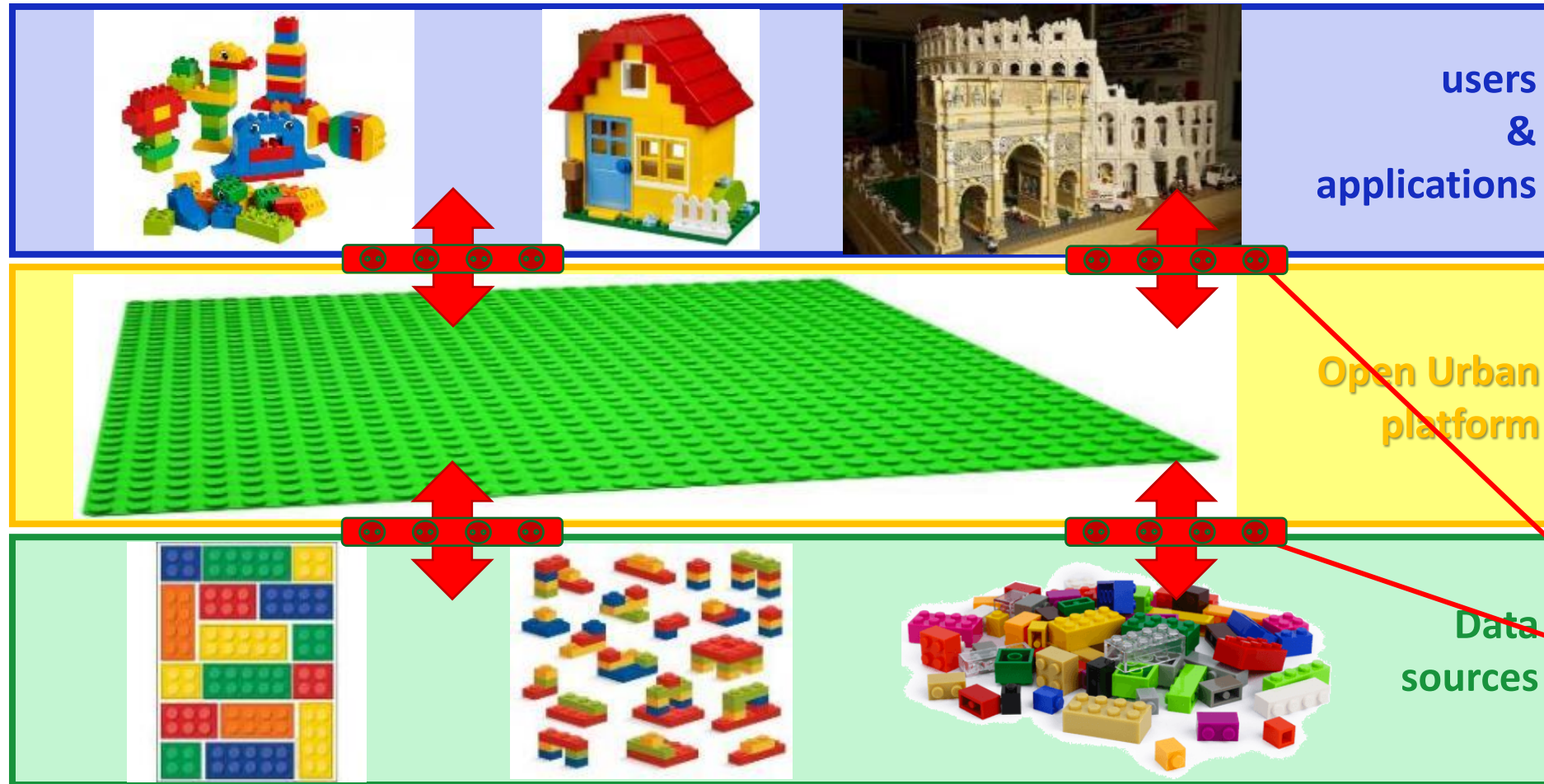
Towards a new paradigm of what we call 'city'



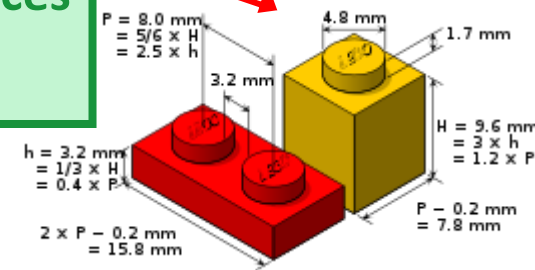
Digital urban ecosystem Rotterdam



Open Urban Platform – design principles



Pivotal points of interoperability (PPI's; Espresso)



