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Constructing a nationwide Object Oriented Dataset in 3D

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Why / the challenge

- 3D data and applications add value
- Vast increase in data capturing and the creation of 3D data

- Problems

⇒ standardization is lacking

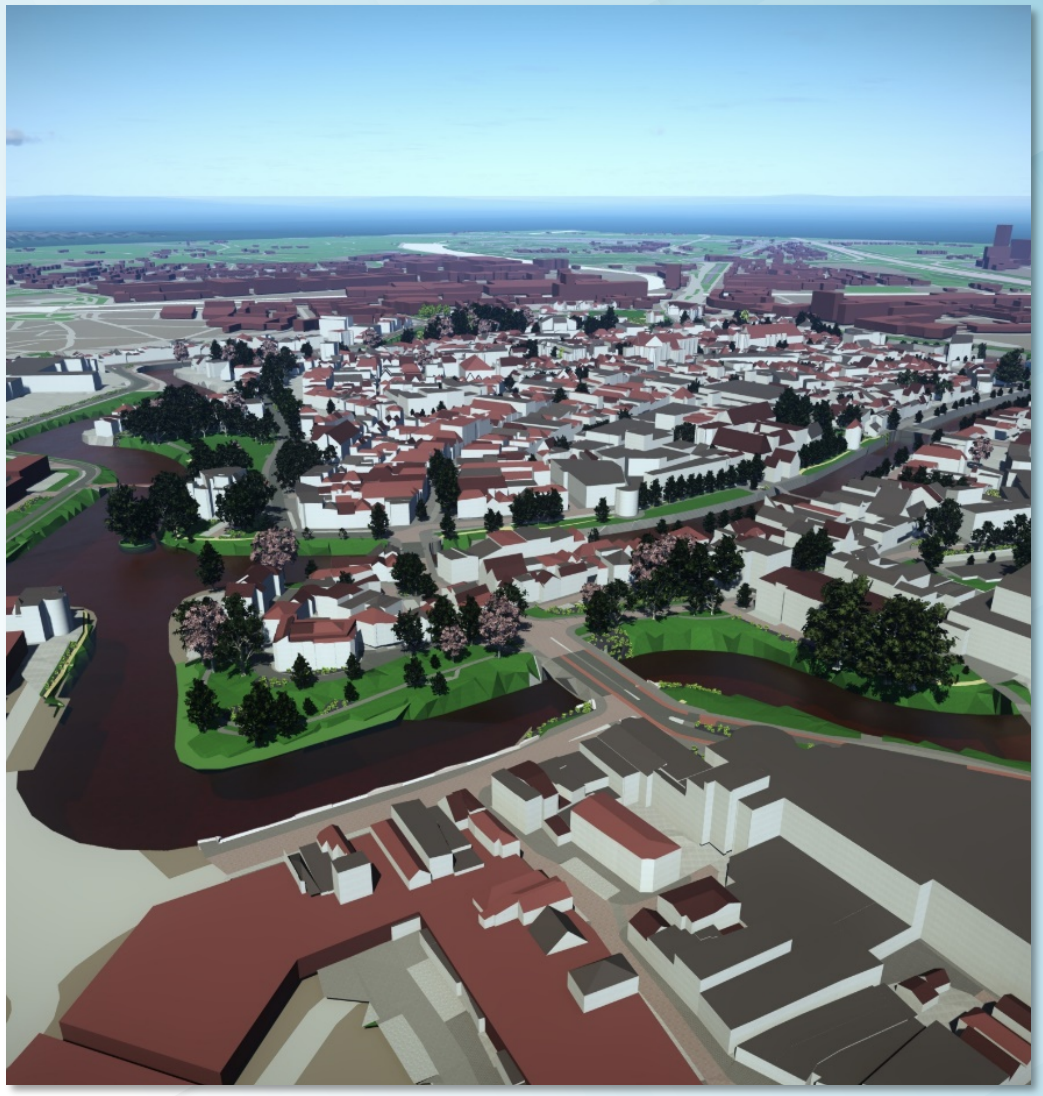
⇒ there is redundant data production

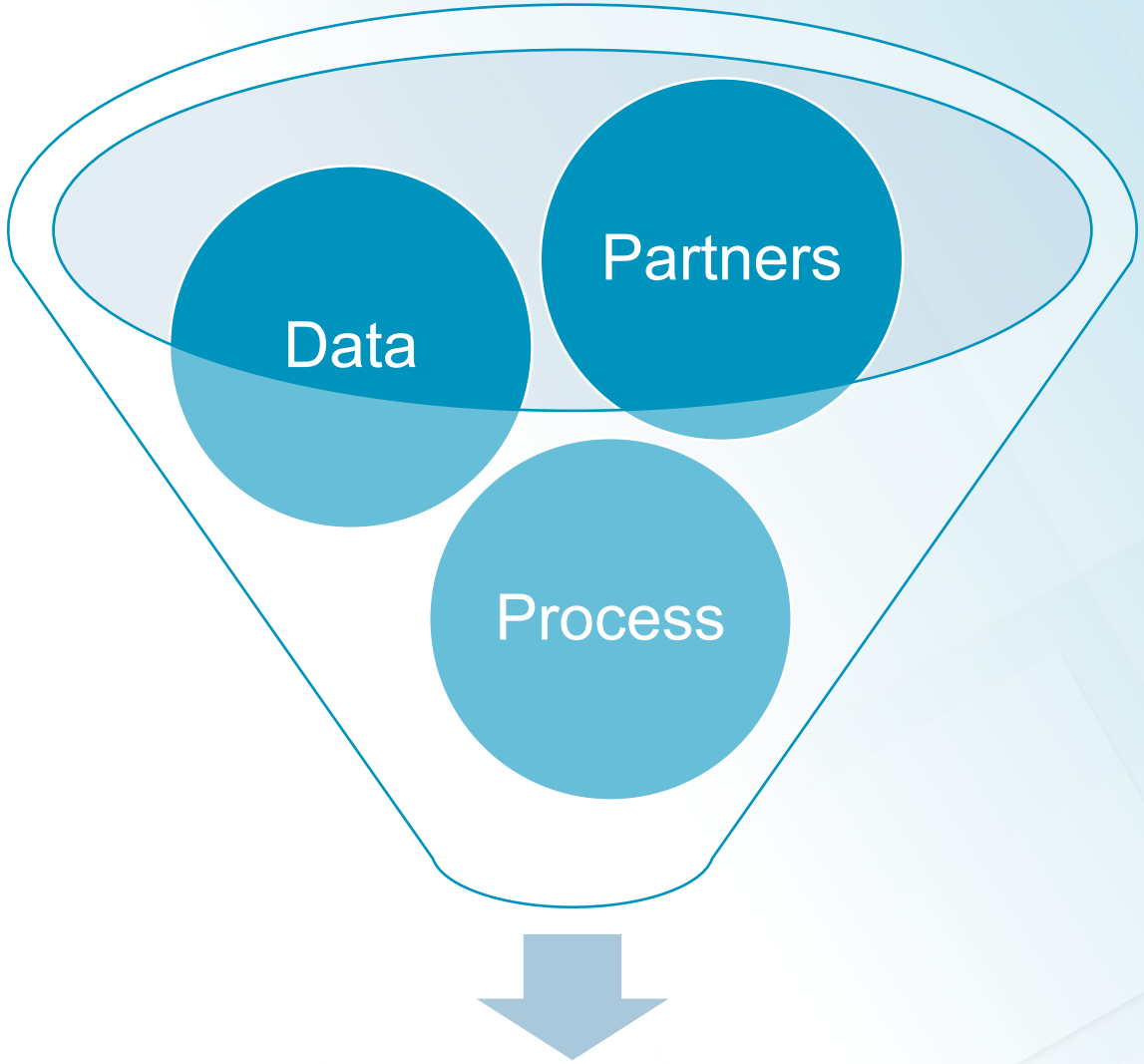
⇒ cost - inefficient

Project 3D

Project 3D goals are:

- Create a 3D dataset based on existing 2D geometry (BGT/BAG)
- Suitable for….(e.g. Omgevingswet)
- Nationwide
- Fully automated
