

Geo en BIM – werkt dat samen?



Patrick de Groot



Korte introductie IMAGEM

Wij helpen mensen duurzame verandering te bereiken door de kracht van data te ontsluiten met inzicht in locatie

Wij zijn vertalers::

- Van ruwe data naar **direct bruikbare informatie, kennis en inzicht**
- Van GIS naar **Location Intelligence**
- Met standaard Hexagon Geospatial technologie naar **gebruikersspecifieke oplossingen**



— Hexagon Diamond Partner Benelux —

De weg naar autonomie

Hexagon's kerncapaciteiten

CORE CAPABILITY
Reality Capture



CORE CAPABILITY
Positioning

SENSOR SOLUTIONS

Data Capture

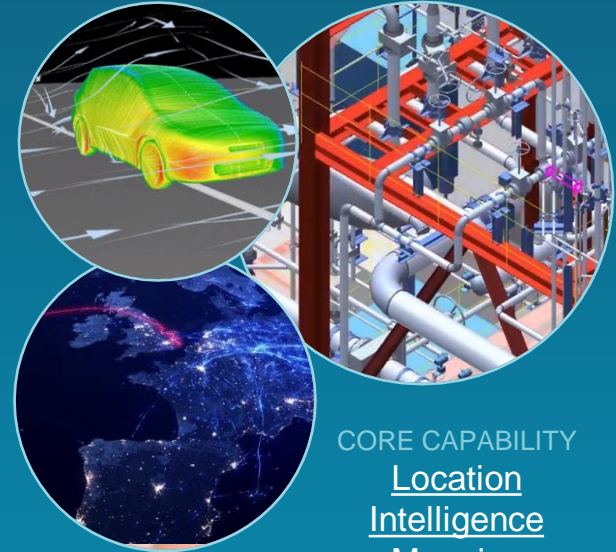
AUTONOMOUS SOLUTIONS

Data Leverage

SOFTWARE SOLUTIONS

Data Intelligence

CORE CAPABILITY
Design and Simulation



CORE CAPABILITY
Location Intelligence Mapping

CORE CAPABILITY
Autonomous Technologies



De Geo-Ops Uitdaging

DATA PRODUCTIE



CAD, BIM



GIS



Fotogrammetrie



Landmeten

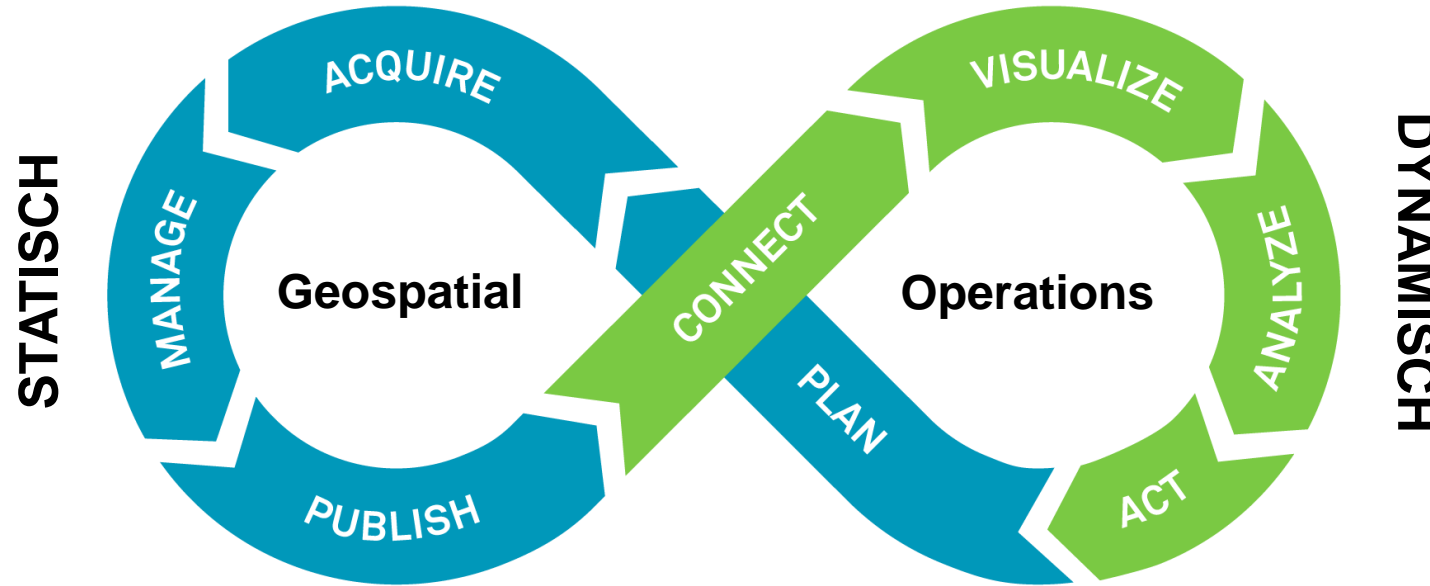


Cartografie



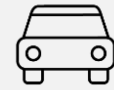
Sensor

SILOS EN LOSSE SYSTEMEN



Organisaties moeten de tijd tussen inwinning en operationeel gebruik van data verkorten