Open Urban Platform - design principles: MIM's

Minimal Interoperability Mechanisms (MIM's):

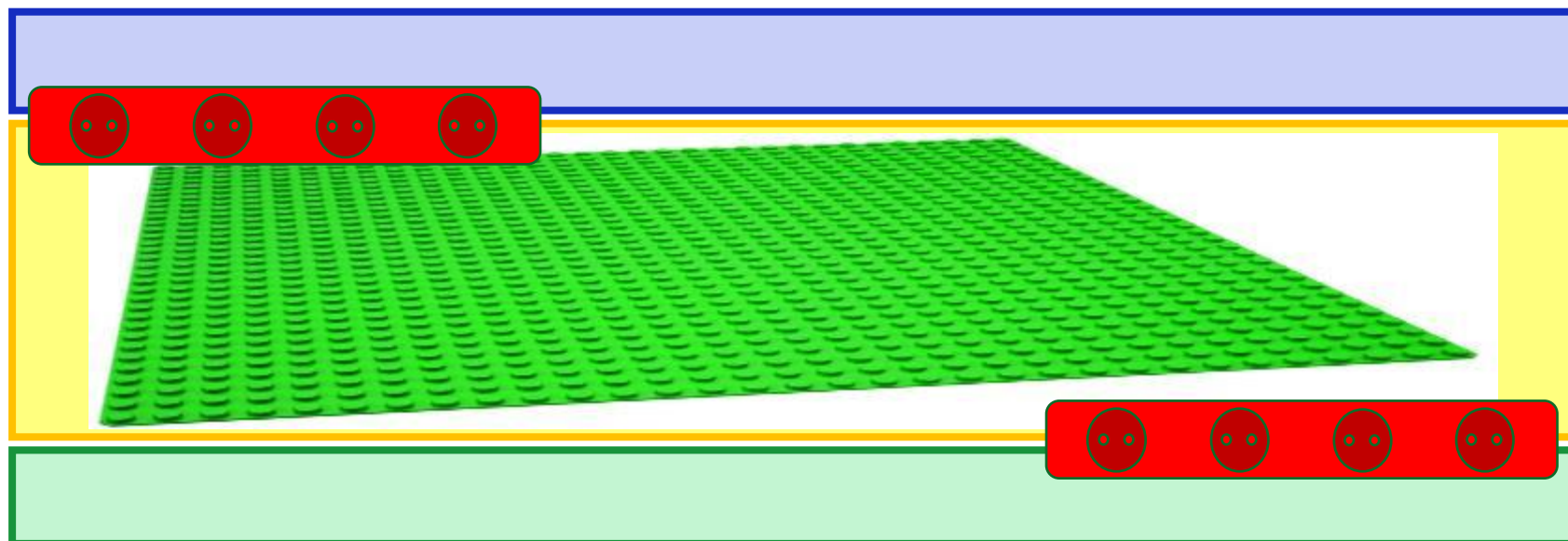
- PPI's/open data standards/shared data models
- Meta data management
- Privacy and security
- Data storage
- Geo functionality
- Data conversion
- Open API strategy
- Data market place
- 3D Digital Twin
- (Governance model)



