National Geospatial-Intelligence Agency (NGA)

**CIO and IT Services (CIO-T)**



**Business Enterprise Services**

**Task Order (TO): 0012**

**Statement of Work (SOW)**

**30 April 2020**

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# Introduction

This Statement of Work (SOW) supports a Task Order (TO) procurement of Systems Engineering and Integration (SE&I) support for the Business Enterprise Service Division (TFB/BES) within the Future Experience Office (TF). Introduction, background, objectives, and scope material contained in the Base NEE SOW apply to this TO. The contractor shall provide all appropriate support to assist the accomplishment of the requirements stated below.

## Background

NGA’s Business Enterprise Service (BES) Division is responsible for supporting corporate business applications and systems that service the agency over a broad range of business areas. BES provides IT Service Management Application Life Cycle Support for NGA’s Corporate Business entities (COTS and GOTS) that enable the mission, ensure business processes are defined and executed, functional timelines are met, and that corporate data and system integration, analysis, and visualization is achieved while maintaining the highest electronic security protection of Personnel Identifiable Information (PII) and Protected Health Information (PHI). By centralizing all corporate business application support and configuration management this will enable the BES Division on obtaining a desired future vision of enhanced and integrated service offerings.

As an inherent mission and function of CIO-T, TFB/BES has the responsibility to codify and instantiate the overarching NGA Corporate Enterprise Architecture and provide value enterprise engineering and integration services on corporate business applications and systems supporting all of NGA. The overarching NGA Corporate Enterprise Architecture provides guidance and tiered accountability to the lower level architectures (segment/program and solution architectures).

## Scope

The Contractor shall perform non-conflicted enterprise architecture and enterprise value engineering services work for NGA corporate by the requirements specified in this task order to support BES in conducting strategic and program planning, sensitive acquisition/procurement planning, business operation and enabling technology solution evaluation and assistance, business process assessment and redesign, analysis of new and leading edge technologies, test and evaluation of leading-edge technologies, research and study for BES and NGA Corporate, and coordination with various NGA and IC stakeholders.

The NEE contract intends to provide support to the definition, documentation, and development of the As-is and To-Be overarching Corporate Enterprise Architecture (CEA). This effort is underpinned by enterprise value engineering discipline, consisting of business, data, services, and systems architectures, to establish and codify a common decision-support framework to influence timely, objective, and effective decision making that provides strategic alignment of technology investments with business objectives, priorities, and performance measures; while providing traceability to the defined decision support processes (i.e. NGA Planning Guidance, PPBE, Acquisition Strategy, CIG, CBJ Reporting, etc.).

By Law (Title 10 USC Sec 2222e) and by National Defense Authorization Act (NDAA) FY2020 Section 903, the CEA shall include policies, procedures, business data standards, business performance measures, and business information requirements that apply uniformly throughout NGA to achieve the following objectives:

* Guide the development of optimized and integrated business operations, processes, and practices
* Ensure effective implementation of interoperable NGA corporate business system solutions
* Enable NGA to comply with all applicable law
* Produce time, accurate, and reliable business and financial information
* Integrate budget, accounting, and program information and systems
* Identify and justify whether each existing business system to include independently/organization-specific developed/procured application is, will become, or is not a part of the certified and approved corporate business systems environment

The Contractor shall apply Model-Based System Engineering (MBSE) methods and tools and support the Government with integration efforts across the enterprise. A brief description of the architecture and engineering activities to be supported under this Task Order are as follows:

* **Enterprise and Solutions Architecture Engineering.** The NEE contractor shall provideservices to plan, design, define, develop, document and baseline the overarching Corporate Enterprise Architecture (CEA), inclusive of Business, Data, Network, Security and Solutions-Level Architectures down to the program level ensuring enterprise systems work together in an integrated fashion to deliver a comprehensive, cycled annually, Now (As-Is), Next (As-Is + 1FY), and After Next (To-Be and FYDP transformation roadmap); focused on end-to-end business (E2E) process while providing corporate enterprise digital services. The CEA shall describe a plan for improving the NGA corporate business systems, including each of the major business operations, practices, and processes enabled by the systems to comply with the NDAA mandate of a digital approach to modernizing DoD’s business operations and ODNI’s effort on Right, Trusted, Agile Workforce through the achievement of the Consolidated Intelligence Guide strategic objectives.. The initial baseline version is deemed to be more of a reactive “As-Built” description of the current state of NGA’s Corporate entity and their points of integration. Future iterations are intended to be more proactive as assumptions are realized and constraints are overcome, where the architecture can be used as a true decision support tool for articulating gaps, overlaps, and recommendations for capability sequencing, capability provisioning, and technical insertion.
* **Enterprise Level Requirements Engineering.** The NEE contractor shall provide services to develop, document, decompose and allocate strategic requirements to establish and enable the definition of the business enterprise services (e.g., Enterprise Capabilities Documents (ECDs), Statements of Capabilities (SOCs), Capabilities Description Documents (CDDs), Capability-Oriented Requirement (COR) sets, Service-Oriented Requirement (SOR) sets, and Agile Frameworks. The NEE contractor shall trace System and Software Requirements Documents (SysRDs and SRDs) to Enterprise requirements.
* **Enterprise Integration Engineering (Cross Organization and Program Office).** The NEE contractor shall provide Cross Organization and Program Office integration services to ensure discrete Directorates and Components mission function, business operations, process workflows, capabilities, services, activities, program and project level come together and integrated seamlessly to design and deliver a comprehensive and unified Corporate Information System (business environment) executing end-to-end business processes while providing business enterprise services.
* **Enterprise Analysis and Assessment.** Using the Now (As-Is), Next (As-Is + 1FY), and After Next (To-Be and FYDP transformation roadmap) CEA, the NEE contractor shall provide an Enterprise Architecture as a Service **(**EAaaS) to Directorates and Components, ADS, and CIO-T decision-makers, planners, managers, and leaders in performing Capabilities-based (gap, redundancy, overlap, fit-for-purpose) Analysis, Business Engineering assessment (Pre-Acquisition Engineering) and Analysis of Alternatives (AoAs), Feasibility/Benchmark/Trade Studies, and Integration Assessments; to answer questions, align investments with business objectives and priorities while measuring performance and providing traceability to the defined decision support processes (i.e. NGA SIP, Planning Guidance, PPBE, Acquisition Strategy, POM, CIG, CBJ Reporting, etc.). The EAaaS will use the multi-dimensional nature of the CEA to drive the creation of the different architecture views (artifacts) to communicate and answer questions. An architecture view or a combination of multiple views can be used to:
* Communicate the state of NGA’s Corporate mission and functions
  + Now (As-Is),
  + Next (As-Is + FY),
  + After Next (To-Be and FYDP transformation roadmap)
* Answer questions at all levels of abstraction (inform leadership decision points)
* Analyze/assess the clarity of business needs
* Perform Capability-based Analysis to:
  + Define and refine capability requirements to focus on business needs from a mission and functions perspective vice solution implementation design
  + Perform trade-off / fit / gap / overlap / redundancy analyses
  + Perform what-if analyses
  + Perform business case analyses
  + Perform analysis of alternatives (AoA)
* Inform strategic / acquisition / program planning
* Inform the Planning Programming Budgeting and Execution (PPBE) process
* Inform the Congressional Budget Justification (CBJ) reporting on expected accomplishments
* Inform the Consolidated Intelligence Guidance (CIG) on the progress made toward the achievement of goals and objectives
* Perform technology insertion
* Conduct study
* **Modeling, Simulation & Analysis (MS&A).** The NEE contractor shall provide services to the Government for Modeling, Simulation, and Analysis (MS&A). The contractor shall build and maintain digital artifacts and representations of architectures, systems, services, subsystems, and components supporting the corporate mission and functions, and use of software to conduct performance, capacity, and proof-of-concept MS&A across NGA.

# Applicable Documents

Applicable documents specified in this section are required for execution of the work described in the TO SOW. These documents provide additional detail to those listed in the Base SOW.

## Compliance Documents

* 2014 National Intelligence Strategy
* Title 40 US Code, Chapter 25; Information Technology Management (ITM) [Formerly Clinger-Cohen Act (PL. 104-106) which replaced Information Technology Management Reform Act (ITMRA)]
* Title 10 US Code 2222; Defense Business Systems: Business Process Re-engineering, Enterprise Architecture, and Management (December 19, 2019)
* National Defense Authorization Act for Fiscal Year 2020, Section 903 – Return to CIO the Responsibility for Business Systems and Related Matters and Defense Business Systems Audit
* FY2018-FY2022 National Defense Business Operation Plan
* 2015 Congressional Report on Defense Business Operation
* FY2021-2025 Consolidated Intelligence Guide
* OMB Circular A-130; Management of Federal Information Resources (28 Nov 00), and Appendix III; Security of Federal Automated Information Resources (20 Jan 01)
* Government Accountability Office (GAO) Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity, GAO-04-394G (Washington, D.C.: March 2004) – this practices include (1) designating a program office to manage the enterprise architecture, an investment review board to oversee the IT investments, and an executive committee – or governance board – to oversee the NGA’s overarching corporate enterprise architecture; (2) establishing an investment review process; (3) certifying investments’ compliance with the overarching corporate enterprise architecture; and (4) maintaining a complete inventory of IT information – including a comprehensive list of systems
* Government Performance and Results Act (GPRA) of 1993
* Government Paperwork Elimination Act (GPEA) of 1998
* Defense Information Enterprise Architecture (DIEA) v1.1
* DoD Directive 4630.5; Interoperability and Supportability of Information Technology and National Security Systems (Apr 07)
* DoD Instruction 4630.8; Procedures for Interoperability and Supportability of Information Technology and National Security Systems (Jun 04)
* Defense Information Enterprise Architecture (DIEA) v3.0 Volume I and II (February 22, 2017)
* DoD Directive 5000.01; The Defense Acquisition System (20Nov07)
* DoD Instruction 5000.02; Operation of the Defense Acquisition System (10Aug17)
* DoD Instruction 5200.1; Information Security Program (1 May 2018)
* DoD Instruction 8510.01; Risk Management Framework (RMF) for DoD Information Technology (IT) (28Jul17)
* DoD Directive 5015.2; DoD Records Management Program (06 Mar 00)
* DoD Directive 8000.01 – Management of the Department of Defense Information Enterprise (DoD IE) (17 March 2016 with Change 1, 27 July 2017)
* DoD Directive 8100.1; Global Information Grid (GIG) Overarching Policy (19 Sep 02)
* DoD Instruction 8510.01-M; Department of Defense Information Assurance Certification and Accreditation Process (DIACAP) Application Manual (Dec 07)
* DoD CIO Guidance and Policy Memorandum # 12-8430; Acquiring Commercially Available Software (26 Jul 00)
* DoD CIO Memorandum Public Key Infrastructure (PKI) Policy Update (21 May 02)
* DoD Public Key Infrastructure (PKI) Guidance and Policy Memorandum (12 Aug 00)
* DoD CIO Memorandum Public Key Enabling (PKE) of Applications, Web Servers, and Networks for the Department of Defense (DoD) (17 May 01)
* DoD CIO Memorandum Update to the Revised Defense Message System Transition Plan (12 Apr 01)
* Department of Defense End-to-End Business Process Integration Framework (17 May 2013) – to serve as the foundation for business process reengineering to drive business improvement by optimizing Operational Activities, and encouraging interoperability, audit readiness, financial compliance, and earned value benefit realization.
* IC Directive 121 – Managing the IC Information Environment (IC IE) (19 Jan 2017)
* IC Directive 115 – IC Capability Requirements Process (21 Dec 2012)
* IC Standard 115-01 – Analysis of Alternatives (18 May 2016)
* ICD 801, Acquisition (16 Aug 09)
* ICS 801.01, Major Systems Acquisition (18 Jun 13)
* NSG Directive 1100, Geospatial Intelligence Functional Management (2 Aug 14)
* NGAI 8200.1 Safeguarding Data At Rest (6 May 2016)
* NI 8400.3; Information Technology Investment Portfolio Management (12 Nov 15)
* NI 8400.4; Implementation of Electronic and Information Technology Accessibility/ Section 508 Program (5 July 2017)
* NI 8420.2; Antivirus Response (12 Nov 15)
* NI 8420.3; Controlled Interfaces for Systems and Networks (12 Nov 15)
* NGAI 8900.4; Intelligence Oversight Compliance and Awareness Program (17 Jan 18)
* NGA Tier 2 Configuration Management (CM) Procedure, Revision A (1 April 2014, Rev A 2 May 2018)

