



# Hexagon Geosystems

## Strategy & Technology Overview

*Dr. Hartmut Rosengarten*  
*Director Airborne Solutions EMEA*

GEODIGITAL Ukraine 2019 – Kyiv, 23 May 2019

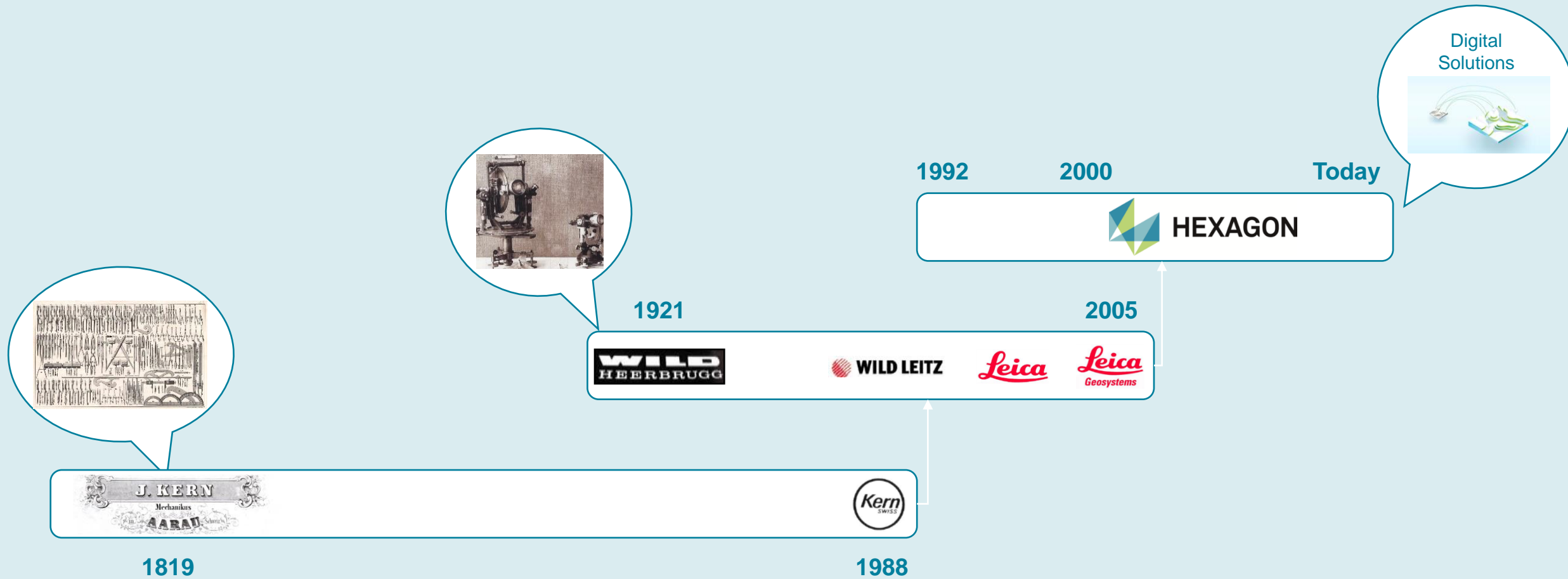




We are a  
**DIGITAL  
SOLUTIONS** company

We believe in pushing the boundaries  
of innovation, enabling customers to  
**shape smart change**  
with information technologies that  
improve productivity and quality.

# Hexagon Geosystems – From Instruments to Geospatial Information Technologies

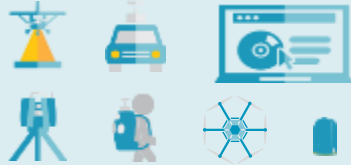


# Expanding with existing customers and addressing new customers thru on-going transformation towards Solutions and Services

## Adjacent Services



## Application Specific Solutions



## Industry Specific Solutions



# Application specific solutions

## Adjacent Services



## Application Specific Solutions



## Industry Specific Solutions



# Advanced technology

## Solutions for any task

UAV  
MAPPING  
SOLUTIONS



HYBRID  
SENSOR



LIDAR  
SENSOR



HEXAGON  
CONTENT  
PROGRAM



LASER  
SCANNERS



AEC  
SCANNER



MOBILE  
SENSOR  
PLATFORMS



MOBILE  
SENSOR  
PLATFORMS



LEVELS



TOTAL  
STATIONS



GNSS  
SYSTEMS



CONSTRUCTION  
TPS & GNSS



GNSS  
REFERENCE  
NETWORKS



GIS  
COLLECTORS



MACHINE  
CONTROL  
SYSTEMS



MINE  
SLOPE  
RADAR



LASERS



DETECTION  
SYSTEMS



DETECTION  
SYSTEMS



MULTIVISTA



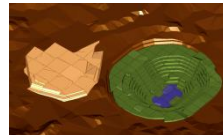
LINE &  
POINT  
LASERS



LASER  
DISANCE  
METRE



MINE SIGHT



SOFTWARE  
AND APPS  
FOR  
WORKFLOW  
AND DATA  
MANAGEMENT



# Transforming surveying with true innovation and new categories



Broad portfolio / loyal customer base



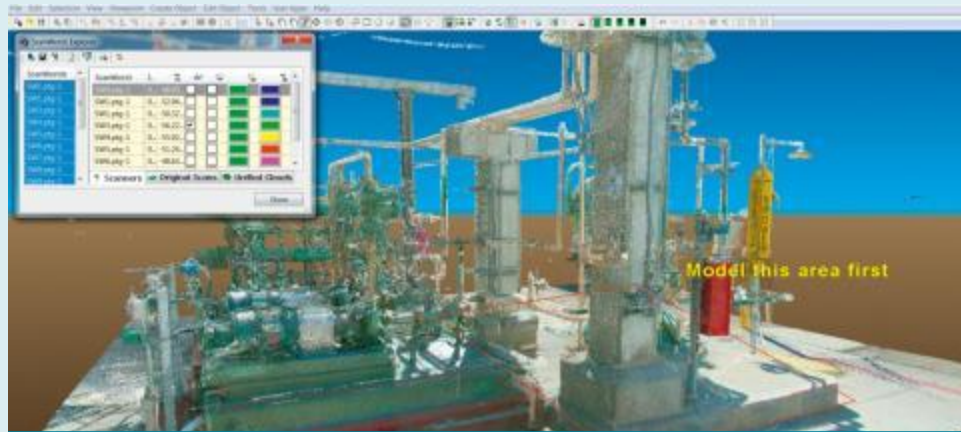
Solutions connecting the digital with the real world



True innovation for main stream



Expanding to new markets



Growing importance of 3D modelling



Creating new category (RADAR)