OPERATIONEEL GEBRUIK



Wegen



Luchtvaart



Defensie



Maritiem

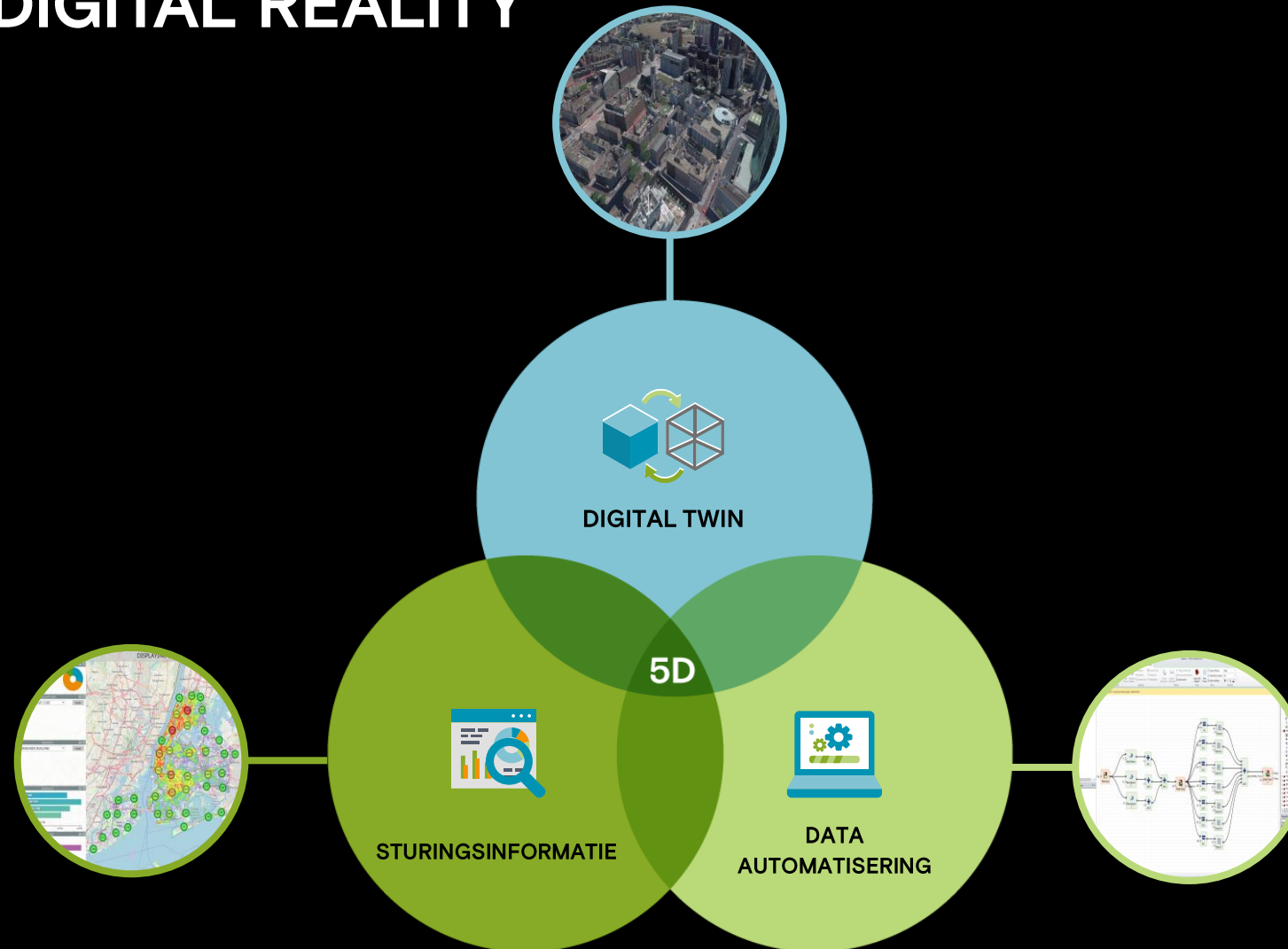


Industrie

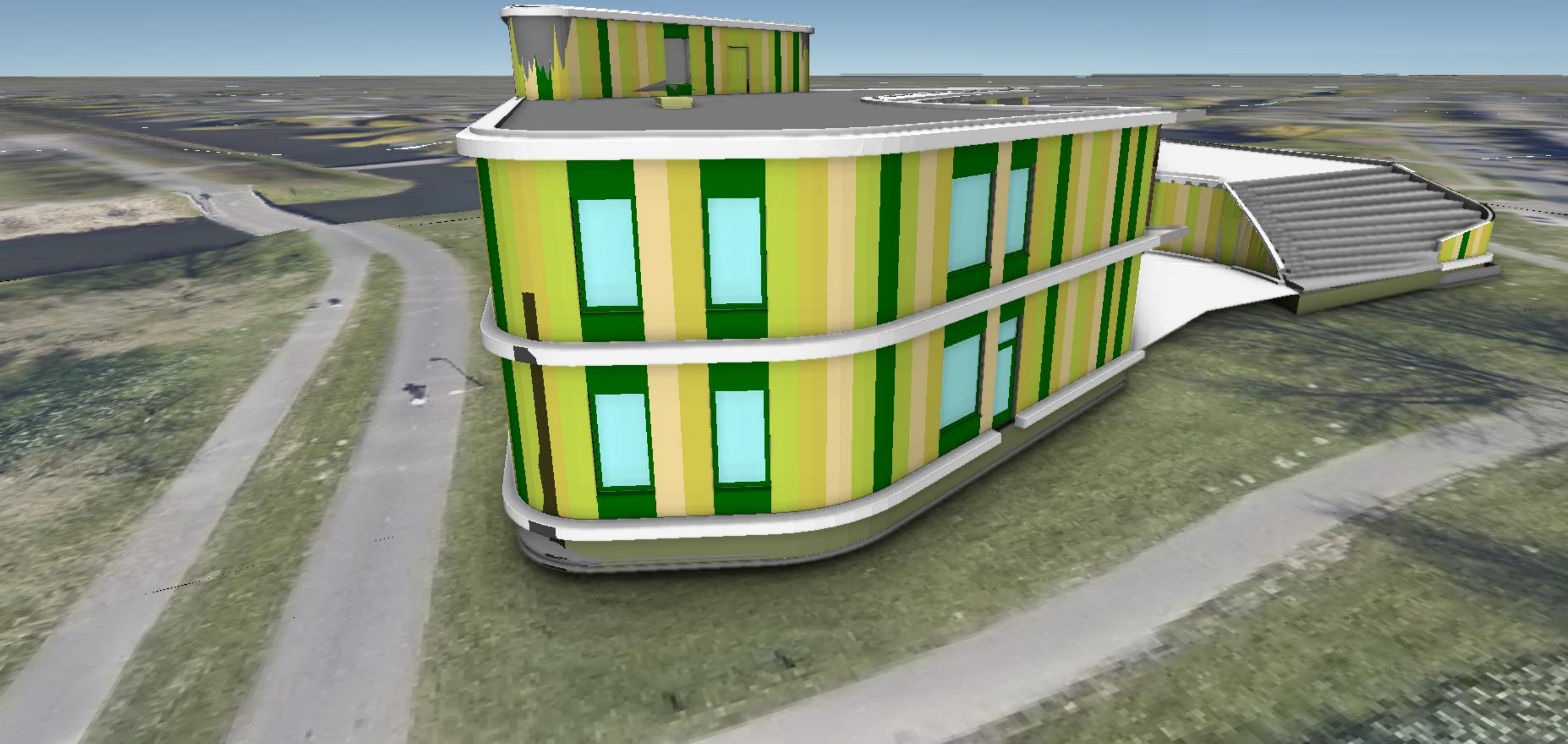


Overheid

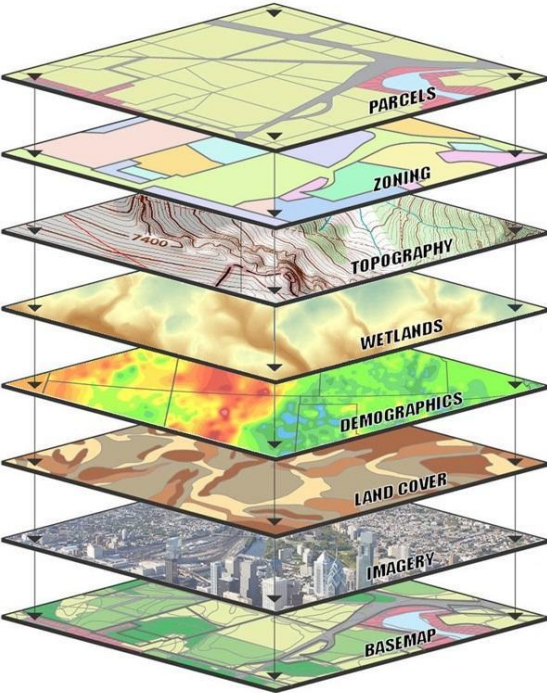
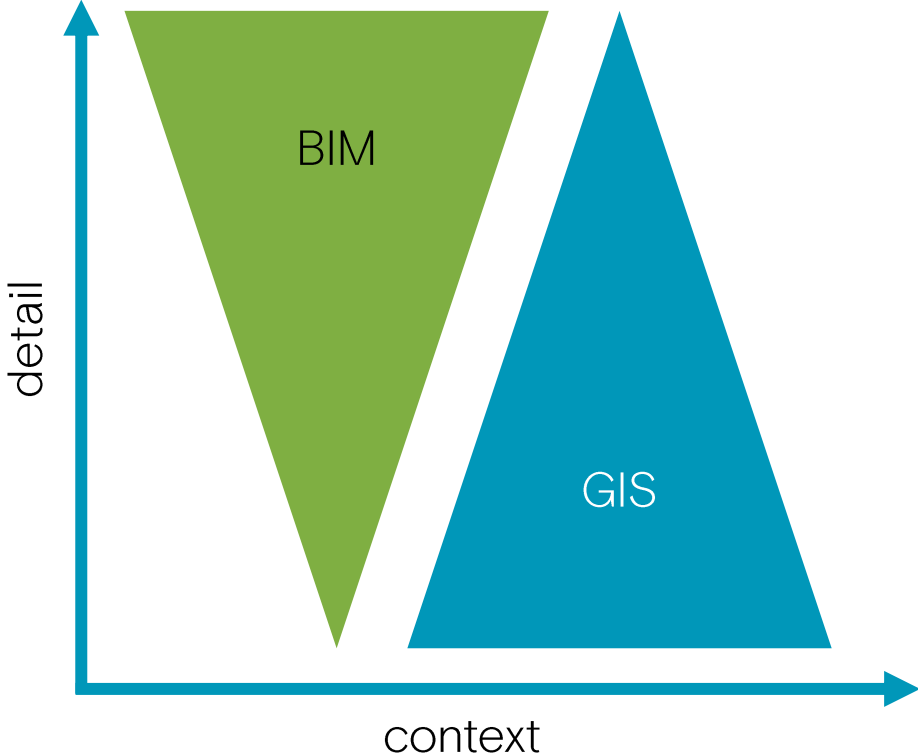
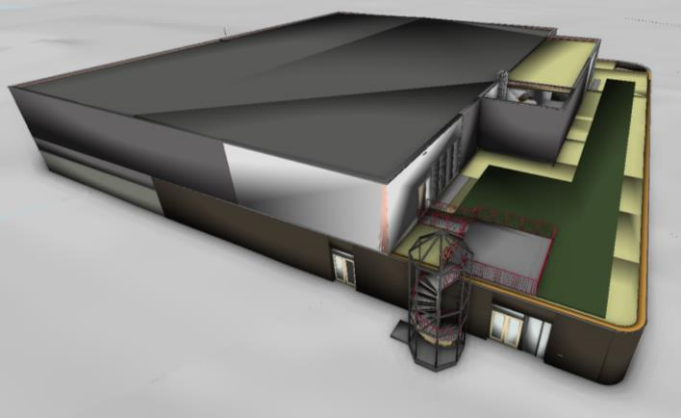
SMART DIGITAL REALITY



Geo en BIM – een gelukkig huwelijk?



Geo en BIM – klassieke tegenstelling



GIS en BIM komen samen in een Digital Twin

kaartlagen <

Meldingen <



Hoe combineer je het detail van BIM met de context van Geo?



