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COMDTINST 5230.68  
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COMMANDANT INSTRUCTION 5230.68

Subj: COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS AND INFORMATION TECHNOLOGY (C4&IT) ENTERPRISE ARCHITECTURE (EA) POLICY

Ref: (a) Establishment of the CG-6 Directorate and Associated Duties, COMDTINST 5401.5 (series)

1. PURPOSE. This Instruction establishes the authority, roles, and responsibilities governing the Coast Guard’s Enterprise Command, Control, Communications, Computers, and Information Technology (C4&IT) Architecture (EA). The EA establishes the roadmap to achieve Coast Guard missions through optimal performance of its core business processes within an efficient C4&IT environment. This policy applies to all C4&IT assets, including systems, data, and products that enable C4&IT capability in support of the Coast Guard’s missions or business functions. All Coast Guard organizations involved in the planning, acquisition, production, deployment, support, operation, and disposition of C4&IT systems and services shall employ the EA Policy and adhere to the roles defined herein.
2. ACTION. Area and District commanders, commanders of maintenance and logistics commands, commanding officers of Headquarters units, assistant commandants for directorates, Chief Counsel, and special staff offices at Headquarters shall ensure that all Coast Guard and contractor support personnel or organizations involved in the acquisition, development, operations, maintenance, or use of Coast Guard C4&IT assets comply with the provisions of this Instruction. Internet release is authorized.
3. DIRECTIVES AFFECTED. None.

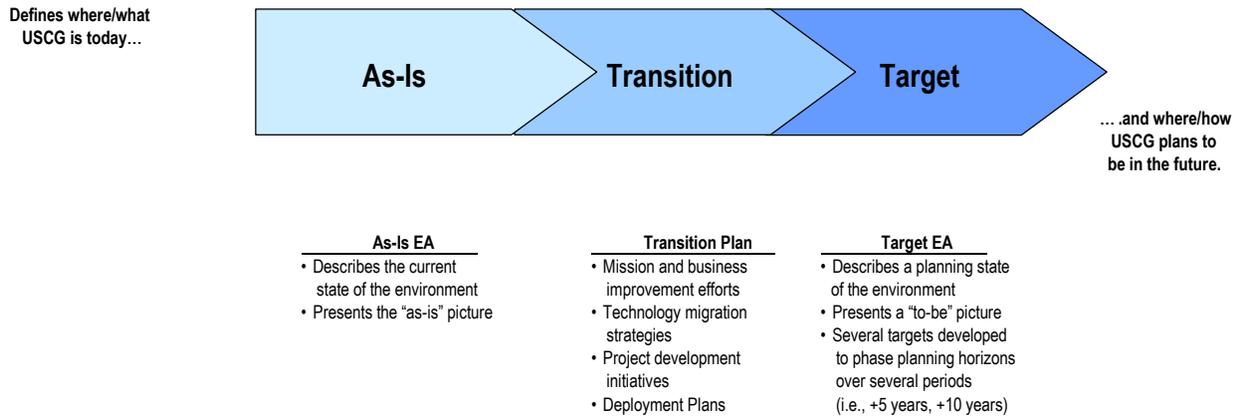
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4. C4&IT ENTERPRISE ARCHITECTURE.

- a. Enterprise Architecture Defined. The EA is a strategic, information asset base that defines the mission, the information and technologies necessary to perform the mission, and the transitional processes for implementing new technologies in response to the changing needs of the mission. An EA includes an As-Is EA, a Target EA, and a transition plan, as depicted in Figure 1: Definition of an Enterprise Architecture.



**Figure 1: Definition of an Enterprise Architecture**

- (1) As-Is Enterprise Architecture. The set of products that portray the existing enterprise, the current business practices, and technical infrastructure.
  - (2) Enterprise Transition Plan. A planning document that establishes the migration strategy to get from the As-Is EA to the Target EA. The plan is created by identifying the gaps between the As-Is and Target, and then plotting the process, system changes, and additions required to bridge the gaps.
  - (3) Target Enterprise Architecture. The set of products that portray the future or end-state enterprise, generally captured in the organization’s strategic thinking and plans. The Target architecture consists of the To-Be EA (0 to 4 years into the future) and the May-Be EA (5 to 10 years).
- b. Fundamental Concepts.
- (1) An EA provides a mechanism for understanding and managing complexity and change. It is a strategic resource that helps the Coast Guard plan and implement C4&IT solutions, and the resulting investment portfolio, in order to meet mission and business needs. An EA helps clarify the information necessary to perform the mission, the technologies necessary to fulfill the mission, and the transitional processes for implementing new technologies in response to the changing needs of the mission.
  - (2) The Office of Management and Budget (OMB) has provided a set of Federal Enterprise Architecture (FEA) reference models, as well as a Data and Information Reference Model, to which all Federal agencies will relate their architectures. All investments and projects must show linkages to the FEA through linkages to the Business Reference Model (BRM), Performance Reference Model (PRM), Service Component Reference Model (SRM), and Technical Reference Model (TRM).

