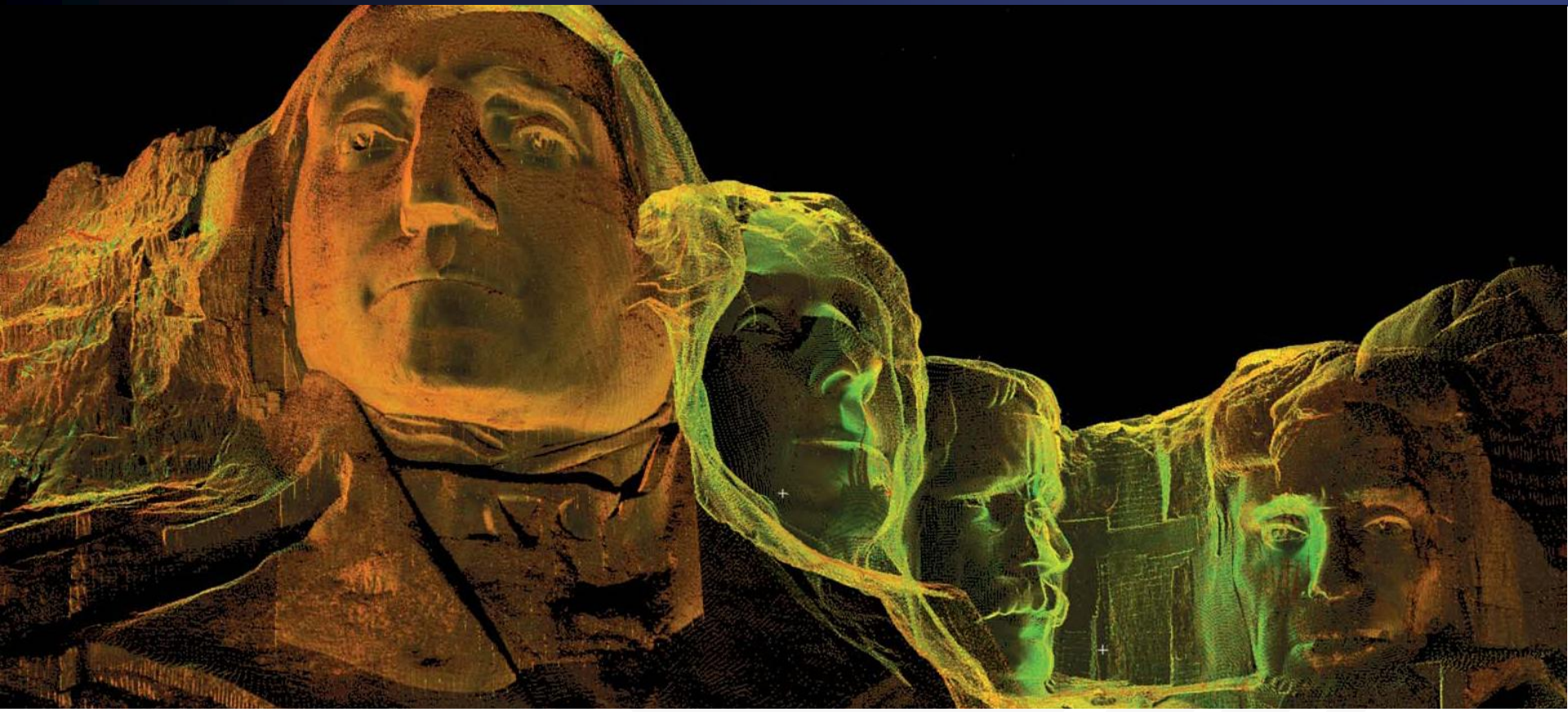
Welcome!



Knut Siercks

Managing Director Hexagon Technology Center

Agenda

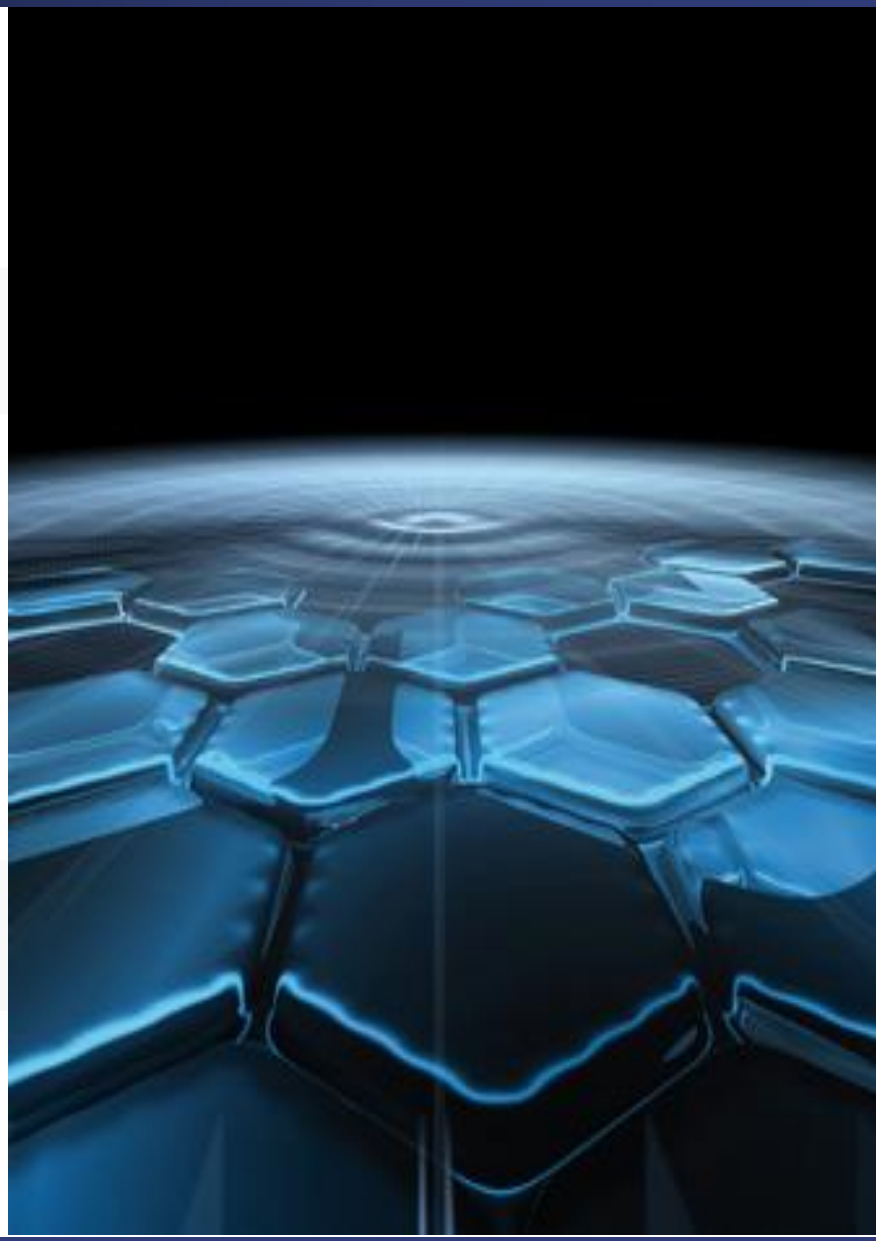
- *Hexagon in brief*
- *Hexagon Technology*
- *Hexagon Solutions*

Agenda

Hexagon in brief

Hexagon's mission is to

- **measure** objects in 1, 2 or 3 dimensions
- **position** objects
- **update** objects
- **time** processes



Hexagon – multicultural and multibranded

Hexagon's structural development

– 2000	2000 – 2003	2004 – 2006	2007 – 2009	2010 –	Vision 2011
• Scandinavian conglomerate with **no core business** • Measurement Technologies deemed to have great potential	• Acquisition of US listed metrology company Brown & Sharpe in 2001 adds **core business** • Builds up world leading position in micro segment using **3D measurement** technologies	• Acquisition of Leica Geosystems added core competences in **non-contact** measurement technology • Synergies within technology, distribution and software significantly **strengthened** Hexagon	• Acquisition of NovAtel added core competences in **GPS** and inertial technologies • Builds up a world leading position in the macro segment of the industry	• Acquisition of Intergraph adds capability to **present and design** • Enables Hexagon to develop and provide integrated **solutions**	**Dedicated design and process control systems to service selected industries**