- Based on up-to-date height information





current & consistent 3D data fit for purpose

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Partnership

Early adopters

- Potential user of 3D data
- Vision for current and future use
- Willing to
  - share knowledge and data
  - invest time and energy
  - review the process

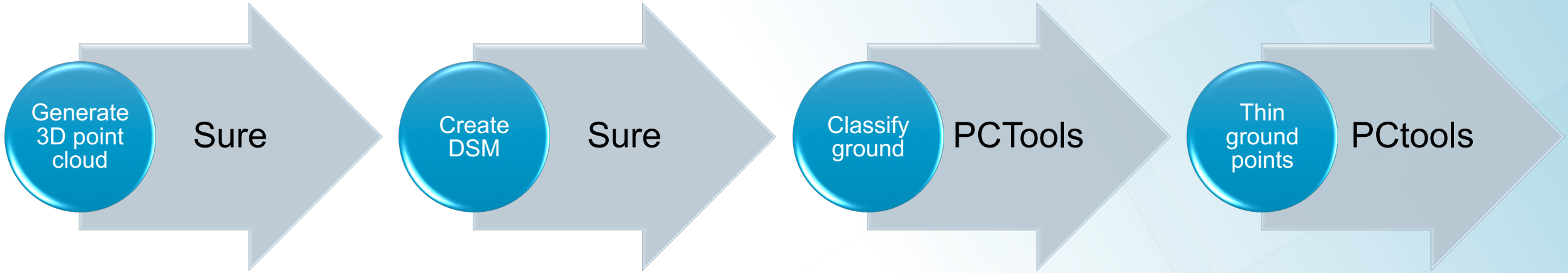
Process


dense matching and classification
3D reconstruction
texturing
dissemination

Dense matching & classification

annual aerial imagery

60% or 80% overlap



classified 3D Point Cloud

ground, water, vegetation, building

Create Height Information (Dense Matching)

