





# Zaanstad from above

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The importance of correct quality data:  
input for the Digital Twin and more ....

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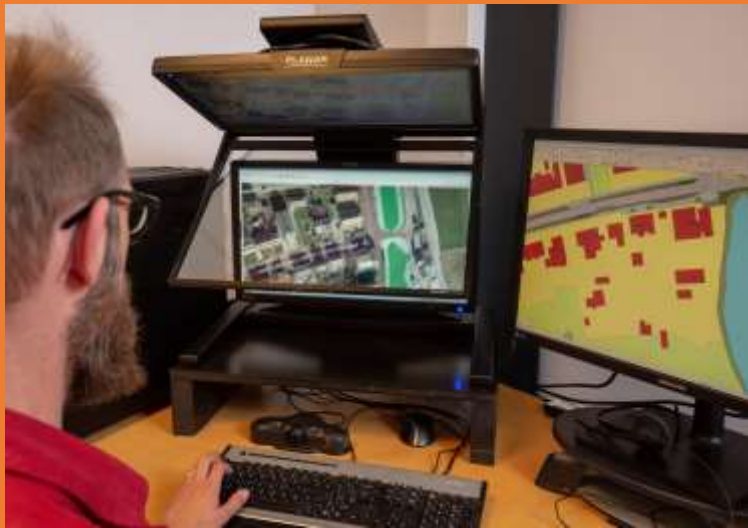


# Agenda

- FACTO GEO
- Innovation project Zaanstad from above
- Customer demand
- Different approach of data capturing and processing
- Results
- The pros and cons of this innovation for the municipality Zaanstad







PROFESSIONALS IN MORE THAN JUST SURVEYING







# Project Zaanstad





# Customer demand

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# Different approach of data capturing and processing

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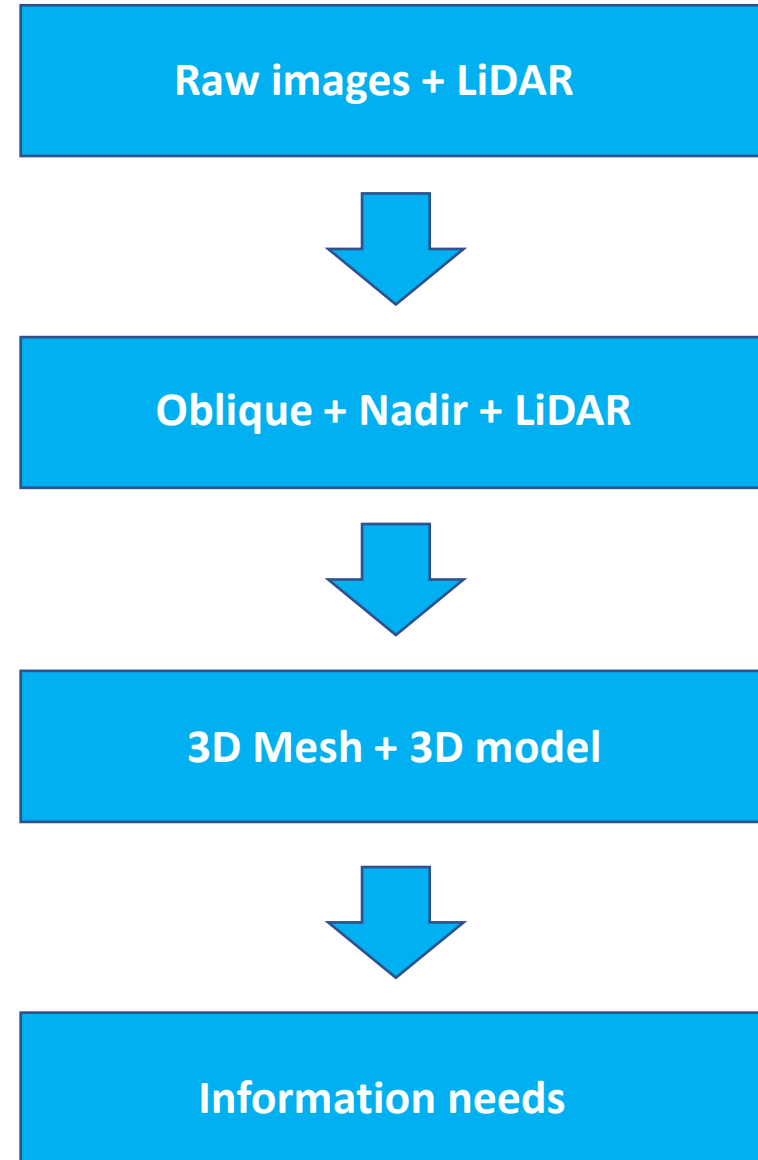
<https://youtu.be/rhC8oWqtjBc>