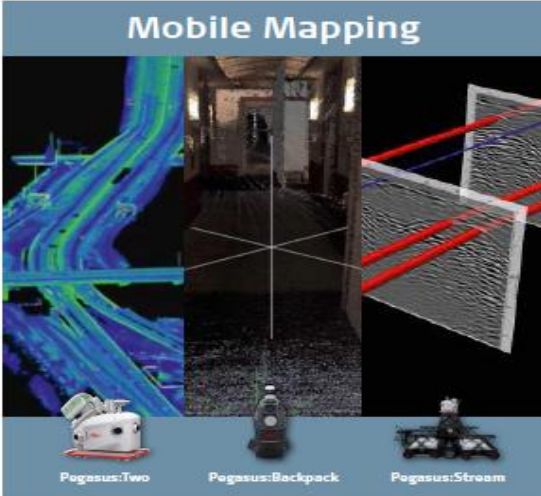
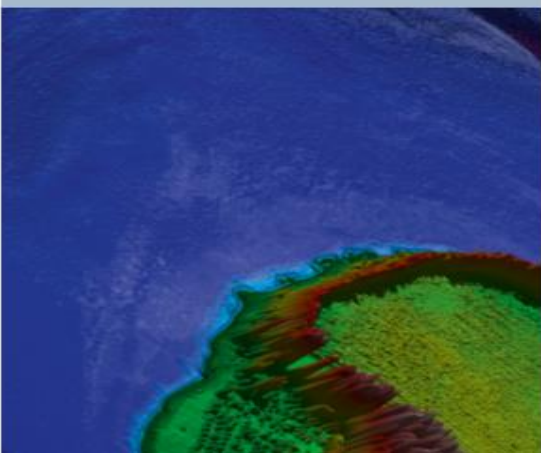
# Airborne Reality Capture .. Hexagon's world of airborne sensor solutions



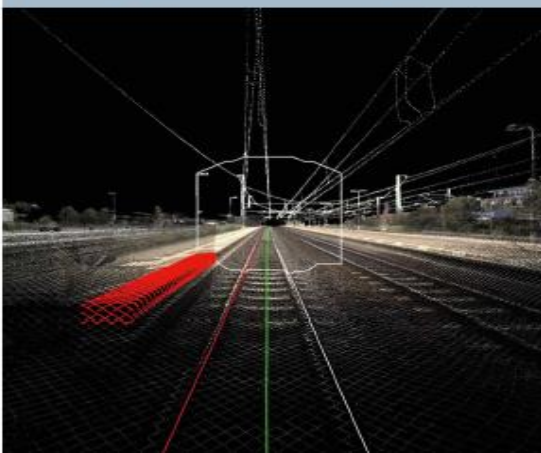
**HxMAP RealWorld**  
BuildingFinder CityModeler