- (3) The Coast Guard's EA Program is intended to address Federal mandates and establish a basis for continuously evolving Coast Guard C4&IT systems so that they provide effective operational capabilities in response to changing operational requirements and priorities. The Coast Guard's EA will reflect the Coast Guard's current and unique environment and set of circumstances, while also addressing the most effective and efficient way to respond to its long term needs.
  - (4) In response to Federal mandates, all Coast Guard C4&IT investments must comply with the Coast Guard's EA, unless non-compliance is justified and the investment is granted a documented waiver. This linkage between the EA and C4&IT investment portfolio will maximize systems' interoperability while avoiding unwarranted overlap across investments.
  - (5) Compliance with this policy that would result in unanticipated cost overrun, negative schedule impact, or performance impairment to acquisition contracts previously approved by CG-6 will be waived. The Program Sponsor will submit a plan of action with a timeline, when directed by CG-6, for bringing the system into EA alignment to the EA Configuration Control Board (CCB) for approval.
- c. Federal Enterprise Architecture (FEA). The FEA is a tool that enables the Federal government to identify opportunities to leverage technology and alleviate redundancy, or to highlight where agency IT overlap limits the value of investments. The FEA facilitates horizontal (Cross-Federal) and vertical (Federal, State, and Local) integration of IT resources, promotes the application of architecture practices to help drive business process improvement across the Federal government, and establishes the "line of sight" contribution of IT to mission and program performance. FEA constructs shall be implemented to incorporate and house other architecture products, as mandated by CG-6, in order to ensure interagency operability. Currently, the prescribed standardized Coast Guard EA product set is the Department of Defense (DoD) Architecture Framework. The FEA includes guidance and direction for developing Federal agency EAs, including the following reference models:
- (1) Performance Reference Model (PRM). The PRM is a "reference model," or standardized framework, to measure the performance of major IT investments and their contribution to program performance. The PRM has three main purposes:
    - Help produce enhanced performance information to improve strategic and daily decision-making.
    - Improve the alignment and better articulate the contribution of inputs to outputs and outcomes, thereby creating a clear "line of sight" to desired results.
    - Identify performance improvement opportunities that span traditional organizational structures and boundaries.

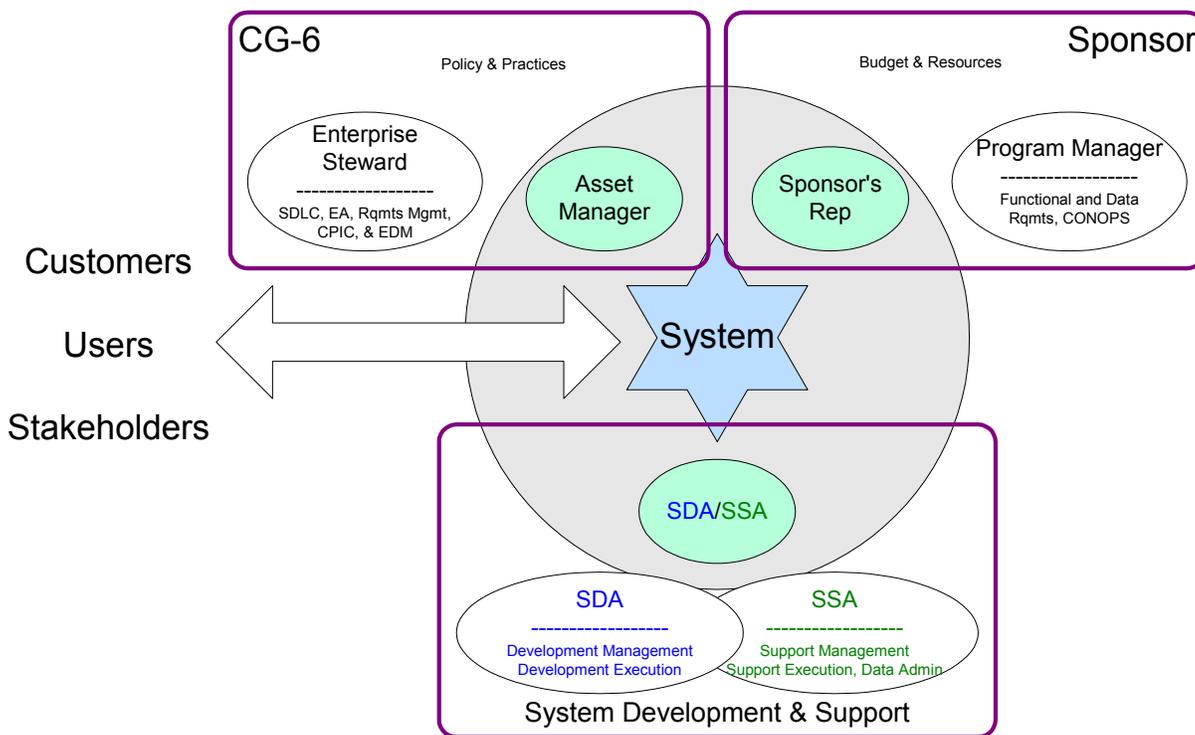
The PRM attempts to leverage the best of existing approaches to performance measurement in the public and private sectors, including the balanced scorecard, Baldrige criteria, value measurement methodology, program logic models, the value chain, the theory of constraints, Program Assessment Rating Tool assessments, Government Performance Results Act, and Capital Planning and Investment Control. Agencies' use of the PRM will populate the model over time.
  - (2) Business Reference Model (BRM). The BRM provides an organized, hierarchical construct for describing the day-to-day business operations of the Federal government. While many models exist for describing organizations – organization charts, location maps, etc. – this

