



# South Asia Geospatial Forum 2015

Geospatial Technology-Direction and Standard  
Hyderabad, 9<sup>th</sup> February , 2015

## Looking Beyond Maps



# ABOUT HEXAGON

Hexagon is a global, research-intensive technology company with an extensive line of hardware, software and services that spans customers and industries worldwide

Head offices in Stockholm and London  
Shares listed on **NASDAQ OMX Stockholm**

Nearly **14 000 employees** in over **40 countries**  
More than **3 000 employees** engaged in R&D  
More than **2 700 active patents** in patent portfolio

**\$3.01bn**  
turnover

**11%**  
of net sales invested  
in R&D

**9%**  
long-term growth

above  
**20%**  
operating margin

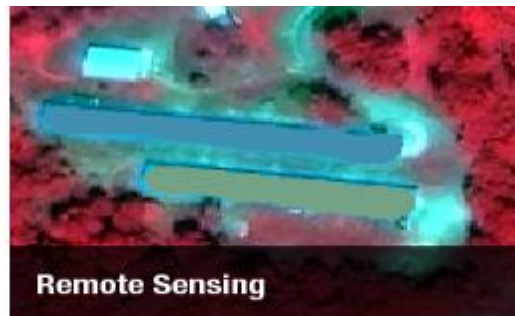


# Hexagon Geospatial

- Integration of geospatial software technologies from 3 organizations into a portfolio



- Our key Focus is on enhancing existing products and also developing new technologies and products to enable our sister divisions like Intergraph SG&I and our partners to develop Smart Solutions for vertical markets





# Enabling the Smart Enterprise

## Hexagon Advantage





# Hexagon Foundational Technologies



## **Geospatial Suite**

- Hexagon's geospatial suite includes sensors and big data solutions that drive efficiency improvements utilizing geospatial data from leading brands such as Intergraph Security, Government & Infrastructure, Hexagon Geospatial, Leica Geosystems, NovAtel and Veripos. Together they capture the constant, real-time changes of our dynamic Earth through satellite imagery, terrestrial and aerial photography, remote sensing, CAD and GIS – transforming raw geospatial data into actionable information.

## **Industrial Suite**

- Hexagon's industrial suite includes measurement systems, engineering software and big data solutions that drive productivity improvements from our leading brands Intergraph Process, Power & Marine and Hexagon Metrology. Together, they serve a wide spectrum of industries from chemical plants and shipbuilding to automotive and aerospace manufacturing. All these industries share the need to manage complex engineering information to speed project completion and ensure operational efficiency



