# Transforming Intelligence For The Complete National Security Community

"Integration"

Brett Dixon
National Security Lead, Asia Pacific

# A Dynamic World Creates New Intelligence Challenges

## …Multi-Jurisdiction, Multi-Agency Missions Impacting Everybody

Immigration Control

Cyber Warfare

**Natural Disasters**

Border Security

Domestic Terrorism

**Political Crisis**

Energy Security

Organized Crime

**Adversaries**

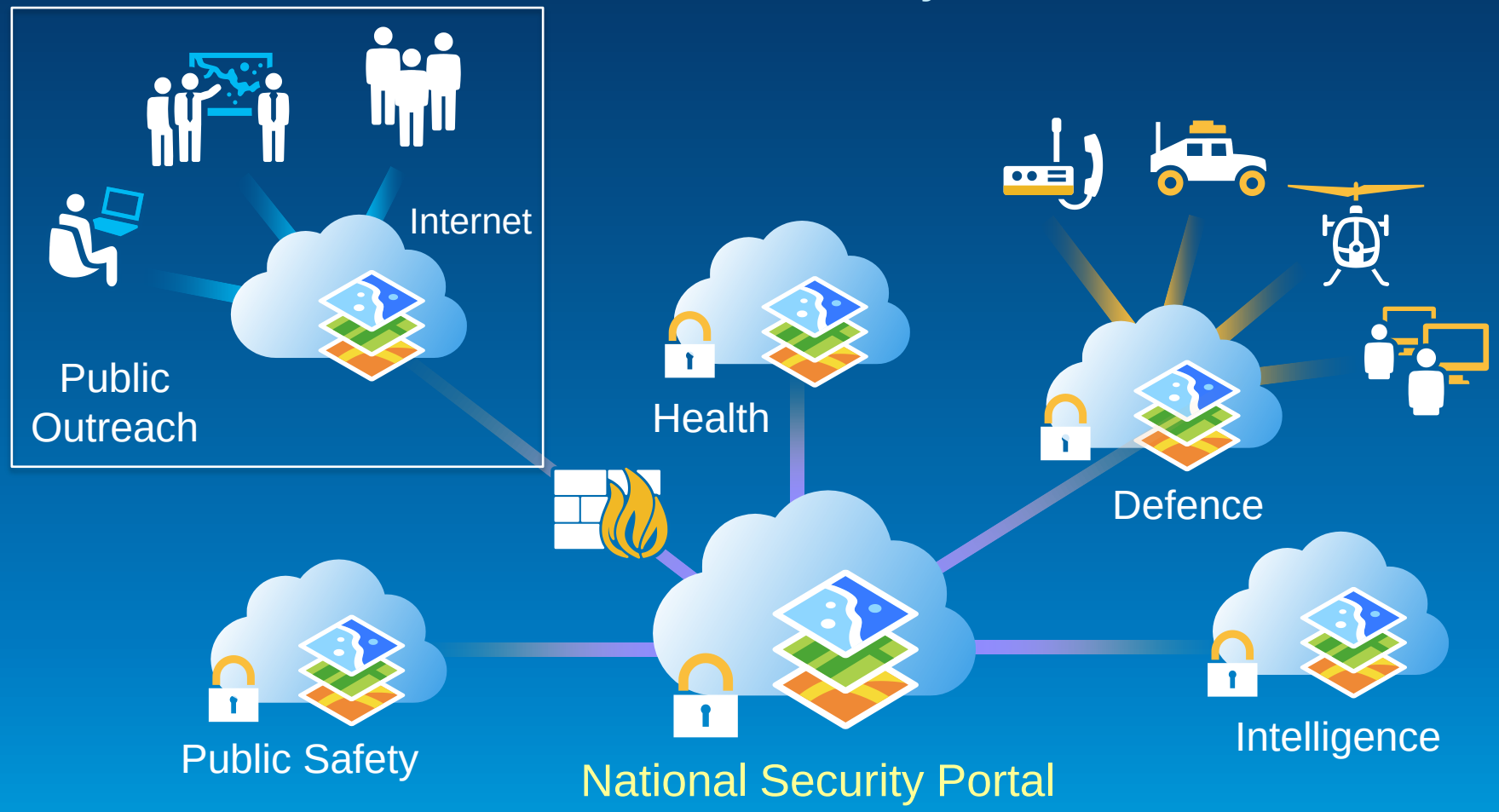
**We Need Integrated Approaches . . .**
**. . . Enabling Better Understanding**

# Multiple Missions, Multiple Agencies

- Adaptable
- Flexible
- Responsive
- Relevant

# Extending the Complete National Security Community

## A framework for shared situational awareness & unity of action




**Transport**
**Border Protection**
**Customs**

**Critical Infrastructure**
**National Mapping**
**Meteorology**

**Emergency Response**
**National R&D**
**Law Enforcement**

**NGO's**
**United Nations**
**Social Welfare**

**State Agencies**
**Local Entities**
**Private Industry**

**Allies**
**Government Executive**
**……**

# Perspectives On Intelligence Integration from the National Security Community

**"In the course of producing intelligence ... integration should give new significance to activities, offer new predictions of events or generate a new intelligence picture.**

**“Geospatial intelligence is a key enabler for integration that allows subsequent analysis …that would not have been possible without having first integrated the initial intelligence”**

***U.K. Ministry of Defense, Joint Doctrine Publication 2-00, Intelligence Support to Joint Operations***

LTG Mike Flynn

**"…without integration, the entire decision-making process is compromised"**

1. The decision maker is the ultimate consumer of intelligence
2. The fusion and analysis of open source information with other forms of classified materials is essential to understanding the operational environment.
3. Combine the different "INTs" in effective fusion cells to better integrate all-source intelligence and to do it geospatially

Col (ret.) Phil Chudoba
USMC

**"Many ISR Assets…Limited Integration. Require an integrated network of persistent air and ground sensors with sufficient fidelity to support tactical operations"**

## Geospatial Technologies:

- Provide foundational layers
- Integrate terrestrial and airborne sensing architectures
- Deliver near real time data to the analyst and consumer
- Support actionable intelligence in richer context
- Enhance tactical users

# Department of Justice: Federal Bureau of Investigation (FBI)

**FBI Director James Comey on COLLECTION CHALLENGES:**

- **"routinely share information at machine-speed, not human-speed**
- **“we need an automated…system…to all communicate in real time”**

**FBI Director James Comey**

# “Journey to Integration” - Inhibitors As Technology Advances?

**“The endless laundry list of requirements**—trying to document looking out five years. **The technology changes way too fast to predict what that’s going to be.”**

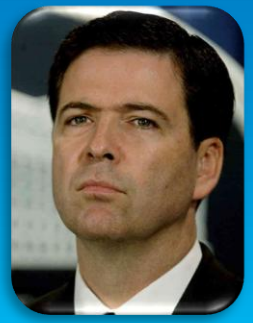
“We really need to be in a mode of leaning in early: try it, assess it, adjust if necessary, or stop if it’s not working. **Lean in, give it a try, and iterate it.”**