model presents the business using a functionally driven approach. The Lines of Business and sub-functions that make up the BRM represent a departure from previous models of the Federal government that use antiquated, stovepiped, agency-oriented frameworks. The BRM is the first layer of the FEA, and it is the main viewpoint for the analysis of data, service components, and technology.

- (3) Service Component Reference Model (SRM). The SRM is intended to support the discovery of government-wide business and application service components in IT investments and assets. The SRM is structured across horizontal and vertical service domains that, independent of the business functions, can provide a leverageable foundation to support the reuse of applications, application capabilities, components, and business services. The Coast Guard EA will participate in service component reuse where it enhances mission or support activity performance. It is expected that most of this alignment activity will take place within the Department of Homeland Security (DHS) vice government-wide.
  - (4) Data and Information Reference Model (DRM). The DRM describes, at an aggregate level, the data and information that support program and business line operations. The model aids in describing the types of interaction and exchanges that occur between the Federal government and its various customers, constituencies, and business partners. The DRM categorizes the government's information along general content areas and decomposes those content areas into greater levels of detail. The DRM establishes a commonly understood classification for Federal data and leads to the identification of duplicative data resources. A common data model streamlines the processes associated with information exchange within the Federal government between the government and its external stakeholders.
  - (5) Technical Reference Model (TRM). The TRM is a component-driven, technical framework used to identify the standards, specifications, and technologies that support and enable the delivery of service components and capabilities. It provides a foundation to describe the standards, specifications, and technologies to support the construction, delivery, and exchange of business and application components (service components) that may be used and leveraged in a Component-Based or Service-Oriented Architecture. The TRM unifies existing Agency TRMs and electronic Government guidance by providing a foundation to advance the reuse of technology and component services from a government-wide perspective. The Coast Guard EA includes a TRM that aligns with the DHS TRM but still provides the flexibility required to meet mission and support needs.
- d. Enterprise Standards Profile (ESP). The ESP is a comprehensive set of technical standards for the Coast Guard. Its organization reflects the categorization of technology building blocks defined in the Coast Guard TRM, as well as the sometimes-unique requirements of specific operational domains. The TRM is the accepted representation of the generic components of the Coast Guard system-of-systems and applies to all C4&IT systems in the Coast Guard "enterprise." Within that context, the ESP references the published technical or procedural standards and the products that the Coast Guard has selected and approved to implement those components.
  - e. Enterprise Data Architecture. The component of the overall EA that describes the information used in mission and mission support activities, the data managed by C4&IT applications and infrastructure, and data standards.
  - f. Enterprise Data Management (EDM). The EDM is activities and practices necessary to manage data as an asset throughout an enterprise. EDM includes establishing data practices and plans,

managing acquisition of data assets, establishing an enterprise data architecture, developing and maintaining an enterprise data warehouse, performing database administration, and conducting data management training.