Agenda

HEXAGON — HEXAGON TECHNOLOGY CENTRE

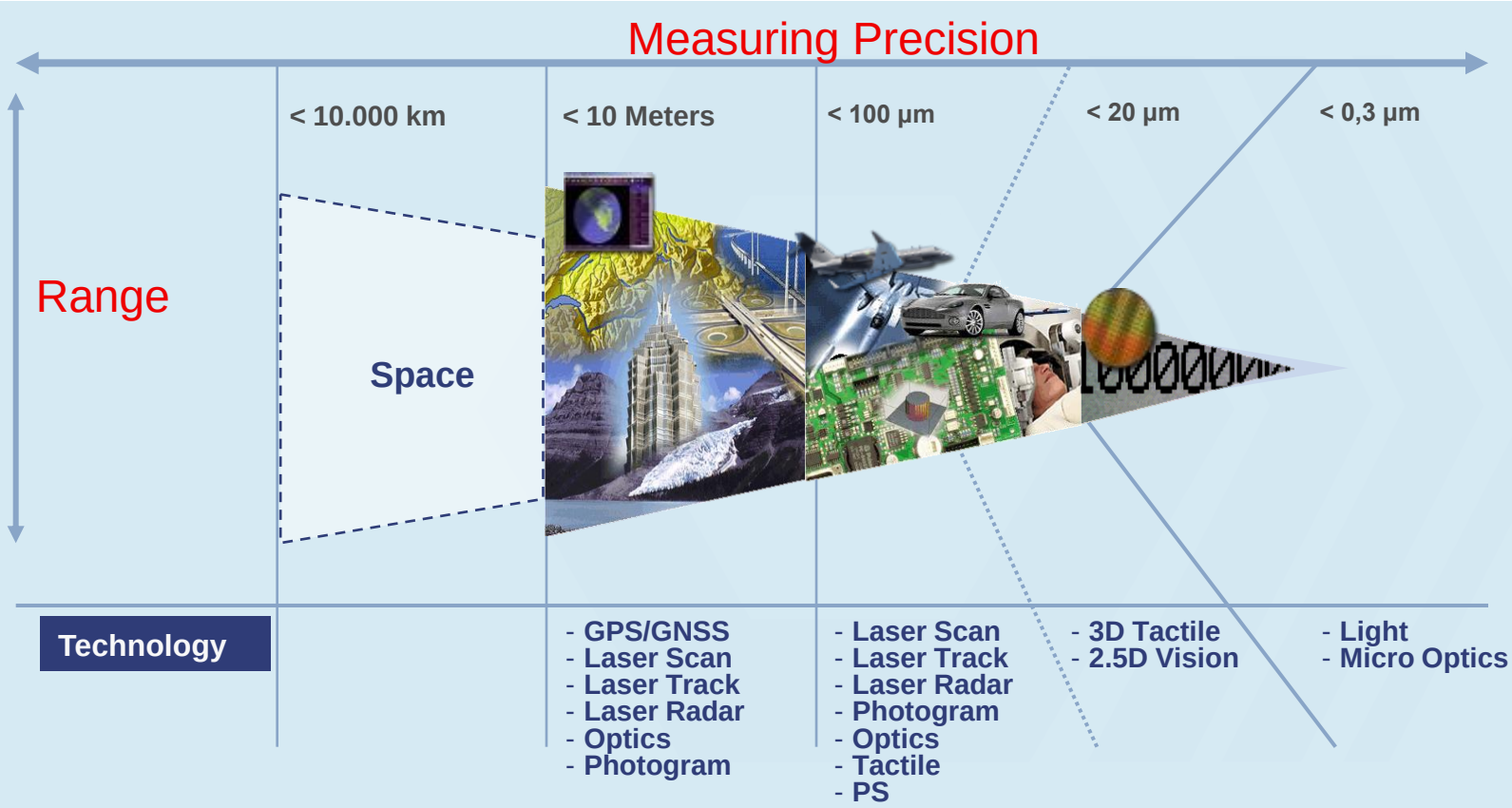
- Geosystems
  - Precision Tools
  - Machine Control
  - Imaging and Scanning
  - Geomatics
  - GIS
- *Technology*
- *Intergraph*
- Metrology
  - “CMM”

INTERGRAPH · Leica Geosystems · brown & sharpe · Sheffield · CE JOHANSSON · DEA · Leitz · ROMER · cimcore · TESA TECHNOLOGY

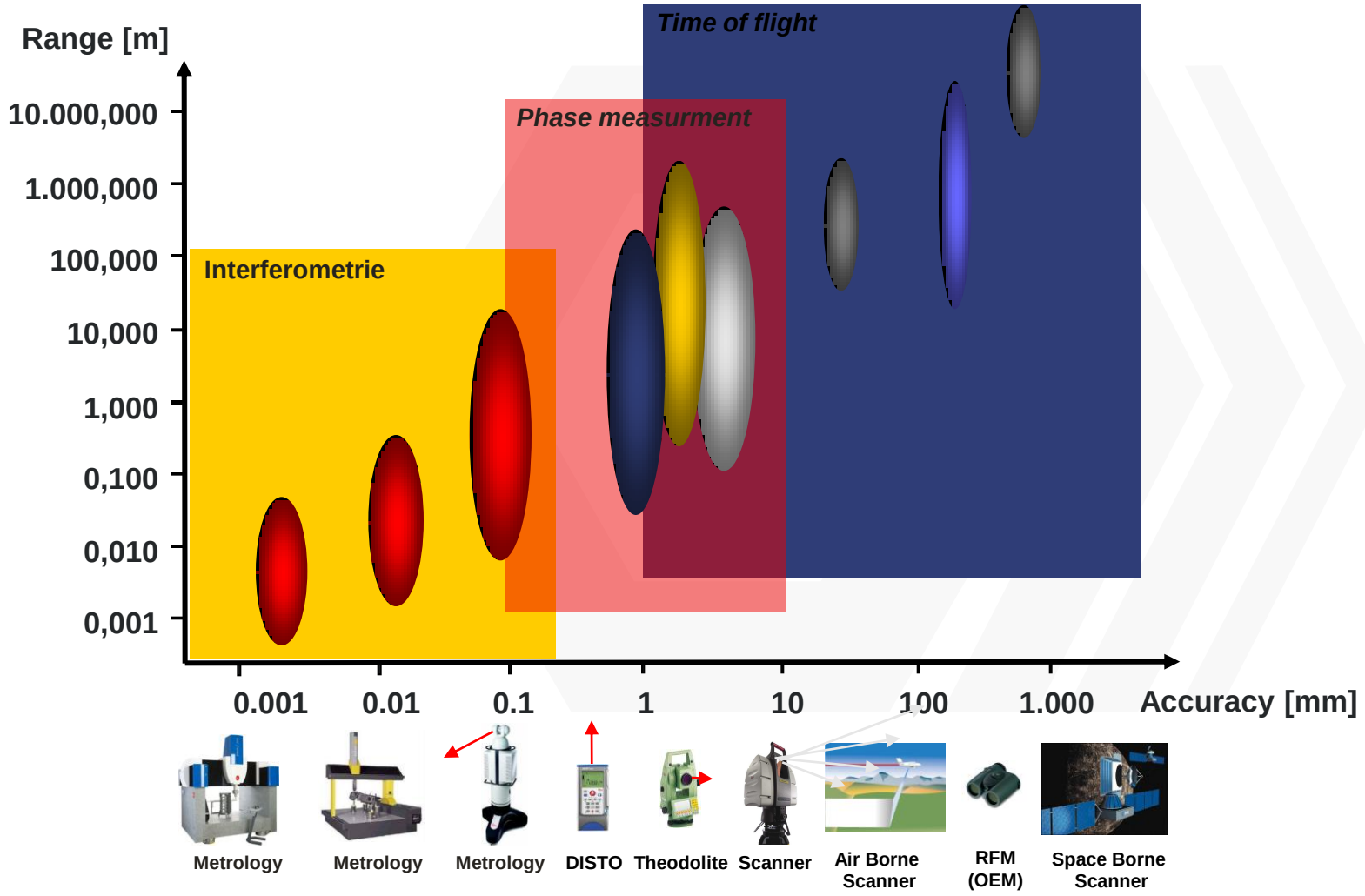
Agenda

Hexagon Technology

From space to nano technology



Reflectorless – Electro-optical Distance Measurement Portfolio (run time) / Technology Cluster



Agenda

Hexagon Solutions

GPS

ASIA
Mt.Everest in 1992/93 K2 1996, with a Leica GPS 300 and TC2002 (Intern.Ev-K2 Team):
8846.10 m a.s.l.

