



# Disruptive Business Models of Geospatial Content

Geospatial World Forum; Rotterdam; 2016-05-23  
Frank J.L. Pauli; CEO CycloMedia Technology



## Today's Agenda:

- Introduction CycloMedia Technology
- Disruptive Business Models
- Future Disruptive Business Models

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**DISRUPTIVE BUSINESS MODELS FOR GEOSPATIAL CONTENT**



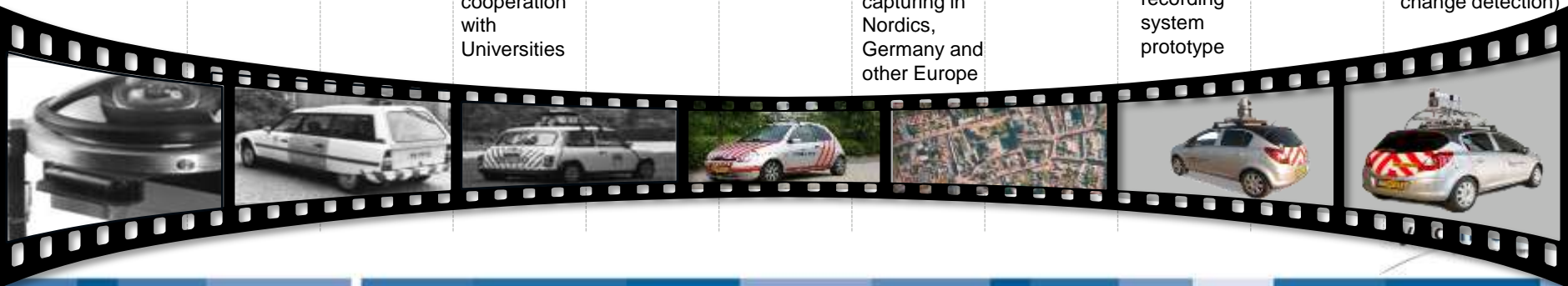
# CYCLOMEDIA STRATEGY & VISION

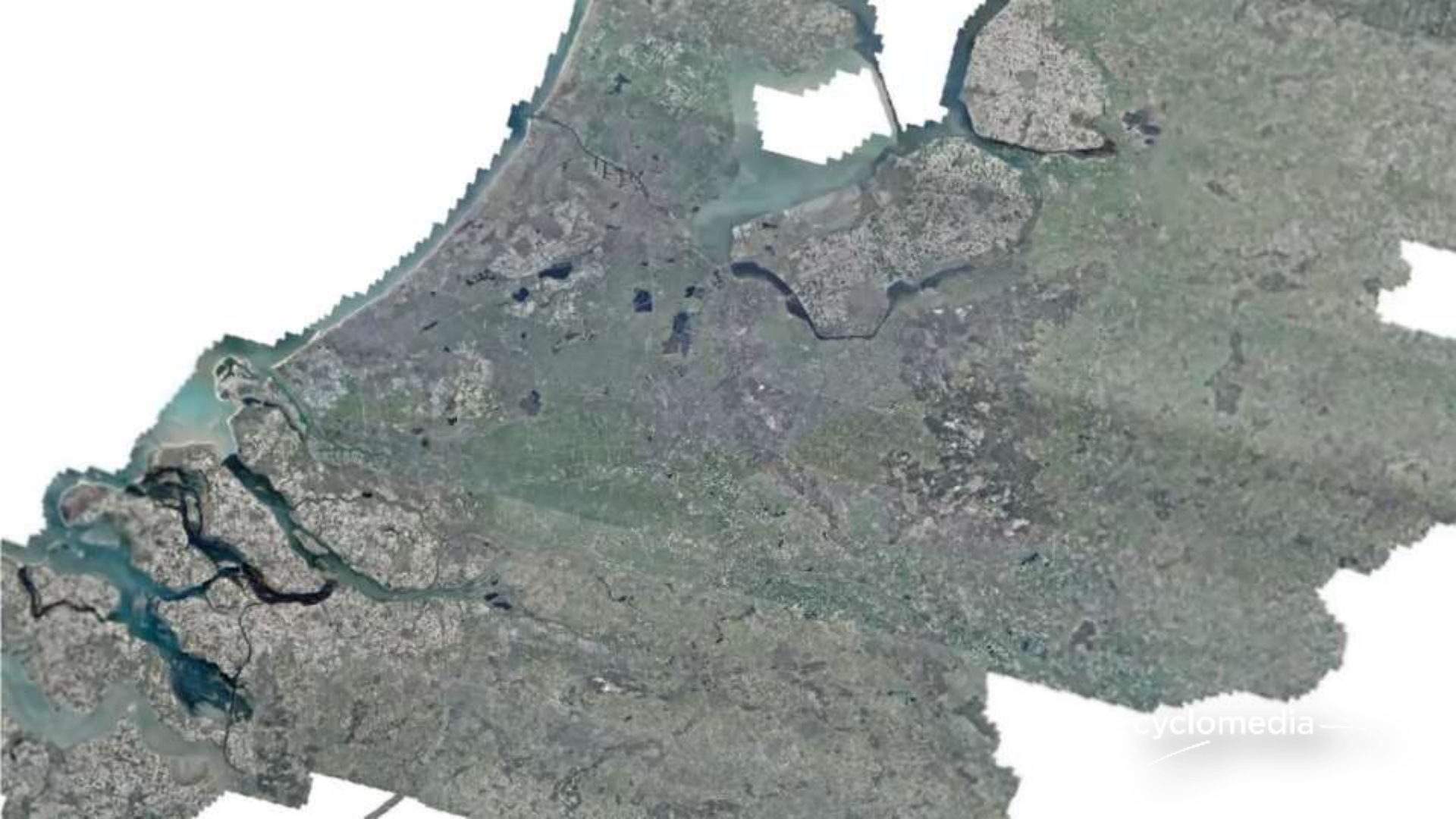
- Charting the public external world
- Street level imagery and other imagery
- Our street level imagery: Accurate, Complete, Recent
- Content-as-a-Service
- Integrated access or Web-based viewer
- B2B Focus: Government or Corporate
- Strong use case focus



# CYCLOMEDIA 35 YEARS DEVELOPMENT HISTORY

1980	1988	1994	2008	2009	2010	2011	2012	2013	2014	2015
<ul style="list-style-type: none"> <li>Start research "FRANK" system at Delft University of Technology</li> </ul>	<ul style="list-style-type: none"> <li>Development of prototype fisheye cameras and recording vehicles</li> </ul>	<ul style="list-style-type: none"> <li>Start experiments with Dutch Cadaster, cities of Amsterdam and Rotterdam</li> </ul>	<ul style="list-style-type: none"> <li>7th generation digital recording system (record while driving)</li> <li>Start of yearly nationwide aerial photography</li> <li>Start of cooperation with Universities</li> </ul>	<ul style="list-style-type: none"> <li>Automated traffic sign detection from Cycloramas</li> <li>Nationwide coverage of the Netherlands</li> </ul>	<ul style="list-style-type: none"> <li>Mass roll-out of Globe-Spotter® web based viewer (CaaS)</li> </ul>	<ul style="list-style-type: none"> <li>9th generation digital Recording system: DCR9</li> <li>3D point cloud &amp; textured mesh processing development</li> <li>First Cyclorama capturing in Nordics, Germany and other Europe</li> </ul>	<ul style="list-style-type: none"> <li>First Cyclorama capturing in the U.S.</li> </ul>	<ul style="list-style-type: none"> <li>Addition of nationwide oblique imagery with fully functional integration in Globe-Spotter®</li> <li>10th generation of digital recording system prototype</li> </ul>	<ul style="list-style-type: none"> <li>10th Generation digital Recording system: DCR10</li> <li>First automated blurring project</li> </ul>	<ul style="list-style-type: none"> <li>A shift of imagery database to Microsoft Azure Cloud</li> <li>Introduction of Netherlands Oblique nationwide</li> <li>Launch of BAGSmart service (automated change detection)</li> </ul>