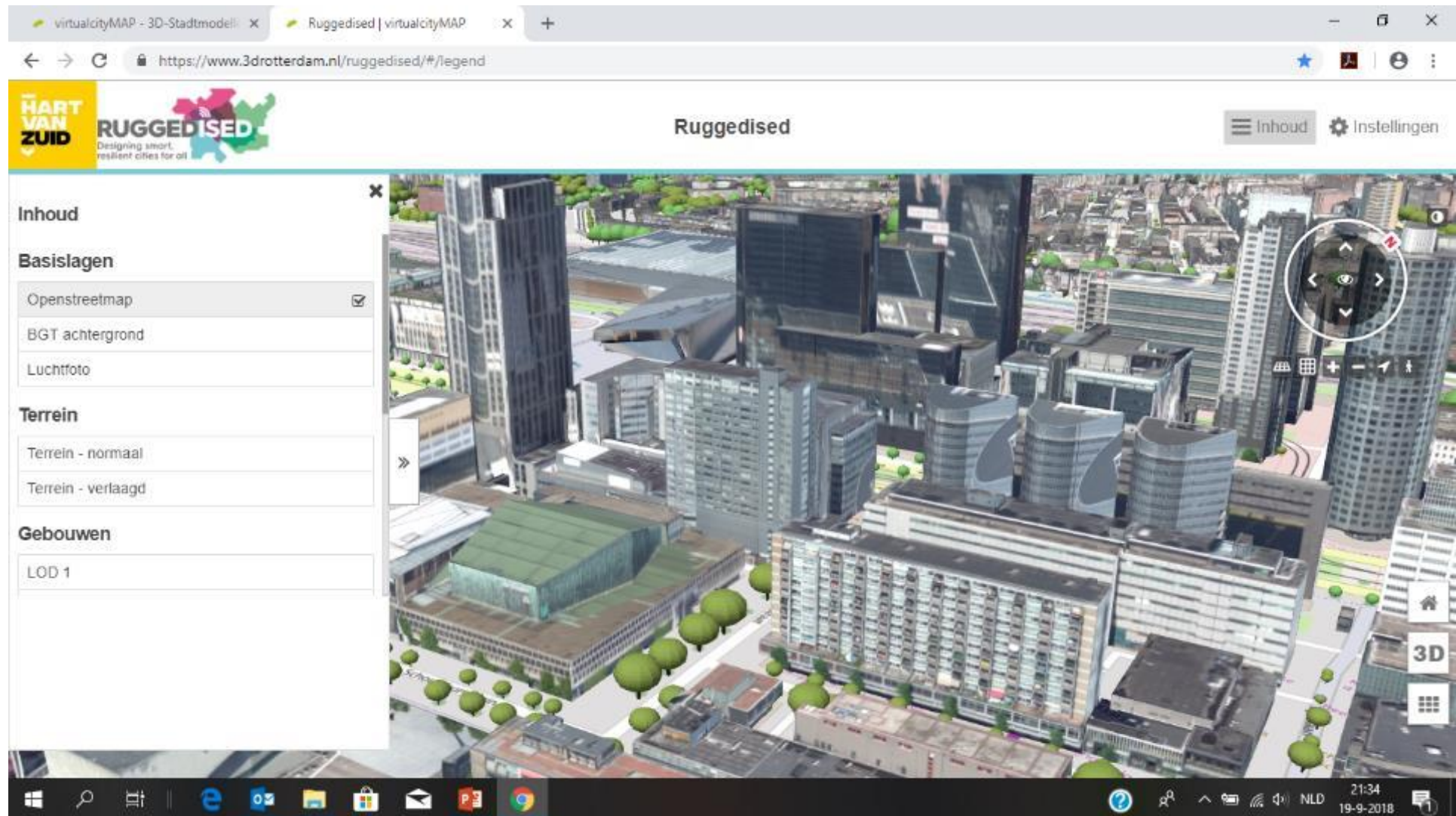
More information:

www.espresso-project.eu

www.oascities.org



A 'smart' 3D model of the city ...



A 'smart' 3D model of the city ...

The screenshot shows a web browser window displaying the 'virtualcityMAP - 3D-Stadtmodell' application. The browser's address bar shows the URL <https://www.3drotterdam.nl/ruggedised/#/legend>. The application header includes the 'HART VAN ZUID' logo, the 'RUGGEDISED' logo with the tagline 'Designing smart, resilient cities for all', and the text 'Ruggedised'. On the right side of the header are links for 'Inhoud' and 'Instellingen'.

On the left side, there is a sidebar menu with the following sections:

- Inhoud**
- Basislagen**
 - Openstreetmap ☒
 - BGT achtergrond
 - Luchtfoto
- Terrein**
 - Terrein - normaal
 - Terrein - verlaagd
- Gebouwen**
 - LOD 1

The main area displays a 3D city model of Rotterdam. A red building is highlighted, and a data popup is visible with the following information:

- creationDate : 2018-06-05
- laagste_bouwlaag : 1
- hoogste_bouwlaag : 12
- aantalBouwlagen : 16
- deviation : yes
- gebouwnummer : 0599100000640527
- statusOmschr : Pand in gebruik
- typeOmschr : Ingeslotenhoekpand
- yearOfConstruction : 1957
- Address.Country : Nederland
- Address.PostalCode : 3012GJ
- Address.City : Rotterdam
- Address.Street : Kruiskade
- Address.HouseNumber : 73-71
- gmId : ID_0599100000640527

At the bottom of the screen, a Windows taskbar is visible with various application icons and a system clock showing 21:34 on 19-9-2018.