**LiDAR Survey Studio**  
MissionPro FlightPro



**Map Factory**  
SiRailScan AutoP

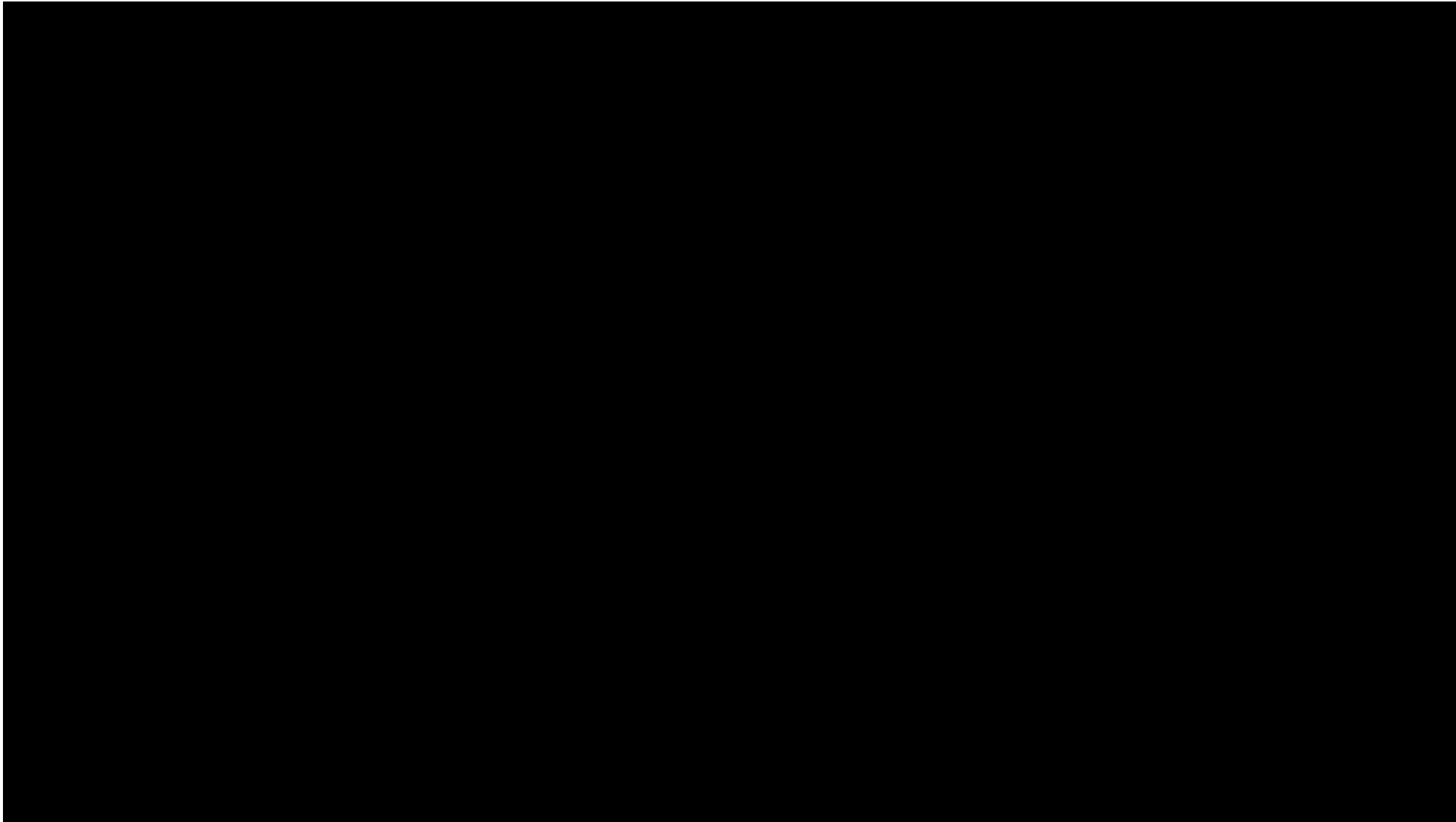


**New Level of Georeferencing**  
High-Precision GNSS TPS Navigation



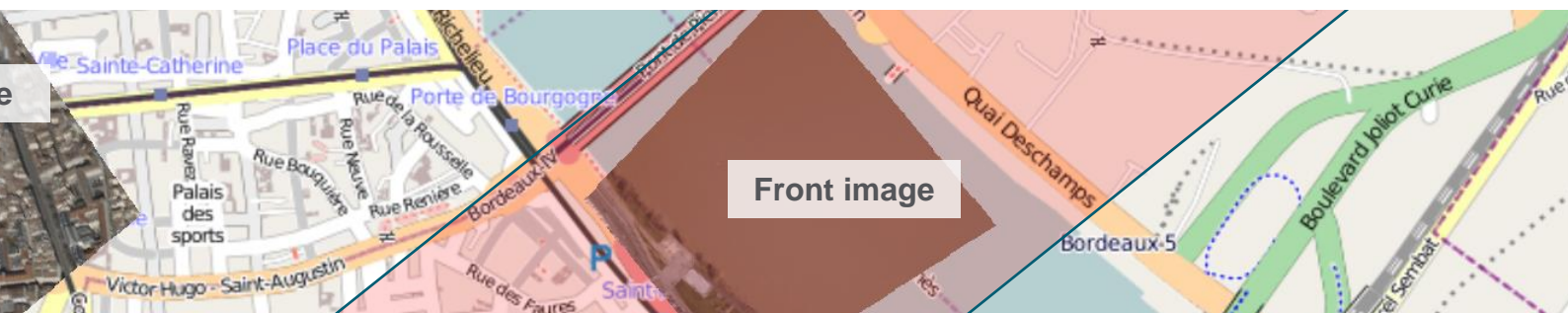


## Airborne Reality Capture .. Leica RealCity utilizing multiple sensors





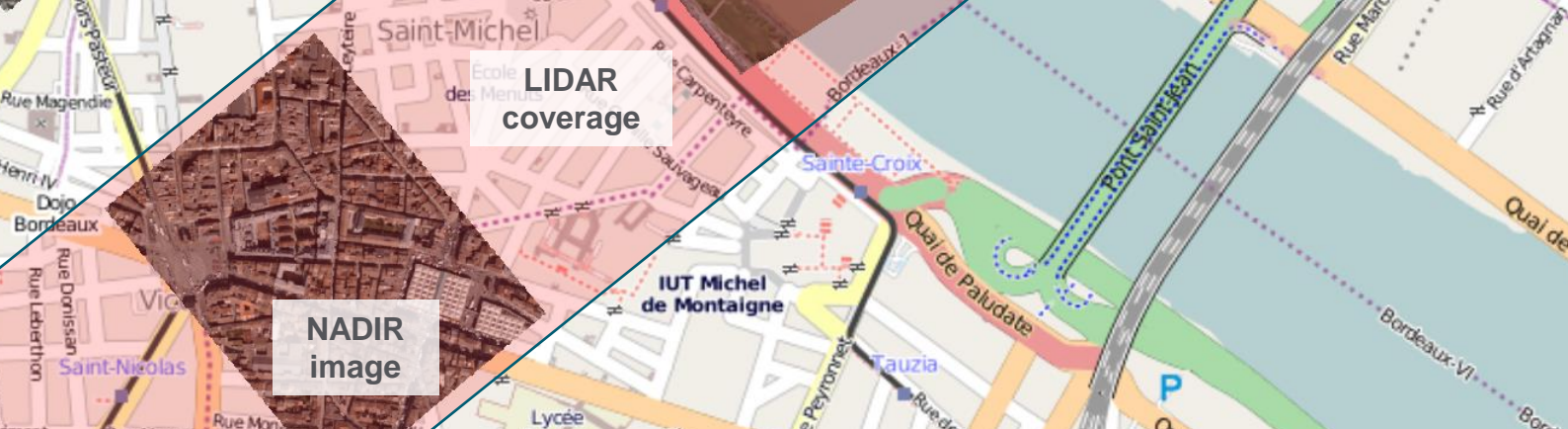
Left image



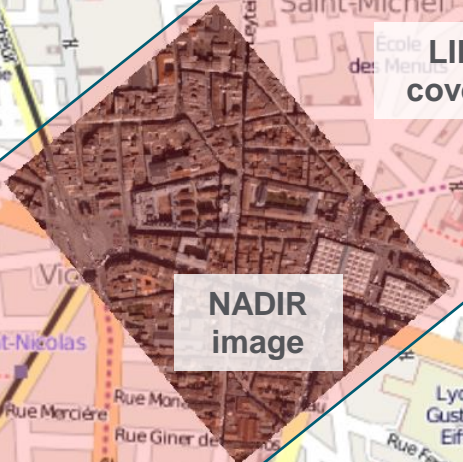
Front image



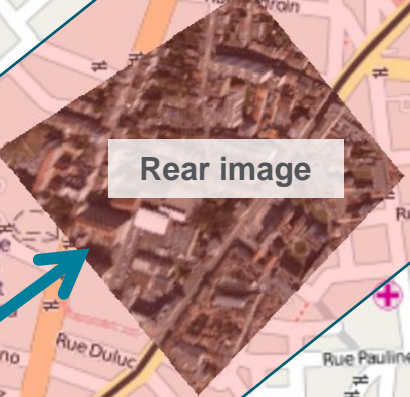
DTM  
DSM  
OrthoPhotos  
3D CityModels  
3D Mesh