***The Honorable James Clapper***

***Director National Intelligence***

## What Have We Heard?

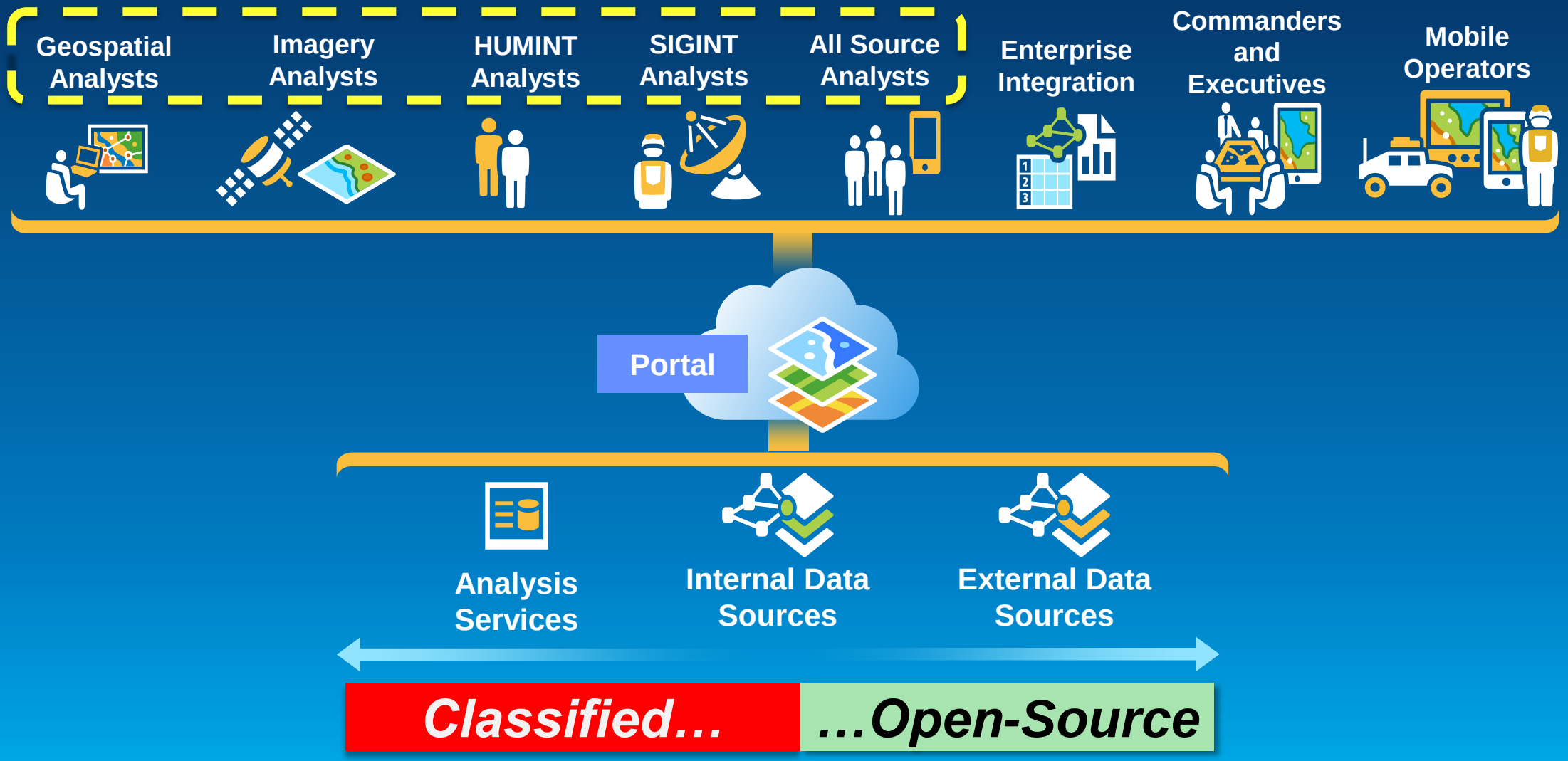
- Combine the Intelligence disciplines and systems
- Integrate technology early, don’t endlessly define requirements
- Use geospatial technology for foundational layers and to integrate sensor architectures
- Fuse classified and open source data
- Share information at machine-speed and in real time
- Decision makers and operators are the ultimate consumers



# A VISION FOR INTELLIGENCE INTEGRATION?

*Based on Location and Time* - Geography

# GIS Enables Combining the INT's & Integrating Everyone



# UK Defence Intelligence Fusion Centre (DIFC)

## RAF Wyton in Cambridgeshire

- IMINT (IMagery INTelligence)
- MASINT (Measurement And Signatures INTelligence)
- GEOINT (GEOspatial INTelligence)

**UK has made the Pathfinder Building at Wyton Station a default Five-EYES working environment (Australia, Canada, UK, USA and New Zealand)**

# Combine the Intelligence Discipline's – US Army

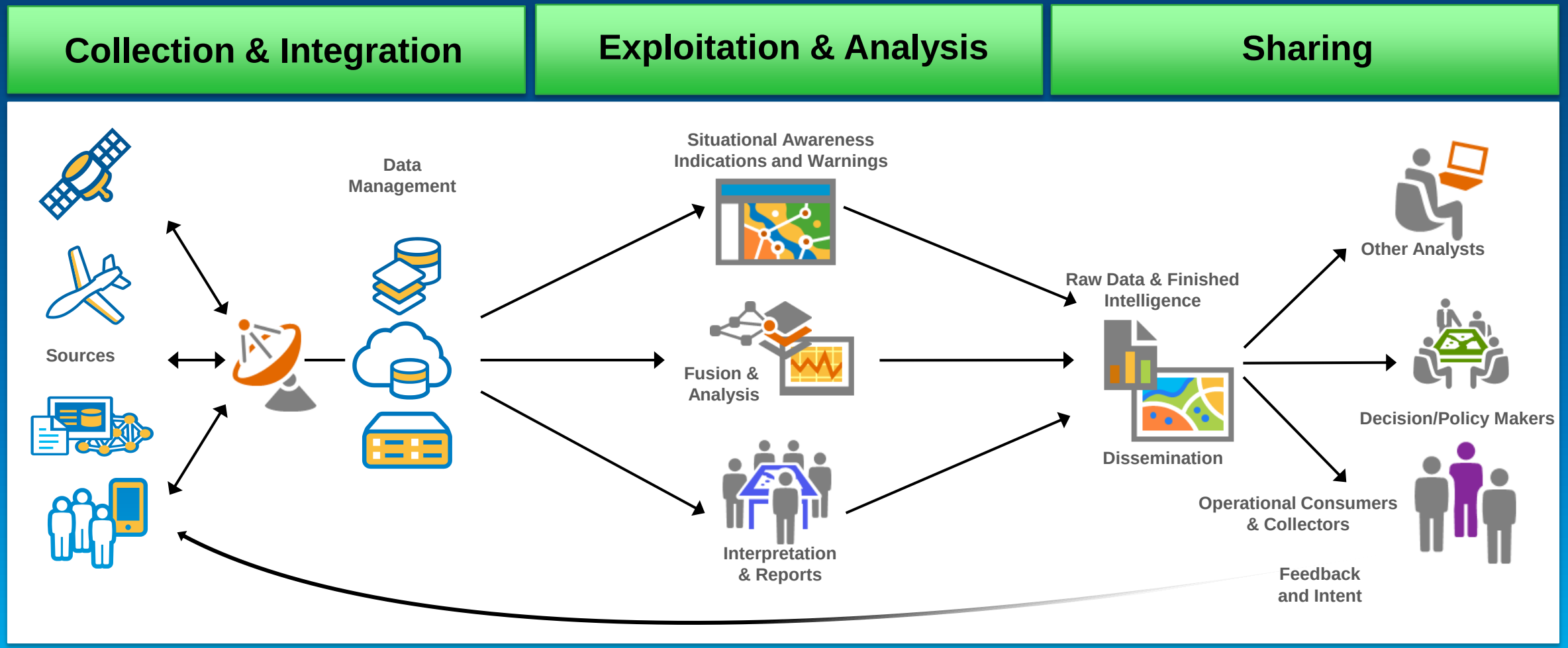
…and collapse the Ground Stations/Intel Programs of Record

US Army Distributed Common Ground System (DCGS-A)

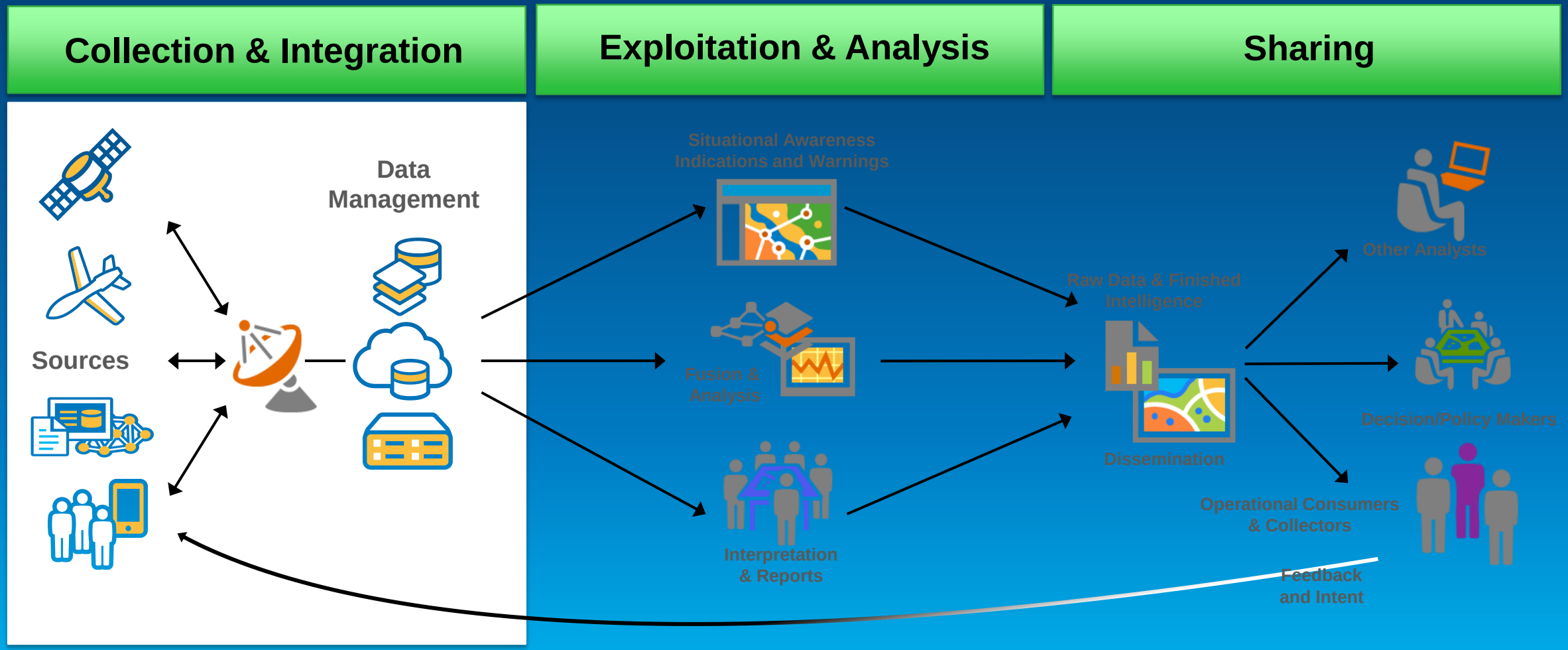
- All Source Intelligence Analyst
  - Topographic Engineer
  - IMAGERY Analyst
  - HUMINT Collector
  - EW/SIGINT Analyst
  - EW/SIGINT Voice Interceptor
  - Cyber Analyst
  - Signals Collector Analyst