## Reference Documents

* Federal Enterprise Architecture Framework (FEAF)
* Federal Information Security Management Act (FISMA) of 2002, as amended by the Federal Information Security Modernization Act of 2014
* OMB Memorandum M-97-16, Information Technology Architectures (18 Jun 97)
* OMB Memorandum M-97-02; Funding Information Systems Investments (25 Oct 96)
* Under Secretary of Defense for Acquisition, Technology, and Logistics Memorandum, Subject: Evolutionary Acquisition and Spiral Development (12 April 02)
* Intelligence Community System for Information Sharing (ICSIS), Phase One CONOPS, Version 1 (Jan 02)
* Joint Chiefs of Staff , CJCSM 3170.01D; Operation of the Joint Capabilities Integration and Development System, (Jul 09)
* Joint Chiefs of Staff, CJCSI 3170.01E; Requirements Generation System (Dec 08)
* Joint Chiefs of Staff, 3170.01I; Joint Capabilities Integration and Development System (23 January 2015)
* Joint Chiefs of Staff, CJCSI 6212.01D; Interoperability and Supportability of National Security Systems, and Information Technology Systems (Apr 05)
* Defense Information Technology Standards Registry (DISR)
* Joint Vision 2020 (Jun 00)
* Web Content Accessibility Guidelines (WCAG) 2.0 (December 2008)
* Intelligence Community (IC) Joint Architecture Reference Model (JARM)
* Intelligence Community (IC) Program Architecture Guide (PAG) v2.0 16 Jan 2014
* Signed NGA Capability Taxonomy Intended Use Memo 13July2017
* DoD Office of the Chief Management Officer (CMO) Business Enterprise Architecture (BEA) version 11.1 26 Apr 2018
* DoD Defense Acquisition Guidebook
* DoD Architecture Framework (DoDAF) (Feb 04)
* DoD Net-Centric Operations and Warfare Reference Model (NCOW-RM)
* DoDI 8320.07 – Implementing the Sharing of Data, Information, and Information Technology (IT) Services in the Department of Defense (1Dec17)
* DoDI 8330.01 – Interoperability of Information Technology (IT), Including National Security Systems (NSS) (18Dec17)
* ICPG 801.1 – Acquisition (12 Jul 2007, amended 29 Jan 2015)
* CJCSI 3170.01I – Joint Capabilities Integration and Development System (JCIDS) (23 Jan 2015)
* CJCSI 5123.01G – Charter of the Joint Requirements Oversight Council (JROC) (12 Feb 2015)
* NSG Requirements for Applications and Infrastructure (NRAI)
* NSG Operational Requirements Document (NORD) Defining NGA’s Programmatic Responsibilities to the NSG (Feb 04)
* NSG Systems Training Management Plan
* NGA Strategy 2025
* NGA FY 2019-2023 Strategic Goals
* Consolidated Intelligence Guidance FY 2021-2025
* CIO and IT Services Major Initiatives, Challenges and Opportunities
* NGA Acquisition & Technology (AT) Migration Plan (28 Sep 01)
* GEOINT CONOPS 2020
* ISO/IEC/IEE15288\* – Systems and software engineering –System life cycle processes
* IEEE 15288.1\* – IEEE standard for application of systems engineering on defense programs
* IEEE 15288.2\* – IEEE standard for technical reviews and audits on defense programs
* ISO/IEC TR 24748-1\* Systems and software engineering – Life cycle management – Part 1: Guide for life cycle management
* ISO/IEC TR 24748-2\* – Systems and software engineering – Life cycle management – Part 2: Guide for the application of ISO/IEC 15288 (System life cycle processes)
* ISO/IEC TR 24748-3\* – Systems and software engineering – Life cycle management – Part 3: Guide for the application of ISO/IEC 12207 (Software life cycle processes)
* ISO/IEC/IEE 24748-4\* – Systems and Software Engineering – Life cycle management – Part 4: Systems engineering planning
* ISO/IEC/IEEE 24748-5\* – Systems and Software Engineering – Life Cycle Management – Part 5: Software Development Planning

\*Commercial standard – requires purchase or IEEE subscription

# Description of Work

## 3.1 Enterprise and Solutions Architecture Engineering Support

BES requires SE&I support in Strategic, Enterprise, and Solutions-level Architecture Engineering. Engineer and Architect resources applied against this effort shall assist the Government in planning, designing, defining, developing, documenting and baselining the overarching Corporate Enterprise Architecture (CEA), inclusive of business, data, network, security, and solutions-level sub-architectures. This is to ensure enterprise systems work together in an integrated fashion to produce a comprehensive and a unified business environment, executing end-to-end business processes while providing business enterprise services.

The scope of work is at the strategic/enterprise level to which the contractor will engage and coordinate with the different Directorates and Components on efforts consisting of collecting, aggregating all architecture-related information (i.e. documented business operations, processes, practices, functions, and activities), normalizing the terms/lexicon/ontologies of the different capabilities, standardizing the framework in order to give the lower level architectures (segment and solution) guidance and a mechanism for investment alignment and compliance.

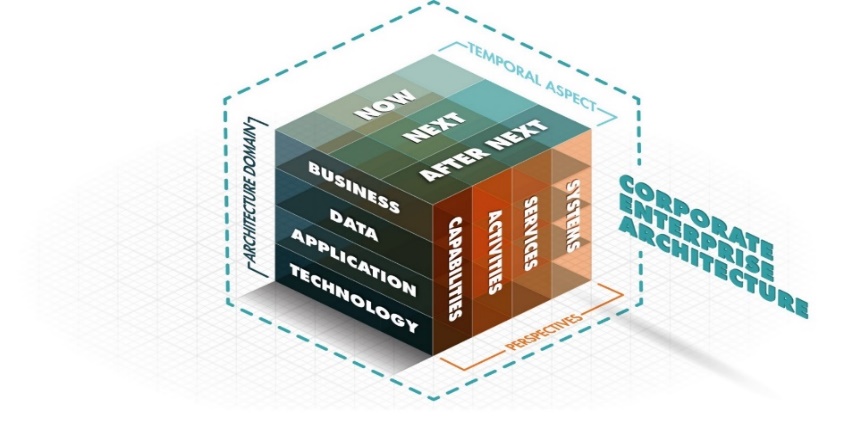
Key activities of Enterprise and Solutions Architecture Engineering may include the following:

* Derivation, definition, and documentation of the right Resource, Functional, and Operational Capabilities and associated activities and services about NGA Corporate, along with systems analysis necessary to define, document, and baseline the current NGA CEA;
* Planning, design, and systems engineering work necessary to build and portray the future state NGA CEA;
* Development of conceptual, logical and physical architecture and technical roadmaps defining the time-phased schedule for the path of transition or transformation of systems and services from the baselined current state to the future state CEA; and program, segment and project-based solution-level architectures consistent with the enterprise-level architecture.

Enterprise and Solutions Architecture Engineering Support includes support for but is not limited to, the strategic, enterprise, and solutions-level architecture engineering activities that follow.

### Enterprise Architecture Support

The overarching Corporate Enterprise Architecture is an organizing logic for transforming the NGA Corporate mission and functions into an efficient and effective enterprise where decision-makers are held accountable for being responsible stewards of taxpayer money while supporting the NGA mission and the Functional Manager’s role in keeping our country safe. It reflects NGA’s business transformation priorities, the business capabilities required to support those priorities, and the combination of enterprise business systems and initiatives that enable those capabilities. It is the authoritative source of information that guides and constrains solutions architectures, services, and data so that it may be responsive to stakeholder requirements. This architecture information informs Government decisions on several critical activities including planning, programming, budgeting, and mission execution. Architecture information also supports key engineering services such as requirements analysis, decomposition, and inter/intra segment integration. The Corporate Enterprise Architecture (CEA) framework is multi-dimensional and will rest on four Architecture Domains:

* **Business Architecture**. Defines and codifies the mission and functions that represent the NGA Corporate.
* **Data Architecture**. Addresses the data description, data context, and information sharing of the relevant corporate data.
* **Application Architecture**. Provides a blueprint for the individual application systems that TFB/BES will deliver and deploy, the interactions between the application systems, and their relationships to the core, end-to-end business processes within and across the Support Directorates.
* **Technical Architecture**. Describes the hardware, software, and network infrastructure needed to support the delivery and deployment of critical applications needed to enable and support the NGA Corporate mission and functions.

The four architecture domains are correlated and described using the different **Perspective Domains** such as capabilities, activities, services, and systems within a specific **Temporal Aspect Domains** of Now, Next, and After Next.

Description of all domain elements must come from sourced and authoritative information to make the CEA a central source of knowledge that provides justifiable and defensible recommendations to any corporate decision points.

Though it is not considered as one of CEA’s domain elements, Performance Measures will be interspersed throughout the CEA’s multi-dimensional framework as a way to measure the end-to-end business processes, applications, infrastructure, and other IT investments and their contribution to program performance.

The IC and DoD data-centric approach to architecture development will provide the starting point for the CEA development, by defining at a high-level the required content and guiding principles; and by analyzing end-to-end business processes across the NGA Corporate mission and functions.

The end-to-end business processes will provide much of the content to mature the CEA with richer requirements to modernize or transform the business operations while developing an initial version of the CEA that meets those requirements. The content will then drive the development of an Architectural Description (scope), which is an iterative process and a unique one, in that every Architecture Description:

* Serves a specific purpose
* Serves differing stakeholder requirements, necessitating different types of views or artifacts to represent the collected data
* Represents a snapshot in time (Now, Next, or After Next)
* Changes over time as requirements become more focused or additional knowledge becomes known.

This approach will help define the scope of each release for each key milestones. Version one of the CEA will support planning for initial business processes, investment planning, and critical technology solutions for the four E2E business processes; with the intent to inform POM Build FY22.

The contractor shall follow the CEA Framework and shall support the performance of this Task Order to include, but are not limited to:

1. Define, document, develop, establish, and codify the Now (As-Is), Next (As-Is + 1FY) and the After Next (To-Be and FYDP transformation roadmap) Corporate Enterprise Architecture to describe the NGA corporate mission and functions (who we are and what we do), and its delivered capabilities in time-bounded increments.
2. Design and update Enterprise-level digital models/representations/artifacts of architectures that capture Enterprise requirements and provide roadmaps to balance cost, schedule, and performance.
3. Support the integration effort of CEA with the overarching GEOINT Enterprise Architecture (GEA).
4. Recommend, instantiate and operate architecture tools that support analysis and decision making through architecture data in the form of models, simulations, reports, business intelligence, and views so that stakeholders may use architecture data to answer investment and divestment questions.
5. Create appropriate and effective architecture information and artifacts (per the Department of Defense Architecture Framework (DoDAF) and the Intelligence Community’s (IC) Program Architecture Guidance (PAG)) that are relevant and usable across the NGA, NSG, ASG, USG, commercial, and foreign partners.
6. Assess architectural artifacts and components for compliance with DoD, IC, and NGA standards as appropriate and provide recommendations on resolving deficiencies, gaps, and/or recommended enhancements. Ensure that the architecture is compliant with NGA’s U. S. Code 50, Section 3023 requirement.
7. Use the Joint Architecture Reference Models (JARM) to normalize, describe, analyze, and identify potential architectural service gaps, support AoA, leverage existing resources, and assist with invest and divest decisions for the agency.
8. Use the MBSE methods and tools and the certified NGA Enterprise Architecture repository to build and maintain digital architecture artifacts (systems models of services, components, systems, and subsystems) across the NGA Directorates and Components. Use MBSE to link requirements and design artifacts to the solution and enterprise-level architectures.
9. Utilize the enterprise architecture and artifacts to improve the quality of NGA’s corporate investments and architecture and engineering decisions by understanding, describing, and refining the alignment of corporate capabilities to people, process, and technology. Assist with the alignment of IT strategy and planning with the Agency's business and mission goals.
10. Manage and maintain the necessary processes and tools for automated maintenance and management of architecture artifacts within the repository for the enterprise.
11. Manage enterprise architecture documentation in collaboration with the Configuration Management function executed within NGA Foundational Engineering (NFE).

### Program and Solutions-level Architecture Support

There are various levels of architectures and the next level of architecture decomposition below Enterprise Architecture defines the orchestration of systems and services across the Enterprise to deliver the functions required to satisfy operational capabilities and mission activities. It includes the allocation of functions, services, requirement responsibility and interface definitions to the appropriate time phased architecture, technical roadmap, To Be Architecture, and program.

Program and Solutions-level Architecture activities the contractor shall provide in the performance of this Task Order include, but are not limited to:

1. Design programmatic and solutions-level architecture digital models/representations that fulfill program requirements and provide solutions that balance cost, schedule, and performance across the enterprise.
2. Analyze architecture information to provide recommendations for program investments and solution-level architecture and engineering. This includes the assessment of current and optimized future state concept of operation and associated investments against the As-Is and To-Be CEA; and where business capabilities and services should be provided [cross-domain] to best support the workforce in its mission.
3. Build, vet, and baseline program and solutions-level architectures consistent and in alignment with NGA corporate capabilities defined and provisioned in CEA.
4. Conduct systems analysis to support re-use or development of like or shared capabilities across the enterprise baseline to gain functional and cost efficiencies. Shall ensure solutions do not duplicate functionality or diverge from NGA business and IT strategies.
5. Collaborate with Office/Program Office/Project Engineering and Foundational Systems Engineering to understand the program, segment, and project timelines for the delivery of capabilities and to ensure the current architecture baseline and To-Be Architecture supports capabilities when they are delivered.
6. If applicable, reference the baselined special access program (SAP) architecture and support transition activities from this architecture framework into the Intelligence Community Information Environment (IC IE), Intelligence Community Technology Enterprise (IC ITE), Department of Defense Information Environment (DoD IE), Joint Information Environment (JIE), Defense Intelligence Information Environment (DI2E), other clouds and NSG integration in increments, and as approved by the Government to understand the impact to the corporate data and its flow in a cross-domain environment. Shall utilize the guidance provided by the CAP/SAP architectures for the migration of the Unclassified Corporate Capabilities into the CEA and GEOINT Enterprise Architecture (GEA) To-Be Architecture.
7. Define and design the Unclassified Corporate Capability common operating picture and concept of operation, and support transition activities in alignment and compliance with the IC and DoD policies and guidance - the Intelligence Community Information Environment (IC IE), Intelligence Community Technology Enterprise (IC ITE), Department of Defense Information Environment (DoD IE), Joint Information Environment (JIE), Defense Intelligence Information Environment (DI2E), other clouds and NSG integration in increments, and as approved by the Government. Shall support the migration of Unclassified Corporate Capabilities into the CEA and GEA To-Be Architecture.
8. Develop and document necessary quick reaction architecture requirements for warfighter support workforce’ capability needs and other critical/relevant pilots showing potential high-value ROI, in the enterprise architecture baselines.
9. Assist the Government in architecting and planning the transition from paper-based processes to digital artifacts integrating architectures, requirements, integration, scheduling, budgeting, and other data needed for systems engineering.

