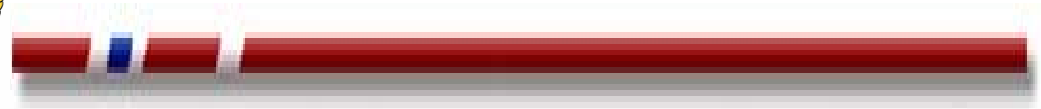




The Overall Classification of this Briefing is:
UNCLASSIFIED



*Maritime Domain Awareness:
The Missing Piece of the Security Puzzle*

NDIA/HIS Port Security

Mr. D.A. Goward, Director USCG MDA

30 March 2006



Willing to strike ...

Vessels as:

- Direct Weapons
- Delivery of WMD
- Delivery of Terrorists
- Targets

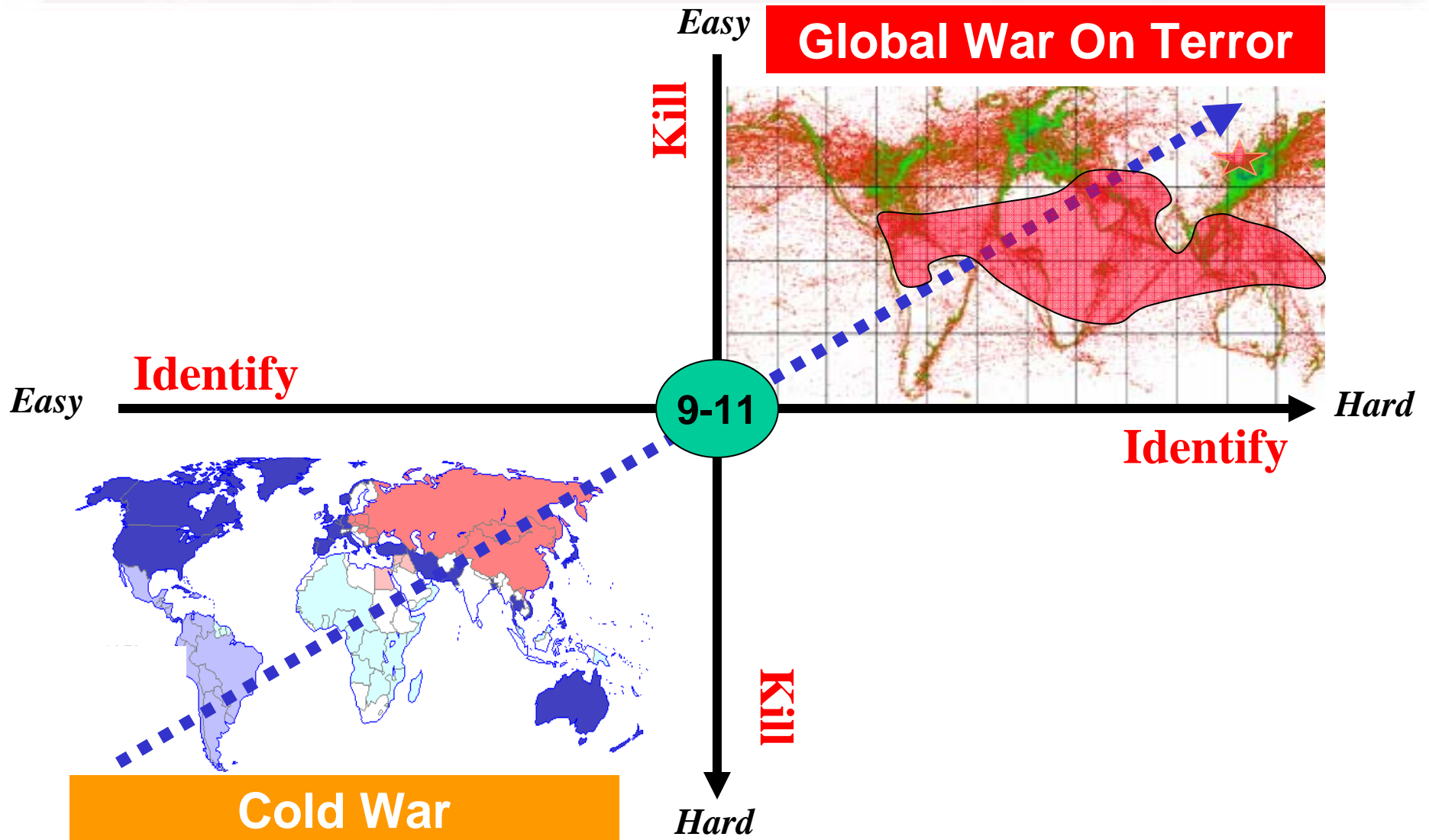
US Maritime interests:

- High economic impact
- Much critical infrastructure
- Near large, dense population centers





The New Competitive Landscape



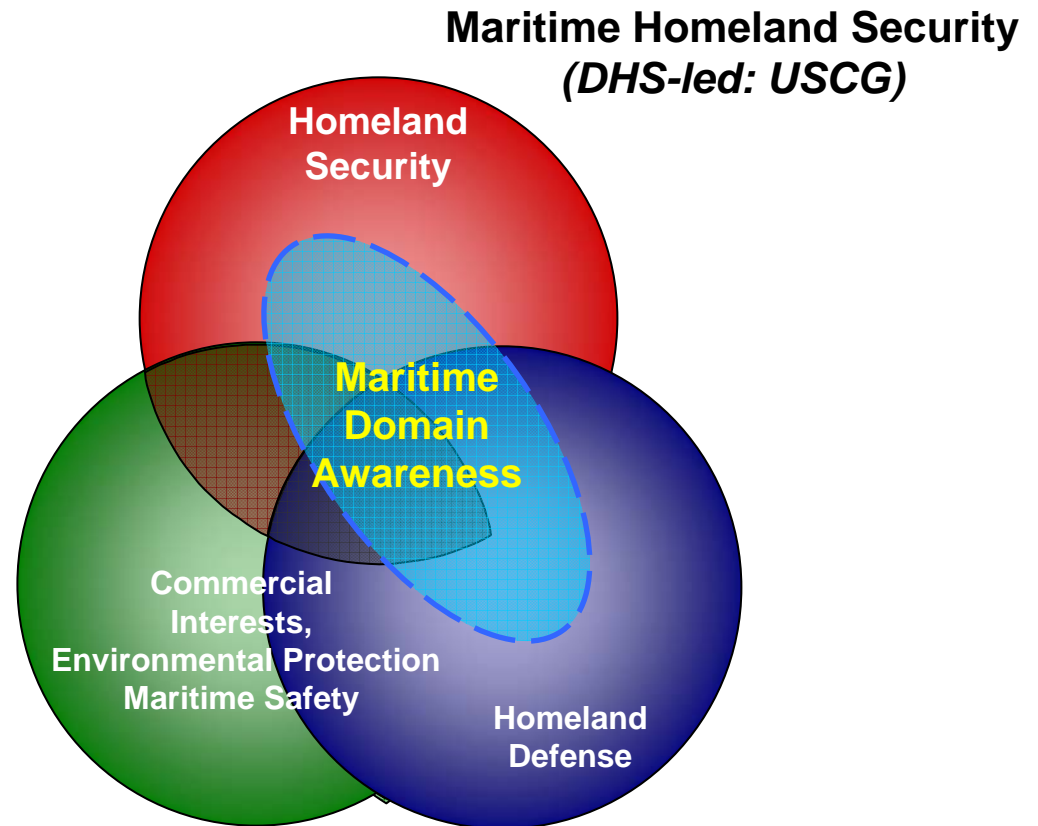
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MDA Defined

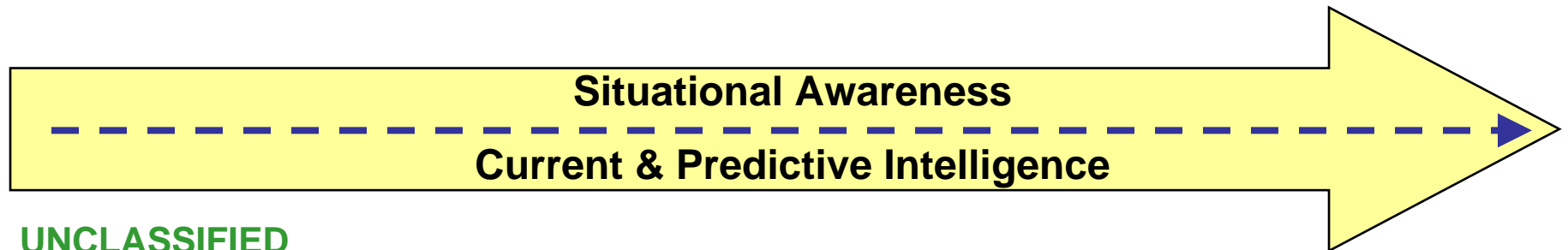
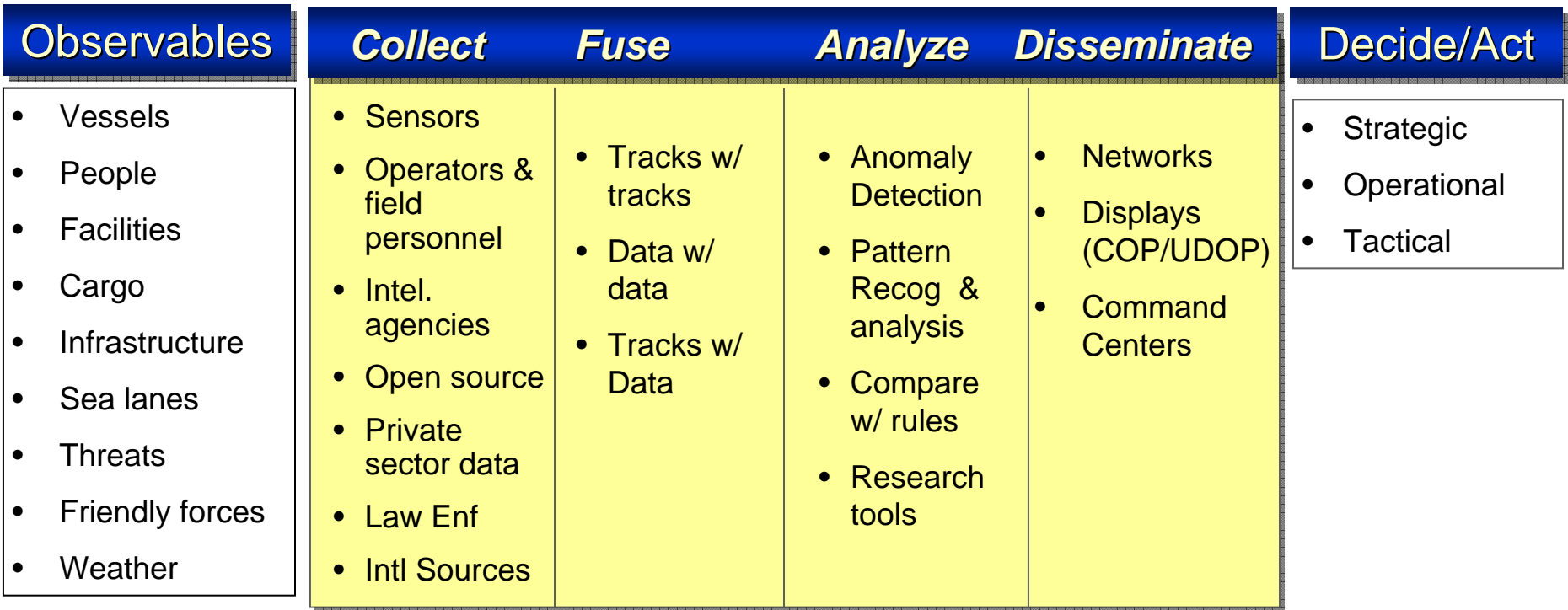
“...the effective understanding of anything associated with the global Maritime Domain that could impact the security, safety, economy, or environment of the United States.”