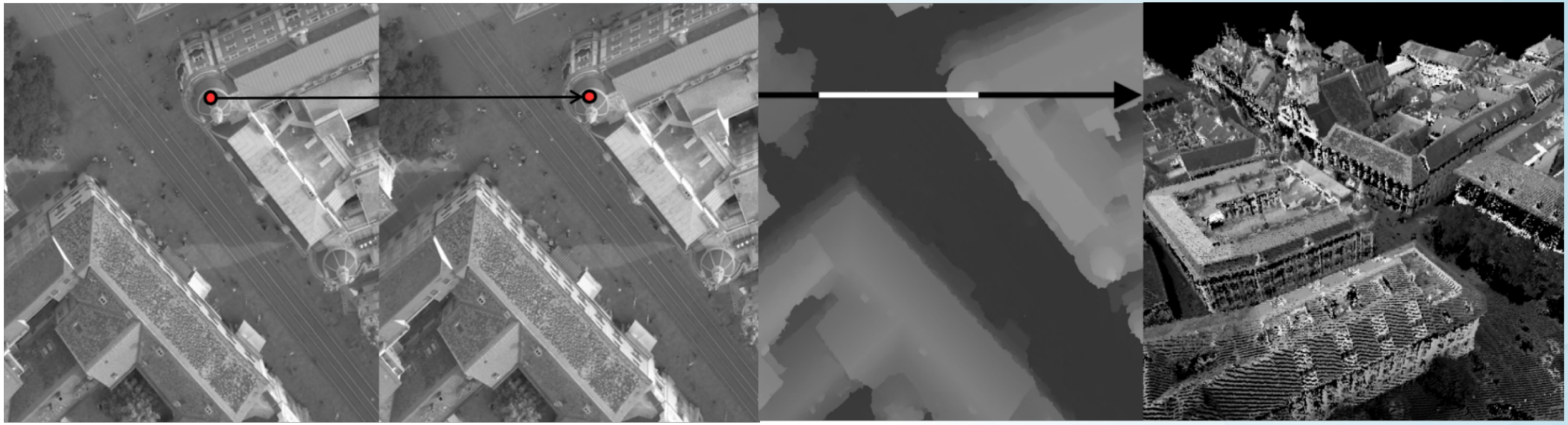


Image from Konrad Wenzel, nFrames

- At 60% overlap an object is visible in 2 images, at 80% in 4-5, but there will allways be some occluded areas
- Shift in corresponding images is a measure for the height

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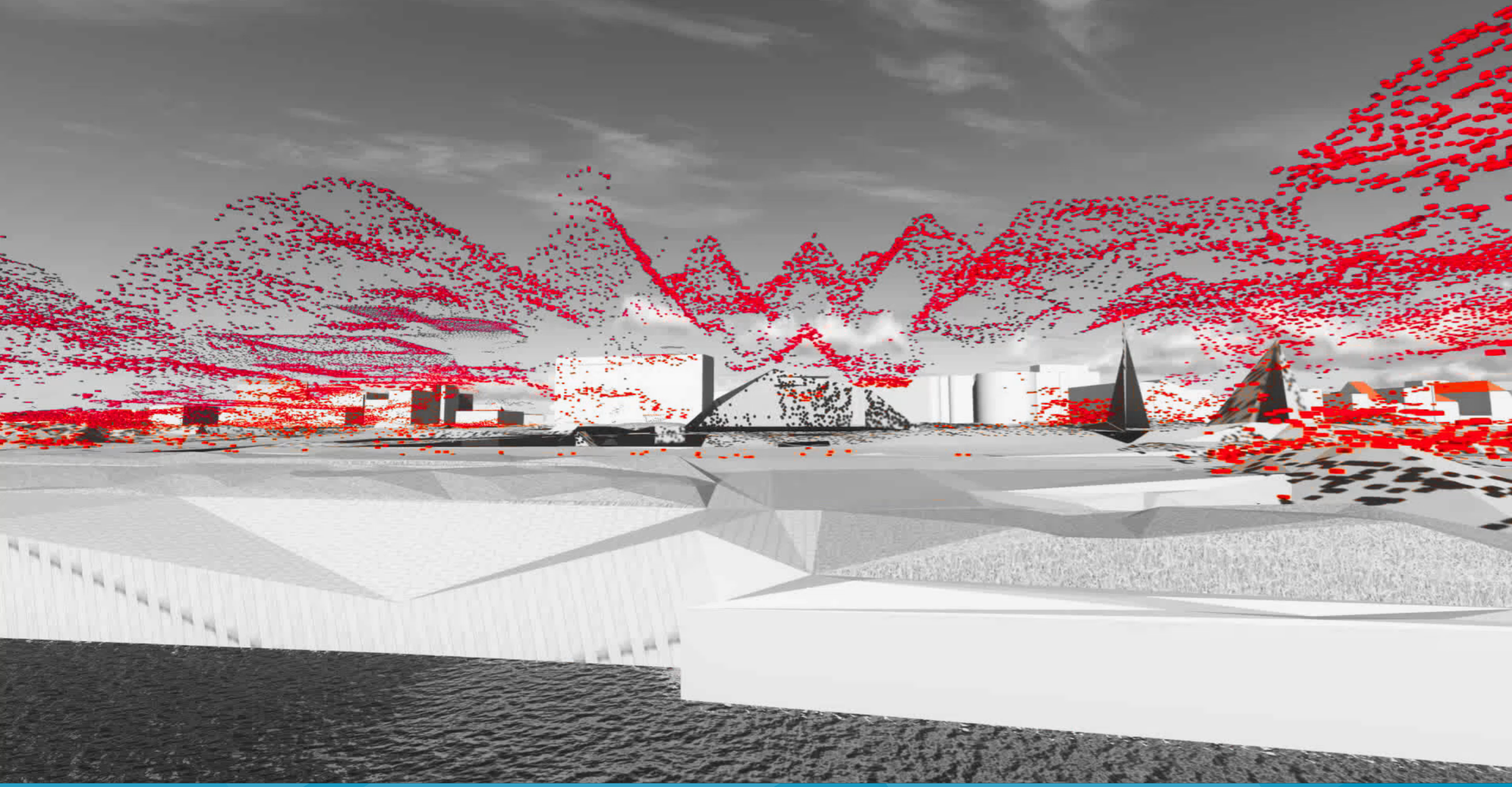