WORLD'S FIRST GPS TOP MEASUREMENTS

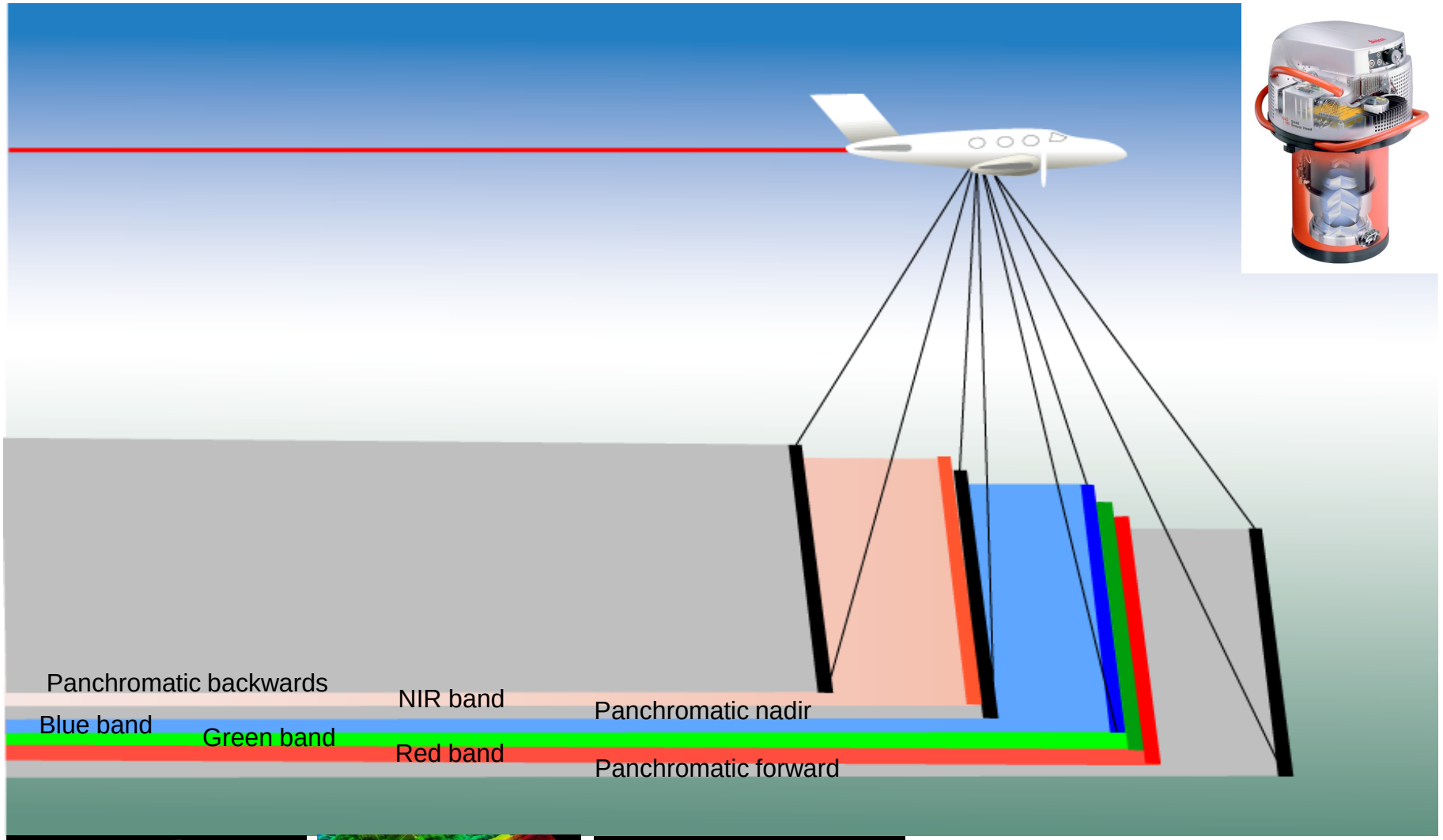
AMERICAS
Aconcagua in January 2001 with GPS500 (Prof.G.Poretti):
6961,83 m a.s.l.

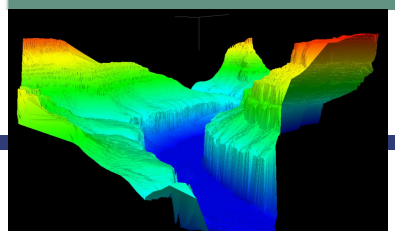
AFRICA
Kilimanjaro in 1999 with GPS500 (E. Messmer):
5893 m a.s.l.

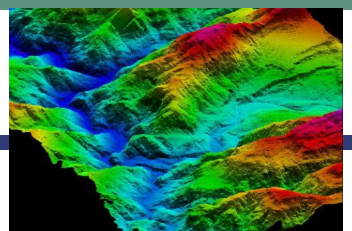
EUROPE
Matterhorn in 2000 with GPS500 and TCA2003
4477,55 m a.s.l.
Mt.Blanc in 2003 with GPS500 by IGN:
4808,4 m a.s.l.

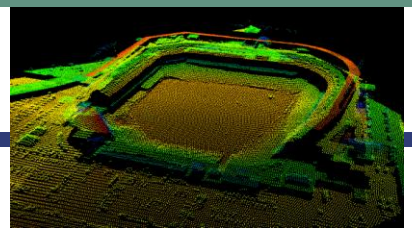
ALL PERFORMED WITH LEICA GPS SYSTEMS

Digitale Luftbildkamera (Panchromatische und Spektrale Zeilenfilter)

