

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

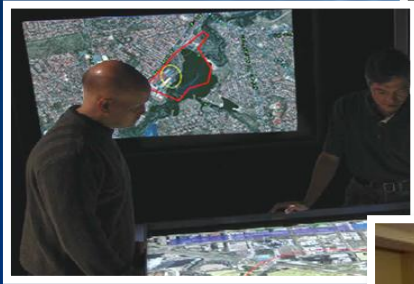
Political Crisis

Energy Security

Organized Crime

Adversaries

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

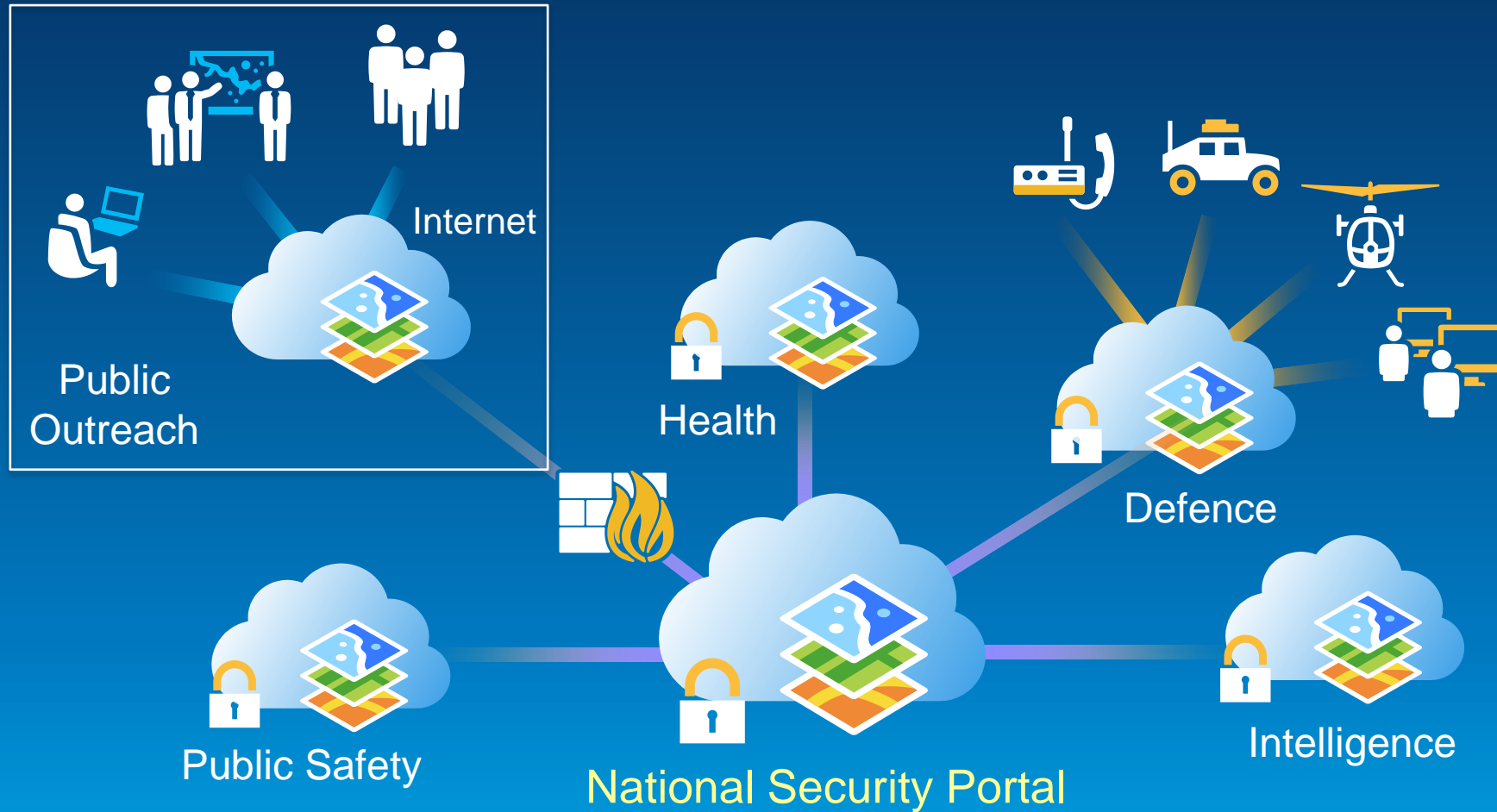


Multiple Missions, Multiple Agencies

- 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?

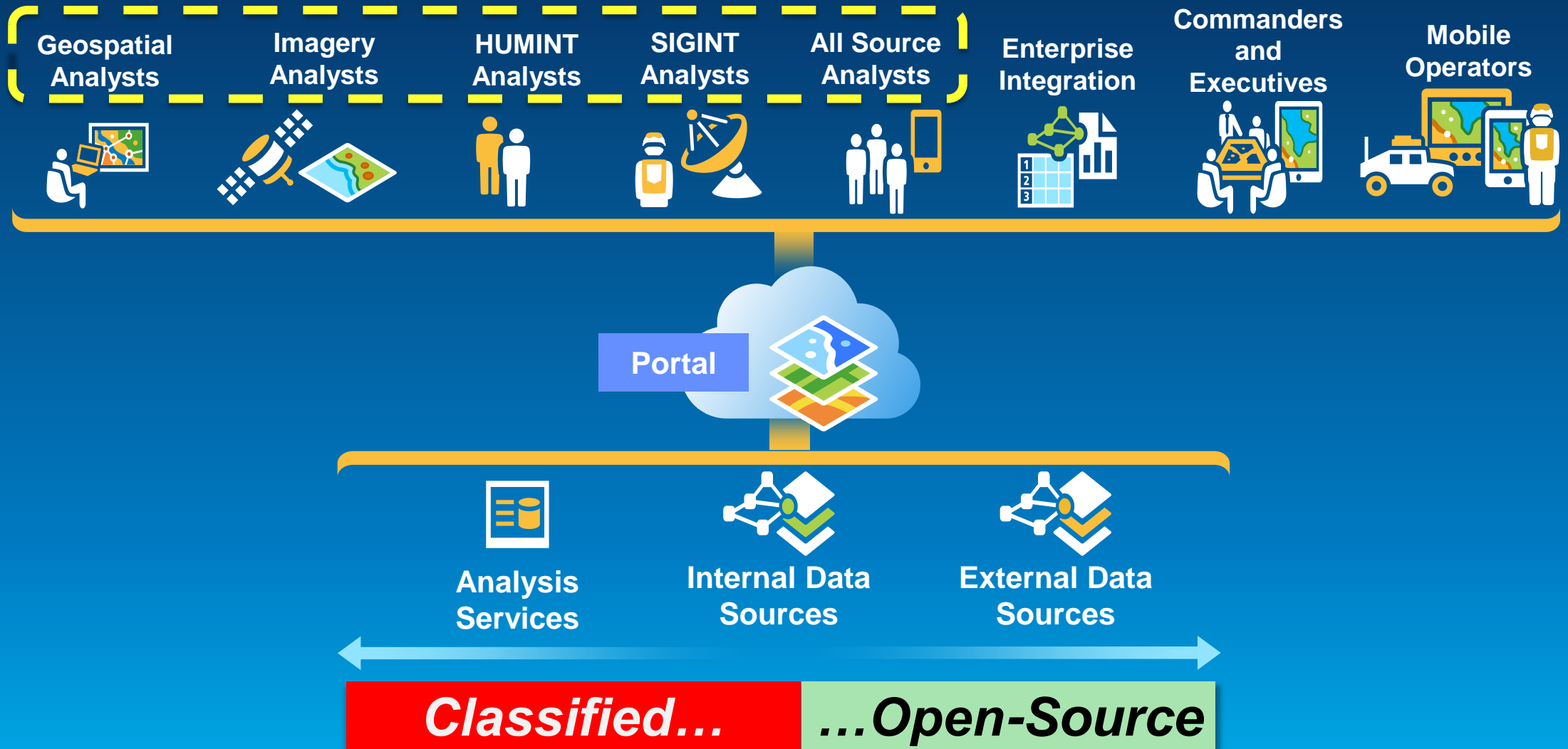
- **Combine the Intelligence disciplines and systems**
- **Integrate technology early, don't endlessly define requirements**
- **Use geospatial technology for foundational layers and to integrate sensor architectures**
- **Fuse classified and open source data**
- **Share information at machine-speed 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