Classification

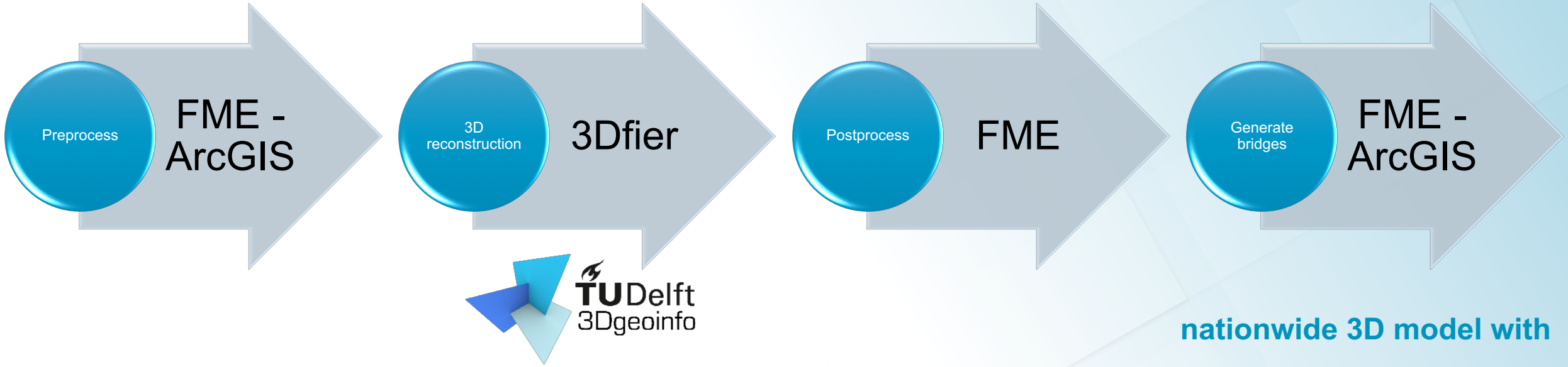
- The DSM points need to be classified for further usage
  - Terrain, water, vegetation, buildings, miscellaneous

- Extra datasets used for classification:
  - Water and BAG-polygons to aid classification of water and buildings
  - CIR 25 cm summer images for classification of vegetation
  - Lidar data for ground level in forests

3D reconstruction

2D topographic data (BAG / BGT)