▪ NSPD 41 / HSPD 13, 21 Dec 04





Maritime Domain Awareness

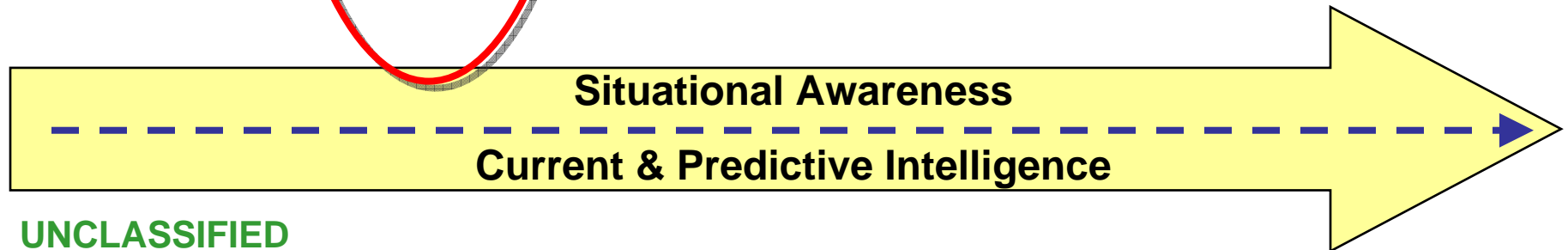


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Maritime Domain Awareness

Observables	Collect	Fuse	Analyze	Disseminate	Decide/Act
<ul style="list-style-type: none"> Vessels People Facilities Cargo Infrastructure Sea lanes Threats Friendly forces Weather 	<ul style="list-style-type: none"> Sensors Operators & field personnel Intel. agencies Open source Private sector data Law Enf Intl Sources 	<ul style="list-style-type: none"> Tracks w/ tracks Data w/ data Tracks w/ Data 	<ul style="list-style-type: none"> Anomaly Detection Pattern Recog & analysis Compare w/ rules Research tools 	<ul style="list-style-type: none"> Networks Displays (COP/UDOP) Command Centers 	<ul style="list-style-type: none"> Strategic Operational Tactical



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Collect – Vessel Tracks

		LARGE (> 65')			MEDIUM (25' - 65')			SMALL (< 25')		
		COOP	EMIT	DARK	COOP	EMIT	DARK	COOP	EMIT	DARK
Shore (12 nm)	In Place	1	2	2	3	2	2	3	2	2
	Available									
	Risk									
Approaches (12 - 90 nm)	In Place	1	7	7	7	7	7	7	7	7
	Available									
	Risk									
Off Shore (300 nm)	In Place	9	9		9	9				
	Available									
	Risk									
Global Maritime Domain	In Place	9	9		9	9				
	Available									
	Risk									

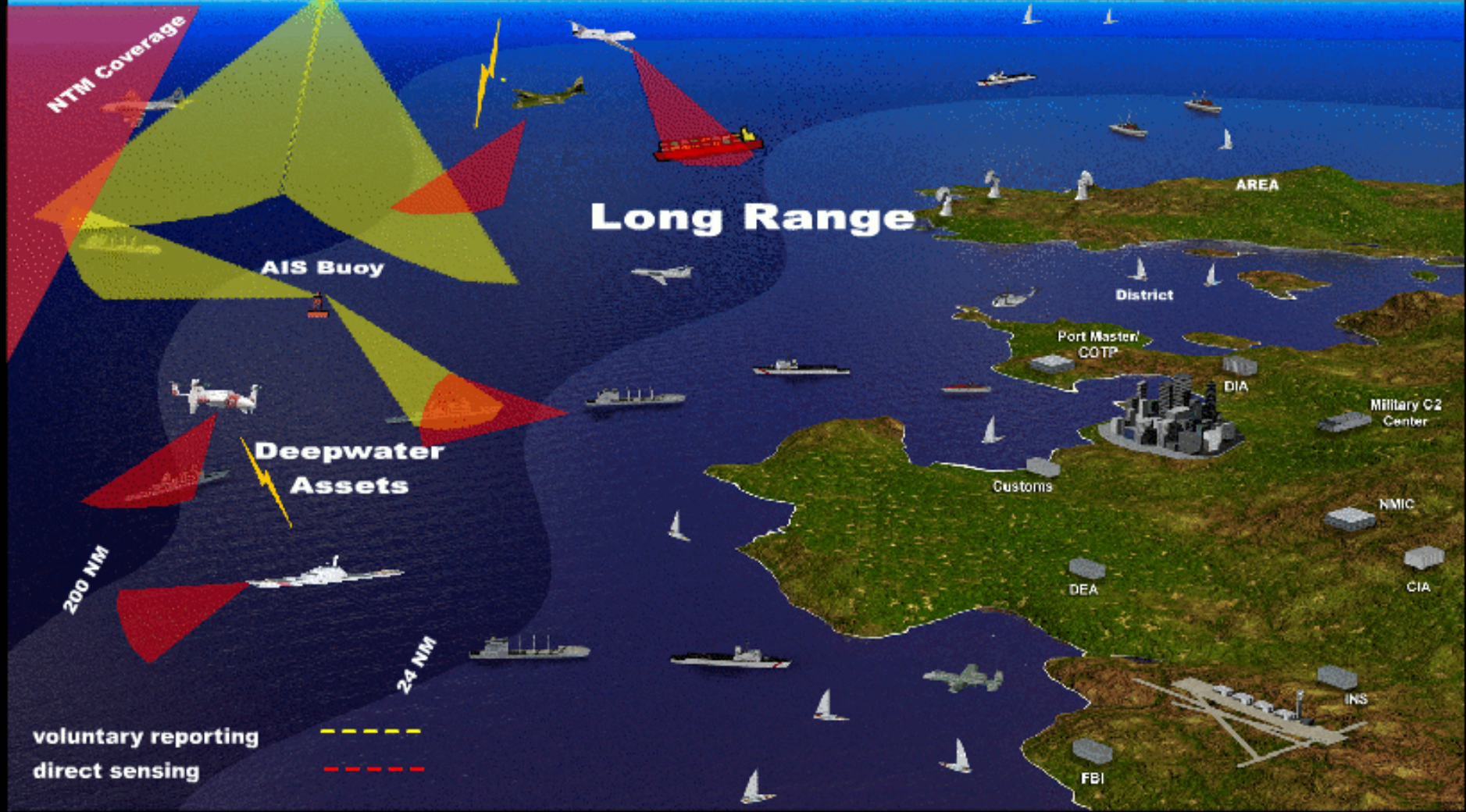
- 1 Coastal / National land based AIS receivers and data fusion
- 2 No extensive coastal radar systems deployed except around VTS and Hawkeye / JHOC ports
- 3 No AIS or other beacon requirement for smaller than SOLAS - technology is readily available
- 7 No persistent sector surveillance capability today
- 9 National Technical Means