... combined with realtime data ...

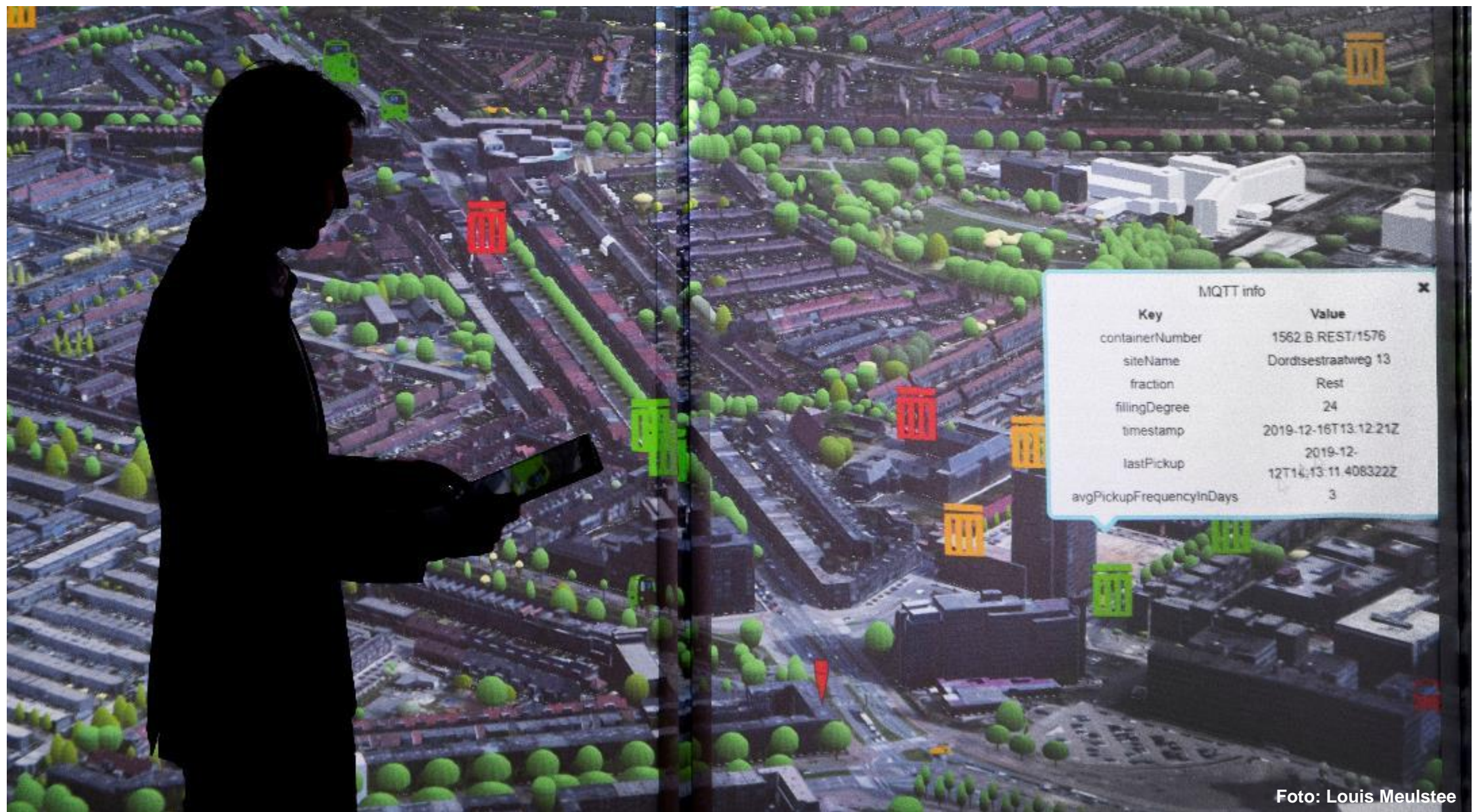