World is changing faster than you think





# DATA – THE NEW NATURAL RESOURCE

DATA

=

ACTIONABLE  
INFORMATION

2003

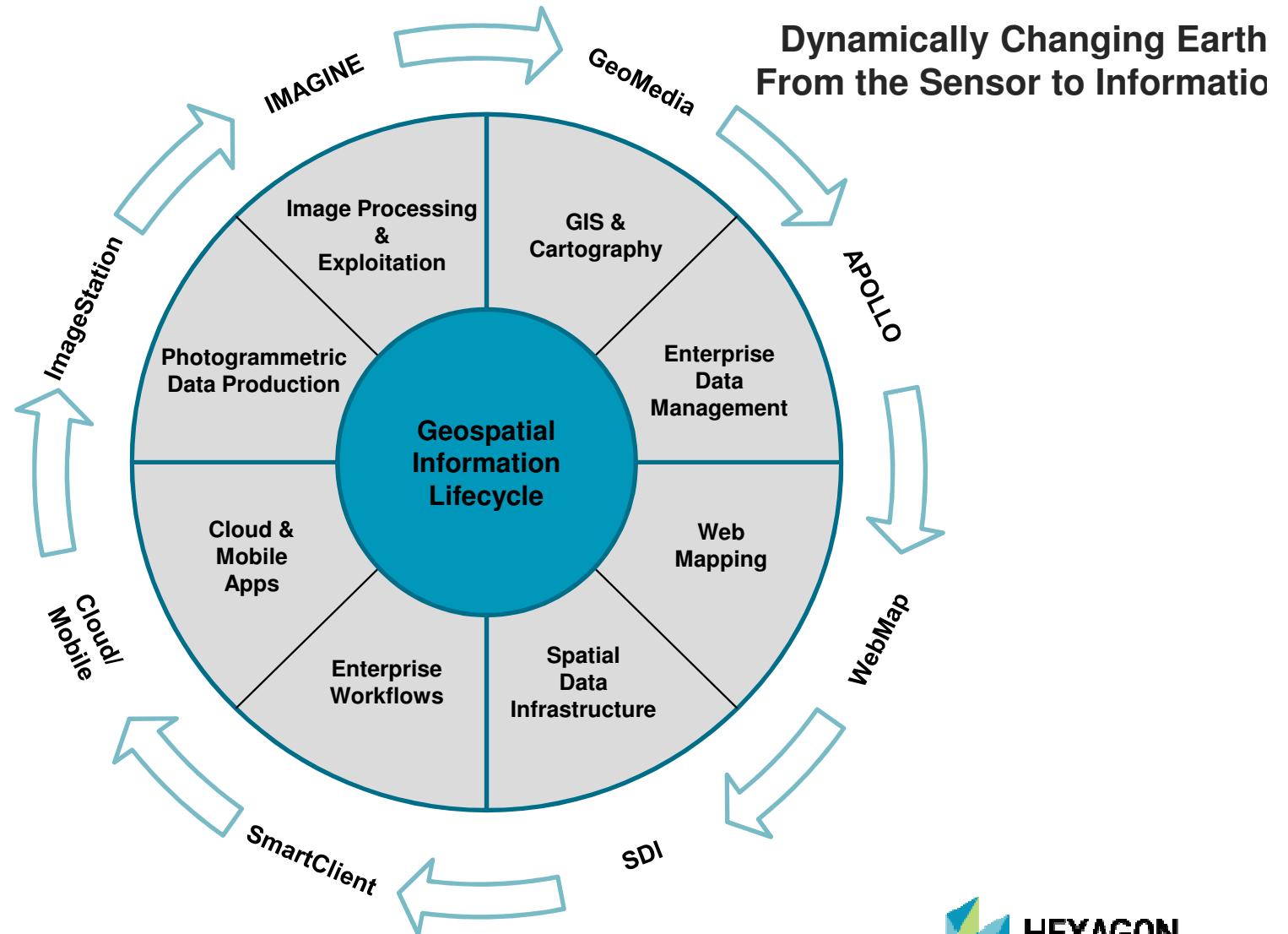
18141,446

2011

2014

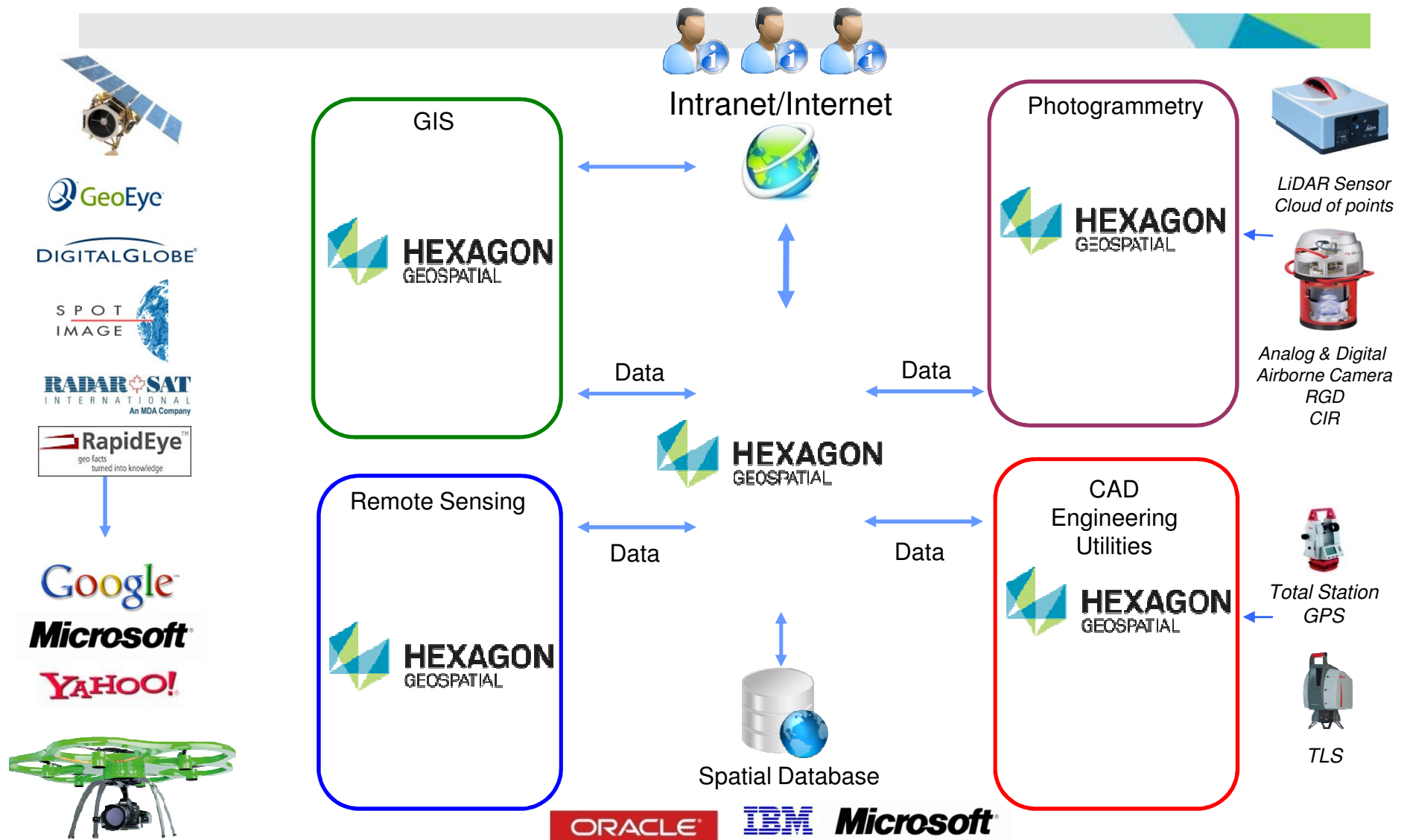


# Powering Dynamic Geospatial Solutions



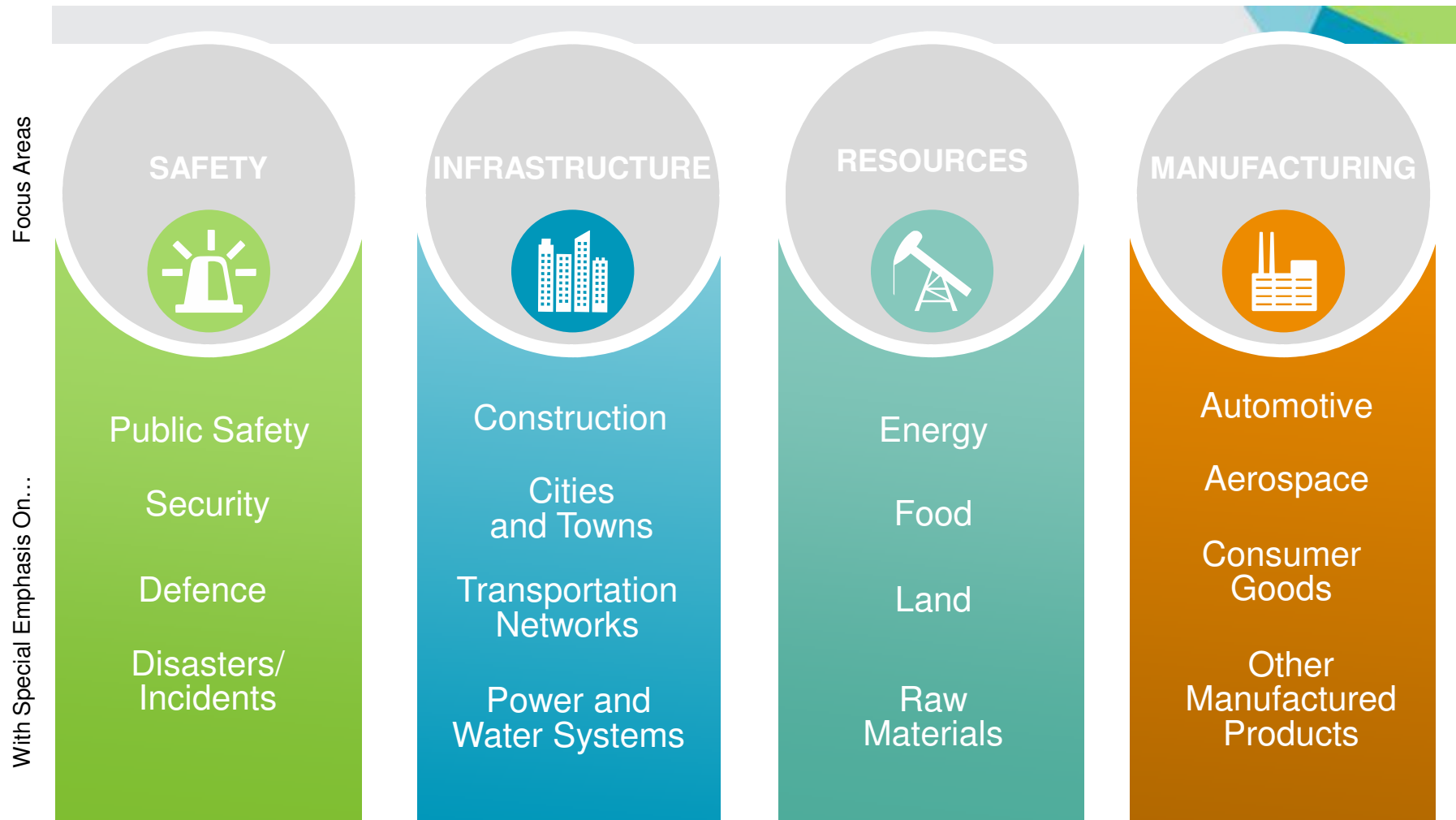


# Hexagon Market Position





# Hexagon's Smart Solution Framework



Hexagon's capabilities are categorized into four main focus areas.



# Market Drivers



## Content

New wave of content sources, from new satellite platforms (“micro-sats”) promising daily refresh rates through UAV/UAS platforms.