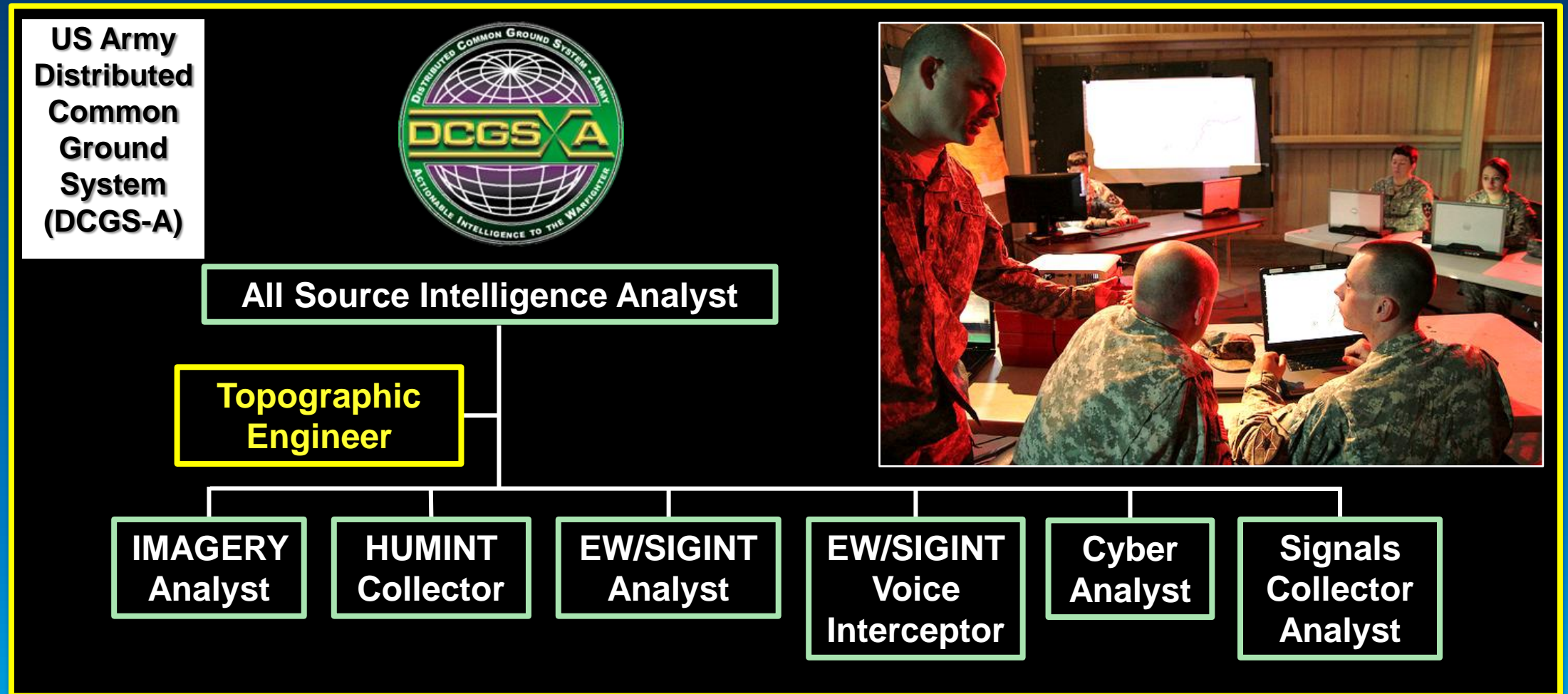
- IMINT (IMagery INTelligence)
- MASINT (Measurement And Signatures INTelligence)
- GEOINT (GEOspatial INTelligence)