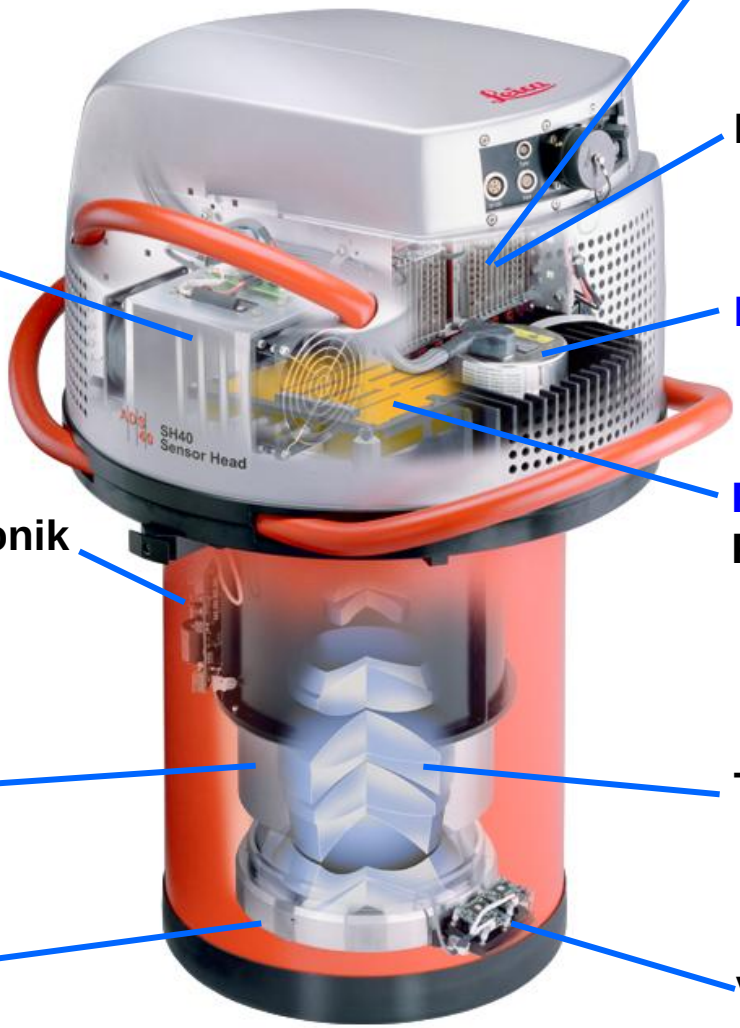








Digitale Luftbildkamera



GPS

Elektronik

Heizungs- und
Kühlungs-System

IMU

Fokalebene mit Zeilen CCDs,
Filter und Trichroid

Umwelt Kontroll-Elektronik

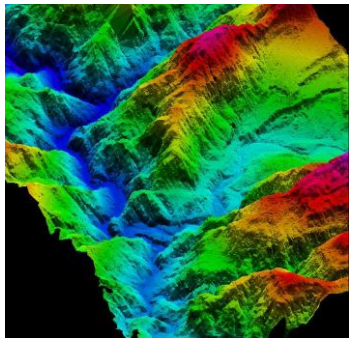
Temperatur
Kompensation

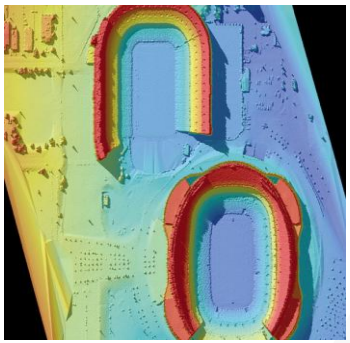
Telezentrische Optik

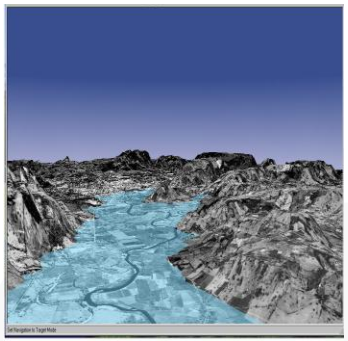
Frontglas

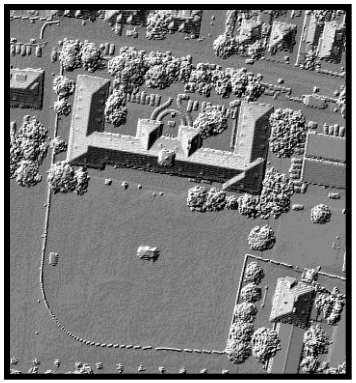
Video Kamera

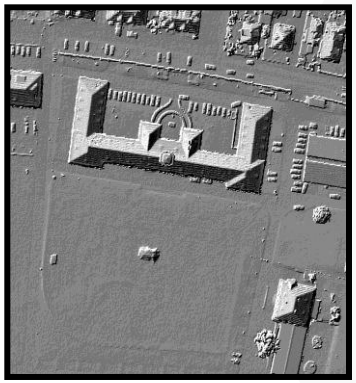
Challenge No1: Electrooptical Scanning Accuracy in fast Motion Aerial Lidar



