



**Presenteer, visualiseer uw
projecten in 3D en communiceer
met de betrokkenen met behulp
van OpenCities Planner**

Kees van Prooijen



3D model voor stedelijke digital twin

- Workflow voor bouw en gebruik van data
- Use case: Bouw van het model
- Use case: Burgers betrekken bij plannen
- Use case: Stedelijk model met een reality model





Workflow: participatie van belanghebbenden met 3D model



**Aandachts
punten:**

- Met wie wordt er gecommuniceerd
- Welke data hebben we beschikbaar
- Welke informatie is van belang
- Waar liggen de interessen van de belanghebbenden
- Welke input / output verwachten we



Bouw en publiceer (1)

Verzamel de data

- PDOK WMS, WFS, AHN
 - Luchtfoto
 - BGT, BAG
- Overige publieke bronnen
 - 3D Bag (<https://3dbag.nl>)
 - Open Street Map
 - Nieuwbouw plannen
 - Veiligheidsplannen, risicoanalyses
 - ..
- Interne bronnen
 - Wegontwerp
 - Groen, Openbare Verlichting
 - BIM modellen
 - ..





Bouw en publiceer (2)

Converteer data

- Georefenceer BIM model (IFC)
- Exporteer Collada
- Maak 3D panden (LOD 2.2)
- Exporteer SHP



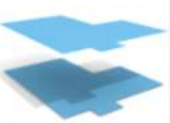
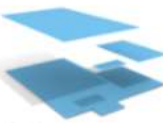
















3D Bag panden

- Download OBJ files from <https://3dbag.nl>
- Merge de references
- Drop de mesh elements.
- Wijzig de levels



	LOD x.0	LOD x.1	LOD x.2	LOD x.3
LOD0				
LOD1				
LOD2				
LOD3				

Demo: Data verzamelen



Apply Saved View

Save View: 03 Panden-ov-groen

Apply to all open views

Window: Report Data

Camera Position: Model

View Attributes: Levels

Clip Volume: Reference Settings

Saved Views - View 2

Name	Description
00 Start Leeg	
01 Start	
02 Panden	Panden LoD 22
03 Panden-ov-groen	03 Panden,ov-groen
04 Panden-ov-groen-AHN	



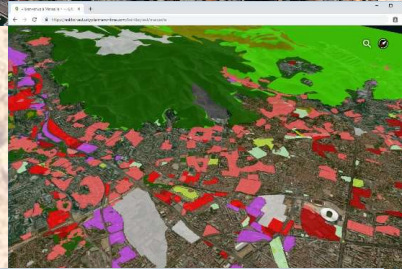
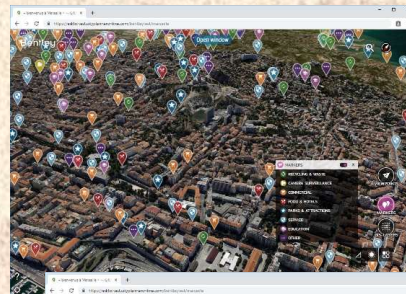
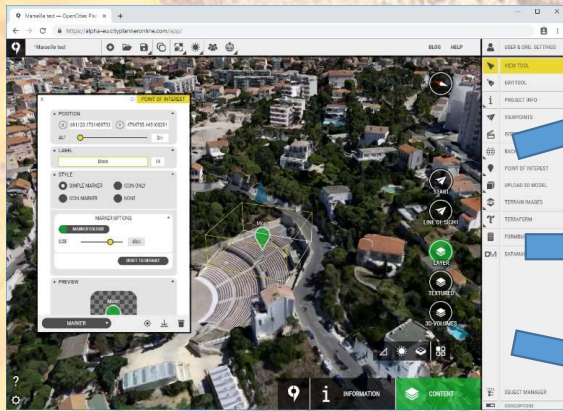
OpenCities Planner