**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

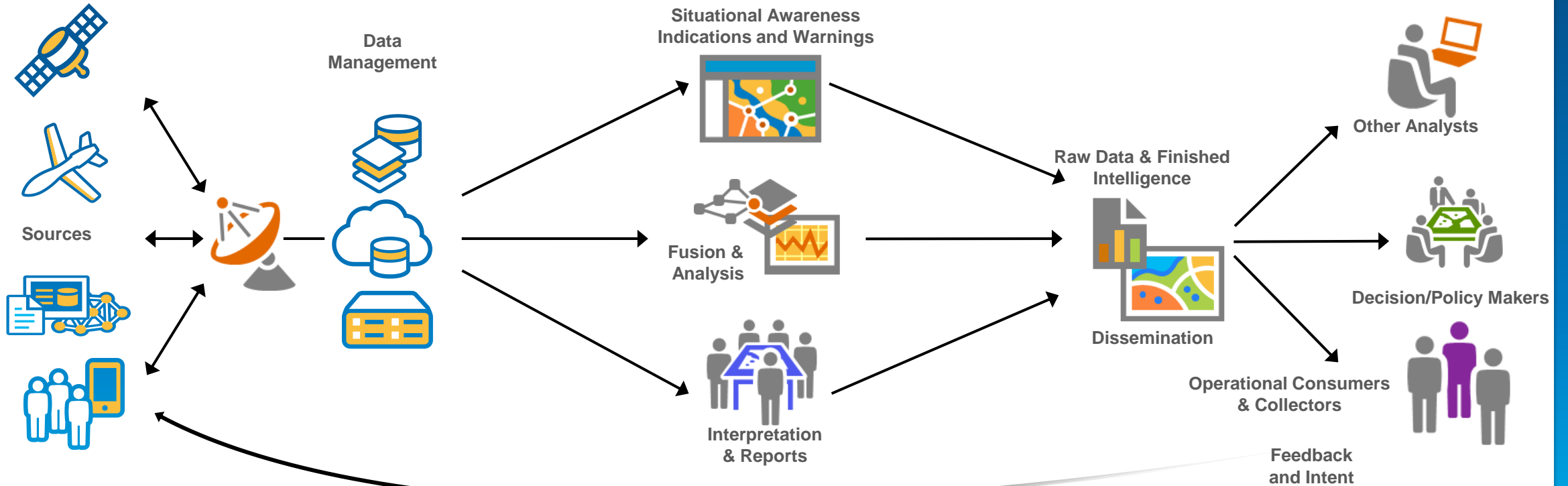


Intelligence Overview

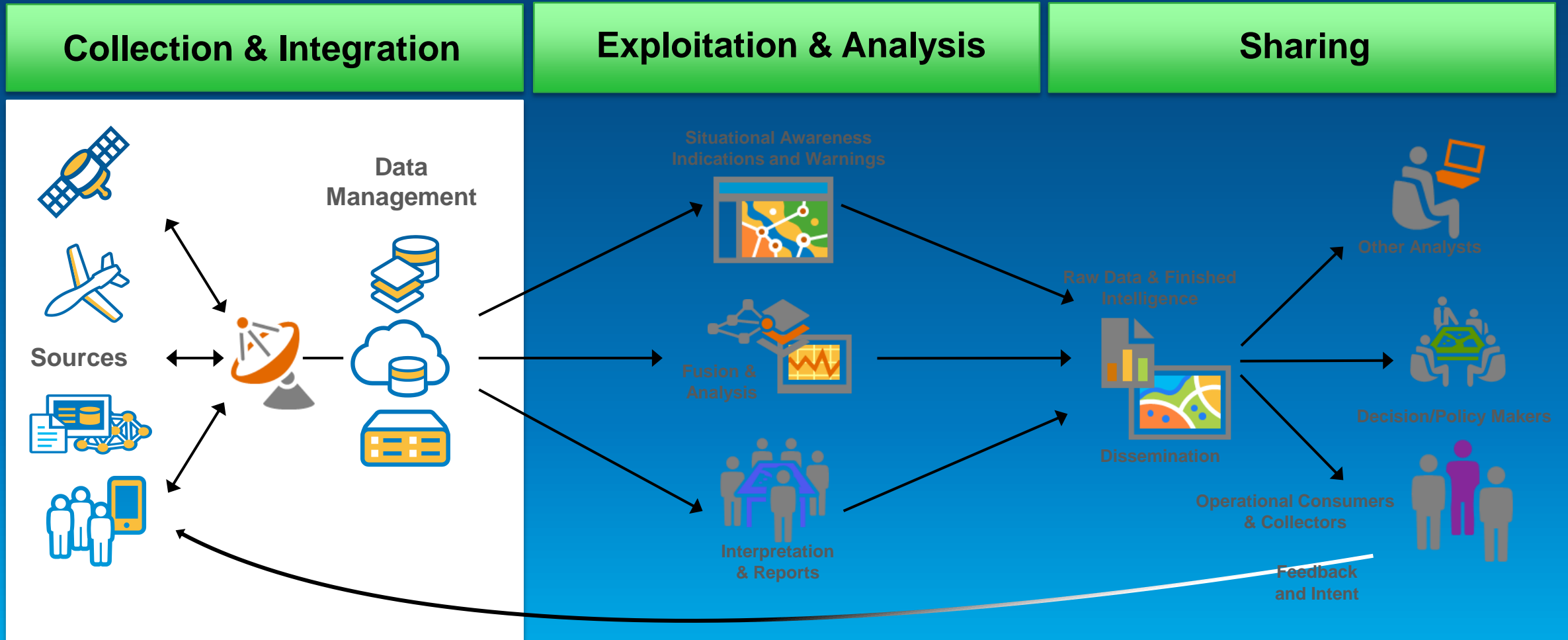
Collection & Integration

Exploitation & Analysis

Sharing

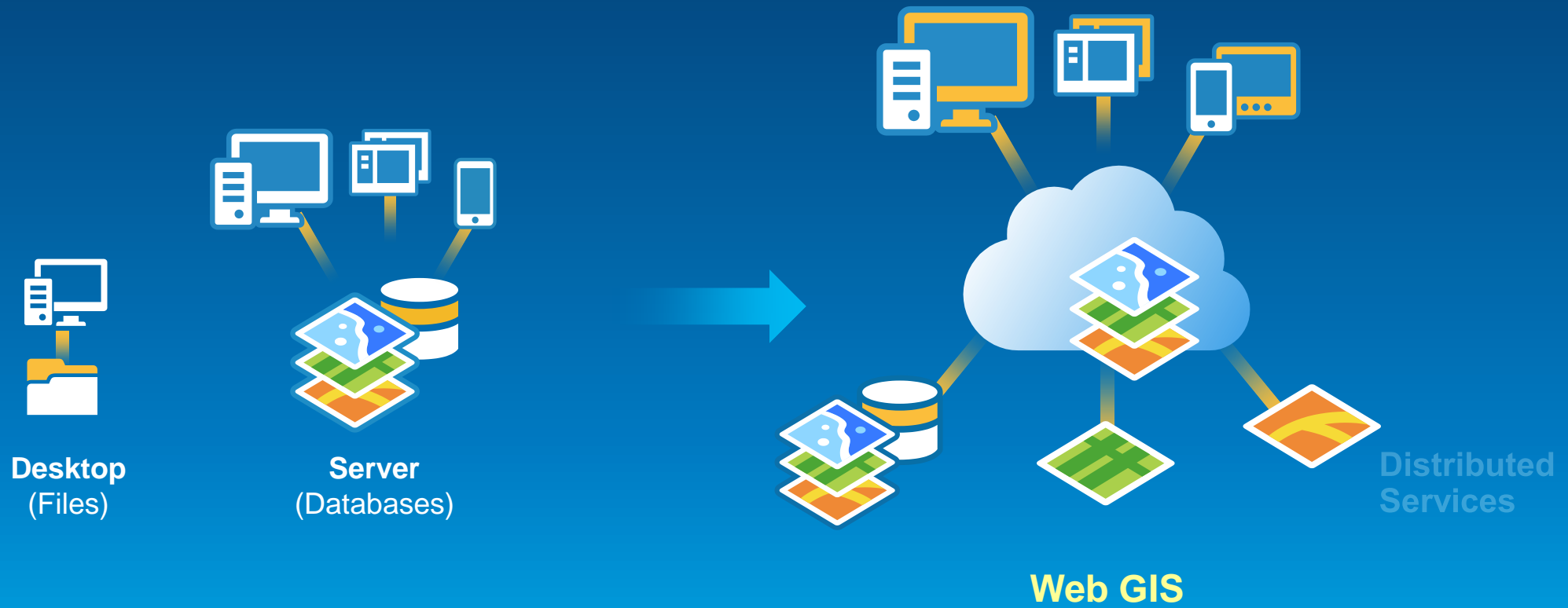


Integration before exploitation