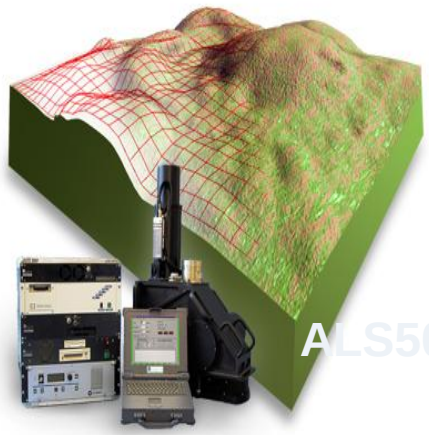


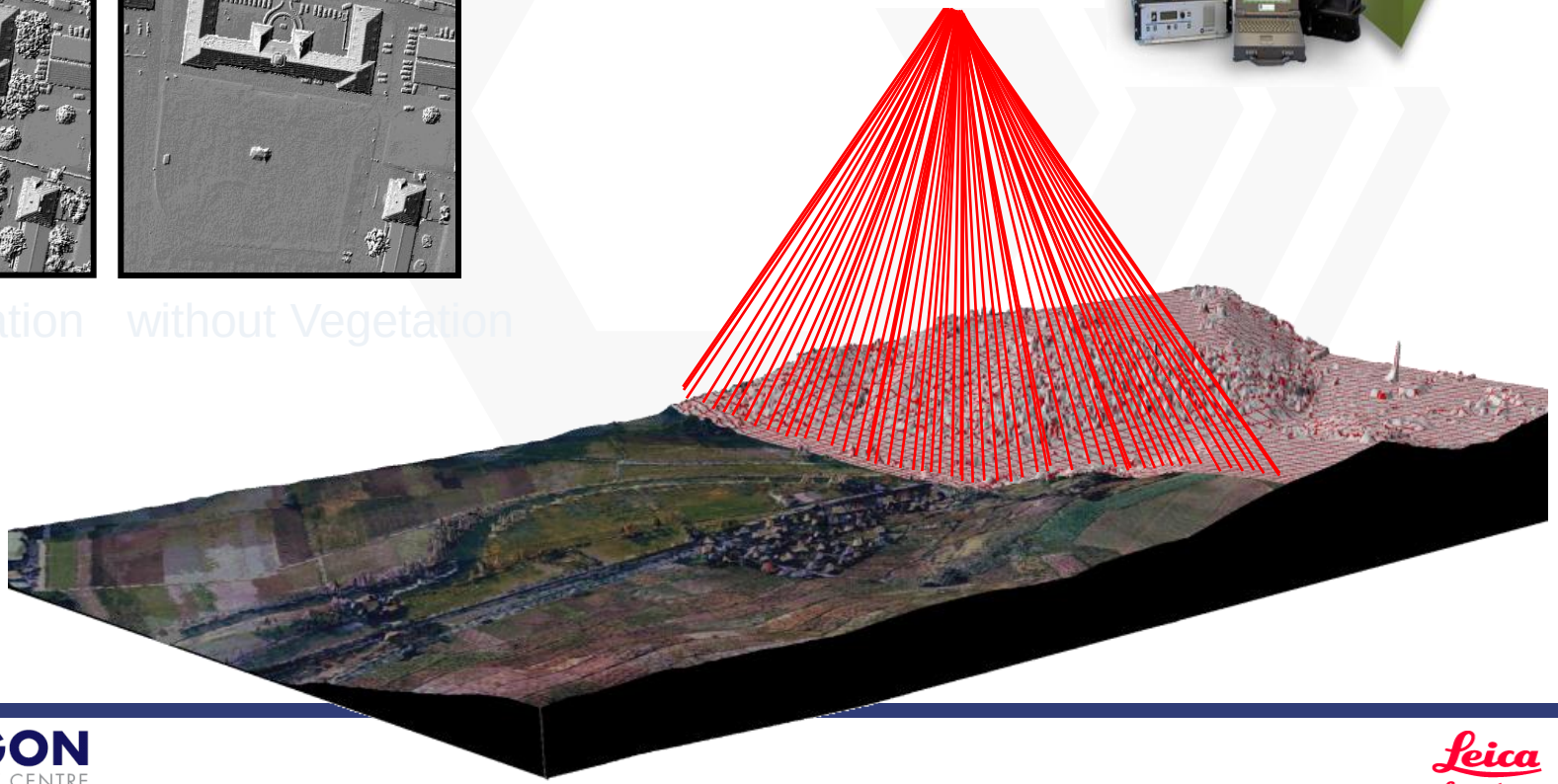






with Vegetation without Vegetation





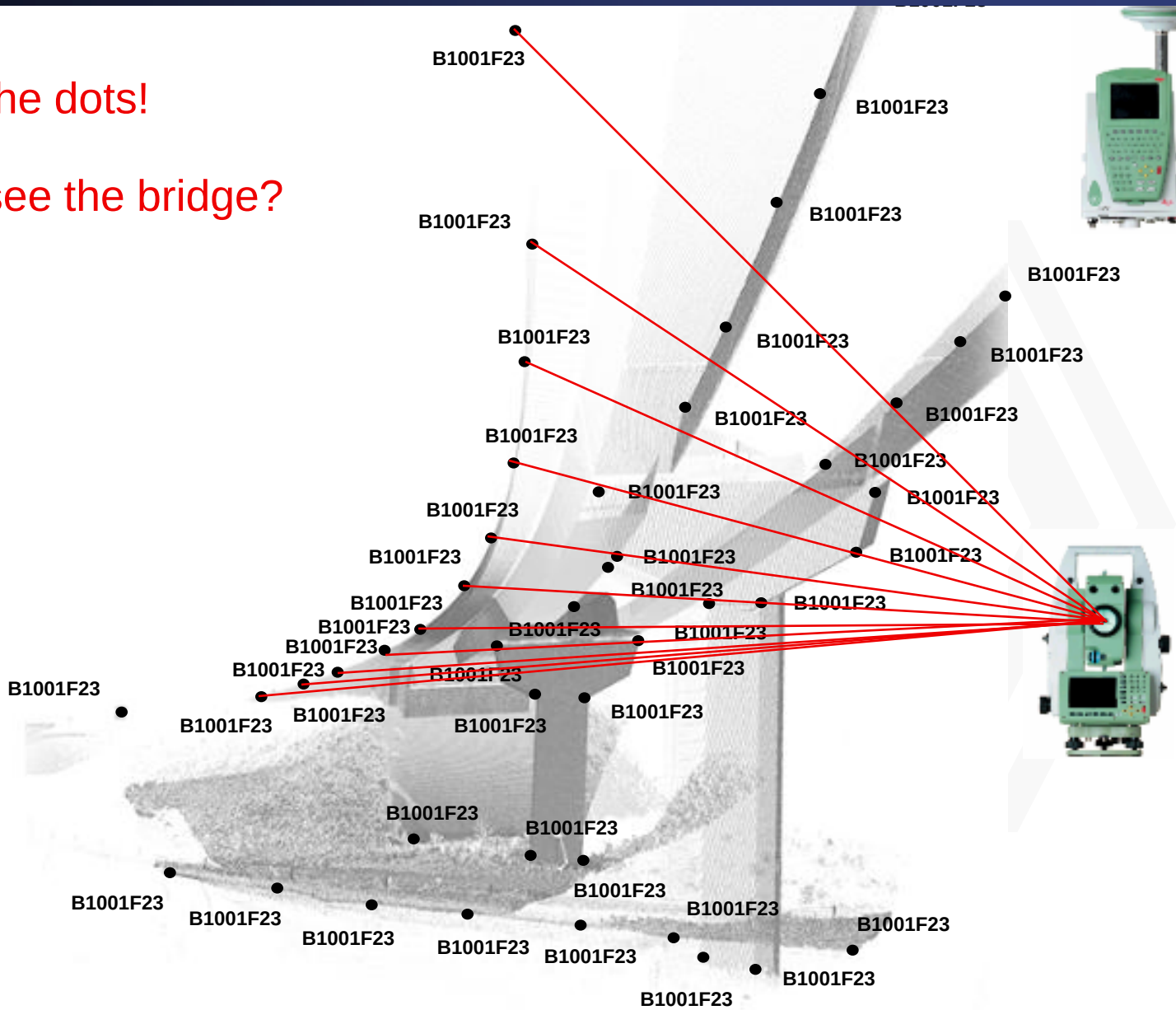
LGS

Overlay

HDSTM: High Definition Surveying

Connect the dots!

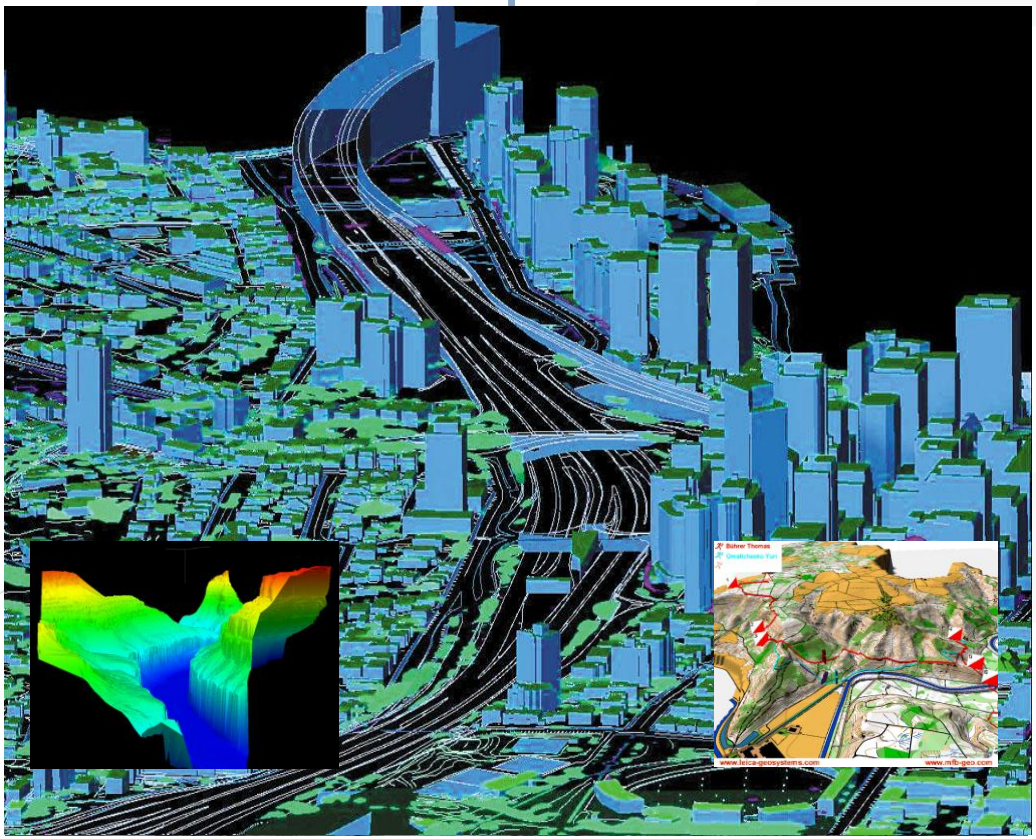
Can you see the bridge?



