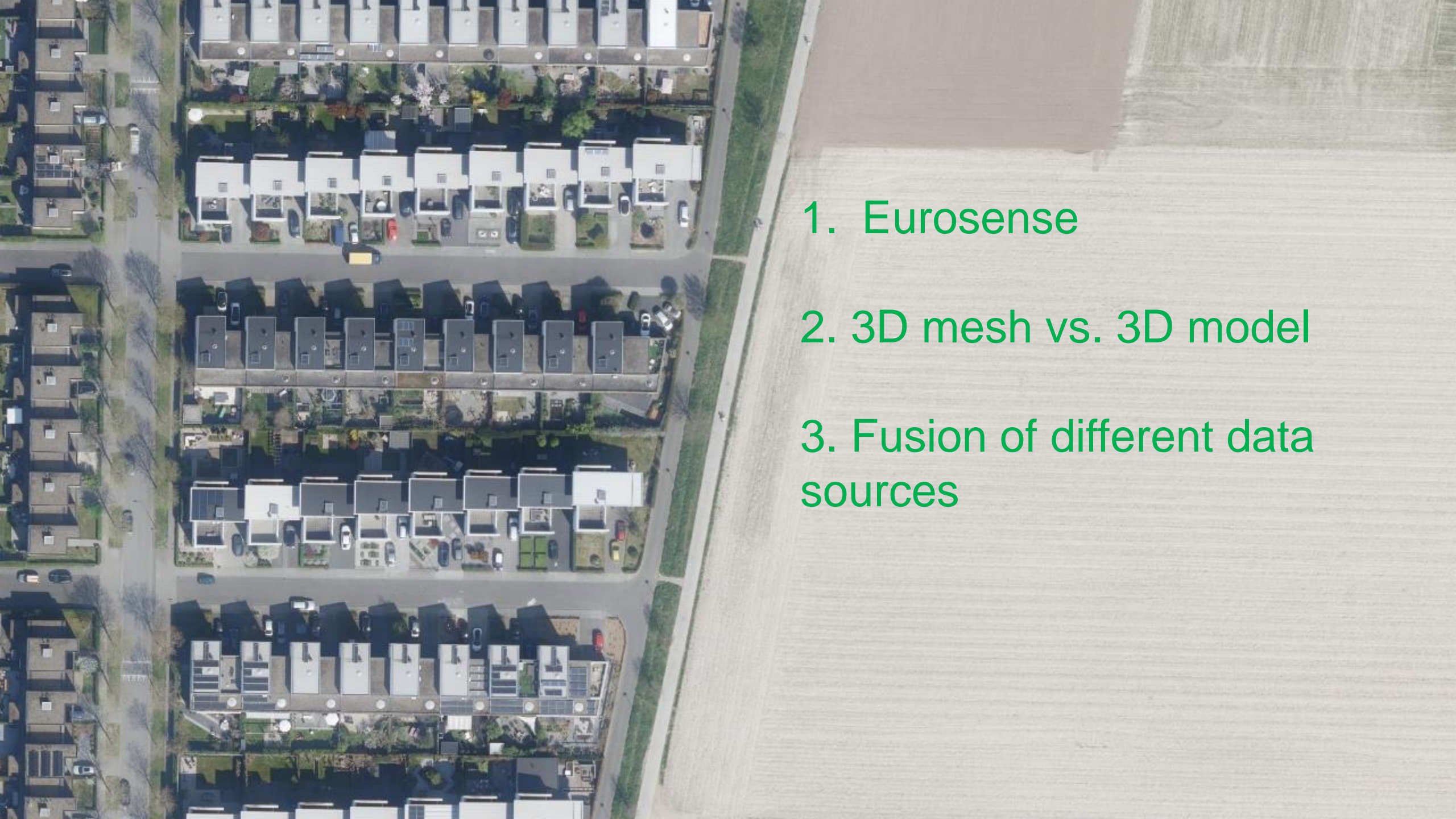**The ultimate 3D model:
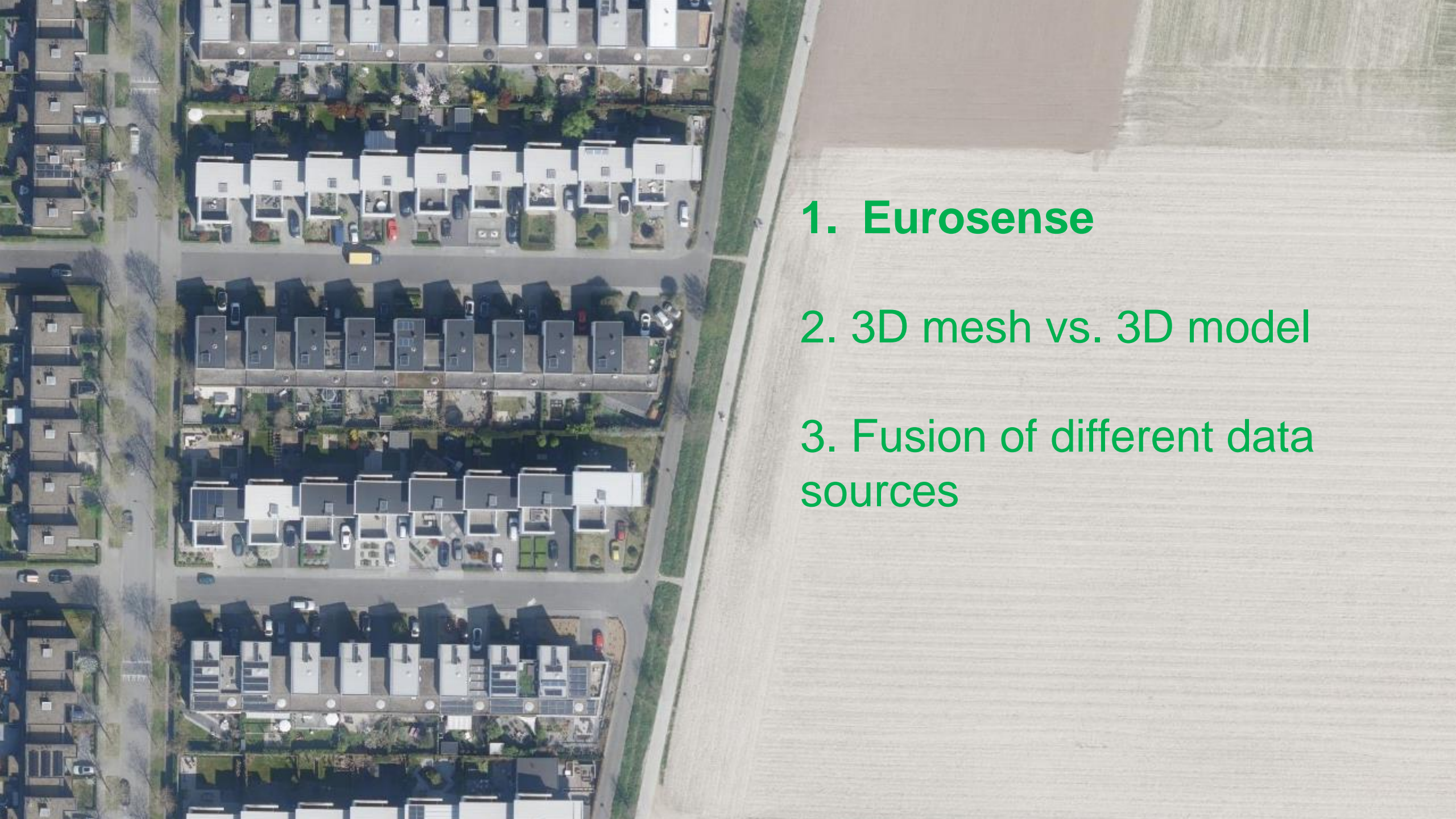A combination of different data sources**
Victoria Jadot
October 27, 2020