Luciad Portfolio

5D visualisatie

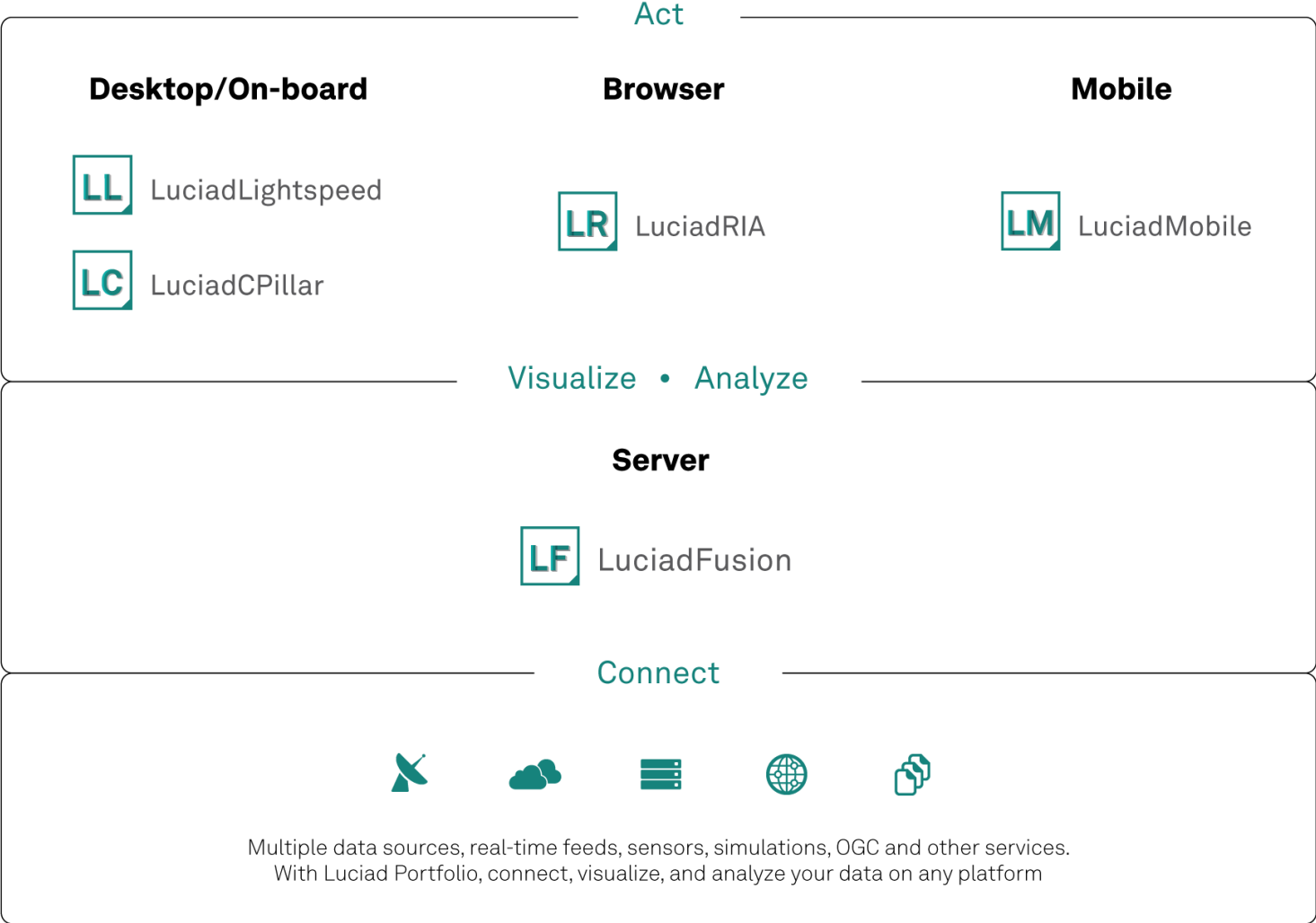
Desktop, browser en mobiel

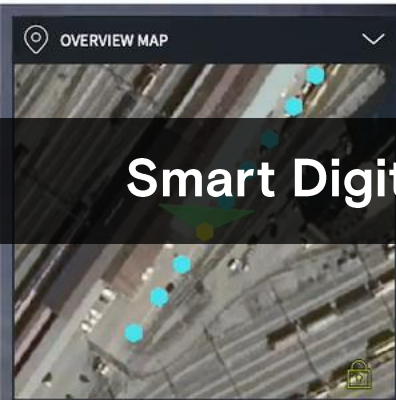
Volgens open standaarden

GPU accelerated



Luciad portfolio





OVERVIEW MAP

Smart Digital Reality

Sensor fusion

Leave panorama

MAP LAYERS

- Elevation
- Panoramas
- 3D tiles
- Bing Maps

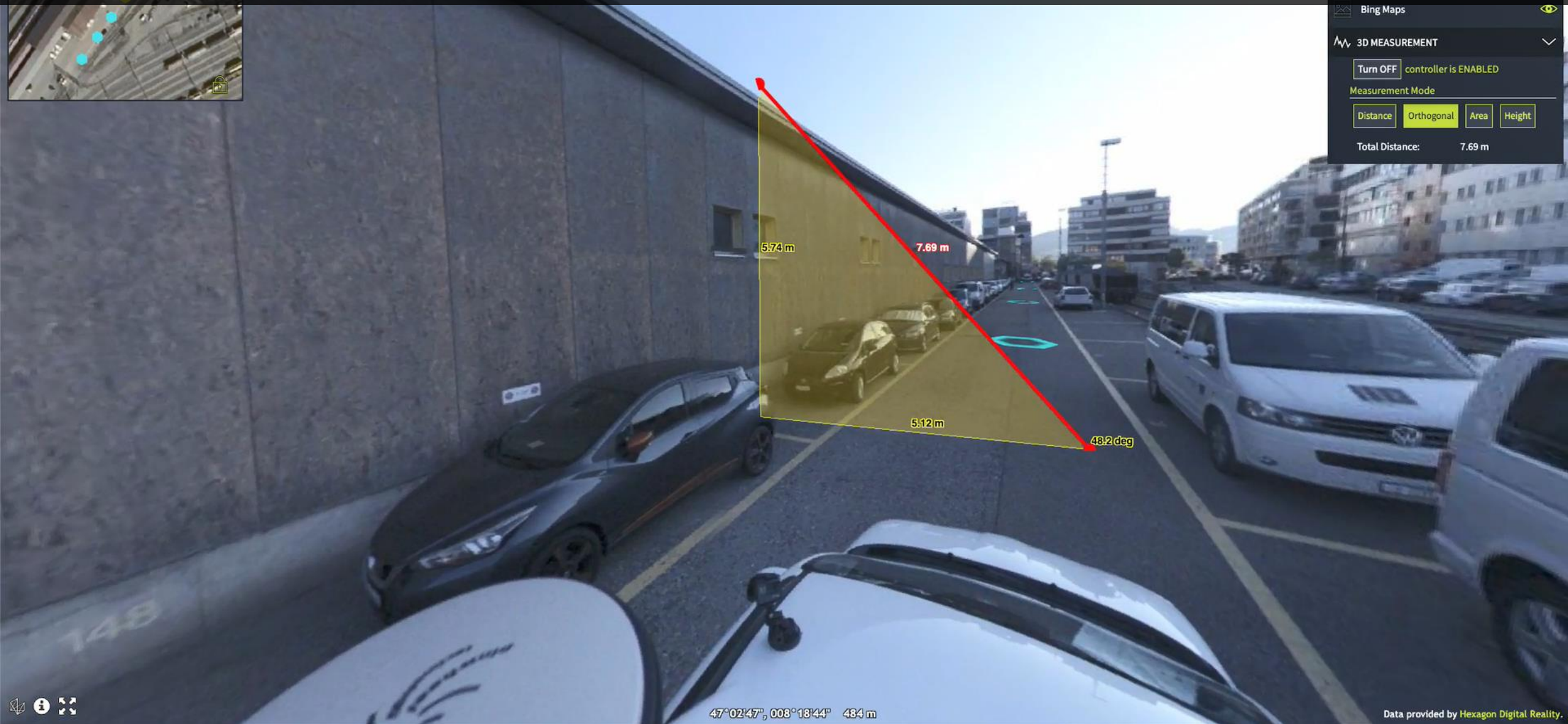
3D MEASUREMENT

Turn OFF controller is ENABLED

Measurement Mode

Distance Orthogonal Area Height

Total Distance: 7.69 m



47°02'47", 008°18'44" 484 m

Data provided by Hexagon Digital Reality.