***Integration of Analysts is essential but not sufficient … more is needed***

# Intelligence Overview



# Integration before exploitation

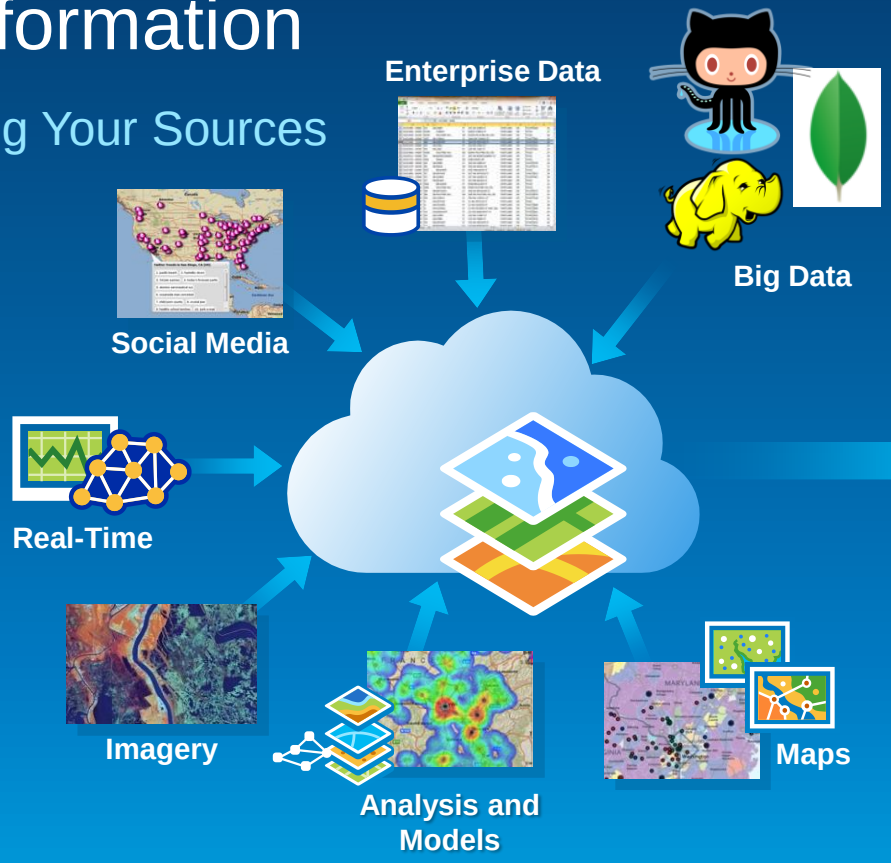


# Web GIS is a New Architecture

## Providing an Interconnected Platform

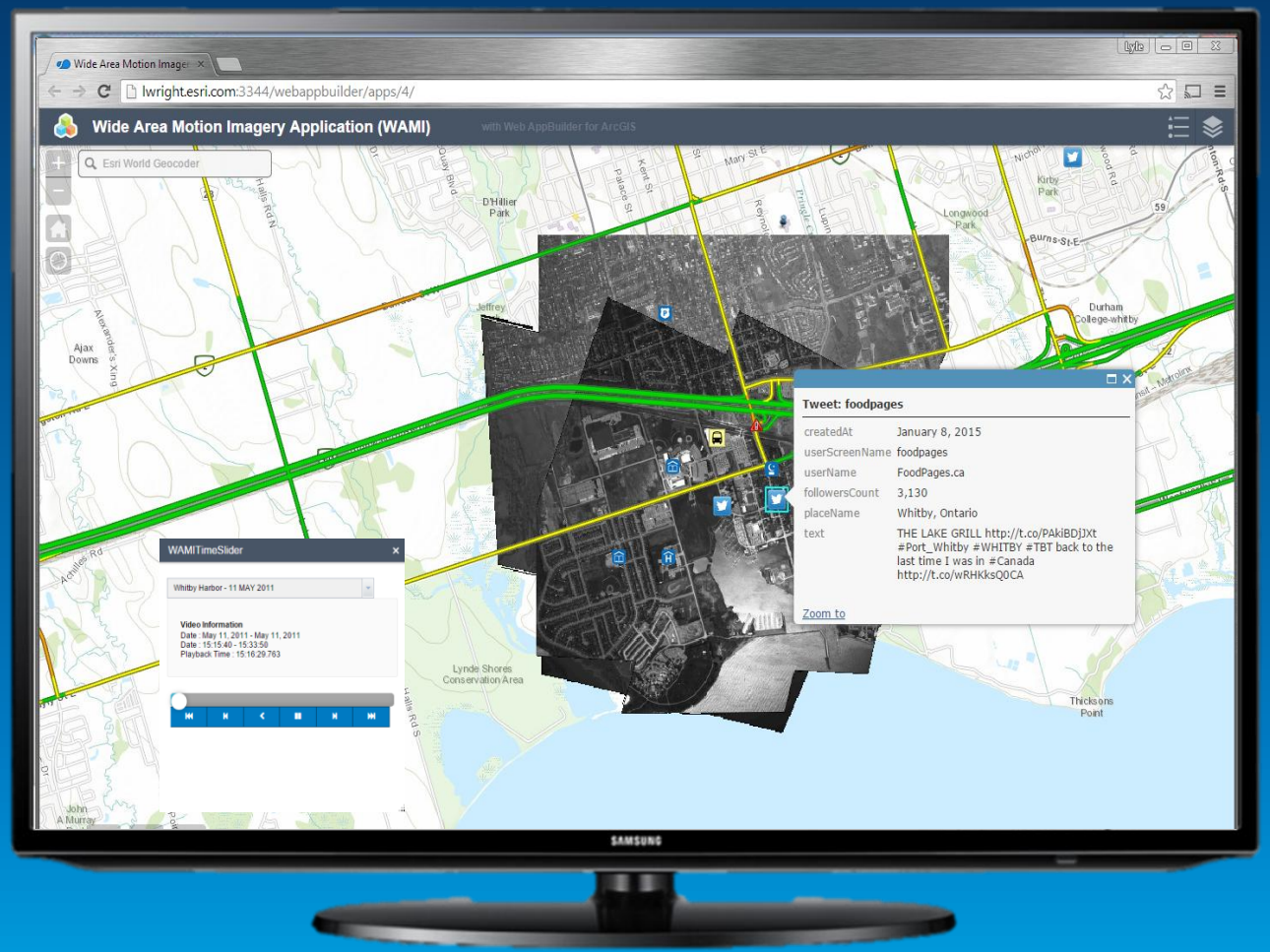
# Web GIS Integrates All Types of Information