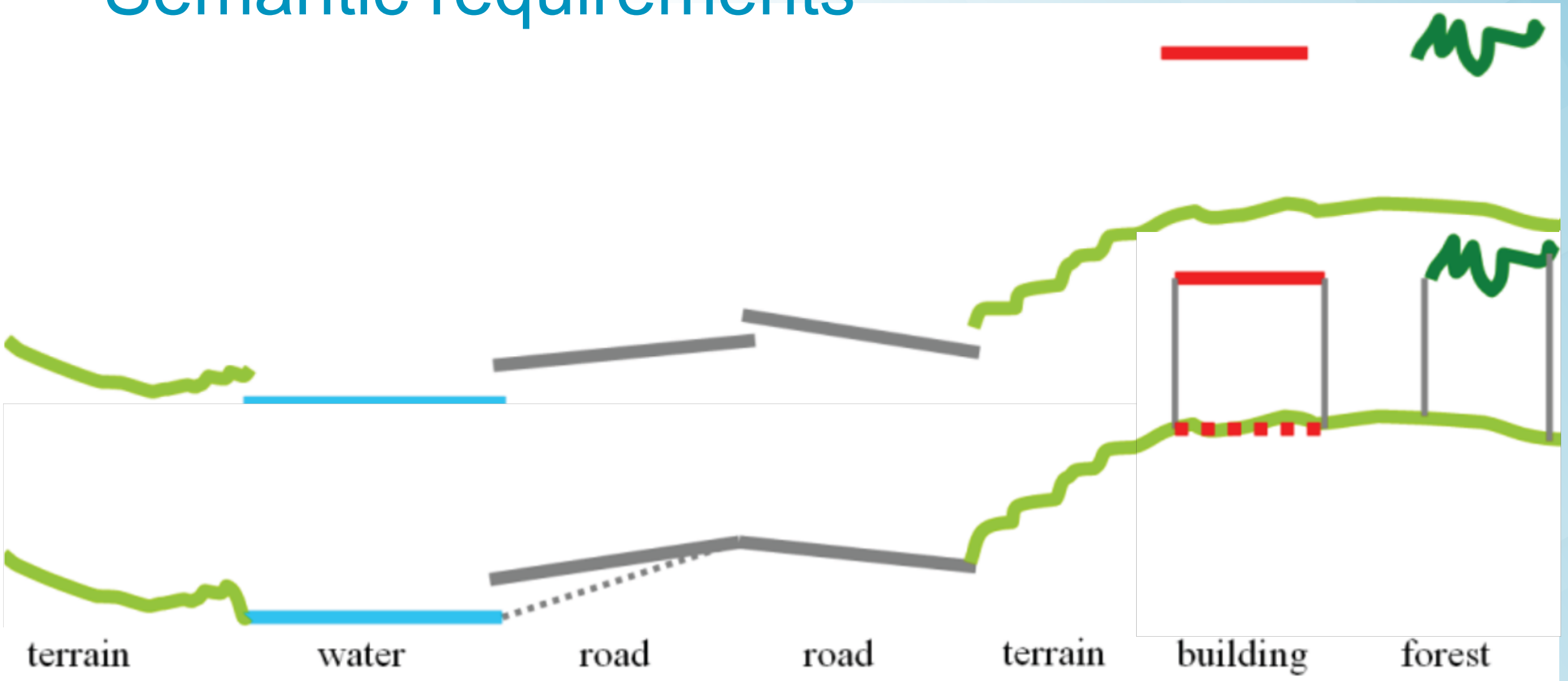
3D point cloud



nationwide 3D model with multiple levels of detail

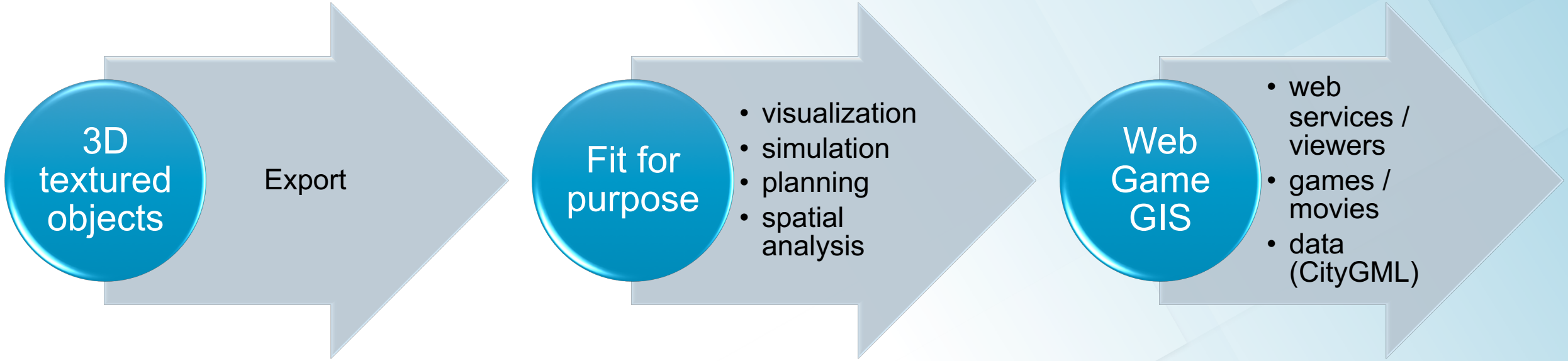
Levels of detail

Semantic requirements