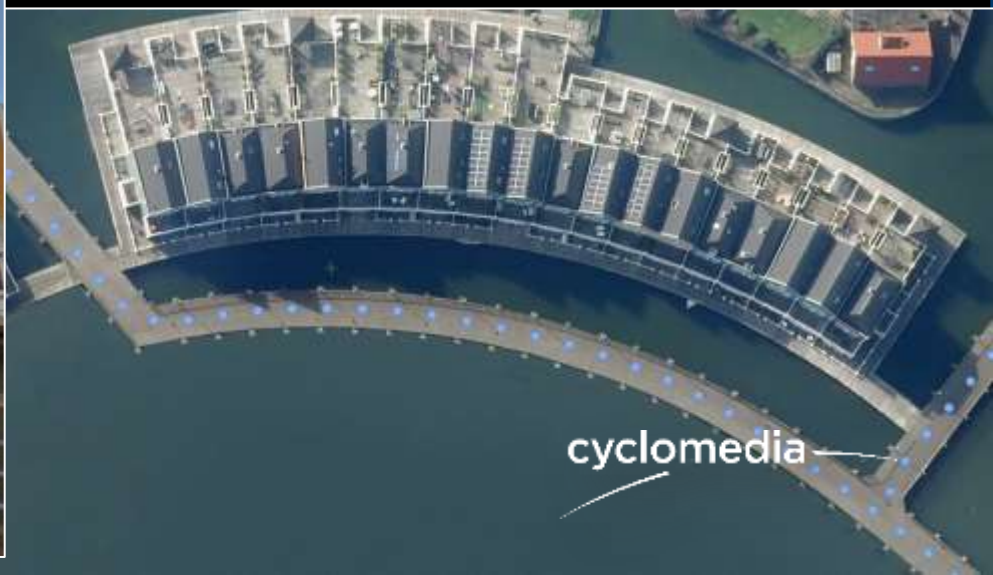






# Charting the public world

- Cyclorama
- Luchtfoto NL (Aerial)
- Nederland Obliek (Oblique)