5. **C4&IT ENTERPRISE ARCHITECTURE ROLES AND RESPONSIBILITIES.** The Commandant (CG-6) organization works proactively with all entities involved in the system life cycle. Figure 2: CG-6 Roles and Relationships Framework, as outlined in reference (a), illustrates the key roles involved and their relationships. The remainder of this section describes the roles, relationships, and responsibilities as they relate to this policy.



**Figure 2: CG-6 Roles and Relationships Framework**

- a. **CG-6.** The Chief Information Officer (CIO). The CIO is responsible for Coast Guard-wide C4&IT management. The CIO must lead and partner with all Sponsors and Program Managers (PMs) to plan, design, develop, deploy, and maintain C4&IT systems that meet Coast Guard-wide mission and business requirements. CG-6 is responsible for implementing the EA throughout the Coast Guard. These responsibilities include:
- (1) Maintaining and approving the C4&IT Infrastructure policy and practices. To this end, CG-6 shall establish a C4&IT Infrastructure Policy Review Board, comprising representatives from various stakeholder groups, to develop and maintain the C4&IT Infrastructure policy and practices.
  - (2) Developing, maintaining, and facilitating the implementation of sound and integrated EA and its applicable components and activities.
  - (3) Participating actively, throughout the annual budget process, in supporting investment and acquisition priority decisions for C4&IT resources.

- (4) Ensuring that the Coast Guard EA Program is integrated with that of DHS. This includes representing the Coast Guard EA Program to other government stakeholders (e.g., DHS, DoD, and the Government Accountability Office).
  - (5) Delegating the execution of C4&IT Infrastructure Practices to the roles defined herein.
- b. Enterprise Steward. CG-6 provides enterprise-level stewardship of the policies and practices associated with C4&IT systems. The Enterprise Steward monitors the health, effectiveness, and efficiency of the EA and ensures organizational compliance. The Enterprise Steward has the following C4&IT Infrastructure responsibilities:
- (1) Managing the EA process. This includes developing and sustaining the As-Is EA, Target EA, and the Enterprise Transition Plan.
  - (2) Aligning the Coast Guard EA with the DHS, Federal, and DoD EAs to ensure interoperability.
  - (3) Managing EA requirements (including identification and incorporation of validated changes to the EA). The Chief Architect will develop and sustain the Requirements Management Repository.
  - (4) Coordinating with EA CCB for updates to reference models. EA Configuration Management (CM) will comply with the enterprise CM policy.
  - (5) Supporting the investment management and acquisition processes from an EA perspective.
- c. Asset Manager. The CG-6 Asset Manager is the primary contact for CG-6 and is responsible for supporting the Sponsor in ensuring that the C4&IT project is in compliance with the Coast Guard's EA at all key project milestones and key decision points during the acquisition process and throughout its life cycle. An asset is a system, product (e.g., Commercial-off-the-Shelf equipment, information, policy), data, service, capability, or resource that is available, managed, delivered, applied, supported, or sustained on an enterprise scale by the CG-6 organization. Along with the Sponsor's Representative, System Development Agent (SDA), and System Support Agent (SSA), the Asset Manager facilitates the process of demonstrating alignment with the Coast Guard's EA. The Asset Manager will also ensure that EA performance measures are developed, tracked, and evaluated.
- d. Sponsor. The Sponsor is the organizational element responsible for defining, maintaining, evaluating, and articulating program goals, validating requirements developed by the PM, acquiring appropriate resources, and accepting C4&IT capability needed to support a Coast Guard mission. The Sponsor will designate a liaison to work with the Chief Architect and the appropriate CG-6 Asset Managers to ensure alignment of the project with the EA.
- e. Program Manager (PM). The Coast Guard PM is the Sponsor's designated manager who is responsible for defining, maintaining, evaluating, and articulating program requirements. The PM ensures that the C4&IT project is in compliance and is aligned with the EA throughout its life cycle. The PM advocates the end user's concerns and coordinates input from customers and stakeholders relating to EA policy, practice, and requirements. The PM also develops, tracks, and evaluates EA performance measures.
- f. Sponsor's Representative. The Sponsor's Representative is designated by the Sponsor to serve as the liaison and interface with the Chief Architect and the appropriate CG-6 Asset Managers to ensure project compliance and alignment with the EA. The Sponsor's Representative communicates with end-users to gather input and feedback and to relay results.