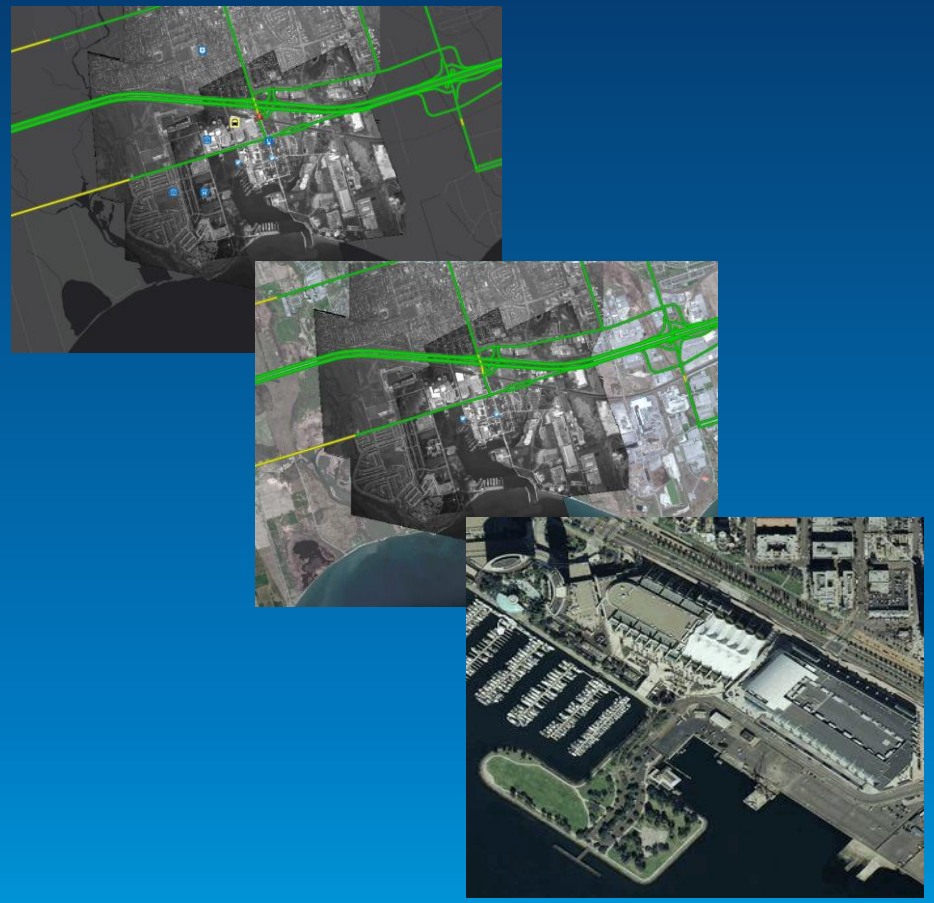
## Organizing and Sharing Your Sources




***Both Internally and on the Open Web***

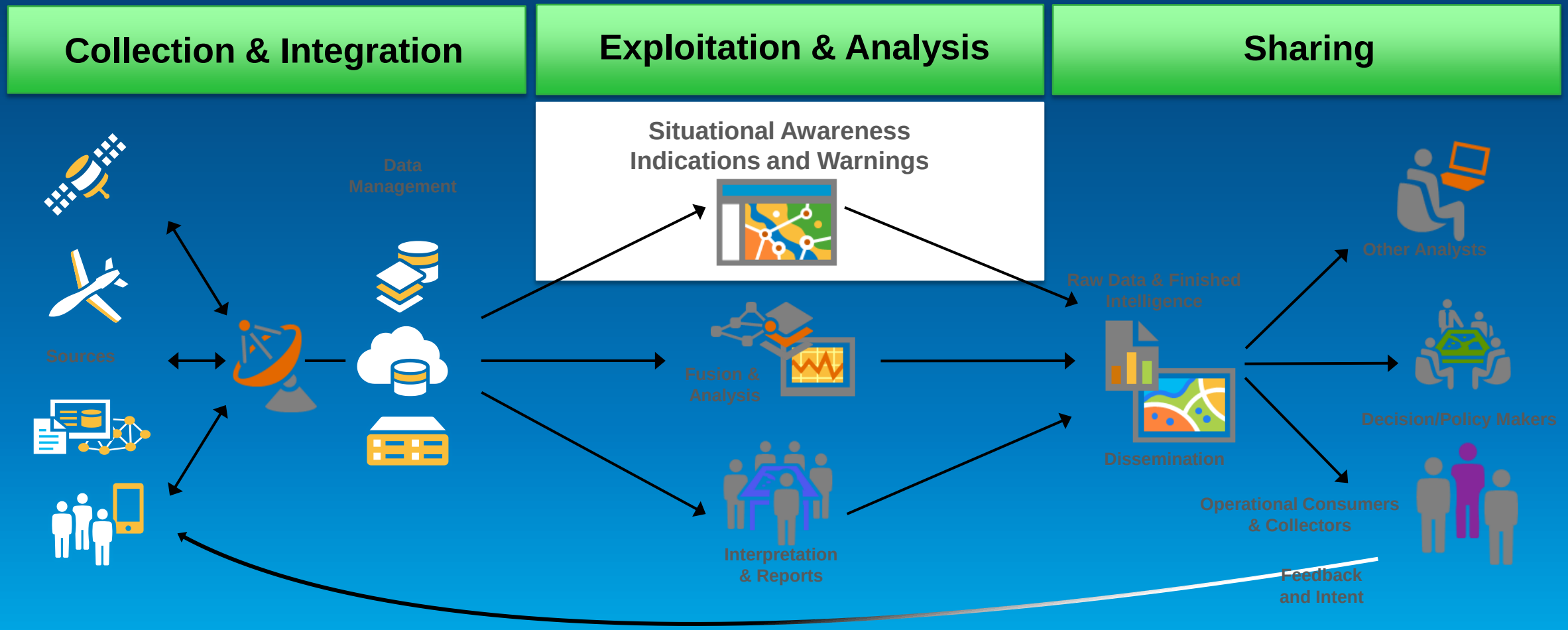
# *WebGIS Multi-Intelligence Integration Example*