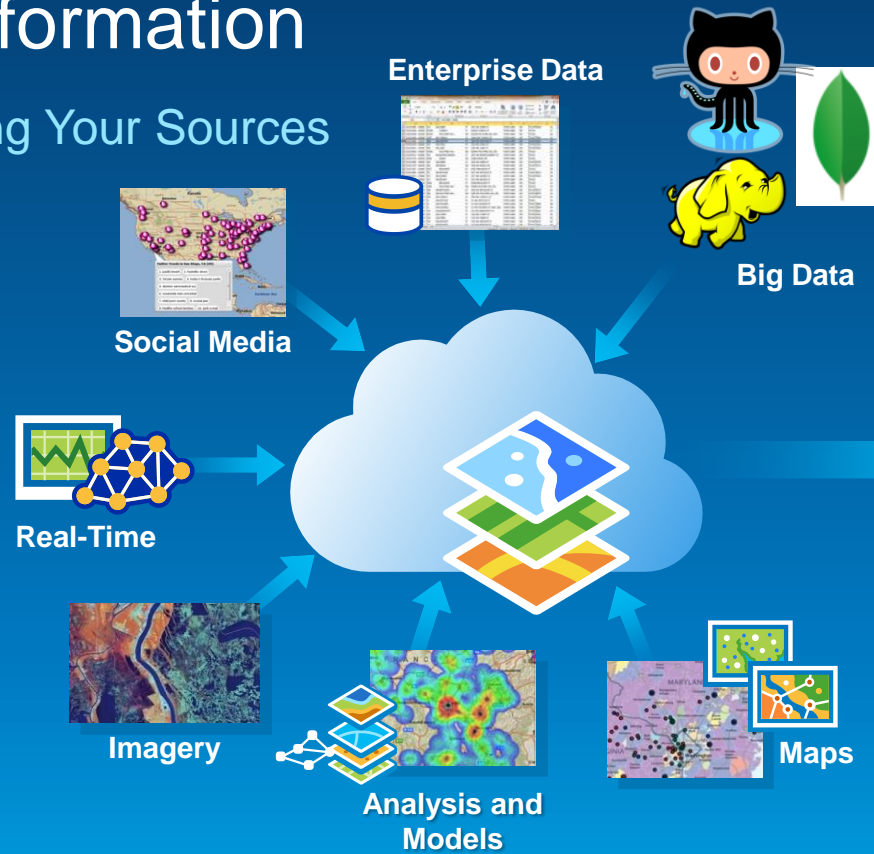
Web GIS is a New Architecture

Providing an Interconnected Platform

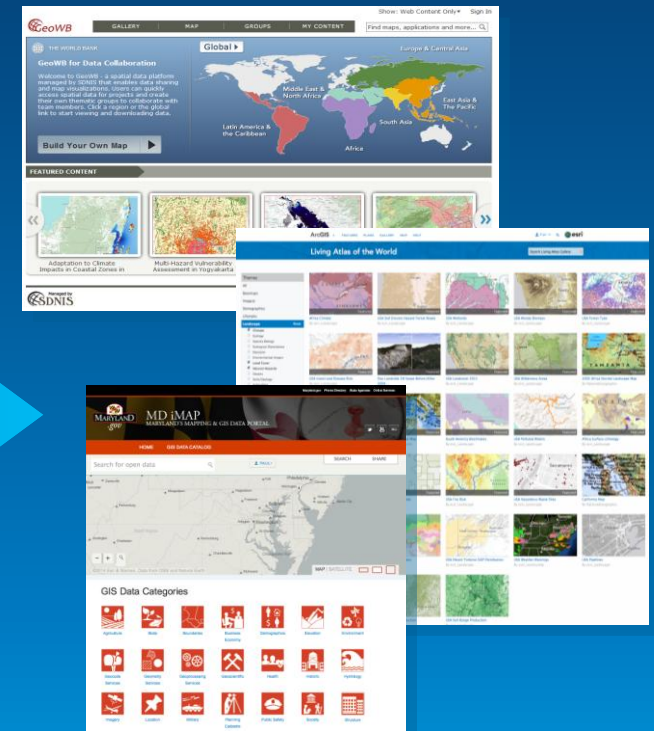


Web GIS Integrates All Types of Information Organizing and Sharing Your Sources

Web Maps
and Services

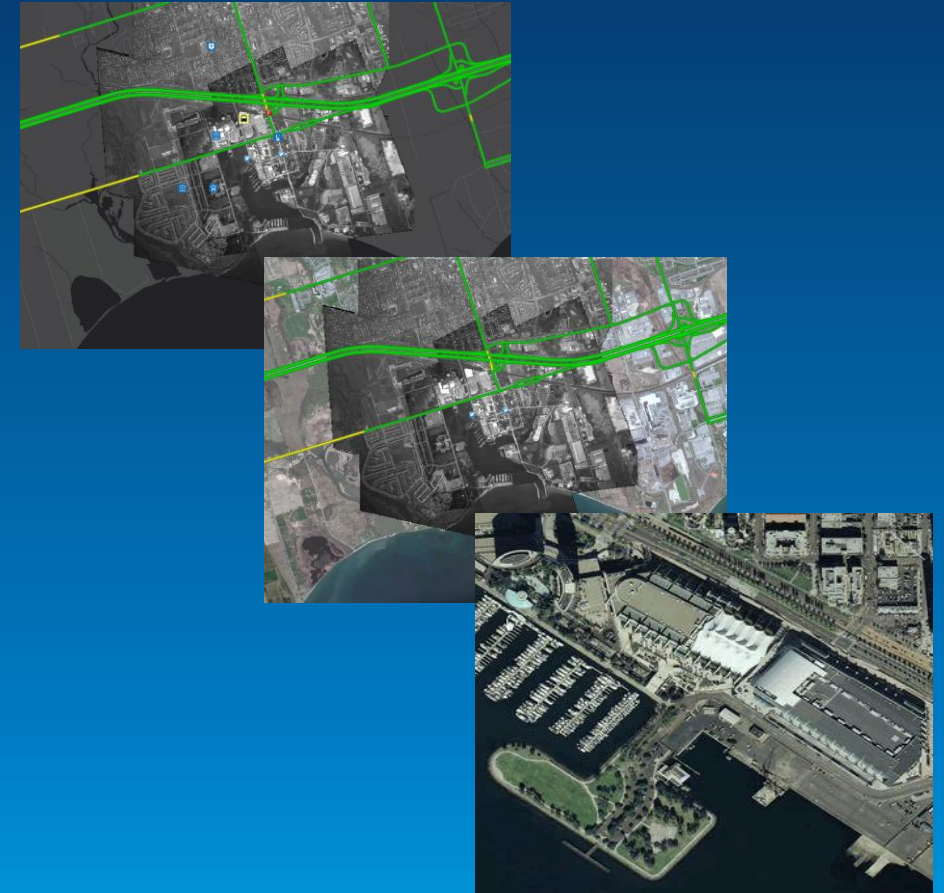
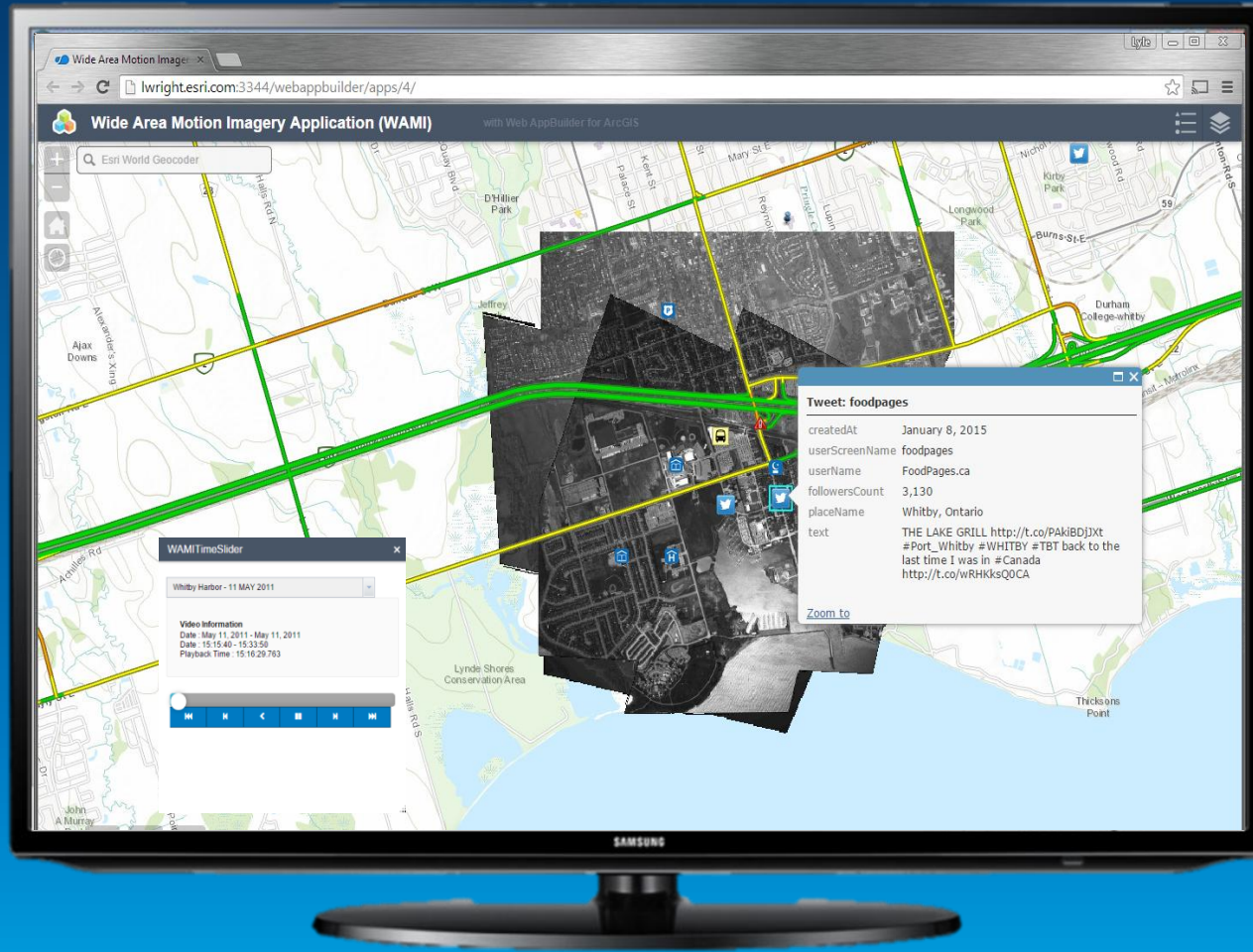


