

**UNITED STATES COAST GUARD
RESEARCH & DEVELOPMENT CENTER**



USCG - DEPLOYABLE OPERATIONS



*Presentation to 18th Annual NDIA SO/LIC
Conference
26 February 2007*



**Providing the Coast Guard with technology expertise and
support for operational analysis and development.**





SCIENTIFIC PRINCIPLES

$$E = mc^2$$

$$E = \mu\chi^2$$



Conference Theme

- *Warfare in the Seams: Defense and Industry Partnering to Win the Long War*
- **Transforming General Purpose Forces for Warfare in the Seams**
 - *e.g., Training and Technology required to Conduct Military Operations in Cities, Mountainous Regions, Desert Terrain, and to Secure Long Borders from Hostile Incursions*



CG Mission

- Safeguard lives, property and the environment from intentional and accidental maritime threats
- **Protect maritime mobility by eliminating interruptions and impediments to the economical movement of goods and people while maximizing the recreational use of the Nation's waterways.**
- **Secure maritime routes by halting the flow of illegal drugs, aliens and other harmful/toxic contraband while preventing illegal incursions of our Economic Exclusion Zone thereby enforcing federal law.**
- Defend the nation as one of the five US Armed Services and enhance regional stability in support of the National Security Strategy.



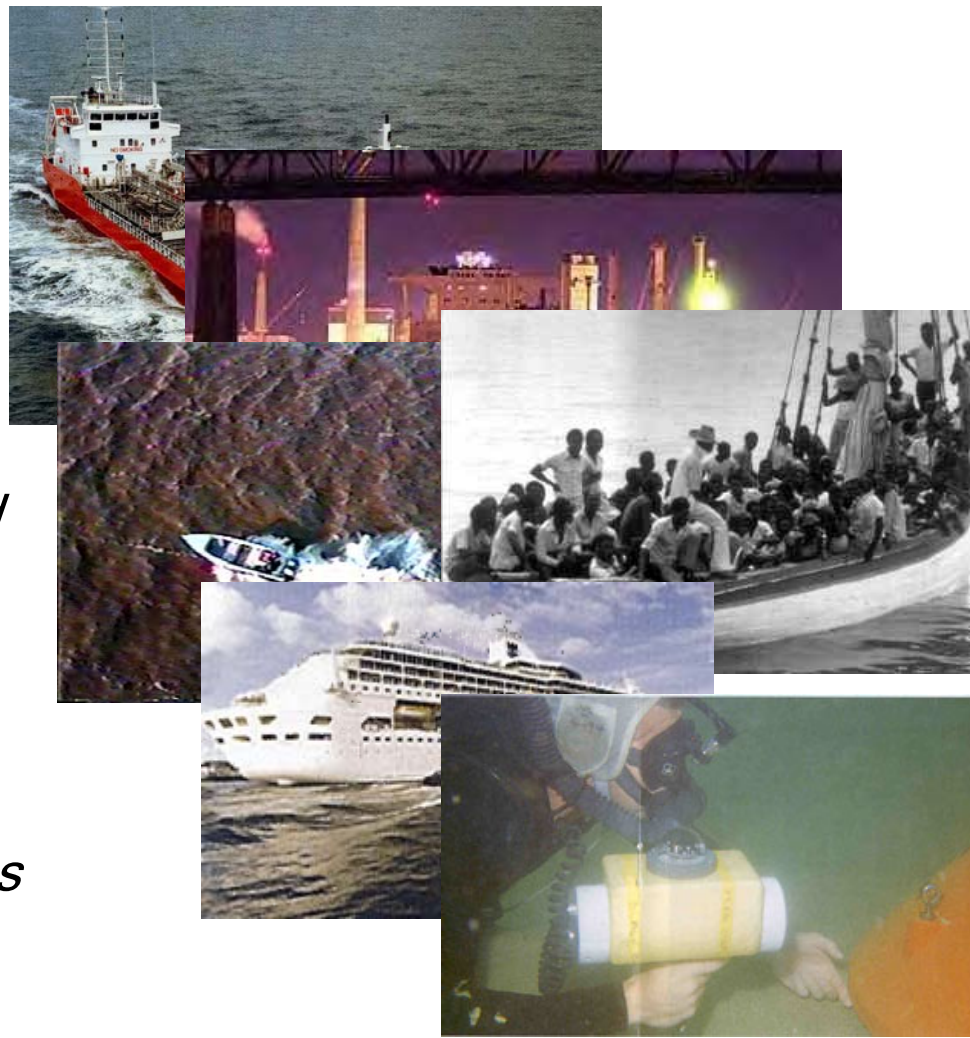
Threats & Challenges





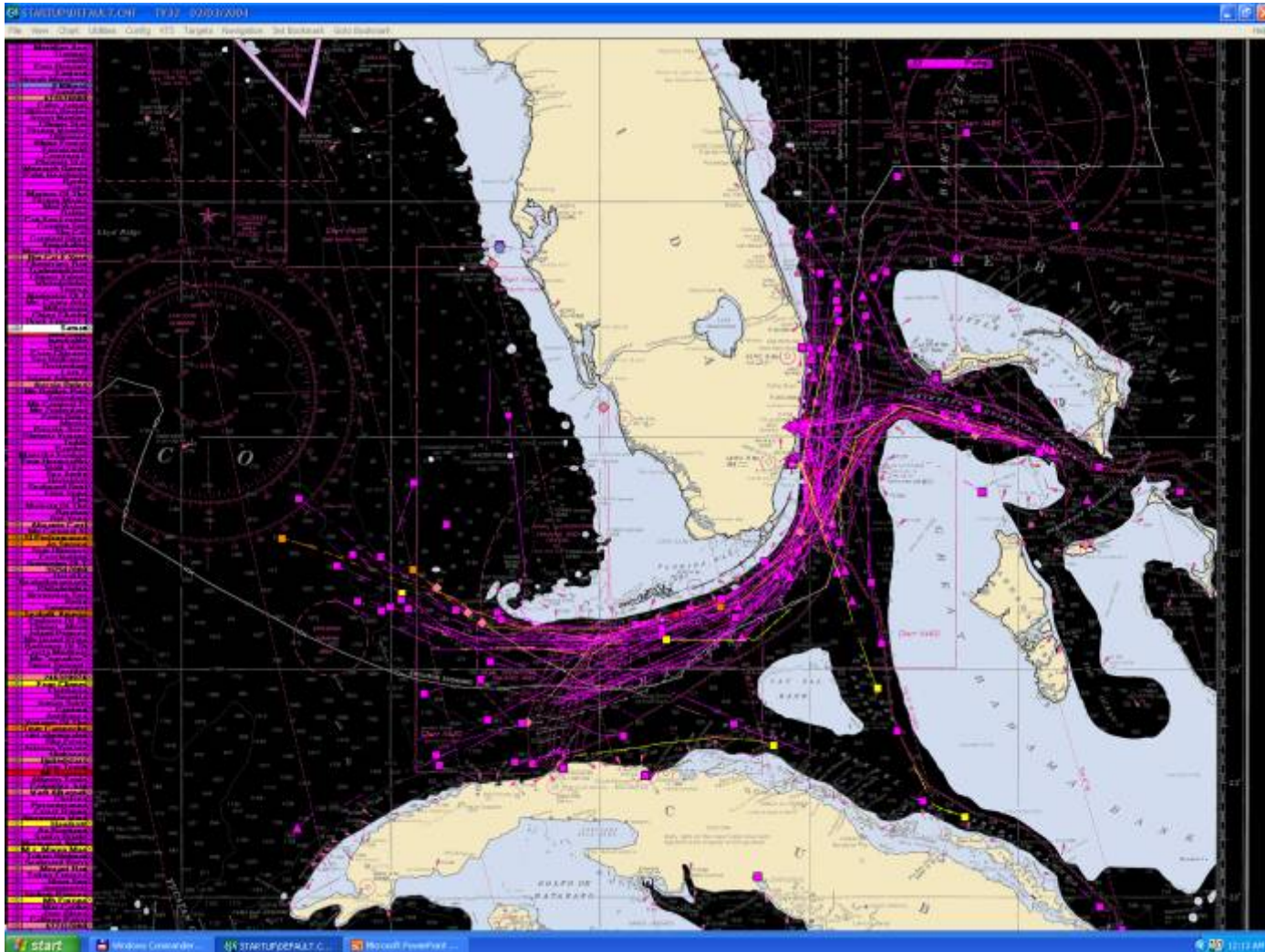
Threats & Challenges (cont.)