- Cloud based service (Microsoft Azure)
- Presenteer 2D, 3D en GIS data in een 3D omgeving in web browser
- Project Editor to combine data to create a website



3D Visualisation in the Cloud

Project Editor



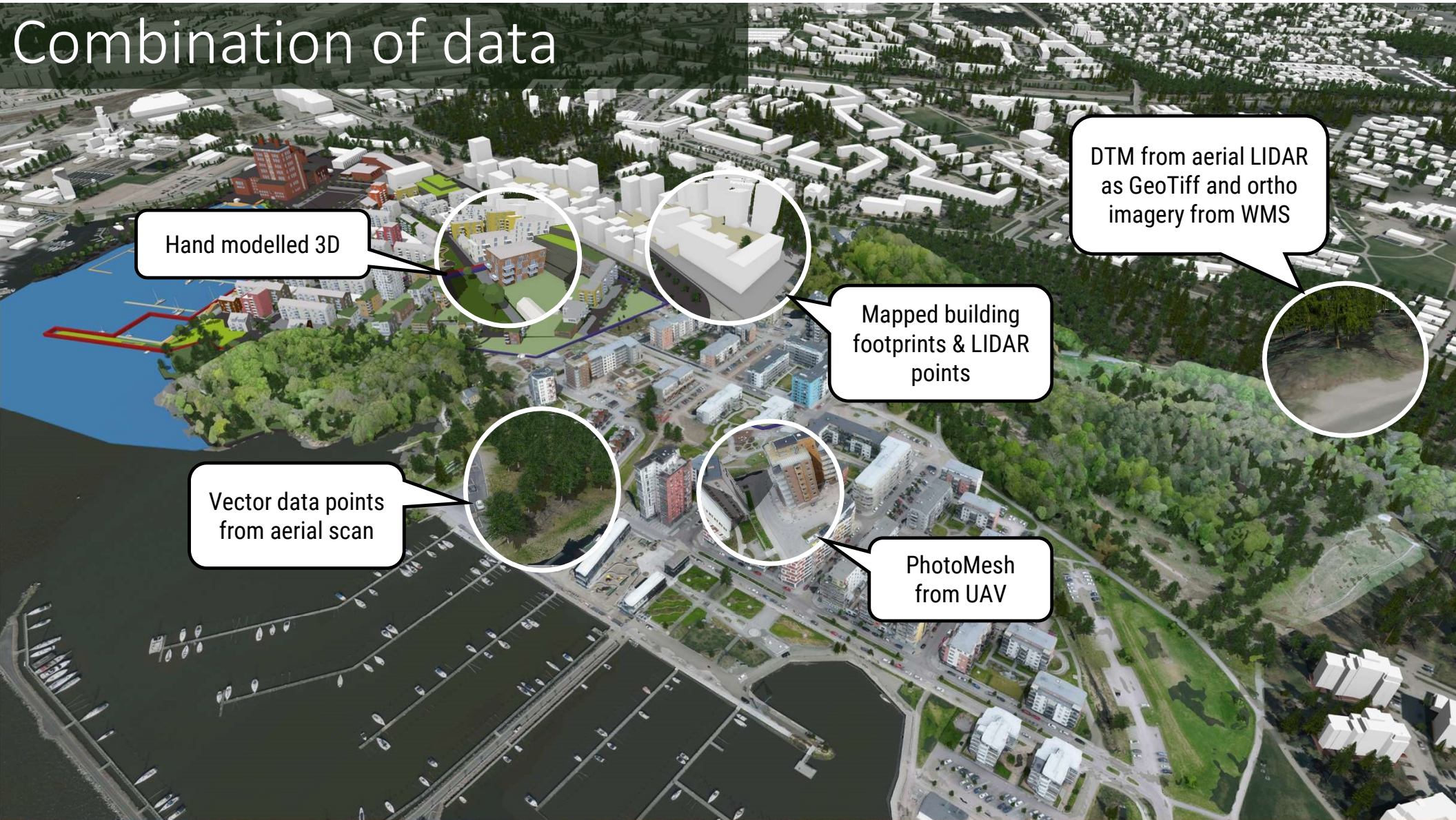
Team, Stakeholders, Citizens



Project content

- WMS, Geo Images, Shape
- 3D CAD models
- Points of interest
- Questionnaire form
- Editor Tools: Sketching, Shadows, Videos