## Virtualization and Cloud

IT services are being virtualized, and offered in hosted, cloud-based environments.



## Pricing models

Software industry transforming from on premise deployments to cloud-based subscription-based models



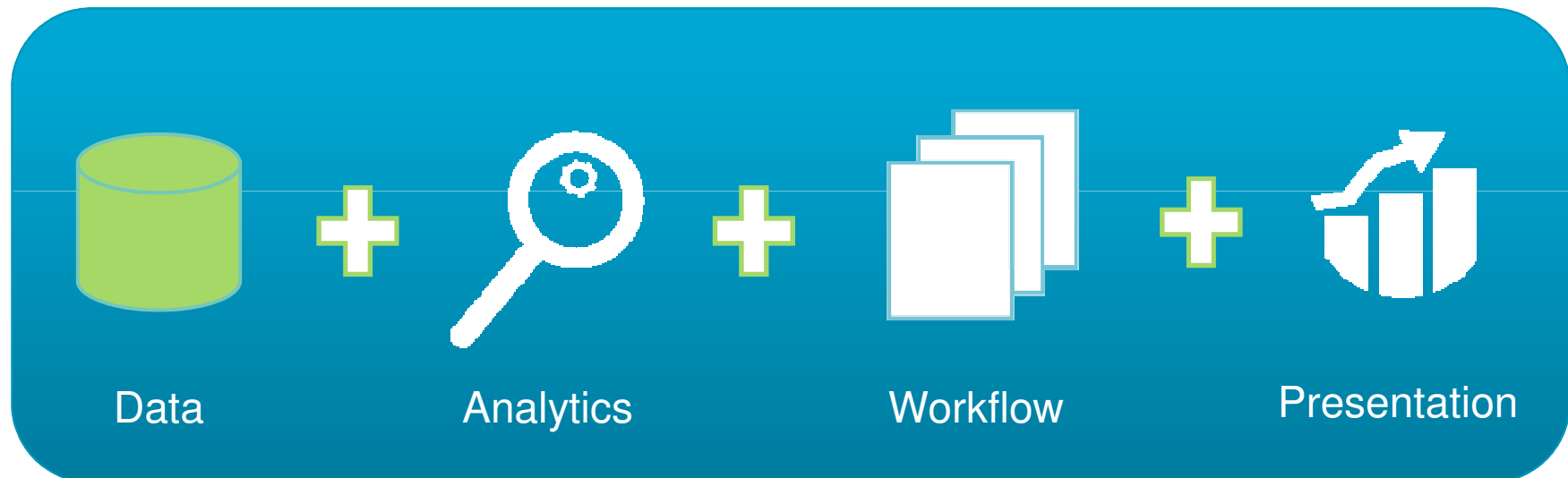
## Analytics

Increasing demand for access to online analytics and information services that support decision-making.



## Our Mission

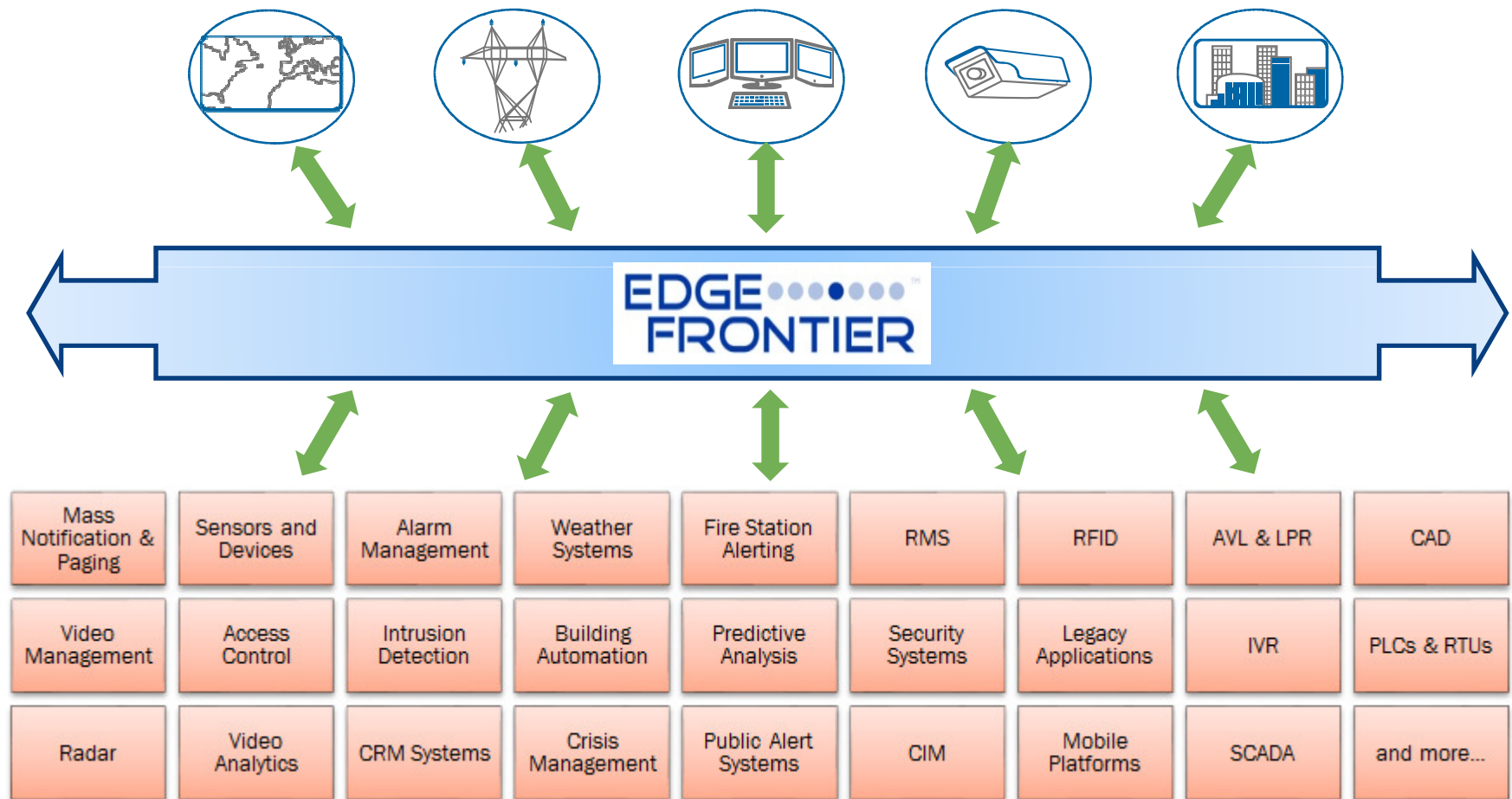
- Allow you to build and run applications using our software Platform, combining data, analytics, workflow and presentation, to solve a specific problem





