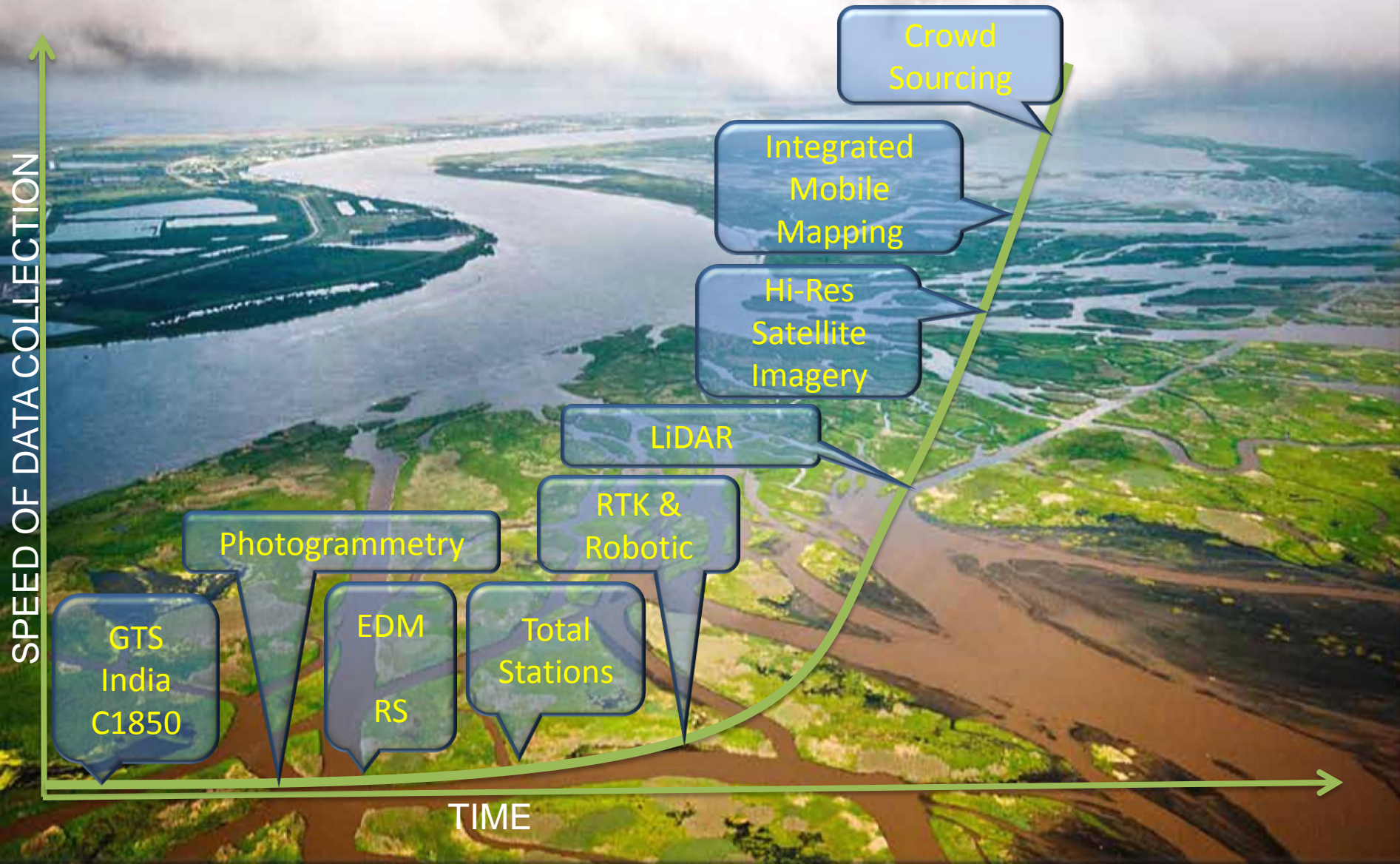


# Building GIS Ready Intelligent Data Infrastructure

Bryn Fosburgh  
Vice President

**Our ability to acquire and generate geospatial data has and will continue to increase exponentially.**



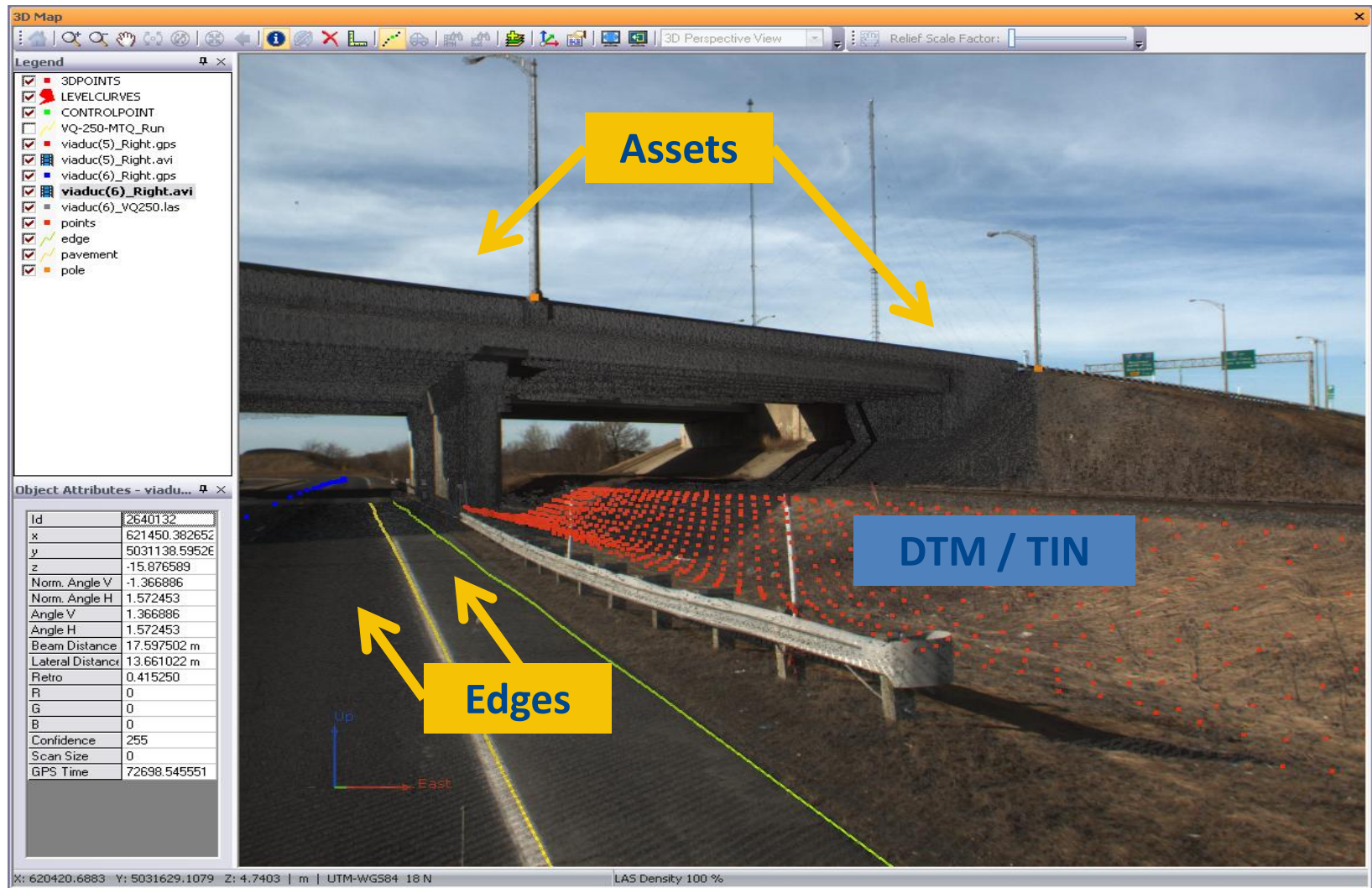


An aerial photograph of a multi-lane highway. In the foreground, a blue car is driving away from the viewer, equipped with various sensors on its roof, including what appears to be a laser scanner and cameras. The road has multiple lanes with white and yellow markings. The surrounding area is green with grass and some trees. The text is overlaid on the top left of the image.