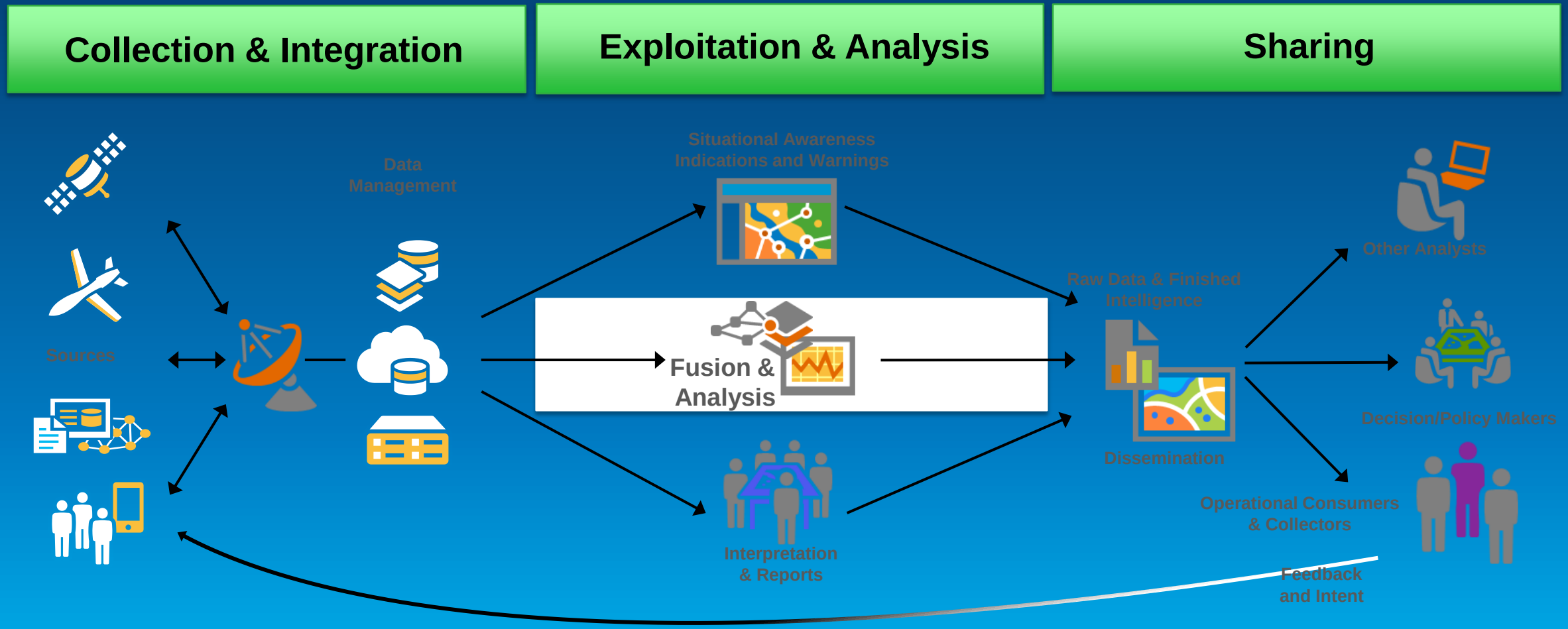



**Integrate Vehicle Locations, Imagery, Feeds, WAMI, Twitter and Traffic in one application…**

# Exploitation – Sharing Raw Data



# Exploitation – Rapidly Sharing Processed Information

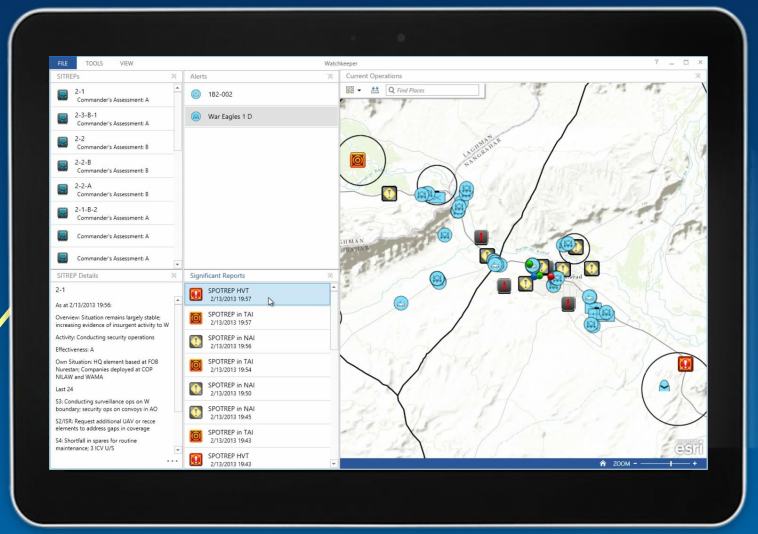


# GIS supports Real-Time Data

## Integrating dynamic data

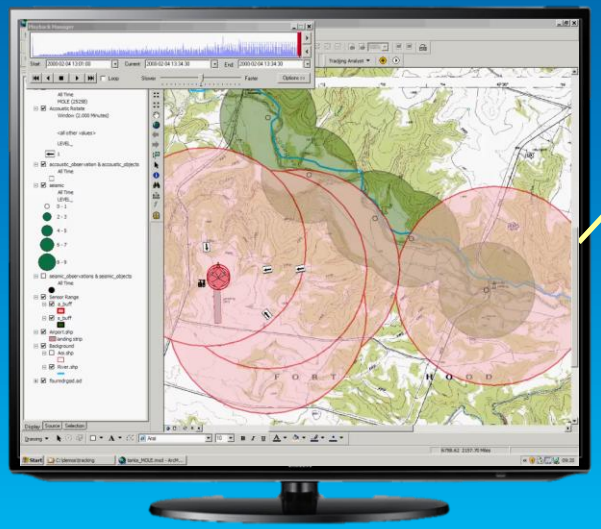
### In-Vehicle Tracking

### Dynamic Operational Dashboards

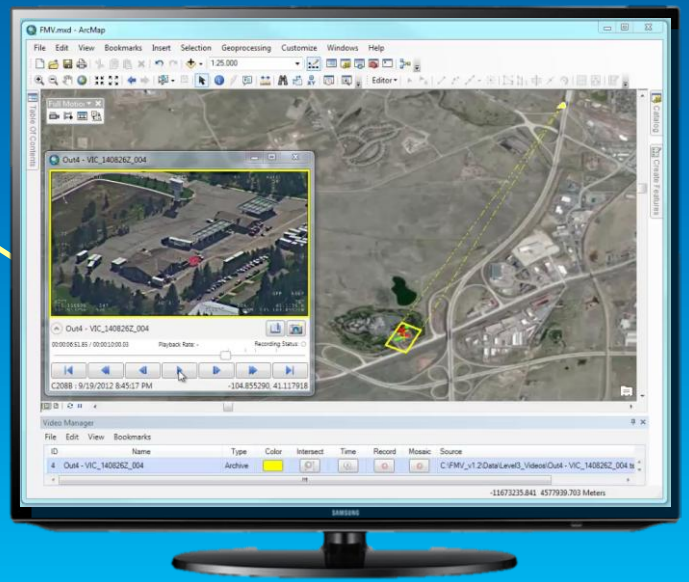


### Data Management

### UGS Sensor Feeds



### UAS Motion Imagery (Video)

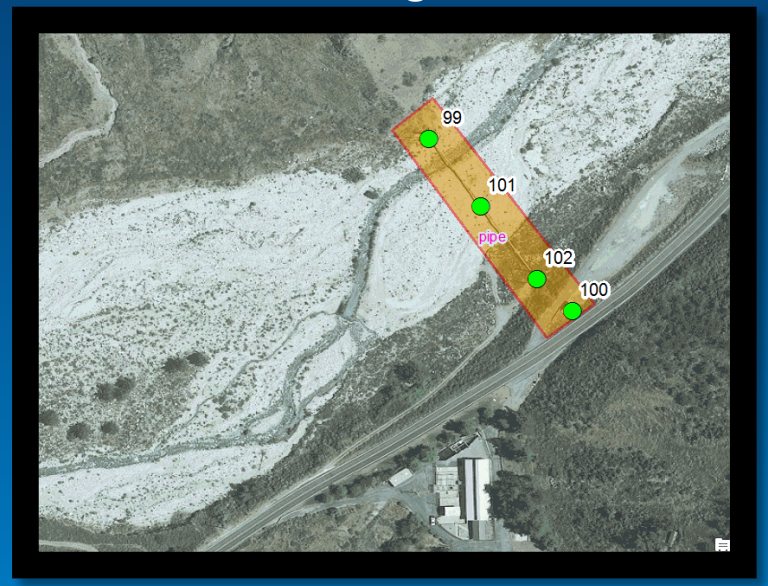


**Continuous Processing and Analysis**

# Processing Real-Time Data Feeds At Machine Speed

## From Raw Data to Actionable Information through Reporting by Exception

### Sensor Tracking

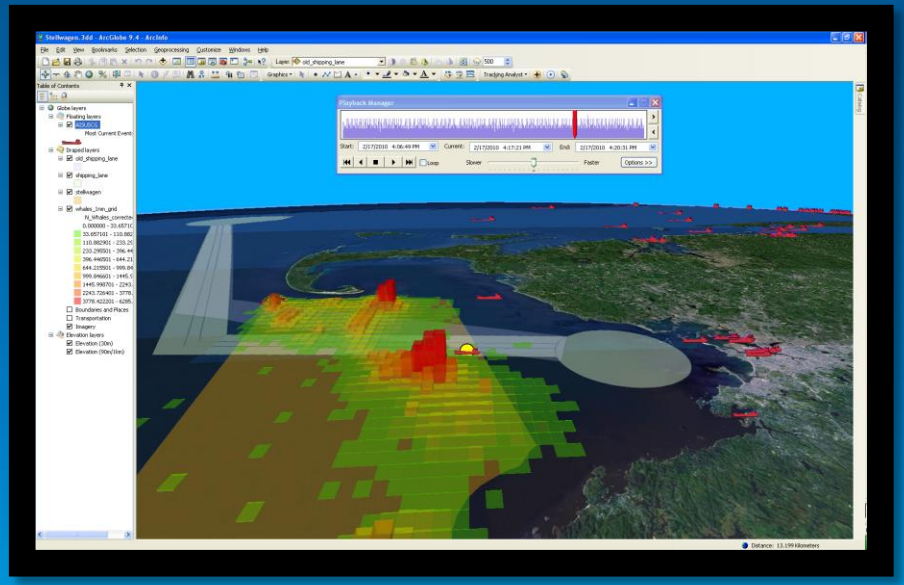



…Alert when values exceed min. or max. thresholds

### Vehicle/Platform Tracking

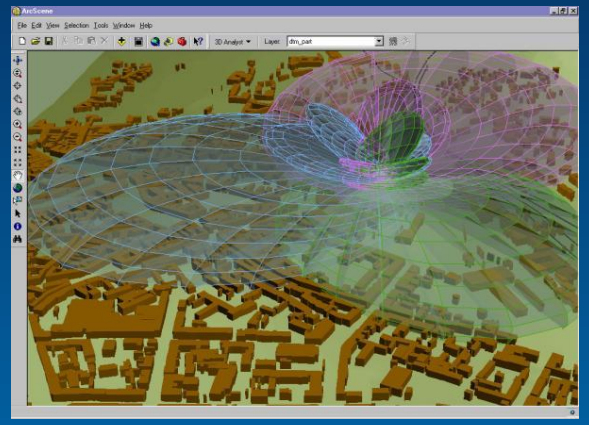
Aircrafts in severe weather …At risk

### AIS Vessel Tracks



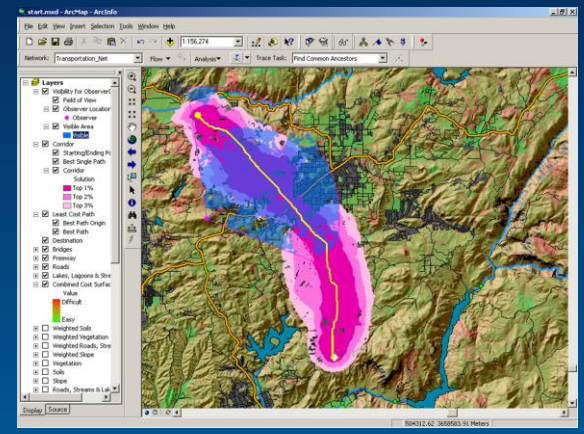
…Filtered by position and attribute e.g. slow boats that could be boarded by pirates