# Sensor Integration to Software

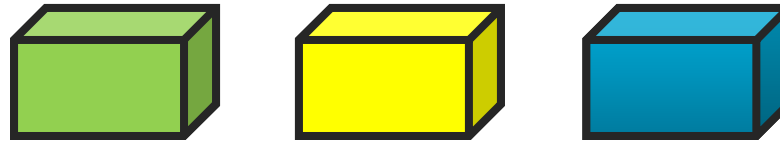
Hexagon's horizontal data integration platform for connecting to external systems, applications, and devices





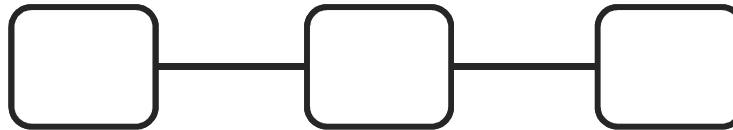
# Platform Technology enabling SMART Solutions

**Industry Applications**



**Web & Mobile SDKs**

**Graphically &  
Programmatically  
Orchestrate  
Workflows**



**Smart Client Workflow Manager**

**Analytics Engine**



**Spatial Modeler SDK**

**Core technology**



**Geospatial Platform Technologies**



# MINING

SMARTER SOLUTIONS FOR EXPLORATION, DESIGN,  
CONSTRUCTION, PRODUCTION & REHABILITATION





# MINING

SMARTER SOLUTIONS FOR EXPLORATION, DESIGN,  
CONSTRUCTION, PRODUCTION & REHABILITATION

## DATA

- Digital Mapping Cameras
- LiDAR Sensors
- Remote Sensing
- Photogrammetry
- UAV
- Field Survey
- Positioning
- Machine Control
- GIS
- Fleet Management
- Monitoring
- 3D Modelling Software

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## ACTIONABLE INFORMATION

- Reduced Explorations Costs
- Increased Operational Efficiency
- Faster Commissioning
- Improved Safety
- Better Land Management
- Better Environmental  
Management
- Reduced Environmental Impact
- Increased Sustainability



# — AGRICULTURE

SMARTER WAYS TO DEVELOP AND UTILISE FOOD  
RESOURCES





# AGRICULTURE

## SMARTER WAYS TO DEVELOP AND UTILIZE FOOD RESOURCES

### DATA

Digital Mapping Cameras  
LiDAR Sensors  
UAV  
Machine Control  
Smartnet  
GIS  
Remote Sensing  
Photogrammetry

=

### ACTIONABLE INFORMATION

Optimise Resources  
Automate Farm Equipment  
Have Variable Crops  
Increase Productivity  
Reduce Waste & Erosion  
Increased Crop Yields



# Smart Agriculture



The image is a composite illustrating smart agriculture. It features a farmer wearing a cap and a blue shirt, operating a tractor. A digital display on the tractor shows a map with a color-coded overlay (green, yellow, red) representing different agricultural data. Overlaid on the right side of the image is a screenshot of the AgriCana web application. The application interface includes a navigation bar with options like 'Navegação', 'Explorar', 'Buscar', 'Editar', 'Filtrar', and 'Processamento'. It displays a map with a color-coded overlay, similar to the one on the tractor's display. The application also shows a sidebar with 'Mapas' and 'Resultados' sections. The 'Mapas' section lists 'NDVI\_classified (TRCWB67U\_BE)' and 'Coverage file 2011-02-20t143454\_rez\_1b\_nao'. The 'Resultados' section shows 'NDVI\_classified' with details like 'Nome: TRCWB67U\_BE', 'Título: NDVI\_classified (TRCWB67U\_BE)', 'Descrição: NDVI\_classified, GeoProcessing result from running the NDVI\_classified spatial model', and 'Palavras-chave: GeoProcessing, IMAGINE\_SMS, NDVI\_classified, admin\_1\_Band, NDVI\_classified'. The application also includes a 'Download' button and a 'Metadados ISO' link. The bottom right corner of the application shows 'Resultado: 1 de 1' and a small thumbnail image.

**AgriCana**

Bem-vindo Paulo [Sair](#) Idioma: Português

X: -50.531 Y: -50.531 Escala: -50.531 SRS: EPSG:4326

Navegação Explorar Buscar Editar Filtrar Processamento

**Mapas**

World Boundaries Map

**Mapas**

NDVI\_classified (TRCWB67U\_BE)

Coverage file 2011-02-20t143454\_rez\_1b\_nao

Countries

Cities

States

**Resultados**

**NDVI\_classified**

Nome: TRCWB67U\_BE

Título: NDVI\_classified (TRCWB67U\_BE)

Descrição: NDVI\_classified, GeoProcessing result from running the NDVI\_classified spatial model

Palavras-chave: GeoProcessing, IMAGINE\_SMS, NDVI\_classified, admin\_1\_Band, NDVI\_classified