NAIS \$0.5M - per year
Both Oceans 2X per day
est. June 2006

IMO-LRIT \$0.7 - 7M - per year
On Demand
est. January 2008

Collect



Long Range Tracking
Beyond - 24 NM

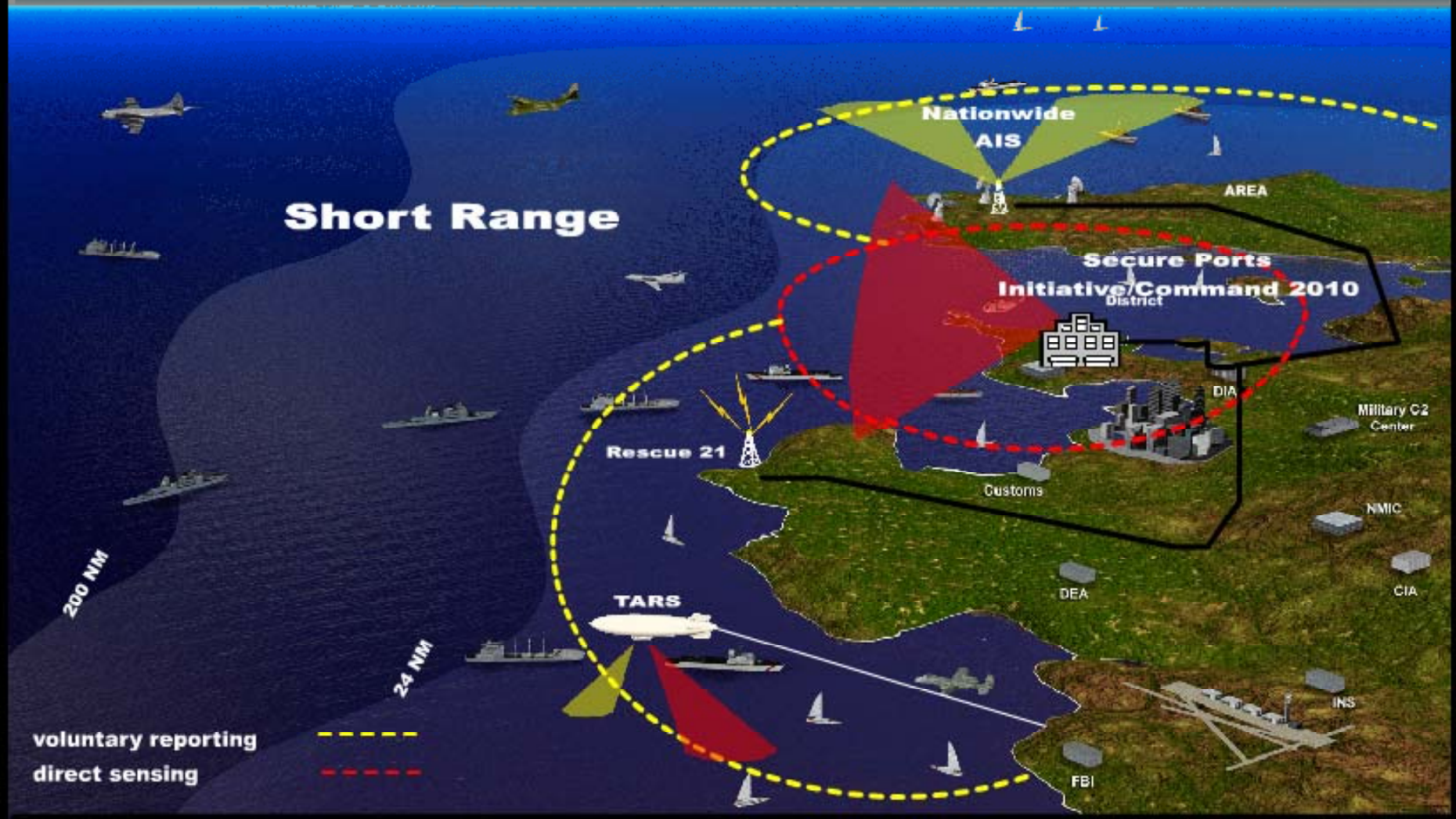
Short Range Tracking
24 - 0 NM



Collect



Short Range



voluntary reporting
direct sensing



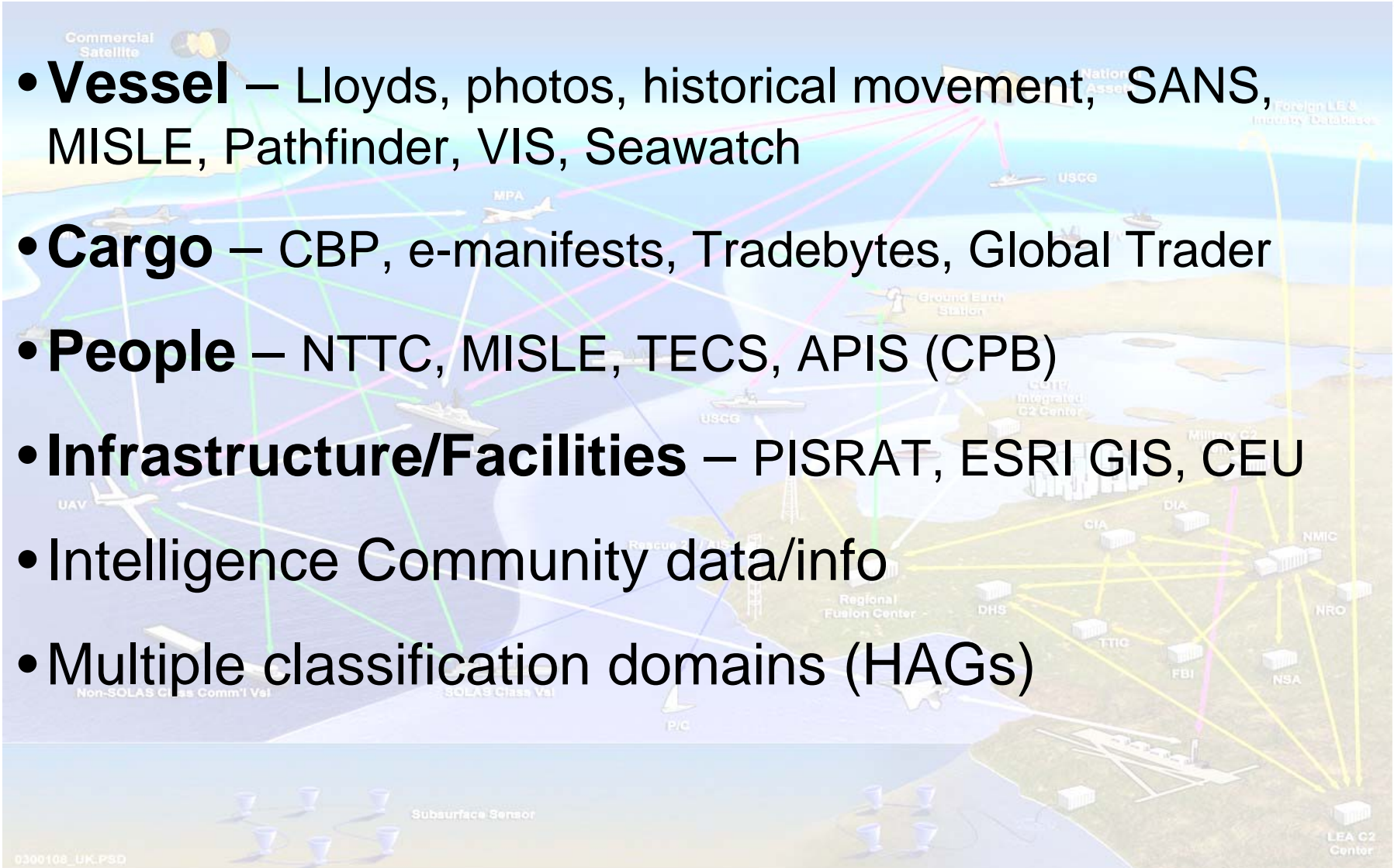
**Long Range Tracking
Beyond - 24 NM**

**Short Range Tracking
24 - 0 NM**



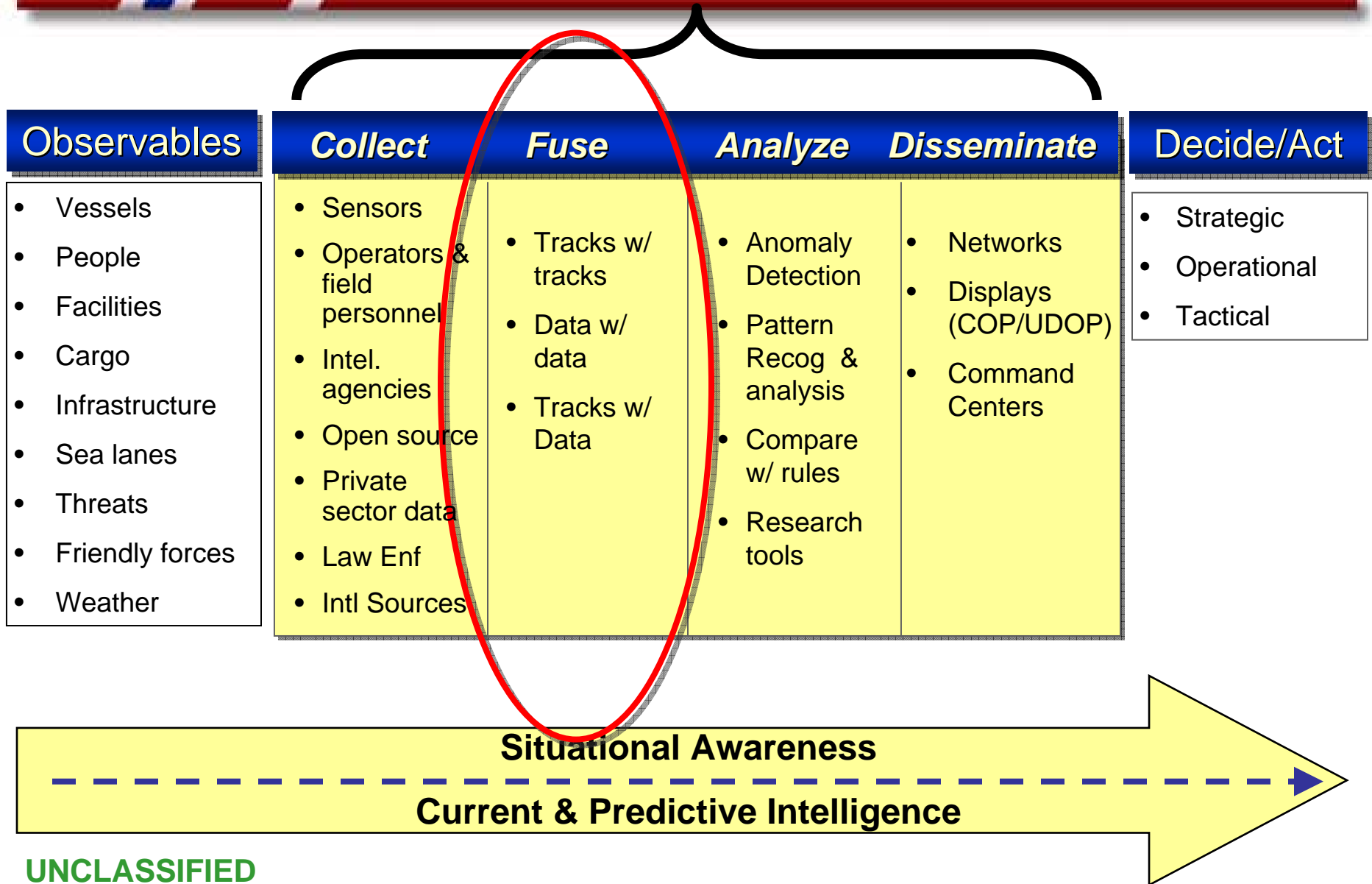
Collect – Data Sources

- **Vessel** – Lloyds, photos, historical movement, SANS, MISLE, Pathfinder, VIS, Seawatch
- **Cargo** – CBP, e-manifests, Tradebytes, Global Trader
- **People** – NTTC, MISLE, TECS, APIS (CPB)
- **Infrastructure/Facilities** – PISRAT, ESRI GIS, CEU
- Intelligence Community data/info
- Multiple classification domains (HAGs)