- g. System Development Agent (SDA). The SDA is the individual, unit, firm, agency, or organization that performs, or has the responsibility for, the design, development, implementation, and support of C4&IT systems, as well as the acquisition of C4&IT products or services. The SDA will follow the EA process, facilitate the process of demonstrating EA alignment, adhere to EA standards, and recommend changes to reference models, as appropriate. The SDA will also define, track, and evaluate EA performance measures pertaining to development throughout the life cycle.
- h. System Support Agent (SSA). The SSA is the individual, unit, firm, agency, or organization that performs, or has the responsibility for, the maintenance, support, and availability of C4&IT assets. The SSA participates in all aspects of the C4&IT system development life cycle. The SSA will follow the EA process, facilitate the process of demonstrating EA alignment, adhere to EA standards, and recommend changes to reference models, as appropriate. The SSA will also define, track, and evaluate EA performance measures pertaining to support throughout the life cycle.
- i. User. The individual, unit, or organization that interacts with and uses C4&IT systems or services to accomplish work, execute missions, or deliver products and services to Coast Guard members and external customers. The user provides feedback on C4&IT systems and services, suggests enhancements to existing C4&IT systems and services, and identifies new system or service requirements via the Sponsor's Representative.
- j. Customer. A customer is any person or organization that benefits from C4&IT systems or services. An internal customer is a person or organization inside the Coast Guard for which the C4&IT system or service is being provided. An external customer is a person or organization outside the Coast Guard for which the C4&IT product or service is being provided. The customer provides feedback on C4&IT systems and services, suggests enhancements to existing C4&IT systems and services, or identifies new system or service requirements via the Sponsor's Representative.
- k. Stakeholder. A stakeholder is any person, group, or organization (e.g., customers; employees; suppliers; owners; OMB, DHS, or other agencies; and Congress) that can place a claim on, or influence, a C4&IT asset, is affected by that asset, or has a vested interest in, or expectation for, the asset. The stakeholder provides feedback on C4&IT assets, suggests enhancements to existing C4&IT systems or services, and identifies new system or service requirements via the Sponsor's Representative.
- l. Enterprise Architecture Configuration Control Board (EA CCB). The entity responsible for reviewing and approving changes to the EA. The Chief Architect is the EA CCB chair. Membership is cross-programmatic (e.g., Asset Managers, logistics).
- m. EA Management Board (EAMB). The EAMB provides a forum for the coordination of activities across the Coast Guard that impact the development of the EA. The EAMB is composed of personnel whose skills and knowledge are needed to address EA issues. Membership is usually reserved for O-6/GS-15 level. The EAMB develops consensus on a sequenced list of initiatives that are inputs to the investment management process.
- n. Data Steward. An organization (or person) that is responsible for the operations and maintenance of one or more operational data resources.
- o. Data Sponsor. A Data Sponsor(s) shall be assigned to each major data category, as defined by CG-6 in the Enterprise Data Architecture. A Data Sponsor is a government employee, assigned from Coast Guard organizations, authorized to define requirements in coordination with CG-6.

Data Sponsors are responsible for defining the data requirements, including content, quality, and currency, for use in mission and mission support activities. Data Sponsors are also responsible for forming and facilitating Communities of Interest around specific data categories to address differences and issues.

6. IMPLEMENTATION. EA practices establish the actions necessary to ensure compliance with the OMB requirement that the budget submissions of Federal agencies demonstrate how their C4&IT investment decisions align with that of their EA C4&IT modernization strategy. All Coast Guard organizations involved in the planning, acquisition, production, deployment, support, operation, and disposition of C4&IT systems shall follow the EA practice. CG-6 charts and delegates primary development, maintenance, and review responsibility for C4&IT Enterprise Architecture practices to the C4&IT Enterprise Architecture Policy Review Board. CG-6 has final approval authority for these practices. The EA practices provide the procedures and processes for the following:
  - a. Managing the As-Is Enterprise Architecture. The procedures for establishing, maintaining and updating the As-Is Architecture, including procedures for incorporating As-Is EA content already published or delivered by contract to the Coast Guard.
  - b. Managing the Target EA. The procedures for establishing, maintaining, and updating the Target architecture.
  - c. Managing the Enterprise Transition Plan. The procedures for establishing, maintaining, and updating the transition plan, addressing impacts on baseline and Target architectures, TRM, the enterprise standards profile, and the enterprise data architecture, etc., following DHS, DoD, and Federal guidance, including procedures for incorporating transition plans already developed or published by other directorates or delivered by contract to the Coast Guard.
  - d. Conducting EDM. The procedures and activities necessary for managing data throughout an enterprise.
7. ENVIRONMENTAL ASPECT AND IMPACT CONSIDERATIONS. Environmental considerations were examined in the development of this Instruction and have been determined to be not applicable.
8. FORMS/REPORTS. None.

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