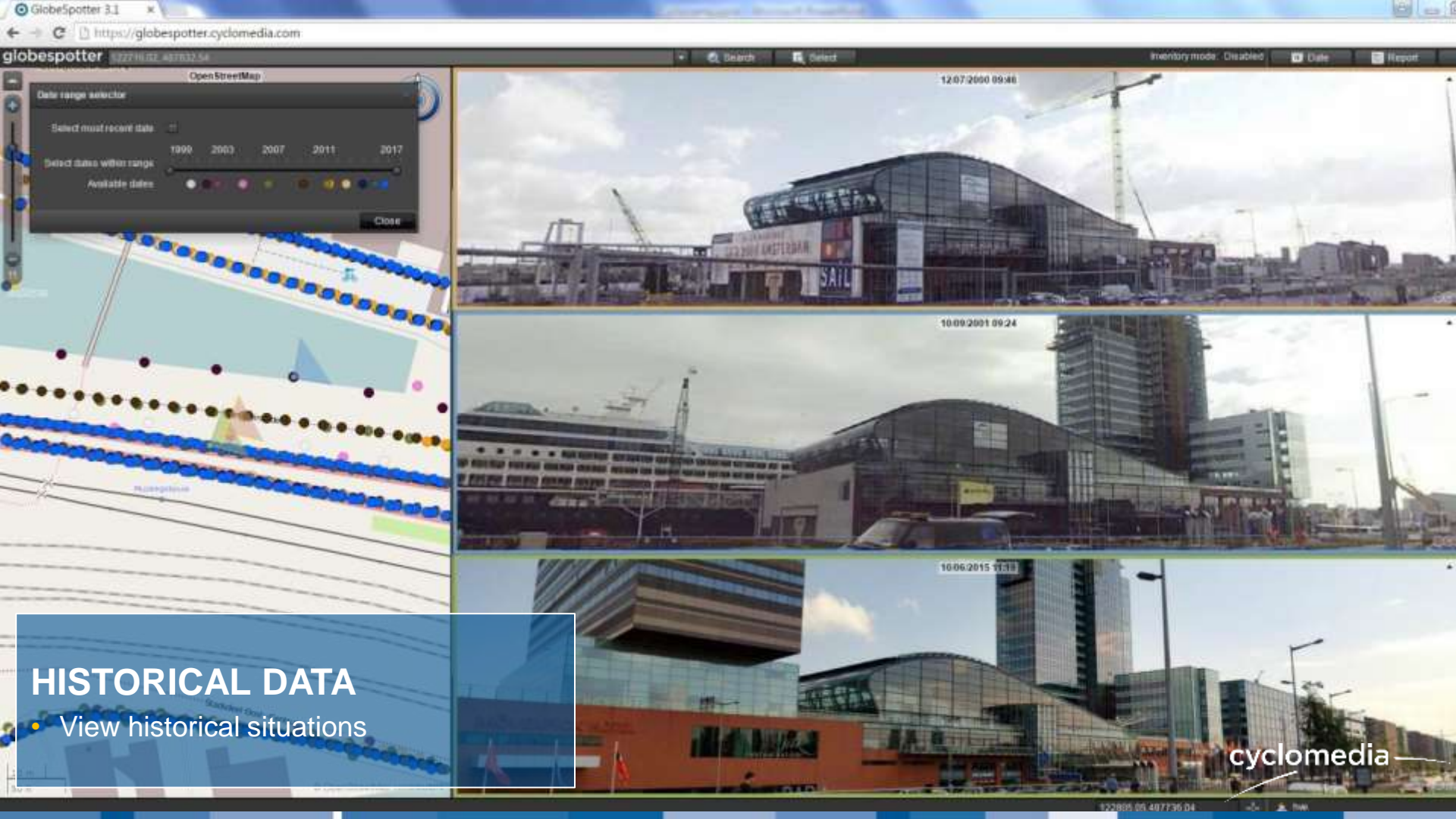
## HD-CYCLORAMA

- Street level image of the complete public space
- 360° spherical panoramic image
- High resolution
- Position accuracy