Maritime Domain Awareness



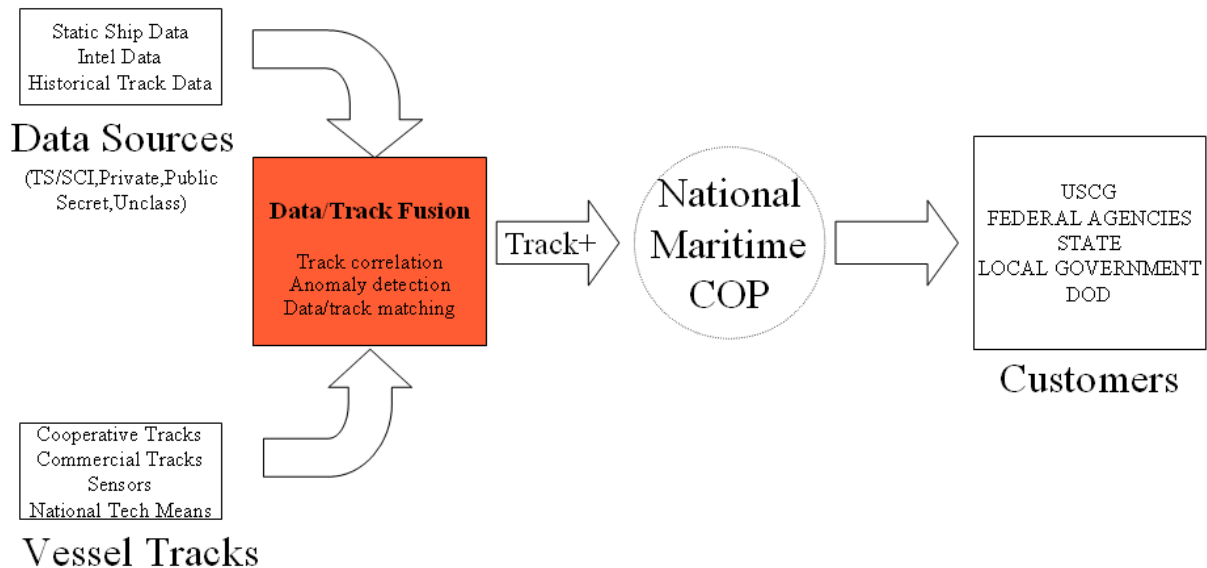


Fuse

“The process of combining data or information to estimate or predict entity states.”

Revision to the JDL Data Fusion Model, 1998 NATO/IRIS Conference

- **Detect and track maritime objects**
 - **Data Discovery**
 - **Separate the noise from the signals**
- **Combine data sources**
 - **Public**
 - **Commercial**
 - **Government**
- **Identify Threats**
 - **Fusion**
 - **Anomaly detection**
 - **Alerts**



Vessels, Cargo, People, Infrastructure



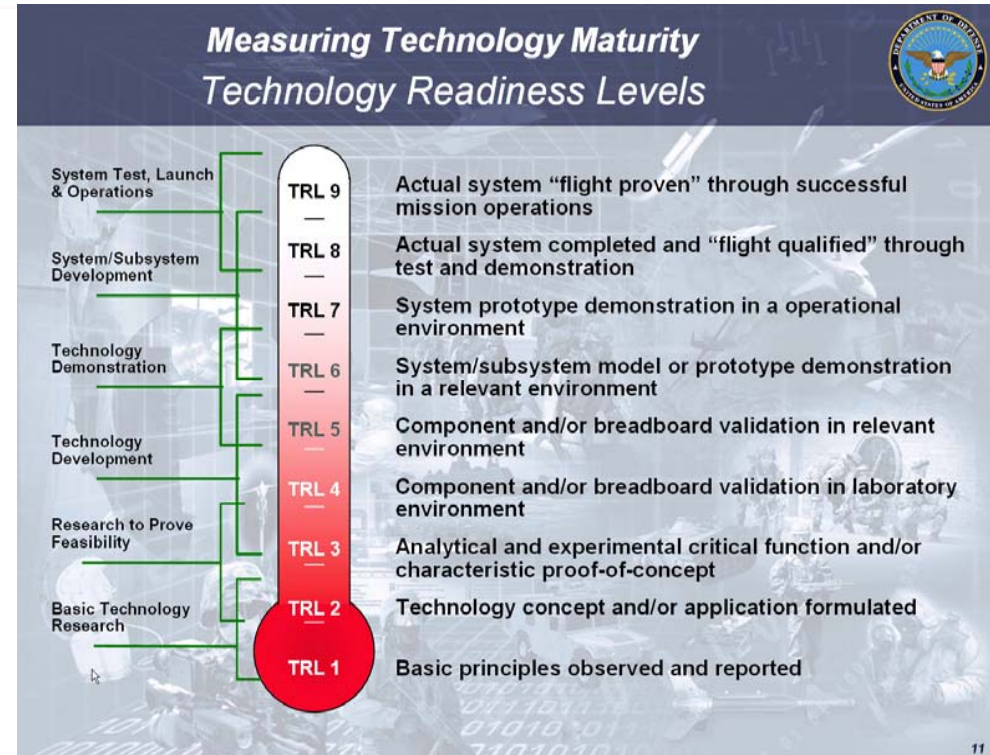
Fusion - Operational to System Functionality Matrix



Multi-INT Data Fusion: Operational Capability to System Functionality Matrix

Feb 13, 2006, Ver 10.7

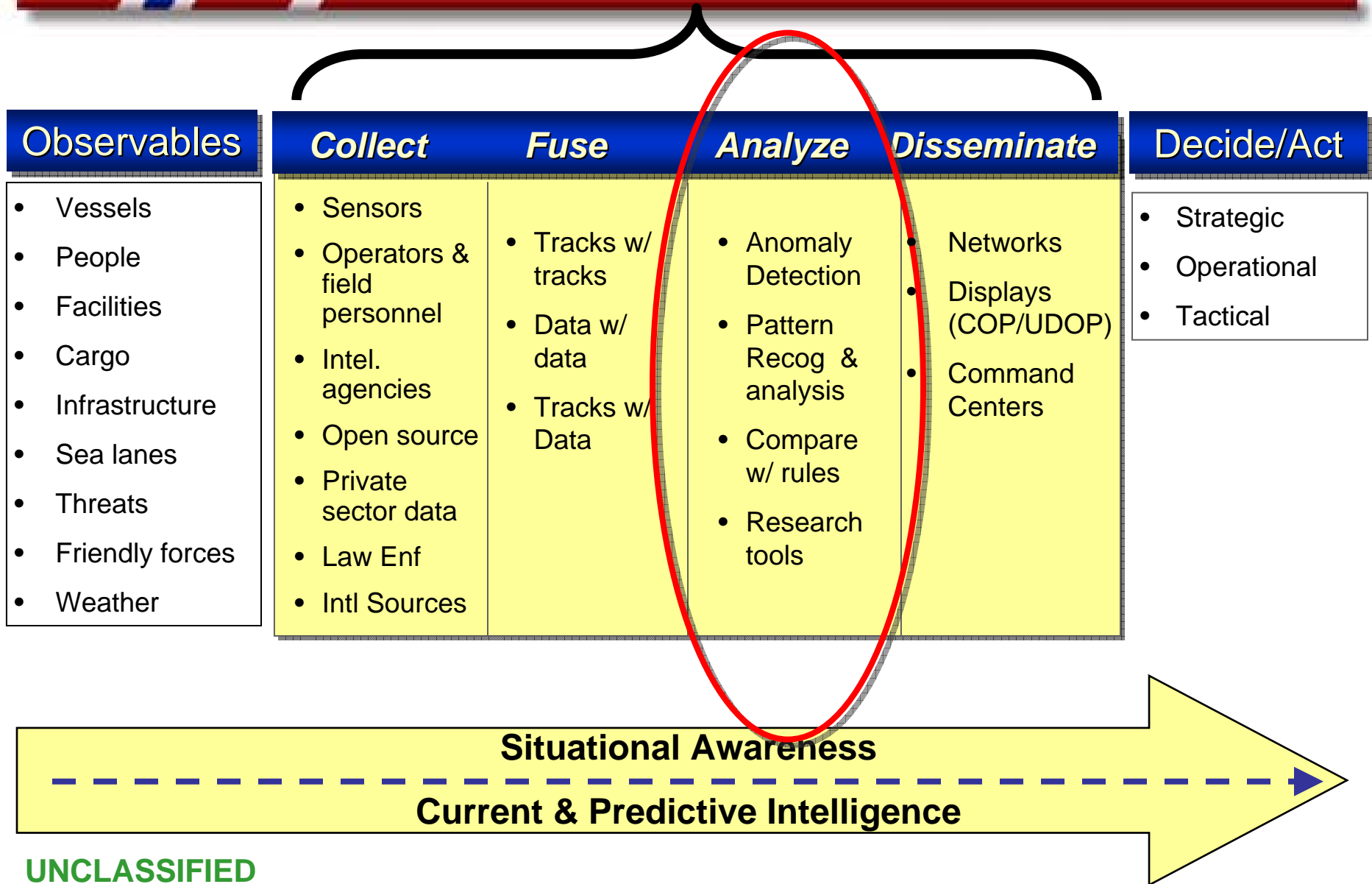
	Detect, identify, and track individual entities of interest				Assess and describe communities and processes of concern involving maritime entities (vessels, cargo, people)			Determine and assess threat level of maritime entities (vessels, cargo, people)	
	Detect, Identify, and Track (vessel(s))	Identify and Track Cargo	Identify and Track People	Generate Associations	Identify Association Clusters	Analyze Associations to Identify COC/POC/Recognize Anomalous Behavior in the Context of Normal	Identify All Entities Associated with Threat		
Data Processing/Analysis									
Associate Similar Data Types									
Associate Dissimilar Data Types									
Automatic Data Registration									
Process Unstructured Textual Data									
Semantic Processing/Analysis									
Entity Analysis									
Process Kinematic Data									
Process Attribute and Feature Data									
Generate Alternate Hypotheses									
Automatic Identification									
Automatic Track Generation									
Provides Track Quality									
Provides Confidence Levels									
Process Vessel Data									
Process Cargo Data									
Process People Data									
Situation & Threat Analysis									
Co-Process Textual and Other Data									
Prediction									
Generate Alternate Hypotheses									
Provides Confidence Levels									
Process Political and Economic Data									
Process Physical Environmental Data									
Automatic Anomaly Detection									
Automatic Threat Identification & Classification									
Multidimensional Analysis									
Contextual Analysis									
Semantic Processing/Analysis									
Ontology-based Processing/Analysis									
Operator Alerts for User-Defined Requests									
Multidimensional Analysis									
Data Mining									
Spatial Analysis									
Temporal Analysis									
Spatiotemporal Analysis									
0	Functionality not developed								
1	TRL 1-3								
2	TRL 4-6								
3	TRL 7-9								



