

# Raytheon Space Discussion

Raytheon Space Capabilities



**Pieter Decker – GEOINT Business Development Lead**  
**Ron Longworth – International Business Development Lead**

16 December 2025

# Integrated space and ground capabilities

**50+ years of on-orbit success**  
**- DoD, intel and civil Space**



**119+**  
sensors launched



**>850**  
instrument years in space



All environments: GEO, LEO, planetary  
All platforms: legacy and emerging  
All mission durations

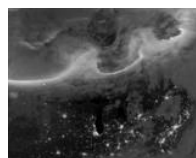
Long life & high reliability  
= **~3X design life**  
**Rapid experimental**



**100%**  
successful turn-on after launch



## Enterprise mission capabilities and space hardware



### Surveillance

- Non-imaging IR (MW/T)
- SSA



### Meteorology

- Imaging spectroradiometers
- Polarimeters
- Sounders



### Scientific

- Hyperspectral



### Earth Observation

- High-Resolution Visible imaging
- SAR



### Communication

- RF
- On-orbit Networking

## Delivering relevant, resilient and smarter space capabilities

### Enablers

- Space electronics
- Algorithms
- Calibration
- Advanced Manufacturing & Testing Facilities

### R&D

- Active imaging
- Hyper-temporal sensing

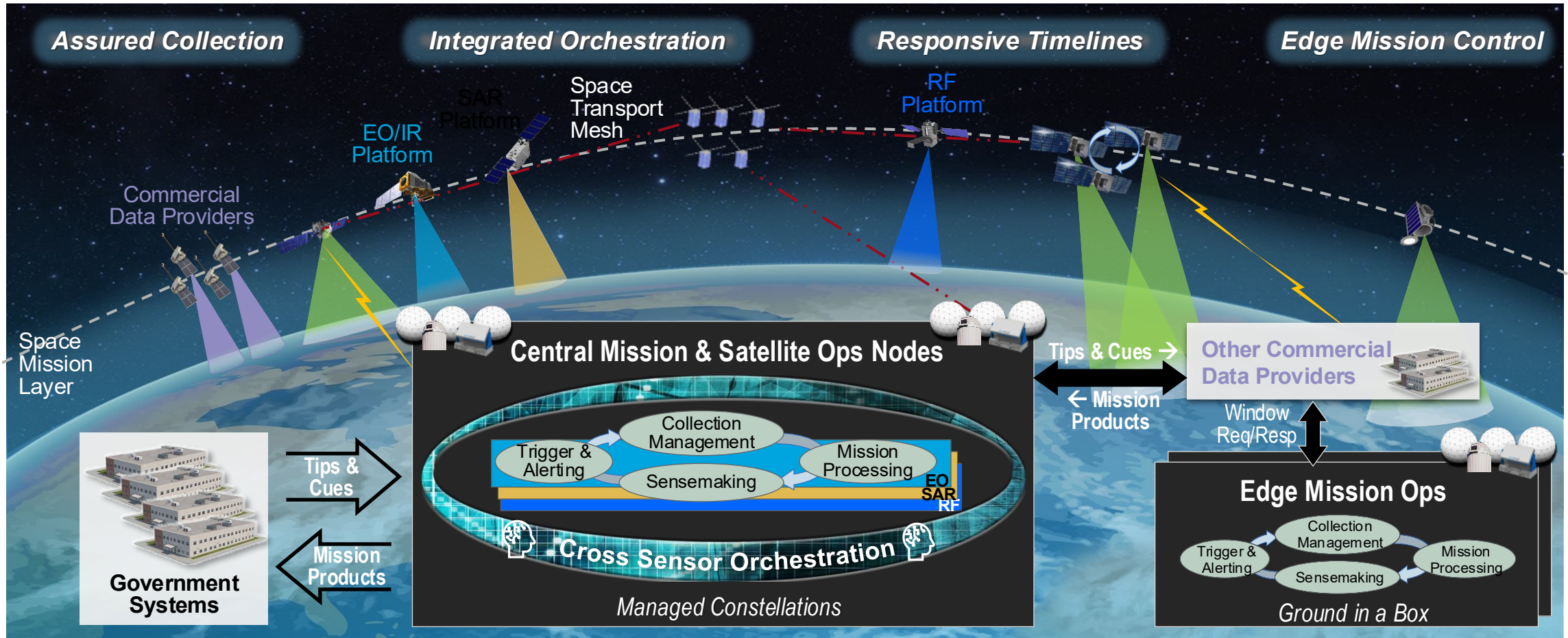
### Expertise

- Line of sight pointing, stability and control
- Optomech design, manufacture and I&T
- Data-processing