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## HISTORICAL DATA

- View historical situations





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## NEDERLAND OBLIEK

- Recent: 2015; Capturing 2016
- High resolution
- Nationwide

Nederland Oblique 2015 - 30-06-2015 07:37

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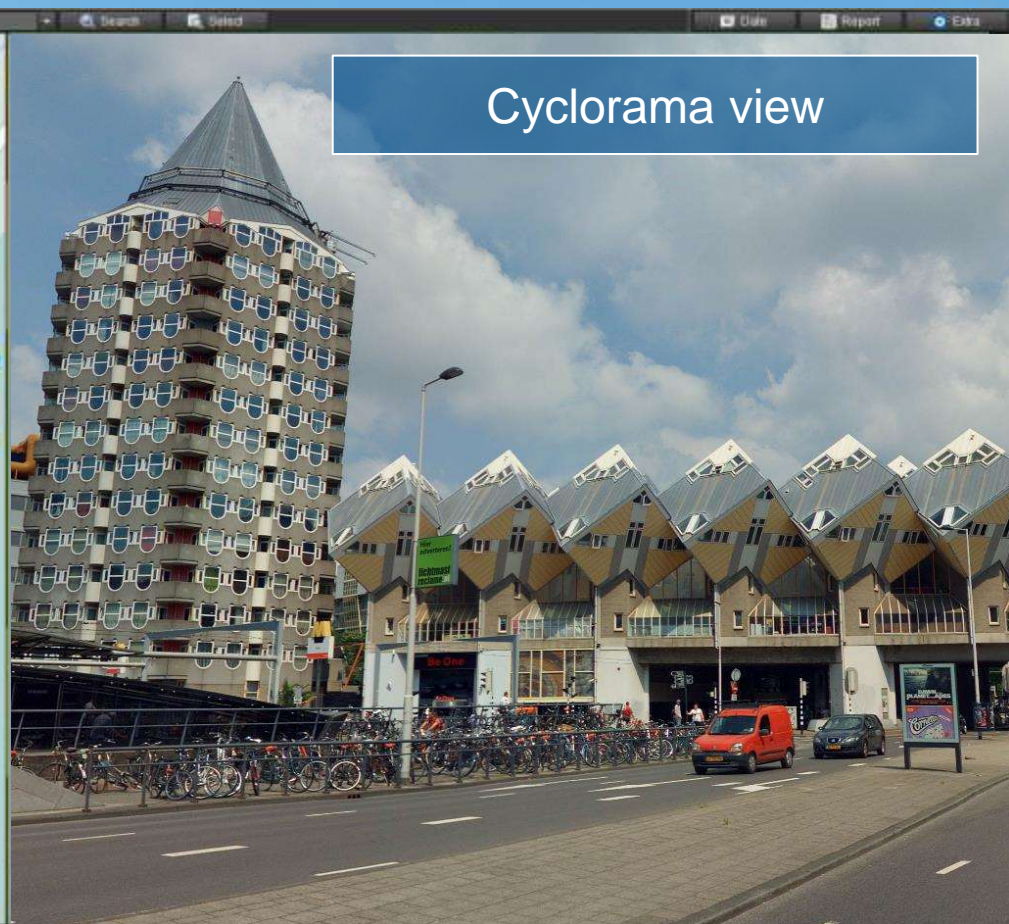
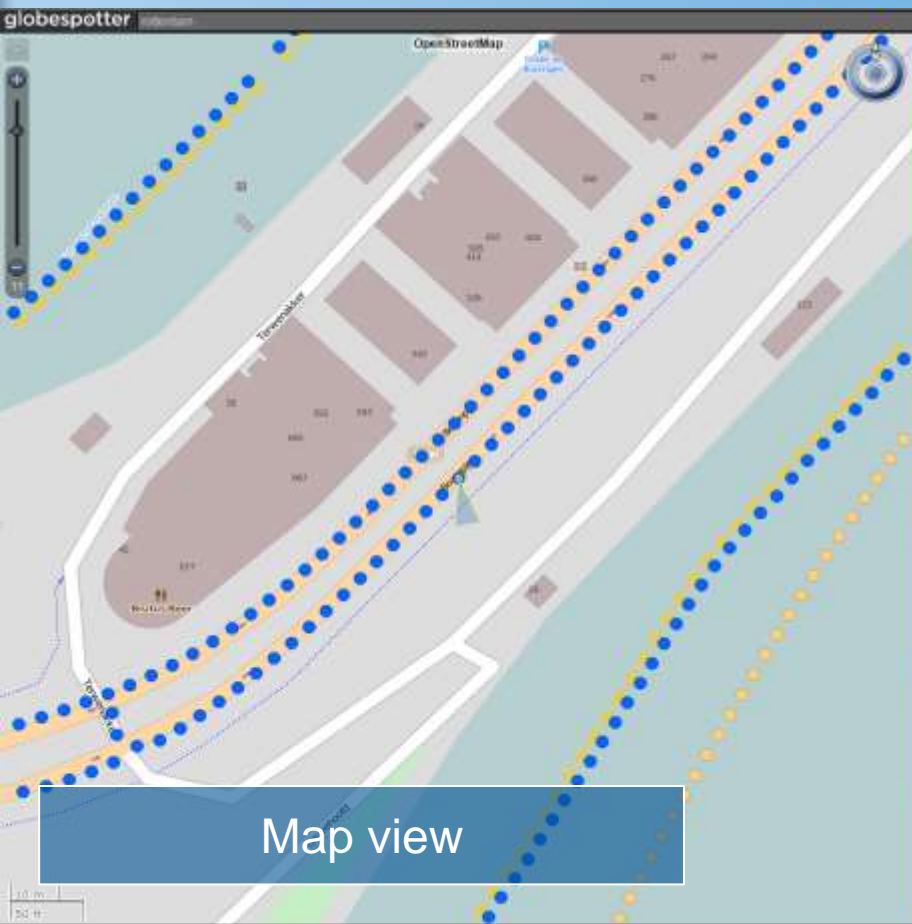