- Generated for each fusion project
- Government and Industry projects
- Attributes (rows) help categorize fusion automation capabilities



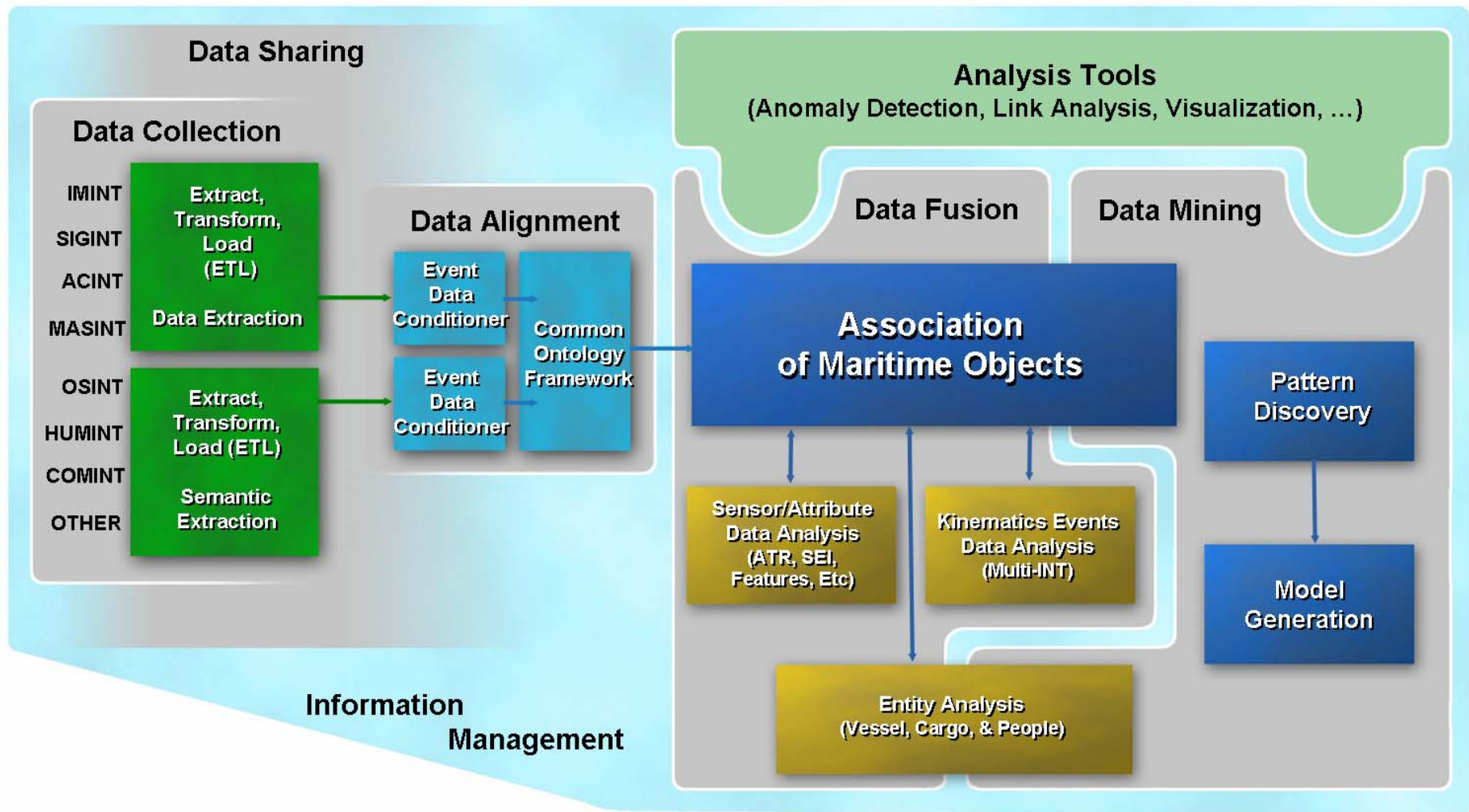
Maritime Domain Awareness



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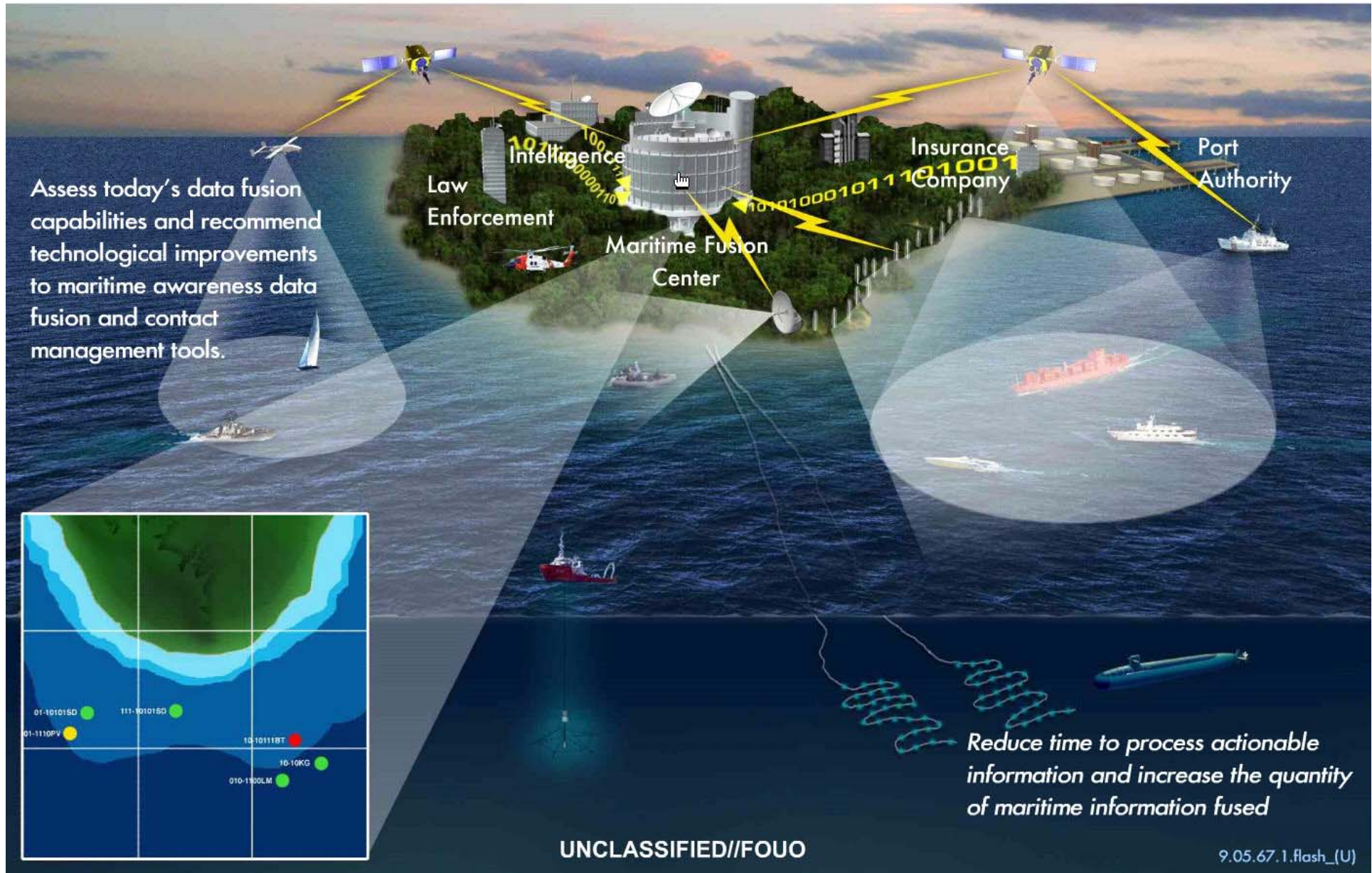
Notional CG Enterprise Framework



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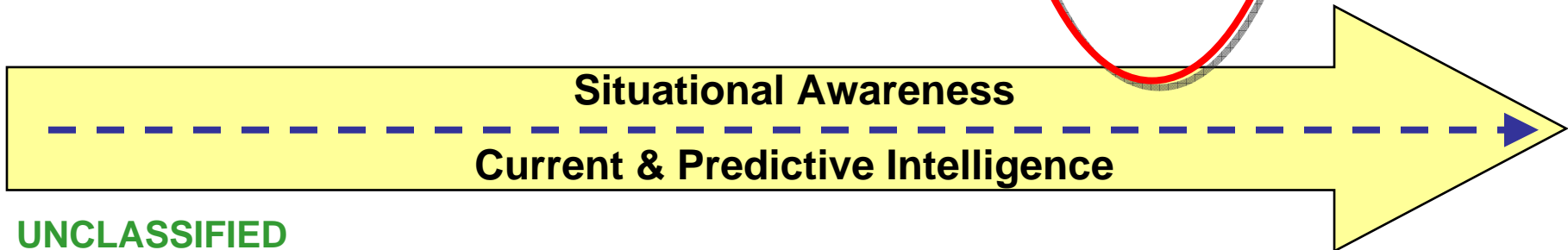
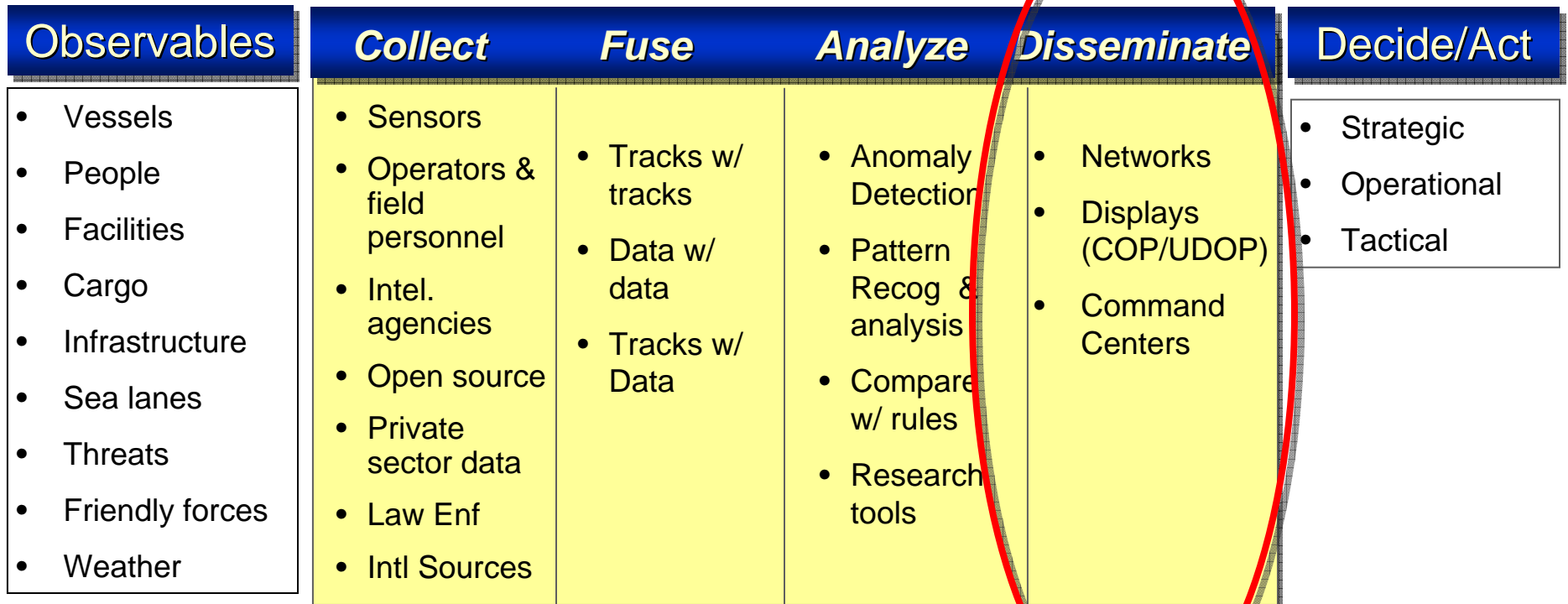