HEXAGON

HEXAGON TECHNOLOGY CENTRE

Intergraph | Geosystems | *Technology* | *Other Operations* | Metrology



"CMM"

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"CMM"

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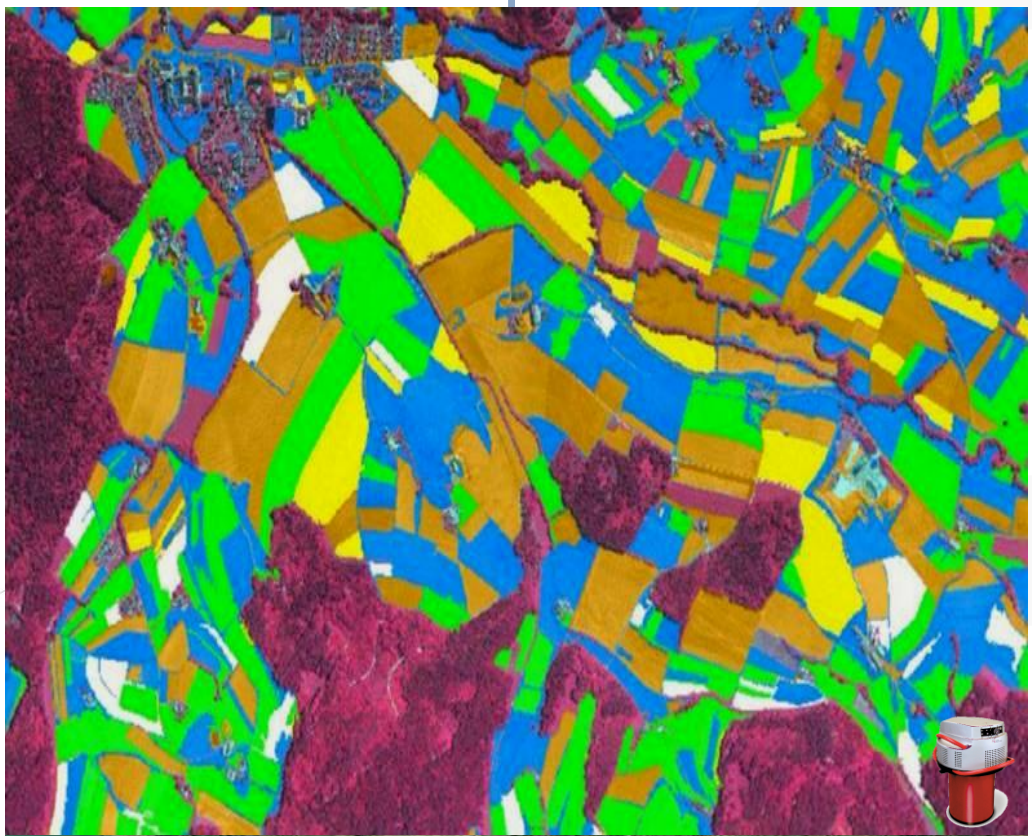

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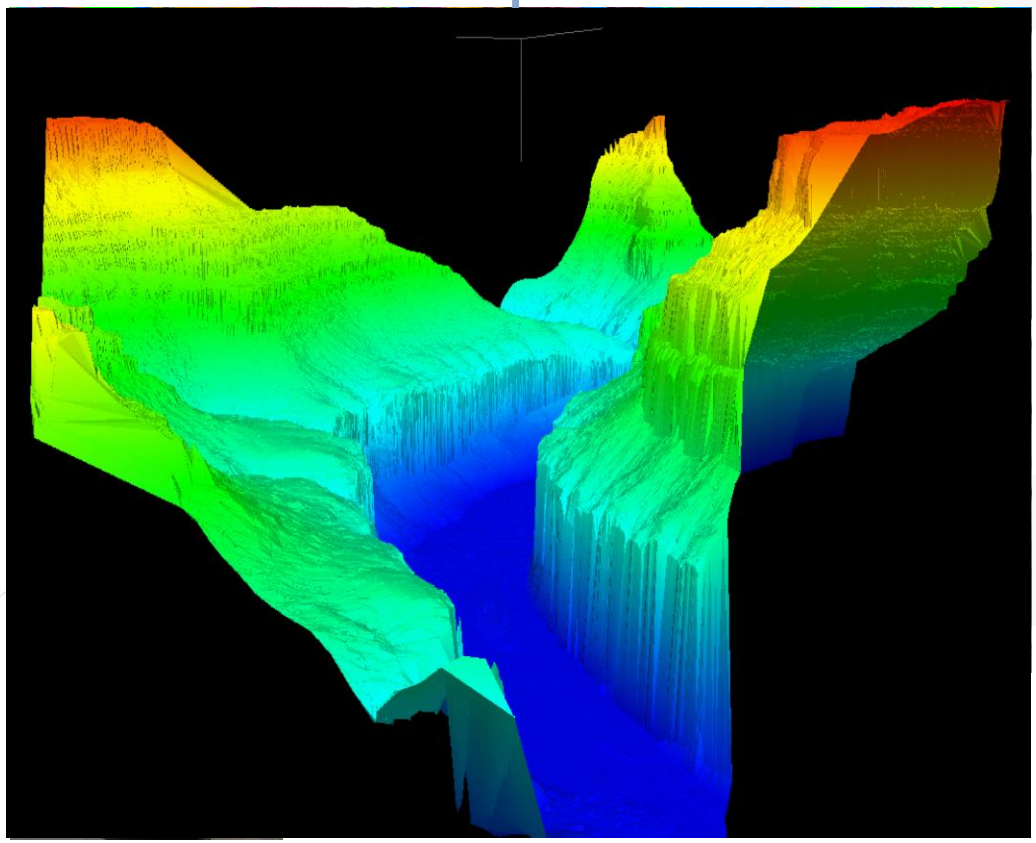

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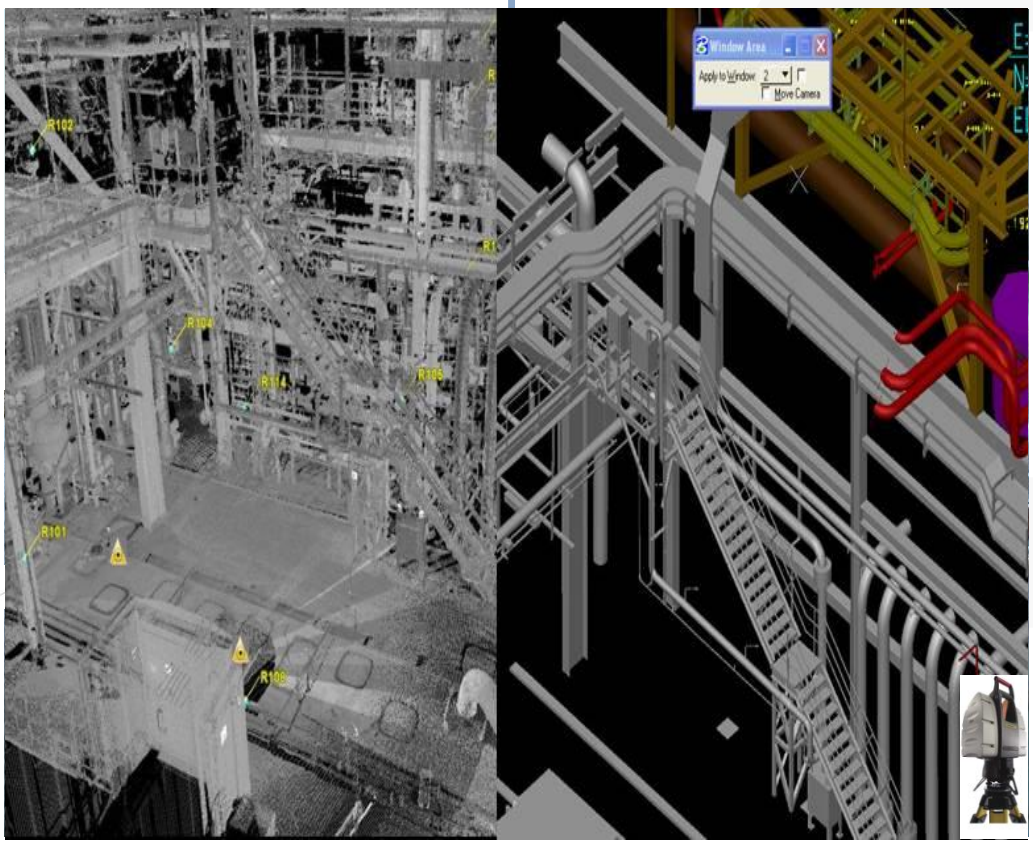

“CMM”

DEA | Leitz | ROMER | cimcore | TESA TECHNOLOGY

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"CMM"