1. Eurosense

2. 3D mesh vs. 3D model

3. Fusion of different data sources

1. **Eurosense**

2. 3D mesh vs. 3D model

3. Fusion of different data sources

# Introduction



>130 colleagues in 10 Eurosense offices across Europe

Integration of airborne and spaceborne data

56 years of experience

**International cooperation**: founding member of **EAASI** (European Association of Aerial Surveying Industries) & **EARSC** (European Association of Remote Sensing Companies)

Strong collaboration with Esri

# Equipment

Vexcel Eagle Mark 3 large format camera (footprint of 450 Megapixels and resolution down to 2cm)
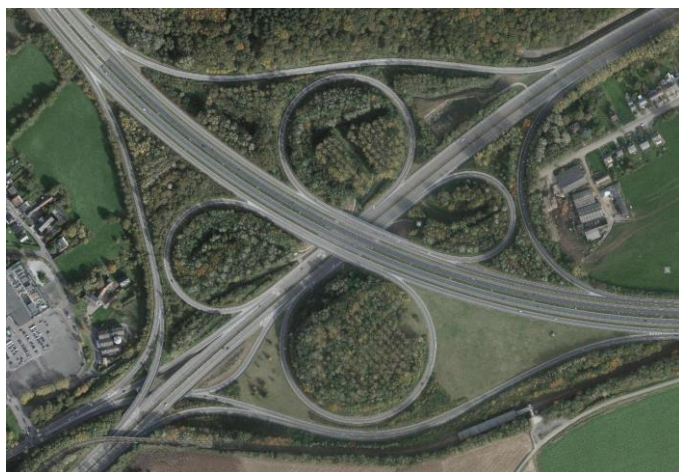
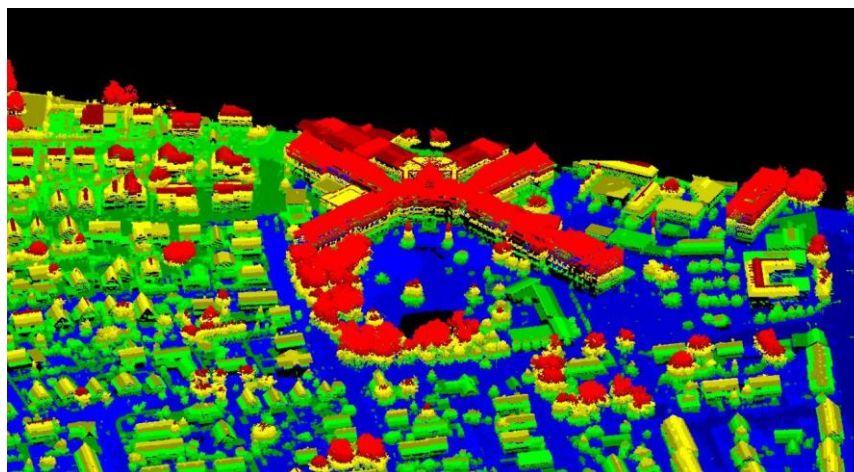Riegl VQ 1560 II (pulse frequency of 4 GHz) with integrated Phase One medium-format 150 Mpx camera
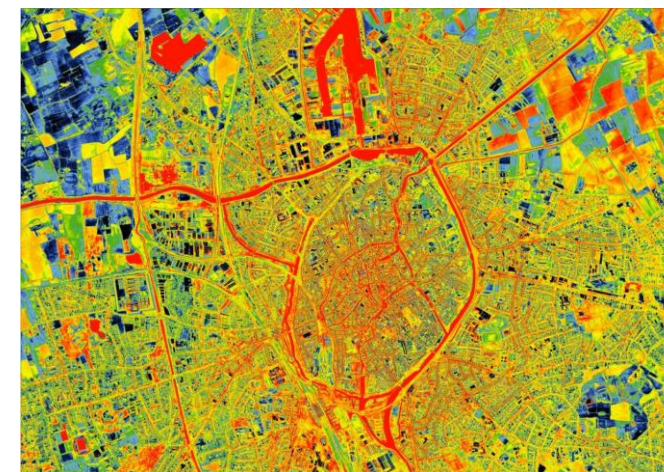
Thermographic cameras (Flir)