# Integrated technologies that can collect 216 billion data points per hour will begin to commoditize positioning

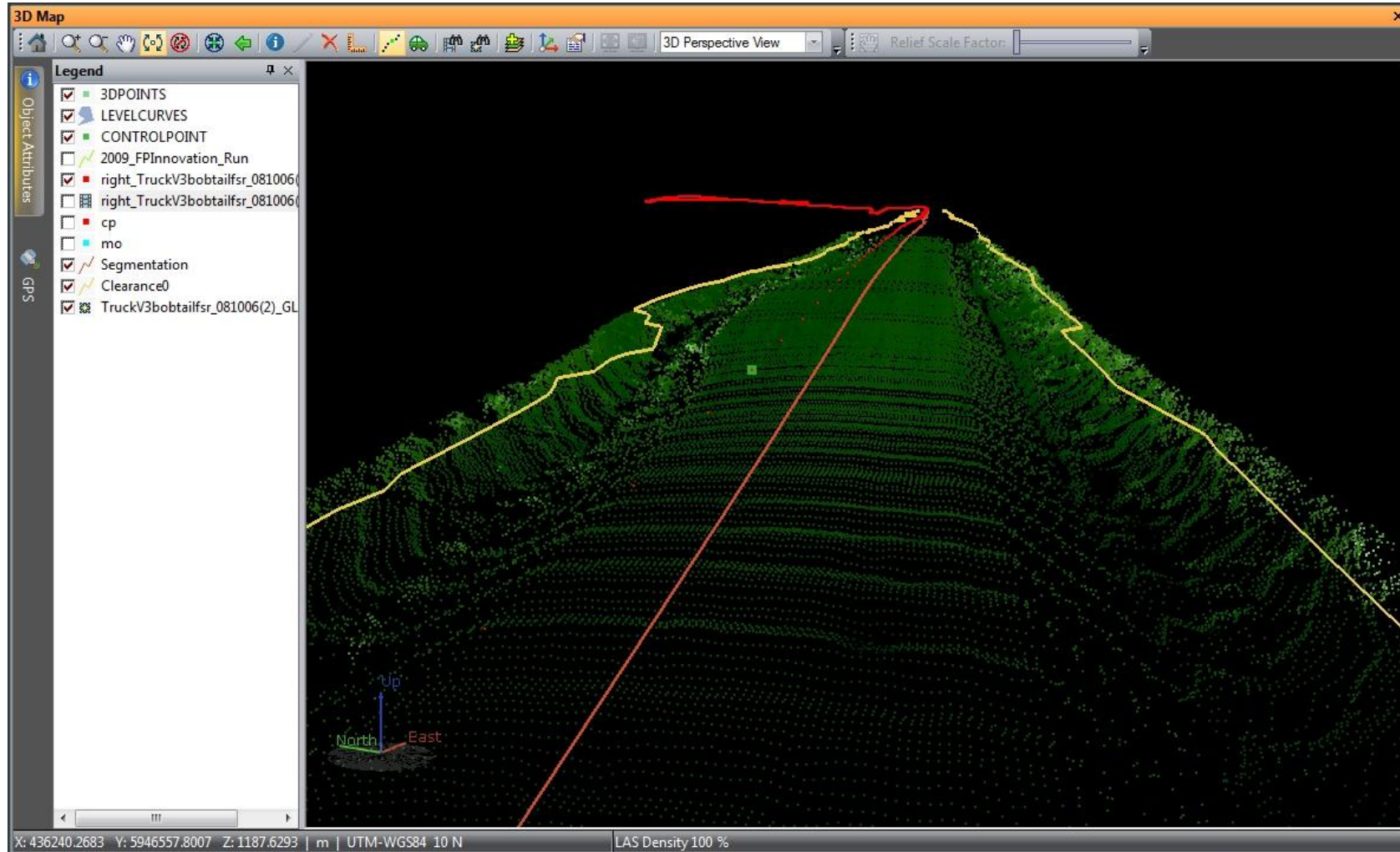
- Typical system
  - 360 deg laser scanners
  - 5 megapixel cameras
- ~60 million meas. & pixels per sec @ 50 mph
- ~216 billion in a single hour

and gather features rapidly as well





delivering accurate spatial data fast ...



## Rapid data collection is not just for outdoors

- The technology now exists to map our world in 3D to cm level accuracy, from space, air, land and inside buildings.

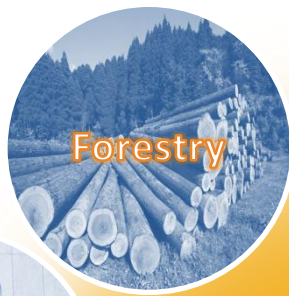


**THE TIMMS APPLIANCE**





# Geospatial Information



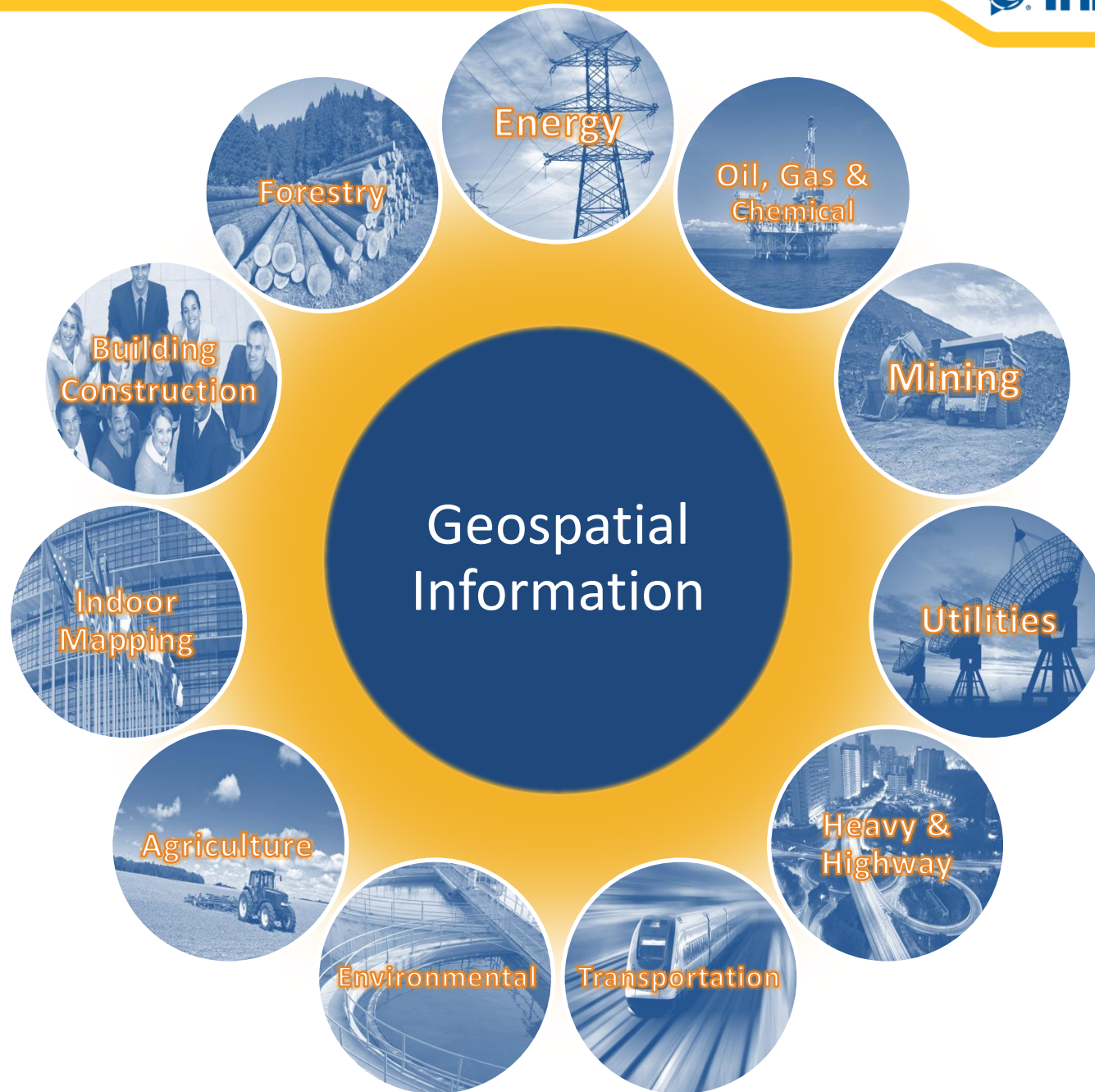
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# Indoor Map Acquisition

- Indoor Mobile Mapping Solution
  - equipped with
    - Laser Scanner
    - Camera
    - Indoor Positioning
    - GPS
    - Power
    - Operator Console
    - Workflow





# What Does TIMMS Bring to Indoor Mapping?

- Create as-built building drawings and models in 2D and 3D
- Be thorough, to capture “as is” data completely
  - Go in and out of all parts of a building
  - See building objects from all angles
  - Allow identification of all building objects
- Capture data quickly
  - 100,000 square feet per day