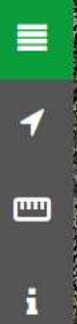


# Different approach of data capturing and processing

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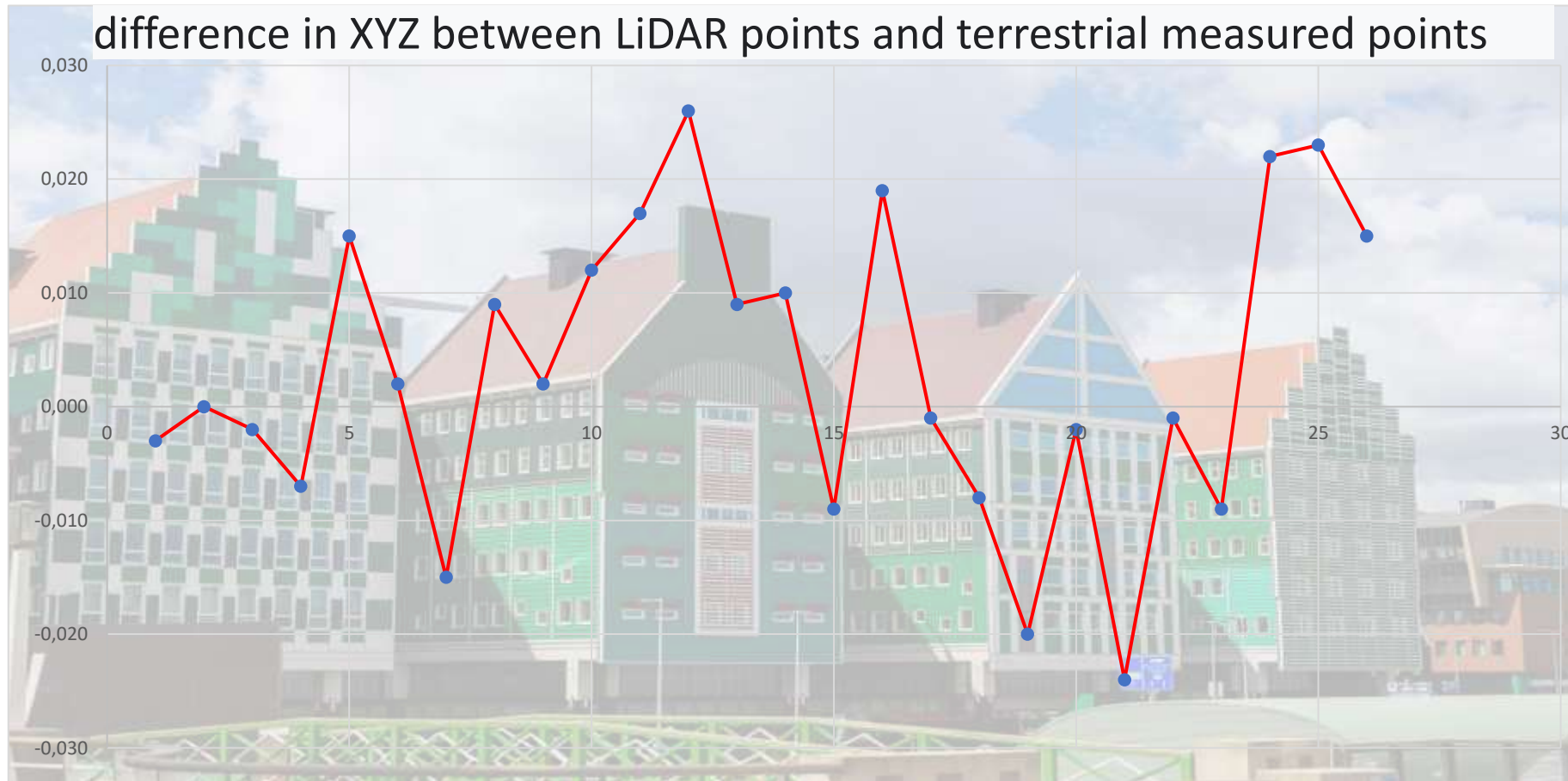