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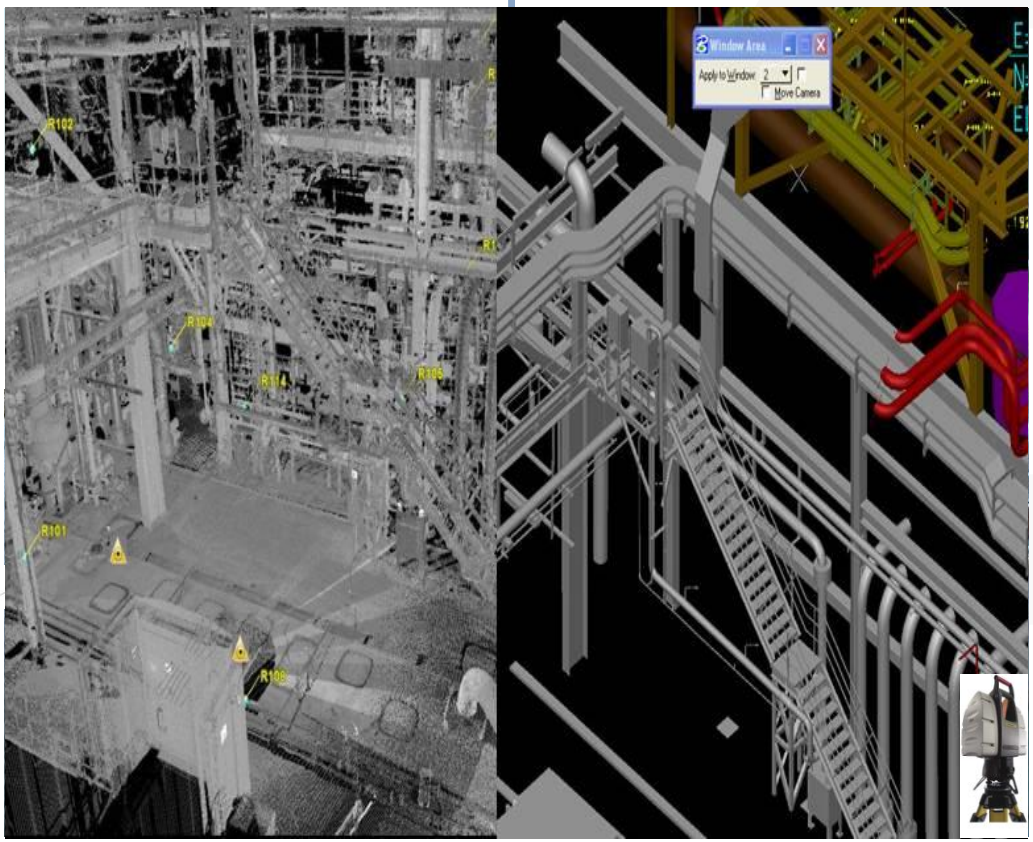


Surveying and GIS -> Metrology

HEXAGON — HEXAGON TECHNOLOGY CENTRE

- Intergraph
- Geosystems
- *Technology*
- *Other Operations*
- Metrology

Metrology: Laser Tracker

Laser Tracker
Product Line

Laser Tracker

Laser Tracker
+ Leica T-Cam

Leica T-Probe

Leica T-Scan

Leica T-Mac

Metrology: Laser Tracker

Leica T-Scan - walk around laser scanner for all surfaces

Reflected laser for near distances

Outgoing Laser

Reflected laser for far distances

Navigation Laser
Guides the operator to stay in measurement field

Trigger for data acquisition

LED for T-Cam

Reflector for Laser Tracker

Video

Metrology: White Light Sensor

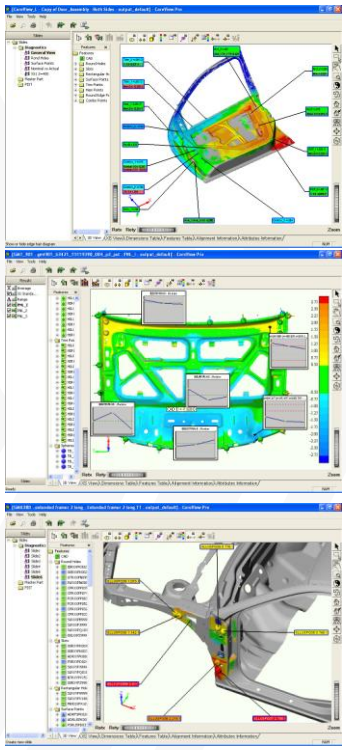
optigo™

opticell™

CoreView Pro™

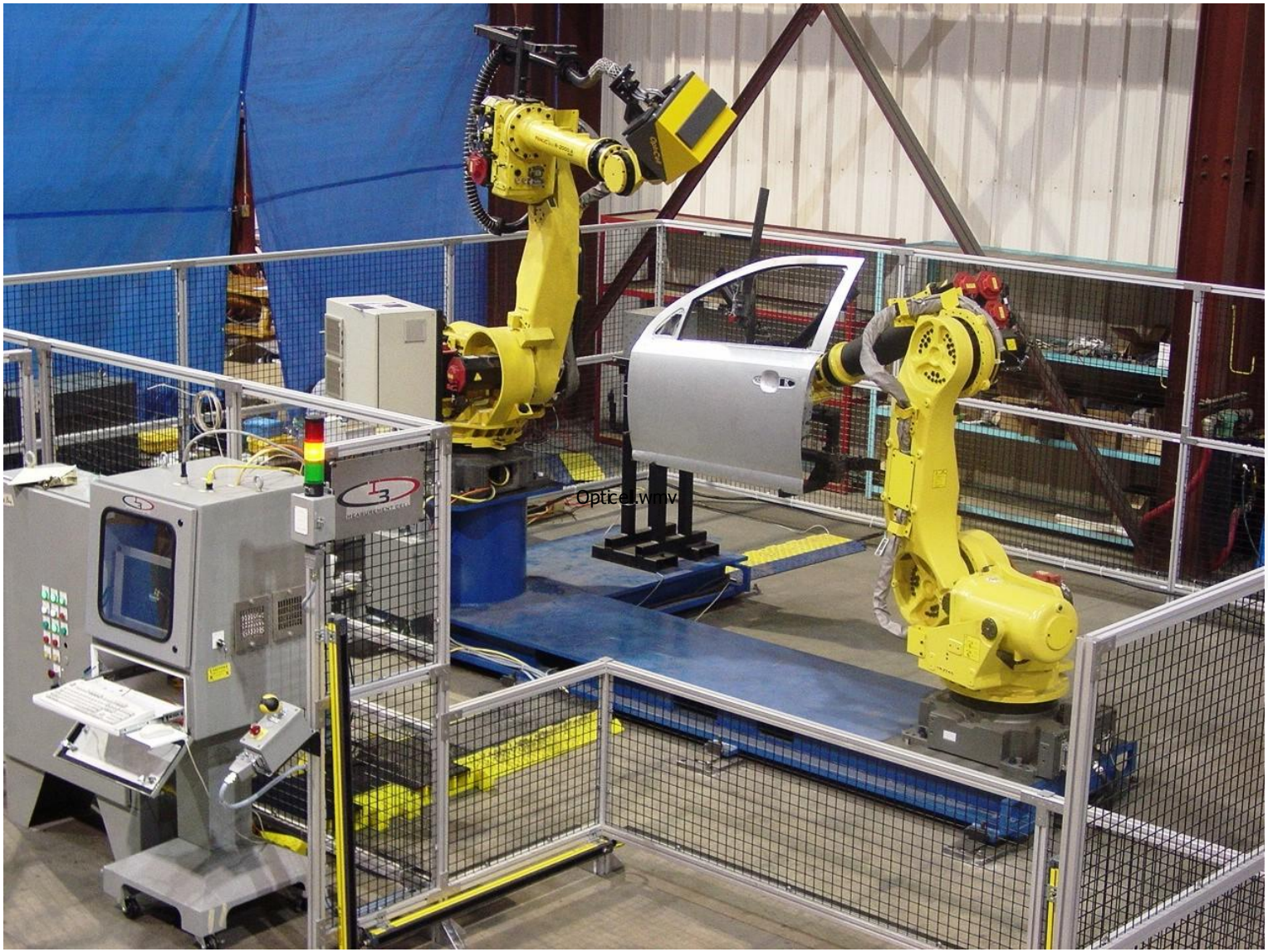
Mobile measurement system
For manual highly accurate measurements in Die Shops, Stamping & Assembly lines