Metadados ISO Adicionar ao Mapa Download

Acesso: WMS, WCS

Data da Aquisição: Não Especificado

SRS: EPSG:32722

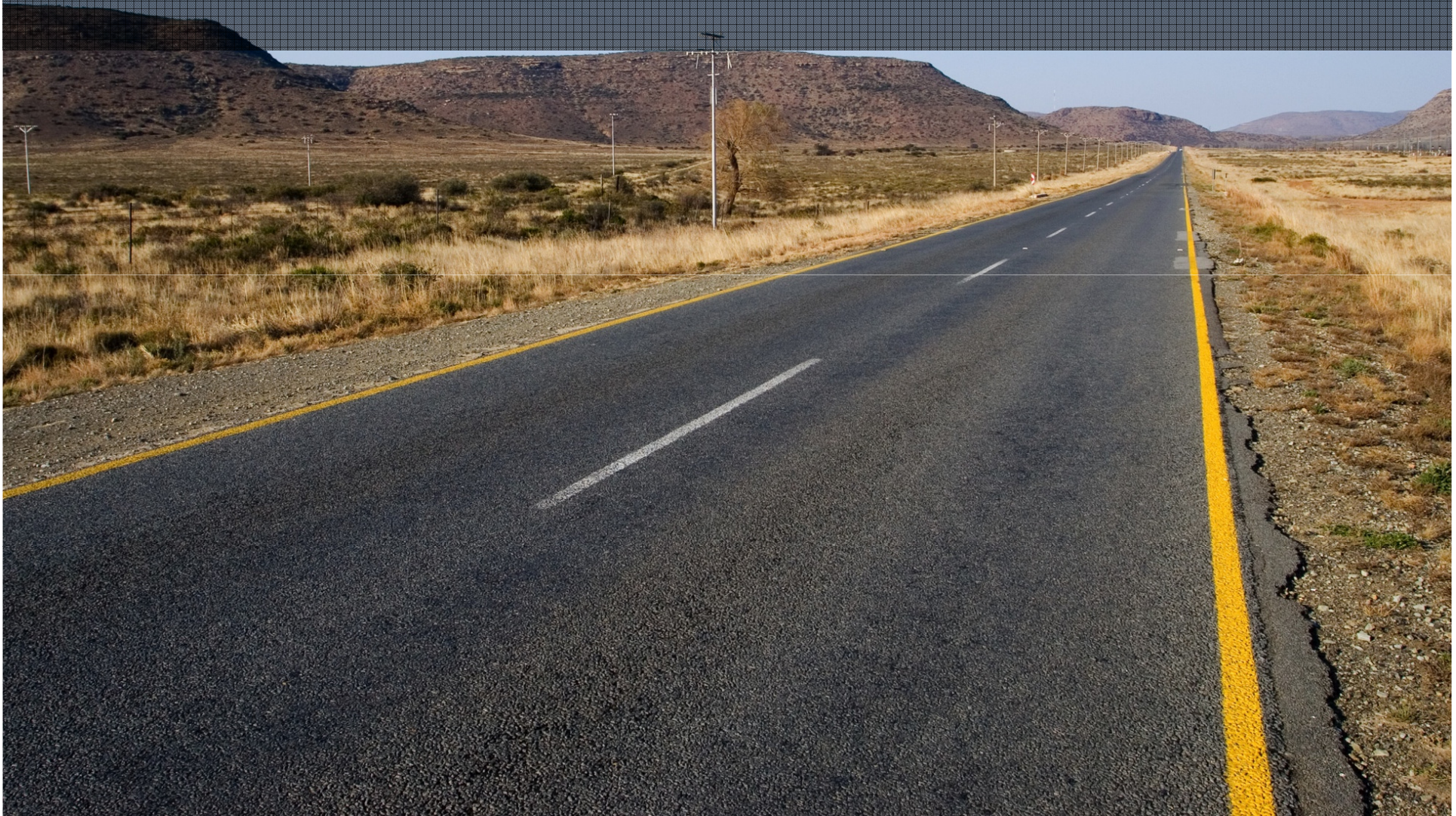
Extensão: -542413.9, 7692565, 557227.5, 7706301.6

Resultado: 1 de 1



# TRANSPORTATION

## SMARTER MAPPING TO SUPPORT ROAD CONSTRUCTION





# TRANSPORTATION

## SMARTER MAPPING TO SUPPORT ROAD AND RAIL CONSTRUCTION AND MAINTENANCE

**DATA**

Digital Mapping Cameras  
LiDAR Sensors  
UAV  
Mobile Mapping  
Field Survey  
Machine Control  
GIS & Asset Management  
Remote Sensing  
Photogrammetry

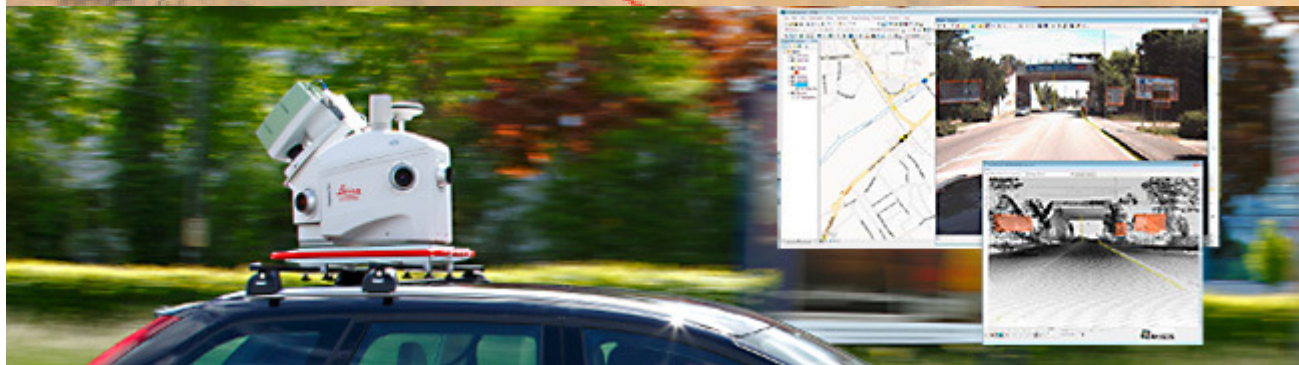
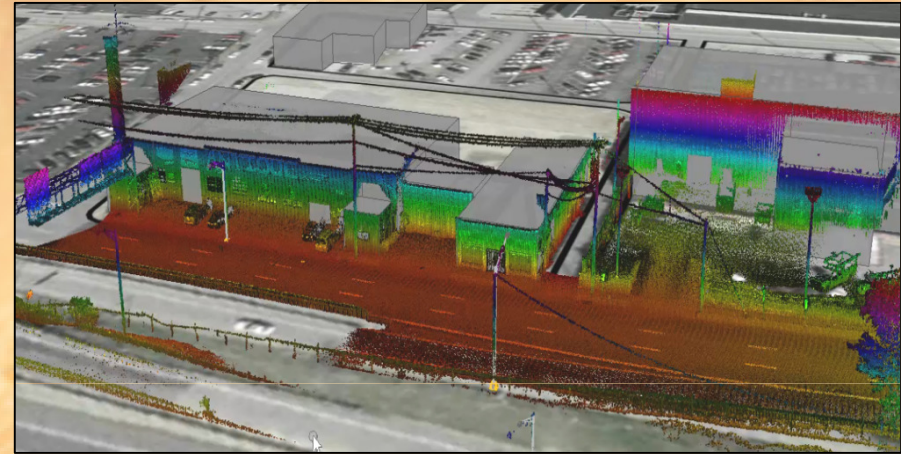
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**ACTIONABLE  
INFORMATION**