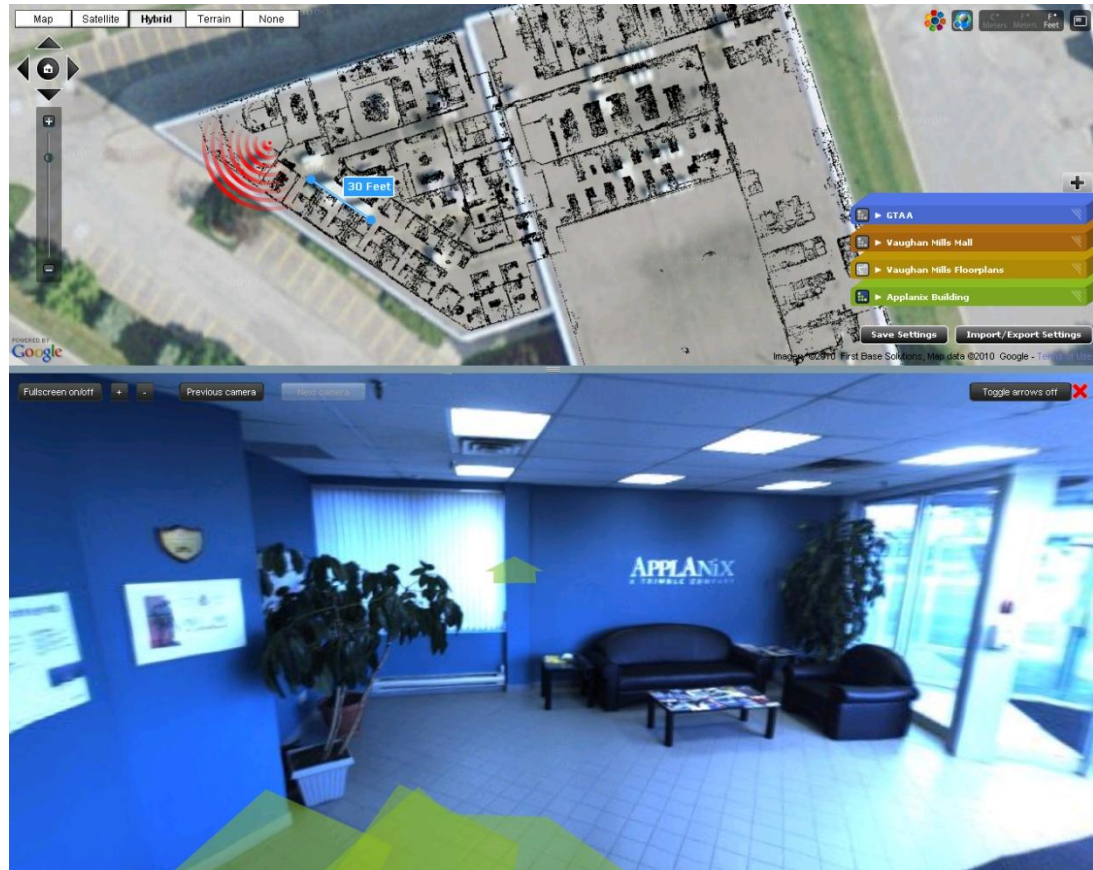


Static Lidar vs. TIMMS

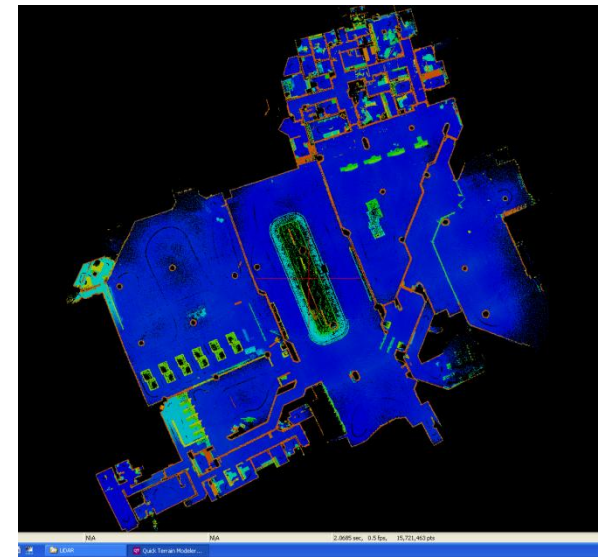
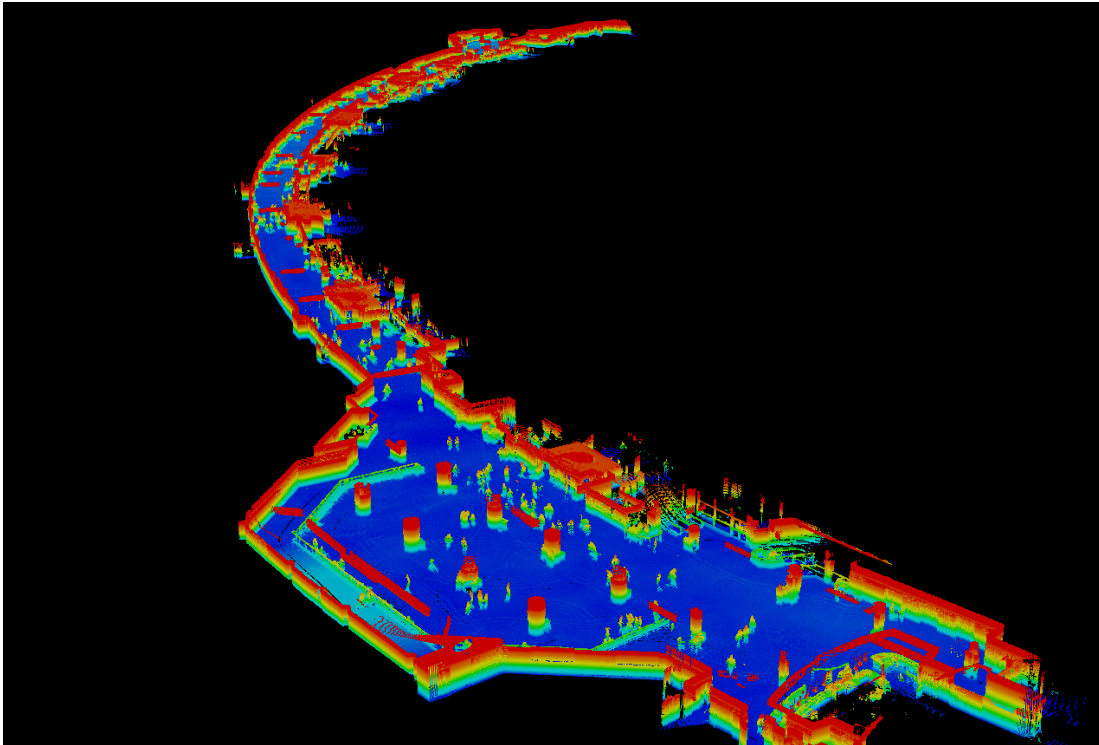
# High Productivity - Indoor Mobile Mapping

Standard deliverable is 2D point cloud rendered to floor plan overlaid on imagery (Google Earth) with corresponding 360 imagery and basic measurement capability

TCC is web based so anyone with credentials and a web browser can view



# Indoor Mobile Mapping



Standard deliverable 2D and 3D point cloud data



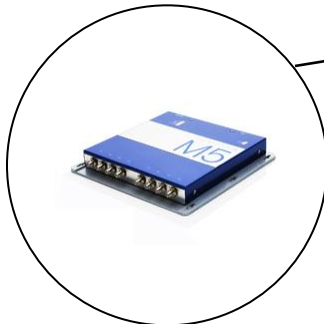
# Border Control

US Customs & Border Control NEXUS & Senti programs

RFID ID cards and infrastructure facilitate a speedier way to cross the border for “trusted” travelers