# High Density LiDAR pointclouds





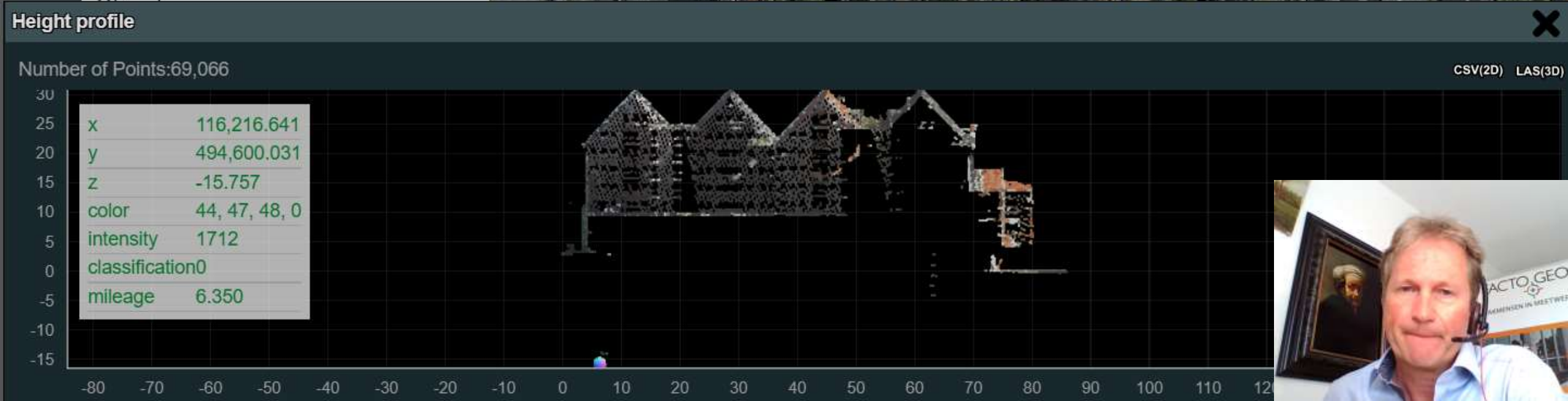
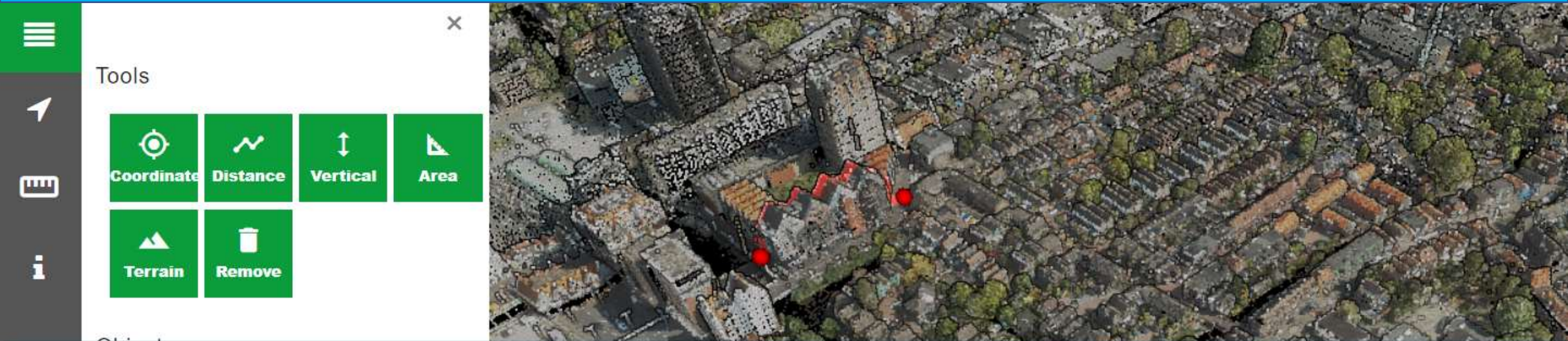
# Absolute positional accuracy



