User-Centric Enterprise Architecture

- **User-Centric EA**
  focuses on providing useful and usable products and services to the end-user.

- **Traditional EA**
  is often user-blind, and as a result develops “artifacts” that are hard to understand and apply.

My Approach at USCG and Prior at USSS
This is NOT User-centric EA
User-centric EA
“In Action”
Coast Guard

- 218 year-old military, multi-mission, maritime service and a member of the DHS.
- 42,000 active duty strength; 8,000 reservists; 29,000 auxiliary; 7000 civilians
- $8.6 billion budget
- 250 ships, 1700 boats, 200 aircraft
- Mission breakout by operating expense (top 4):
  - **Port Security** 21% (361 major ports; longest border is coastline—95,000 miles)
  - **Drug Interdiction** 15% (cocaine seized 2007—$4.7 billion)
  - **Aids to Navigation** 13% (buoys, beacons, lights—51,000)
  - **Search and Rescue** 12% (lives saved—1.1 million)
CG Enterprise Architecture (CGEA)

- **Goal:** Improved Planning & C4IT Governance
- **Methodology:** Business Drives Technology
- **Program Status:**
  - Planning—Released CGEA 1.0 in May 2007 and working toward February 2008 release of 2.0
  - Governance—Established new Enterprise Architecture Board (EAB) in December 2007

CGEA Makes Information Transparent To Enable Better Decision Making.
What are the Benefits?

INVESTMENT MANAGEMENT

PROBLEM ANALYSIS

KNOWLEDGE MANAGEMENT

STRATEGIC PLANNING

PROCESS IMPROVEMENT

REQUIREMENTS MANAGEMENT
How Does CGEA Work?

**Inputs**
- Mission, Strategy, Goals, and Requirements
- Business Challenges
- Current C4&IT
- Emerging Technologies
- Implicit and Explicit Organizational Knowledge
- Federal Enterprise Architecture
- DHS Enterprise Architecture
- DoD Architecture Framework
- Technical and Program Documentation
- Subject Matter Expert Interviews and Focus Groups
- Legislation, Executive Orders, and Management Directives

**Controls**
- Policy
- Framework
- EA Principles
- Metamodel
- Communication and Design Principles
- Configuration Management
- Maintenance Plan
- EA Product Ownership
- Program Metrics

**Process**
**Develop and Maintain CGEA**

**Mechanisms**
- Chief Enterprise Architect
- Enterprise Architecture Board (EAB)
- Products and Standards Board (PSB)
- EA Product Owners
- EA Product Managers
- EA Knowledge Repository

**Outputs**
- EA Products and Services

**Outcomes**
- Improved C4&IT Planning and Governance for Better Decision Making
What Information is Included?

- Performance: Mission Execution & Measurable Results
- Security: Confidentiality, Integrity, Availability & Privacy
- Technology: Standardization & Simplification
- Information: Sharing & Accessibility
- Service: Interoperability & Component Reuse

UNITED STATES COAST GUARD 1790
How is the Information Viewed?

Profile

Model

Inventory
# CGEA Products

## Profiles (High-Level)

<table>
<thead>
<tr>
<th>PERFORMANCE</th>
<th>BUSINESS</th>
<th>INFORMATION</th>
<th>SERVICE</th>
<th>TECHNOLOGY</th>
<th>SECURITY</th>
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<td>Performance Profile Core Missions</td>
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<td>Performance Profile C4&amp;IT</td>
<td>Value Chain Alignment</td>
<td>Data Profile</td>
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<td>IT Products and Standards Profile</td>
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<td>Balanced Scorecard C4&amp;IT</td>
<td>USCG CONOPS</td>
<td>GIS Profile</td>
<td>External Services Profile</td>
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<td>USCG Snapshot</td>
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<td>Command Center Profile</td>
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<td>Major Programs Profile</td>
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<td>Frequency Spectrum Profile</td>
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<td>Sector Commands Profile</td>
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<td>C4&amp;IT Transition Portfolio Profile</td>
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<td>USCG Cutters &amp; Aircraft Profile</td>
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<td>C4&amp;IT Transition Timeline Profile</td>
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## Models (Mid-Level)