# Predictive Analysis



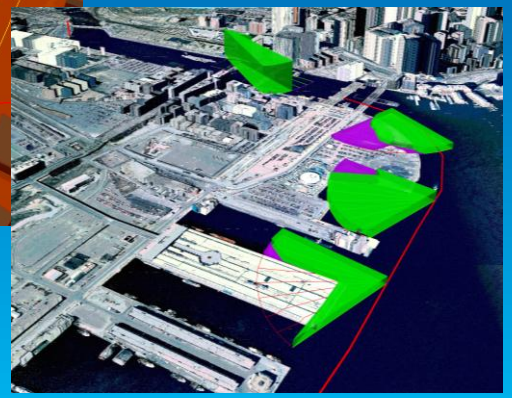
Emitter Propagation Modeling

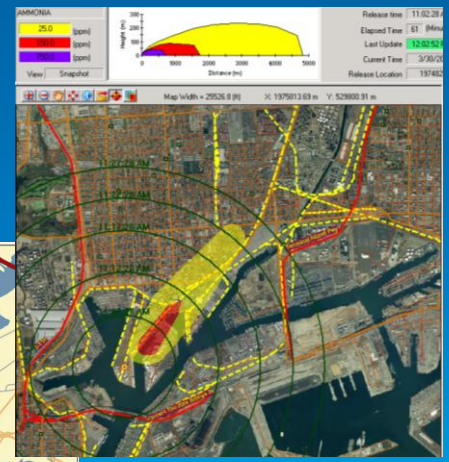
Vulnerability Assessment



Cross-Country Movement

Visibility Analysis





Plume Modeling

# Exploitation: Machine-Generated or Human-in-the-Loop

Automated or Human-In-The-Loop analysis to generate Information Products

## See
### Sensors

- Multi-National
- National
- Theater
- Division
- Battalion
- Platform

## Understand
### Services

Web GIS

### Analyst Apps

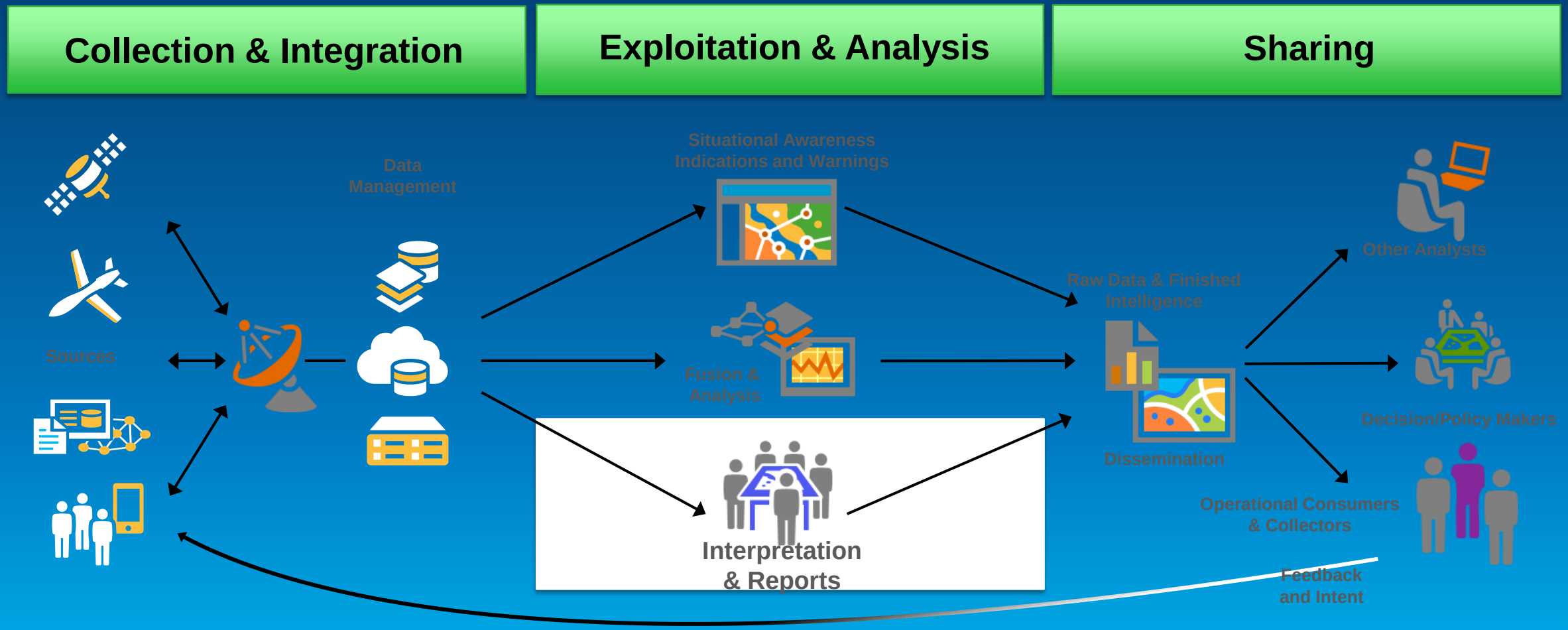
- GEOINT
- IMINT
- SIGINT
- HUMINT
- All Source

## Act
### Multi-Int Products

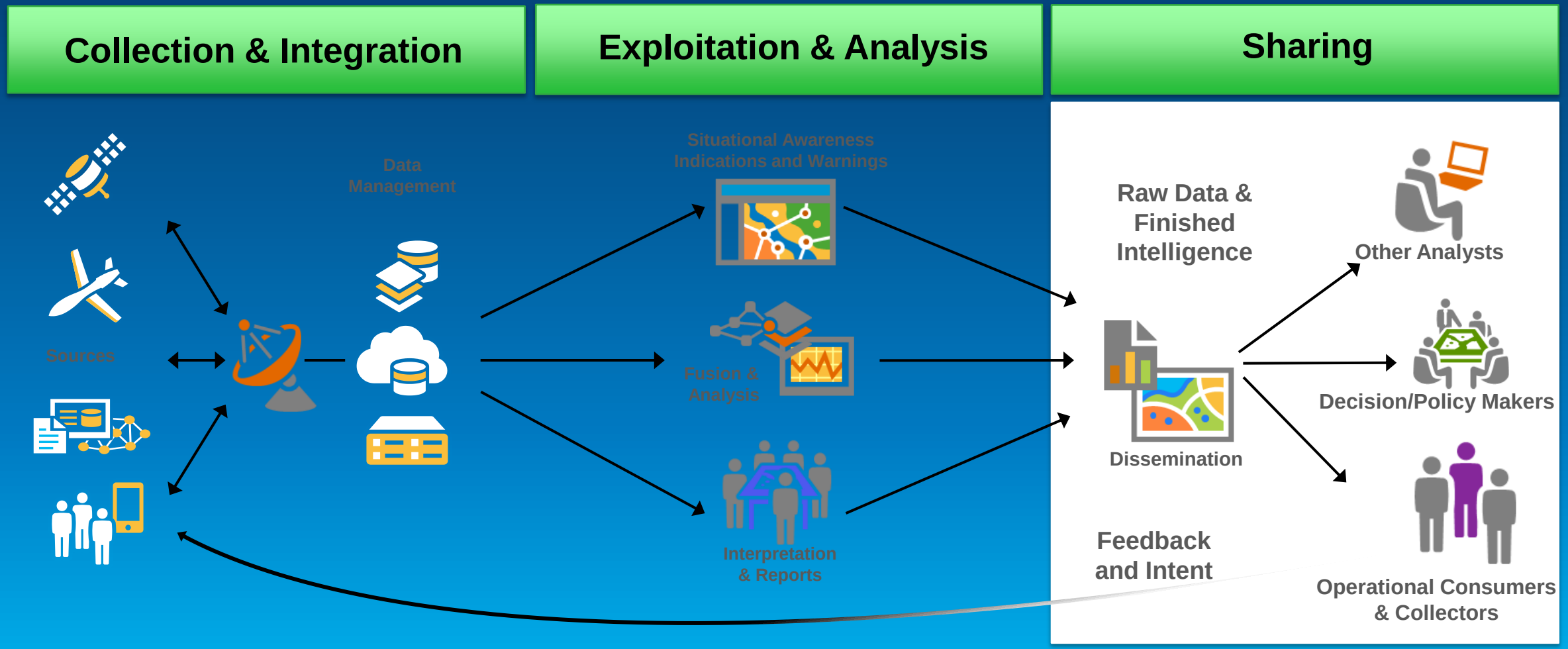
- Combined Obstacle Overlays
- Battle Damage Assessment
- Helicopter Landing Zones
- Target Development
- Enemy Capabilities
- Mobility Analysis
- Link Analysis
- Route Study
- Threat Maps
- Incident Analysis
- IED Density/Threat
- Line of Sight Analysis
- GMTI Analyses/Reports
- Point of Origin Detection
- Tribal/Human Terrain Maps