Ideal & Fast Mapping to  
Support Road and Rail  
Construction  
Maintain Better Asset  
Condition  
Improve Safety



# VEHICLE MOUNTED LIDAR



Lake Chad



# — CITIES AND TOWNS

SMARTER WAYS TO TURN DIGITAL CITIES INTO  
SMART CITIES





# CITIES AND TOWNS

## SMARTER WAYS TO TURN DIGITAL CITIES INTO SMART CITIES

**DATA**

Digital Mapping Cameras &  
Terrestrial Sensors

3D Scanning

Mobile Mapping

TPS & GNSS

BIM

GIS & Asset Management

3D Modelling Software

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**ACTIONABLE  
INFORMATION**

**Manage Change in Real Time  
for:**

Urban Planning

Energy & Water

Transportation

Public Safety

Governement

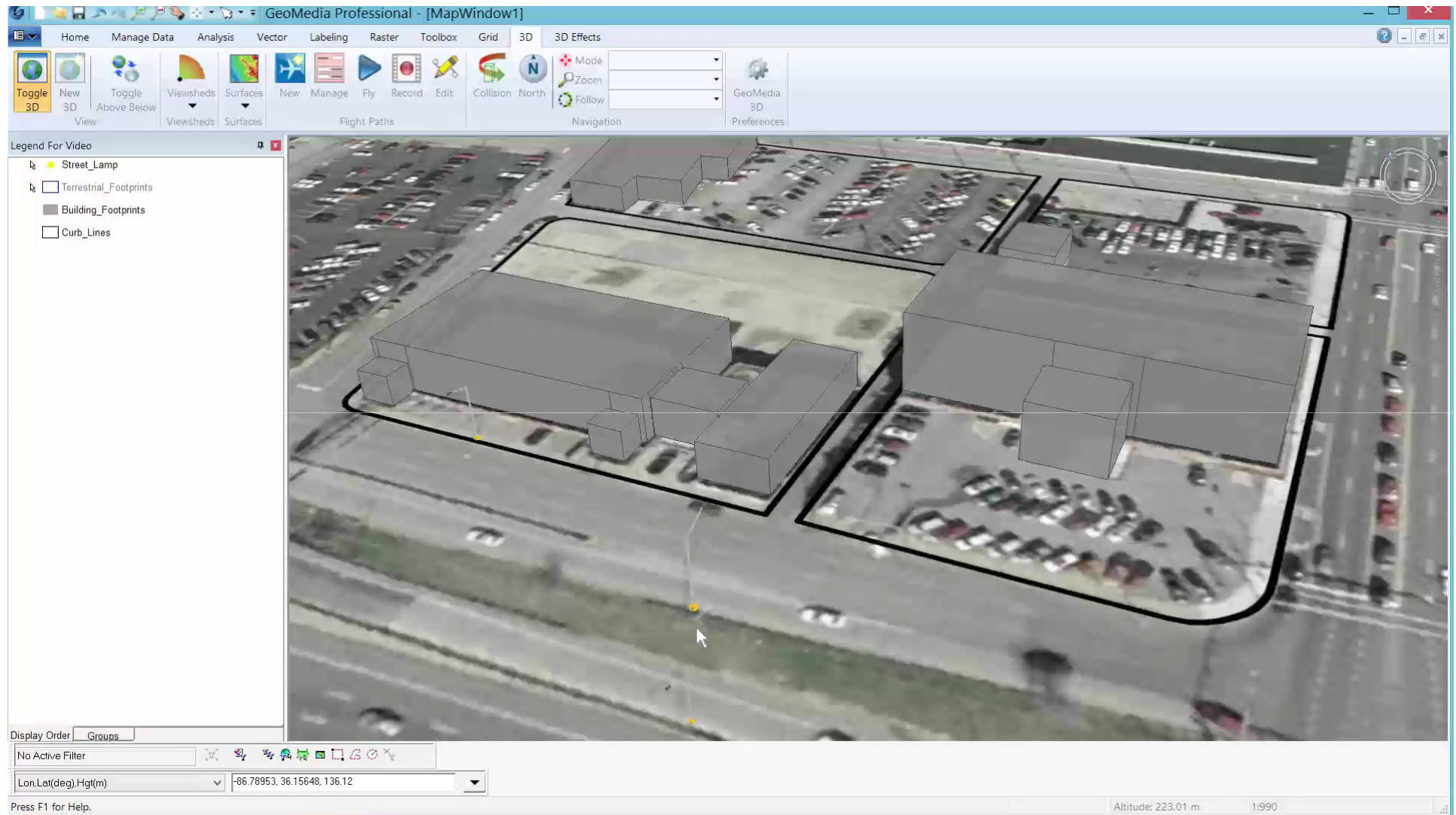


# MANAGE CHANGE IN REAL TIME



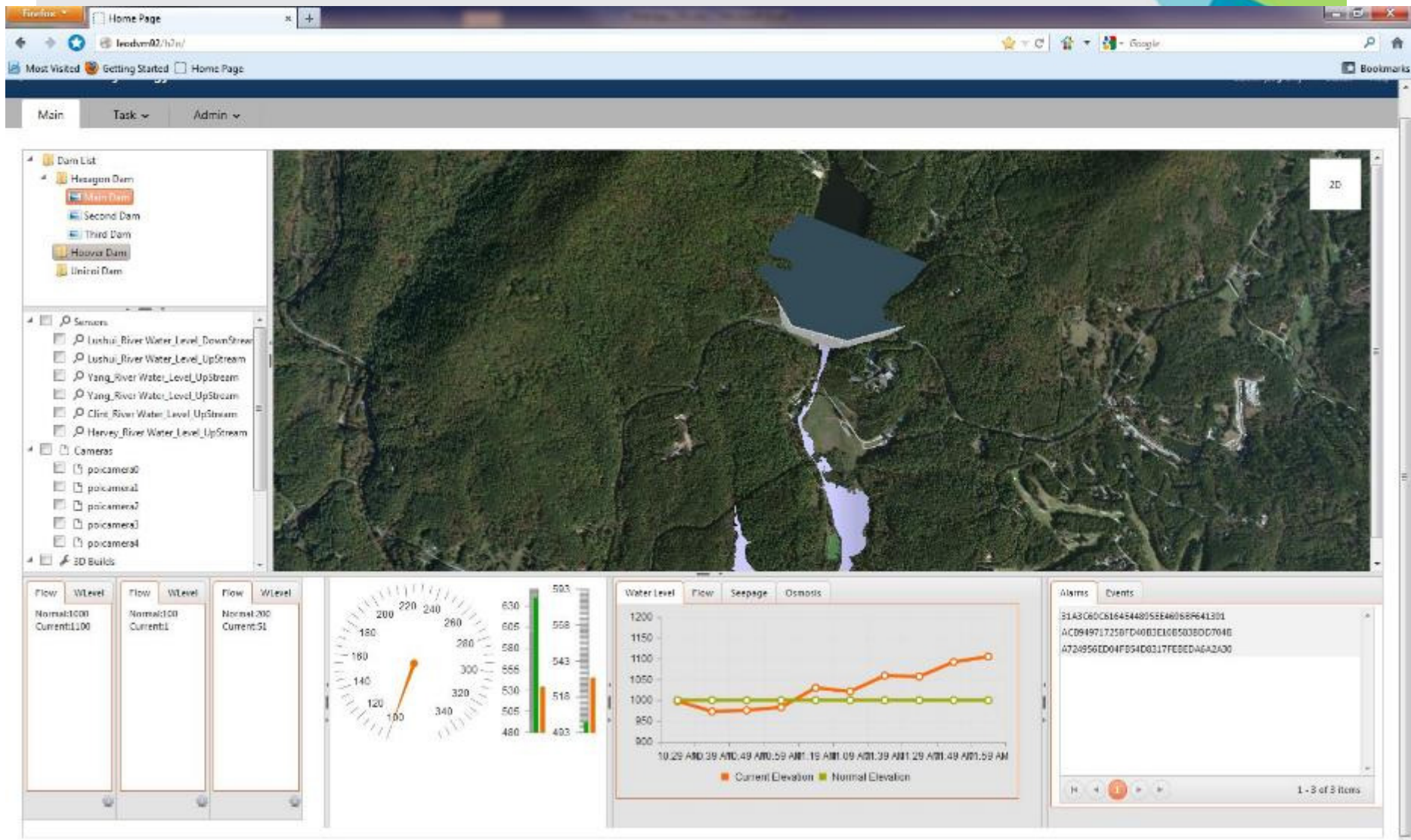


# Infrastructure Mapping using LiDAR in 3D





# Web Based Dashboards with Integrated Sensor Data



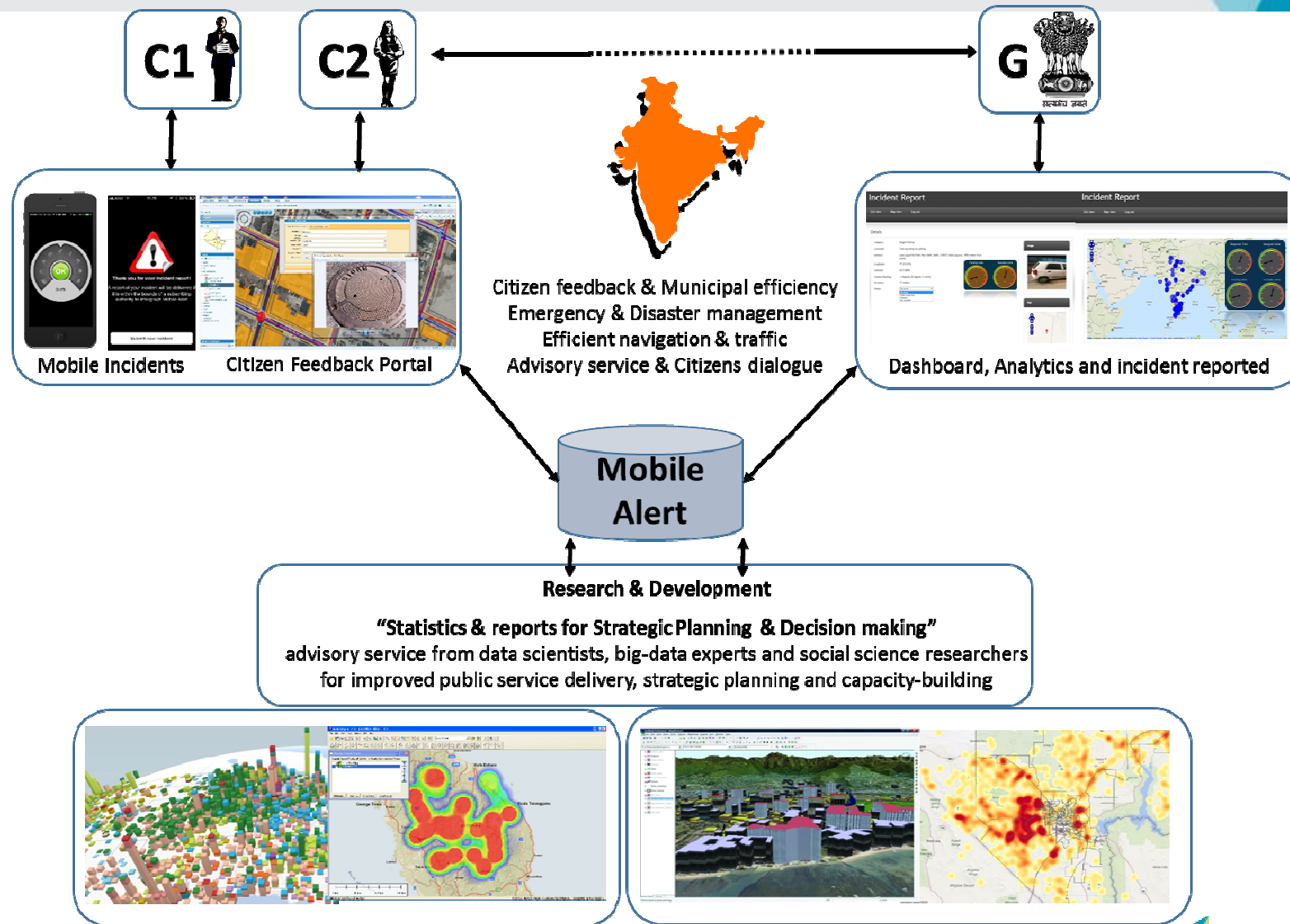


>1  
billion

tablet in use  
in 2017