# Equipment and products



(True) orthophotos

LiDAR measurements

Thermal maps
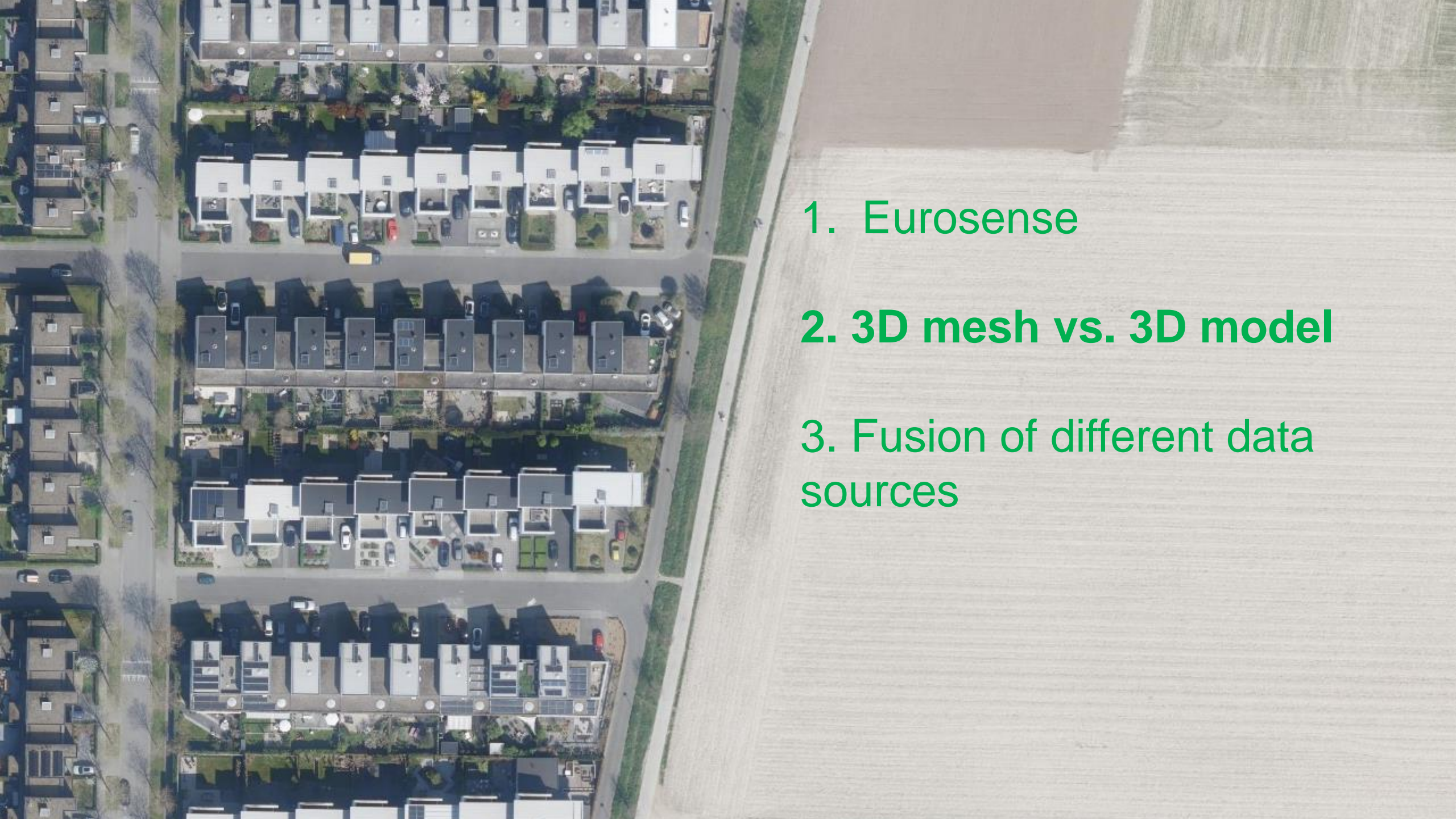
# And also...