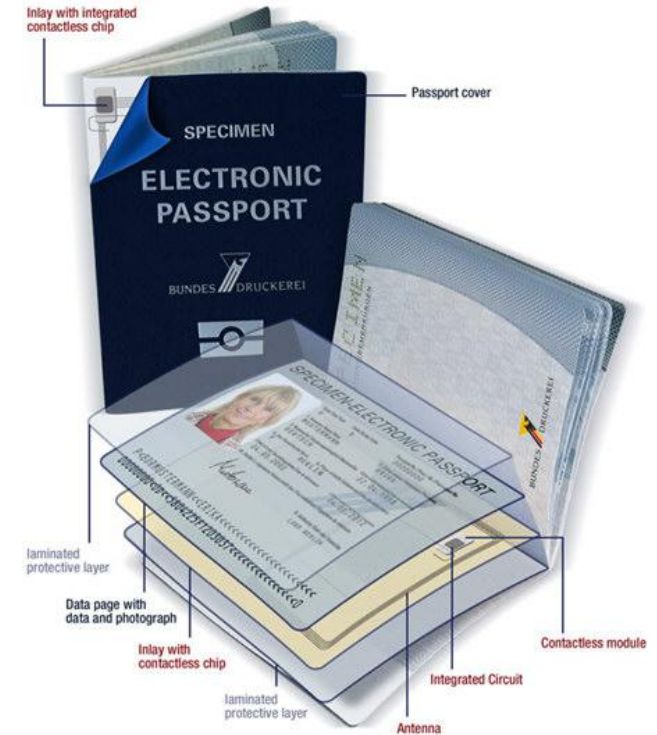
**ThingMagic  
Mercury5**



# Passports and National ID Cards

## Personal Digital Security

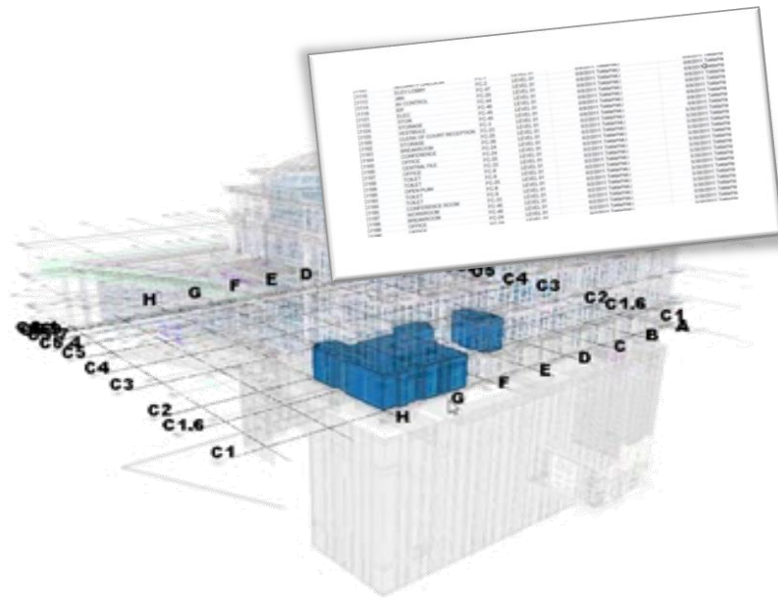
RFID is being implemented into passports and national ID cards of a variety of countries to help prevent ID documents from being stolen and used by unaccredited individuals





# Disaster Management & Public Safety

RFID can be used to determine how many people are present and need to be evacuated, facilitate dispatch of rescue personnel, and provide real-time information to organize search and rescue missions



# In-Flight Fighter Jet Refueling

RFID-enabled Boeing's KC130 refueling tanker automatically identifies F22 jets in mid-air

The KC-135 Automatic Receiver Aircraft Identification (ARAI) is to be installed on KC-135 tankers to make the air-to-air refueling to a receiver plane more efficient and economical



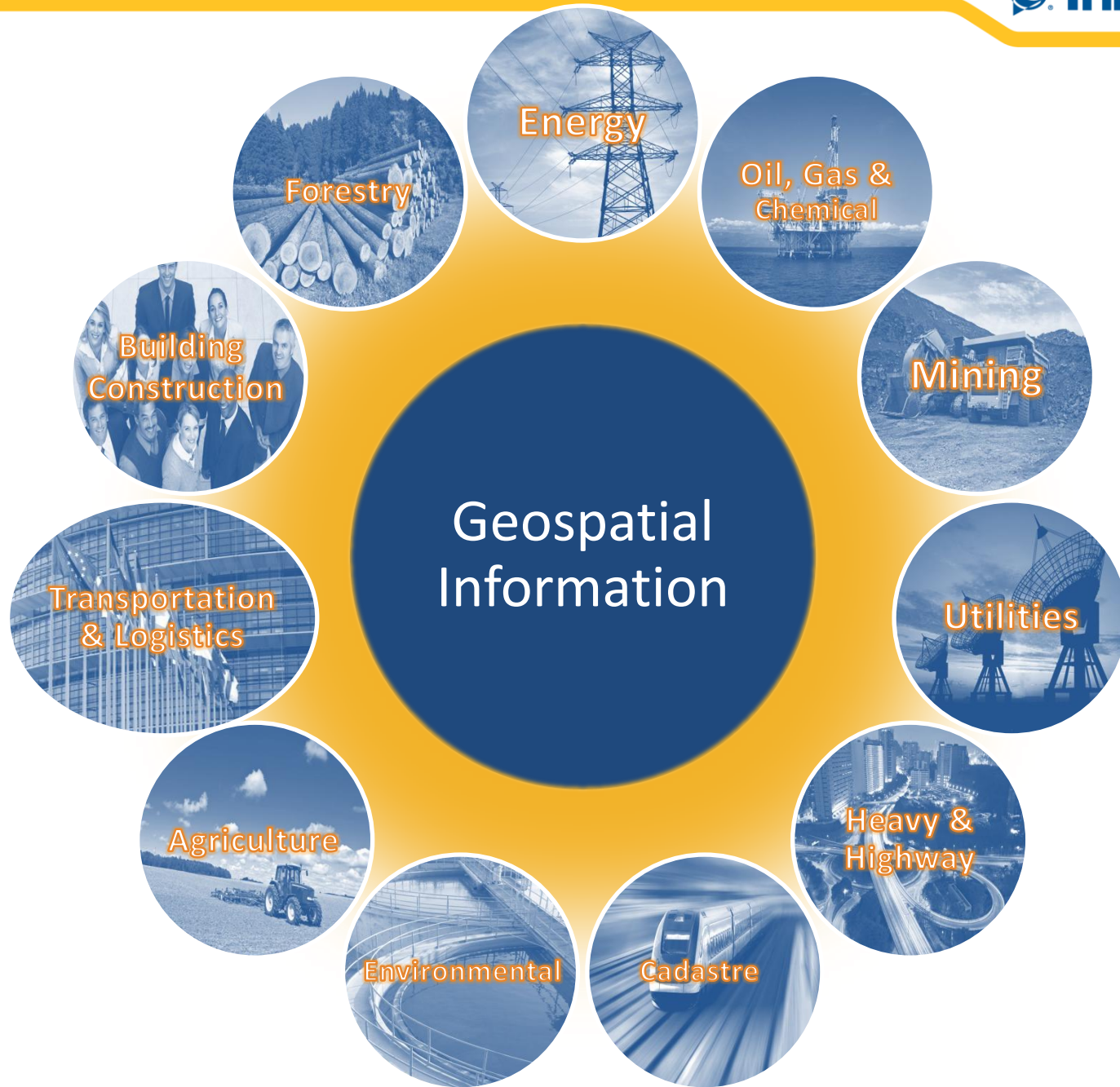


# Weapons Tracking and Management

Weapons tracking and security are among the highest responsibilities for any law enforcement or defense organization. It is also one of the most time consuming, labor intensive, and most often ignored processes.

RFID-enabled weapons tracking systems automate the management of firearms and related gear, providing a real time who, what and when audit trail