Portal



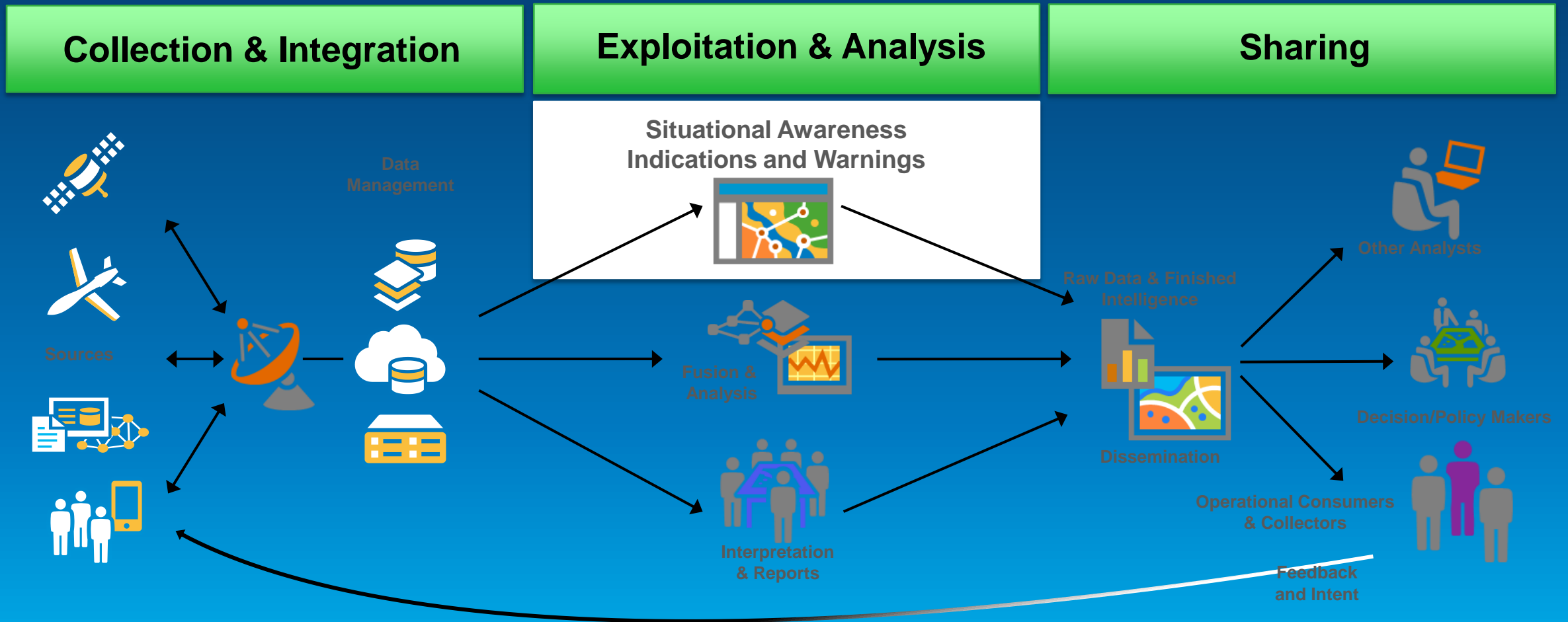
Both Internally and on the Open Web

WebGIS Multi-Intelligence Integration Example

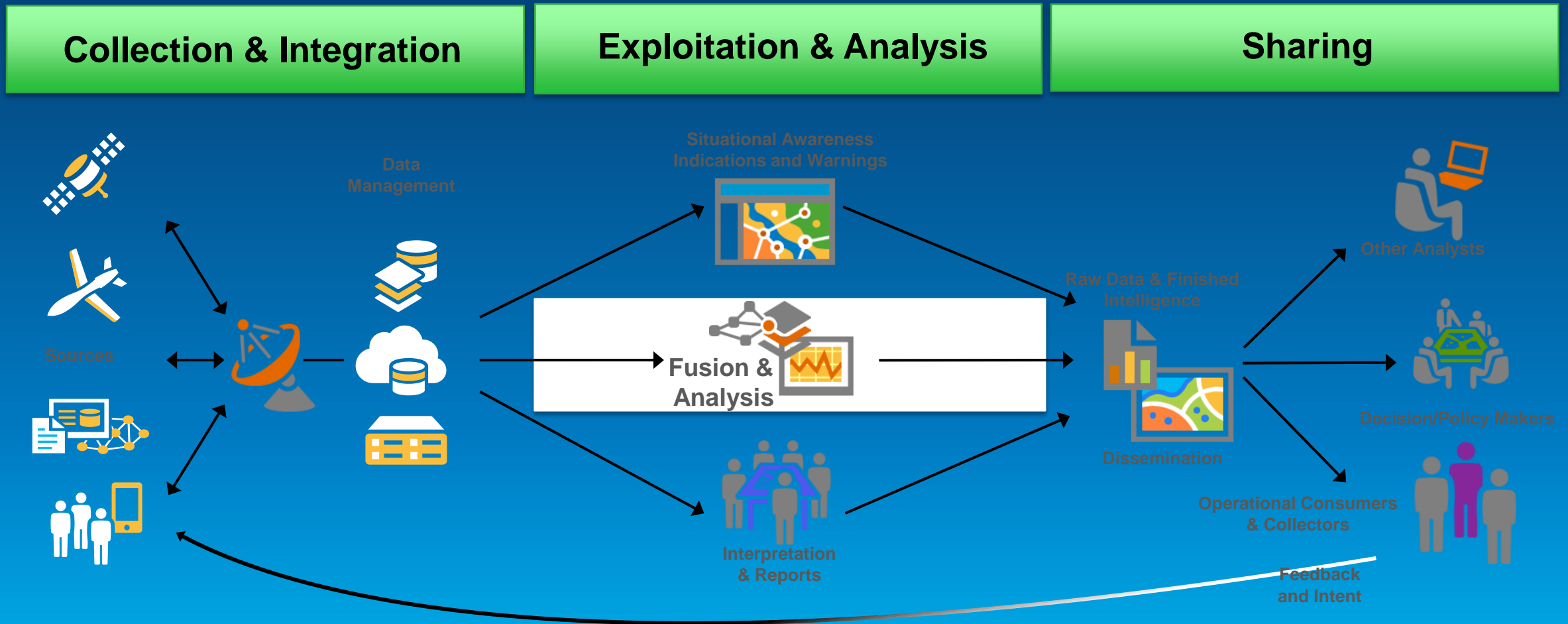


Integrate Vehicle Locations, Imagery, Feeds, WAMI, Twitter and Traffic in one application...

Exploitation – Sharing Raw Data



Exploitation – Rapidly Sharing Processed Information



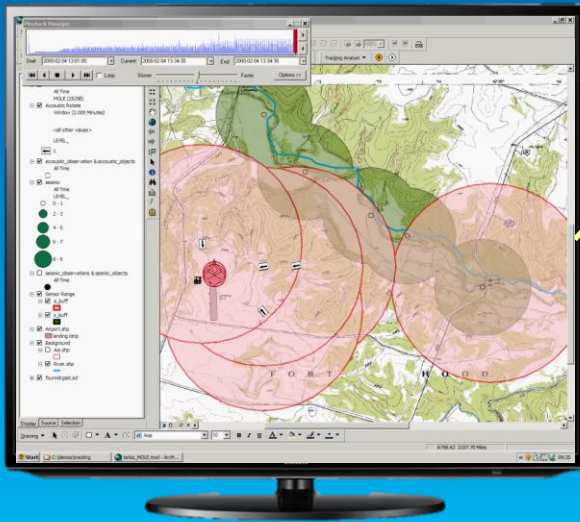
GIS supports Real-Time Data

Integrating dynamic data

In-Vehicle Tracking



UGS Sensor Feeds

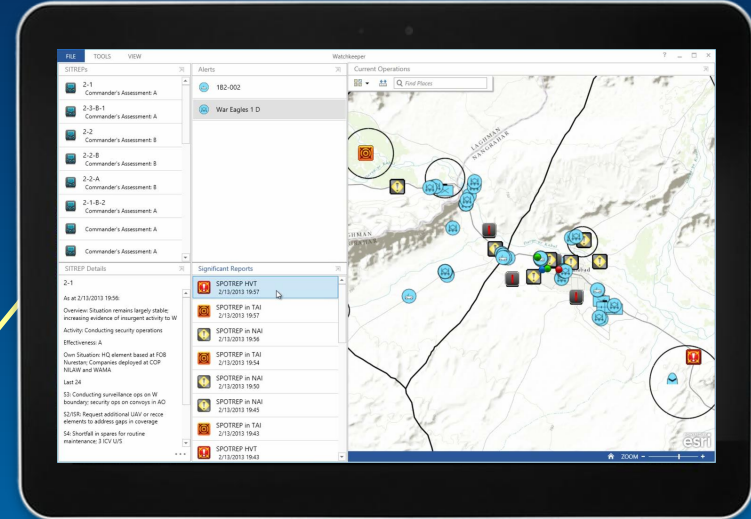


Data Management



Continuous Processing and Analysis

Dynamic Operational Dashboards



UAS Motion Imagery (Video)