- **Develop, integrate and deploy** large-scale, high-performance SIGINT, GEOINT and Multi-INT systems
- Metadata tagging and sharing of up to **40,000 interagency transactions per second**
- **Process 60% of all U.S. strategic intelligence missions**
- Supplies **90% of space-based** earth observation data used to generate 2-10 day worldwide weather forecasts

# Diverse Space Missions – Single Integrated Ground



Supports multiple space missions across the full TCPED cycle

# Sovereign Systems Start With The Users (Objective?)

- “Sovereign” is a vague term – to what end?
- Best Satellites . . . Or Best Analytic Architecture?
  - Data . . . Information . . . Or Knowledge?
- You can buy whatever you want from Commercial
  - No government builds their own - depend on industry
  - Data for sovereign analytics and analysts
  - COTS Satellites for guaranteed access and collection
  - Custom satellites to tailored spec
- Start with the analysis need, acquire the data, grow into ownership

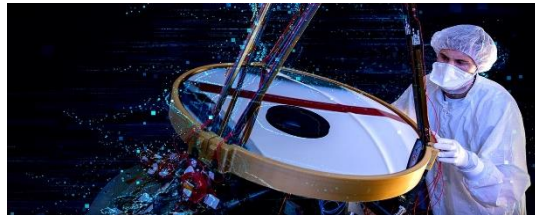
# Tailor Expertise To Meet The Specified Mission

Raytheon's end-to-end space solutions keep our customers ahead of the threat - from missile defense to weather, navigation and beyond, our technologies are essential for global security, space protection and scientific discovery



## Proliferated Space

Networked constellations of smaller satellites enabling threat-resilient mission capability on responsive timelines



## Exquisite Space

Highly sophisticated sensors and payloads providing state of the art performance for specialized missions



## Space Ground

Highly automated, dynamic solutions collecting and delivering trusted data to make informed decisions at speed

### Missile Warning and Defense

State-of-the-art electro-optical and infrared sensors along with ground-based radar and platform-agnostic algorithms to detect and track emerging missile threats, including hypersonics, and reduce kill chain timelines

Radar programs  
OPIR Programs

### Multi-Intelligence Remote Sensing / ISR

Advanced full-spectrum sensors and payloads combined with resilient, closed-loop automation, providing actionable intelligence and informing critical decisions

Commercial EO Sensors,  
Commercial Ground,  
International Sovereign,  
Restricted Programs

### Space Protection and Control

Responsive and distributed payload, radar and application solutions that survey the domain, characterize intentions and execute critical courses of action

Restricted Missions

### Communications and PNT

Adaptive and secure communication and navigation solutions, combined with cyber resilient ground systems providing vital mission connectivity and accurate positioning