minimum	-2,4 cm
maximum	2,6 cm
gemiddelde	0,3 cm
standaardafwijking	1,3 cm

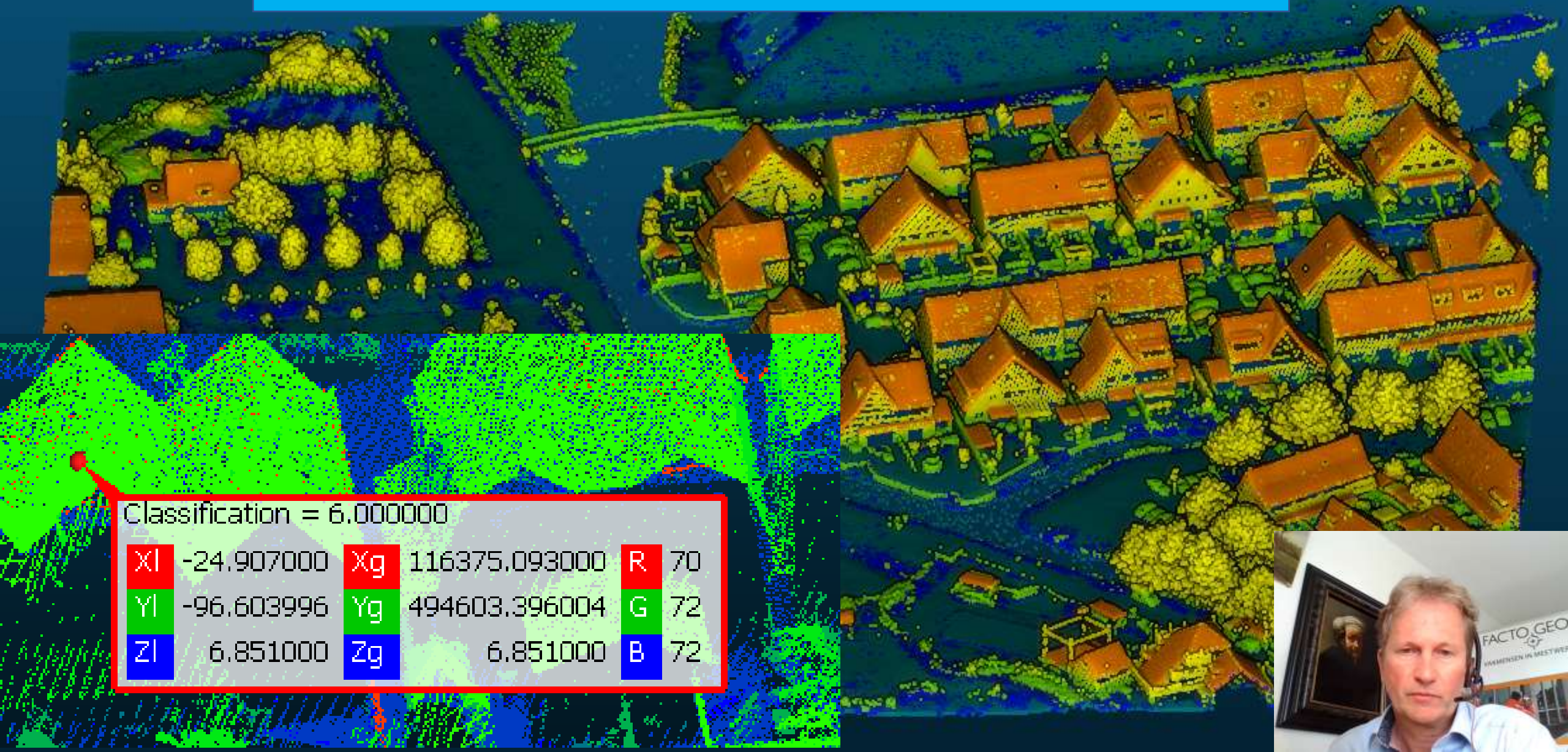


# Measuring in the LiDAR pointcloud





# Adding intelligence: Classified pointcloud

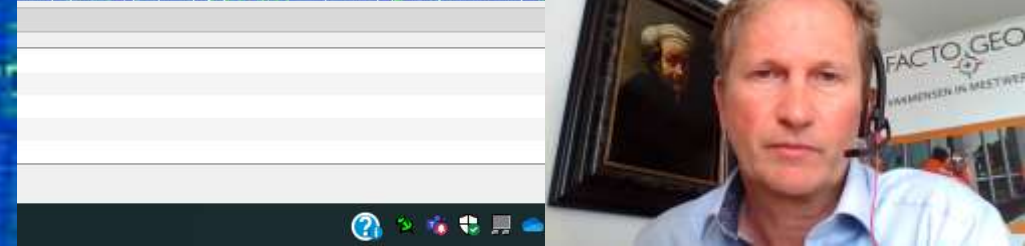
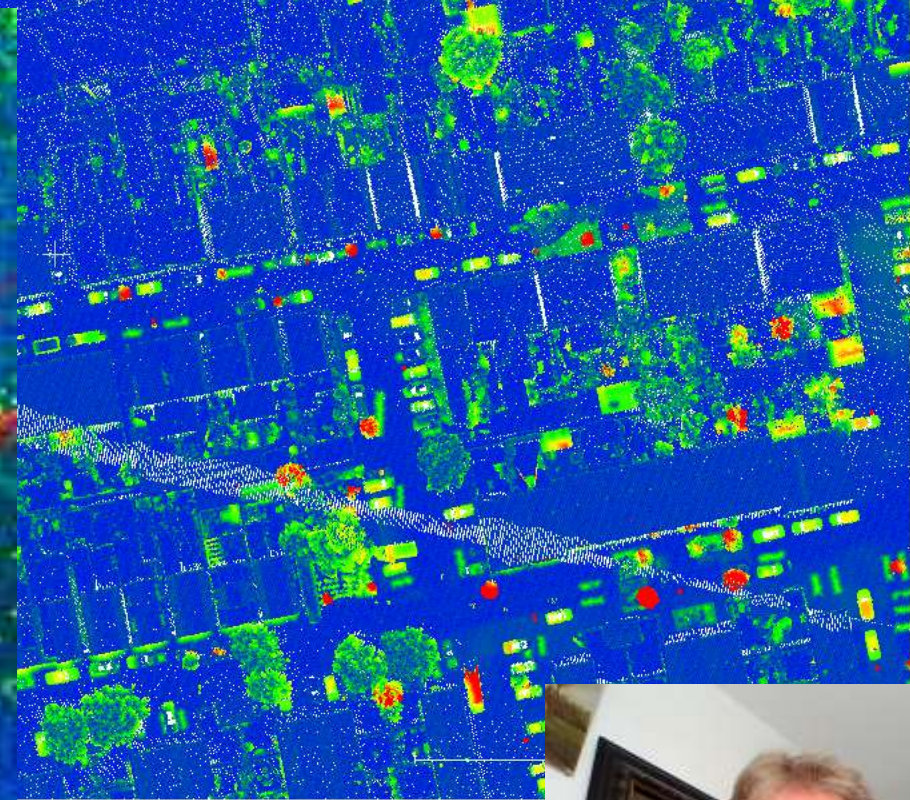
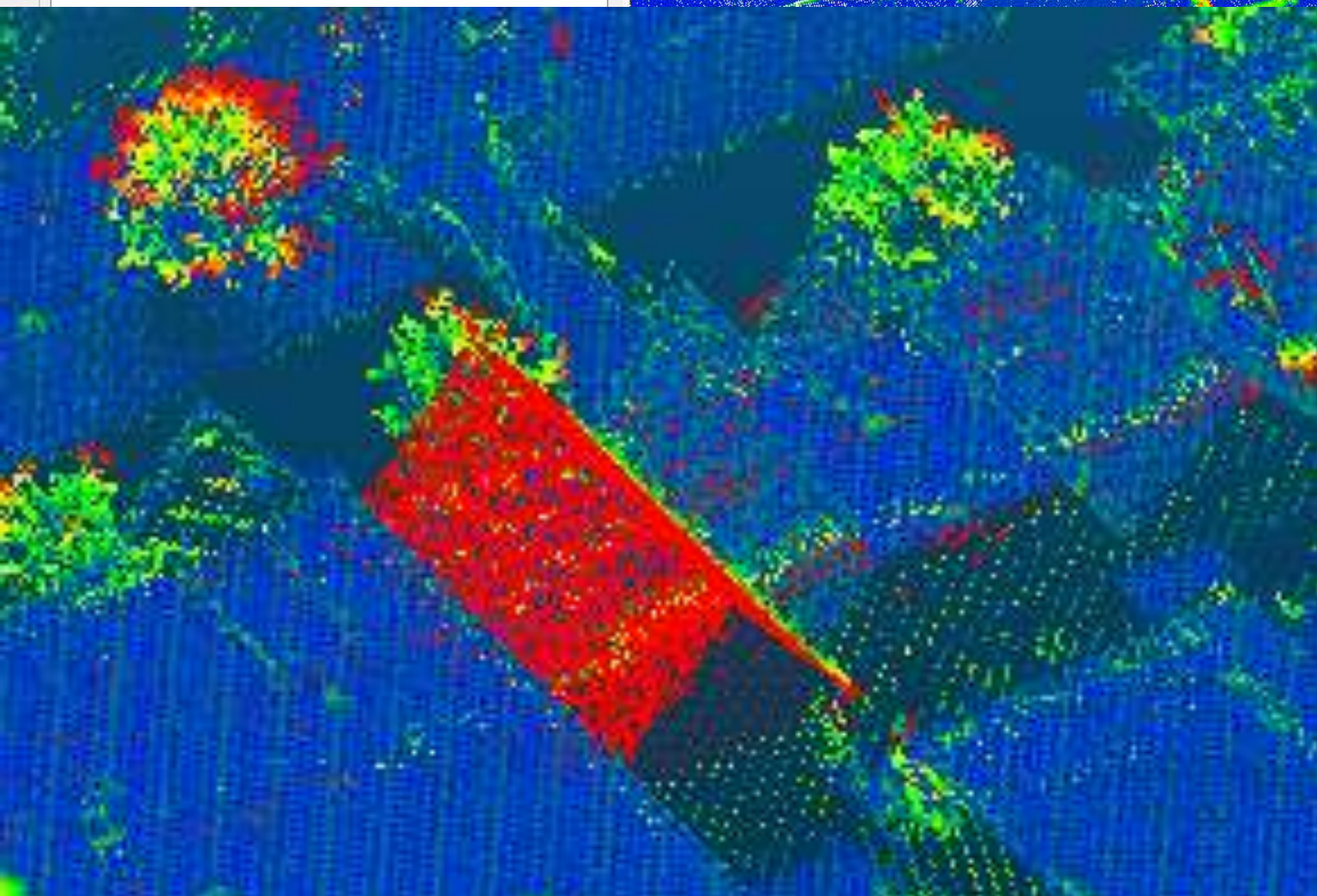
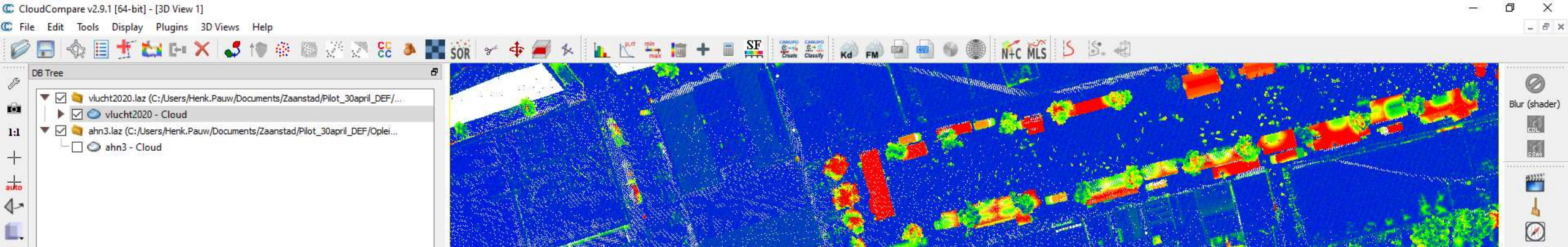