# Transportation & Logistics

Asset Management, Fleet Management & Mobile Workforce Management Solutions

## 30% Improvement

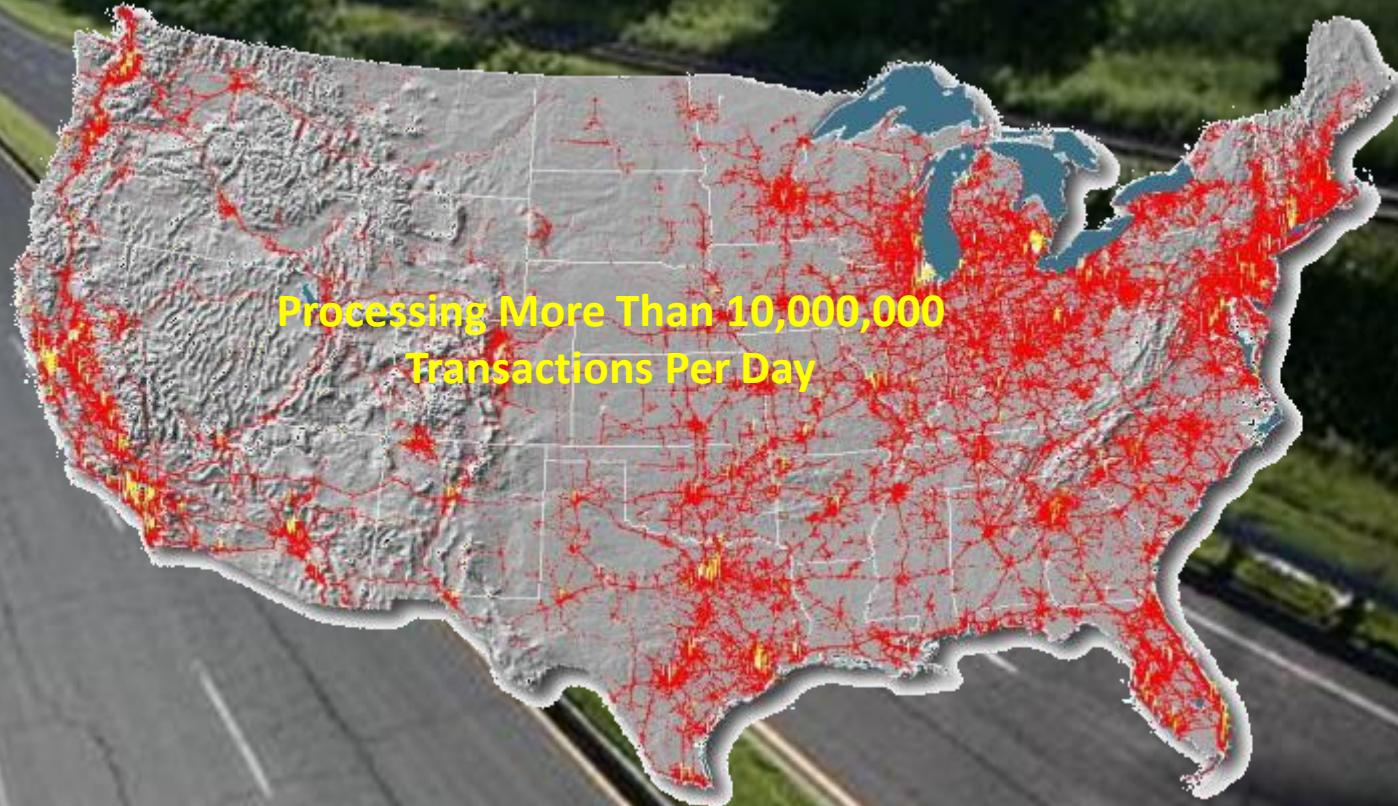
- Productivity
- Asset Utilization
- Compliance

## 30% Reduction

- Fuel Use
- CO<sup>2</sup> Emissions
- Claims Costs

## Empowerment

- Of Field Workers and Customers
- 



Fleet Management

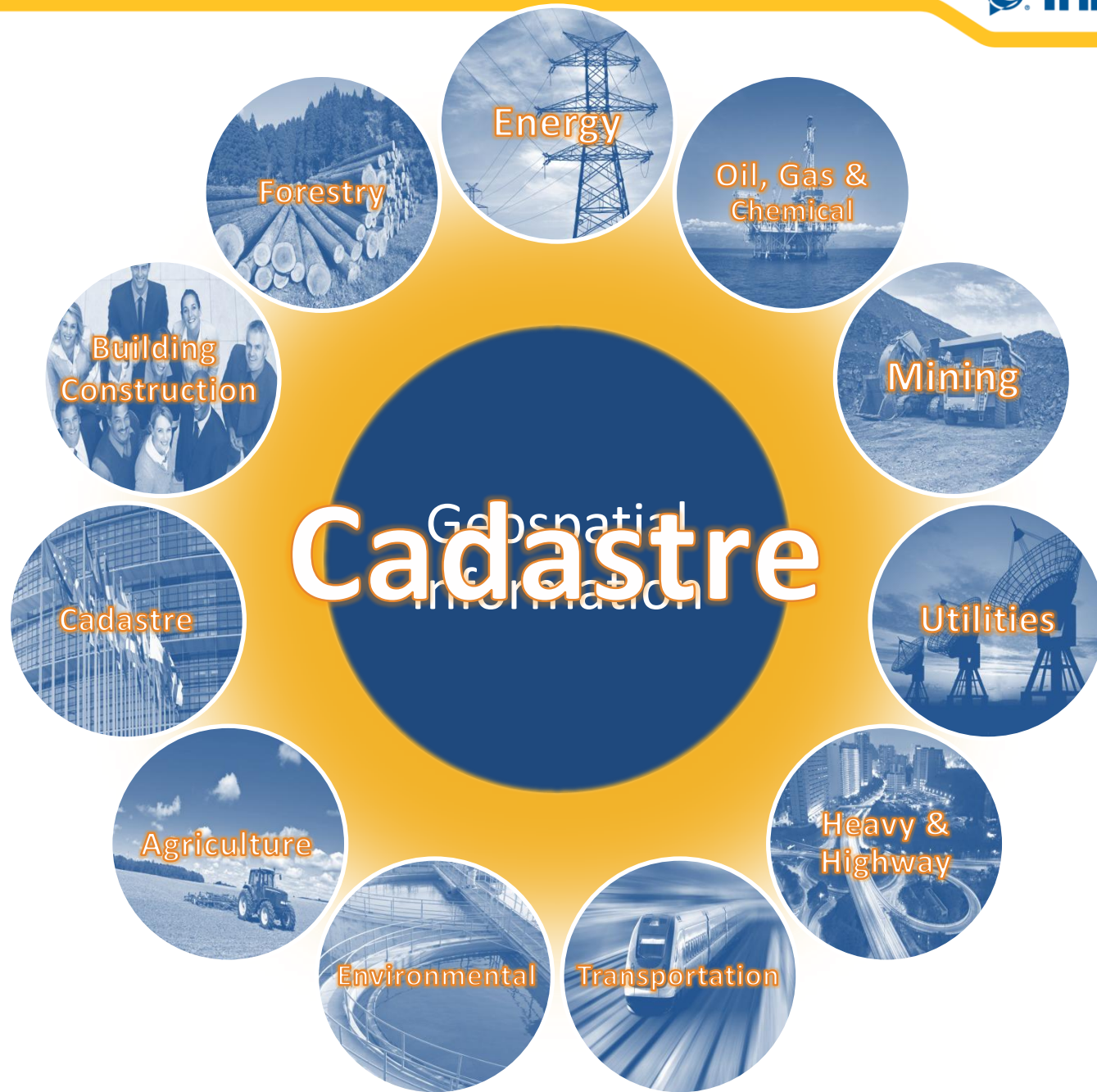
Diagnostics

Mobile Computing

Driver Safety

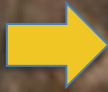
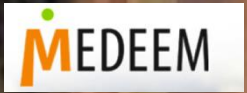
Schedule & Dispatch