**From Raw Data to Intelligence Information Products**

# Exploitation – Sharing Finished Intelligence



# Disseminating for further Integration and Exploitation



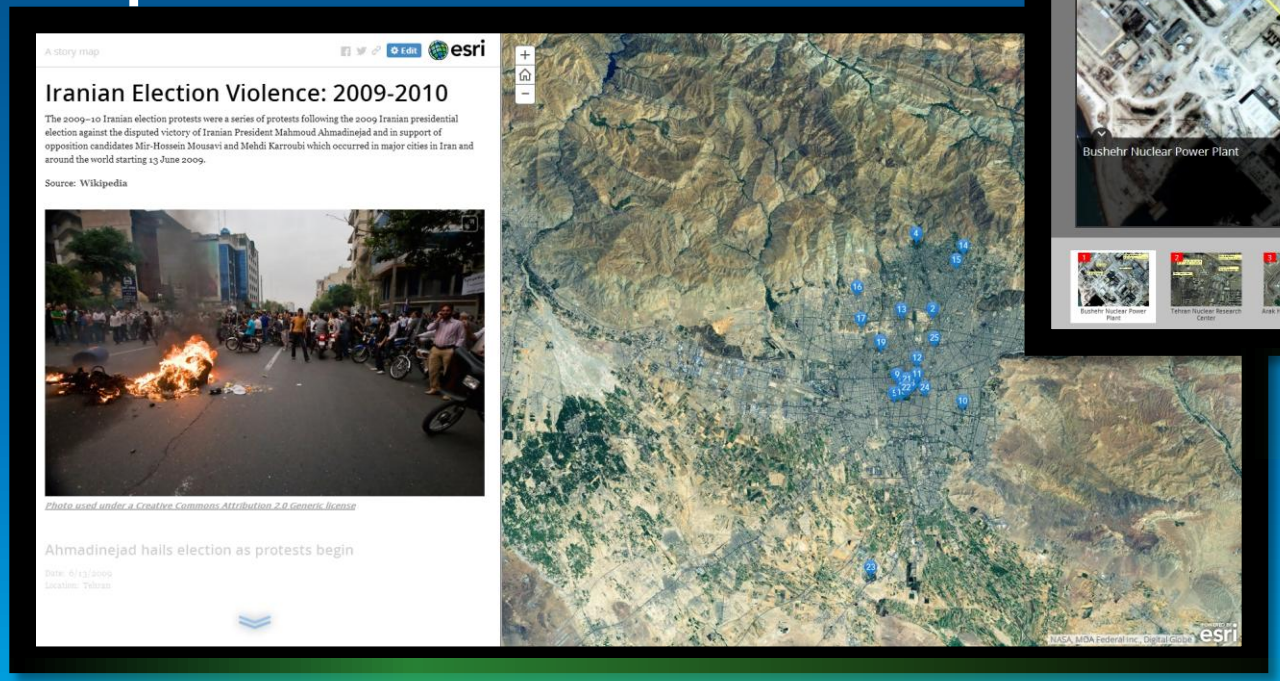
# The Intelligence Partner:
# National Security Analysts, Commanders and Operators…and the Public