- Vessels carrying contraband
 - *WMDs, Explosives, Weapons, Drugs*
- Vessels as weapons
 - *Threat to other vessels and infrastructure*
- Vessels used to smuggle illegal aliens
 - *Go-fast boats, “put-puts” and containers*
- Vessel crews and passengers contain terrorists
 - *Ship jumpers*
- Underwater threats
 - *Swimmers, mines, explosives*





Traffic Density



Thousands of vessel “trips” in the AOR per week



Systems Approach

OPERATIONAL SEQUENCE

	ASSESS	DETECT	IDENTIFY	DECIDE	ENGAGE
MATERIAL	* Intelligence	* Location	* Vessel ID	* Anomaly	* Intercept
PEOPLE	* Vulnerability	* Track	* Cargo	* Threat	* Inspect
VESSELS	* Threat	* Classify	* Crew	* Action	* Detain
COMMON OPERATIONAL PICTURE					
INFORMATION AND COMMUNICATIONS					

• CG COP

Intel Systems

- MIFC
- TVIS

Sensors

- Coastal Radars
- Cameras
- OTH Radar Nets
- UAVs

ID Systems

- AIS
- Blue Force Tracking
- Visual Understand

Scene & TDA

- Auto Scene Understand
- Decision Aids
- Collaboration

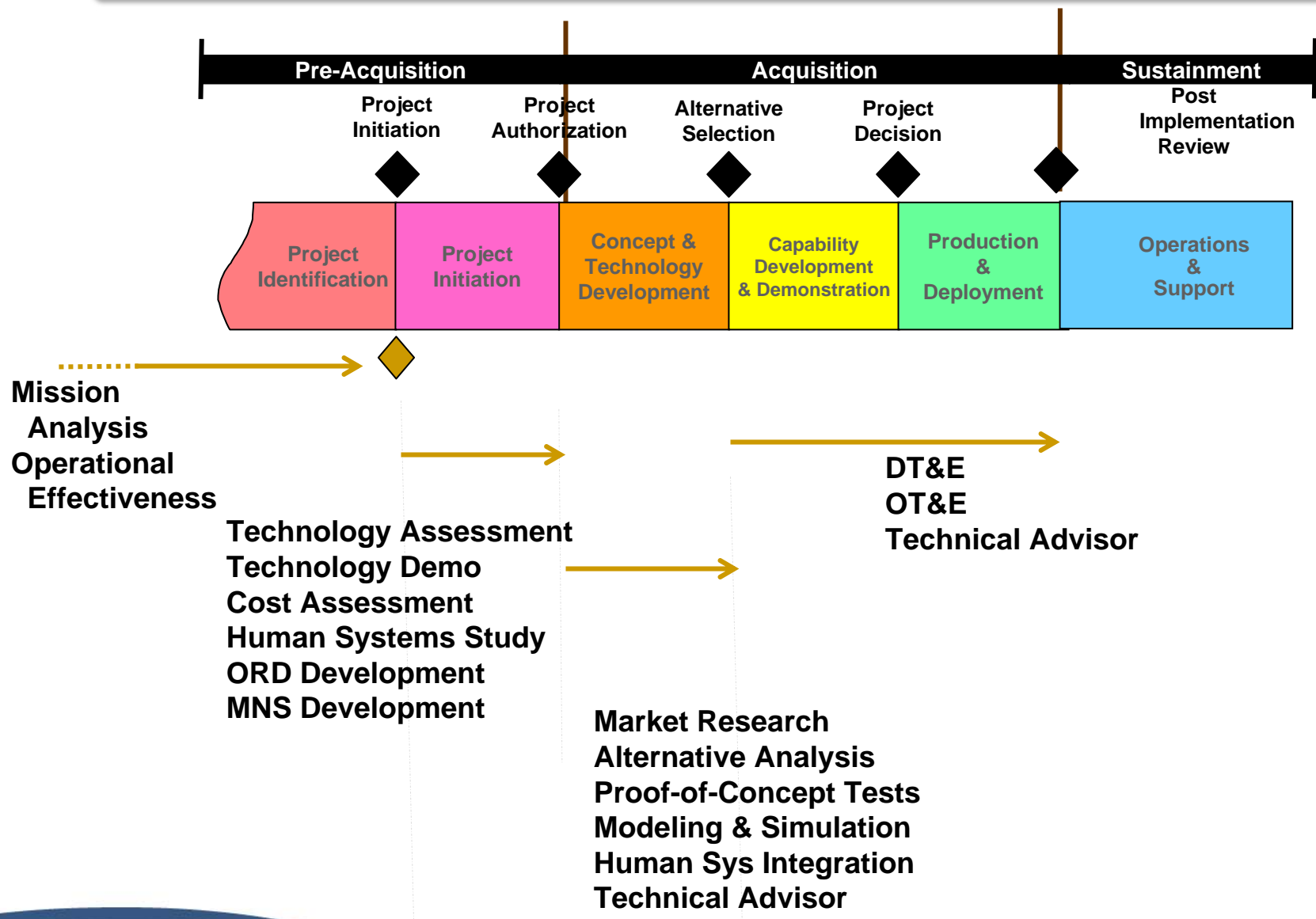
Field Equip

- Sensors
- PDAs
- Detectors
- Weapons

- *System of systems approach to sensors, processing, correlation, analysis, decision and reaction systems*
 - Open architecture
 - Interoperable



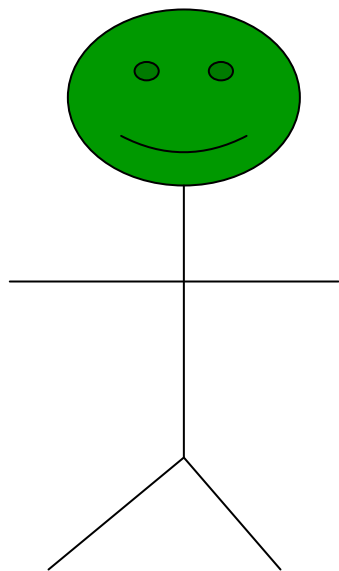
Technology Opportunities





Boardings - CG Bread & Butter

Hi,
Prepare to be boarded



Boarding Officer Bill/Betty

*Attain accurate accounts of material, personnel,
etc. for vessel control issues and concerns*



Deployable Specialized Forces

- Port Security Units (PSU)
- National Strike Force/Strike Teams
- Tactical Law Enforcement Teams (TACLET)
- Maritime Safety & Security Teams (MSST)
- Maritime Security Response Team (MSRT)



Deployable Specialized Forces

Areas of Interest & Need

- Protective Equipment/Components
- Detection of Agents & Compounds of Interest