Fully automated system
For repetitive measurement Of panels and assemblies in Stamping and assembly plants



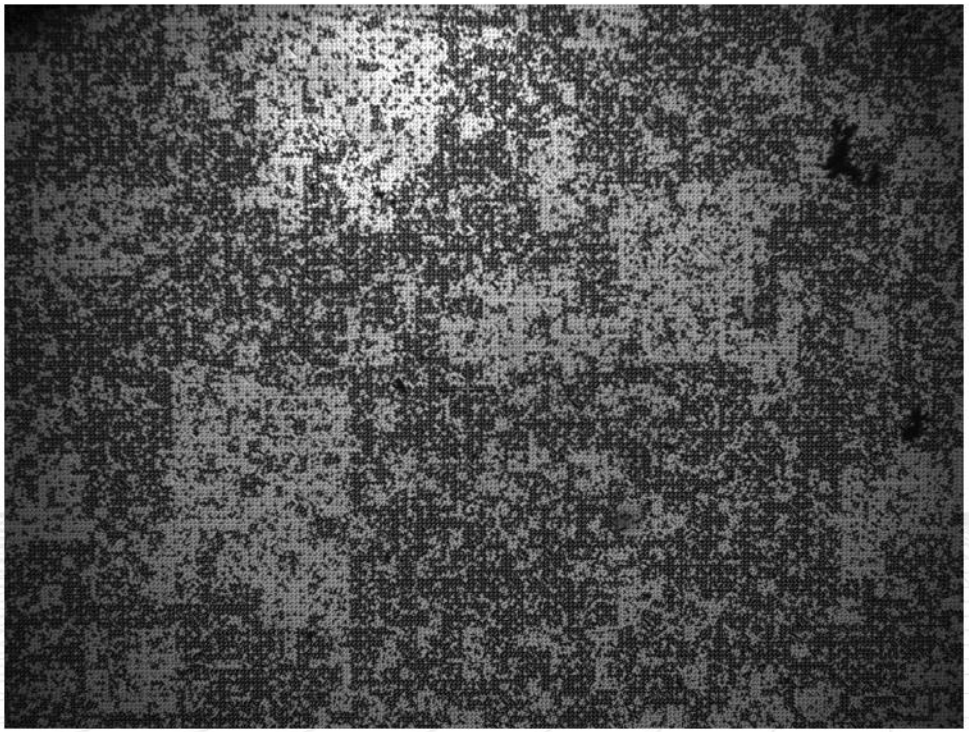
Software for shop floor viewing, analysis of measurement results and automatic reporting

Metrology: White Light Sensor -> Inline

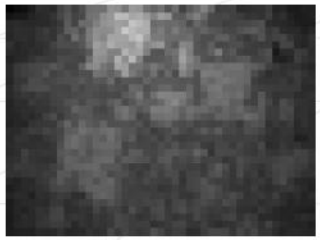


Projected Texture – Pyramid

Level 0 – “as is”



Level 5



Metrology: Articulated Arm

Metrology with „Optical Probes“

Measurements in the nanometer range for micromechanical parts

- Non-contact WhitePoint microprobe (WPM) with a diameter of 35 µm
- Dual Z axes design
- Multi-sensor technology
- Ultra-precise, air bearing machine base

2D-accuracy range			
3µ	2µ	1µ	0,5µ

Industries

AUTOMOTIVE

AEROSPACE

MEDICAL

ELECTRONICS

MECHANICAL ENGINEERING

PLASTICS

OPTICS

PRECISION ENGINEERING

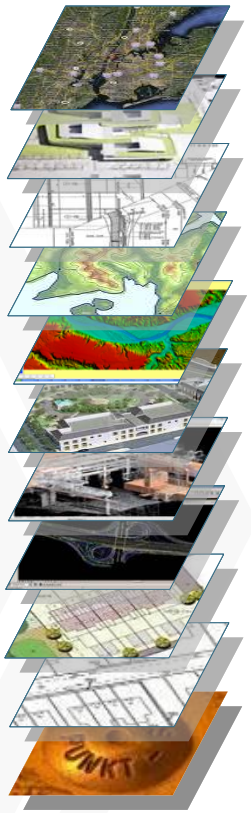
Convert a static map into an activity!





CAPTURE REALITY

CREATE INFORMATION



Constant flow of updated information to gain quality and efficiency

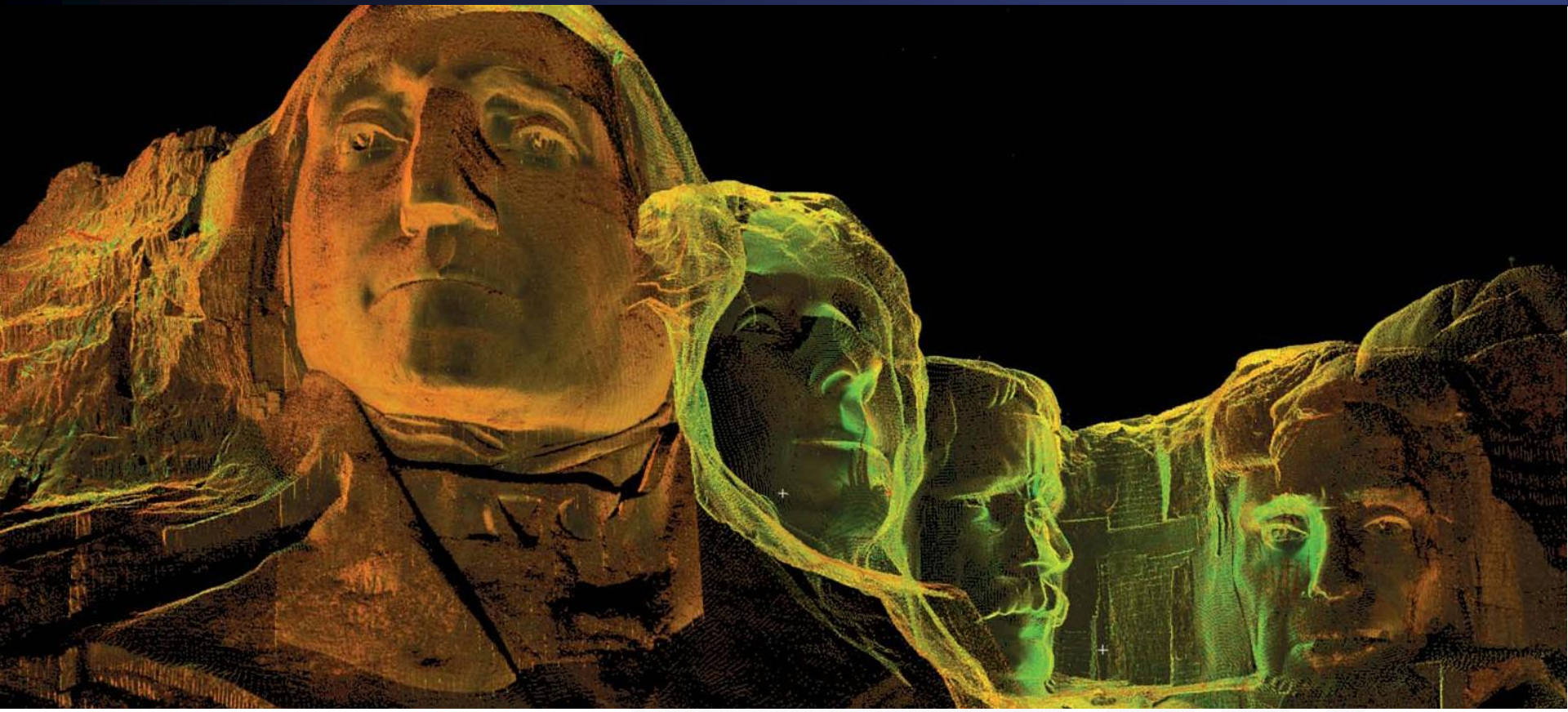
MANAGE & SHARE







Tank you for your attention!



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