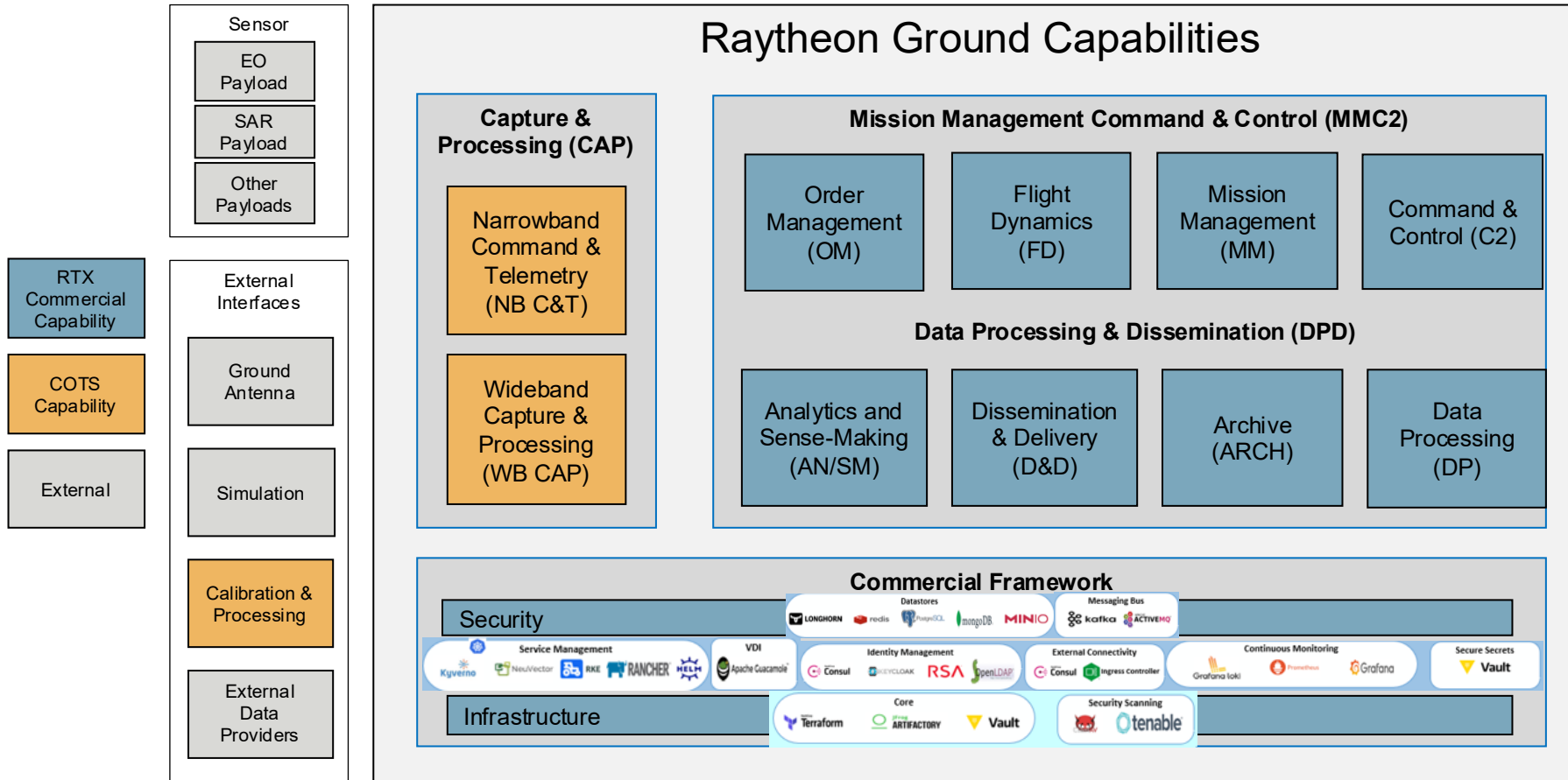
SDA Transport Layer,  
Payloads, Enterprise Ground  
(GPS OCX)

### Earth Observation and Exploration

Sophisticated sensors and mission management capability to collect and exploit high-rate environmental data for scientific discovery and natural-disaster decision making

LandsatNEXT, Cislunar  
Missions, VIIRS, AWIPS, JPSS  
Common Ground


# Modular Connected Ground Capabilities





Raytheon Mission Expertise provides Relevant, Resilient and Smarter Space Capabilities to End Users