Processing Real-Time Data Feeds At Machine Speed

From Raw Data to Actionable Information through Reporting by Exception

Sensor Tracking



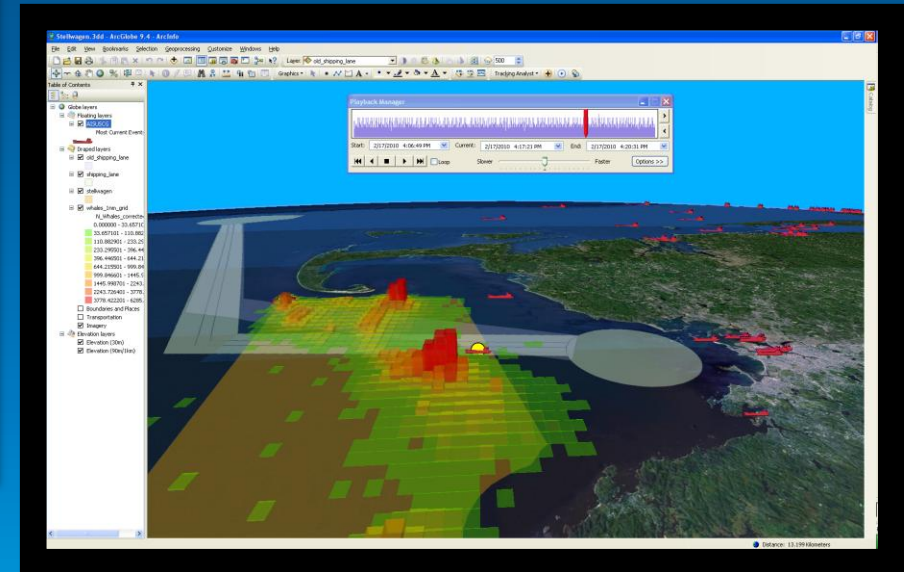
...Alert when values exceed min. or max. thresholds

Vehicle/Platform Tracking



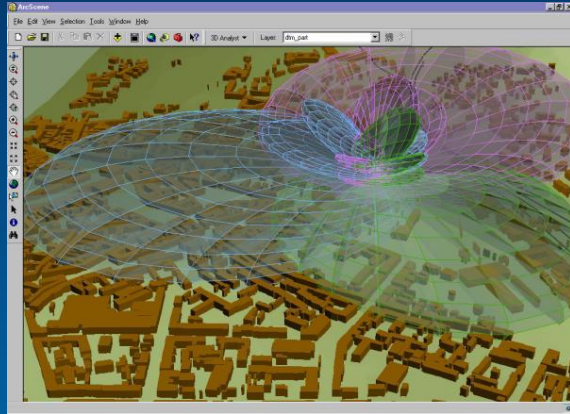
Aircrafts in severe weather
...At risk

AIS Vessel Tracks

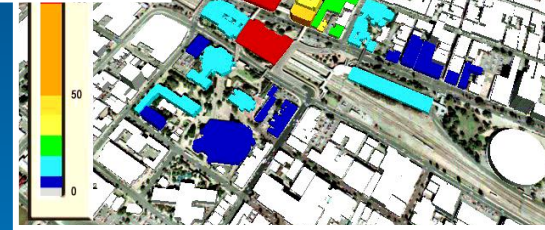
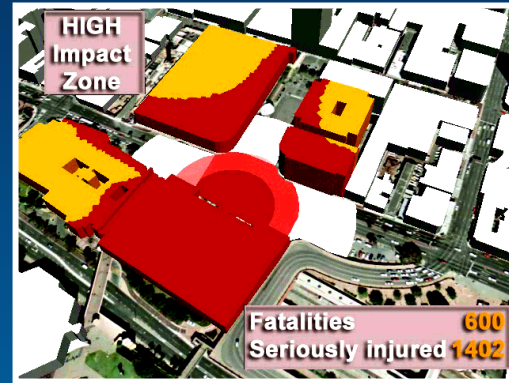


...Filtered by position and attribute
e.g. slow boats that could be boarded
by pirates