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<th>TECHNOLOGY</th>
<th>SECURITY</th>
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<tr>
<td>Unified Performance Logic Model</td>
<td>Business Models</td>
<td>Data Models</td>
<td>Systems Models</td>
<td>Network Models</td>
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<td>Organization Charts</td>
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<td>Applications to Business Activities Matrix</td>
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</table>

## Inventories (Detail-Level)

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<th>PERFORMANCE</th>
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<tr>
<td>Performance Inventory</td>
<td>Business Inventory</td>
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<td>Systems Inventory</td>
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<tr>
<td>USCG Posture Statement</td>
<td>USCG Strategy for Maritime SSS</td>
<td>Data Inventory</td>
<td>Services Inventory</td>
<td>IT Products and Standards Inventory</td>
<td>Security Inventory</td>
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<td>Functional Statements</td>
<td>GIS Inventory</td>
<td>External Services Inventory</td>
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<td>C4 Products Inventory</td>
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<td>Activity Dictionary</td>
<td>Information Exchange Matrix</td>
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<td>Infrastructure Inventory</td>
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<td>USCG Universal Task Library (CGUTL)</td>
<td>Information Dictionary</td>
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<td>Frequency Spectrum Inventory</td>
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<td>USCG Operational Nodes (SDL)</td>
<td>USCG Policy and Planning Lexicon</td>
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<td>C4&amp;IT Transition Inventory</td>
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</tr>
</tbody>
</table>

**Release 2**
76% complete

**Release 1**
48% complete
Sample CGEA Profile #1

United States Coast Guard Performance Profile Core Missions

**SAFETY**
- **Search & Rescue**
  - **Rescues**: Percent of missions in which at least one person is saved.
- **Marine Safety**
  - **Deaths & Injuries**: 5-year average number of deaths and injuries.
  - **5-year average number of commercial passenger deaths and injuries**.
  - **5-year average number of recreational boating deaths and injuries**.

**SECURITY**
- **Ports, Waterways Coastal Security**
  - **Risk Reduction**: Percent reduction in maritime terrorism risk.
- **Other Law Enforcement**
  - **Fishery**: Number of inspections into the U.S. Exclusive Economic Zone.
- **Undocumented Migrant Interdiction**
  - **Percent of undocumented migrants who attempt to enter the U.S. via maritime routes that are interdicted or detained**.

**STEWARDSHIP**
- **Marine Environmental Protection**
  - **Spills**: 5-year average number of oil spills exceeding 100,000 gallons per 100 million short tons shipped.
  - **5-Year average number of chemical discharge incidents per 100 million short tons shipped**.
- **Living Marine Resources**
  - **Compliance**: Percent of fishermen complying with regulations.
- **Aids to Navigation**
  - **Collisions**: 5-year average number of collisions, allisions and groundings (CAG).
- **Ice Operations**
  - **Transportation**: Number of days critical waterways are closed due to ice.

**Trend**
- **DHS Performance Areas**
  - **P1 = Prevent**
  - **P2 = Protect**
  - **R1 = Respond**
  - **R2 = Recover**
  - **S = Service**

*Note: Based on the 5-year trend reported in the USCG 2008 Budget-in-Brief and Performance Report.*
United States Coast Guard Business Profile

**CORE MISSION FUNCTIONS**
- Maritime Safety
  - Search and Rescue
  - Marine Safety
- Maritime Security
  - Ports, Waterways, & Coastal Security
  - Illegal Drug Interdiction
  - Undocumented Migrant Interdiction
  - Defense Readiness
  - Other Law Enforcement
- Maritime Stewardship
  - Marine Environmental Protection
  - Living Marine Resources
  - Aids to Navigation
  - Ice Operations