- Audio/Visual Tactical Sensing
- Lethal & Non Lethal Technologies
- Tactical Intelligence
- Biometrics
- Enhanced Strategic/Tactical Platform & Sensor Performance



Deployable Specialized Forces

Related Needs

- Weapons Proficiency
- Weapon Retention
- Close Quarters Battle
- Crowd Control
- Fire and Movement
- Site Security
- Moving Targets
- Assistance to other Emergency Responders
- Weapons Transition
- CBRNE Sampling, Monitoring
- CBRNE Evidence Collection
- Night / Low Light Engagement
- Self-Defense
- Vessel Operations
- Suspect Control
- Decontamination
- Communications
- Rescue
- CB Perimeter Characterization
- Unassisted Equipment Donning



Deployable Specialized Forces

Task/Skill

- Weapons Proficiency
- Weapon Retention
- Operating Equipment
- Close Quarters Battle
- Ground Fighting
- Fire & Movement
- Moving Targets
- Weapons Transition
- Night / Low-Light Engagement
- Self-Defense
- Suspect Detaining
- Site Security

Integration Issue

- Dexterity / Tacility
- Weapon Aiming / Sighting
- Weapon Access
- Weapon Clearing / Reloading
- Durability
- Sustainability
- Ability to Communicate
- Visual Acuity
- Hearing Acuity
- Unassisted Equipment Donning
- Sustainability
- Monitoring of Individuals



Deployable Specialized Forces

Task/Skill

- Evacuation of Victims
- Decontamination of Self
- Decontamination of Equipment

Integration Issue

- Limited Capability





Prioritization of Integration Issues

- Sustainability of Wearer
- Communications & Interoperability
- Dexterity Issues
- Donning & Doffing of Equipment & Clothing
- Respirator interoperability/interchangeability
- Integration of equipment in CB ensembles
- Inability to characterize threats - real time
- “Frequency of Use” Analysis for load carriage
- Overall load carrying expectations
- Weapon sights/facemask compatibility