### Executable Technical Roadmap Development and Support

These are activities that are necessary to build, manage, and execute time-phased, digital enterprise services roadmap(s) that identify and articulate the enabling technology development journey to future capabilities.

Executable Technical Roadmap Development activities the contractor shall support in the performance of this Task Order include, but are not limited to:

1. Define, develop, document, and maintain the time-phased, strategic and technical transformation or transition roadmap(s) that move NGA corporate mission and functions from the current As-Is Architecture to the To-Be Architecture and current corporate capabilities to future capabilities.
2. Coordinate across all Directorates and Components of NGA to identify dependencies, process hand-offs, relevant stakeholders (human-in-the-loop), and triggers, in support of architectural decisions.
3. Coordinate with BES to orchestrate and integrate changes into the Technical Roadmap.

### Business Architecture Support

These are activities that define the NGA corporate business model representing the holistic, multi-dimensional business views of capabilities, end-to-end value delivery, information, and organizational structure; and the relationship among the Directorates and Components and strategies, products, policies, initiatives, and stakeholders. Business Architecture activities will primarily focus on major end-to-end (E2E) business processes that enable the NGA mission, specifically Corporate Management (Hire-to-Retire (H2R), Budget-to-Report (B2R), Procure-to-Pay (P2P), and Acquire-to-Retire (A2R)) and Corporate Operations (enterprise activities not unique to a single organization; e.g. strategic planning, program management, etc.). Dependencies, process hand-offs, relevant stakeholders (human-in-the-loop), and triggers, in support of architectural decisions about the E2E business processes will be coordinated with the different Directorates and Components’ owning the specific E2E business process.

* **Hire-to-Retire (H2R)**. Encompasses all business functions necessary to plan for, hire, develop, assign, sustain, and separate personnel, including related personnel functions such as benefits, counseling, payroll, travel, and security.
* **Budget-to-Report (B2R)**. Encompasses all business functions necessary to plan, formulate, create, execute, and report on the budget and financial management business activities, including updates to the general ledger.
* **Procure-to-Pay (P2P)**. Encompasses all business functions necessary to obtain goods and services, which may include requirements identification, sourcing, contract management, purchasing, payment management, and receipt and debt management
* **Acquire-to-Retire (A2R)**. Encompasses all business functions necessary to obtain, manage, and dispose of accountable property and capitalized assets, which may include Property, Plant, and Equipment (PP&E) placement into service, PP&E management, and PP&E retirement and related integration elements with Procure-to-Pay.

Its components include governance, business processes, and business information. It aligns strategic vision, goals, and objectives with NGA Doctrine, policy, regulations, organizations, capabilities, initiatives, customers, finances, value streams, supply chains, products, and services to inform decisions on acquiring and delivering mission outcomes. The Business Architecture activities the contractor shall support in the performance of this Task Order include, but are not limited to:

1. Provide expertise and support for Business Architecture, design, implementation approaches and recommendations ensuring the alignment of strategic vision, goals, objectives, functions, and business rules, with NGA Doctrine, policy, regulations, organizations, capabilities, initiatives, customers, finances, value streams, supply chains, products and services for informed Government decisions
2. Work closely with the different Directorates and Components to ensure the integrity and fidelity of the information is captured and accurately depicted and maintained in CEA.
3. Align the Directorates and Components’ mission and functions to the E2E business processes
4. Capture the business operational details to ensure consistency between processes, technical implementation, and policy that will help alleviate high costs of system implementation when technical choices do not match policy and business processes.
5. Document and identify opportunities for business process improvement and develop alternatives, perform gap analyses, review policies for possible changes, and identify information exchanges/process hand-off/triggers, and solution requirements.
6. Document integration point to converge and understand complex inter-related effects of changes to people, process, policy, and technology.
7. Identify, define, and document the business applications necessary to support the E2E business processes and all interdependencies.
8. Define and document the services and standards necessary to support the E2E business processes.
9. Define a framework for measuring the performance of the E2E business processes. This performance data will facilitate the decision-making processes for the improvement and execution of the capabilities.
10. Report on the optimization and usage of shared business processes, capabilities, infrastructures, and applications to reduce costs and improve information flow imported into and exported out of the NGA corporate business enterprise.
11. In collaboration with Enterprise Risk Management, performed on the NGA Foundational Engineering Contract, identify enterprise-level risks, opportunities, and issues associated with the collective enterprise architecture (As-Is, To-Be, and Technical Roadmap’s) and assist in risk mitigation.
12. Assist the Government in developing the business architecture to transform and modernize the business operations and processes integrating architectures, requirements, functional integration, scheduling, budgeting, and other data needed to optimize, augment, automate and accelerate the business processes.

### Data Architecture/Data Services Architecture Support

Supports the government with data architecture definition and documentation specific to the CEA. The support includes leveraging commonly used data and metadata formats used by NGA, the IC, and DoD; the business rules for data access, releasability, conflation, validation, quality, retention, storage management, and refresh; and the technical services architecture to support the NGA’s data strategy of making data accessible to all users via common services. The Data Services Architecture for GEOINT (DSA-G) includes services for data ingest, conditioning, access, dissemination, security, management, and storage.

Data Architecture/Data Services Architecture activities the contractor shall support in the performance of this Task Order include, but are not limited to:

1. Establish, develop, and codify a common data architecture that captures the normalized corporate business data types, description, data flow, appropriate data classification, and the required authoritative system of record to include the appropriate network domain to house the corporate data. This includes the Conceptual Data Model, the Logical Data Model, and the Physical Data Model, the associated Ontology, Lexicon, and Data Dictionary.
2. Collaborate with the NSG Data Engineering (NDE) contractor and Government to incorporate the corporate data architecture into the Enterprise and Solution Architectures, Enterprise Requirements, Enterprise Technical Roadmaps, Business Architecture, and Enterprise Integration engineering.
3. Provide support for Data and Data Services Architecture, design, implementation approaches, and recommendations for NGA corporate business operations.
4. Collaborate with the NDE contractor to ensure data execution efforts are aligned with NGA priorities.

### Network Architecture and Engineering Support

Supports the government with network engineering support specific to the CEA to include network diagrams and configurations to aid in planning, designing, and implementing a unified Corporate Information Systems executing end-to-end business processes in future state cross-domain environment while providing corporate enterprise digital services.

Network Architecture and Engineering activities the contractor shall support in the performance of this Task Order include: Providing expertise and support for Network Architecture, design, implementation approaches, and recommendations for NGA business operations executed across multiple network domains.

### Security Architecture and Engineering Support

Supports the government with securing the corporate business data and associated/relevant infrastructure through the security architecture for NGA with direction from the Chief of Security Engineering and in collaboration/coordination with the Cyber Security Operations, Cyber Security Program Office, Security and Installations (SI), and the Chief Information Security Officer (CISO).

Security Architecture and Engineering activities the contractor shall support in the performance of this Task Order include, but are not limited to:

1. Engineer and implement Enterprise Security Services to ensure secure operation and defense of the NGA corporate mission and functions.
2. Adopt and codify the guidance provided by the current Enterprise Security Services (IDAM, Cross Domain, Network, and Host Defense, Cyber Security Operations capabilities) to include integration, upgrades, and replacements, into CEA.
3. Providing technical expertise to support program development of secure applications and systems by providing technical guidance for implementation of ICD-503 required controls, speeding the delivery of capabilities to our customers, and subsequent future cybersecurity policies and directives.
4. Collaborate with cybersecurity contractors, operations, and accreditation teams on the execution of design, engineering, upgrade, and integration activities.
5. Continuously supports the development and refinement of the As-Is and To-Be Security Architecture of the GEA and NGA, SAGE (CAP/SAP), NSG, and ASG in support of NGA Strategy.

## Requirements Engineering

BES requires SE&I support in Strategic, Enterprise, and Capabilities-level Requirements Engineering. Resources applied against this effort must have full knowledge and understanding of the CEA, shall assist the Government in tracing System and Software Requirements Documents (SysRDs and SRDs) to Enterprise requirements. This includes aligning traceability of capabilities and needs to the overarching CEA and through developing, documenting, decomposing and allocating strategic (*i.e., Corporate Enterprise Capabilities Documents (ECDs), Statements of Capabilities (SOCs) and Capabilities Description Documents (CDDs), Capability-Oriented Requirement (COR) sets, Service-Oriented Requirement (SOR) sets,)* through the solution (i.e., System and Software Requirements Documents (SysRDs and SRDs) level requirements to establish and enable corporate business solutions for all of NGA workforce. The collective requirements engineering activity is inclusive of agile techniques to define requirements using the CEA Capability Taxonomy, epics, features, and user stories. This service includes top-down and bottom-up planning and coordination for retiring legacy entities into receiving, future entities.

Requirements Engineering includes support for but is not limited to, the strategic, enterprise, and capabilities-level requirements engineering activities that follow.

### High-Level Requirements Engineering Support

The contractor shall support the Government in developing, documenting, decomposing, and allocating business needs from strategic to tactical level requirements to establish and enable the corporate business solutions for all of the NGA workforce.

Using CEA view or a combination of multiple architecture views, the contractor shall support High-Level Requirements Engineering activities in the performance of this Task Order to include, but are not limited to:

1. Provide input and support to the continued development, maintenance, and documentation of all NGA strategic needs repositories, digital representations, documents to include the Corporate ECD, all relevant SOCs, Enterprise repository (NRAI), CDDs, NGA Strategy and current and future CONOPS.
2. Support the decomposition and allocation of all NGA strategic needs from the Corporate ECD, all relevant SOCs, CDDs, and the NGA Strategy and current and future CONOPS to lower strategic, integration, and Enterprise level requirement repositories, digital representations, and documents. This shall include the decomposition of high-level needs, epics, and requirements into Enterprise features and user stories which Program Offices, programs, and projects will use to develop their program backlogs features and user stories for implementation using the most appropriate and efficient systems engineering approach.
3. Capture corporate/business-related quick reaction warfighter support needs and other critical/relevant pilots showing potential high-value ROI, in the designated enterprise requirement repositories, digital representations, documents, and baselines. Advocate for expedited warfighter support and pilot corporate/business needs within the appropriate programs, segments, and projects.
4. Capture, and manage an Enterprise Requirements Database to provide a centralized location to capture all corporate/business requirements and requirements documentation.
5. Establish and maintain a Requirements Management Process for managing requirements which provides multi-directional traceability and allows for managing changes to the established requirements baseline.
6. Manage and share the Enterprise Requirements Baseline to enable BES to develop acquisition strategies, identify areas for investing and divesting, and provide traceability of requirements from the ECDs, SOCs, CDDs, and NGA Strategy and current and future CONOPS through solutions engineering.
7. Provide a self-service user interface that allows customized corporate/business requirement queries against the authoritative requirements database and baseline. Collaborate and work with NFE to reach back and management.
8. Standardize and manage corporate/business requirements artifacts in collaboration with the Configuration Management function within NFE.
9. Validate decomposed, allocated corporate/business requirements from the strategic documents to solution programs, segments, and projects, and coordinate with the user to demonstrate perceived intent, and further develop requirements.
10. Coordinate with users and stakeholders to develop enterprise-level corporate/business requirements for new mission needs and to determine viable solutions for each request.
11. Capture new strategic requirements/needs and the associated NGA Strategic Roadmaps codified in the Corporate Enterprise Architecture To-Be business concept of operations (CONOPS) development effort. The Strategic Roadmaps include the capture of groupings of time-phased capabilities and success criteria with associated dependencies to support the development of Solution Epics.
12. In collaboration with Enterprise Risk Management, performed on the NGA Foundational Engineering Contract, identify enterprise-level risks, opportunities, and issues associated with requirements and the requirements management lifecycle and assist in risk mitigation.
13. Collaborate with governance boards for approval of new user needs and requirements.
14. Recommend new, agile processes and methodologies to decrease the requirements satisfaction timeline and to increase requirements visibility and efficiency across the NGA.
15. Use MBSE to document and trace corporate/business requirements, design, analysis, and verification and validation activities from strategic through solution levels beginning in the conceptual design phase and continuing throughout the systems engineering life cycle.
16. Define, evaluate, and document information security requirements for new IT initiatives and cyber capabilities impacting business systems.
17. The contractor shall collaborate with the NSE contractor in the allocation/traceability of corporate/business enterprise requirements to program requirements.
18. The contractor shall collaborate with the NFE contractor in the configuration control, configuration management of Enterprise and Solution requirements.
19. Using the CEA view or a combination of multiple CEA views, the contractor shall support the Future Corporate Systems Matrixed Operating Model (FCS MOM) Requirements Assessment Team (RAT) to analyze capability requests submitted by Directorates and Components. Coordinate assessment activities with customers, FCS MOM, and other CIO-T stakeholders.

### Capabilities Requirement Analysis (Legacy Requirement) Support

The NEE contractor shall provideEAaaS to support the Government in ensuring new strategic, functional, or operational capabilities address enduring requirements currently serviced by legacy entities.