LOD 2.3 panden met informatie



HOOGBOUW	N
VERBLIJFSOBJECTOPPEI290	
KAPVORM	geen
ZOLDER_J_N	nee
AANT_BOUWLAGEN	2 lagen
EXTRUDE_VECTOR	3.19
NOORD_M1	9.29

kaartlagen

3D-modellen panden

LoD1.3 Kadaster panden

LoD2.0 Almere-stad

LoD2.1 text. Centrum

LoD2.2 zonder texture

LoD2.2 met texture

LoD2.3 zonder texture

LoD2.3 met texture

Footprint LoD 2.3

3D-modellen overig

2D kaartlagen

Plan objecten

3D Beelden/Achtergronden

Omgevingsserver

3D meting

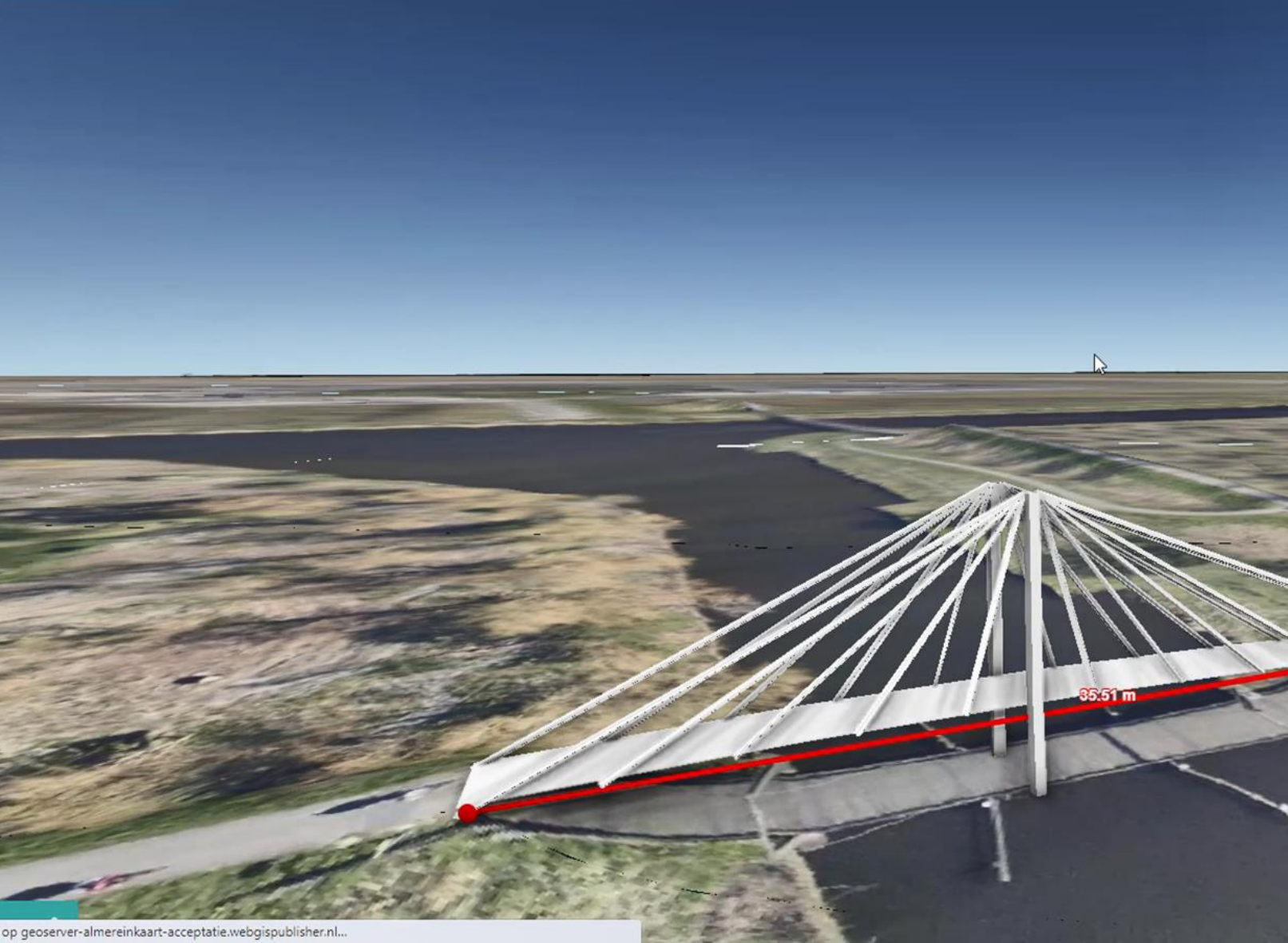
Voeg laag toe

Schaduw

BIM Objecten in de Viewer – outdoor en indoor

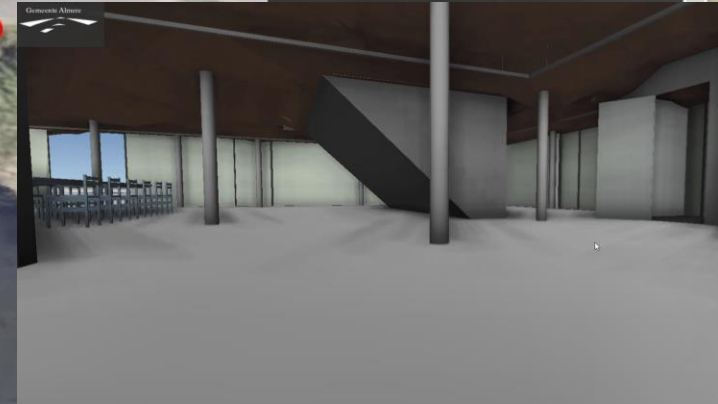
kaartlagen

- 3D-modellen panden
- 3D-modellen overig



Uitgintote

- Brug Floriade
- School