Mission Profile Duration

Mission Profile	Duration for CB Protection
First Responder Perimeter Control	8 - 12 hours (min)
Tactical Operations	4 - 6 hours
HAZMAT	TBD
Emergent SAR	1 – 2 hours



Technology Insertion Goals

- *Invest in products that address priority needs*
- *Develop “best” products as quickly as possible (triage/spiral approach)*
- *Help CG implement products*



Program Evolution

- Spiral Development
 - *Build - Test - Build evolution over multiple years*
 - *Incorporate new sensors, technology and improvements*
 - *Conduct operationally assessments (Test beds)*

• First Spiral

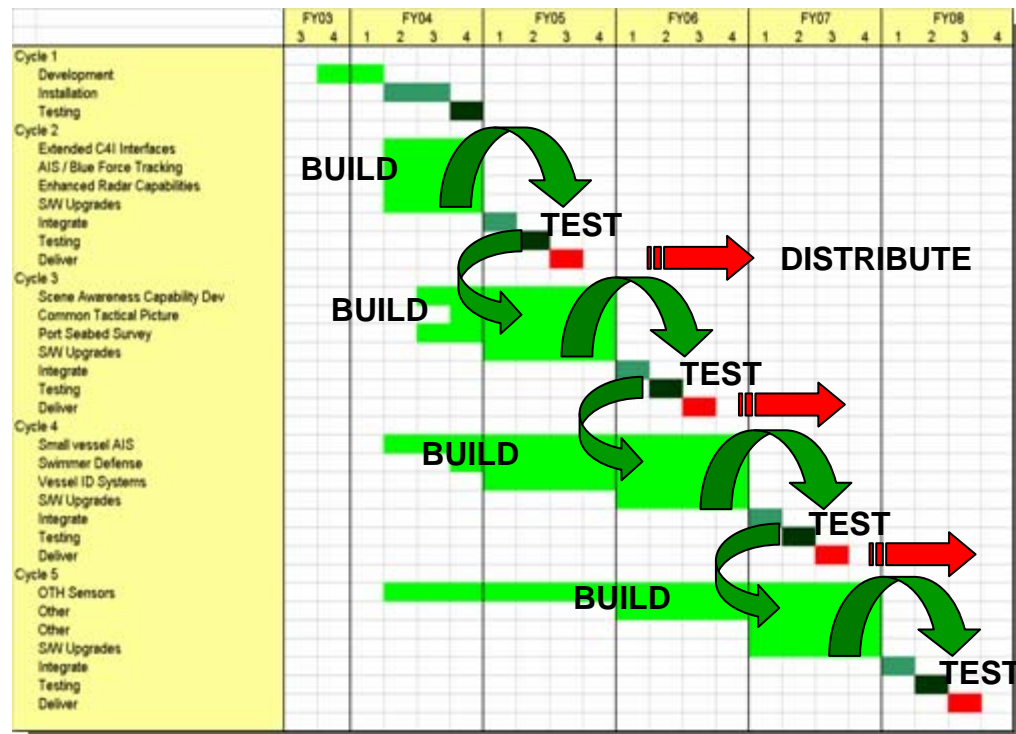
- *Sensors at three ports*
- *Sector Command Center*
- *Web-Based Information Client*

• Second Spiral

- *Additional Long Range Radars*
- *Scene awareness*
- *Common operating picture integration*