Using the CEA view or a combination of multiple CEA views, the contractor shall support Capabilities Requirement Analysis (Legacy Requirement) activities in the performance of this Task Order to include, but are not limited to:

1. Decompose legacy system capabilities into their constituent parts, services, components, and functions as well as interfaces to other systems, consumer relationships, and required data exchanges.
2. Identify and validate legacy capabilities that will persist into the future and ensure they are reflected within the To-Be architecture and technical roadmaps that capture the systems or enterprise services that will perform or absorb the capability.
3. Ensure technical roadmap timelines include the end of the legacy contract and the start of the follow-on/enduring system or enterprise service contract and identify potential gaps/overlaps in critical functionality.
4. Conduct capabilities retirement analysis engineering activity in collaboration with Enterprise and Capabilities-level Requirements Engineering.
5. Perform divestment analyses to identify overlapping capabilities or existing functions that can be absorbed into enduring/new systems to minimize duplication.
6. Conduct requirements trace using JARM Technical Service Types (TSTs)) for duplication analysis and provide reports to the Government describing the findings.
7. Automate the analysis and reporting needed to detail the gaps and duplication in the enterprise capabilities provided by external IT Enterprises such as IC ITE, JIE, and DI2E.
8. Assess the NGA corporate application/software/service repositories for reuse opportunities.

### Interface/Service Definition Support

Using the CEA view or a combination of multiple CEA views, the NEE contractor shall provideservices supporting the Government in transitioning the enterprise from a point-to-point interface environment to a services-oriented/Application Program Interface (API)-oriented environment where applicable, and ensure detailed interface definitions are consistent with the defined CEA and GEA standards and interoperability guidance.

Interface/Service Definition activities the contractor shall support in the performance of this Task Order include, but are not limited to:

1. Assist the government in advancing the enterprise from a point-to-point interface environment to a services-oriented/API-oriented environment where it makes sense and as directed.
2. Define and mature system and service interfaces and the interactions across the NGA corporate mission and function baselines.
3. Ensure that the detailed interface definitions are consistent with the defined CEA and GEA.
4. Conduct analysis to identify industry best practices, standards, and management of service-oriented, cloud, and API environments.

### External Site Architecture Transition (ESAT)

Using the CEA view or a combination of multiple CEA views, the NEE contractor shall provideservices supporting Government’s ESAT activities to include planning for deactivation and disposal readiness (DDR) of retired corporate/business legacy capabilities at applicable external customer sites and the deployment of new capabilities/services to the same.

The contractor shall support ESAT activities in the performance of this Task Order to include, but are not limited to:

1. Develop and maintain the overall ESAT project schedule.
2. Develop and maintain site-specific project plans and product/service deployment schedules.
3. Support systems engineering and integration transition activities at external sites and provide systems integration guidance.
4. Conduct technology analyses and understand technical details of the products/services to include interfaces with and dependencies on other products/services both internal and external customers.
5. As directed by the government, provide proposed recommendations on an external program, segment, and project requirements, based on a thorough and rigorous AoA that includes, but is not limited to, value, cost, and risk assessment of each alternative.
6. Provide baseline architecture decision aids enabling the government to assess, manage, plan, and execute architectural decisions (strategic or program).
7. Engage sites and stakeholders to develop site engineering transition packages.
8. Develop detailed transition and deployment plans, and support program transition events, ensuring that all enterprise participants’ transition steps are clearly articulated, understood, and rehearsed in advance.
9. Create and maintain overall communications plans and related products to include extensive user out-reach to advise on optimization efforts between NGA, NSG, and ASG programs, segments, and projects.
10. Create various communications artifacts to support weekly status briefings.
11. Support interfaces with external customer systems. Address integration directly with necessary NGA Programs of Record and segments.
12. Provide network engineering support for the review, preparation, development, and technical exchange for network and infrastructure related RFC’s, Interconnection Security Agreements (ISAs), Firewall Change Requests (FCRs), Peering Agreements (PAs), Memorandum of Agreements (MOAs), and Memorandum of Understanding (MOUs).
13. Provide Security Engineering support for the development/preparation, review, and technical exchange concerning system security packages for NGA and DoD/IC partner networks
14. Coordinate Infrastructure Service Provider (ISP) provisioning, network access, security, and contractual requirements across NGA, NSG, and other required DoD/Government entities.
15. Coordinate and execute transition and deployment plans transitioning required mission capabilities into operations with minimum disruption to ongoing mission operations.
16. Conduct site-specific network/system/application testing and provide coordinating support to test events, including both formal and informal testing at external sites.
17. Develop performance requirements, to include generation of ISP requirements, to support products and services.
18. Coordinate with project teams on external impacts and guide solutions/resolution of technical issues. Record lessons learned.

## Enterprise Integration Engineering (Cross Organization and Program Offices)

Using the CEA view or a combination of multiple CEA views, the Contractor shall provide support under the Enterprise Integration Engineering (Cross Organization and Program Office) corporate/business requirement to assist the Government with the integration of program and project solutions that cut across organization boundaries, Program Offices budget programs, development contracts; and therefore; requiring a corporate approach to integration ensuring the multiple parts come together seamlessly to deliver integrated solutions consistent with technical roadmaps defining the path to the To-Be Architecture. It shall include interface/service definition support (both internal and external to the agency) to recommend, develop, document, and implement the necessary interfaces to achieve the NGA vision described in the NGA Strategy 2025, current and future CONOPS and CIO-T Strategy 2022 (and future strategies). Enterprise Integration Engineers also work with Program Offices Engineers to integrate and synchronize individual corporate/business program, segment, and project solutions across the enterprise and ensure enterprise epic completion.

Enterprise Integration Engineering includes support for, but is not limited to, the enterprise integration engineering activities that follow.

### Enterprise Coordination of Integration Support

The NEE Contractor shall use the CEA when providingIntegration services aligning the planned, in-work and delivered capabilities, programs, projects, systems, segments and services ensuring that all the parts successfully connect and operate together. Enterprise Coordination shall support the NGA Government POCs with enterprise program integration activities. These programs have integration responsibilities that span across NGA. For example, on the integration of NGA’s Applicant Hub with the IC Candidate Experience (formerly known as the IC Candidate Applicant Gateway), BES works with numerous NGA and IC partner programs, segments, and projects to plan for the receipt and use of various application and potential employment data across the “tasking, collection, processing, exploitation and dissemination” paradigm and IC ITE services. Enterprise coordination will collaborate with the NGA, IC, and DoD partners to insure integration and service-level agreements and licenses are following policies, business rules, and governance documents.

Enterprise Coordination of Integration activities the contractor shall support in the performance of this Task Order include, but are not limited to:

1. Support the government with integration across the NGA, IC and DoD partner enterprise ensuring alignment of CEA, corporate/business requirements and as-built capabilities, services and features are following all license and sharing agreements.
2. Ensure integration across corporate/business program, segment and project plans, technical roadmaps, and schedules to achieve the delivery of capabilities and effectivities.
3. Maintain technical roadmaps against strategic epic planning scope and completion dates. Re-baseline roadmaps in response to changing agency guidance and strategies.
4. Ensure integration of solution engineering across time horizons from year of budget execution through the Future Year Defense Program (FYDP and beyond).
5. Support government oversight of program development and coordination of CONOPS, technology roadmap planning, architecture development, cross segment / cross Agency interface definitions, requirements definition, decomposition, allocation to and development by programs, segments, and projects, and enterprise-level verification and validation, transition to operations and retirement activities.
6. Support end to end system integration and acceptance necessary for Major System Acquisitions (MSAs) of corporate/business systems.
7. Support program, segment, and project level technical reviews, perform technology readiness assessments, and attend Technical Exchange Meetings (TEMs) to assess enterprise integration challenges.
8. Review corporate/business system integration documentation for accuracy, completeness, and harmony with enterprise integration efforts. Coordinate needed changes with appropriate program, segment, and project offices.
9. Support the transition of new corporate/business services and capabilities to operations and identify gaps in toolsets and automation used to test and deliver those services and capabilities. Identify gaps or new needs for automated test capabilities to address incoming capabilities.
10. Provide developers guidance and recommendation on service virtualization, and service APIs for enterprise systems.
11. In collaboration with Enterprise Risk Management, performed on the NGA Foundational Engineering Contract, identify enterprise-level risks, opportunities and issues associated with enterprise integration and assist in risk mitigation.

### Enterprise Integration and Modernization Support

NEE contractor shall use the CEA when providing Cross Organization and Program Office integration services to ensure discrete Directorates and Components mission function, business operations, process workflows, capabilities, services, activities, program and project level come together and integrated seamlessly to design and deliver a comprehensive and unified Corporate Information System executing end-to-end business processes while providing corporate enterprise [functional] services.

The contractor shall support Enterprise Integration and Modernization activities of this Task Order to include, but are not limited to:

1. Using the CEA Business Architecture, provide engineering, integration, and architecture analysis to support modernization efforts that incorporate standards-based, Commercial Off the Shelf (COTS) technology as the platform that will provide a comprehensive, unified, and integrated Corporate Information System executing end-to-end business processes while providing corporate enterprise digital services for both server and desktop components. Ensure alignment with the To-Be Architecture. Provide expertise to application development and create digital models/representation/documentation as appropriate to assist NGA modernization initiatives.
2. Using the CEA, support the assessment of critical/relevant pilots with potential high-value ROI to inform the system integration effort, systems development, and the transition of capabilities to operational systems of record. Assist with governance, leadership and integration meetings with key stakeholder organizations.
3. Using the capability inter-relationships/dependencies documented in the CEA, support the government modernization efforts by defining the interfaces between programs and pilots to ensure a cohesive workflow.
4. Using the CEA, support the identification, planning, design, development and integration of Automation, Artificial Intelligence and Augmentation (AAA) technologies into the modernization efforts.
5. In support of AAA, conduct TEMS, Design Reviews, Deep Dives, and Requirements Analysis sessions to review and decompose requirements to ensure they support enterprise-level mission needs and requirements.
6. Using the CEA, design solutions using AAA technologies to modernize/optimize current business operations leading to the successful implementation of future state concepts and retirement of legacy component.
7. Using the CEA, support the review and assessment of current NGA processes and tools for planning, executing, and monitoring NGA’ s modernization initiatives in Collaboration with Systems Engineering Processes & Tools NGA Foundational Engineering contractor.
8. Using the CEA, thoroughly evaluate pilot program execution to inform modernization systems development and service integration. Support engineering activities during development to ensure correctness, completeness, and compliance of requirements. Capture changes in the Enterprise Architecture, Solution Architectures and Enterprise Requirement repositories and digital models/representations. Support the transition to an operational capability.
9. Using the CEA, develop and maintain integration project plans and schedules for each Modernization effort to make certain that program, project, and/or segment requirements and schedules are aligned and baselined to ensure end-to-end system integration.
10. Use Model-Based Systems Engineering (MBSE) tools and methodologies to support ongoing enterprise integration and modernization efforts against the baselined CEA.

### NGA Test Organization Support

The NEE contractor shall provide Corporate Enterprise integration testing services to include planning, coordinating, and manually performing validation and verification, integration, interoperability, operational and functionality testing for a multitude of corporate programs, segments, projects, systems, services, and capabilities. NGA Test Organization activities the contractor shall support in the performance of this Task Order include, but are not limited to:

1. Collaborate with Platform Services/DevOps to facilitate developer insertion into DevOps environments and automated cloud-hosted test tools.
2. Further, expand automated test capabilities to include automated testing of coded functions of corporate applications and machine learning for automated generation of test code.
3. Support agile, end-to-end system, operational, integration, and regression testing and analysis on production systems and corporate business applications.
4. Support early integration testing of multiple interactive systems to demonstrate stability and readiness for operational exposure.
5. Perform requirements decomposition to identify and develop test cases and objectives.
6. Conduct system workflow and interoperability analysis to identify test case insertion points.
7. Conduct assessment of risk to the enterprise, architecture, legacy capabilities, and end-user to determine the risk priority and scope of planned testing.
8. Coordinate test participation with all NGA stakeholders and other NSG programs, segments, and projects, de-conflicting schedules, and resource conflicts.
9. Generate detailed Discrepancy Reports (DRs) and track developer and program office Technical Investigation (TI) updates to determine the need for re-test.
10. Perform analysis of test case results and analyze output from artifacts against the risk to NGA to develop a recommendation for operational readiness. Coordinate recommendations with program, segment, and project office to determine the appropriateness of deployment with liens, delayed deployment, or partial operationalization of capabilities.
11. Support readiness of programs, segments, and projects at various milestones through participation in required readiness reviews and assist government POCs with recommendations to ensure success
12. Support the development of Operational Test and Evaluation (OT&E) criteria and system acceptance tests.
13. Coordinate with NGA Foundational Engineering (NFE) contractor to maintain and update the NSG Corporate Test & Evaluation Master Plan (TEMP).
14. Assist with early planning for the architecture and engineering of cloud environments to determine the optimal setup and workflow test configurations within cloud environments.
15. Collaborate and coordinate with development teams to support agile test practices, and test-driven and behavior-driven development principles.
16. Identify and recommend candidate systems or test functions for automation, profiling, and load testing.
17. Execute tools or scripts in the test environments to determine specific areas of a system, service, or capability to be analyzed manually and in more detail.
18. Perform network virtualization to model and simulate application performance experienced by end-users.
19. Apply automated test solutions developed by engineers and define automated acceptance tests to validate system behaviors.
20. Perform adaptive test engineering.
21. Provide performance profiling analysis.
22. Modify scripts for DevTest tools for the virtualization of specific services.
23. Execute load testing for applicable customers during the development phase of their acquisition lifecycle.
24. Conduct API test engineering.
25. Use analysis of tools, scripts, or metrics to provide feedback to developers throughout the development and deployment schedule, from early testing to promotion to operations, and develop recommendations for customers regarding how they can gain efficiencies, how to optimize utility, or if deployment should occur.
26. Analyze performance trends and user experience data to identify parameters for automated governance processes that will facilitate a digital/automated, Go/No Go capability.
27. Facilitate and oversee self-service and collaborative end-to-end system testing and analysis inclusive of DevOps and cloud-hosted developed applications, tools, and services.
28. Conduct trend and root cause analysis and communicate with program offices and developers.
29. Develop and execute Chaos testing approaches

## Enterprise Architecture as a Service

Using the As-Is and To-Be CEA, the NEE contractor shall provide an EAaaS to Directorates and Components , ADS, and CIO-T decision-makers, planners, managers, and leaders in performing Capabilities-based (gap, redundancy, overlap, fit-for-purpose) Analysis, Business Engineering assessment (Pre-Acquisition Engineering) and Analysis of Alternatives (AoAs), Feasibility/Benchmark/Trade Studies, and Integration Assessments; to answer questions, align investments with business objectives and priorities while measuring performance and providing traceability to the defined decision support processes (i.e. NGA SIP, Planning Guidance, PPBE, Acquisition Strategy, POM, CIG, CBJ Reporting, etc.).