Combination of data



Hand modelled 3D

DTM from aerial LIDAR
as GeoTiff and ortho
imagery from WMS

Mapped building
footprints & LIDAR
points

Vector data points
from aerial scan

PhotoMesh
from UAV

Demo: Toon nieuwbouw plannen en vraag om input

TMC
Summerschool



VNMG
2021

The screenshot displays a 3D architectural visualization of a city planning project. The buildings are rendered in red, set against a grey ground plane. The interface includes several key elements:

- Top Menu:** 'TMC Summerschool' and 'VNMG 2021'.
- Left Sidebar:** A vertical list of menu items: 'LAGEN', 'OPENBARE RUIMTE', 'STRATENPLAN GEBIED I', 'NIEUWBOUW 2021', 'NIEUWBOUW DETAILS', 'TOPOGRAFIE', 'TOPOGRAFIE' (with a toggle), 'PANDEN', 'LUCHTFOTO HOORN ACTUE...', and 'LANDELIJKE LUCHTFOTO'S' (with a toggle). Navigation icons for 'LOCATIES' and 'LAGEN' are also present.
- Bottom Navigation:** Buttons for 'BEWONER SUGGESTIES', 'INFORMATIE', and 'INHOUD'. A 'KLIK HIER' button is also visible.
- Information Panels:**
 - Top Left:** 'Stationsgebied Zuid' and 'vml V&D Grote Noord' labels.
 - Bottom Left:** A panel titled 'NIEUWBOUW 2020 HOORN' with details:
 - Plannaam: Westerdijk (vml. Schouwburg)
 - Plantype: Verdichtingslocatie
 - Planstatus: 1A Onherroepelijk
 - Aantalrest: 0
 - Sloop: 0
 - HUUR: 0
 - KOOP: 10
 - datum: 19-3-2020