Predictive Analysis



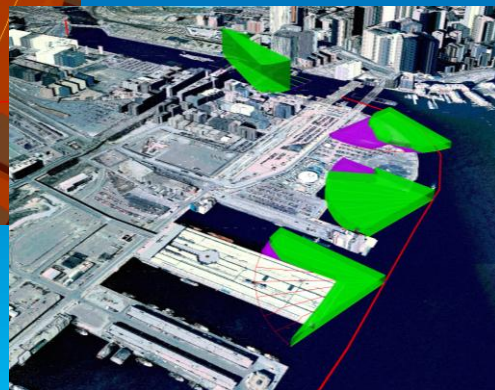
Emitter Propagation Modeling



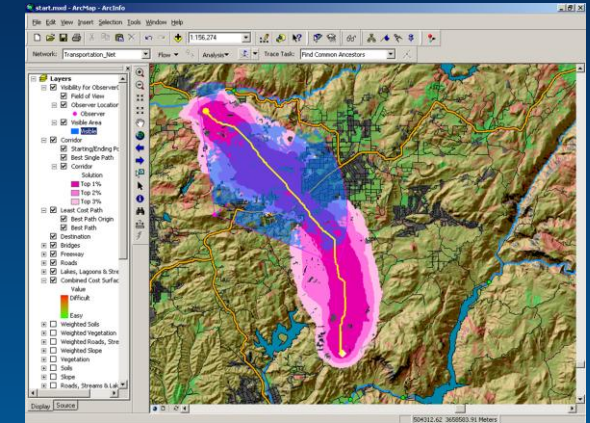
Vulnerability Assessment



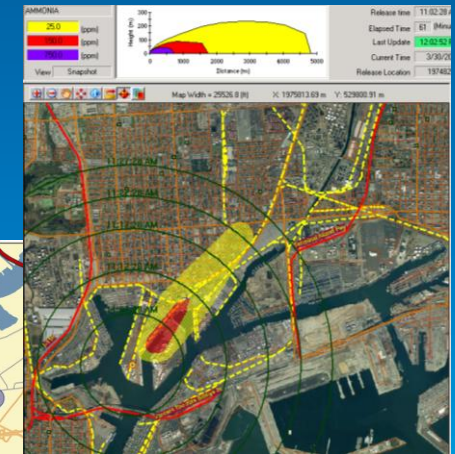
Visibility Analysis



Plume Modeling

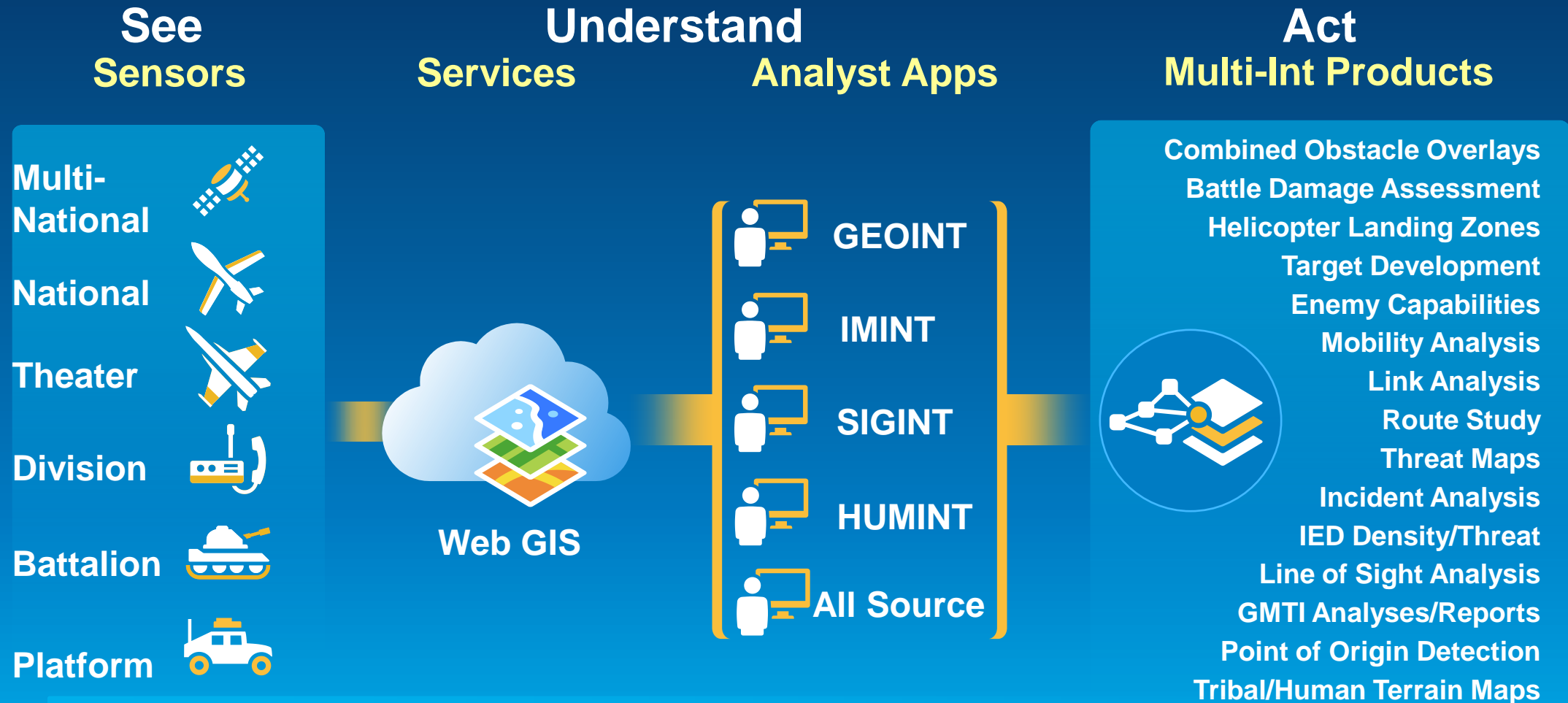


Cross-Country Movement



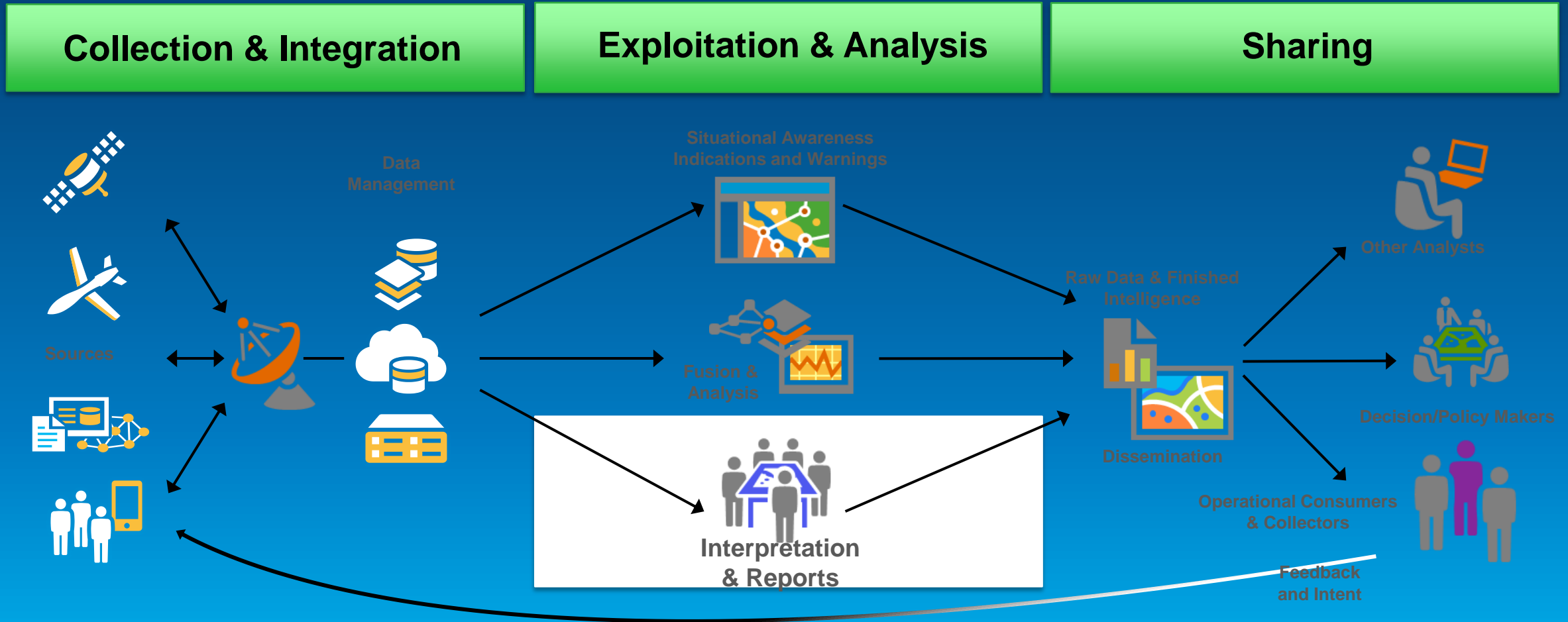
Exploitation: Machine-Generated or Human-in-the-Loop