LIDAR coverage



NADIR image

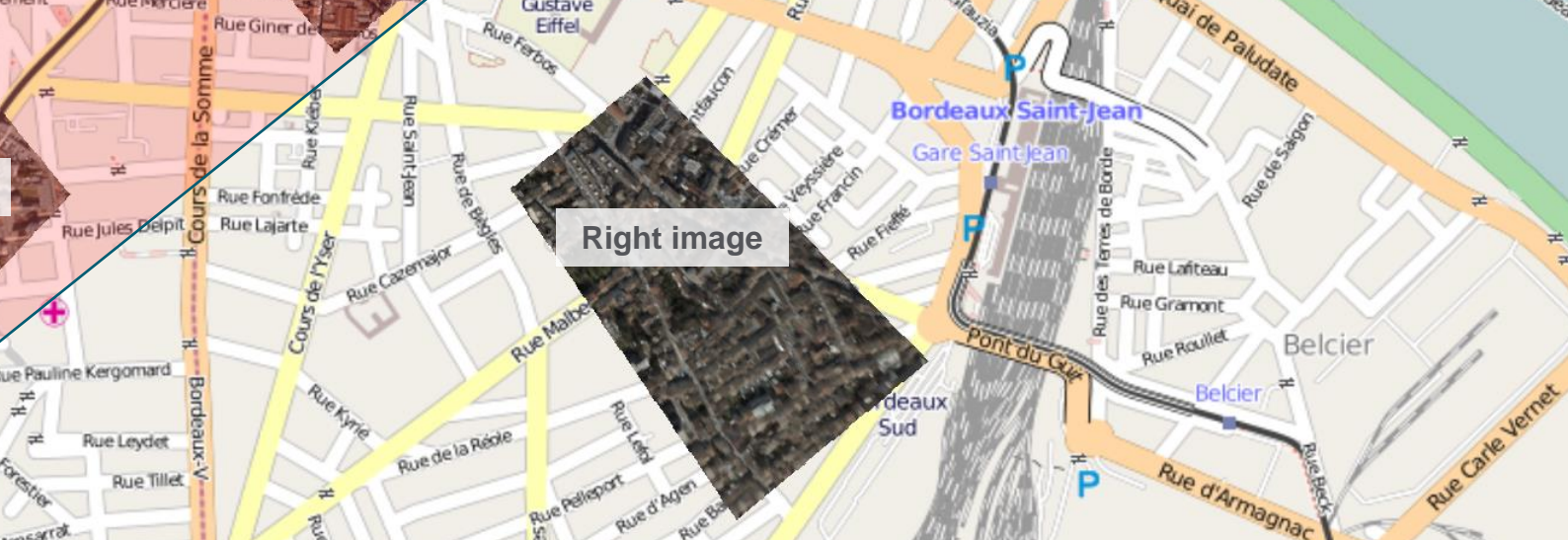


Rear image



Right image

Direction of flight

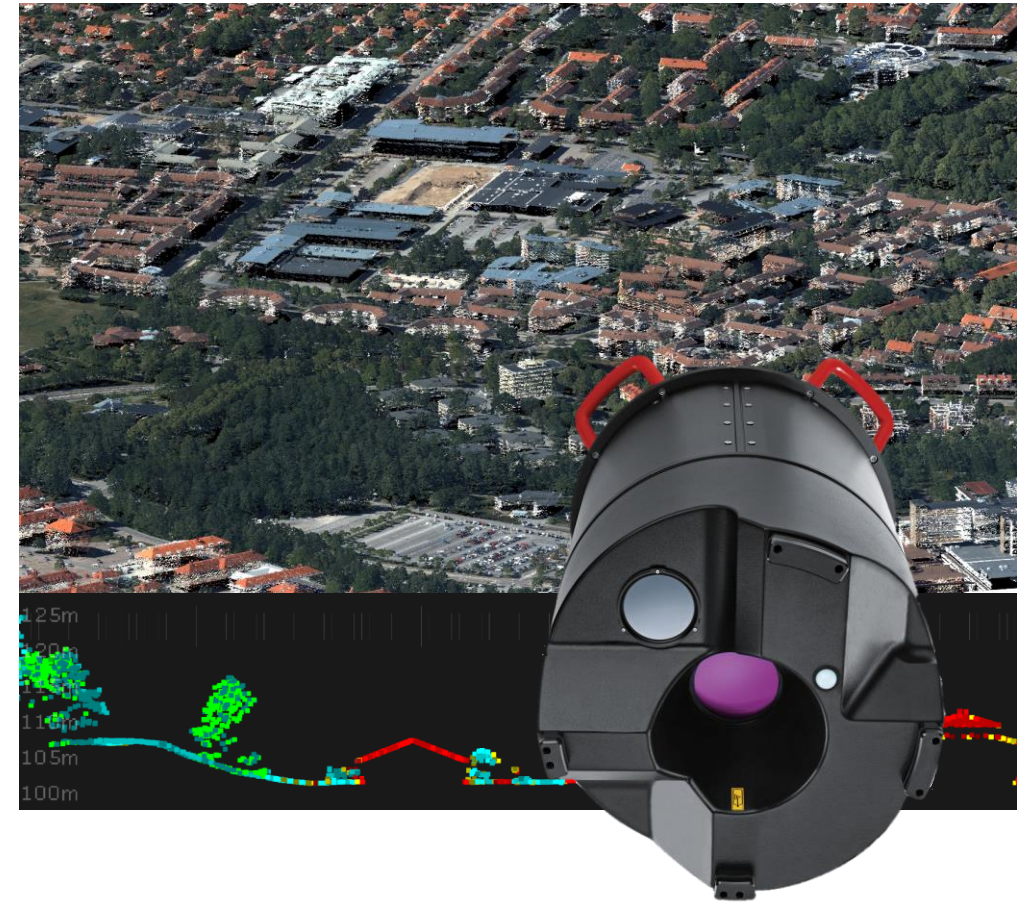




# TerrainMapper – A new generation linear LiDAR



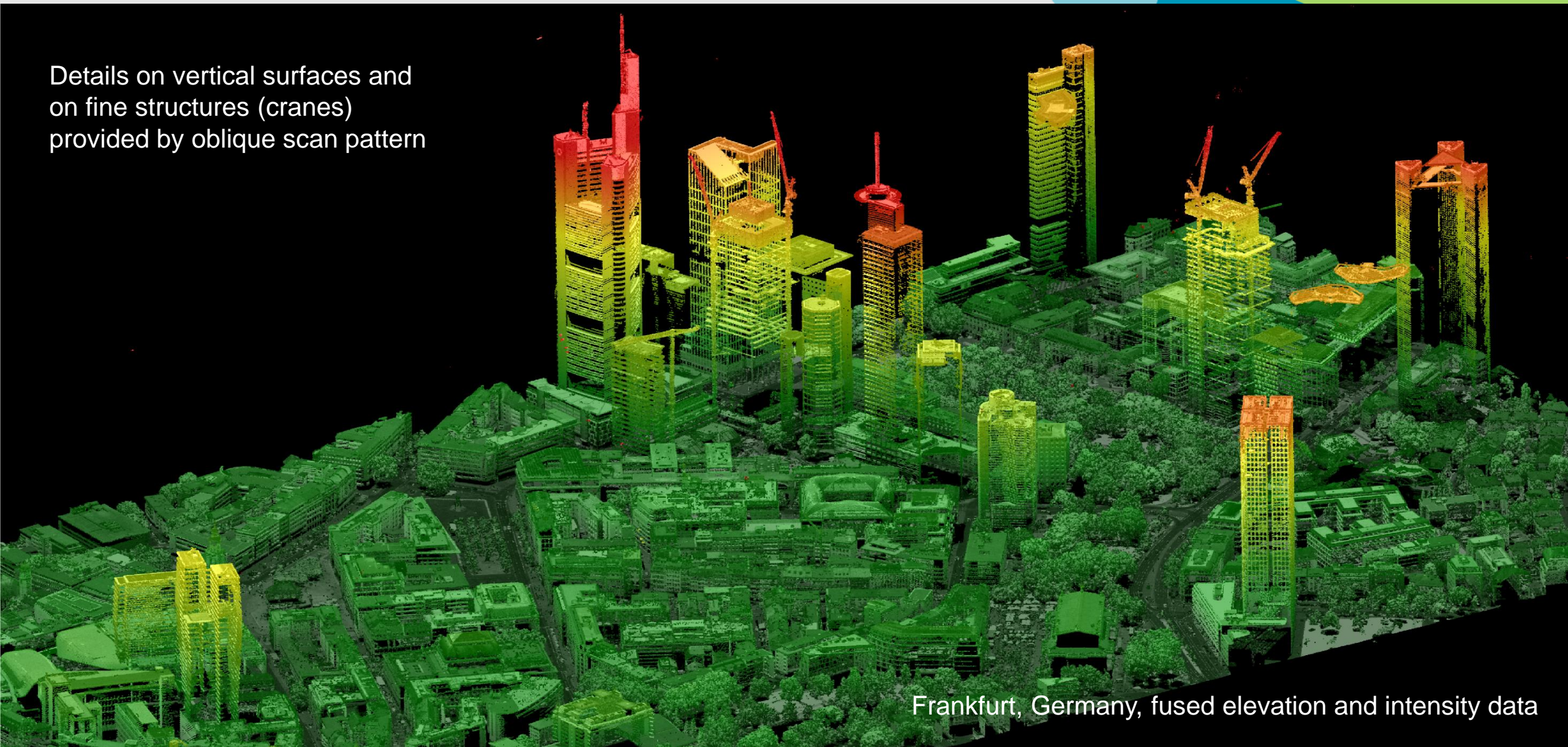
- TerrainMapper / RealTerrain offers
  - **Highest efficiency**
    - Up to 2 MHz measurement rate
    - USGS QL0 data: 8 points/m<sup>2</sup> < 5cm @ up to 500 square km / hour
  - **Highest accuracy**
    - < 5cm RMS @ 2,000 m (6,500 ft) AGL
  - **Any terrain**
    - Seamless data from up to 35 simultaneous MPIA zones
  - **Even point distribution**