The EAaaS will use the multi-dimensional nature of the CEA to drive the analyses efforts using the different architecture views (artifacts) to communicate and answer questions. An architecture view or a combination of multiple views can be used to:

* Communicate the state of NGA’s Corporate mission and functions
  + Now (As-Is),
  + Next (As-Is + FY),
  + After Next (To-Be and FYDP transformation roadmap)
* Answer questions at all levels of abstraction (inform leadership decision points)
* Analyze/assess the clarity of business needs
* Perform Capability-based Analysis to:
  + Define and refine capability requirements to focus on business needs from a mission and functions perspective vice solution implementation design
  + Perform trade-off / fit / gap / overlap / redundancy analyses
  + Perform what-if analyses
  + Perform business case analyses
  + Perform analysis of alternatives (AoA)
* Inform strategic / acquisition / program planning
* Inform the Planning Programming Budgeting and Execution (PPBE) process
* Inform the Congressional Budget Justification (CBJ) reporting on expected accomplishments
* Inform the Consolidated Intelligence Guidance (CIG) on the progress made toward the achievement of goals and objectives
* Perform technology insertion
* Conduct study

### Capabilities-based Analysis

Using a CEA View or a combination of multiple CEA views, the NEE contractor shall provideEAaaS to analyze NGA’s legacy systems and the capabilities and services they provide and develop well-defined and executable capability requirements with associated capability gaps for the smooth transition, transformation, integration, or implementation of the capabilities and services enduring, new or other systems or retirement as appropriate.

Capabilities-based Analysis activities the contractor shall support in the performance of this Task Order include, but are not limited to:

1. Support top-down, enterprise coordination, and planning to retire legacy entities into receiving entities (future providers).
2. Perform system analyses to ensure conformance to evolving solutions and enterprise architectures and enterprise integration.
3. Collaborate with Capability Analysis and Pre-Acquisition Engineering Activities to define and refine enterprise corporate capabilities and associated gaps, and recommend time-phased transition or transformation implementation plan.
4. Coordinate legacy system retirements through appropriate governance authorities, Program Management Office (PMOs), and Business/Product Owners.
5. Support the retirement of legacy systems and capabilities by developing retirement and transition plans and their associated change artifacts to ensure the coordinated deactivation and disposal of hardware, software, and documentation, ensuring no unplanned capability impacts.
6. Ensure legacy system retirements are consistent with the CEA As-Is and To-Be Architecture and meet the needs in the ECD, SOCs, and CDDs, to ensure there is no detrimental impact to cost, performance, schedule and mission outcomes.
7. Perform analysis of requirements for modernizing or retiring systems to ensure enduring requirements are identified and allocated to to-be architecture service groups and Program Offices.
8. Inform governance authorities, PMOs, and Business/Product Owners on “priority” decisions such that necessary retirement activities are addressed in program/segment/project schedules and the necessary release bandwidth for retirement-enabling services is in place.
9. Use Model-Based Systems Engineering (MBSE) methods and tools to model transition capabilities and services to new systems.

### Business Engineering (Pre-Acquisition Engineering)

Using the CEA, the NEE contractor shall provide EAaaS for the decomposition of enterprise business architecture into defined business processes and solutions architectures for the planning of IT program acquisitions for the unified Corporate Information System and services delivering operational capabilities.

Support the upfront engineering and transformation of the enterprise architecture to ensure acquisitions meet NGA’s mission requirements and required capabilities to include, but not limited to:

1. Develop and present decision quality analysis in a detailed report and/or summary briefing format that presents decision-makers with salient facts about performance, requirements satisfaction, risks, cost/benefit analysis, security and schedule/timeline implications (among other relevant factors) to allow for effective, informed decision making.
2. Develop User Concept of Operations (CONOPS) on initiatives by engaging with the corporate stakeholders, partner, and users to describe the vision as to how the members will operate in future timeframes. These documents will be published to provide an operational framework to define new capabilities, manage operations, modify business practices, and support planning and programming activities in the near and mid-term.
3. Perform analyses to provide insight into enterprise-wide development and delivery initiatives to include unplanned duplication across contract functions to inform acquisition strategy ensuring affordability, efficiency, and effectiveness.
4. Decompose Enterprise business architectures into defined business processes as requested by the Government.

### AoAs, Trade Studies, and Engineering Assessments

Using the CEA, the NEE contractor shall provide EAaaS to perform AoAs, feasibility/benchmark/trade studies comparison and engineering assessments of the operational effectiveness, suitability, risk, lifecycle costs, technology maturity, integration, security and other critical factors of system, software, service, methodology choices impacting the corporate mission. These analyses, studies, and assessment activities are closely linked to and are an integral part of determining sound courses of action/acquisition strategies for Capabilities-base Analysis and Pre-Acquisition Engineering. The contractor shall leverage the Modeling, Simulation, and Analysis Team to identify, request, and evaluate data used for AoAs, trade studies, and engineering studies.

AoAs, Trade Studies, and Engineering Assessments shall include the following, but is not limited to:

1. Plan and conduct in-depth AoA, trade study comparison, and engineering assessments/studies. These assessments must take into consideration the operational effectiveness, suitability, risk, lifecycle costs, technology maturity, security, and other critical factors of systems, software, services, and methodology choices that impact the NGA mission.
2. Conduct in-depth verification and validations, and adjudication of recommendations in previously completed AoAs, trade studies, and engineering studies.
3. Leverage existing or establish standard best practices across NGA Enterprise for performing AoAs, trade studies, and engineering assessments by creating templates, scripts, and process flow to simplify the execution of some of the common repeatable tasks.
4. Recommend tools and techniques to easily compare, overlay, ingest and merge AoA, trade study, and engineering study data across the enterprise.
5. Use Model-Based Systems Engineering (MBSE) methods and tools to model alternatives used in engineering assessments, AoAs, and trade studies.

## Modeling, Simulation & Analysis (MS&A)

The NEE Contractor shall provide support under Modeling, Simulation & Analysis (MS&A) using Model-Based Systems Engineering (MBSE) methods and industry best practices. MS&A captures the knowledge, hypotheses, assumptions, and conclusions of an intelligence problem in a format useful to both humans and machines. MS&A activities shall include the building, maintenance, and use of software and/or digital representations of satellite and system architectures, subsystems, services, and components across the NGA Corporate Enterprise Architectures. MS&A support shall also be utilized to depict/simulate enterprise and sub-level architectures to model/test performance and new concepts for future CEA architectures (i.e., revolutionize user experience utilizing computer/machine learning and predictive insight capabilities). The MS&A activity shall conduct performance analysis, determine the mission testing requirements, and provide/recommend measures of effectiveness (MOE) for new and existing capabilities to meet the business needs. The Contractor shall initiate communications to ensure Modeling, Simulation & Analysis (MS&A) activities and results are collaborated/coordinated with engineering activities conducted in NEE, NGA Segment Engineering (NSE), NGA Foundational Engineering (NFE), and NGA Digital Engineering (NDE) contracts.

MS&A shall support, but is not limited to, the following MS&A activities:

1. Conduct and deliver assessments and recommendations on performance engineering and analysis throughout phases of the Systems Engineering Lifecycle.  Recommendations shall inform decisions related to current and future enterprise architectures (As-Is and To-Be), current and future capabilities, budgeting, proposed CONOPS, and technical roadmaps.
2. Conduct Modeling, Simulation, and Analysis to simulate, forecast, and assess proposed activities/initiatives on emerging trends and disruptive forces that will impact and set the direction for the Corporate Enterprise To-Be Architecture.
3. Shall identify where changes may be beneficial and/or efficiencies gained.  As information technology environments and capabilities evolve, outcomes of MS&A will need to consider and assess the impacts of such changes.  Assessments shall include, but are not limited to:
4. Technology advancements and performance improvements
5. Systems and applications residents inside and outside of IC ITE.
6. Automation of tasks and capabilities and the resultant impact on architecture.
7. Automation of legacy and manual business processes and the resultant impact on architecture.
8. Impacts of machine learning and performance issues caused by multi-lateral and cross-domain processing.
9. Impacts on communications and data transport systems within architectures and overall architectural timeliness and responsiveness.
10. Shall develop MS&A performance and mission effectiveness algorithms, methodologies, and programs needed to support NGA studies when needed.  Verify that MS&A performance and mission effectiveness algorithms, methodologies, and programs can run in any computing environment available to support MS&A tools and activities (e.g., IC ITE, COE, NGA cloud, stand-alone networks, thick clients, etc.).
11. Shall interface with Corporate Support Directorates to obtain necessary input data, assumptions, and dependencies required for accurate MS&A performance and mission effectiveness analysis. Apply MS&A programs, algorithms, tools, and databases as applicable in studies development.
12. As directed by the government, shall perform Enterprise-level (“big picture”) performance and mission effectiveness analysis and deliver assessments and recommendations which inform/influence future enterprise architecture designs, capabilities, and roadmaps.
13. Shall perform comprehensive data collection and leverage enterprise collection capabilities (i.e., transactional performance data, capacity data) to provide accurate input data for MS&A performance and mission effectiveness analysis activities and high-confidence recommendations.
14. Shall conduct MS&A performance and mission effectiveness analysis throughout all phases of the Systems Engineering Lifecycle. Results, findings, and recommendations are key inputs to strategic guidance formation, integrated strategy planning, integrated solutions planning, and integrated execution.
15. Shall perform MS&A performance and mission effectiveness analysis activities, assessments, and prediction of IT services and performance to meet mission requirements with consideration for data characteristics (format, utilization, integrity, persistence), current/projected IT environment (services, protocols, bandwidth, speed, reliability, architecture), and applicable laws/policies/standards (security, interoperability).
16. Shall perform MS&A performance and mission effectiveness analysis on commercially available services and products and recommend which ones should be included in enterprise baselines.  MS&A shall include the evaluation of proposed solution strategies; identify project performance requirements and provide recommendations to divestment/acceleration decisions and cost estimation/evaluation.
17. Shall provide site-specific modeling, simulation, and analysis to support engineering activities.
18. Shall develop capacity impacts to include modeling of predictive impacts.
19. Shall conduct MS&A performance and mission effectiveness analysis to support requirements definition.  Analysis results should support possible updates to performance-based requirements for architectures, systems, subsystems, components, and applications, and evaluate potential RFC and ECP impacts.
20. Shall support AoA assessments through MS&A performance and mission effectiveness analysis of alternative materiel concepts and solutions to include actual and predicted performance metrics as directed by the government,
21. Shall evaluate and provide recommendations on information technology environments to ensure they are properly sized to meet current and future mission capacity and required performance.
22. Shall quantify “as-is” corporate mission performance/capacity/CONOPS, drive forensic analysis and performance optimization and enable operational research and data-backed analysis which deliver assessments and recommendations to significantly improve NGA’s ability to operate, plan, and evolve the NGA, NSG, ASG, and mission partners’ architectures.
23. Shall perform variable-fidelity end-to-end MS&A of current/future source/destination services and NGA/external/cloud IT resources to inform current and future architectures and CONOPS.
24. Shall perform and report results on operational performance tests, “what if” analysis, and future epoch simulations spanning; data collection data processing, data movement, management, protection, storage, discovery, and exploitation services.
25. Shall migrate, maintain, and operate required tools in IC ITE, C2S, or Government Cloud unless otherwise directed.  Provide systems administration support through Web Services and LINUX.
26. Shall ensure MS&A’s use of IC ITE complies with ODNI CIO and NGA rules, standards, directives, and instructions.
27. Shall develop algorithms, codes, and databases needed for studies using, but not limited to Microsoft Office Excel, Microsoft Office Access, Oracle, SQL using Visual Basic, R, Python, C++, C##, and JAVA for MS&A focus areas.
28. Shall utilize machine learning to optimize MS&A analytical processes
29. Shall modify, operate, run or help procure MS&A programs, tools, and databases on stand-alone networks and thick clients as directed by the Government, (This is often necessary when conducting MS&A on SAP programs.)
30. Shall integrate MS&A programs, tools, foundational data, and databases in IC ITE with mission partners also developing and running MS&A programs, tools, and databases in IC ITE. (i.e. systems logs, performance logs)
31. Shall provide comparisons of alternative enterprise architectures against high priority needs or issues as directed by the government.
32. Shall utilize MS&A system(s) that share a common data schema where work can be shared across all NGA supported mission areas such as overhead, Tactical, and ground.