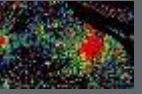





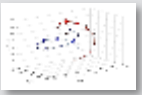



# Raytheon Product AI Examples

*Investment Levels*

High 

Medium 

Low 

<p><b>AI for Radar</b> </p> <p><b>Description:</b> AI for improved radar classification and discrimination, which includes applying AI to front end sensor data processing for existing and future generation radars.</p>	<p><b>Sensor ATR</b> </p> <p><b>Description:</b> AI on-board sensors, or ground sensor data processing to detect and identify objects. Includes AI applied to EO/IR, RF, SAR, FMV, multi-spectral, and data types for both tactical and intel systems</p>	<p><b>ISR Sensemaking</b> </p> <p><b>Description:</b> Predominantly ground-based, multi-INT data processing to predict an adversary's intent based on their activities, events and patterns of life, often derived from incomplete or sparse data</p>	<p><b>Sensor &amp; Effector Orchestration</b> </p> <p><b>Description:</b> AI for C2, planning and execution of complex distributed scheduling and resource management problems, and courses of action (COA)</p>	<p><b>Collaborative Autonomy</b> </p> <p><b>Description:</b> AI in an autonomous system to operate collaboratively with little to no human oversight in both permissive &amp; A2AD domains. Includes human-machine teaming</p>	<p><b>AI for Electronic Warfare (EW)</b> </p> <p><b>Description:</b> Research into Electronic Warfare (EW) capabilities aided by Machine Learning (ML) techniques in a small form factor that is SWAP constrained.</p>
<p><b>AI for Cyber</b> </p> <p><b>Description:</b> AI for cyber protection of our products, Security Operations Center capabilities, and large-scale (nation-state) cyber security systems</p>	<p><b>AI Pipelines</b> </p> <p><b>Description:</b> MLOps, which includes the software and hardware pipeline needed to train ML models, evaluate, deploy, and manage ML models</p>	<p><b>GNC, PNT</b> </p> <p><b>Description:</b> AI to improve guidance, control, and/or precision navigation and timing of various platforms.</p>	<p><b>Data and Data Management</b> </p> <p><b>Description:</b> Novel data management techniques (e.g., data fabrics) for data distribution from cloud to the edge. The use of generative AI and other approaches to create synthetic data and label it for training of machine learning models.</p>	<p><b>AI for Weather</b> </p> <p><b>Description:</b> AI for weather observation missions, leading to improved forecasts and warnings in support of military, intel, and NOAA weather applications</p>	<p><b>Natural Language Processing (NLP)</b> </p> <p><b>Description:</b> The use of Natural Language Processing techniques to improve analyst question and answer search, leverage LLMs to understand data and generate content, and retrieve data from information systems.</p>