- Hoogbouw model A'dam N



Planning van nieuwe objecten in een bestaande omgeving



School

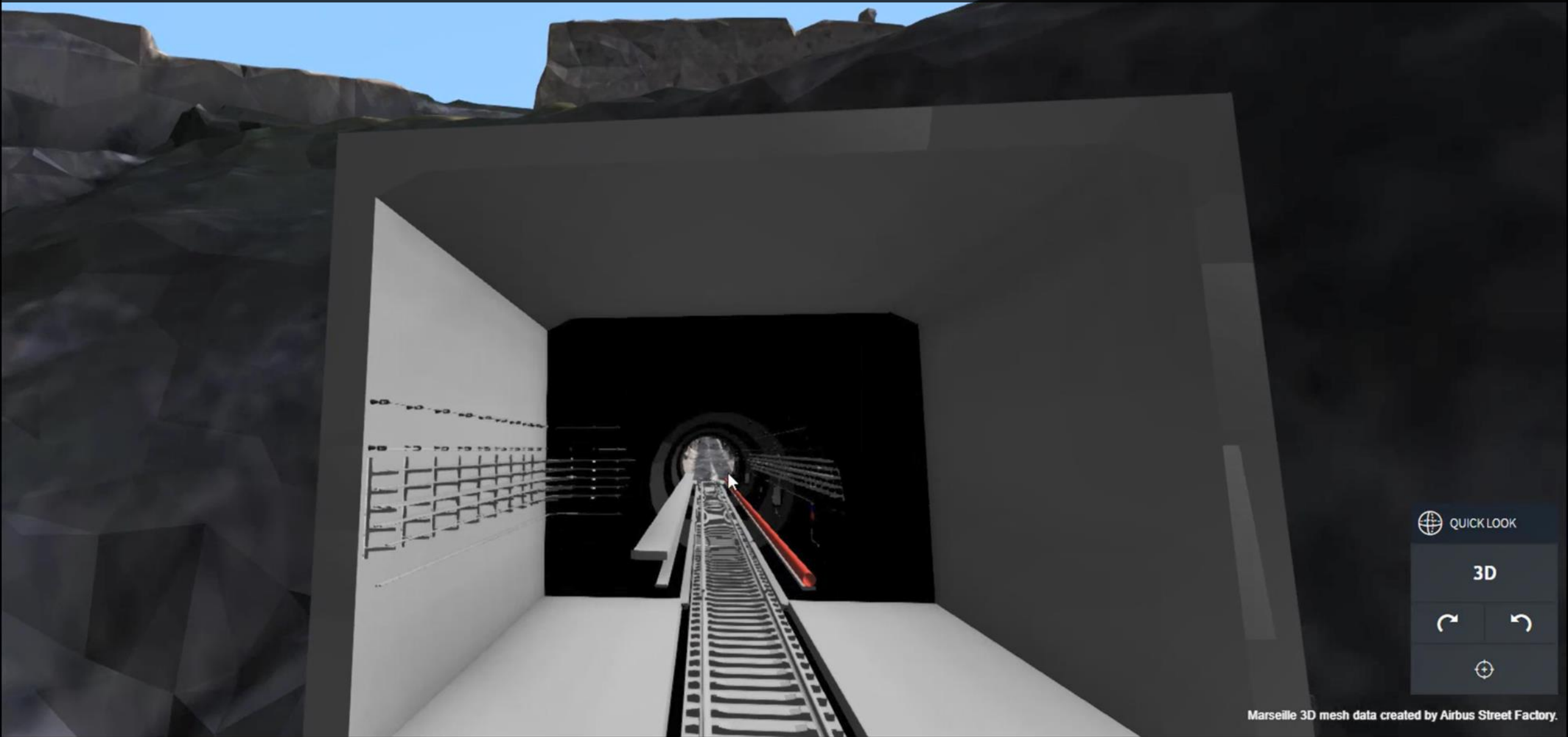
Sporthal

Woning

Woning

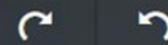
Draai

Planning van nieuwe objecten in een bestaande omgeving



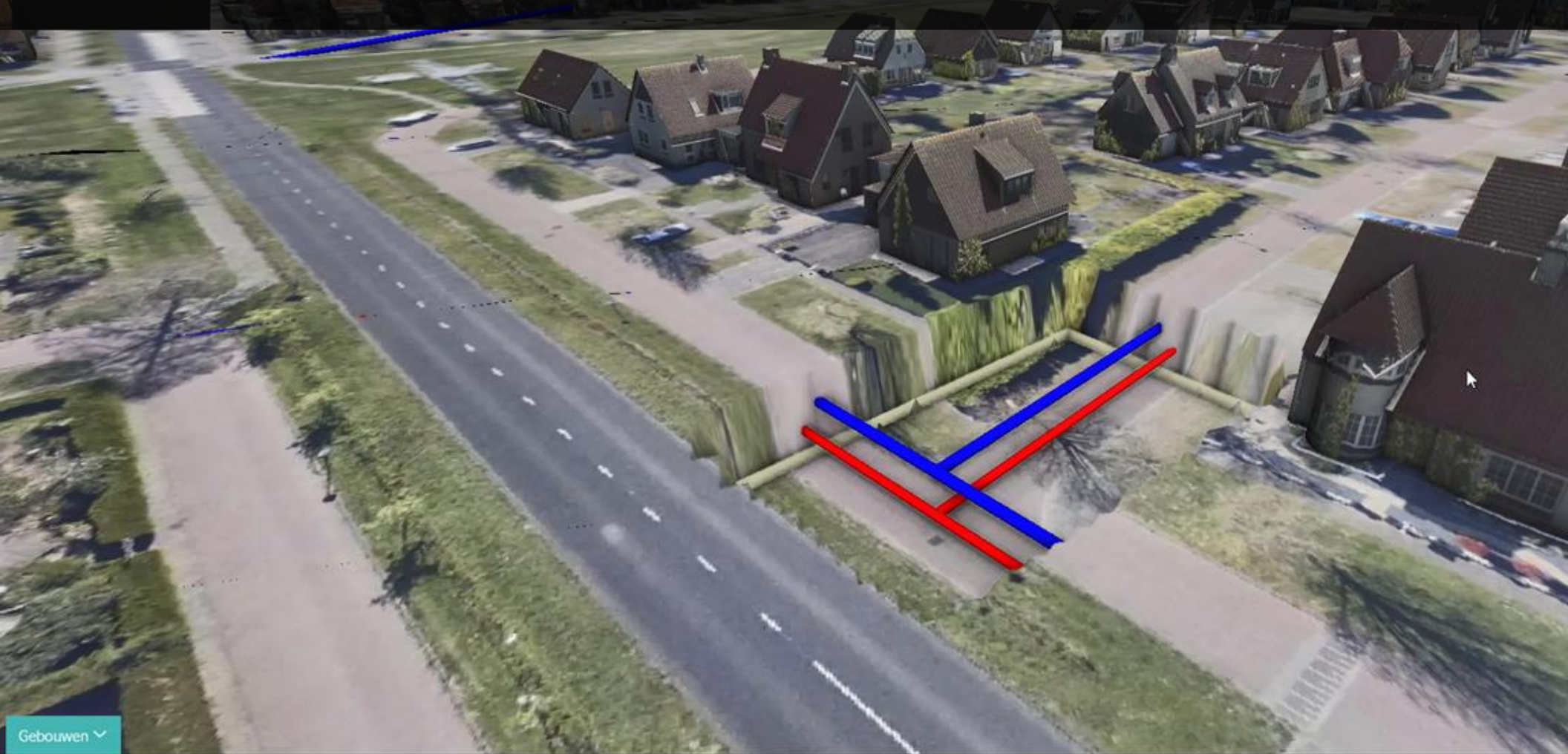
QUICK LOOK

3D



Gemeente Almere

Interactief kijken in de ondergrond



kaartlagen

- OGC 3D Tiles Tile Set Model
- 3D-modellen panden
 - LoD1.3 Kadaster panden
 - LoD2.0 Almere-stad
 - LoD2.1 text. Centrum
 - LoD2.2 zonder texture
 - LoD2.2 met texture
 - LoD2.3 zonder texture
 - LoD2.3 met texture
 - Footprint LoD 2.3
- 3D-modellen overig
- 2D kaartlagen
- Plan objecten
- 3D Beelden/Achtergronden