## Program Management

In accordance with NEE Base IDIQ SOW Section 6, the PM team shall ensure the five activities identified in Section 1.2 Scope are resourced and managed, with requisite skills, to support the critical organizational, architecture, engineering, analyses, and integration capabilities to address BES mission and functions, and NGA’s operational roles within the IC and DoD. The Program Management element captures the contractor team activities, supported by a robust overarching, enterprise view of integrated schedule/timeline/milestone with associated resources and critical paths to effectively develop and evolve processes and procedures (contingent upon Government approval), and deliver the necessary products and artifacts that enable monitoring, assessing, and reporting on the performance and progress of activities identified in Section 1.2. The PM team shall develop a Program Management Plan (PMP) that defines and describes how the relevant architecture, engineering, analyses, and integration activities are orchestrated and executed within and across all activities in BES.

## Transition

### Transition Plan

As part of the transition, the contractor shall provide a staffing plan detailing the onboarding of all personnel identified in Appendix A. The plan shall describe the contractor employee names, company, clearance information, polygraph information, and dates of submittal into e-Nom.

The Contractor shall comply with the guidance in the table below.

**Table 1:Transition Availability**

| **Calendar Days After Award** | **Contractor Personnel** |
| --- | --- |
| 7 Days & 14 Days | * All Key Personnel eNomination Requests (eNom) submitted (within 7 days) and available for task order performance (within 14 days). |
| 15 Days | * At least 25% of all staff eNom submitted and available for task order performance. |
| 30 Days | * At least 50% of all staff eNom submitted and available for task order performance. |
| 45 Days | * At least 75% of all staff eNom submitted and available for task order performance. |
| 60 Days | * 100% of all staff eNom submitted and available for task order performance. |

3.7.1.1 Security Onboarding

The Contractor’s key personnel and any other personnel requiring access to classified systems shall have active Top Secret and be Sensitive Compartmented Information (TS/SCI) eligible at contract award.

To minimize the risk of a delay in supporting transition startup, the Contractor’s Security Office shall use the NGA eNomination system to nominate employees for personnel security clearances, facility badges, and system access. Upon security clearance approval, the Contractor shall schedule their personnel for clearance briefing and badges with the appropriate office(s) at NGA.

3.7.1.2 Sensitive Compartmented Information Facility (SCIF)

Any SCIF(s) that will be utilized to perform SCI work at contract sites must be coordinated with the CO and NGA Physical Security Team 7 days after award to ensure NGA authorization and accreditation is granted for NEE work to be performed in the contractor SCIF. Note: All SCI work performed at a Contractor site must be performed in either an NGA accredited Sensitive Compartmented Information Facility (SCIF) or an Other Government Agency (OGA) SCIF that has either a Memorandum of Agreement (MOA), Memorandum of Understanding (MOU), Joint Use Agreement or Co-Use Agreement with NGA for this effort.

### Transition Closeout

The Contractor shall support transition to another Contractor as directed by the Government (commencing 30 Days before the end of the contract). The Contractor shall review and transition knowledge and relevant information concerning enterprise engineering, architecture, and integration and standard operating procedures. The Contractor shall provide at a minimum the following items by the end of the contract in accordance with Government direction:

* Hardware and software development documentation that provides a comprehensive detailed description of the current operational baseline for each security domain. The documentation will at a minimum, contain the following: systems architecture, CM, software configuration, COTS integration, and capture of the hardware and software architectures.
* Operating system and application software with annotated source code for each security domain, including software under current development or test that is yet to be deployed. The Contractor shall provide the software in an industry standard format such as Microsoft TFS.
* Operational system data and database information, both current and historical, including user account data, metadata catalogs, stored imagery and products, system diagrams, and knowledge bases.

The Contractor shall conduct an organized transfer of Government-furnished equipment (GFE), Government-furnished property (GFP), and Government-furnished information (GFI), to include manufacturer maintenance agreements and software licenses as directed by the CO. The Contractor shall generate a report containing the final disposition of all NGA property.

The Contractor shall support the decommissioning and disposal of all Information Technology (IT) systems as directed by the Government. The Contractor shall follow NGA’s Decommissioning Disposal Review (DDR) process that is specific for hardware and software. The Contractor shall follow all processes in the DDR checklist for hardware and software, including maintenance of a Property Book to keep hand receipts, review signatures, and other acceptance criteria.

## Deliverables

The following sub-sections describe each of the Contract Data Requirements List (CDRL) documents required in support of this contract. A brief summary of these CDRLs is also shown in table form in the CDRL Matrix of this document.

### Kick-Off Meeting

The contractor shall schedule a kick-off meeting with the CO, PM, COR, and GPOC within 10 calendar days of task order award.

### Weekly Meetings

A weekly telecom will be held with the CO, PM, and COR, to discuss status. The weekly telecoms will be held throughout the entire performance. The Contractor shall provide an agenda, identify any issues and document action items.

### Quarterly Reviews

The contractor shall conduct Quarterly Program Management Reviews (PMR) of the data generated in preparation of the Status Report to address quarterly data and other pertinent management information. The review shall include Government requested information and shall include, but is not limited to:

1. Contract management reporting
2. Task progress and Funding Status Report
3. Control of the contractual task order (dollars and labor hours) and distribution
4. Projected changes in manpower and redistribution based on customer organization needs, manpower and recruiting summary
5. Security issues
6. Contractual action items
7. Task order accounting data documentation
8. Report by task order element of hours/rates by discipline and skill level and by labor category
9. Comparison of proposed travel costs to actual travel costs for each task order element
10. Comparison of total contract funding to invoiced services
11. Any special interest items requested by the Government or provided at the contractor’s initiative
12. Task Order Requirements Review (as needed)

These reviews may also address, in general, the efforts, challenges, problems, and accomplishments of contractor personnel in the respective task areas. The contractor shall provide the PMR agenda and briefing slides three (3) business days prior to the meeting and PMR minutes within five (5) calendar days following the meeting. Government program and contract management may require other compilations of data to ensure adequate insight into the task order execution. This review shall be held with the PMO, CO and task order COR.

### Monthly Financial Report (MFR)

The Monthly Financial Report (MFR) shall provide a summary of all program activity. The report will have specific content by task order and with contract expenditures, rates, and estimated cost at complete (EAC).

### Monthly Staffing Report (MSR)

As part of the Monthly Staffing Report (MSR), the contractor shall provide one (1) electronic softcopy of an updated staffing report. The MSR supports the tracking of contractor’s proposed personnel (i.e., designated position number or identifier, Prime/Sub-contractor, name, labor category, start/end date, office, geographical location, and other fields of information as may be determined at a later date). A template for the MSR will be provided.

### Monthly Activity Report (MAR)

The contractor shall submit a technical monthly activity report (MAR) to the COR no later than the 15th of each month.

### Technical Exchange Meetings (TEM)

The contractor shall schedule and support technical exchange meetings to collaborate and coordinate technical planning. The contractor shall record and submit minutes from the meetings.

### CDRL Matrix

The CDRL Deliverable List, shown in the table below is a list of all Contractor-provided deliverables that shall be met throughout the contract. All deliverables will be submitted in formats compatible with Adobe or Microsoft Office products. Softcopy delivery (via e-mail, etc.) is the preferred method of exchange for electronic copies. Deliveries will be made to the PM, CO, COR and/or Alternate COR (ACOR) as specified in the table below.

| **CDRL Title** | **CDRL #** | **SOW Section** | **First Submission** | **Updates** | **Delivered to** | **Format and number of deliverables** |
| --- | --- | --- | --- | --- | --- | --- |
| Quarterly Program Management Reviews | 001 | 3.8.3 | Award +120 Days | Quarterly | PM/CO/COR | 1 Electronic Copy to PMO Email Address Contractor Defined, Government Approved |
| Monthly Financial Report | 002 | 3.8.4 | Award +30 Days | Monthly | COR/GPOC | 1 Electronic Copy to PMO Email Address  Contractor Defined, Government Approved |
| Monthly Staffing Report | 003 | 3.8.5 | Award +30 Days | Monthly | COR/GPOC | 1 Electronic Copy to PMO Email Address  Government Defined |
| Monthly Activity Report (excerpted from the overarching enterprise view of integrated schedule/timeline/milestone) | 004 | 3.8.6 | Award +30 Days | Monthly | COR/GPOC | 1 Electronic Copy to appropriate TM Email Address(es) Contractor Defined, Government Approved |
| Transition Plan | 005 | 3.7.1 | Award + 7 days | As Required | PM/CO/COR | 1 Electronic Copy to PMO Email Address  Contractor Defined, Government Approved |
| Reports, Briefings, Evaluations, WBS, Program Execution Plan to include schedule/timeline/milestone with associated resources and critical paths, Weekly Activity Report (accomplished, planned, issues/risks, recommendations/COAs, AoAs, Transition Roadmap, Integration Design, Service Offering Description and Inventory, Analyses/Assessment Reports, Technical Assignments, Transition Plan, Overarching integrated schedule/timeline/milestone,  Minutes, White Papers Etc. | 006 | 3.0 | As Required | As Required | COR/GPOC | 1 Electronic Copy to PMO Email Address, or applicable Technical Monitor  Contractor Defined, Government Approved |
| Baselined CEA to Inform FY22 POM Build, Transition and Transformation Roadmap (FYDP), and Future State CEA | 007 | 3.1 | As Required | As Required | COR& GPOC | Electronic delivery as defined by Government  Contractor Defined, Government Approved |
| Requirement Trace Reports | 008 | 3.2 | As Required | As Required | COR& GPOC | 1 Electronic Copy to PMO Email Address, or applicable Technical Monitor  Contractor Defined, Government Approved |
| Digital Models, Digital representations of all required Architecture and Engineering Artifacts | 009 | 3.0 | As Required | As Required | COR GPOC | Electronic delivery as defined by Government  Contractor Defined, Government Approved |

## Labor

Refer to Appendices A and B for estimated number of staff, overall description of work, duties, skills and education.

# General Provisions

## Primary Place of Performance

The primary place(s) of performance for this Task Order are NCE and Washington Metropolitan Area (WMA) (Contractor facility).

**Telecommuting (Telework)**

In emergency situations, unclassified teleworking and alternate worksites will be permitted under this NEE task order as determined in writing by the CO, unless the CO determines that the Contract/Task Order requirements, including security, cannot be met if telecommuting is permitted. Unclassified telecommuting for technical scope, will require prior coordination with the GPOC and COR with final written approval from the CO. The contractor must also have a telecommuting policy in place and appropriate labor timekeeping policies and procedures that are subject to Government audit.

The contractor shall obtain the Government CO’s approval prior to performing unclassified telecommuting for technical scope at sites other than the locations specified by the Government in the contract (e.g., NCE, NCW, WMA, etc.). Contractors (Prime and Subcontractors) are responsible for predetermining and disclosing their charging practices for telecommuting in accordance with FAR 7. 108, applicable cost accounting standards and company policy. Contractors shall follow their disclosed charging policies.

Telecommuting will be monitored by the COR and GPOC. All telecommuting hours must be noted and broken out separately in the Contractor’s invoices. In addition, the Contractor shall include telework as part of their weekly/monthly activity reports, as specified by the contract or requested by the Government.

See the listing in Appendix B: Position Descriptions

## Government Furnished Property (GFP)

The Government will provide the following GFP for this Task Order:

**Hardware:** Hardware will be provided by the Government. For Contractors located at the Government site (on-site), this includes access to thin client COE and SBU networks; unclassified and classified VoIP phones, and printers.

For Contractors located at the Contractor-provided site (off-site), this includes (at a minimum): High side/classified/COE: thin clients, monitors, VoIP phones, printers, plotters and VTCs.  Note for Contractors located at the Contractor-provided site (off-site): This does NOT include unclassified equipment (phones, computers, etc.). The costs associated with these needs are the responsibility of the Contractor.

**Tools/Software:** Any tools/software required by the Contractor, not currently identified on the TA Tools/Software List, will have to go through the NGA Software Whitelist Assurance Process (SWAP) for approval prior to being placed on any NGA systems. The Contractor will be expected to use the provided tools/software to execute the TO 0012 SOW requirements until such time any new tools/software are approved and available for operational use on NGA systems.

For both on-site and off-site, the Government will provide the Contractor with a standard profile of Office productivity tools that includes Microsoft Office, Adobe Reader and 7-Zip file manager.

**Connectivity/Transport:** The Government will be responsible for installing and maintaining Encryption equipment, switches, and routers for vendor locations who have no current connectivity. Per above, this will be GFP to the winning NEE contractor if needed. Additionally, it does not include the cabling, network equipment, etc. associated with outfitting the vendor’s site.

The Contractor is responsible for all facilities power space and cooling to include battery backups for all of the IT in the closets; Contractor Internet Connection (CIC) to include the connectivity of the CIC to the room where the transport encryption, switches, routers will be located; all cable runs (to user areas, desks, conference rooms, IT closets, etc.) to include the WAO (work area outlets) per their security/SCIF accreditation; and all unclassified phone lines, internet, workstations, printers, faxes, phones, etc.