**MISSION SUPPORT FUNCTIONS**
- Asset Management
- Capabilities Planning
- Command, Control, Communications
- External Partnerships
- Maritime Domain Awareness
- Regulatory Activities
- Research and Development
- Supply Chain Management
- Training

**BUSINESS SUPPORT FUNCTIONS**
- Acquisition
- Congressional and Public Affairs
- Finances
- Human Resources
- Information Technology
- Legal Services
- Performance Measurements and Evaluation
- Policy and Strategic Plans
# Sample CGEA Inventory

## United States Coast Guard Business Inventory

| Function Type | Function | Sub-Function | Activity Dictionary Xref (A|N) | BRM Sub-Function | BRM Line of Business | BRM Business Area |
|---------------|----------|--------------|-------------------------------|------------------|-----------------------|-------------------|
| Core Mission  | Maritime Safety | Marine Safety | P-01.00.00.00 R-01.00.00.00 | (079) Permits and Licensing | (204) Regulatory Compliance and Enforcement | (2) Mode of Delivery |
| Core Mission  | Maritime Safety | Port Safety | P-01.00.00.00 R-01.00.00.00 | (062) Water Transportation | (118) Transportation | (1) Service for Citizens |
| Core Mission  | Maritime Safety | Recreational Boating Safety | P-01.00.00.00 R-01.00.00.00 | (062) Water Transportation | (118) Transportation | (1) Service for Citizens |
| Core Mission  | Search and Rescue | Search and Rescue Response | P-01.00.00.00 R-01.00.00.00 | (010) Emergency Response | (104) Disaster Management | (1) Service for Citizens |
| Maritime Security | Defense Readiness | Military Ops-Peace | P-01.00.00.00 R-01.00.00.00 | (211) Operational Defense | (103) Defense and National Security | (1) Service for Citizens |
| Maritime Security | Military Exercises | Military Exercises | P-01.00.00.00 R-01.00.00.00 | (211) Operational Defense | (103) Defense and National Security | (1) Service for Citizens |
| Maritime Security | Military Ops-War | Military Ops-War | P-01.00.00.00 R-01.00.00.00 | (216) Strategic National & Theater Defense | (103) Defense and National Security | (1) Service for Citizens |
| Maritime Security | Refresher Training | Refresher Training | P-01.00.00.00 R-01.00.00.00 | (211) Operational Defense | (103) Defense and National Security | (1) Service for Citizens |
| Maritime Security | Reserves | Reserves | P-01.00.00.00 R-01.00.00.00 | (216) Strategic National & Theater Defense | (103) Defense and National Security | (1) Service for Citizens |
| Illegal Drug Interdiction | ELT Drug Air | ELT Drug Air | P-01.00.00.00 R-01.00.00.00 | (056) Substance Control | (115) Law Enforcement | (1) Service for Citizens |
| Illegal Drug Interdiction | ELT Drug Surface | ELT Drug Surface | P-01.00.00.00 R-01.00.00.00 | (056) Substance Control | (115) Law Enforcement | (1) Service for Citizens |
**Sample CGEA Profile #3**

United States Coast Guard Major Programs Profile

**COMMAND 21**

Command 21 arms Operational Commanders with the ability to see, understand and share activities and information in critical ports and coastal waterways. Through Command 21, port surveillance sensors and intelligence and information enterprise data systems feed the local tactical picture at Sector Command Centers allowing watchstanders to monitor port activities, detect and classify vessels, and share information with all port partner agencies in support of interagency operations.

**NAIS**

The information provided by the Nationwide Automatic Identification System (NAIS) project supports all of the nation's maritime interests — from the safety of vessels and ports through traffic management and collision avoidance, to the safety of the nation through vessel detection and classification. Providing near-real-time and long-range tracking of vessels operating in or approaching US ports and waterways, NAIS is a critical component of the Coast Guard's strategy to achieve Maritime Domain Awareness (MDA).