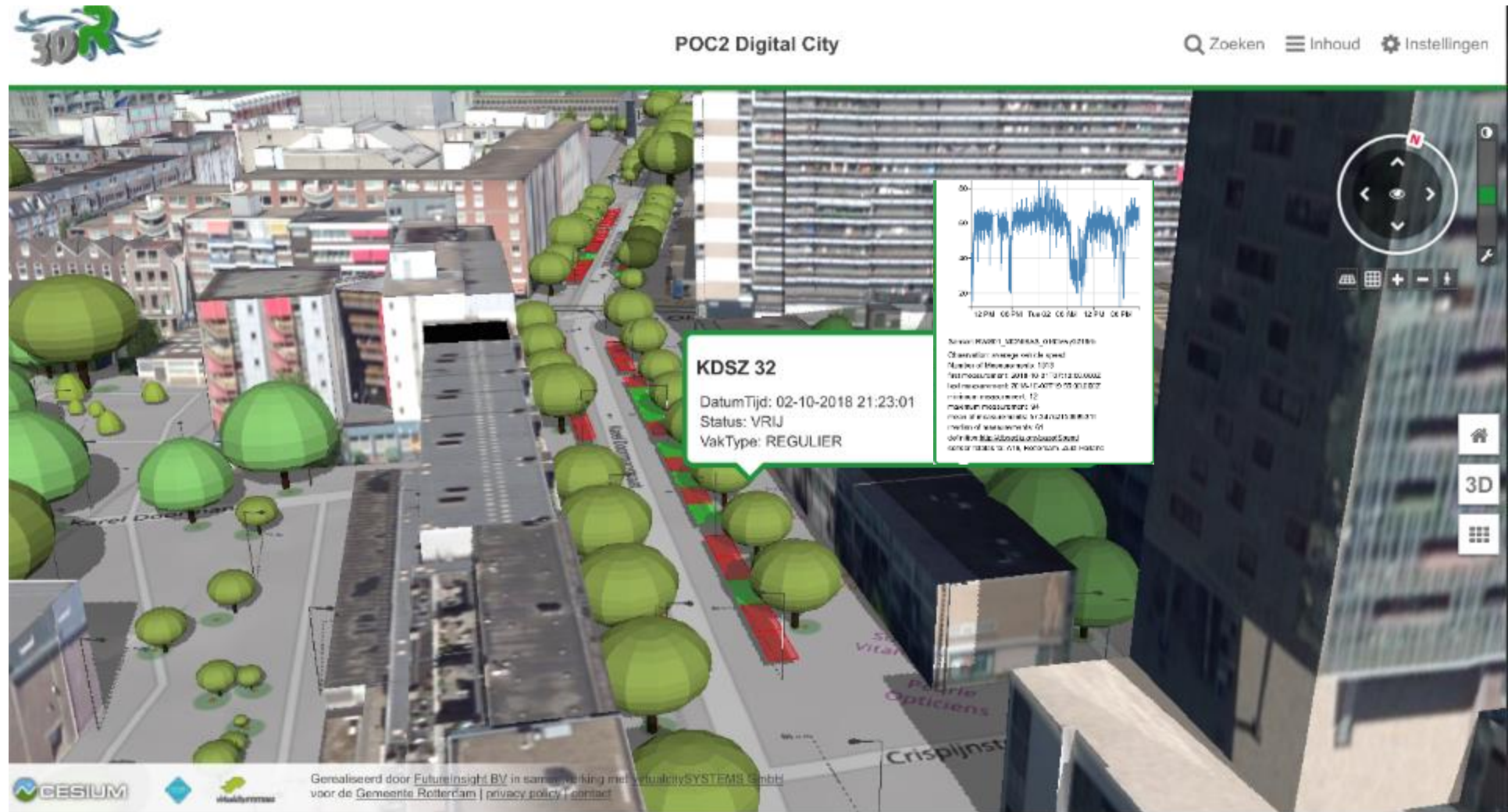