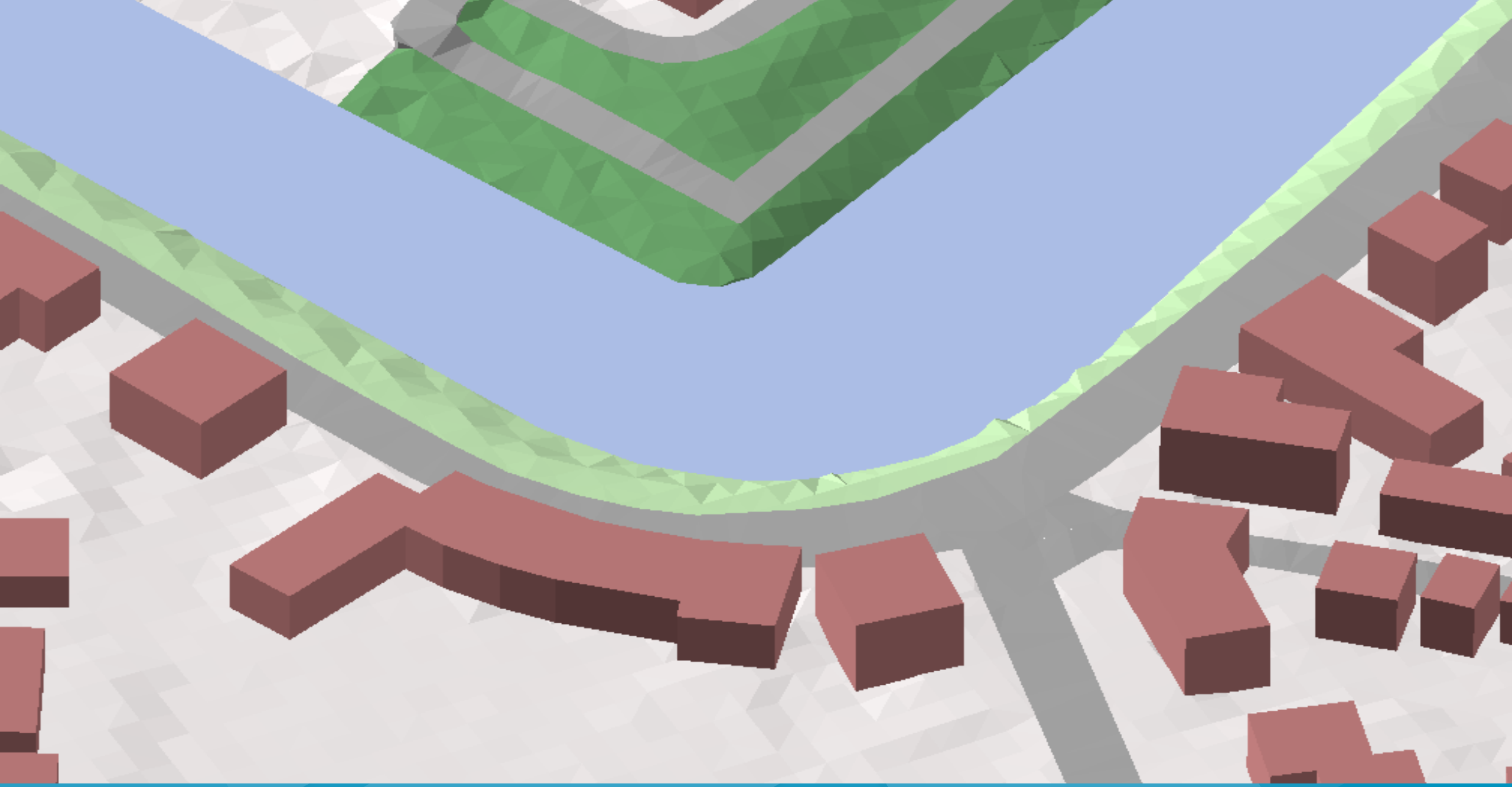


Dissemination

3D topography



3DKaartNL



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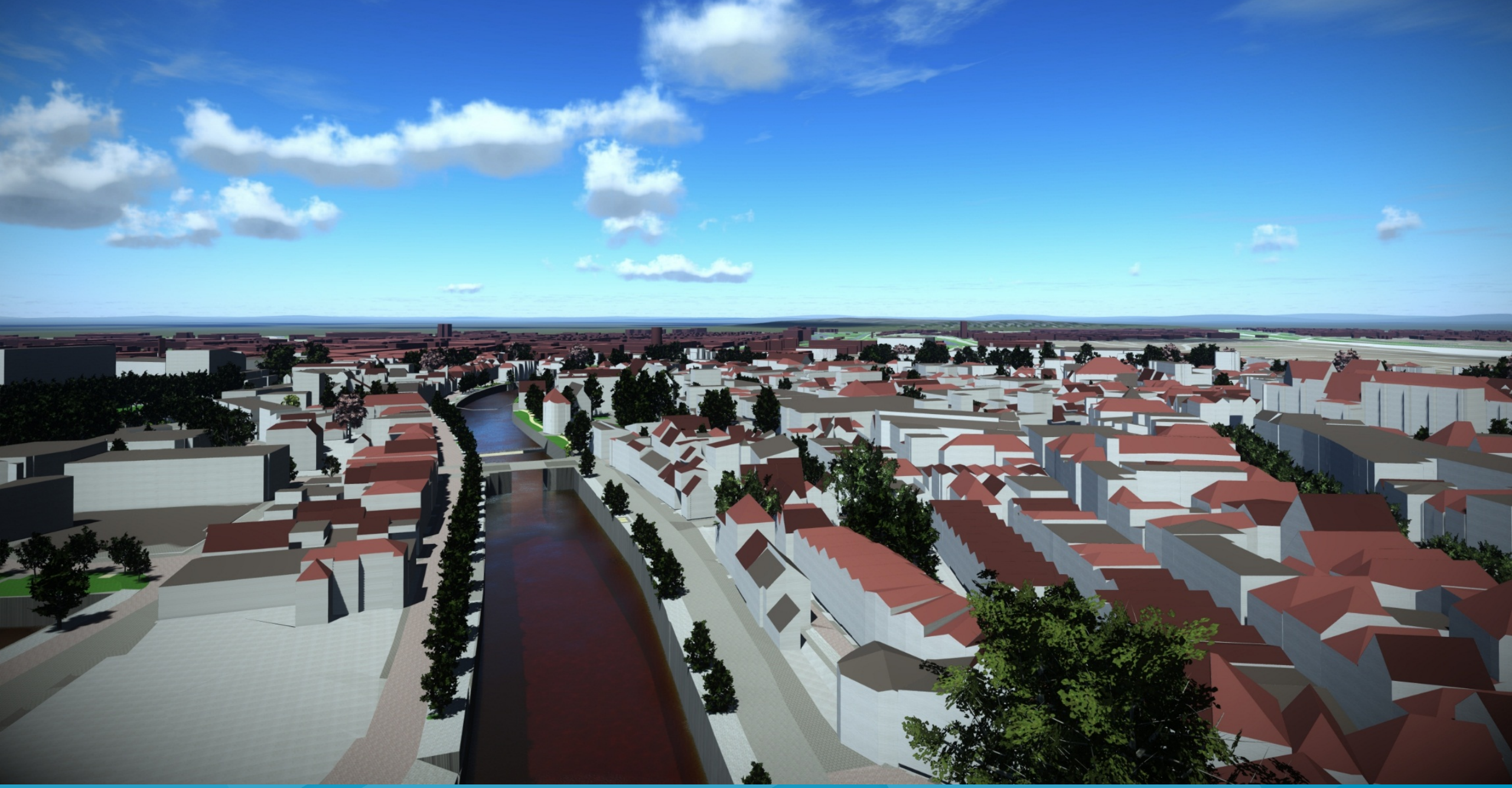