(Pr) Product (P) Program (C) CRAD (I) IRAD

# Information Consumption And Orchestration

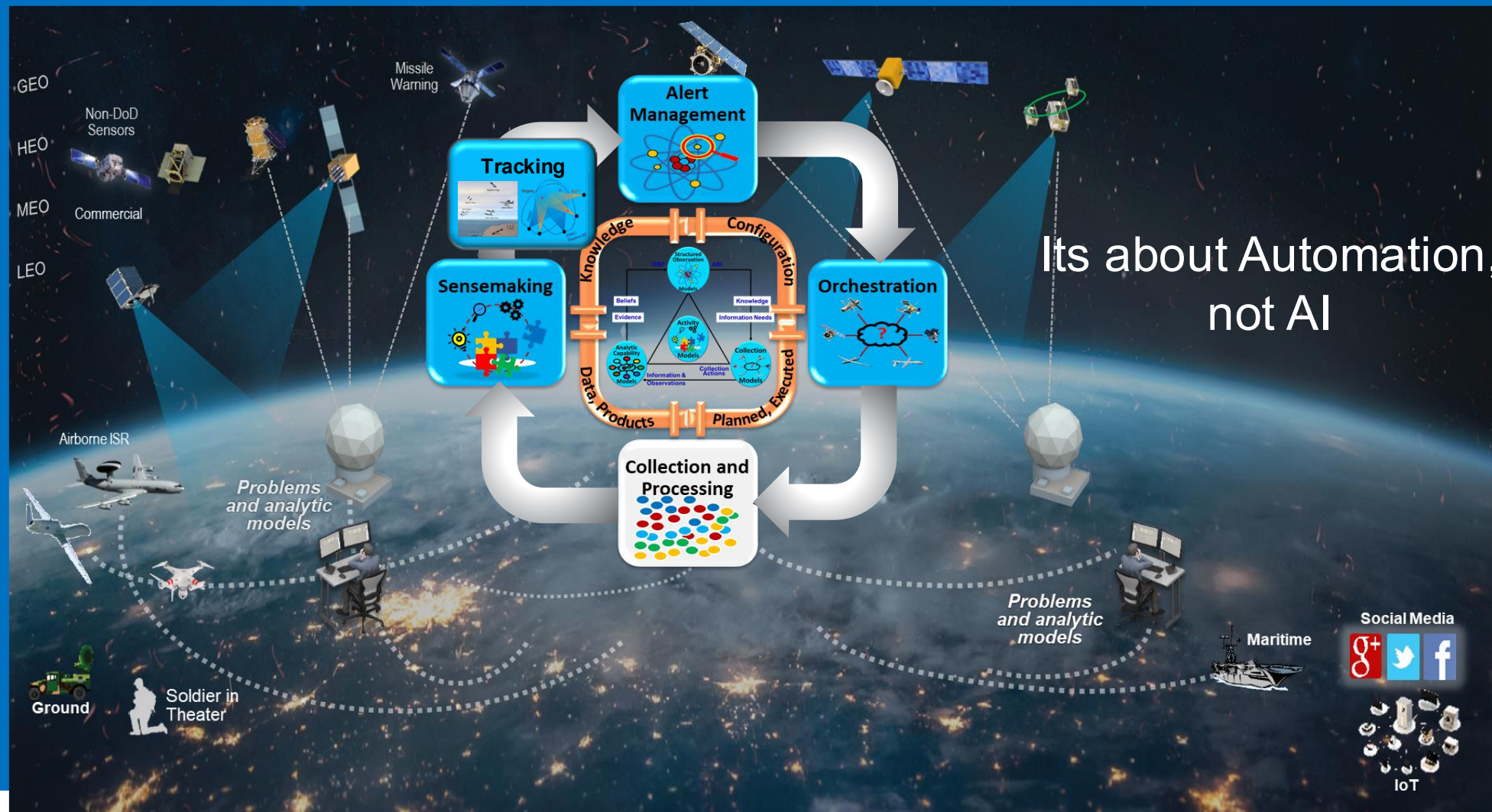
## Mission Need Areas

*Provide space based dynamic tasking / processing / delivery CONOPS integrated with Connected Battlespace for F2T2EA kill chain timelines*