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# CYCLOMEDIA GLOBESPOTTER VIEWER





# MEASURING

- Height
- Area
- Volume

43 m<sup>2</sup>

10,79 m

925 m<sup>3</sup>

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# OUR BUSINESS PRINCIPLES

- Make Once – Sell Many
- Content Ownership
- Content-as-a-Service
- Business Development
- Continuous Innovation

## Multiple Use Cases:

- Tax Assessment
- Asset Management
- Safety & Security
- Mapping

### Selected Customers by Type





# OUR BUSINESS PRINCIPLES

## Corporate Markets:

- Utilities
- Construction
- Insurance

## New Corporate Markets:

- Solar
- Telecom
- Real Estate
- Mail & Logistics

### Selected Customers by Type

#### Government

69%



#### Enterprise

31%





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**FUTURE DISRUPTIVE GEOSPATIAL BUSINESS MODELS**



## MEGATRENDS

- Urbanisation → Smart Cities
- Mobility / Autonomous Driving
- Geo Consumerization and demand for accuracy

## TECHNOLOGY TRENDS

- More & more powerful sensors
- Internet of Things
- Cloud Technology & Big Data



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## GEOSPATIAL OPPORTUNITIES

- Integrating Data & Imagery
- 3D Visualization
- Automated Object & Change detection