DWA

- Contouren
- Transparant

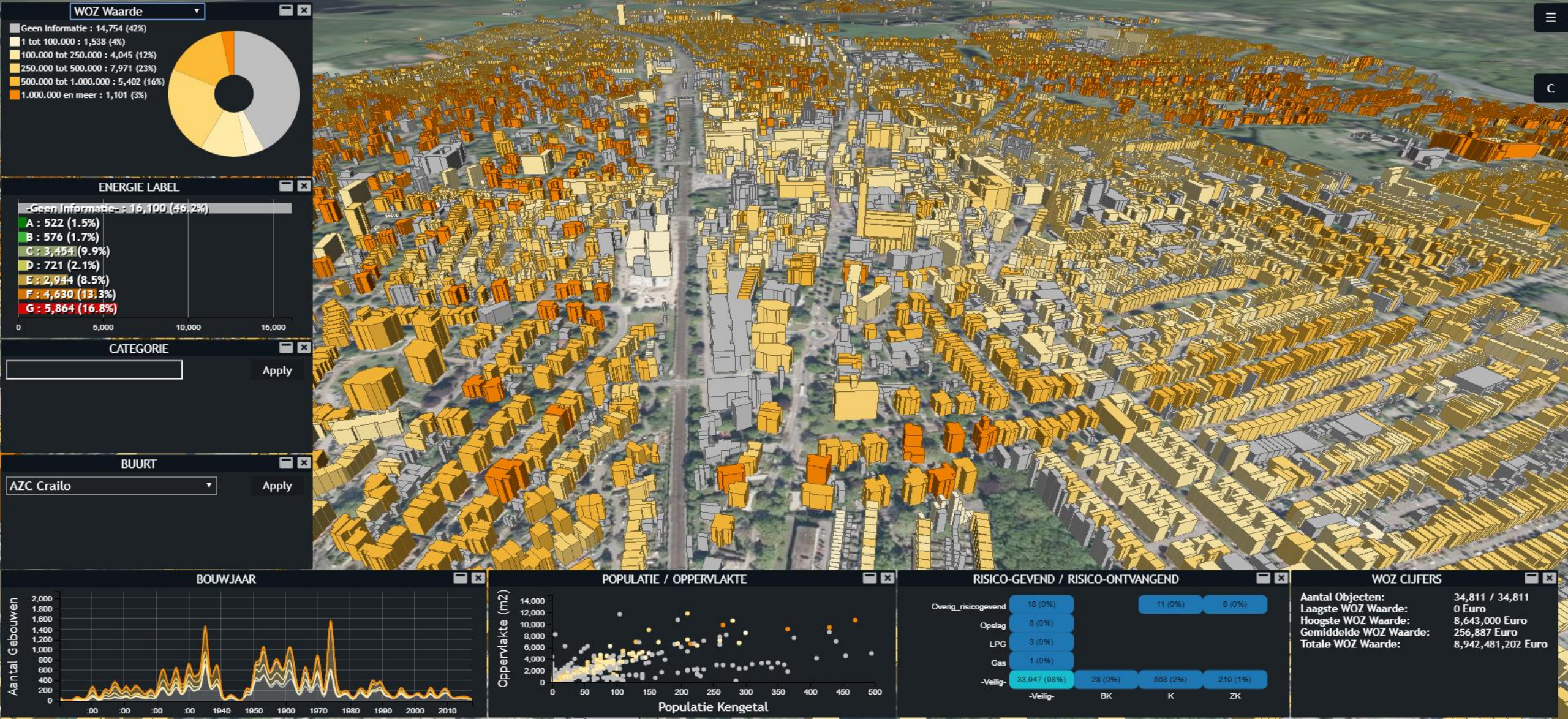
RWA

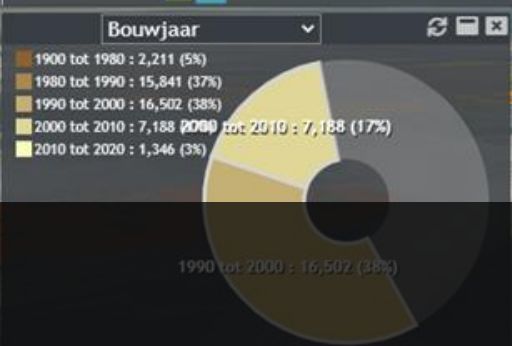
- Contouren
- Transparant

Gebouwen

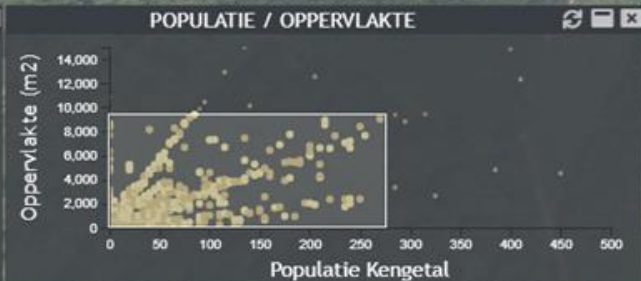
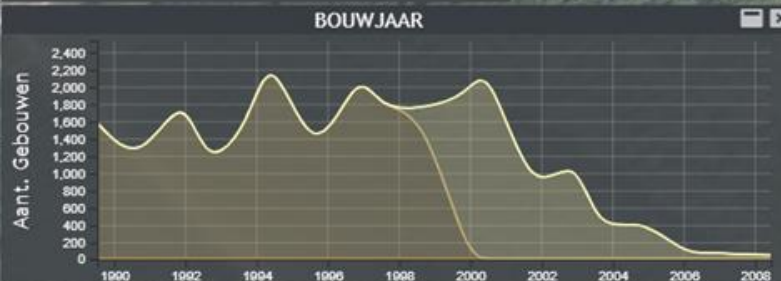
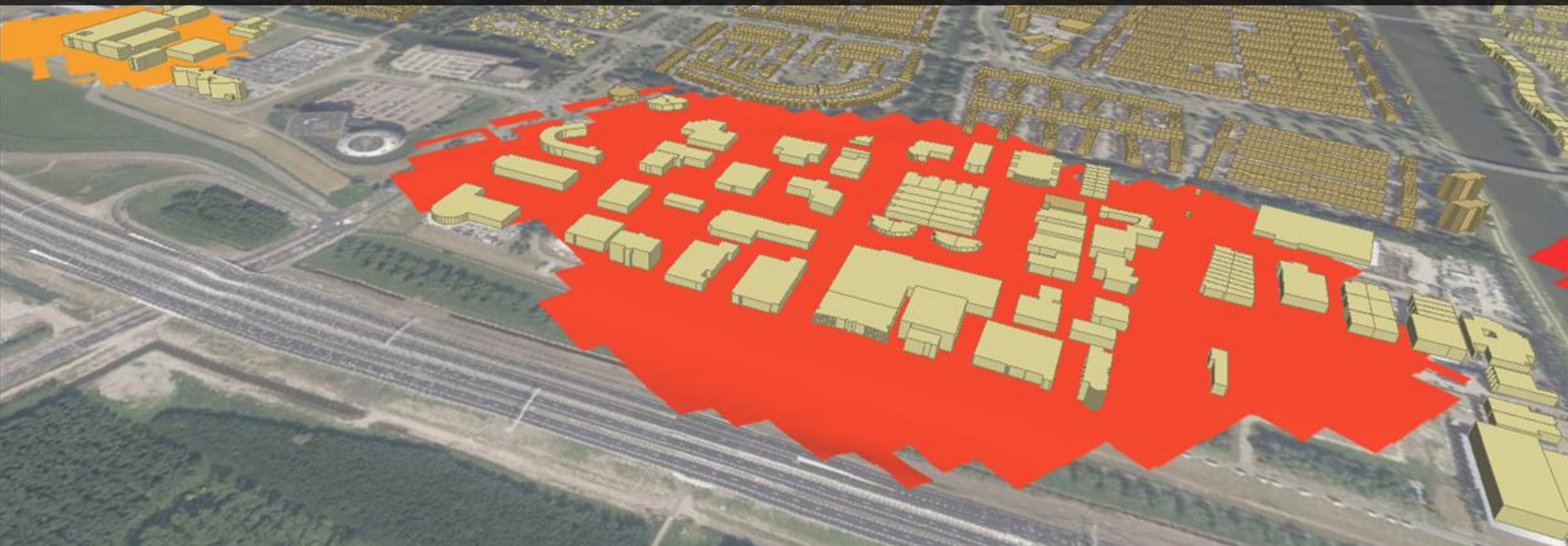


Dynamische selecties en trendanalyse





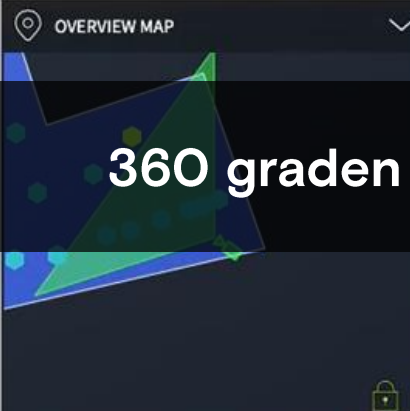
Geo biedt nog veel meer analyse mogelijkheden voor BIM




WOZ CIJFERS

Aantal Objecten:	23,690 / 43,580
Laagste WOZ Waarde:	0 Euro
Hoogste WOZ Waarde:	1,778,000 Euro
Gemiddelde WOZ Waarde:	233,736 Euro
Totale WOZ Waarde:	5,537,210,836 Euro

OVERVIEW MAP



360 graden BIM



Exit Luciad

X-Ray

MAP LAYERS

3D MEASUREMENT



50°51'53", 004°40'11" 15 m

Data provided by [Orange Digital Reality](#)