Demo: Opbouw bronnen en interface

TMC
Summerschool

VNMG
2021

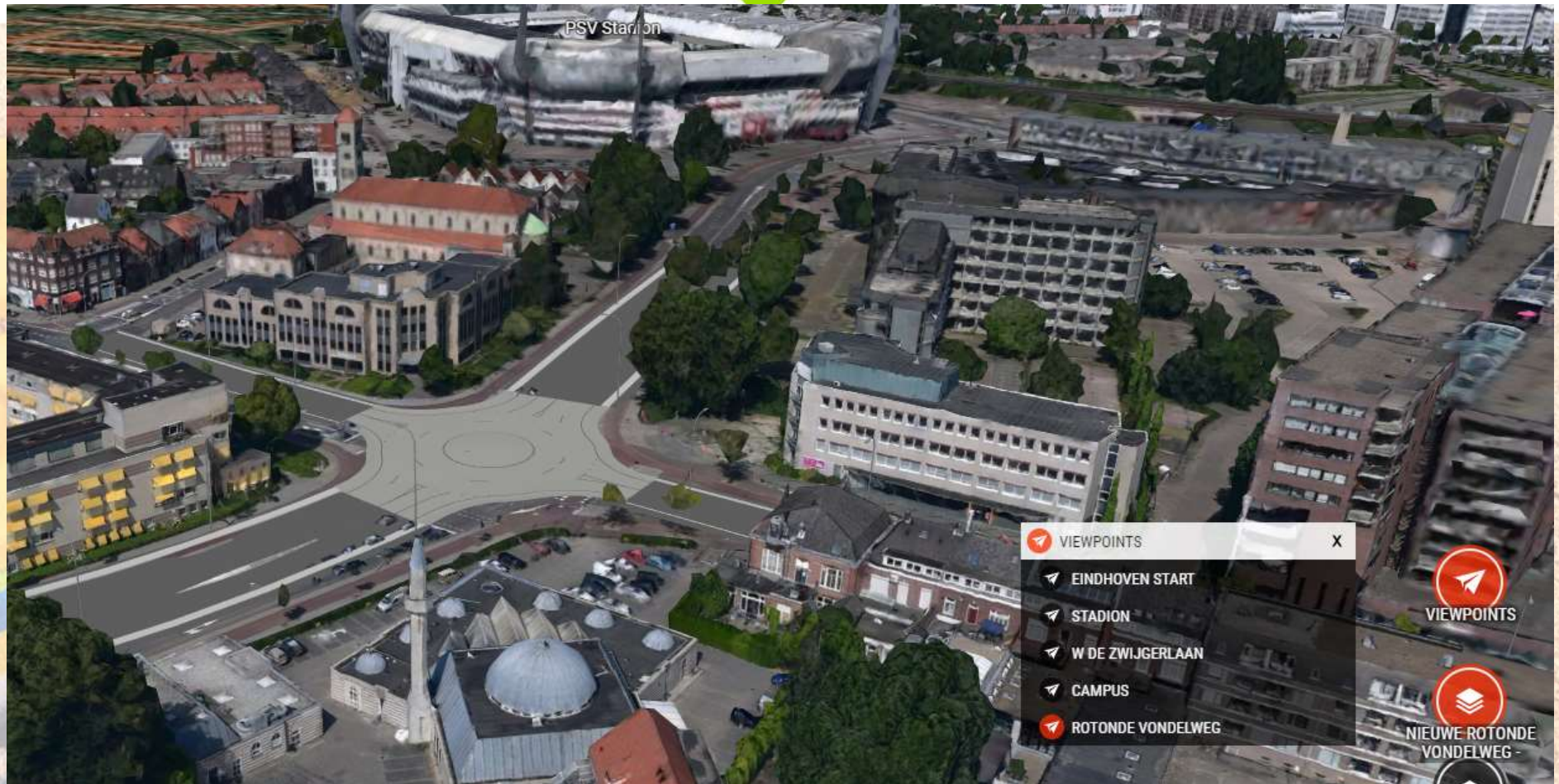
The screenshot displays a web-based GIS application interface. At the top, there is a navigation bar with icons for home, search, and other functions, and a menu with options: UPGRADE, BLOG, FORUM, HELP. The main area shows a 3D map of a city district with buildings rendered in red and pink. The map includes labels for various streets and areas such as 'Poststraat', 'Stationsgebied Noord', 'Stationsgebied Zuid', 'West Friese Hogeschool', and 'De Hoornaar 1'. A sidebar on the left is titled 'OBJECT MANAGER' and lists several layers and objects, including 'LAYER: OPENBARE RUI...', 'LAYER: STRATENPLAN...', and 'LAYER: NIEUWBOUW 2...'. The sidebar also includes a search bar and icons for adding, deleting, and refreshing objects. On the right side, there is a vertical menu with options: USER SETTINGS, VIEW TOOL, EDIT TOOL (highlighted), MANAGE, VIEWPOINTS, INTERACTIONS, PROJECT INFO, TEMPLATES, MAP DATASETS, IMODEL, POINT OF INTEREST, 3D MODEL, TERRAIN TEXTURING, MORE, OBJECT MANAGER (highlighted), and TOGGLE SIDEBAR. At the bottom, there is a footer with icons for 'DEEL OPMERKINGEN OVER DIT PROJECT', 'BEWONER SUGGESTIES', 'INFORMATIE', and 'INHOUD'.

Demo: Toon plannen met reality model

TMC
Summerschool



VNMG
2021





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[Info](#)

[Voorbeelden:](#)

- [Gothenburg Development](#)
- [Helsinki Development](#)
- [Wheater](#)

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