## DISRUPTIVE BUSINESS MODELS

- Databases of Geo assets
- User Generated Content
- Hybrid Business Models

**FUTURE DISRUPTIVE GEOSPATIAL BUSINESS MODELS**

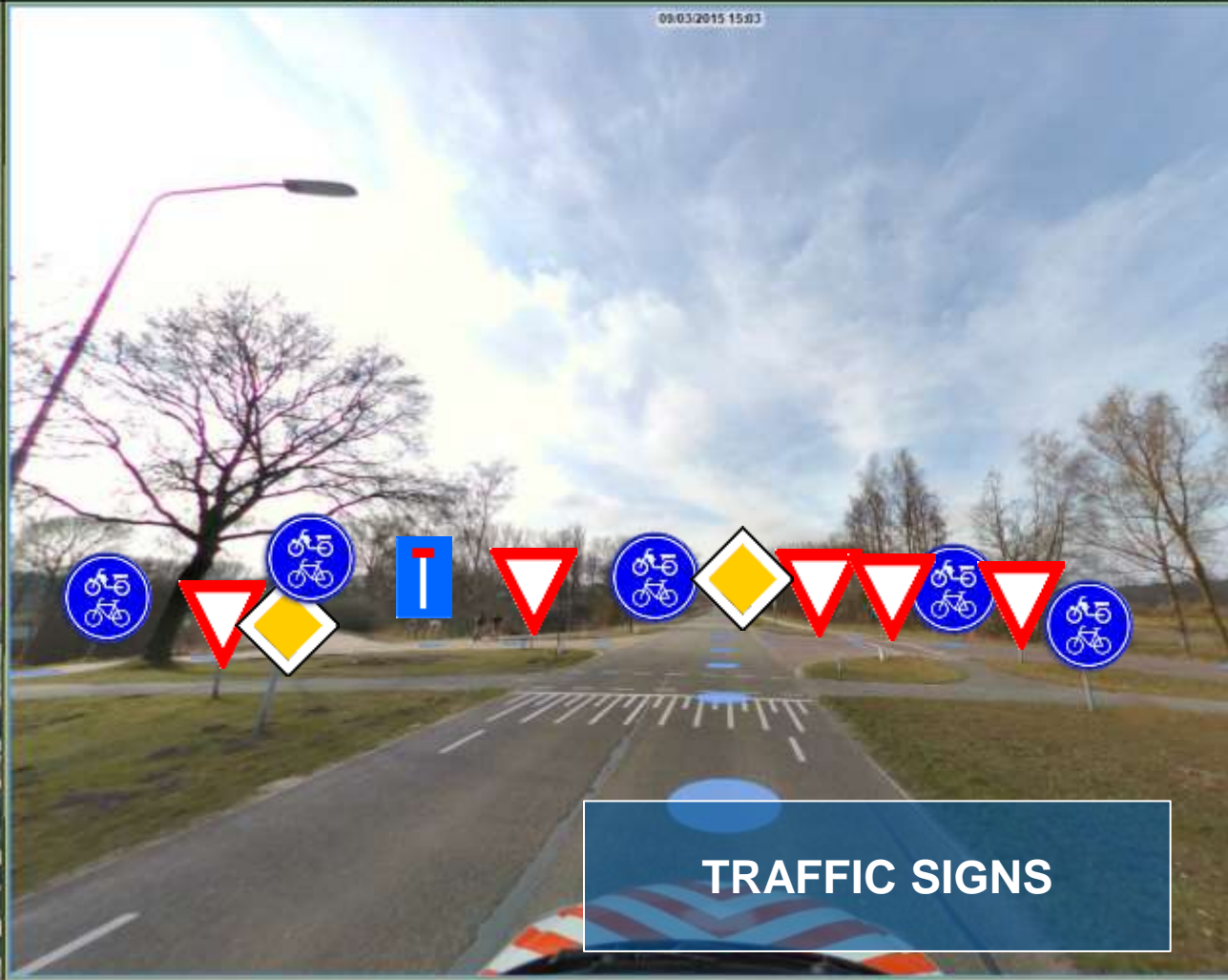
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# THE ROAD: GEO ASSETS