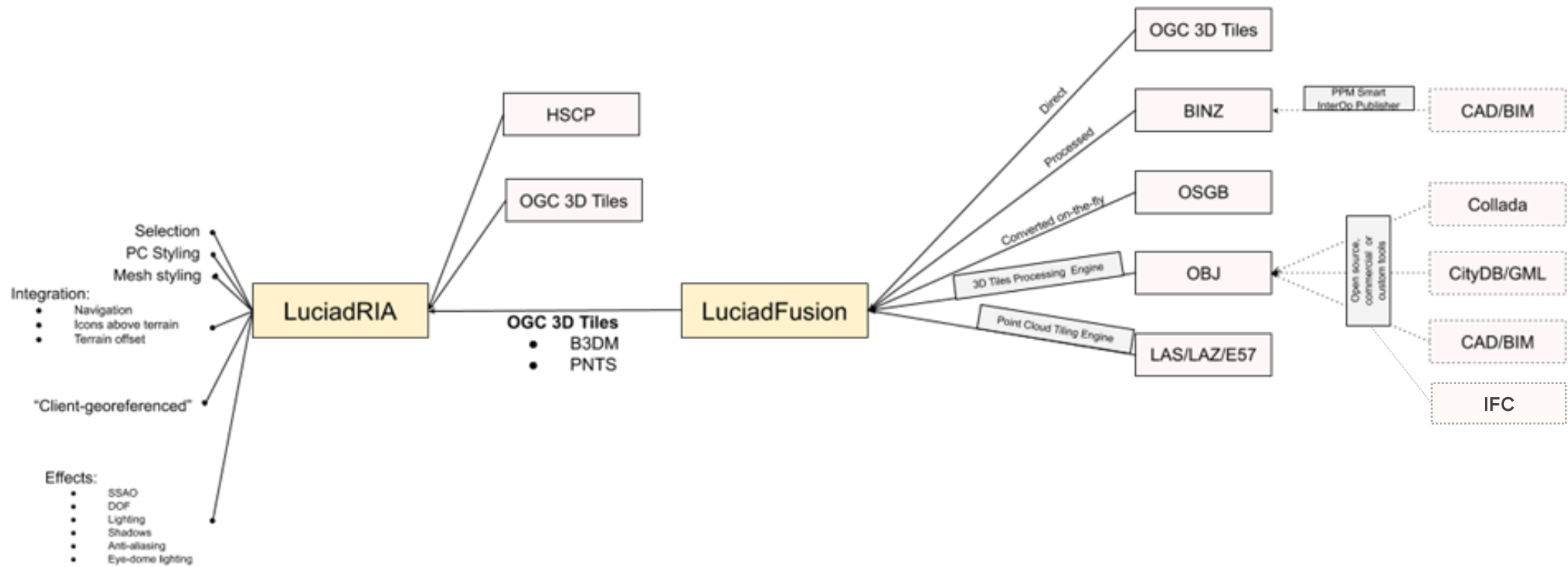
360 graden BIM

Selection information:

- Component: E-501_0
- Serial Code : 30485739
- Type : Valve
- Maximum Pressure : 1200kPa
- Current Pressure :
- Last Maintenance : 2019-03-04
- Actions :

[More details](#) [Report issue](#)

luciad – schematische weergave



API omgeving



Volledig aanpasbaar aan eigen wensen (HTML5 en Javascript)



Te integreren in bestaande systemen



Gebaseerd op open standaarden
(waaronder OGC 3DTiles, WFS, WMS, WMTS, GML)



Zowel voor Java, Javascript als C++ / C# omgevingen

```
type.pause = function (e) {
  if (this.paused = true)
    return this
}

if (this.$element.find('.next, .prev').length && $.support.transition) {
  this.$element.trigger($.support.transition.end)
  this.cycle(true)
}

this.interval = clearInterval(this.interval)
return this
}

Carousel.prototype.next = function () {
  if (this.sliding) return
  return this.slide('next')
}
```

LuciadRIA (2020.1.07)

Overview

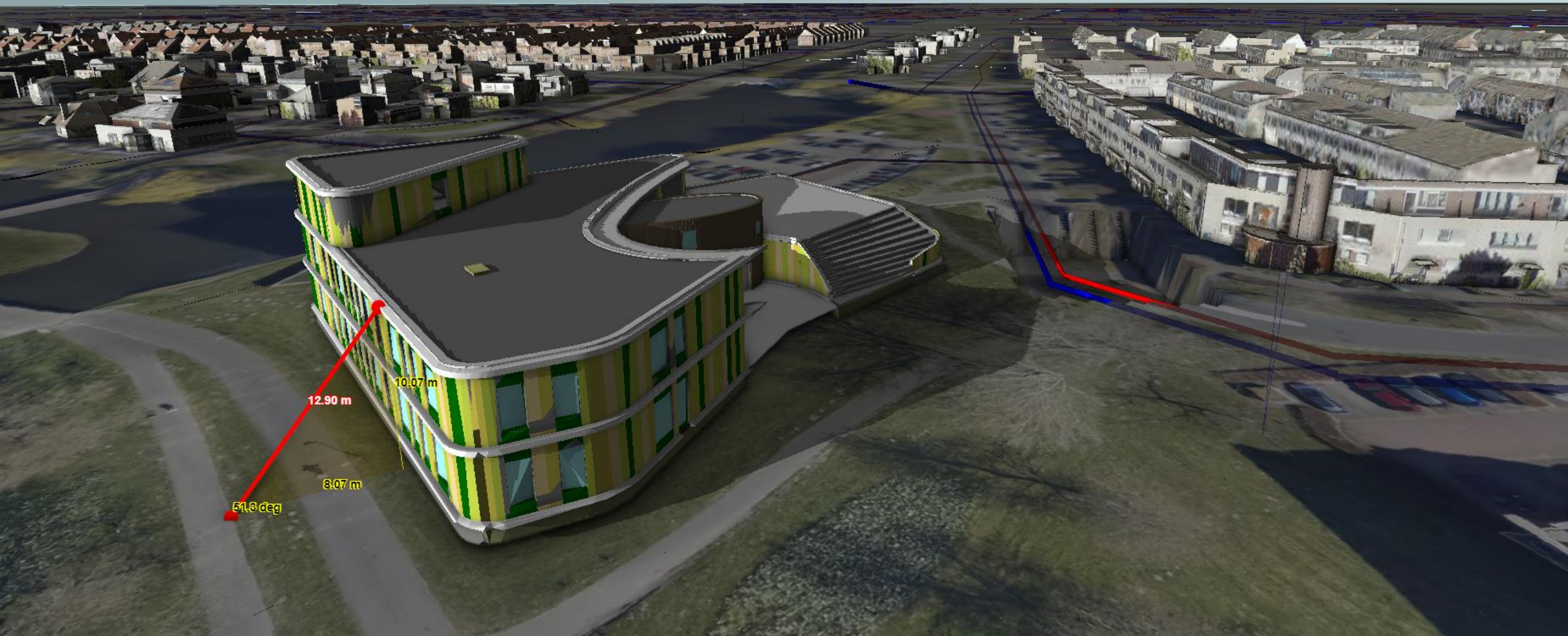
- geometry/geometry/constructive/ConstructiveGeometry
 - ConstructiveGeometry
- geometry/geometry/constructive/ConstructiveGeometryFactory
 - createCartesian
 - createEllipsoidal
 - createSpherical
- ria/error/InvalidReferenceError
 - InvalidReferenceError
- ria/error/InvalidXMLError
 - InvalidXMLError
- ria/error/LuciadError
 - LuciadError
- ria/error/NoBoundsError
 - NoBoundsError

Legend

- Module
- Object literal
- Variable
- Function
- Function with type parameter
- Index signature
- Type alias
- Type alias with type parameter
- Enumeration
- Enumeration member
- Property
- Method
- Interface
- Interface with type parameter
- Constructor
- Property
- Method
- Index signature
- Class
- Class with type parameter
- Constructor
- Property
- Method
- Accessor
- Index signature

this.\$element.trigger(slideEvent)

Geo en BIM – ware liefde!



Meer informatie



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