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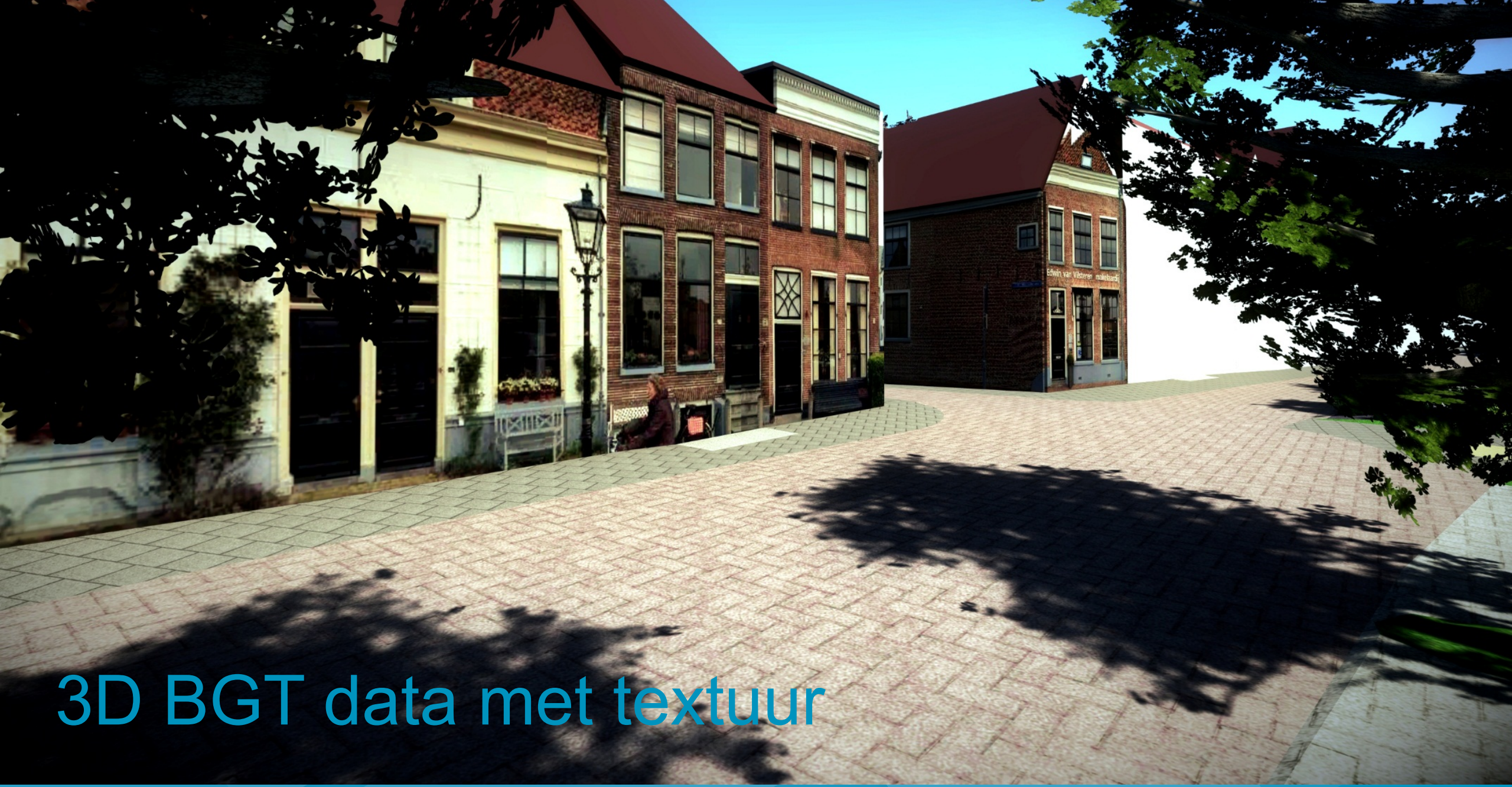
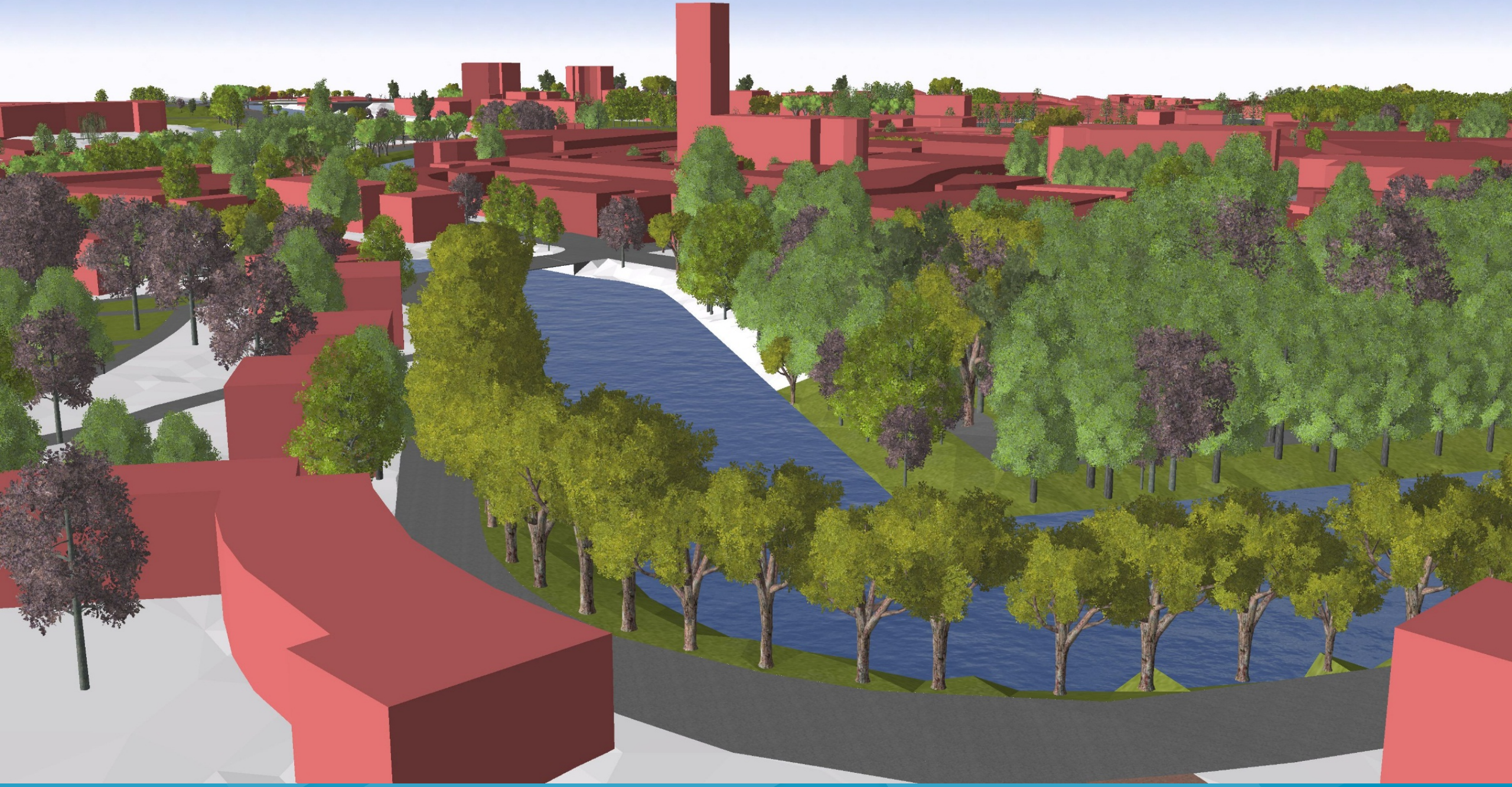