RFID

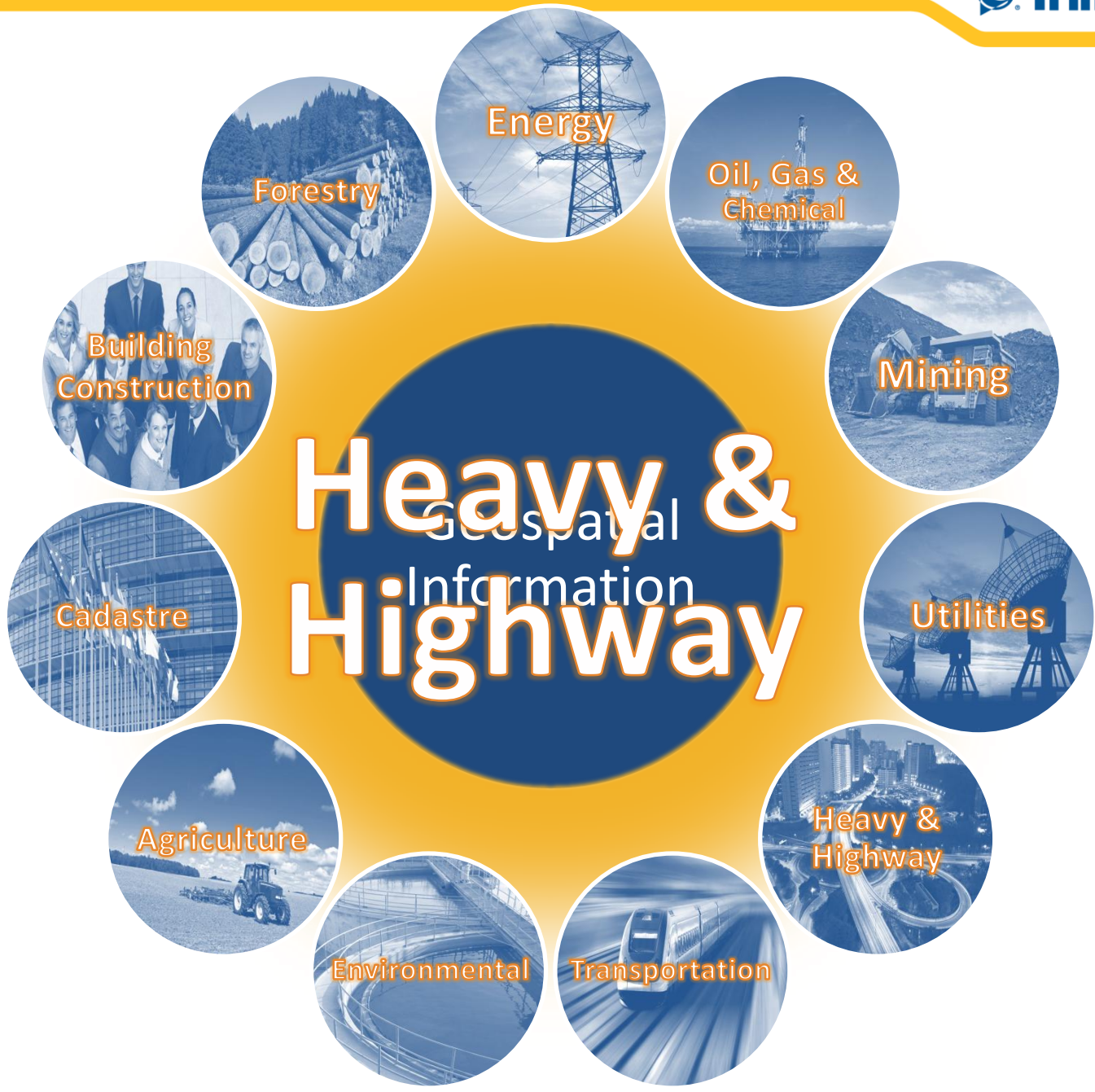




Courtesy of

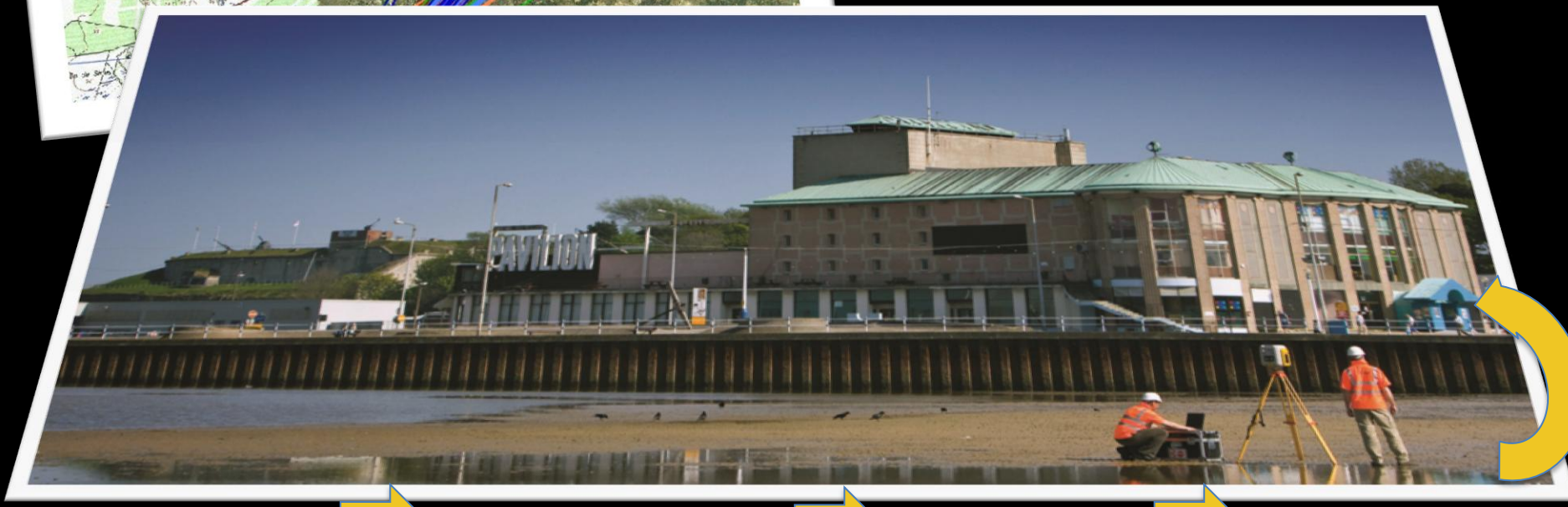
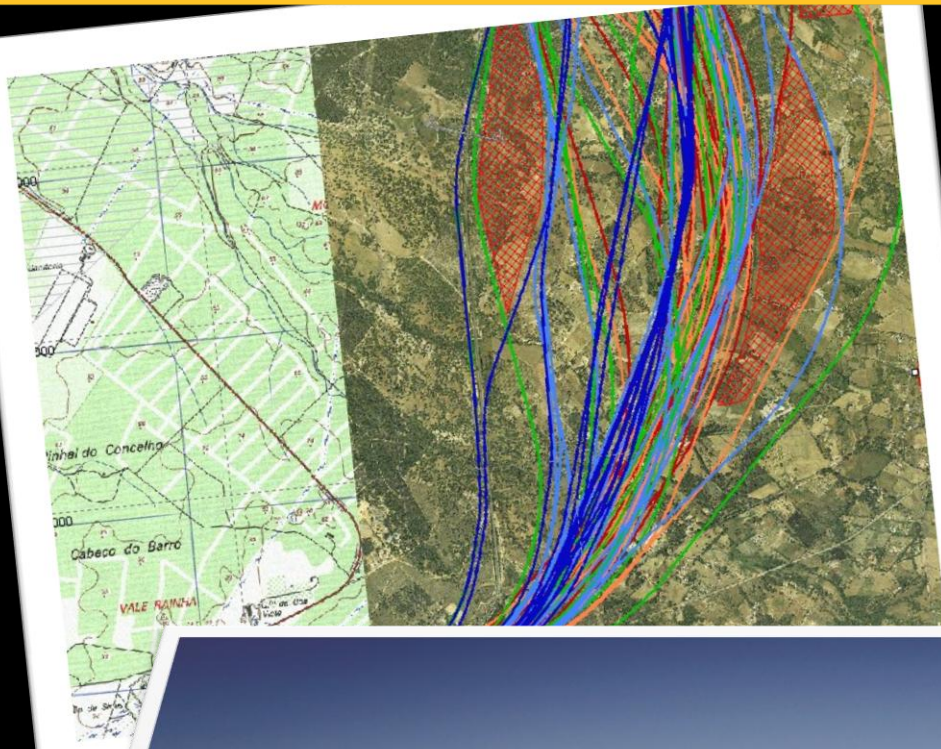