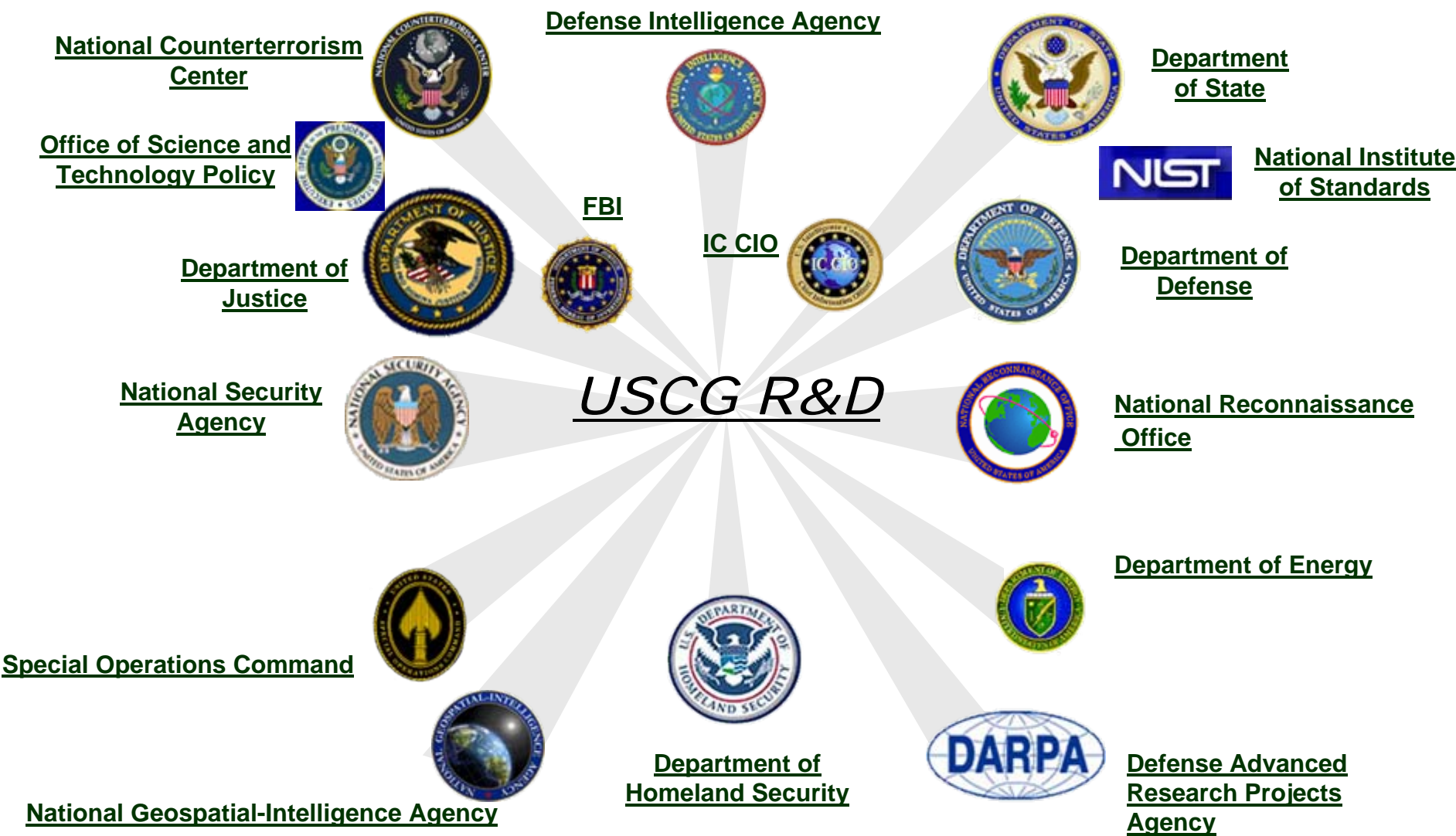
• Follow-On Spirals

- *Wideband local communications*
- *OTH coastal area surveillance sensors*
- *Underwater object awareness*
- *Swimmer and vessel defense*





Technology Community of Interest - Government





Technology Community of Interest - Academia & Industry

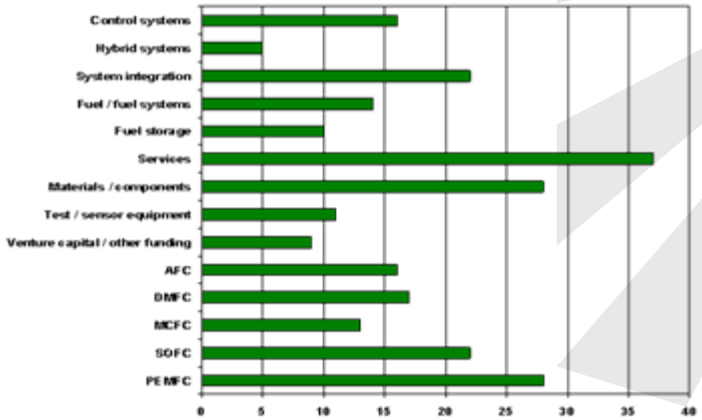


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USCG R&D

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