**Data:** The Government will provide access to all available NGA data to support the requirements of the Task Order 0012 SOW.

**Access:** The Government will facilitate access to Government facilities (to include badges) provided that the need for the access is validated and the security requirements of the contract are met. If other personnel security accesses are required, the Government will provide the sponsorship for additional accesses. The Government will provide access to information and data, relative to the tasks required to include sponsoring classified network connectivity.

## Foreign Contacts

Refer to the Base SOW.

# Security

Refer to the Base SOW.

# Key Personnel

The positions highlighted in blue in Appendix A are Key Personnel, subject to the Key Personnel clause included in the base contract.

# Travel and Other Direct Costs (ODCs)

Local travel within the metro areas of NGA sites is anticipated to accomplish the tasks in this Task Order. Across both the IC and DoD, a significant effort is being applied to reduce travel expenses. The NEE contractor team shall follow this model and ensure adequate teleconference and VTC capabilities exist for cost avoidance. Travel costs inside a 50-mile radius from the contractor’s facility where the NEE work is performed to the Government’s facility for conducting business as it applies to the NEE effort is un-billable. Domestic travel between NGA sites (e.g. travel from NCE to STL) shall be identified and approved in advance by government on a case by case basis if the government requires any technical support. Local travel will not be paid on this task order. Travel is NTE $30K per year.

# Appendix A: Anticipated Support Requirements

The requirements needed to adequately support this Task Order are listed in the table below. Position description information for government-defined labor is provided in Appendix B. The location column indicates the primary work location for contractor personnel.

**Government Defined TFB Positions (O&M)**

| **Position ID\*** | **Location** | **Position Description  #** | **TO Section** | **FTE** | **Skill Level** | **Service Category** | **Job Title** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 01-12-TFB-01-0001 | NCE | 1 | 3.1,3.4 | 1 | 4 – Expert | Engineering and Architecture | Enterprise Architect |
| 01-12-TFB-02-0002 | NCE | 2 | 3.1,3.4 | 1 | 3 – Senior | Engineering and Architecture | Business Architect |
| 01-12-TFB-03-0003 | NCE | 2 | 3.1,3.4 | 1 | 3 – Senior | Engineering and Architecture | Business Architect |
| 01-12-TFB-04-0004 | NCE | 2 | 3.1,3.4 | 1 | 3 – Senior | Engineering and Architecture | Business Architect |
| 01-12-TFB-05-0005 | NCE | 3 | 3.1,3.4 | 1 | 2 – Mid | Engineering and Architecture | System Architect |
| 01-12-TFB-06-0006 | NCE | 3 | 3.1,3.4 | 1 | 2 – Mid | Engineering and Architecture | System Architect |
| 01-12-TFB-07-0007 | NCE | 4 | 3.1,3.4 | 1 | 4 – Expert | Engineering and Architecture | Data Architect |
| 01-12-TFB-08-0008 | NCE | 6 | 3.3 | 1 | 3 – Senior | Engineering and Architecture | Systems Integrator |
| 01-12-TFB-09-0009 | WMA | 6 | 3.3 | 1 | 3 – Senior | Engineering and Architecture | Systems Integrator |
| 01-12-TFB-10-0010 | WMA | 7 | 3.4, 3.5 | 1 | 2 – Mid | Engineering and Architecture | Data Modeler |
| 01-12-TFB-11-0011 | NCE | 8 | 3.1, 3.2, 3.3, 3.4, 3.5 | 1 | 4 – Expert | Senior Management | Program Manager |

**Government Defined DSR Positions (O&M)**

| **Position ID\*** | **Location** | **Position Description  #** | **TO Section** | **FTE** | **Skill Level** | **Service Category** | **Job Title** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 01-12-DSR-01-0012 | WMA | 9 | 3.3 | 1 | 4 – Expert | Engineering and Architecture | Lead Systems Integrator |
| 01-12-DSR-02-0013 | WMA | 10 | 3.3 | 1 | 2 – Mid | Engineering and Architecture | Systems Integrator |
| 01-12-DSR-03-0014 | NCE | 11 | 3.3 | 1 | 4 – Expert | Engineering and Architecture | Lead System Engineer |
| 01-12-DSR-04-0015 | WMA | 5 | 3.3 | 1 | 2 – Mid | Engineering and Architecture | System Engineer |
| 01-12-DSR-05-0016 | WMA | 5 | 3.3 | 1 | 2 – Mid | Engineering and Architecture | System Engineer |
| 01-12-DSR-06-0017 | WMA | 12 | 3.3 | 1 | 1 – Junior | Engineering and Architecture | System Engineer |
| 01-12-DSR-07-0018 | WMA | 13 | 3.2 | 1 | 3 – Senior | Engineering and Architecture | System Engineer |
| 01-12-DSR-08-0019 | WMA | 14 | 3.2 | 1 | 2 – Mid | Engineering and Architecture | System Engineer |
| 01-12-DSR-09-0020 | WMA | 15 | 3.2 | 1 | 1 – Junior | Engineering and Architecture | System Engineer |

|  |
| --- |
|  |

**Appendix A Key:**

Signifies Key Personnel Position

\* AA-BB-CCCC-12-3456 (First Column of Table)

|  |  |
| --- | --- |
| **Characters** | **Description** |
| AA | Statement of Work Number |
| BB | Task Order Number |
| CCCC | Organization Code Position Supports |
| 12 | Organization Number |
| 3456 | Position Number |

Skill level definitions for each service category are defined as follows. While the experience requirements for each level are the same across each service category, the associated labor rates may not be. Unless otherwise stated in Appendix B, default to the table below anytime the word “experience” is used in a position description to verify the number of years required.

|  |  |
| --- | --- |
| **Skill Level** | **Total Experience** (in years) |
| 4 - Expert | 18+ |
| 3 - Senior | 12+ to 18 |
| 2 - Mid | 6+ to 12 |
| 1 - Junior | 0 to 6 |

Experience may be substituted for academic degrees on a case-by-case basis with approval by the Contracting Officer, Contracting Officer’s Representative (COR), and Government Point-of-Contact (GPOC).

These lists of job titles should be considered a sample and are not all inclusive.

**Senior Management**

Sample job titles may include, but are not limited to: Program Manager, Technical Lead Integrator, Business Process Manager, Functional Specialist Advisor

**Engineering and Architecture**

Sample job titles may include, but are not limited to: Integration Engineer, Software Engineer, Enterprise Architect, Data Architect, Data Scientist, Data Modeler, Cyber Security Engineer, Systems Analyst, Systems Architect, Systems Engineer, Systems Integrator, Network Systems Engineer, Cloud Architect, Cloud Engineer, Human System Integrator

**IT Engineering**

Sample job titles may include, but are not limited to: Configuration Manager, Computer Programmer, Tech Writer, Software Quality Assurance Specialist, Schedule Analyst

**Administration**

Sample job titles may include, but are not limited to: Database Administrator, Web Administrator

# Appendix B: Position Descriptions

**Position 1**: **Enterprise Architect (Expert)**

**Overall Assignment Description:**

Expert Enterprise Architects provide strategic oversight and planning of the Corporate Enterprise Architecture (CEA). They develop technical, strategic guidance for senior/mid- level architects in the creation and implementation approach of Enterprise architecture artifacts IAW DoDAF and IC PAG.

**Duties include:**

* Assists Government in directing architects in the development, maintenance, and documentation of the CEA, ensuring alignment to NGA Strategy and CONOPs.
* Provides technical leadership enabling NGA to make informed, data-driven decisions and trade-offs between competing demands.
* Oversees and coordinates the work of Senior-, Mid-, and Junior-level Enterprise Architect contractors.
* Derivation, definition, and documentation of the right Resource, Functional, and Operational Capabilities and associated activities and services about NGA Corporate, along with systems analysis necessary to define, document, and baseline the current NGA CEA;
* Planning, design, and systems engineering work necessary to build and portray the future state NGA CEA;
* Development of conceptual, logical and physical architecture and technical roadmaps defining the time-phased schedule for the path of transition or transformation of systems and services from the baselined current state to the future state CEA; and program, segment and project-based solution-level architectures consistent with the enterprise-level architecture.

**Skills and Experience:**

Required:

* Bachelor’s degree or higher in Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Expert working experience in government or industry in relevant work areas including: Enterprise Architecture, Solution Architecture, Data Architecture, Department of Defense Architecture Framework (DoDAF), or Intelligence Community’s (IC) Program Architecture Guidance (PAG).
* Demonstrated experience with the DoD Business Enterprise Architecture, Joint Capability Areas, the Unified Joint Task List, the IC’s Joint Reference Architecture Model, and the IC Core Reference Architecture
* Demonstrated experience with the WhiteHouse, OMB, or GSA’s Shared Services initiative called Federal Integrated Business Framework to include the DoD and the IC’s End-to-End Business Processes such as Hire-to-Retire, Procure-to-Pay, Acquire-to-Retire, and Budget-to-Report
* Demonstrated experience with the Defense Acquisition, the Joint Capabilities Integration and Development, and the Planning, Programming, Budgeting, and Execution processes
* Demonstrated experience with leadership, orchestration, communication, engagement, and critical thinking skills.
* Demonstrated experience in conducting the DoD standard for Capability-Based Assessment employing strong critical and analytical skills

Desired:

* Experience with Model Based Systems Engineering, processes, tools and languages.
* Possesses Federated Enterprise Architect Certifications: Certified Enterprise Architect
* Possesses National Defense University, College of Information and Cyberspace, Enterprise Architecture Certification
* Experience architecting solutions using Cloud Based Technology such as: Service Orientated Architecture (SOA), On-demand self-service, Broad network access, Resource pooling, Rapid elasticity, Measured Service, Software as a Service (SaaS), Platform as a Service (PaaS), Infrastructure as a Service (IaaS).
* Experience architecting solutions using structured and unstructured Big Data.
* Experience architecting solutions using Automation, Augmentation and Artificial Intelligence technologies.

**Position 2:    Business Architect (Senior)**

**Overall Assignment Description:**

Senior Business Architects define the mission or business problem or opportunity evaluating Strategic Guidance documents and User CONOPS; characterize the solution space by identifying work and information flows and identify the mission need, articulate the mission problem and develop recommended business processes to develop the solution approach and impact the capability roadmap and planning. They create and communicate business architecture artifacts to include identifying mission stakeholders, problem/opportunity statements, Business/Mission alternative analysis, information needs, workflows, mission threads, business requirements, preliminary validation criteria, Measures of Effectiveness (MOE) needs, MOE data, business traceability, preliminary lifecycle concepts and document in business analyst records.

**Duties include:**

* Develops, maintains, and documents the business perspectives within the Corporate Enterprise Architecture ensuring alignment to NGA’s Strategy and CONOPs.
* Develops the business analysis strategy to include defining Problem/Opportunity, major stakeholders, and Preliminary lifecycle concept.
* Creates the business architecture information and artifacts (in accordance with the Department of Defense Architecture Framework (DoDAF) and the Intelligence Community’s (IC) Program Architecture Guidance (PAG).
* Conducts business architecture analysis to include providing the evaluation of alternatives, identifying business requirements, and proposing validation criteria, Preliminary MOE needs, MOE data and functional traceability.
* Derivation, definition, and documentation of the right Resource, Functional, and Operational Capabilities and associated activities and services about NGA Corporate, along with systems analysis necessary to define, document, and baseline the current NGA CEA;
* Planning, design, and systems engineering work necessary to build and portray the future state NGA CEA;
* Development of conceptual, logical and physical architecture and technical roadmaps defining the time-phased schedule for the path of transition or transformation of systems and services from the baselined current state to the future state CEA; and program, segment and project-based solution-level architectures consistent with the enterprise-level architecture.

**Skills and Experience:**

Required:

* Bachelor’s degree or higher in business, operations research or engineering.
* Senior level experience in business architecture, business process re-engineering, and business modeling with systems engineering.
* Senior level working experience in government or industry with Architecture tools.
* Senior level working experience in the IC and DoD Business Transformation efforts and Business Enterprise Architecture
* Demonstrated experience with the WhiteHouse, OMB, or GSA’s Shared Services initiative called Federal Integrated Business Framework to include the DoD and the IC’s End-to-End Business Processes such as Hire-to-Retire, Procure-to-Pay, Acquire-to-Retire, and Budget-to-Report
* Demonstrated experience with the Defense Acquisition, the Joint Capabilities Integration and Development, and the Planning, Programming, Budgeting, and Execution processes
* Demonstrated experience in conducting the DoD standard for Capability-Based Assessment employing strong critical and analytical skills

Desired:

* Demonstrated experience with business process structures, optimization, integration, and modeling.
* Demonstrated experience with DoDAF, IC PAG, IC JARM, UPDM, SYSML or UAF.
* Demonstrated experience with Federal Integrated Business Framework (FIBF)

**Position 3: System Architect (Mid-Level)**

**Overall Assignment Description:**

Mid-level System Architects design and develop solutions for complex applications problems, API design, data services, platform services, cloud services and infrastructure services to meet user needs and requirements and align to strategic goals and the Enterprise Architecture.

**Duties include:**

* Designs, develops, maintains, and documents solution architectures ensuring traceability to the Enterprise architecture and Enterprise requirements.
* Conducts the analysis of user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling limitations.
* Develops proposed changes to the solutions architecture design based on analysis of requirements and new technology.
* Derivation, definition, and documentation of the right Resource, Functional, and Operational Capabilities and associated activities and services about NGA Corporate, along with systems analysis necessary to define, document, and baseline the current NGA CEA;
* Planning, design, and systems engineering work necessary to build and portray the future state NGA CEA;
* Development of conceptual, logical and physical architecture and technical roadmaps defining the time-phased schedule for the path of transition or transformation of systems and services from the baselined current state to the future state CEA; and program, segment and project-based solution-level architectures consistent with the enterprise-level architecture.