Fuse & Analyze





Maritime Domain Awareness



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Disseminate - Networks



- CGDN+/ DHS One Net
- SIPRNET
- JWICS
- Broadcasts
- IWN
- Internet
- MAGNet/ High Assurance Guards



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Disseminate – COP/ UDOP



WebCOP 1.0(e) - Microsoft Internet Explorer provided by United States Coast Guard

WebCOP 1.0(e)

Zoom In

ISLAND GIRL
AIS: 235847000
AIS: 811508000
AIS: 311508000

DEBOSTRE THE
CHRISTY CHRISTY
CHRISTY CHRISTY
MARS CLYDE
EAGLE
BUCCANEER
AMY A BOSS LADY
DRAKE RIANDA
SKIFF II BOYS
JO ANN B
ST ANDREW ANNA MARIE
LADY SUSIE II
HELEN W SMITH
HELEN W SMITH
SEATTLE ENTERPRISE
OUTLAW
BOBALOU BOBALOU
AAA
FINEST
DIANA ANNA T CHAZ ST JAY SHARON G II
SHARON G II
SEA BOUND
ST JAMES
UNNAMED UNNAMED

CG COP Portal - Sensitive But Unclassified (SBU) Fri Feb 10 08:22:28 2006

Tracks_Labels_5M
Layers

Visible Active

- Vessels
- Refresh Map

Map Services

Visible Active

- Tracks_Labels_5M
- MSN_World

Service Info

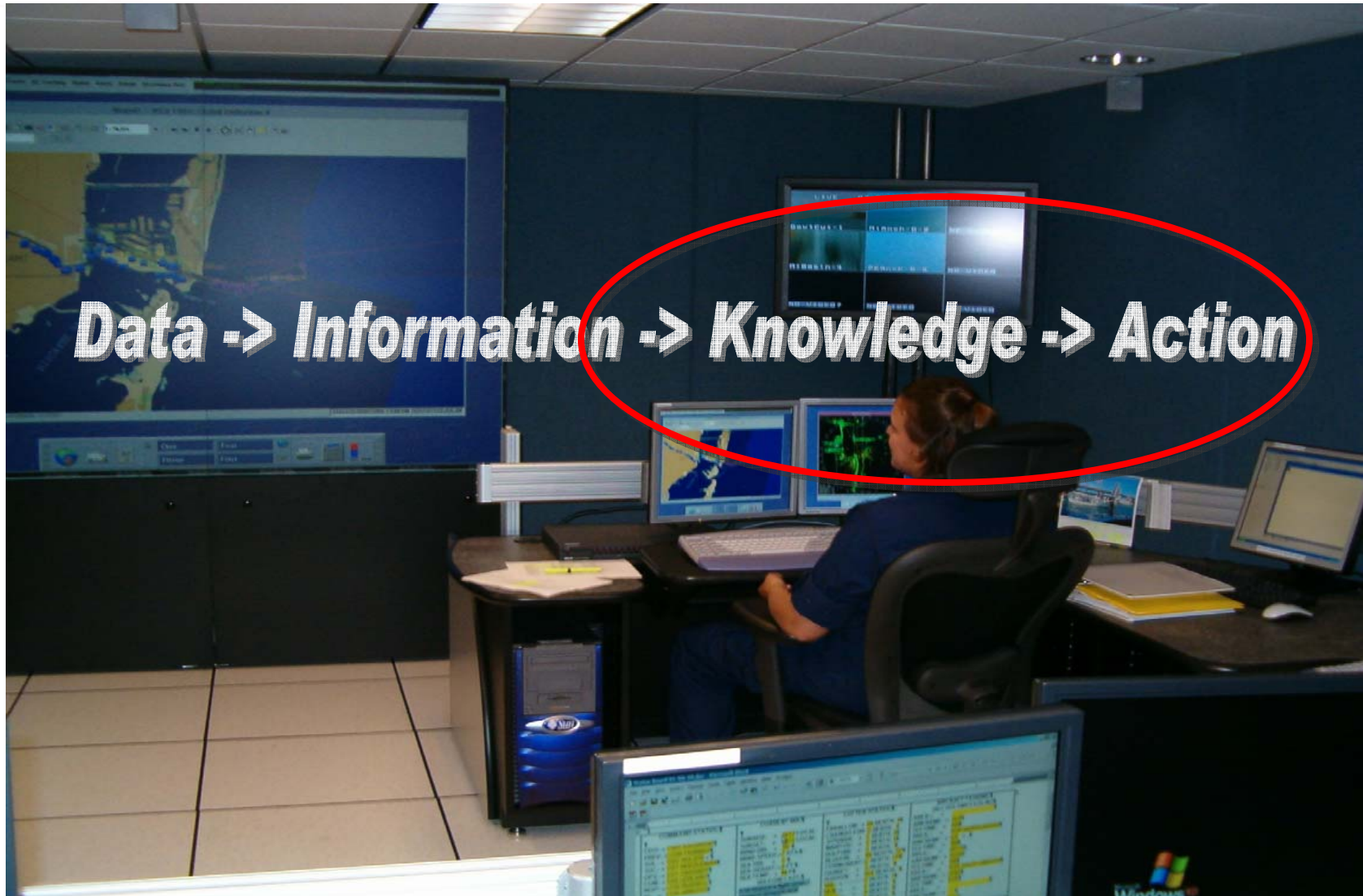
Zoom In

Internet

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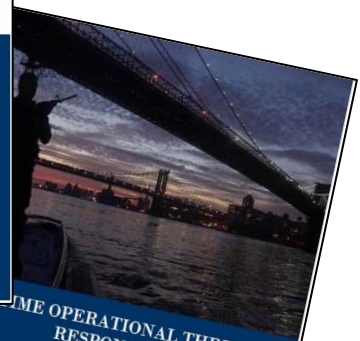
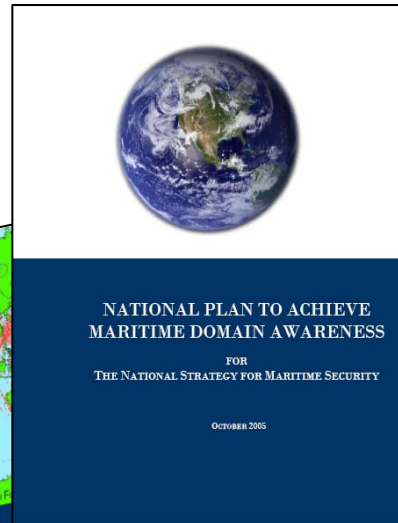
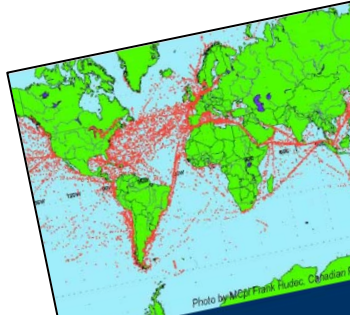
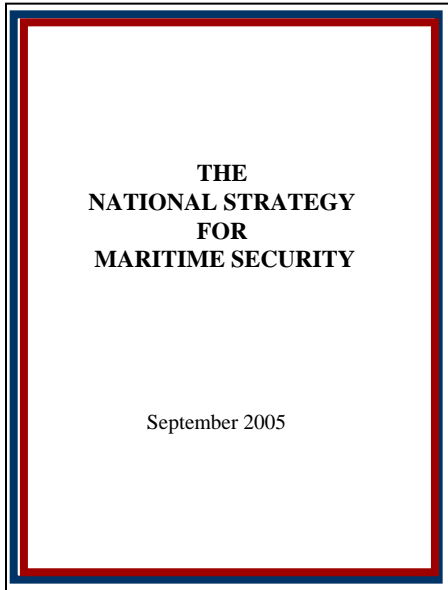
Disseminate – Command Centers