Classification = 6.000000

Xl	-24.907000	Xg	116375.093000	R	70
Yl	-96.603996	Yg	494603.396004	G	72
Zl	6.851000	Zg	6.851000	B	72

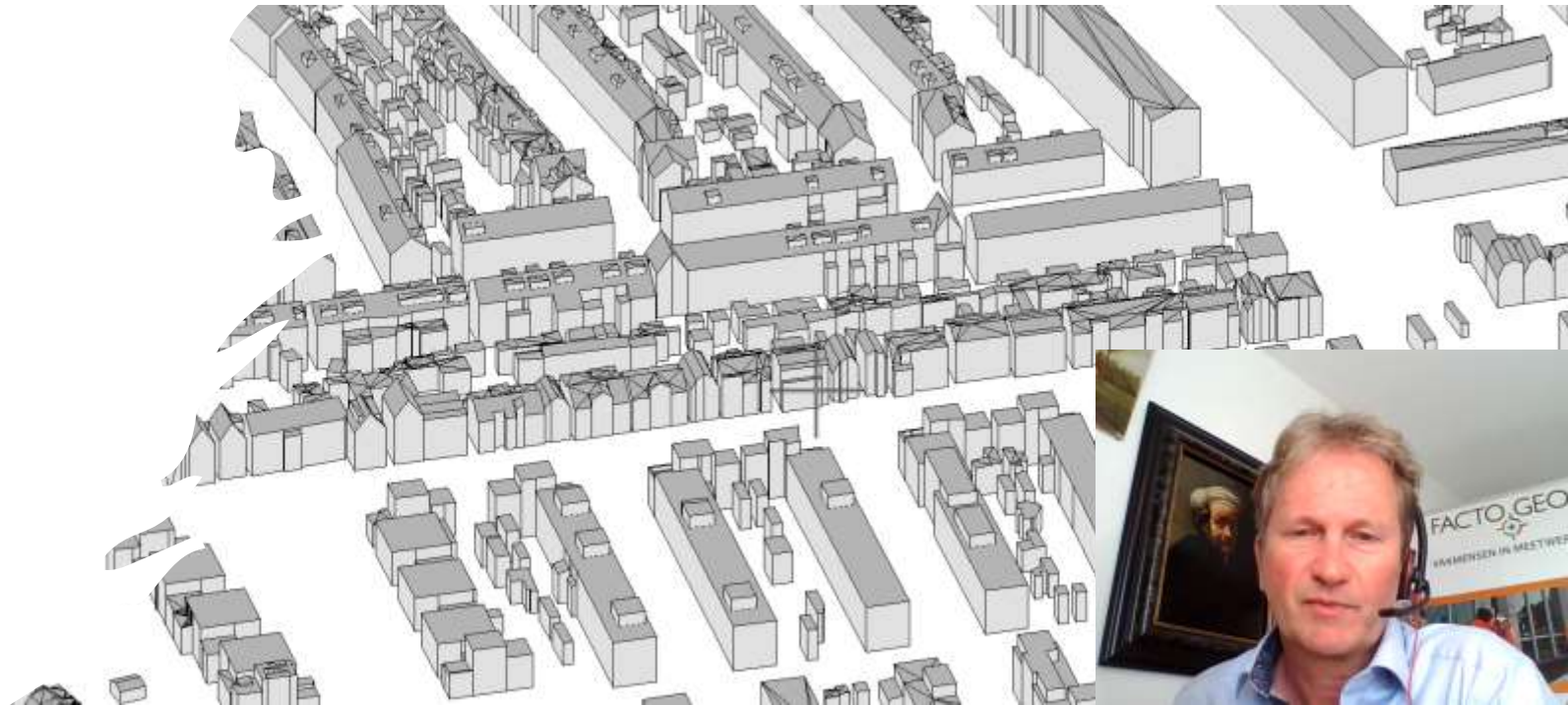




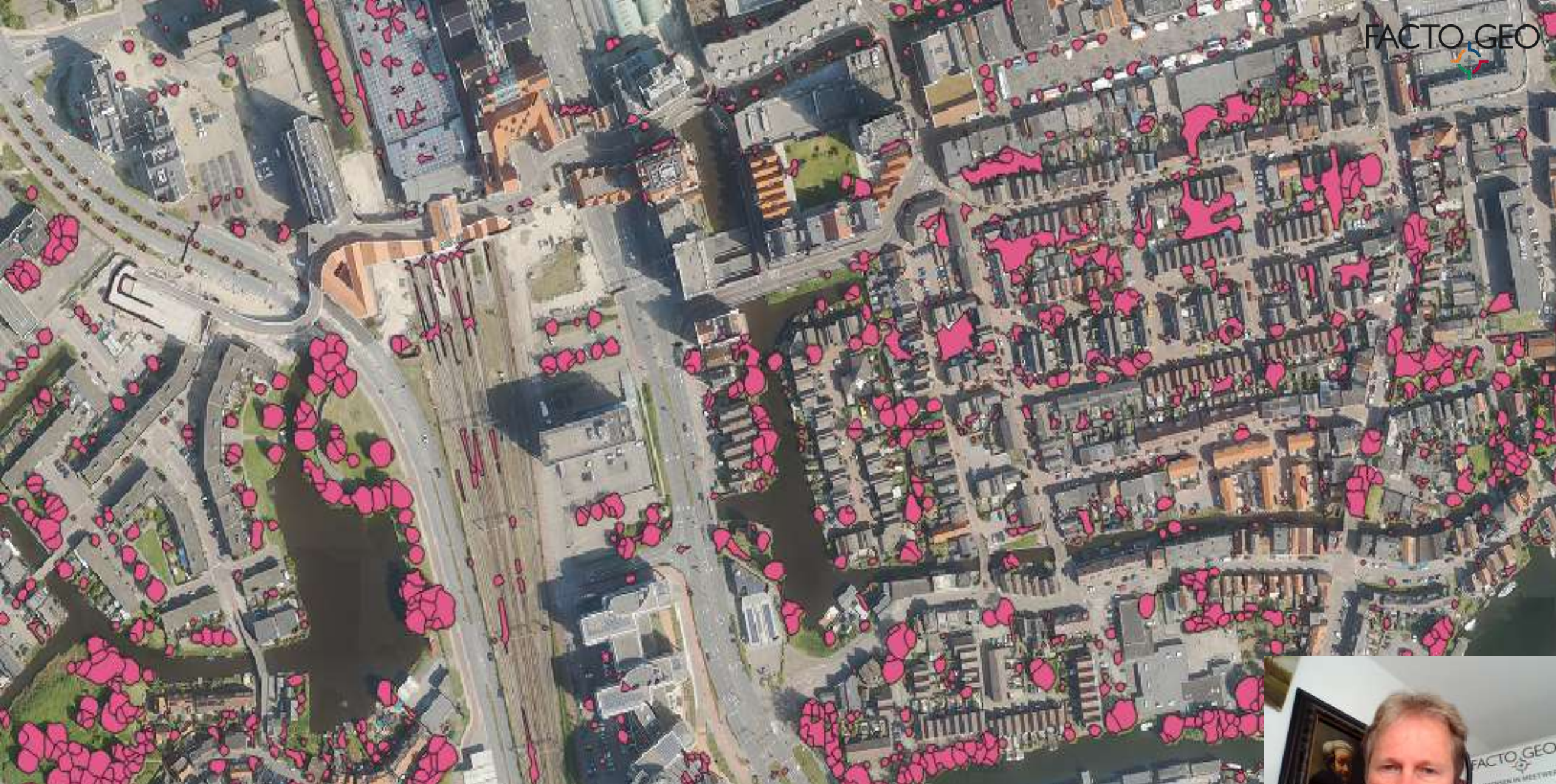




From classified  
point cloud to  
3D model:  
automatic  
modeling







Trees with tree trunk location, crown size, height and type



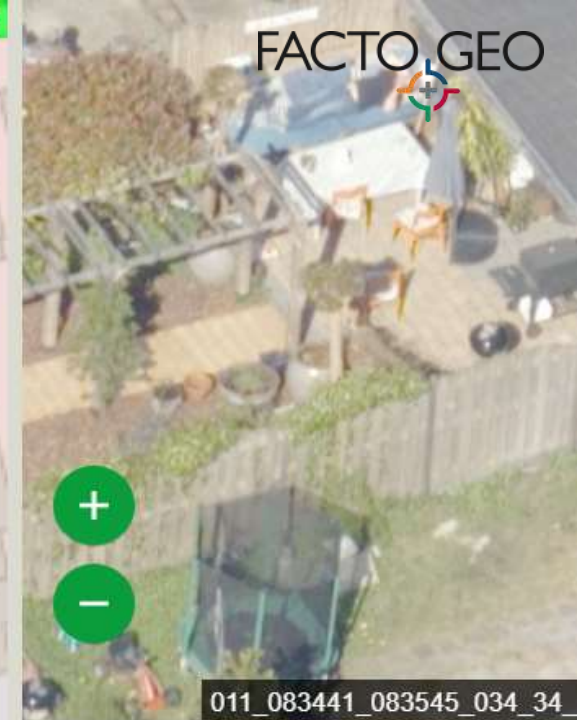




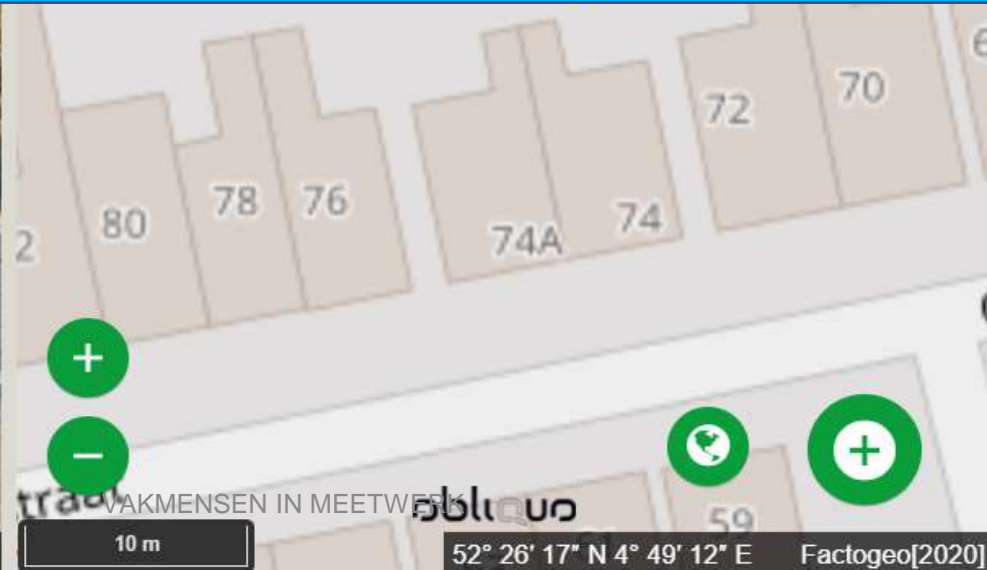