Foto: Louis Meulstee



... forms a 3D Digital Twin of the city!

Describes the current physical reality of a city, based on realtime data (= digital 'copy' of the physical city)

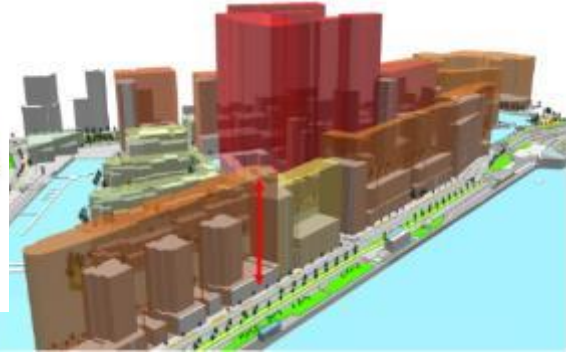


Innovative applications and services



Spatial planning:

- Time- and place independent participation
- Excelleration of building permit process



- Energy potential calculations with 3D
- Office buildings to energy label C

OUP 3D Digital Twin



- Social gaming (stopped)
- 'new shopping'



Digital Twin of the public space



Visualisation building plans with AR (on location)



SAFE Rotterdam 3D

smarter energy management (RUGGEDISED)



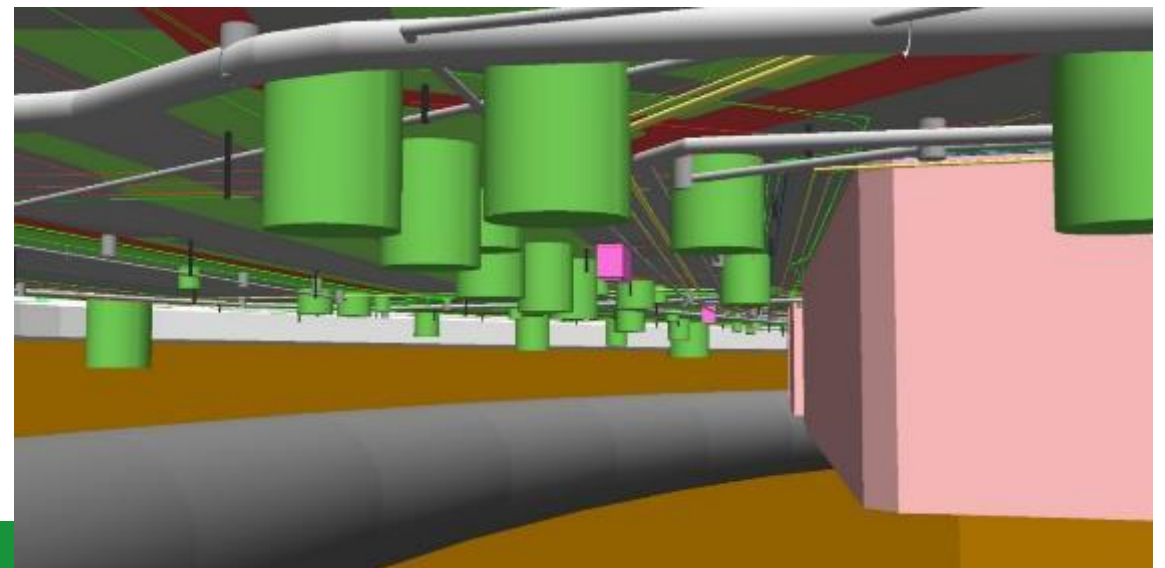
Thank you for your attention!



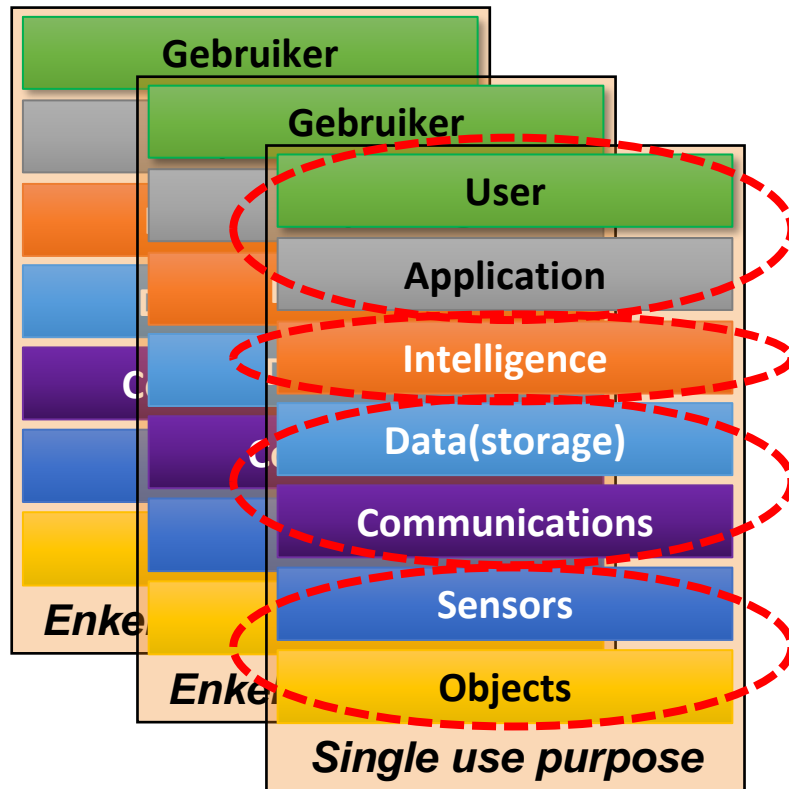
Gemeente Rotterdam

Contact: digitalestadBCO@rotterdam.nl

Track 1: the power of 3D...