Change detection

Tree inventory and health analysis

...

GRB enrichment and update

Obstacle mapping (airports)

Land cover classification

1. Eurosense

**2. 3D mesh vs. 3D model**

3. Fusion of different data sources
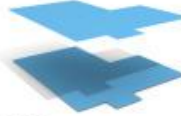
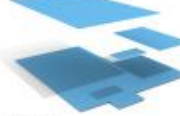# 3D mesh
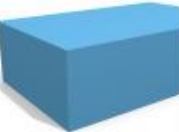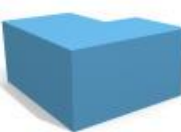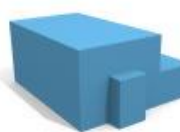
# 3D model



All videos are available on Eurosense's YouTube channel

# 3D model



LOD 2.2. –
LOD 3.0 ?

Textured
LOD 2.3.

# 3D model



- Plug in BIM-model into 3D-model

- Link with (digital) legal and administrative framework to evaluate automatically and rapidly the necessary permits → immediatly straighforward report to see if project is compliant or not
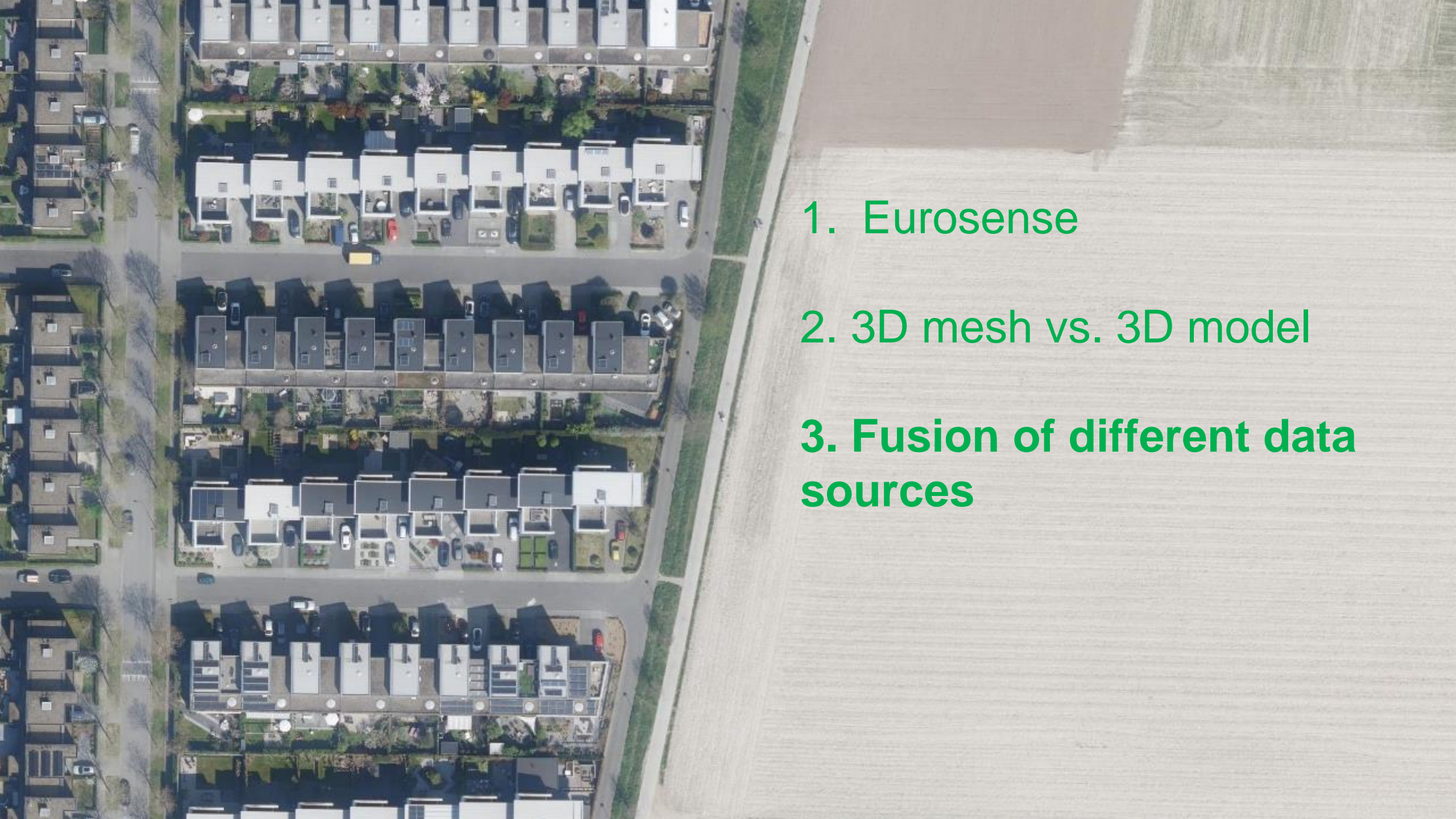
1. Eurosense