    - Eliminating point density variation between center and edges of scan
    - Stabilized mount eliminates flight trajectory deviations
  - **The flexibility to capture any lidar project**
    - 300 m – 5,500 m AGL
    - Variable field of view
  - **Efficient multisensor workflow**
    - Highest throughput of data in a production environment
    - All tools you need: Calibration, Quality control, Colorization and End product generation



The optimal tool for countrywide DSM and corridor mapping



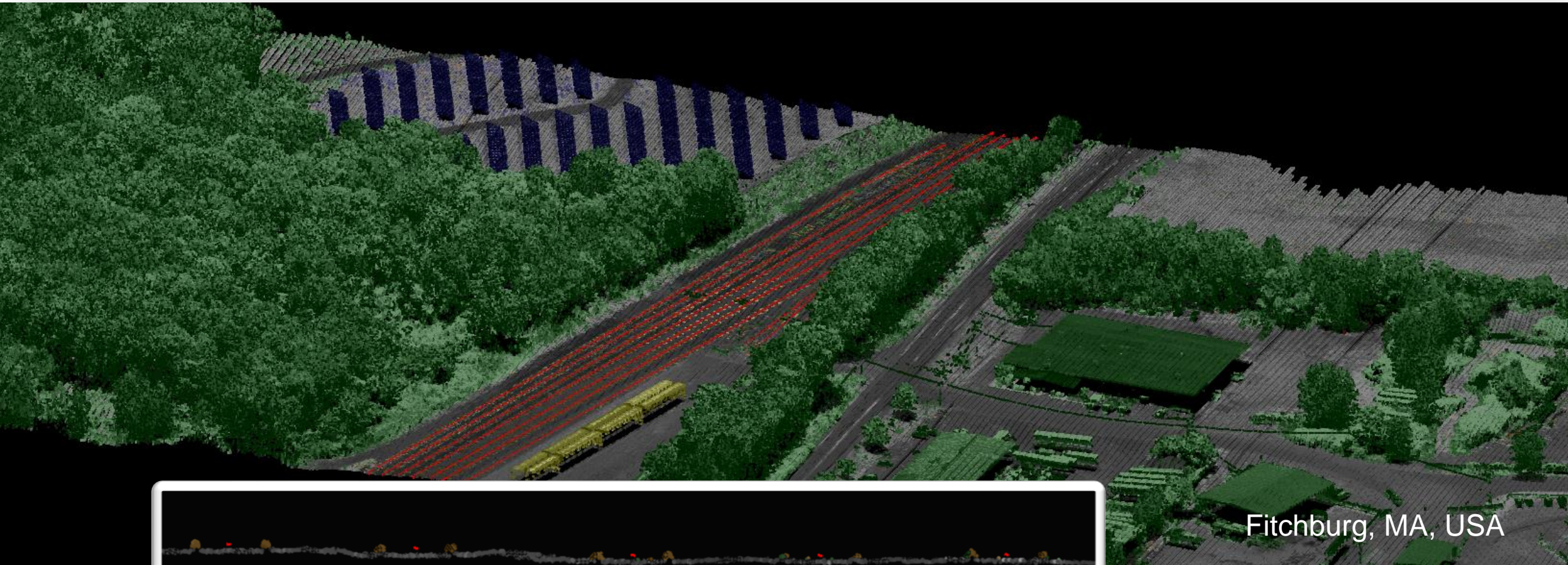
Details on vertical surfaces and  
on fine structures (cranes)  
provided by oblique scan pattern