# Citizen Centric Apps

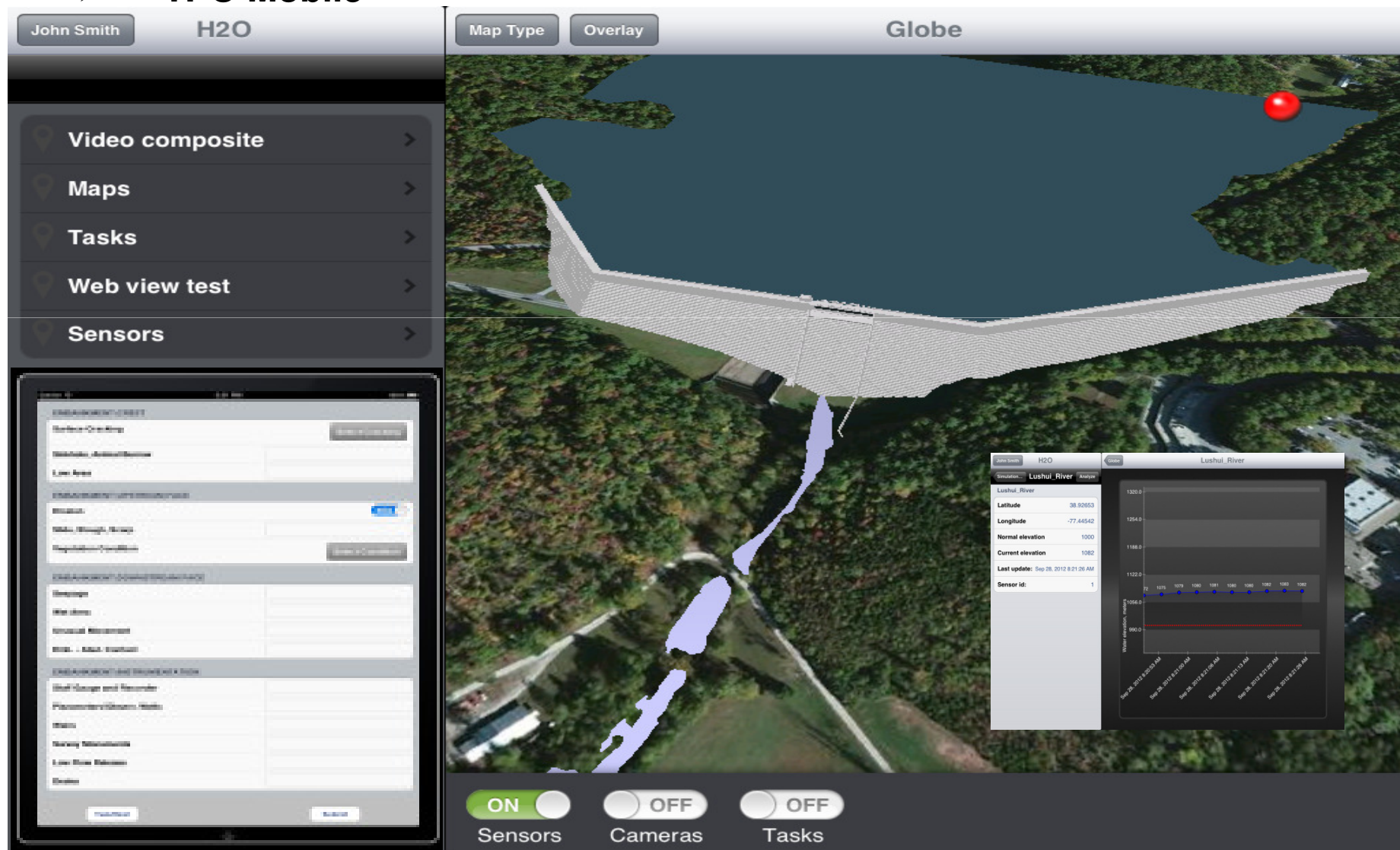




# Using Tablet to Monitor a Dam !



## H2O Mobile





# UAV route planning using Maps

**Shadow.ts preview**

Display Playback Enhancements

Data Display Clipmarks Enhancements

Data Name	Value
Video URL	
KLV URL	
Mission ID	
Vehicle Name	
Vehicle ID	
Latitude	
Longitude	
Altitude	
Platform Roll	
Platform Pitch	
Platform Yaw	
Classification	
Time Stamp	
GC 1 Lon	
GC 1 Lat	
GC 2 Lon	
GC 2 Lat	
GC 3 Lon	

☒ Show MGRS  
☒ Use ground points if available  
Camera designation: Default

0:00 00:02:59 00:05:58 00:08:58 00:11:57 00:14:56 00:17:55

1:18 AM 1:25:17 AM 1:28:16 AM 1:31:15 AM 1:34:14 AM 1:37:14 AM 1:40:13 AM

☒ Auto scroll ☒ Show clipmarks ☒ Show registrations

Stopped 8 seconds

**EVENTS STATUS**

**TARGET IDENTIFICATION**

TIMESTAMP_UTC	NAME	DESCRIPTION	GEOREFERENCEDSNAPSHOTFILE	GEOCODEDSSNAPSHOTFILE	STATUS