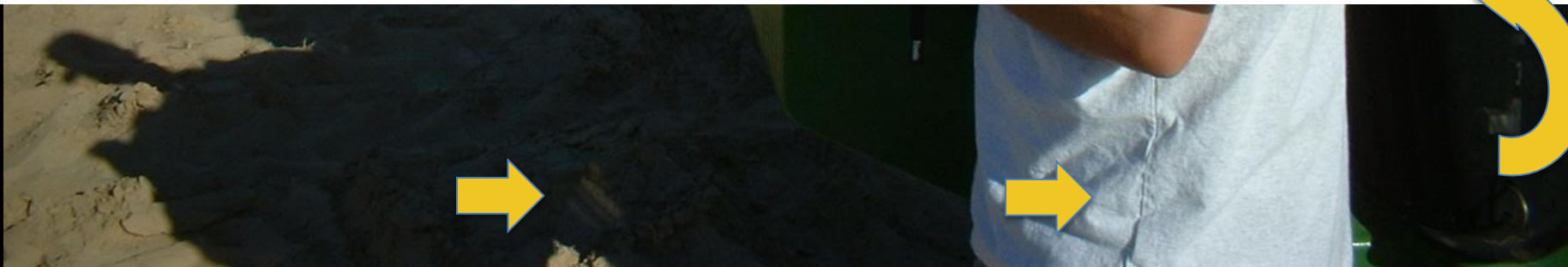






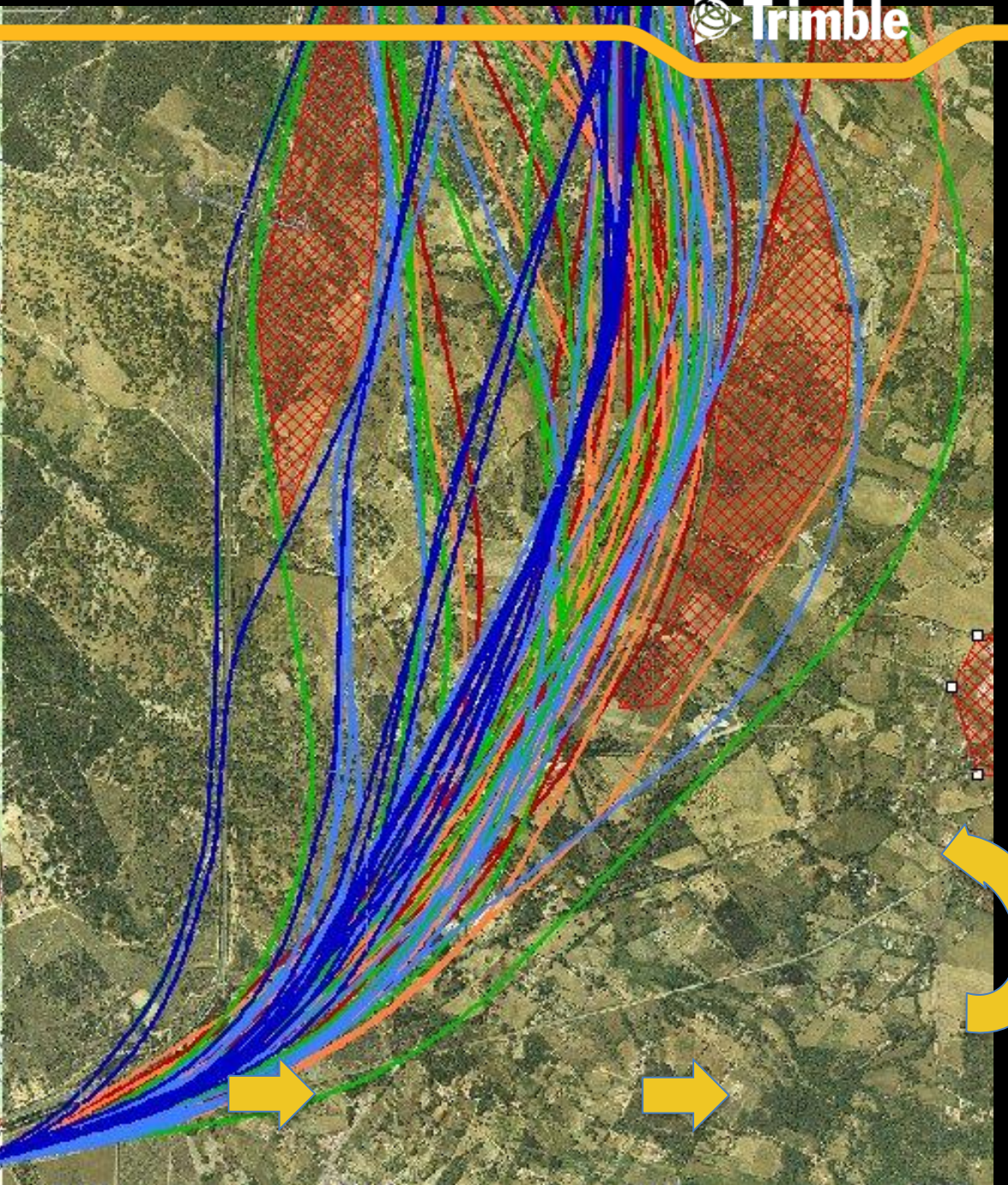








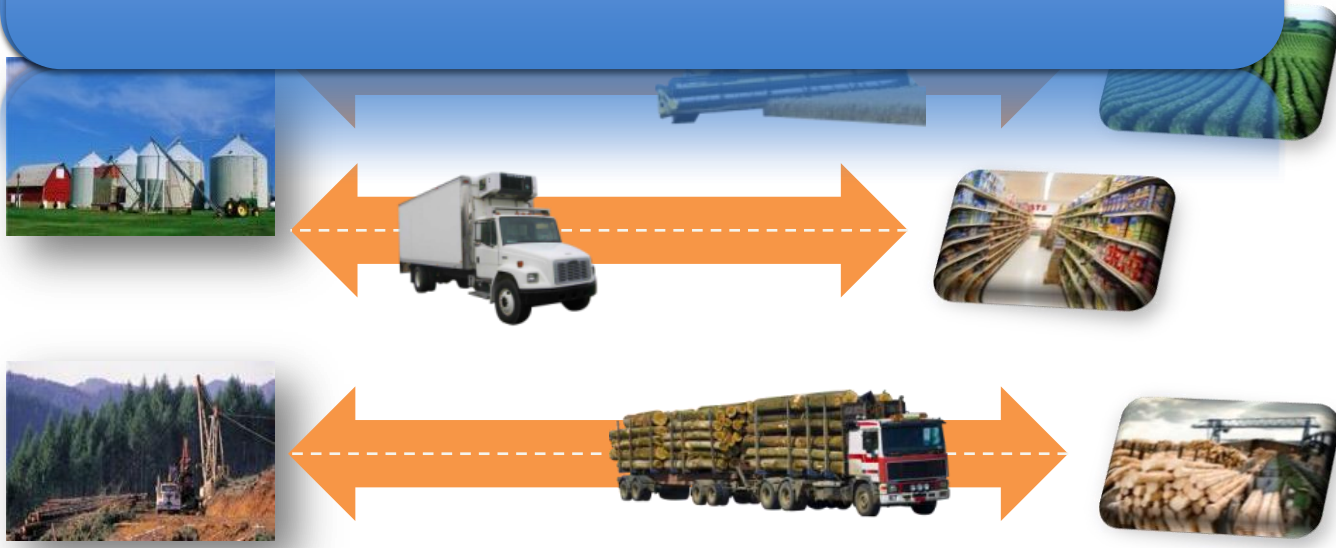


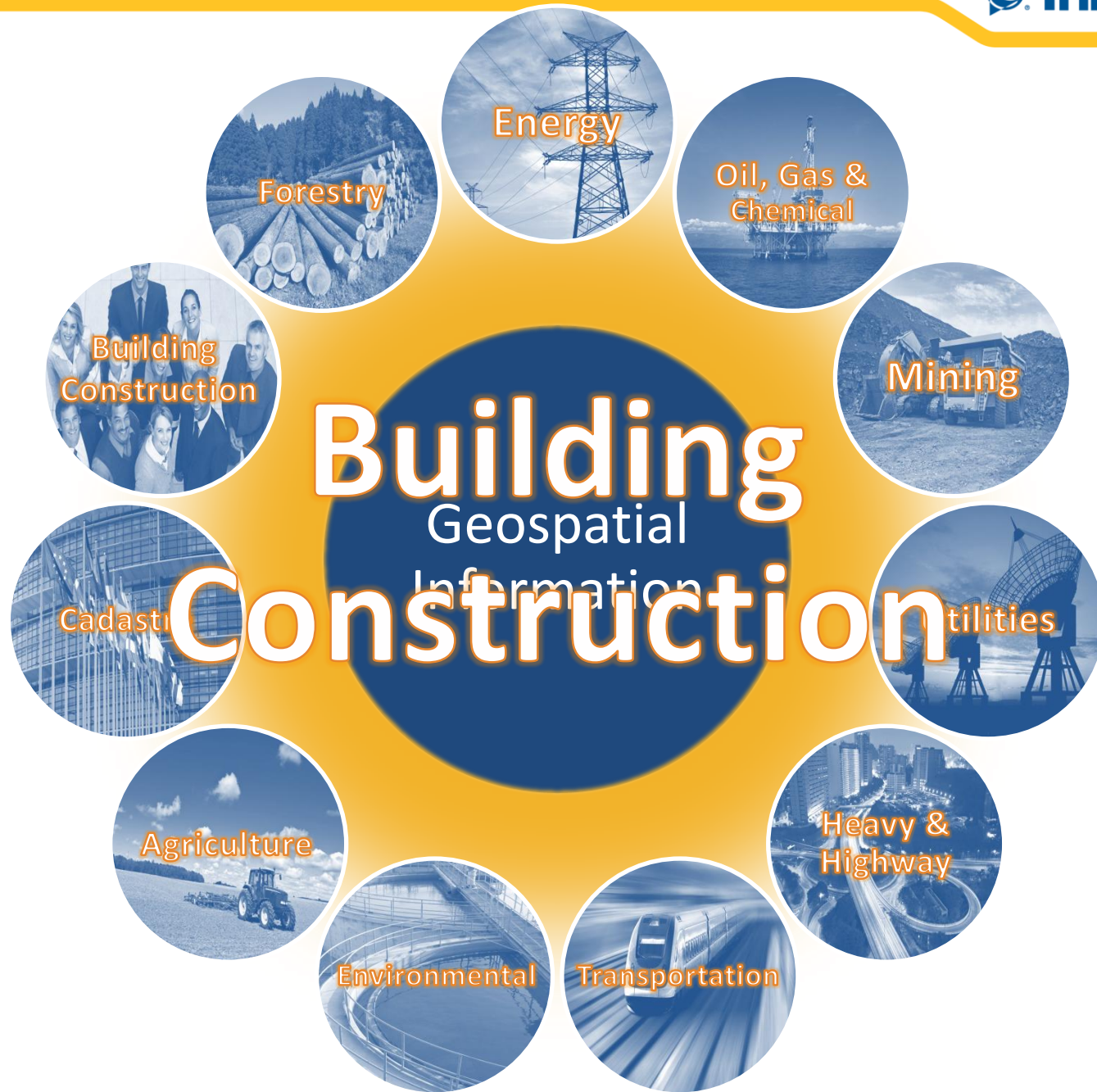




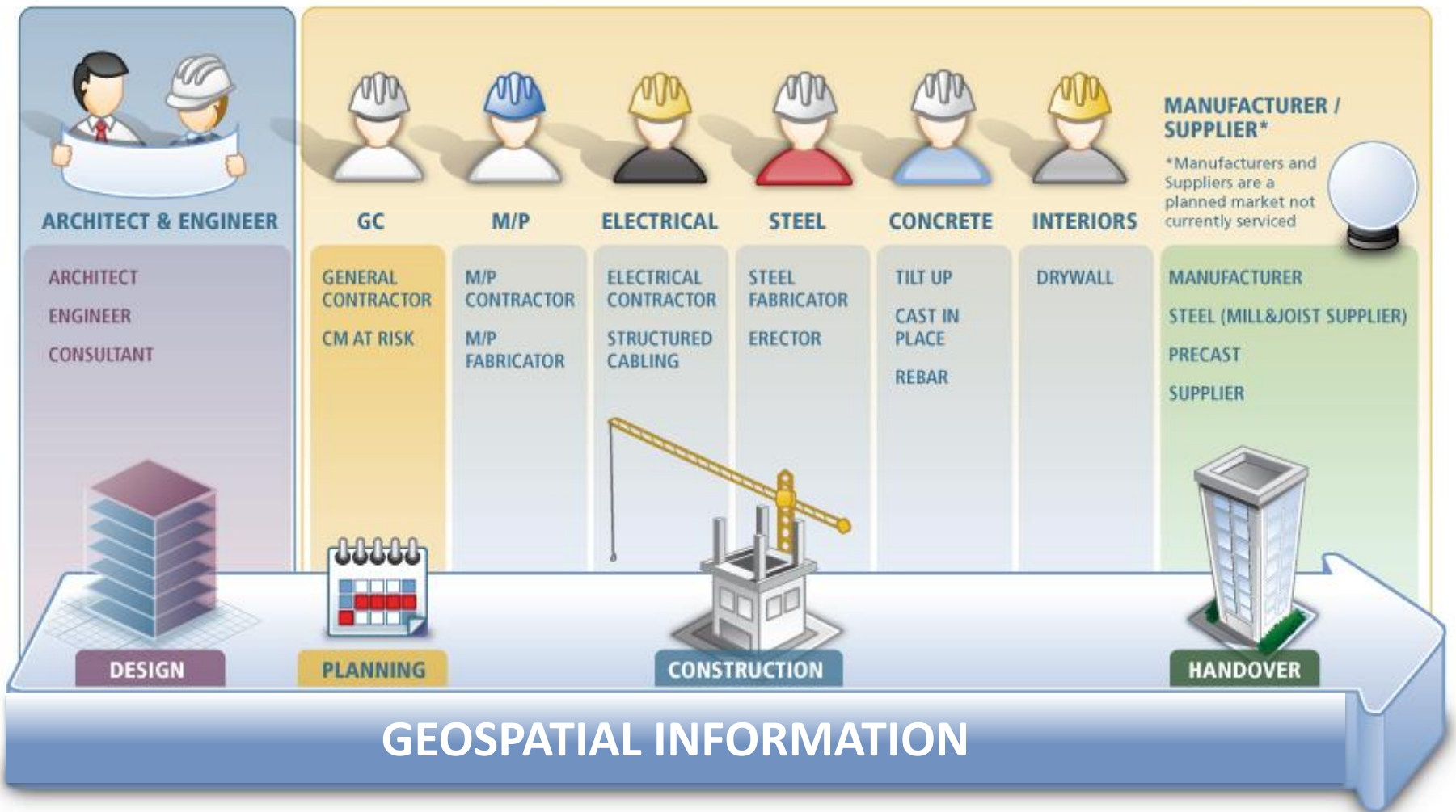


# EMPOWERMENT









# Civil Construction

(Infrastructure, Mining, Horizontal)