Frankfurt, Germany, fused elevation and intensity data



# High planimetric accuracy for rail infrastructure documentation



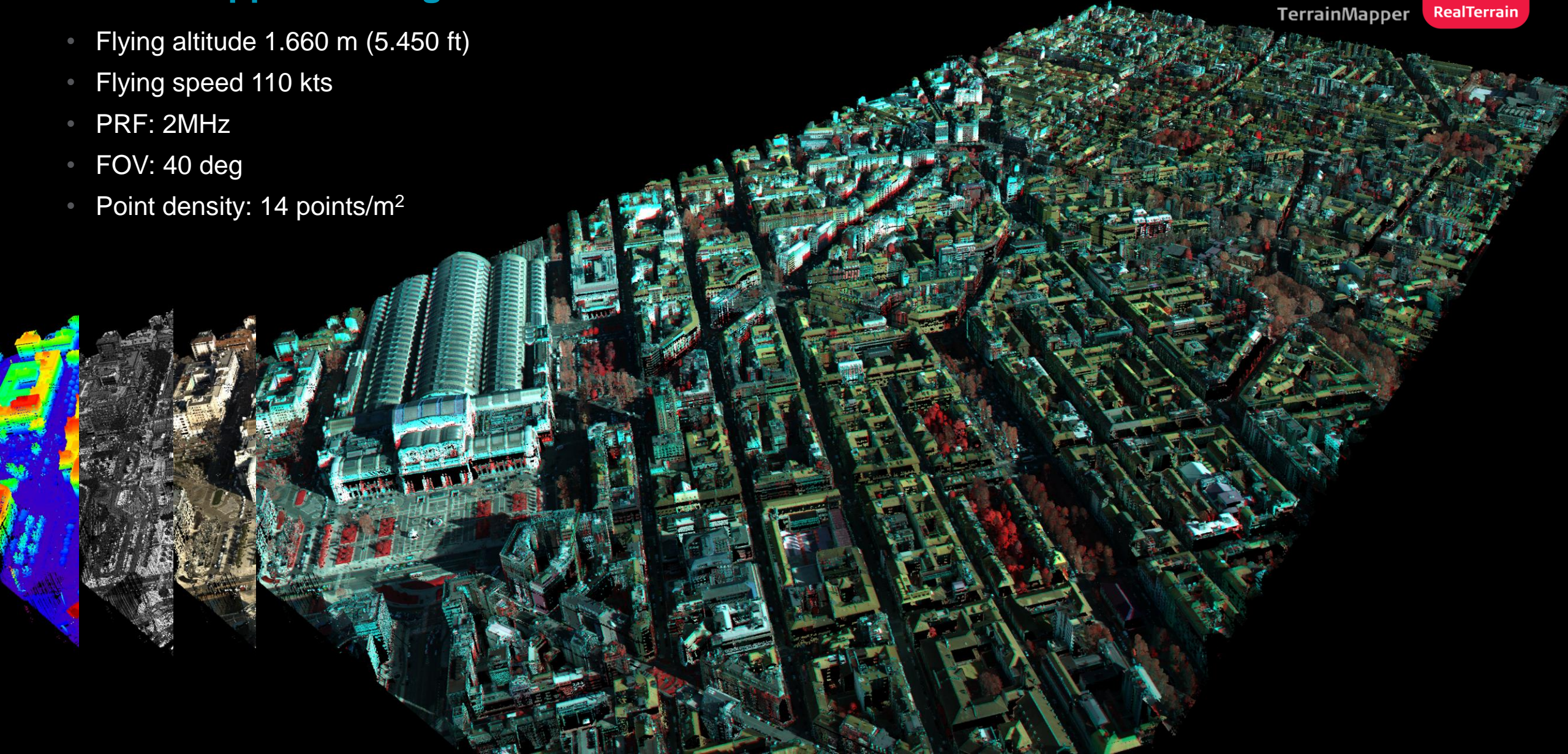
Fitchburg, MA, USA





## TerrainMapper test flights

- Flying altitude 1.660 m (5.450 ft)
- Flying speed 110 kts
- PRF: 2MHz
- FOV: 40 deg
- Point density: 14 points/m<sup>2</sup>





# Common Platforms

## Flight Operations



Leica MissionPro



Leica FlightPro



Novatel SPAN



OC60 and PD60



Controller CC33



Leica PAV100



ADS100



DMC III



CityMapper



RCD30



ALS80



TerrainMapper



Chiroptera II






HawkEye III

## HxMap – Production Workflow

Standard workflow modules

■ = Standard □ = Optional

	 RealCity	 RealWorld	 RealTerrain
Sensor Type	CityMapper RCD30 Oblique	RCD30 DMC III	TerrainMapper SPL100
Enabler Enabler	■	■	■
Provider Ingest, Raw QC, Workflow Manager, Point Cloud Generator, Projection Engine	■	■	■
Core Image APM, Aerial Triangulation, InfoCloud, Ortho Generator	■	■	■
Core LiDAR AutoCalibration, Registration, Color Encoding, Data Metrics, LiDAR QC	■	□	■
3D Modeller City Modeller, Texture Mapper, 3D Editor, Building Finder	■	□	□
SDK Developer's Kit	□	□	□

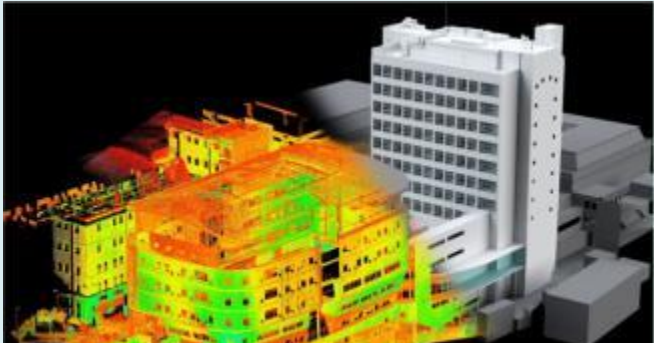
# Mobile reality capture solutions broaden addressable market