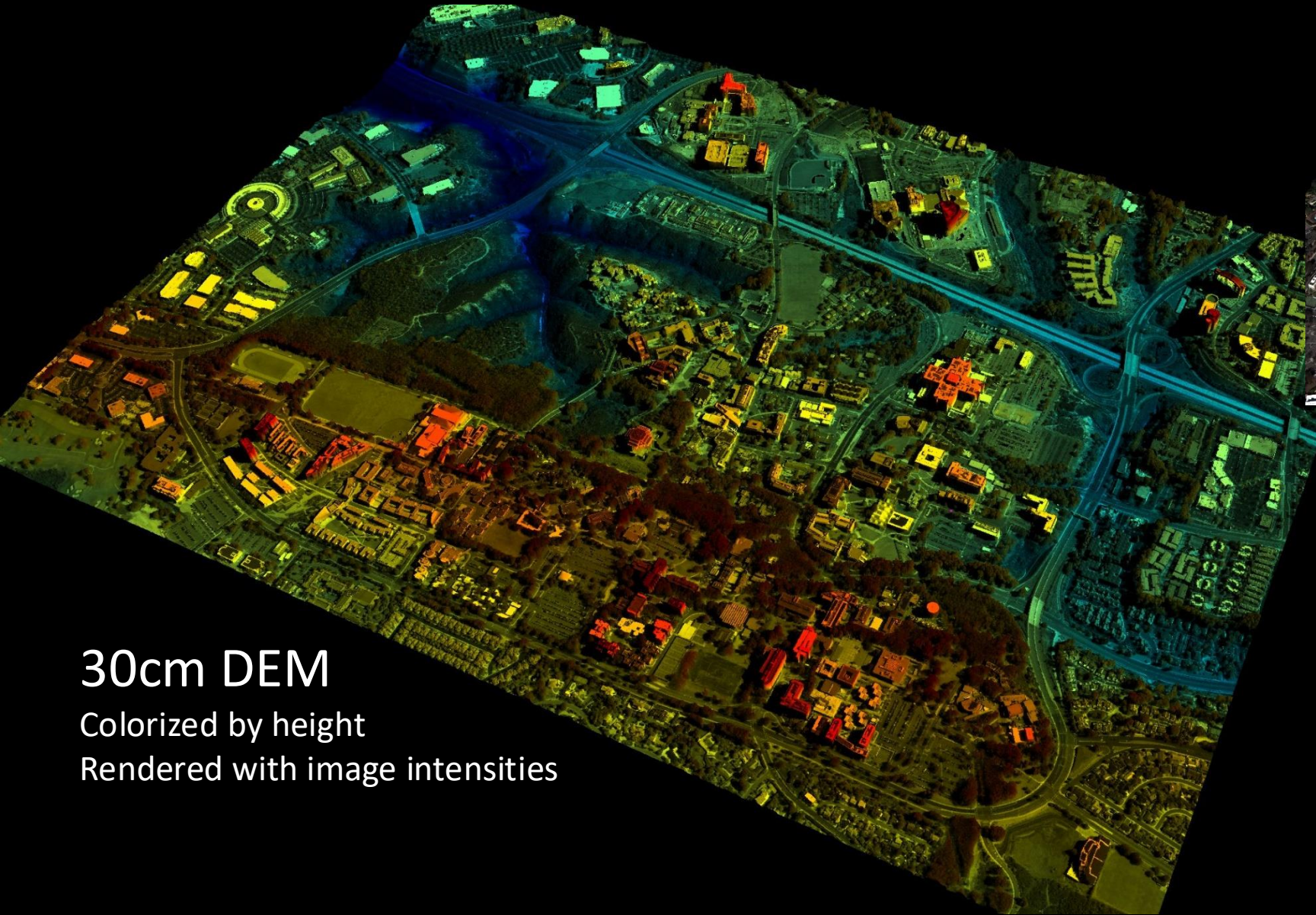
**Multi Int** *Decompose intelligence needs to optimally utilize SIGINT and GEOINT resources to rapidly fulfill warfighter mission*

**Custody (Object Based)** *Maintain custody for objects at scale for thousands of priority objects to support F2T2EA kill chain needs*

**Activity Based** *Assess patterns of life and complex object relationships / behaviors to predict activities for kill chain preparedness*



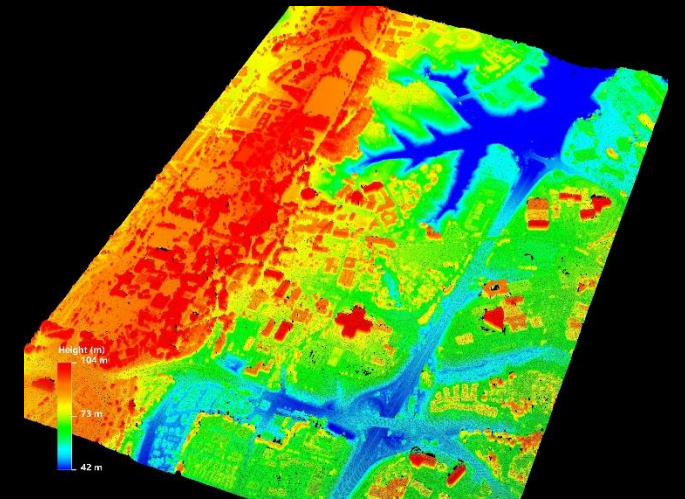
# High Resolution 3D Derived From EO Satellite Imagery