# Simple, Easy-to-Use Apps For Sharing Intelligence Products

## Map Tour

Use as visual and interactive briefing tools

## Map Journal

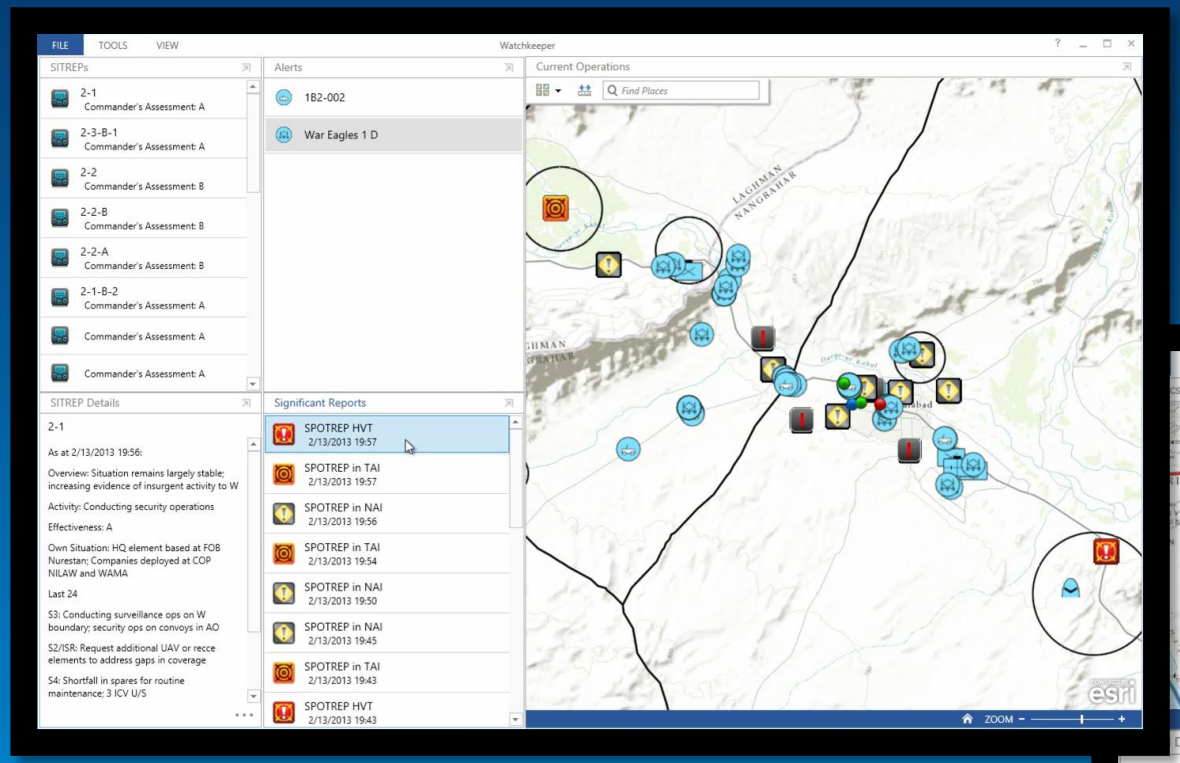


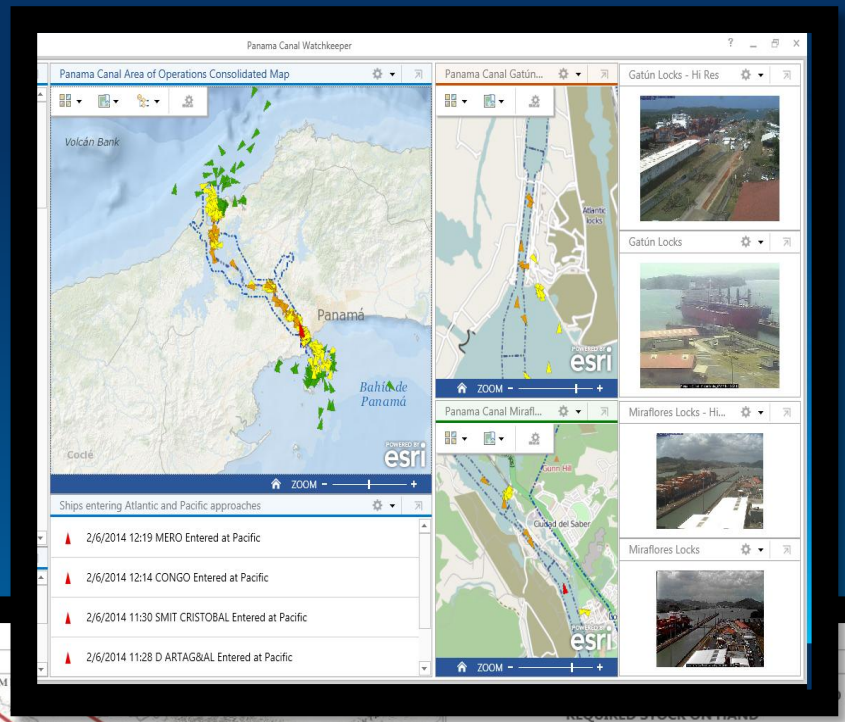

Create multimedia stories with text, graphics and maps

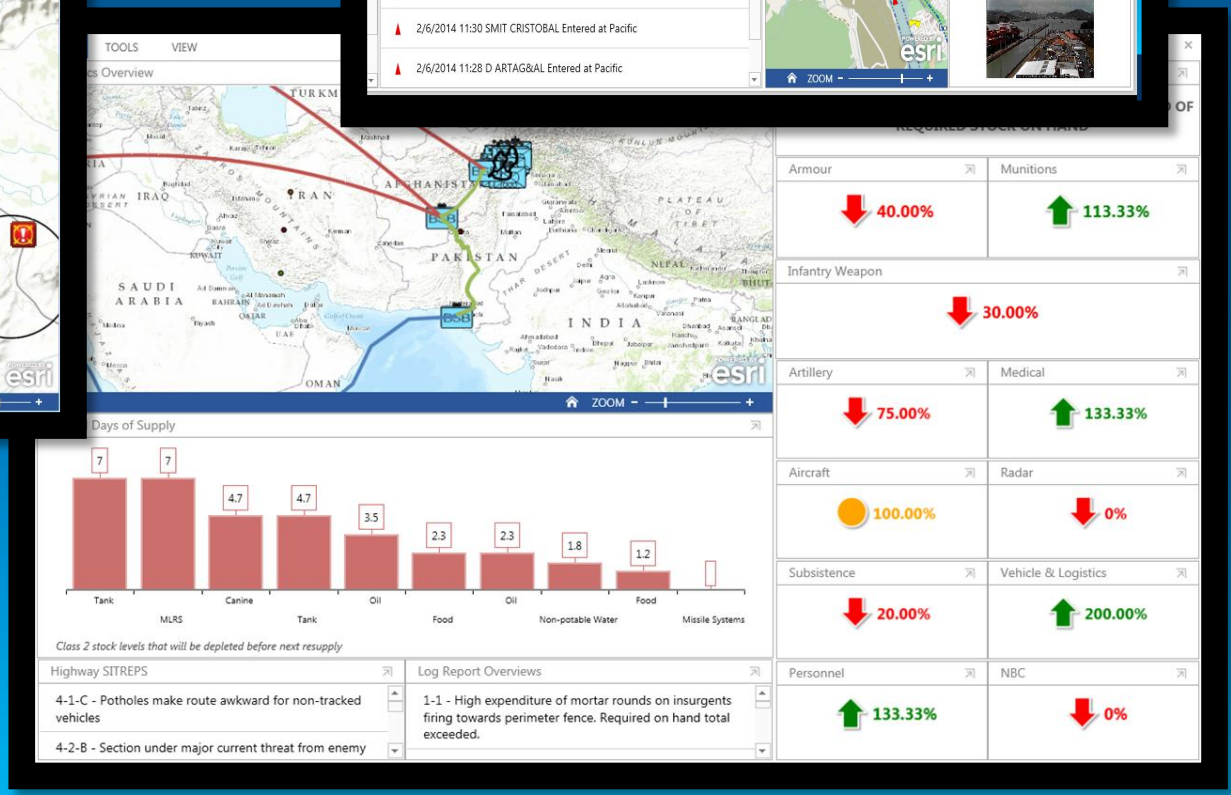
… and tailored to the partner

# Operations Dashboards

## Near-Real Time, Machine Speed Intelligence for Operations



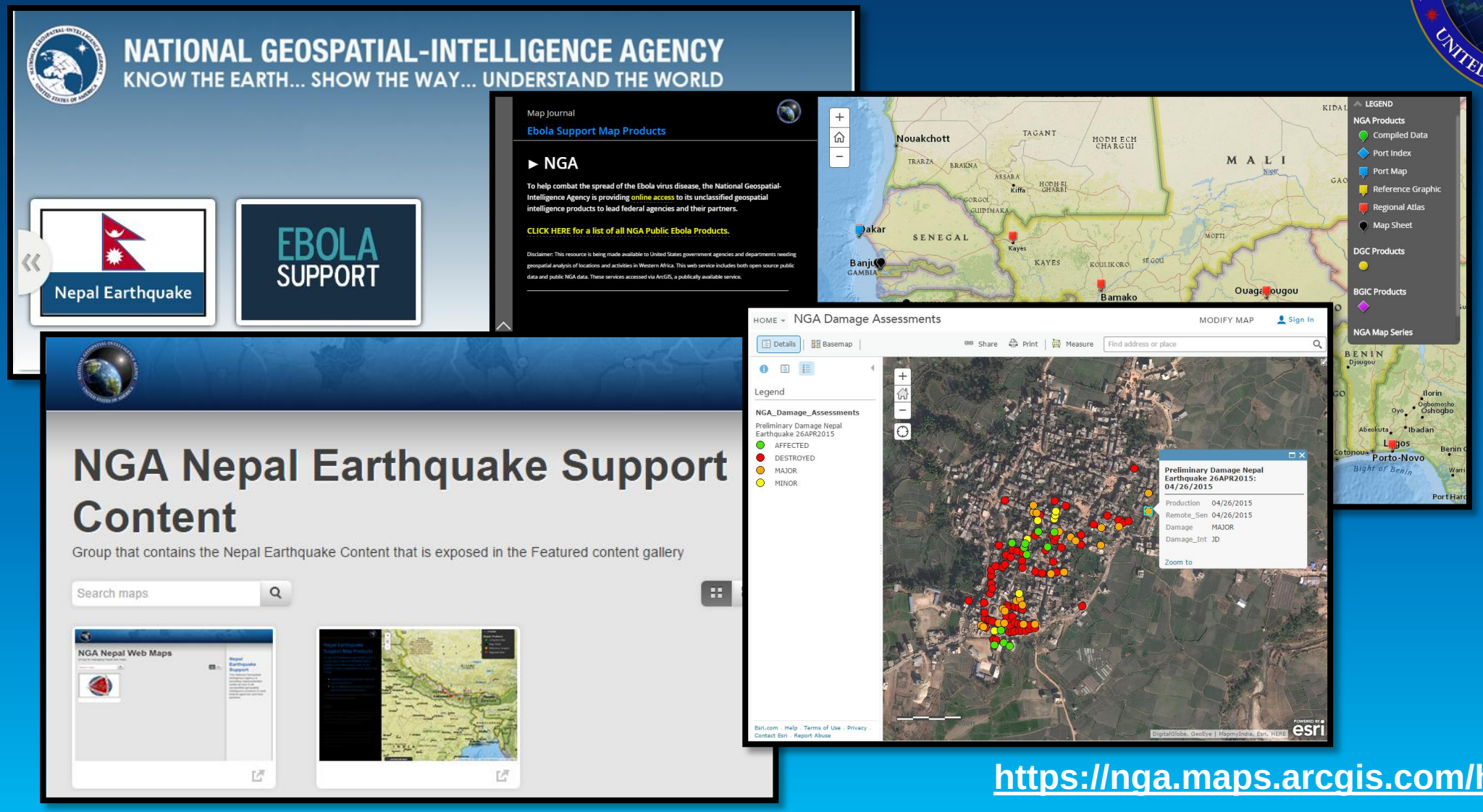




## Connecting Intelligence and Operations

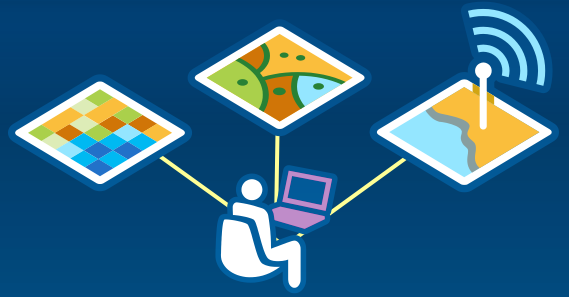
# Sharing With The Public – NGA Ebola and Nepal Support

## COTS-Based Unclassified Open Community GIS Portal




https://nga.maps.arcgis.com/home

# Integrating … Data, People, Departments and Organizations



Integrating and Synthesizing Information from Many Sources

Facilitating Communication and Collaboration

Breaking Down Barriers Between Institutions, Disciplines and Cultures

***…Essential To National Security Success***

Understanding our world.