Virtual reality drives adoption



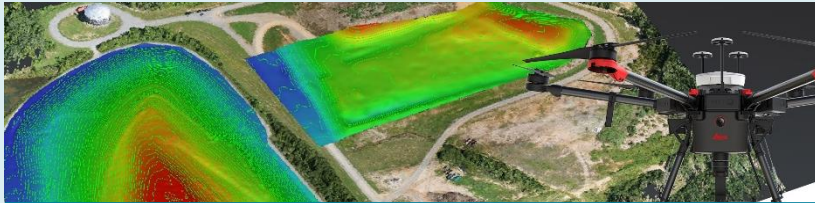
Reality capture above and below ground



Digital Realities



Asset management in cities

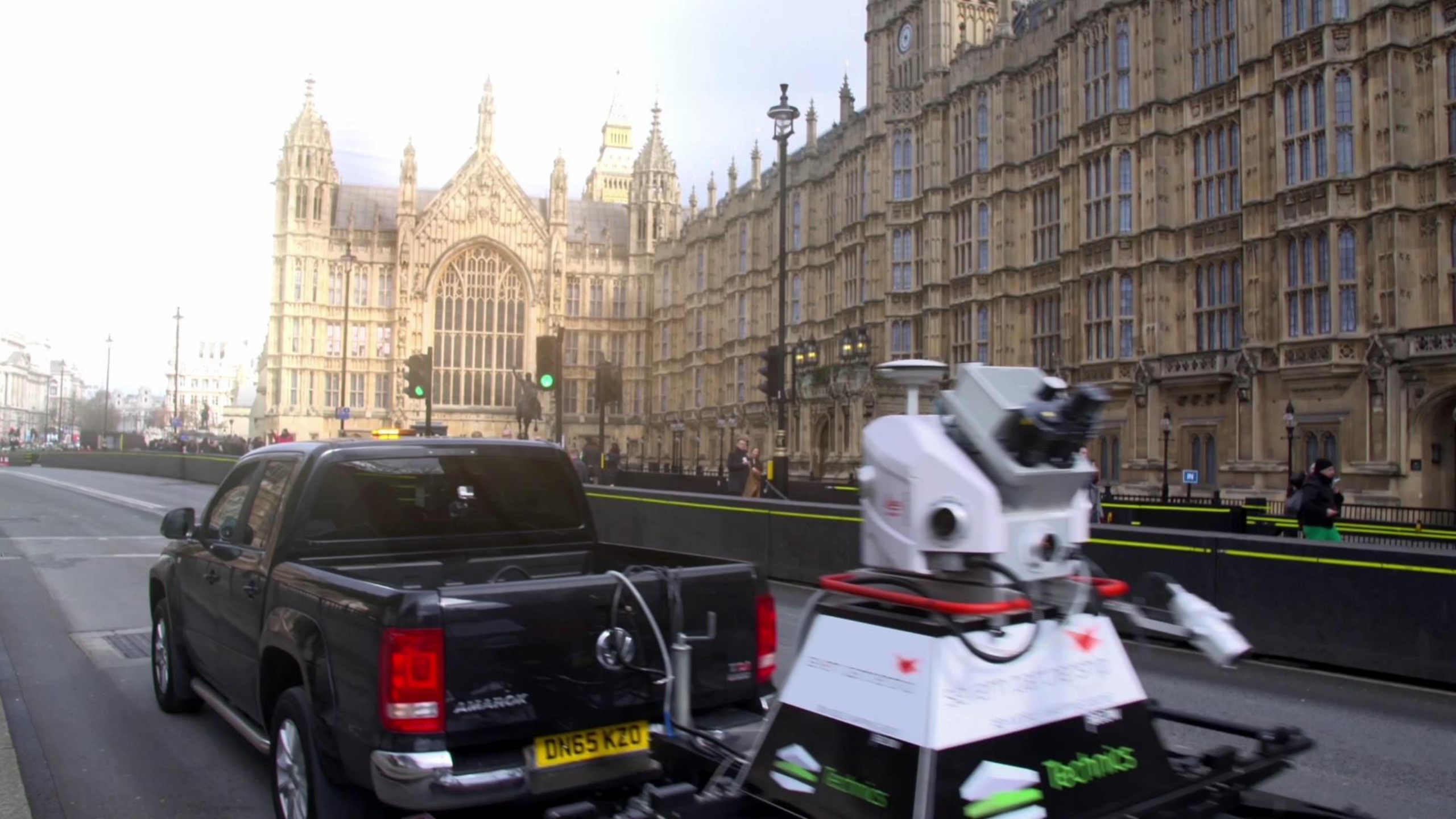


Opens the inspection market



As built for renovation



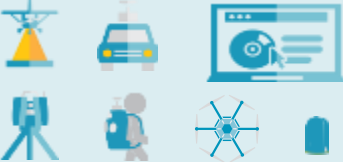


# Industry specific solutions

## Adjacent Services



## Application Specific Solutions



## Industry Specific Solutions





# Connecting the Digital World with Information

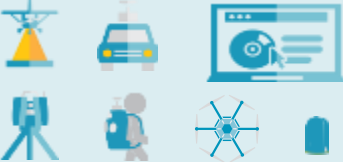


# Adjacent services

## Adjacent Services



## Application Specific Solutions



## Industry Specific Solutions







# HxGN Content Program

Shaping smart change with digital solutions

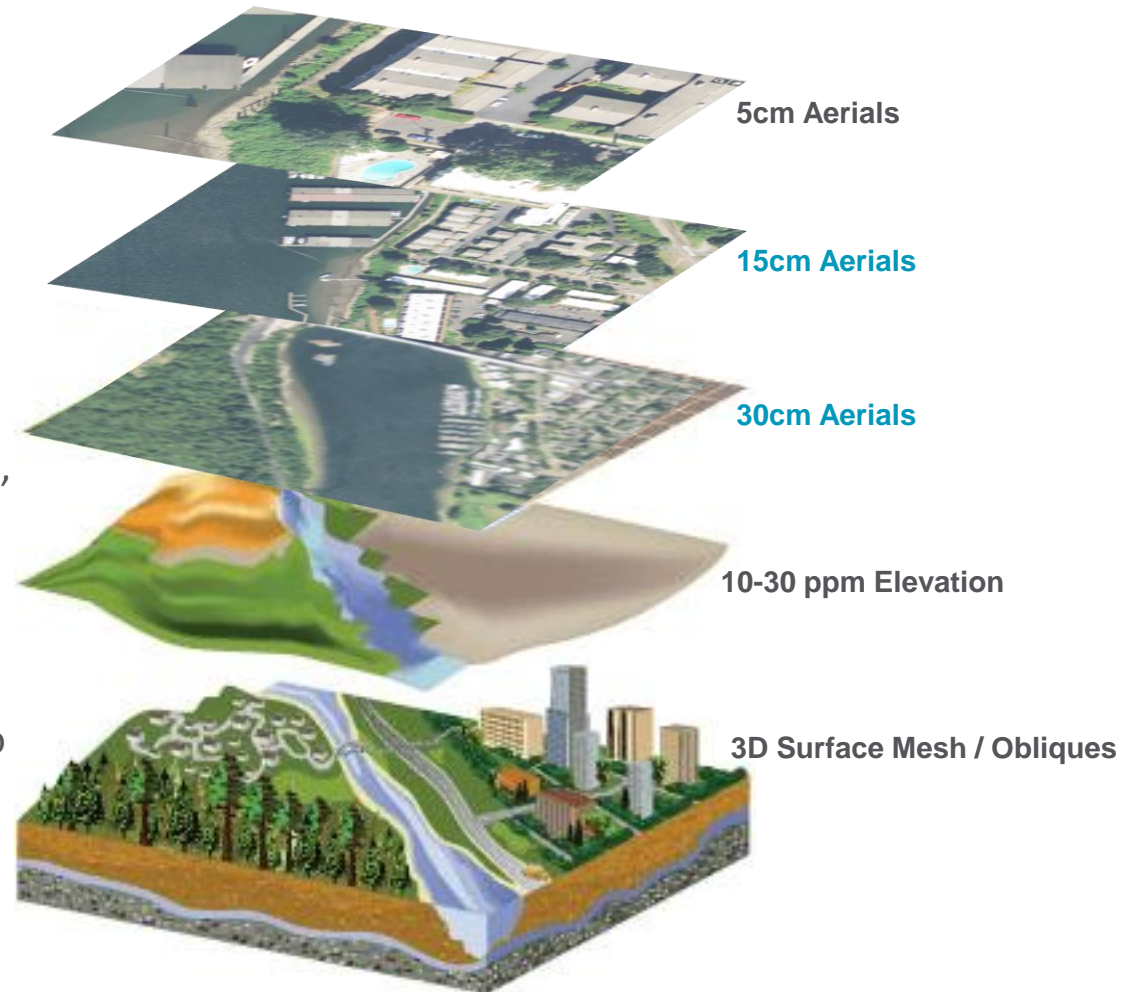
# HxGN Content Program – Product Portfolio

## Delivery

**Streaming** – a geo content web streaming service supporting the most demanding users needing accurate, high-resolution base maps.