2. 3D mesh vs. 3D model

3. **Fusion of different data sources**

# Possible data sources



Aircraft

Backpack system

Mobile mapping

**Objective**: to complete 3D models with data at street level and inside

# Challenges

- "Stitch" data together (vectorized 3D-model and texture overlay)

- Different accuracies of source data (airborne LiDAR, photogrammetry, mobile LiDAR, mobile images, backpack system,...)

- LiDAR: automatic vectorisation

- Different software and different data formats

- Airborne + mobile mapping
  - LiDAR and imagery

All videos are available on Eurosense's YouTube channel
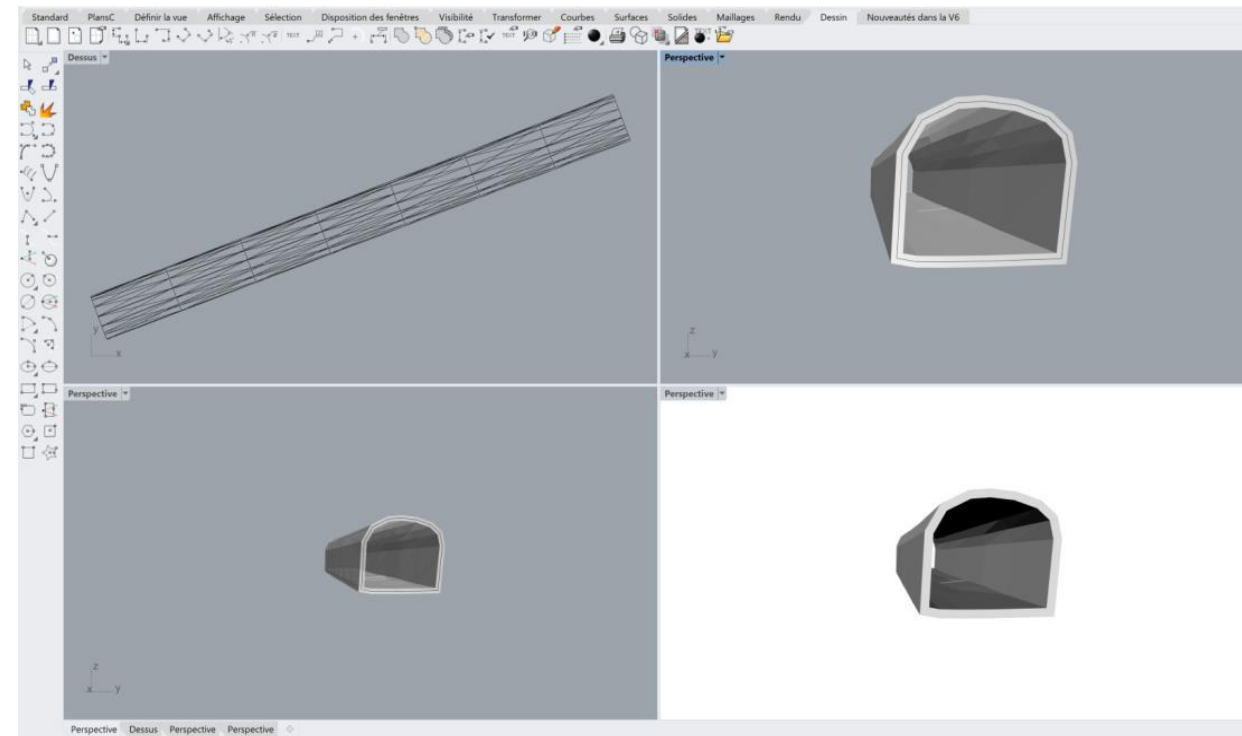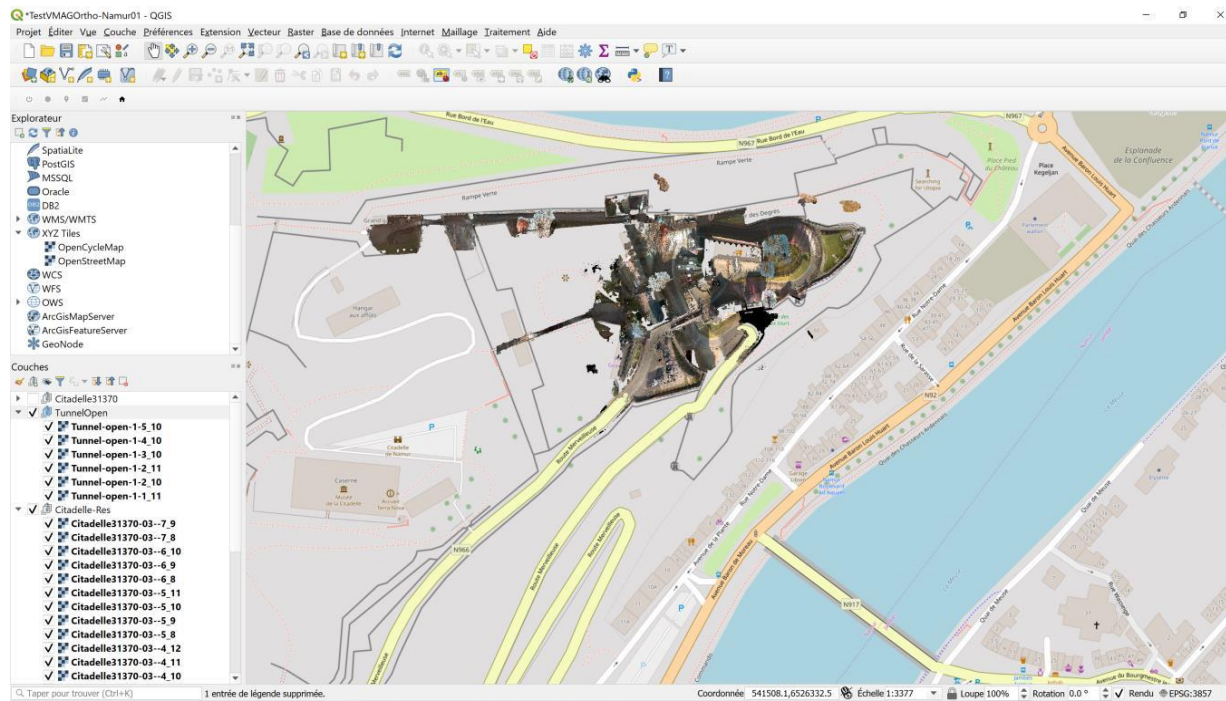
# Progress



- Indoor mapping
- LiDAR and imagery

# Progress

- Indoor mapping
- LiDAR and imagery

# The future…

- Seamless fusion of different data sources

- Towards LOD 3.3

- Integration with external data bases and real time data (IoT)

- 5D: XYZ, time, cost

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