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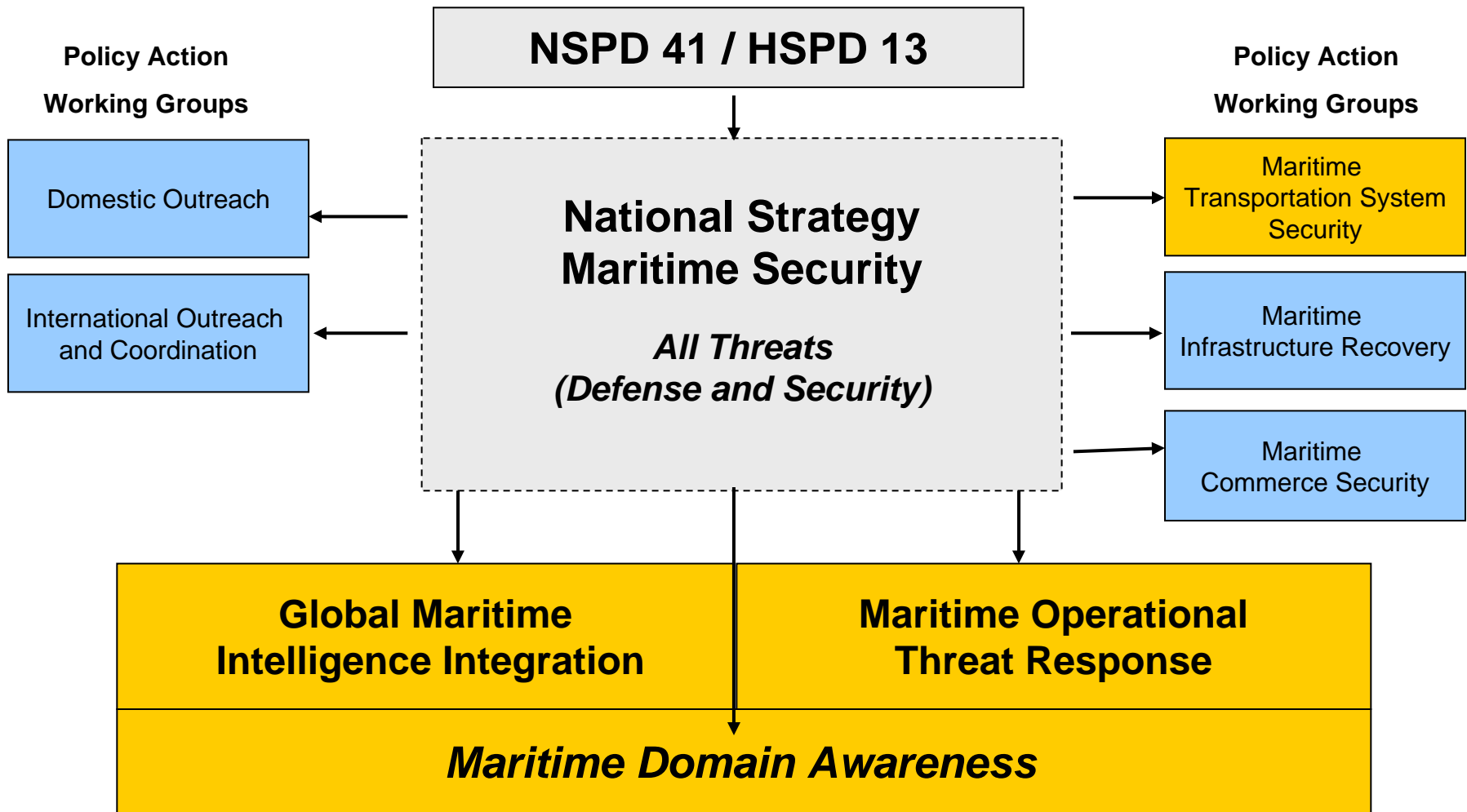
National Strategy for Maritime Security



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Maritime Security Policy and MDA

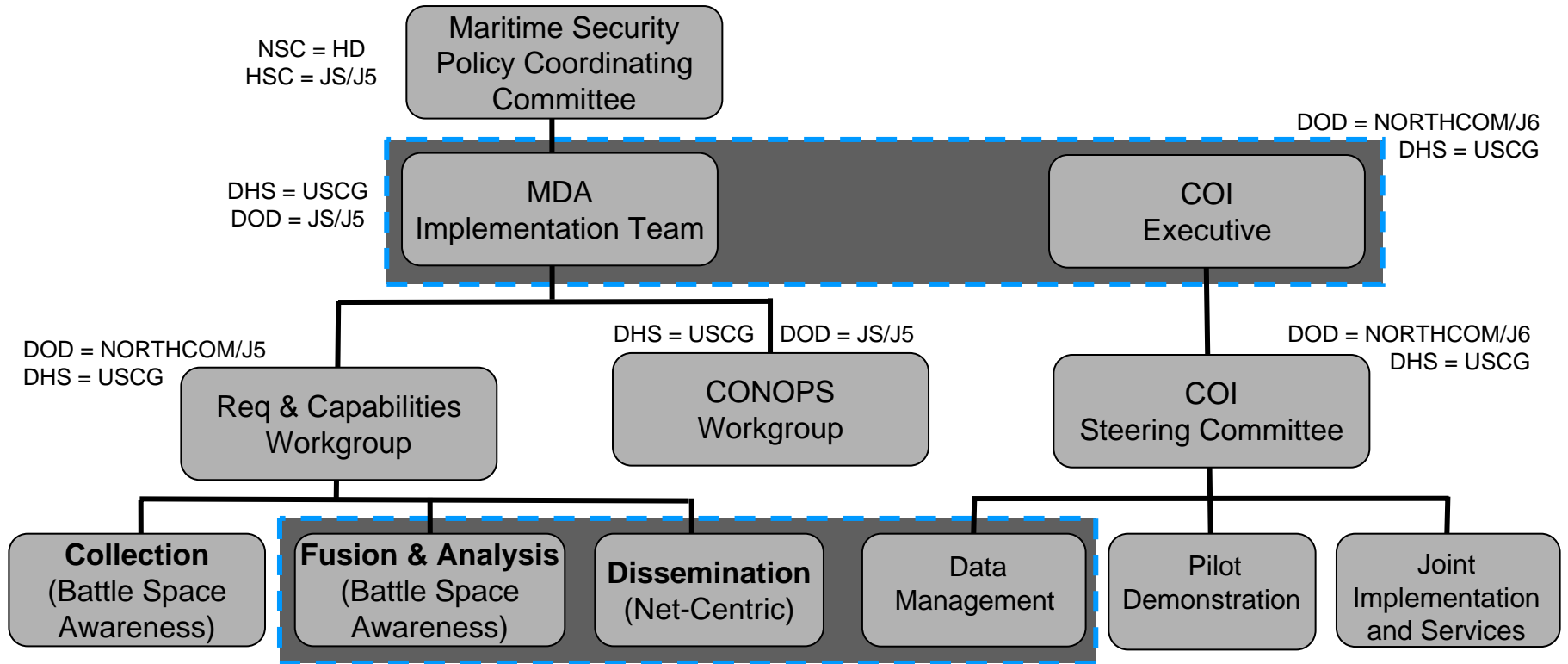


Requires Unity of Effort

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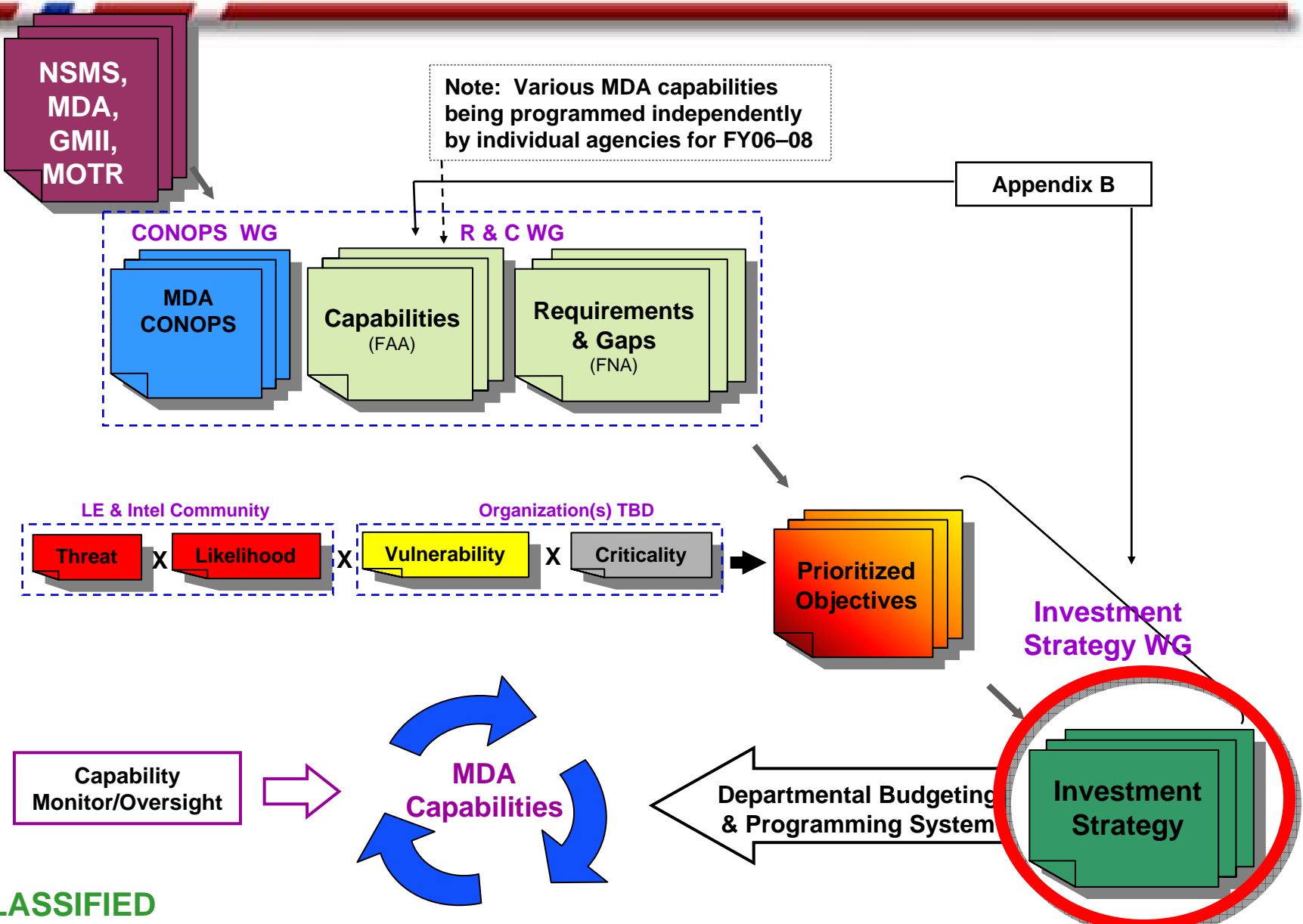
National MDA Implementation