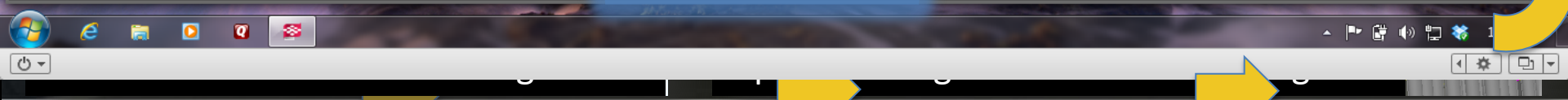
# Site

(Both)

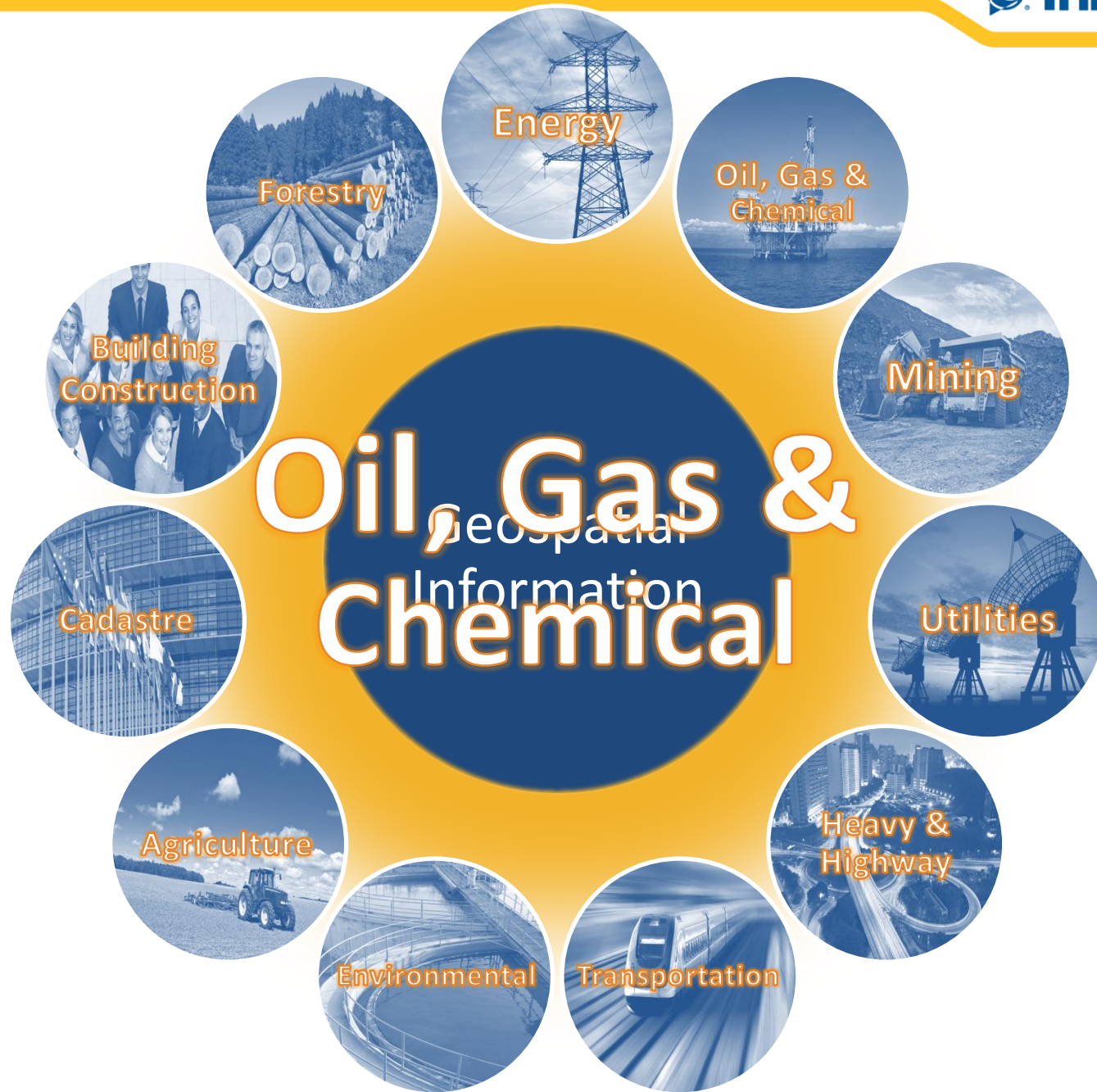


# Building Construction

(Structure, Facility, Vertical)







Forestry



Energy



Oil, Gas & Chemical



Mining



Utilities



Heavy & Highway



Transportation



Environmental



Agriculture



Cadastre



Building Construction