**True ortho versus BGT**







# Oblique





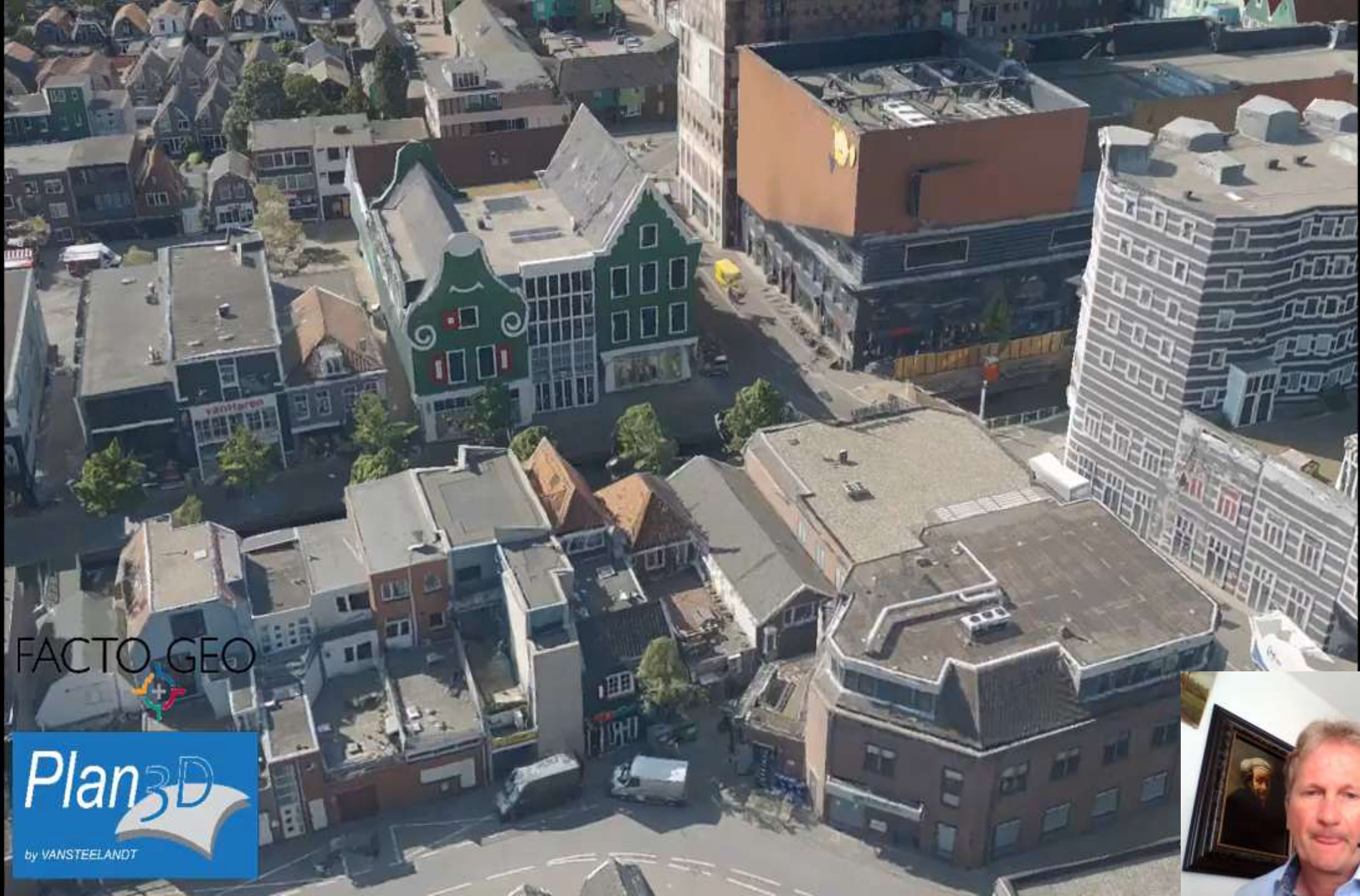


3D Mesh

<https://youtu>







FACTO GEO



**Plan3D**  
by VANSTEE LANDT







Ho  
Bo



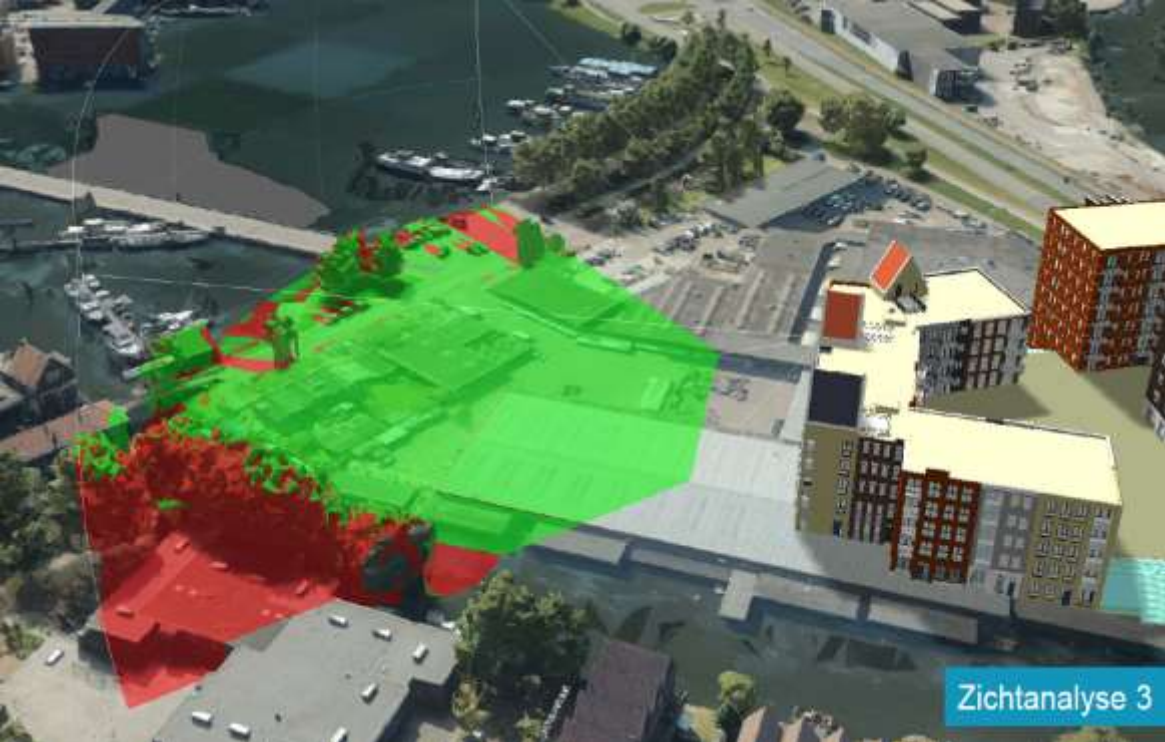




Sch  
"vo"









# Zaanse data in het Luciad platform van IMAGEM..



Beheren

- Lagen
- Zaandam Point cloud
- Zaandam mesh
- Hoogtemodel
- Achtergrond

Schaduw

Schaduw effect


Maand  april

Tijd  10:00

Meten







The pros and cons of  
this innovation for  
the municipality  
Zaanstad

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The pros and cons of this innovation for the municipality Zaanstad



DiS Geo

Doorontwikkeling  
in Samenhang



can you own the data?





# Poll

*'The municipality Zaanstad is owner of the data of the Digital Twin...'*

*Who is the owner of all data of your city in your Digital Twin ?*

- A) municipality*
- B) everyone*
- C) everyone who collect data*



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