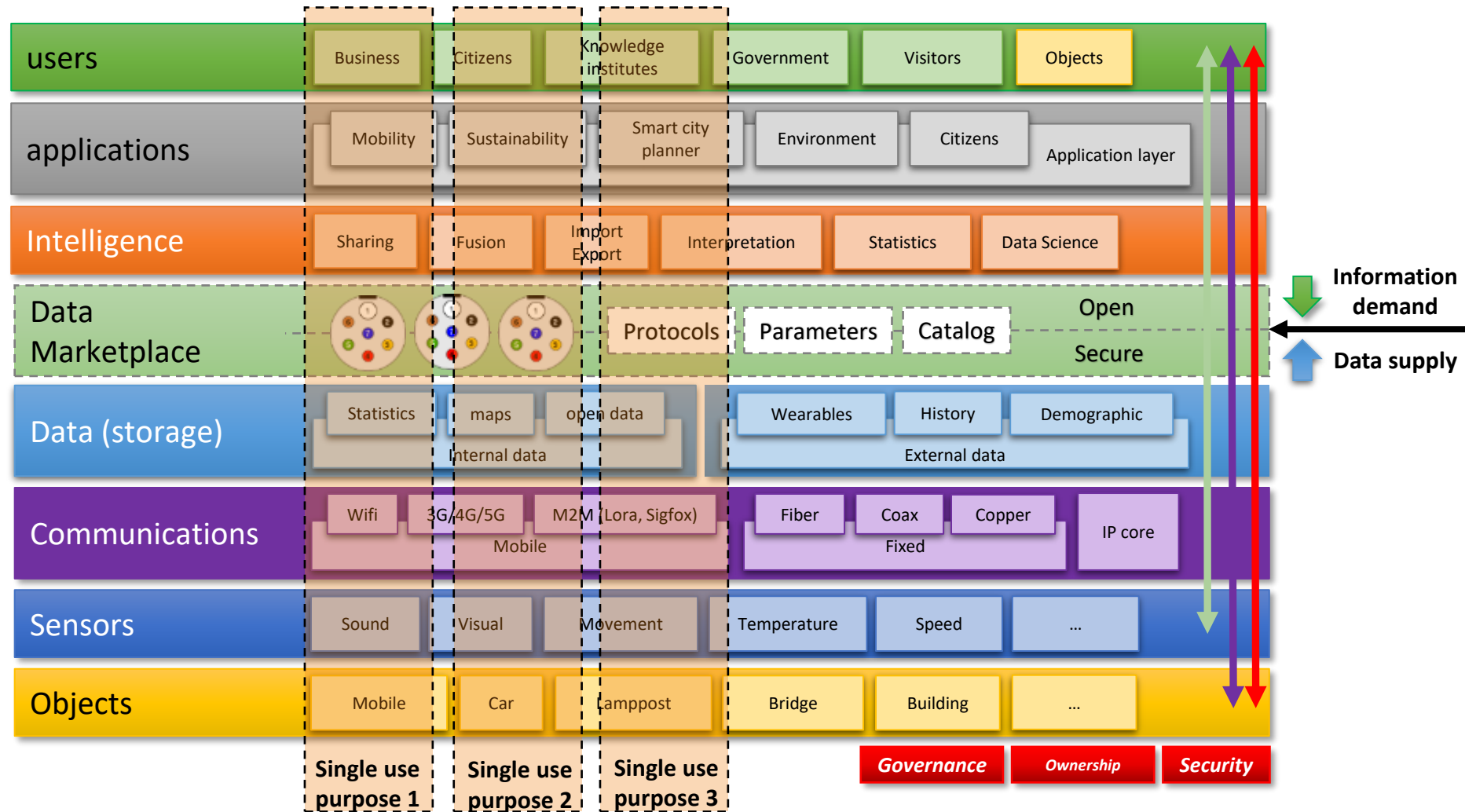


Current smart city developments

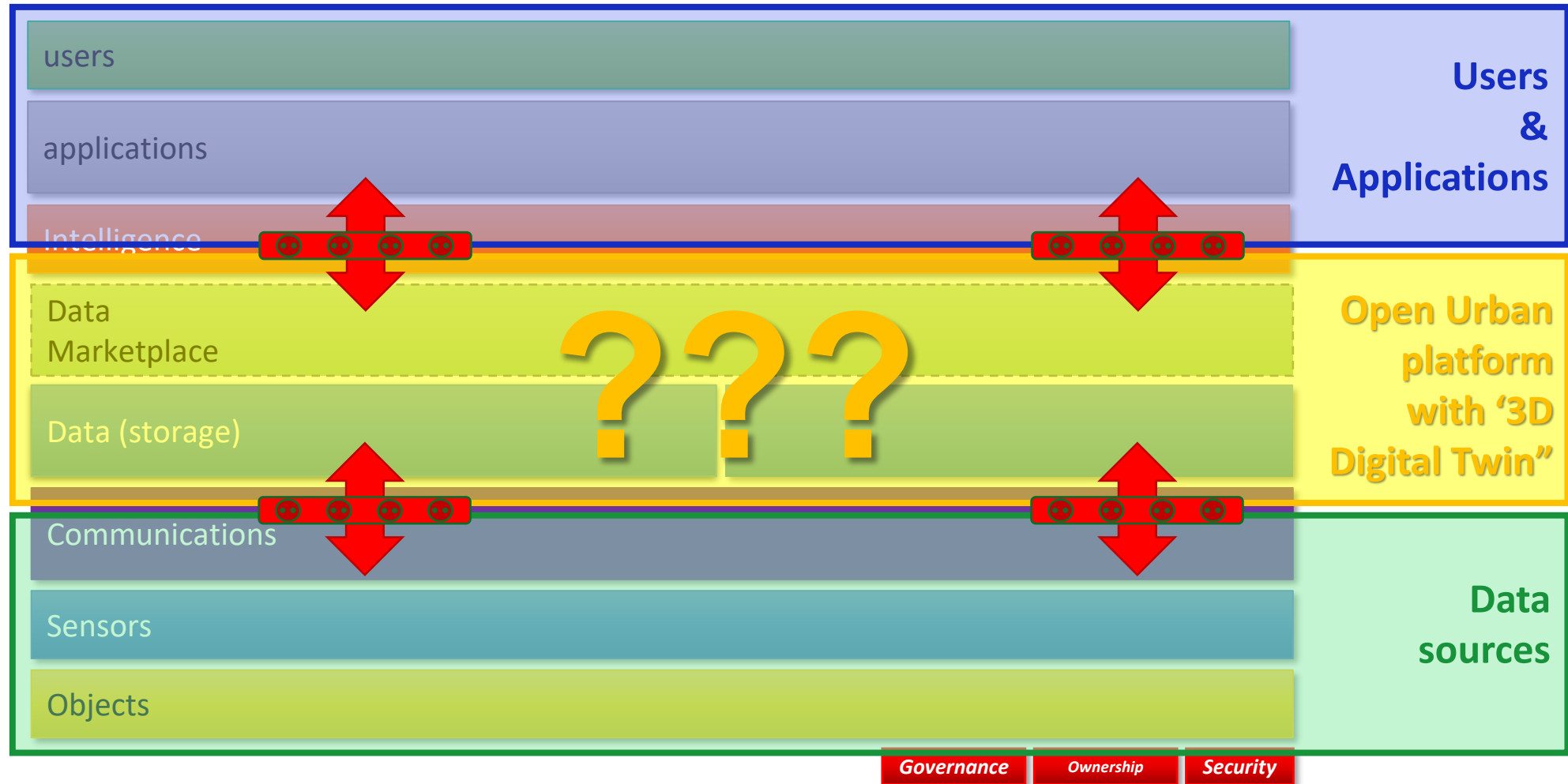


- 'Silo' developments
- Vendor lock-in
- No interaction/communication between applications
- Several infrastructures
- Exploding data management
- Suboptimal gains and higher (societal) costs
- No re use of data (except through connection with the 'owner')
- Data collection and development applications are connected to each other

Desired smart city architecture



Smart city architecture and Digital City program



Digital City - Urban Digital Ecosystem & Open Urban Platform

Urban digital ecosystem Rotterdam