3D BGT data met textuur



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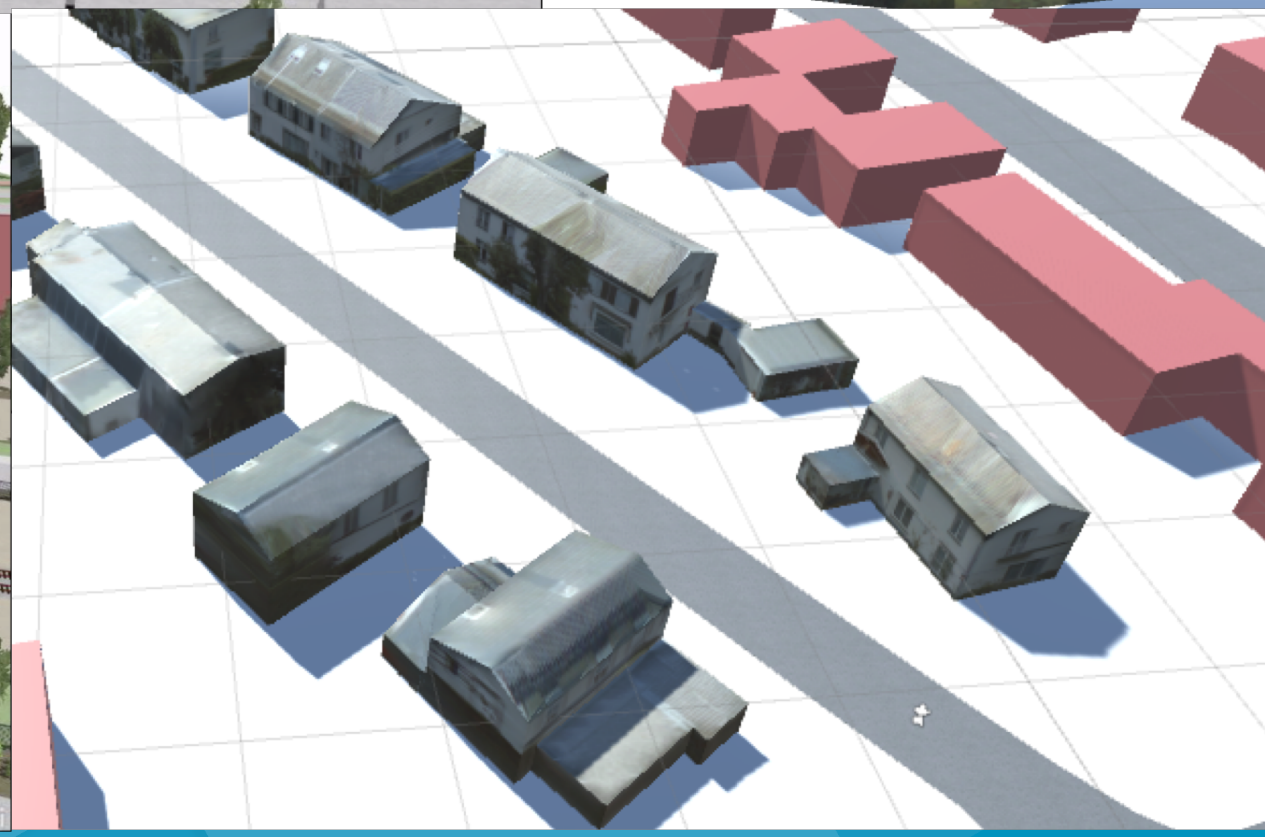

Outlook

Questions?

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