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

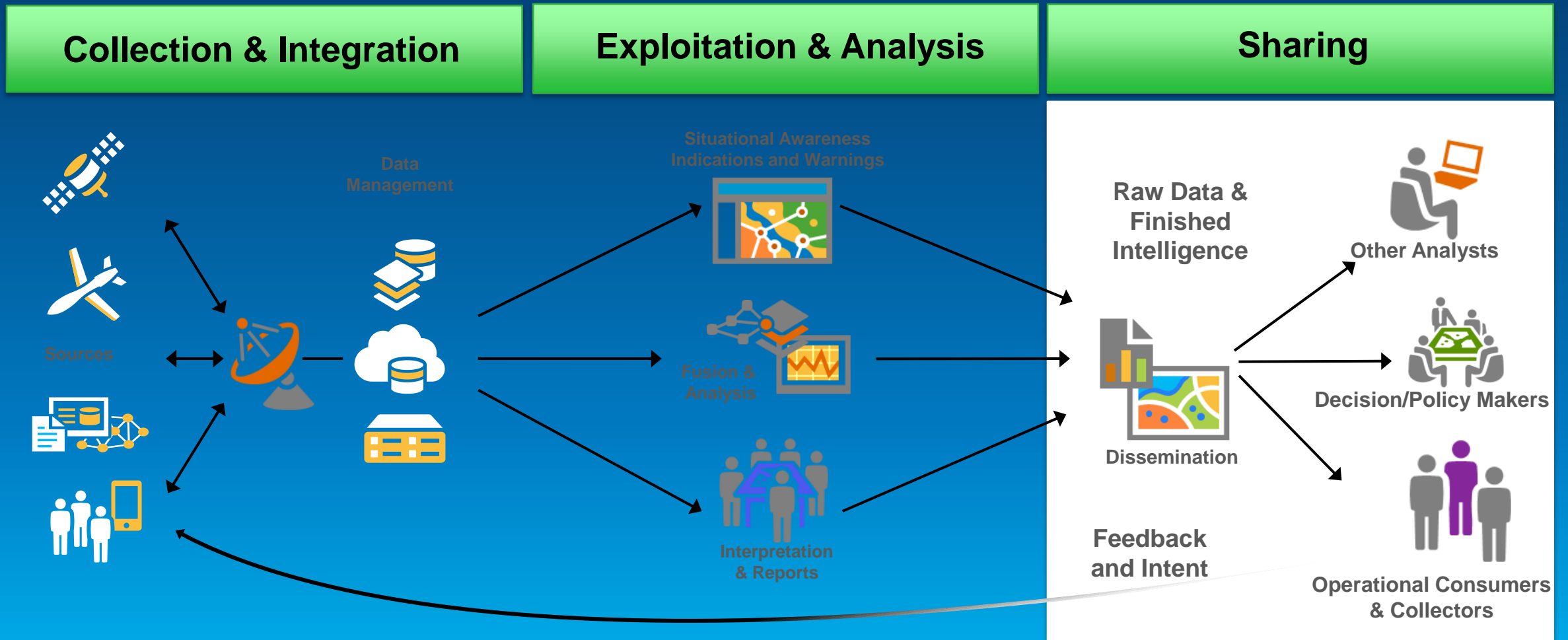


From Raw Data to Intelligence Information Products

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

Map Journal

A screenshot of a Map Journal entry. The title is "Iranian Election Violence: 2009-2010". The text describes the 2009-10 Iranian election protests. Below the text is a photograph of a street scene with a fire burning on the ground and people gathered around. The photo is credited to Wikipedia. Below the photo is a map of Tehran, Iran, with several blue location markers numbered 1 through 17. The map is overlaid on a satellite view of the city and surrounding terrain.

A screenshot of an interactive Map Tour titled "Iran Nuclear Facilities". The tour shows various nuclear facilities in Iran, including power reactors, enrichment, and weapons-related sites. The main view is a satellite image of the Bushehr Nuclear Power Plant, with labels for "Generators", "Containment Structure", and "Control Building". A text box provides information about the plant: "The Bushehr nuclear power plant is a 1000-megawatts electric (MWe) light water reactor being built in cooperation with Russia based on a contract signed in 1995. Under the terms of the contract, Russia will be responsible for operating the plant for the first few years upon its completion before passing full control to Iran. Russia agreed to supply all the enriched uranium fuel for the Bushehr plant under IAEA safeguards with the condition that Iran safely return all spent fuel to Russia." Below the main view is a map of Iran and surrounding regions, with red markers indicating the locations of the facilities. A bottom navigation bar shows 12 numbered thumbnails for different facilities: 1. Bushehr Nuclear Power Plant, 2. Tehran Nuclear Research Center, 3. Arak Heavy Water Reactor, 4. Natanz Fuel Enrichment Plant, 5. Sepahbod Uranium Mine, 6. Isfahan Uranium Conversion Facility, 7. Fordow Fuel Enrichment Plant, 8. Lashkar Abad Laser Enrichment Plant, 9. Emamshahr Alloy Enrichment Plant, 10. Natanz Uranium Enrichment Plant, 11. Parcher Military Complex, 12. Qom Research Center.

Use as visual and interactive briefing tools

... and tailored to the partner

Create multimedia stories with text, graphics and maps

Operations Dashboards

Near-Real Time, Machine Speed Intelligence for Operations

Alerts

- 182-002
- War Eagles 1 D

Significant Reports

- SPOTREP HVT 2/13/2013 19:57
- SPOTREP in TAI 2/13/2013 19:57
- SPOTREP in NAI 2/13/2013 19:56
- SPOTREP in TAI 2/13/2013 19:54
- SPOTREP in NAI 2/13/2013 19:50
- SPOTREP in NAI 2/13/2013 19:45
- SPOTREP in TAI 2/13/2013 19:43
- SPOTREP HVT 2/13/2013 19:43

SITREPs

- 2-1 Commander's Assessment A
- 2-3-B-1 Commander's Assessment A
- 2-2 Commander's Assessment B
- 2-2-B Commander's Assessment B
- 2-2-A Commander's Assessment B
- 2-1-B-2 Commander's Assessment A
- Commander's Assessment A
- Commander's Assessment A

SITREP Details

2-1

As at 2/13/2013 19:56:

Overview: Situation remains largely stable; increasing evidence of insurgent activity to W

Activity: Conducting security operations

Effectiveness: A

Own Situation: HQ element based at FOB Nurestan; Companies deployed at COP NILAW and WAMA

Last 24

S3: Conducting surveillance ops on W boundary; security ops on convoys in AO

S2/ISR: Request additional UAV or recon elements to address gaps in coverage

S4: Shortfall in spares for routine maintenance; 3 ICV U/S

Ships entering Atlantic and Pacific approaches

- 2/6/2014 12:19 MERO Entered at Pacific
- 2/6/2014 12:14 CONGO Entered at Pacific
- 2/6/2014 11:30 SMIT CRISTOBAL Entered at Pacific
- 2/6/2014 11:28 D ARTAG&L Entered at Pacific

Days of Supply

Category	Days of Supply
Tank	7
MLRS	7
Carbine	4.7
Tank	4.7
Oil	3.5
Food	2.3
Oil	2.3
Non-potable Water	1.8
Food	1.2
Missile Systems	0

Class 2 stock levels that will be depleted before next resupply

Armour	40.00%	Munitions	113.33%
Infantry Weapon	30.00%	Artillery	75.00%
Medical	133.33%	Aircraft	100.00%
Radar	0%	Subsistence	20.00%
Vehicle & Logistics	200.00%	Personnel	133.33%
NBC	0%		

Connecting Intelligence and Operations

Highway SITREPs

- 4-1-C - Potholes make route awkward for non-tracked vehicles
- 4-2-B - Section under major current threat from enemy

Log Report Overviews

- 1-1 - High expenditure of mortar rounds on insurgents firing towards perimeter fence. Required on hand total exceeded.

Sharing With The Public – NGA Ebola and Nepal Support

COTS-Based Unclassified Open Community GIS Portal



NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY
KNOW THE EARTH... SHOW THE WAY... UNDERSTAND THE WORLD

Map Journal
Ebola Support Map Products

▶ **NGA**

To help combat the spread of the Ebola virus disease, the National Geospatial-Intelligence Agency is providing [online access](#) to its unclassified geospatial intelligence products to lead federal agencies and their partners.

[CLICK HERE for a list of all NGA Public Ebola Products.](#)

Disclaimer: This resource is being made available to United States government agencies and departments needing geospatial analysis of locations and activities in Western Africa. This web service includes both open source public data and public NGA data. These services accessed via ArcGIS, a publicly available service.

Navigation: Nepal Earthquake, EBOLA SUPPORT



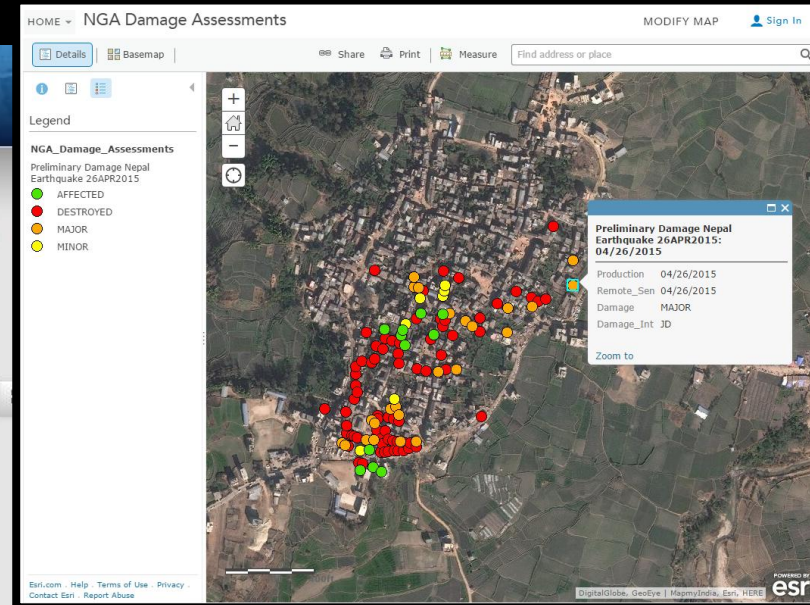
NGA Nepal Earthquake Support Content

Group that contains the Nepal Earthquake Content that is exposed in the Featured content gallery

Search maps

NGA Nepal Web Maps

NGA Nepal Earthquake Support Content



<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.