30cm DEM

Colorized by height

Rendered with image intensities

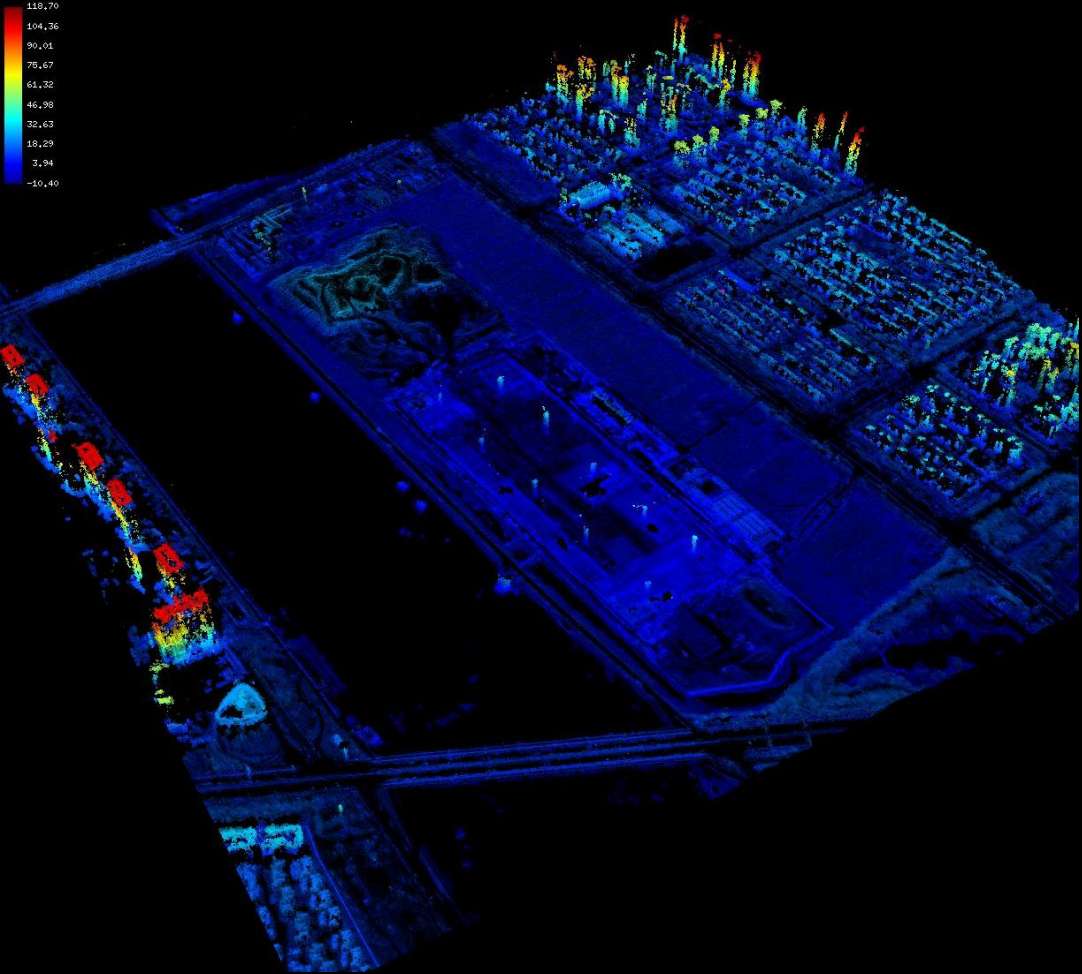


# Chinese Port Facility on the Feng River

<1m SAR Point Cloud from Umbra Imagery  
Colorized by height and Rendered with image intensities



Image Credit: googlemaps



# Raytheon Space: End-to-End Space & C2 Capabilities



**Constellation Management**



**Communications**



**Evaluation and Test**



**GEOINT**



**Ground Systems**



**ISR (EO/SAR)**



**Launch operations**



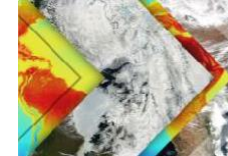
**Missile Warning and Defense**



**Modeling and Simulation**



**Precision, Navigation and Timing**



**Scientific Systems and Exploration**



**SIGINT**



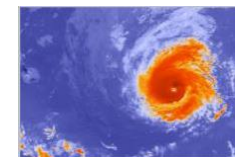
**Space Protection**



**Space tracking**



**Unmanned mission management**



**Weather**