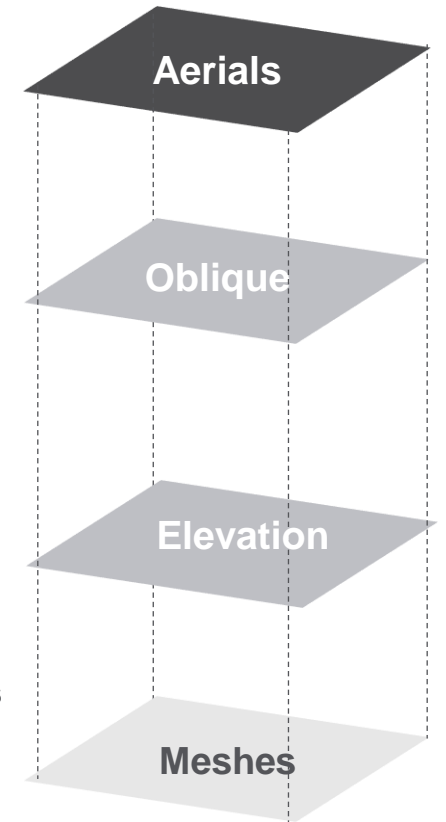
**Analytics** – cloud-based access to a rich, multi-temporal library of aerial imagery and elevation data for machine learning and AI.

**Downloads** – a transactional service to purchase and download geo content for mapping, GIS, and On-premise use.



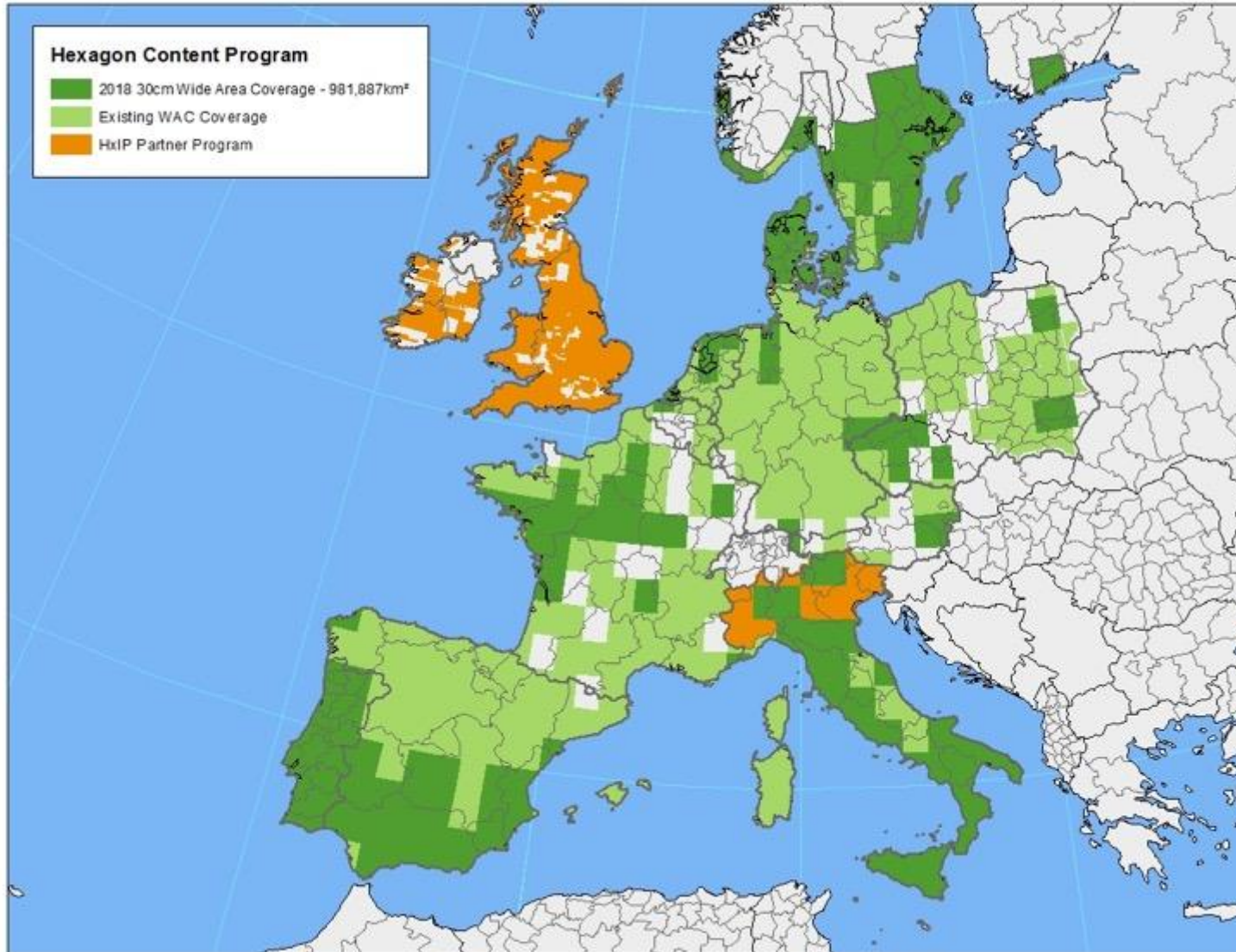
**Content**

## Products (Layers)





# HxGN Imagery Program – Aerial Imagery Coverage (2014 - 2018)



DMCIII



ADS100



# SMART DIGITAL REALITY

A P P L I C A B L E ,  
A C C E S S I B L E ,  
I N T E R O P E R A B L E

SMART DIGITAL  
REALITY

DIGITAL  
REALITY



You need a target and the target should not be defined as technology,

***it should be defined  
as a purpose.***

I think that is the solution Hexagon is bringing to the industries with which we are engaged.

— Ola Rollén, Hexagon President and CEO