**RESCUE 21**

Rescue 21 is a life-saving communications system that monitors the international VHF-FM distress frequency, triangulates exact position, and facilitates the coordination of search and rescue operations. Replacing the antiquated National Distress and Response System (NDRS), Rescue 21 also provides vital command, control and communications support for other Coast Guard missions in the coastal zone.

**DEEPWATER**

Integrated Deepwater Systems recapitalizes all Coast Guard coastal and offshore surface, air and C4ISR assets and systems. Deepwater assets and systems enable Coast Guard operational forces to perform more effectively, efficiently and safely resulting in increased operational readiness and enhanced mission performance.
Systems Profile

United States Coast Guard Systems Profile

CORE MISSIONS

Safety 1

Multi-Mission
Applications/Instances
38

Security 2

Stewardship

MISSION SUPPORT

Applications/Instances
183

BUSINESS SUPPORT

Applications/Instance
237

Number of Systems (185)  Number of Applications (379)  Number of Instances (71)
Other Information Products

- We have developed many other information products, including those describing the CG:
  - Application Systems
  - General Support Systems
  - Command, Control, and Communications Systems
  - Geospatial Information Systems
  - IT Products and Standards
  - Network and Infrastructure
  - Security
  - And Much More...
Information in CGEA Today

Performance
- 3 CGEA Products
- 26 Performance Measures (PART)
- 11 Performance Measures (BIB)
- 3 Strategic Goals

Security
- 2 CGEA Products
- 102 Systems in TAF
- 86 Hardware/Software Products
- 22 Security Controls

Technology
- 8 CGEA Products
- 17,600 Frequency Allocations
- 1,739 Infrastructure Elements
- 407 C4 Products
- 381 IT Products & Standards
- 70 Instances
- 50 General Support Systems
- 20 Network Nodes
- 14 Frequency Bands

Cross-Perspective
- 5 CGEA Products
- 173 Systems
- 22 DHS Transition Portfolios
- 22 C4 Systems

Business
- 12 CGEA Products
- 149 Business Activities
- 81 Sub Functions
- 20 USCG Functions
- 16 DHS Functions
- 4 FEA Business Areas

Information
- 4 CGEA Products
- 394,503 Database Columns
- 21,791 Database Tables
- 223 Information Objects
- 56 Databases
- 13 DHS Subject Areas
- 4 DHS Information Domains

Service
- 5 CGEA Products
- 353 Applications
- 180 Applications Systems
- 103 Geospatial Elements
- 55 Applications Descriptions
Welcome to US Coast Guard Enterprise Architecture (CGEA)

Visit the links below to learn how the Coast Guard is using enterprise architecture to support its mission:

- What is enterprise architecture (EA)?
- Coast Guard Approach to EA
- Roles and Responsibilities
- Contact Information

C4&IT Governance Services

- Learn about the EA Review Process
  - Enterprise Architecture Board (EAB)
  - Products and Standards Review Board (PSRB)
- Request or change a C4&IT project
  (EAB Submission)
- Request or change a C4&IT product or standard
  (PSRB Submission)

Tools & Resources

- The Enterprise Architecture Management System (TEAMS)
- CGEA Executive Handbook
- CGEA Communication

For Official Use Only
The Way Ahead

- **UNIFY:**
  - One CG Enterprise Architecture…Out Of Many

- **EXTEND:**
  - Define All Mission/Business Activities and Results
  - Decompose/Show Relationships Between Activities, Information Requirements, and IT Solutions

- **IMPLEMENT:**
  - Use CGEA To Support Sound IT Planning and Governance

A Clear Vision and Focus on the End-User!
Q&A

Thank you!

Andrew.N.Blumenthal@USCG.Mil

For more information visit:

http://usercentricea.blogspot.com