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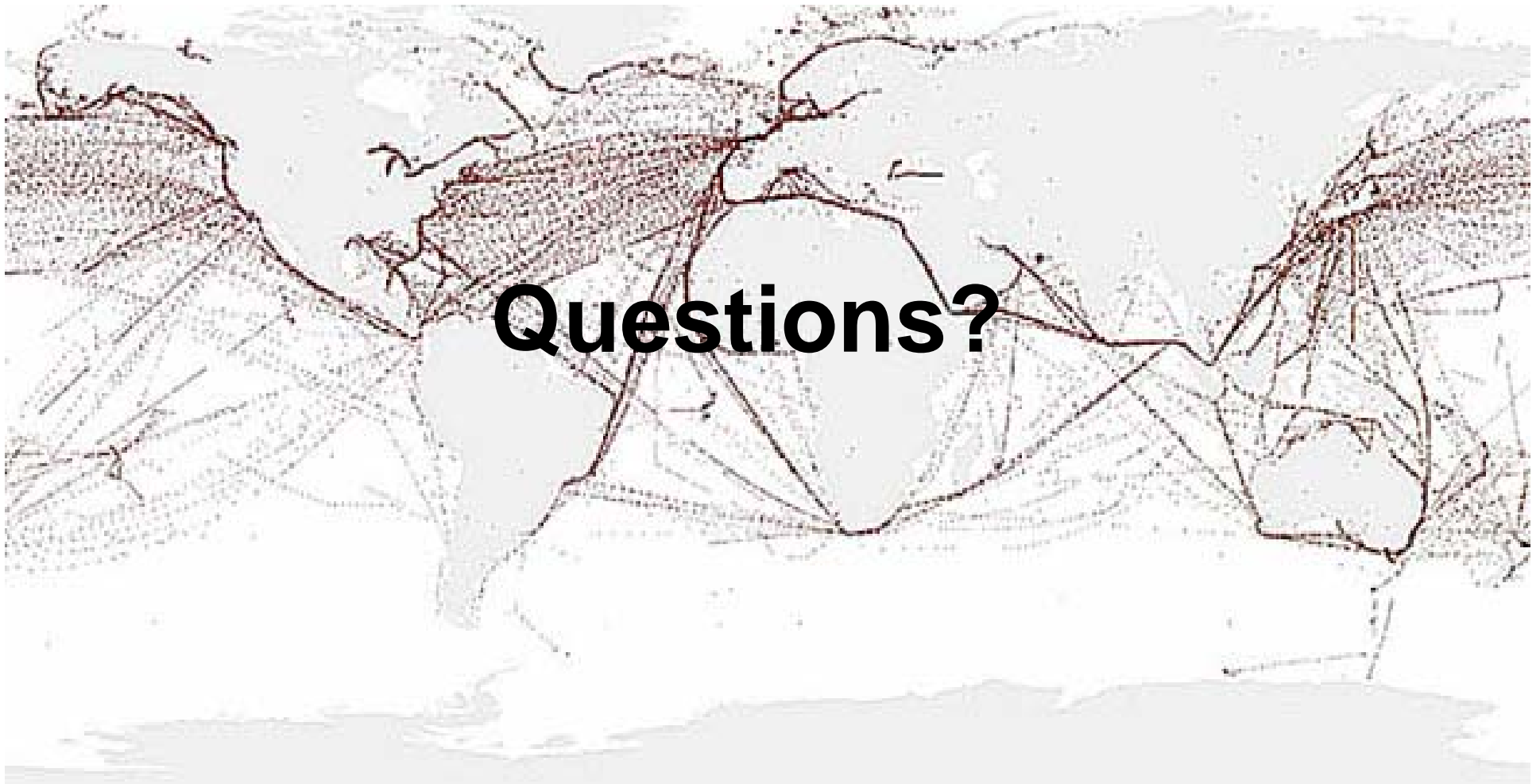
National MDA Implementation Process



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MDA – Connecting the Dots



Questions?

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Collect



Latitude: 18° 52' 00" N Longitude: 107° 00' 00" W
Altitude: 0 m Elevation: 0 m

Latitude: 18° 52' 00" N Longitude: 107° 00' 00" W
Altitude: 0 m Elevation: 0 m



Fuse & Analyze

Vessel Activity Tracker

MAGNET Portal
 Vessel Activity Tracker (Ever Ref)
 Vessel Name: Ever Refine
 IMO: 9305142
 Agency: EBA
 Activity No.: 05432005
 Last Date: 05/10/2005

COPT Security Plan
 Arrival Checklist
 SANS Complete
 Arrival Notice
 Crew List
 Cargo Information
 Active Vessel in MSLLE
 Vessel Critical Profile
 UNK D9 Banned
 STCW Lists
 ISM
 ISM
 DOC
 ISCC
 Yes
 No

MAGNET Vessel Profile
 Ever Refine
 Currently at Sea | Arrival Information: Next Port - Boston - March 10, 2005 @ 15:30

Vessel Information
 General Vessel Data
 Characteristics Features
 Recognition Characteristics
 Cargo Capacity Characteristics
 Engine and Propulsion Detail
 Miscellaneous Vessel Data

Position Information
 Date: March 21, 2005
 Latitude: 42°N
 Time: 1400
 Longitude: 71°W

Vessel Status
 4153 Vessel Score: 2
 504153 EBA Safety Targeting Score: 4
 504153 EBA Safety Targeting Score: 4
 Port of Call: 100%
 Knowledge: 100%
 High Interest Party: 100%
 No. of Parties: 24
 Response: 100%

Arrival/Departure
 Notice of Arrival/Departure
 Certificate of Financial Responsibility
 Vessel Critical Profile
 Vessel Response Plan

MAGNET's Vessel Profile

- Vessel profile provides correlated, consolidated vessel information
- Vessel Status
 - Significant MDA information
- Arrival / Departure
 - NOA
- Vessel I
 - Gen
 - feat
 - engi
- Position
 - Defi
- Voyage
 - Schu

Notice of Arrival Support

MAGNET Portal
 Boston Marine Inspection Zone and Captain of the Port Zone | March 9, 2005 @ 13:00

Vessel Name	Board Score	Arrival/Departure Information Available				Activity Tracker
Ever Refine	2	NOA	COFR	VCP	VRP	View
Wonder		NOA			VRP	View
Super Size			COFR			View
Escape			COFR			View
Azure Sea	1.2	NOA	COFR	VCP	VRP	View
Lady J	1	NOA	COFR	VCP	VRP	View
Substation	1	NOA	COFR	VCP	VRP	View
Trident		NOA	COFR			View
Discovery		NOA		VCP		View

Map of Boston
 Click on Position Above to View Vessel Status

NOAD Support

- Ability to display
 - Notice of Arrival
 - Cert of Financial Responsibility
 - Vessel Critical Profile
 - Vessel Response plan
 - Activity Tracker
- Port map display
 - Visual representation
 - latest position report
 - vessel security status
 - User selectable dates

MAGNET

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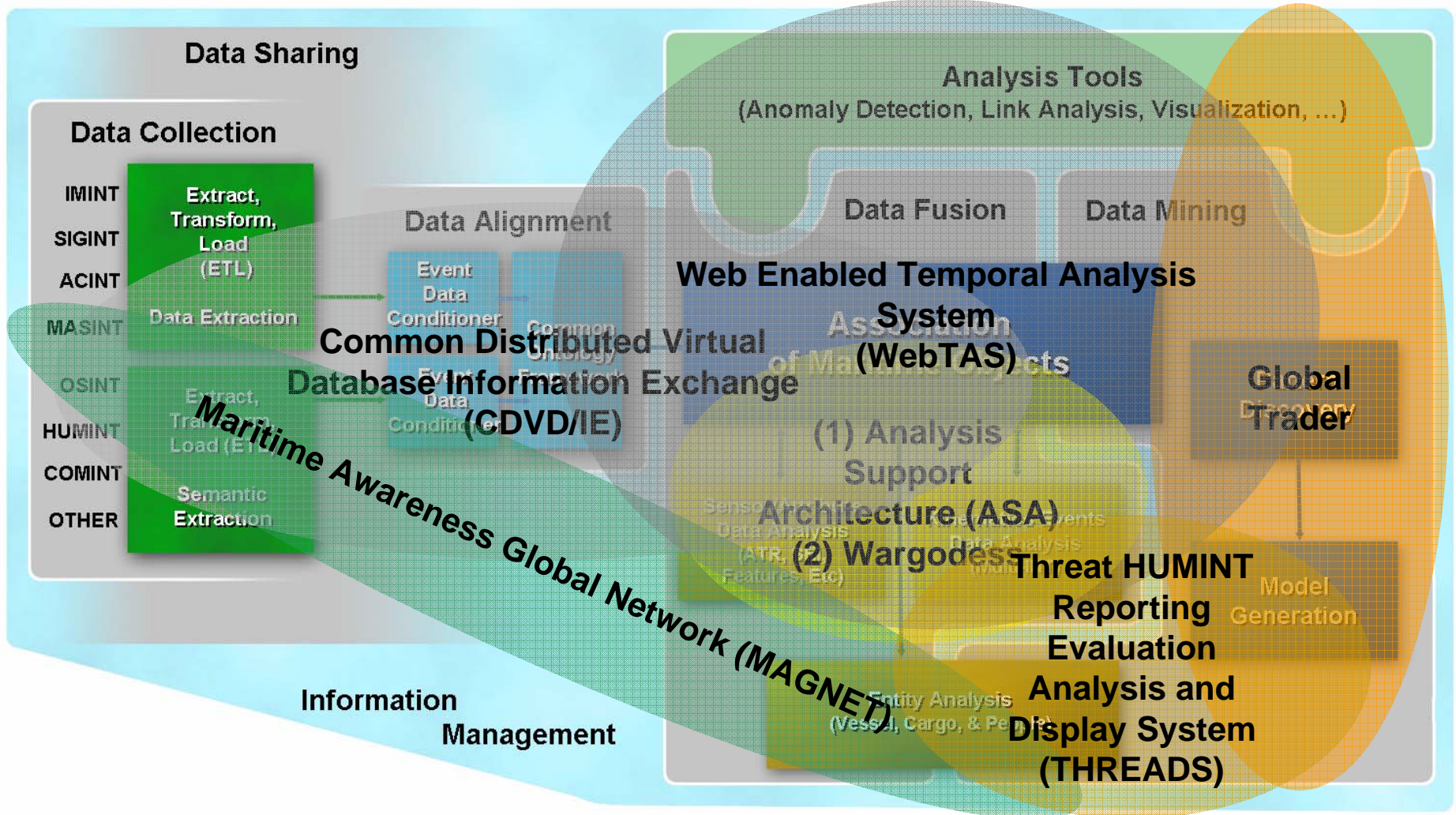


Maritime Awareness Global Network
Navigating Oceans of Maritime Information





CG Enterprise Framework



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