6/4/2009 4:40:27 PM	Hostile_Armored_Vehicle	A hostile armored vehicle was detected	C:\Temp\Snapshots\Hostile_Armored_Vehicle_002.tif	C:\Temp\Snapshots\Hostile_Armored_Vehicle_003.tif	OPEN
3/31/2012 1:26:52 AM	Hostile_Armored_Vehicle	A hostile armored vehicle was detected	C:\Temp\Snapshots\Hostile_Armored_Vehicle_000.tif	C:\Temp\Snapshots\Hostile_Armored_Vehicle_001.tif	OPEN
3/31/2012 1:23:01 AM	Friendly_Radar	A friendly radar station was detected	C:\Temp\Snapshots\Friendly_Radar_000.tif	C:\Temp\Snapshots\Friendly_Radar_001.tif	OPEN
3/31/2012 1:25:55 AM	Hostile_Light_Machine_Gun	A hostile light machine gun was detected	C:\Temp\Snapshots\Hostile_Light_Machine_Gun_000.tif	C:\Temp\Snapshots\Hostile_Light_Machine_Gun_001.tif	OPEN
3/31/2012 1:36:43 AM	Friendly_Civilian_Vehicle	A friendly civilian ground vehicle was detected	C:\Temp\Snapshots\Friendly_Civilian_Vehicle_000.tif	C:\Temp\Snapshots\Friendly_Civilian_Vehicle_001.tif	OPEN

No Active Filter

Press F1 for Help.

Lon,Lat(dms) -114:21:37.017, 33:06:39.768

1:40:152



# Hexagon Shaping Change

THANK YOU