- Traffic Signs
- Public Lighting
- Road Markings

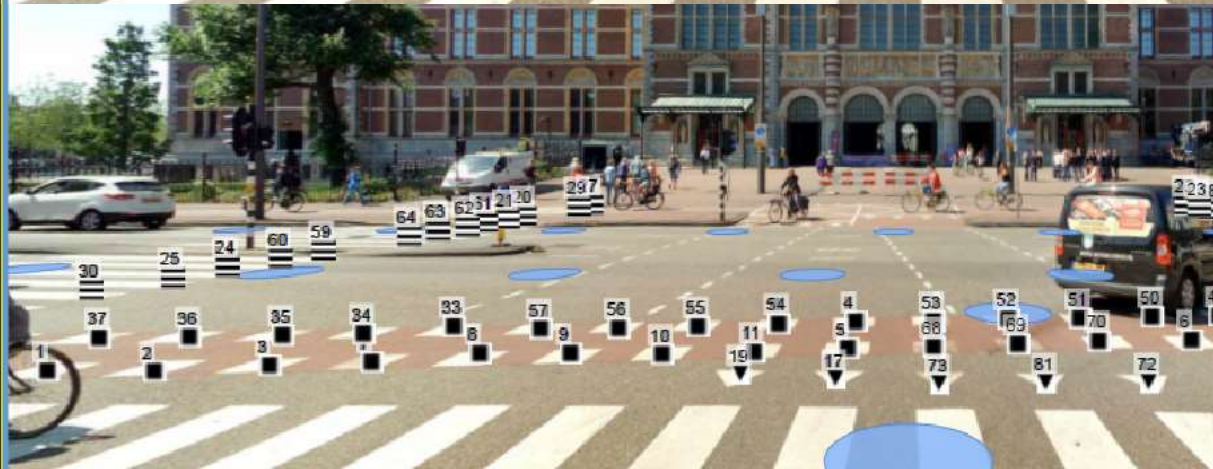
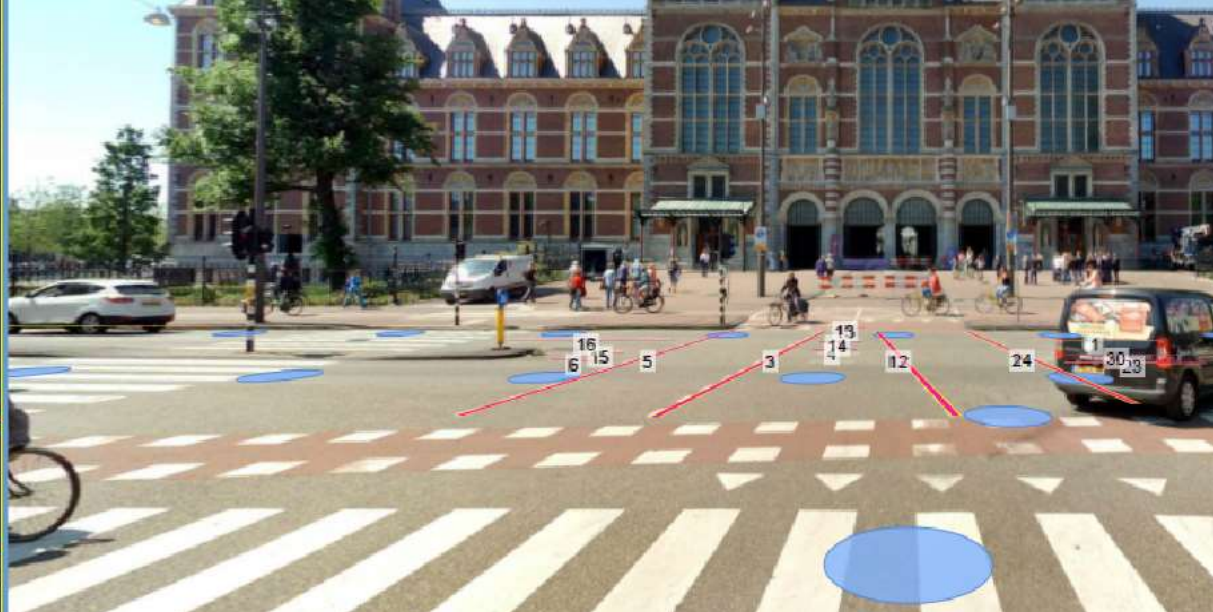








PUBLIC LIGHTING



ROAD MARKINGS



# NEW DISRUPTIVE BUSINESS MODELS

## Content Collaboration

### Service to process and host customer imagery



- Content collaboration provides the professional customer with the capability to process and host own imagery
- It leverages CycloMedia's capabilities and infrastructure for processing and hosting of large volumes of imagery
- Enhances positioning accuracy of customer imagery based on CycloMedia's base imagery and positioning improvement algorithms
- Joint creation of hybrid imagery that provides more recent imagery as well as dynamic updates for Information Products
- Started first customer discussions based on developing market needs and offering current Content Collaboration within GlobeSpotter®. Multiple pilots in H2 2016

## Geometric Framework

### Positioning-as-a-Service based on geometric framework



- Service to provide accurate on demand positioning data by matching user's own imagery with CycloMedia's base imagery and positioning improvement algorithms
- Enhances accuracy in customer's own imagery creation as well as of on site inspection and inventory work processes
- Will support traditional surveying as well as multiple new use cases
- Opportunity to develop into important technology component to support emerging augmented reality use cases in professional (and consumer) applications
- First feasibility R&D work ongoing

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