**Skills and Experience:**

Required:

* Bachelor’s degree or higher in Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Mid-level systems architecture working experience in government or industry.

Desired:

* Demonstrated experience with Model Based Systems Engineering, processes, tools and languages.

**Position 4: Data Architect (Expert-Level)**

**Overall Assignment Description:**

Expert-level Data Architects serve as a technical resource for strategic oversight and planning of database structural design and development. They provide technical, strategic guidance to senior- level database administrators and application developers in the creation of new databases, as well as the maintenance of major existing databases supporting evolving applications. Data architect positions provide strategic guidance to data stewards on the development and implementation approaches for data models to support organizational business and mission systems and processes.

**Duties include:**

* Consults to all levels of the organization on the design, development and implementation approaches for logical database structures and classification schemas.
* Works in concert with the Business Architect, IAW principles and guidelines provided by DoDAF, IC PAG, and Data Services Architecture – GEOINT (DSA-G), to establish, develop, and codify a common data architecture that captures the normalized corporate business data types, description, data flow, appropriate data classification, and the required authoritative system of record to include the appropriate network domain to house the corporate data. This includes the Conceptual Data Model, the Logical Data Model, and the Physical Data Model, the Ontology, Common Lexicon, and Data Dictionary
* Develops policies and procedures to build, maintain and leverage the data model.
* Provides technical, strategic guidance on the development of metadata tags, Document Type Definitions (DTD), and schemas using appropriate technologies for representation of data and data relationships.
* Ensures that metadata and data standards and definitions will support both business and mission processes and system implementation approaches, and NSG/ASG requirements for sharing data.
* Oversees and coordinates the work of Senior-, Mid-, and Junior-level Data Architects.

**Skills and Experience:**

Required:

* Bachelor’s degree or higher in Engineering, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Expert-level experience in the definition and development of data architecture to include conceptual, logical, and physical model of the architecture with associated ontology, lexicon, and data dictionary
* Expert-level experience in software engineering field of work specializing in data/database design and management.
* Demonstrated experience in government or industry in Data conditioning (extraction, transformation, loading, etc.), metadata and standards.
* Demonstrated experience in government or industry, determining data storage requirements.
* Demonstrated experience in government or industry, in Data Management services (compliance, cataloging, provenance, identifier, registry, metrics, recall & revision).

Desired:

* Demonstrated experience in government or industry, of Data access services, APIs, Linked Data (REST, SOAP, OGC, etc.).
* Demonstrated experience in government or industry, in Data Queuing, Messaging, Orchestration, Choreography services.
* Demonstrated experience in government or industry, of Data Security Services (IAA, DPM, DRM, PDP, PEP, PAP, etc.).
* Demonstrated experience in government or industry, with Data Base administration to include; data indexing, search & retrieval, Parallel processing (Hadoop, NoSQL D/B, Spark).

**Position 5: Systems Engineer (Mid-Level)**

**Overall Assignment Description:**

Mid-level Systems Engineers employ a multi-discipline approach to requirements engineering, solutions engineering, scheduling, reliability, resiliency, services development, integration, test and evaluation, maintainability and analysis across the NGA to ensure timely and accurate execution of corporate mission and functions.

**Duties include:**

* Conducts requirements engineering, solutions engineering, scheduling, reliability, resiliency, services development, integration, test and evaluation, maintainability and analysis NGA, the IC, and DoD.
* Conducts planning, analysis/traceability of user requirements, architectures traceability, procedures, and problems to automate or improve existing systems and review cloud service capabilities, workflow, and scheduling limitations.
* Develops solutions designs based on analysis of requirements and new technology and mentor Junior Engineers in developing these skill sets.
* Assists the Government in the capture and translation of mission and customer requirements/needs into systems/capability requirements and solutions.
* Supports the analyses and allocation of requirements to systems architecture components and executing programs.
* Assists the Government in performing systems integration activities.
* Assists with Analysis of Alternatives (AoAs), Course of Actions (CoAs), Trade Studies, and Engineering Assessments.
* Assists the Government in strategic technical planning, project management, performance engineering, risk management and interface design
* Must know the Acquisition Process to operate at the level of integrating multiple systems, services, processes, and interfaces across organizational and agency boundaries

**Skills and Experience:**

Required:

* Bachelor’s degree or higher in Systems Engineering or in related technical or scientific fields such as engineering, physics, mathematics, operations research, engineering management, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Mid-level working experience in government or industry in relevant work areas including: DoD/IC Acquisition Process, Requirements Process, PPBES Process or system engineering of large complex System of Systems or Service Oriented Architecture/Cloud environments.
* Mid-level working system engineering experience in government or industry.

Desired:

* Demonstrated experience with Model Based Systems Engineering, processes, tools and languages.
* Demonstrated experience with Software Development Frameworks.
* Possesses INCOSE Associate System Engineering Professional (ASEP) certification.
* Demonstrated experience with in the field of geospatial intelligence.
* Possesses Membership or active participation in any of the following professional organizations:
  + ACSM
  + ASCE
  + ASPRS
  + OGC
  + SAREM
  + USGIF
* Demonstrated experience with the IC and DoD enterprises.

**Position 6**: **Systems Integrator (Senior-Level)**

**Overall Assignment Description:**

Senior-level Systems Integrators support the Government by leading and overseeing the integrity of the business systems-of-systems enterprise. They lead and oversee planning, implementation approaches, testing, documenting, and maintaining solutions for cloud, on premise, and hybrid services, systems or subsystems using defined processes and tools.

**Duties include:**

* Provides a total systems perspective including understanding of impacted business processes, relationships, dependencies, hand-offs, triggers, and data flow
* Plans, coordinates, and documents solutions to total systems or subsystems using internally created and/or commercial off-the-shelf products.
* Analyses, designs, tests, and evaluates network systems such as Cloud Resident computing capabilities, satellite networks, local area networks (LANs), wide area networks (WANs), the Internet, intranets, and other data communications systems ranging from a connection between two offices in the same building to a globally distributed network of systems.
* Plans and coordinates data management practices to treat and handle data as a resource.
* Assists Government in managing system development efforts, moves or modernization changes including analysis, telecommunications (LAN, WAN, voice, video), planning, cabling, IT and cloud requirements, network security measures, and other factors.
* Oversees the work of Mid-level, and Junior-level contractor Systems Integrators.
* Ensure integration across corporate/business program, segment and project plans, technical roadmaps, and schedules to achieve the delivery of capabilities and effectivities.
* Maintain technical roadmaps against strategic epic planning scope and completion dates. Re-baseline roadmaps in response to changing agency guidance and strategies.
* Ensure integration of solution engineering across time horizons from year of budget execution through the Future Year Defense Program (FYDP and beyond).
* Support government oversight of program development and coordination of CONOPS, technology roadmap planning, architecture development, cross segment / cross Agency interface definitions, requirements definition, decomposition, allocation to and development by programs, segments, and projects, and enterprise-level verification and validation, transition to operations and retirement activities.
* Support end to end system integration and acceptance necessary for Major System Acquisitions (MSAs) of corporate/business systems.
* Support program, segment, and project level technical reviews, perform technology readiness assessments, and attend Technical Exchange Meetings (TEMs) to assess enterprise integration challenges.
* Review corporate/business system integration documentation for accuracy, completeness, and harmony with enterprise integration efforts. Coordinate needed changes with appropriate program, segment, and project offices.
* Support the transition of new corporate/business services and capabilities to operations and identify gaps in toolsets and automation used to test and deliver those services and capabilities. Identify gaps or new needs for automated test capabilities to address incoming capabilities.
* Provide developers guidance and recommendation on service virtualization, and service APIs for enterprise systems.
* In collaboration with Enterprise Risk Management, performed on the NGA Foundational Engineering Contract, identify enterprise-level risks, opportunities and issues associated with enterprise integration and assist in risk mitigation.
* Must understand the Acquisition Process to operate at the level of integrating multiple systems, services, processes, and interfaces across organizational and agency boundaries

**Skills and Experience:**

Required:

* Bachelor’s degree or higher in Engineering, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Senior-level working experience in government or industry in relevant work areas including: DoD/IC Acquisition Process, Requirements Process, PPBES Process or system engineering of large complex System of Systems or Service Oriented Architecture/Cloud environments.
* Demonstrated experience and understanding of the IC/DoD Business Enterprise Architecture requirements to help guide the capability integration at all level of abstraction; from business processes to corporate application integration and transformation
* Demonstrated experience with leadership, orchestration, communication, engagement, and critical thinking skills when working with other subject matter experts across organizations and disciplines in abstracting, conceptualizing, analyzing, and integrating business solutions that are aligned to the strategic goals and objectives of agency.

Desired:

* Master’s degree in Engineering, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Demonstrated experience with Model Based Systems Engineering, processes, tools and languages.
* NGA and/or NSG/ASG program/project work experience.
* IC or DoD program/project work experience.

**Position 7: Data Modeler (Mid-Level)**

**Overall Assignment Description:**

Mid-level Data Modelers conduct data modeling activities in support of business stakeholders, analysts, and workforce to define and analyze system and data requirements to support NGA business operation and related processes to ensure timely and accurate execution of corporate mission and functions.

**Duties include:**

* Assists Government with the development and use of complex models, tools and algorithms to identify trends and patterns in corporate data.
* Work with the Business Architect to model the business processes for re-engineering, optimization, or integration of technical solutions (i.e. automation, advanced learning/machine learning, etc.)
* Supports developing models of NGA’s architectures, requirements, and systems performance and considers NGA strategies and overall vision for the future of corporate mission and functions.
* Supports creating models to support analysis of alternatives, performance trades, design trades and new capabilities and develops alternatives for deployment based on MS&A results in existing NSG architectures and cloud environments.

**Skills and Experience:**

Required:

* Bachelor’s degree or higher in Engineering, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Mid-level working experience in government or industry modeling large complex System of Systems or Service Oriented Architecture/Cloud environments.

Desired:

* Demonstrated experience with Model Based Systems Engineering, processes, tools and languages.
* Mid-level working experience in Operations Research.

**Position 8**: **On-site Project/Program Manager (Expert)**

**Overall Assignment Description:**

The Expert Program Manager (PM) is responsible for ensuring the successful contractual and programmatic execution of the Task Order (TO) and serves as the authoritative point of contact for the Vendor on all TO performance matters. The PM interfaces with the BES PMO and TO Government Leads to ensure all positions are staffed and/or backfilled quickly with qualified personnel in accordance with the specified TO Position Descriptions. The PM is responsible for ensuring work deliverables, resolving performance shortfalls or deficiencies, supervising contractor personnel and communicating overarching Government objectives and goals for the Task Order to the contractor team. The PM works with the BES TO Lead Integrators, Business Process Manager, and all Critical Staff (critical staffing positions) as well as the Government TO Leads to plan and orchestrate work activities, schedules, timeline, and milestones for coordinated deliveries and comprehensive solutions. The PM provides technical expertise and assistance to the Government on programmatic matters related to lifecycle engineering and industry best program management practices to achieve NGA’s corporate mission and functions.

**(U) Duties may include:**

* Provide support to the BES PMO to ensure the timely execution of all financial, staffing and administrative contract actions.
* Provide program management support to BES Government TO Leads to facilitate the technical execution of the TO. Program Management support includes cost, schedule, risk and performance management of all TO staff and work activities.
* Provide weekly report of activities (accomplished and planned), status, progress, issues/risks, and recommended mitigation/contingency plan against the baselined PEP. Re-baseline the PEP as needed.
* Work with BES Government TO Leads to ensure contractor personnel are qualified to perform the assigned task, tasks are understood and completed within the specified timelines, and potential personnel problems are pre-empted.
* Pre-coordinate all travel and training with the BES PMO and Government TO Leads prior to scheduling.
* Ensure programmatic alignment and adherence to the NGA Vision, Planning and Programs, CIOT Priorities and TFB Priorities.
* Ensure the accuracy, quality, configuration management and timely delivery of all required TO deliverables to include the Program Execution Plan, Monthly Financial Report, Monthly Staffing Report, Monthly Activity Report, Quarterly Program Management Review materials, and as required Trip Reports, Briefings, Evaluations, Technical Assignments, White Papers or other Government requested deliverables necessary for the successful execution and/or completion of work activities.
* Plan and execute Quarterly Program Reviews to provide the BES PMO and Government TO Leads a comprehensive understanding of the health/status of all TO activities.
* Support the coordination of program management activities between TFB Division, CIOT Groups, and NGA Directorates and Associate Directorates.
* Support NGA and IC Steering Groups, Advisory Groups and Governance Boards as required.
* Provide program management expertise in lean six-sigma strategies and execution and agile methods, practices and execution.
* Perform day-to-day contractual and programmatic management of the TO.

**Skills and Experience:**

Required:

* Bachelor’s degree or higher in Business Administration, Engineering, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Expert experience as a Program Manager in terms of cost, schedule, performance, and risk management.
* Demonstrated experience with enterprise architecting, engineering, design and analysis of IT or related systems experience in all phases of design, development, analysis and documentation, and development of standards and guidelines for tasks being performed.
* Expert-level working experience in government or industry in DoD/IC Acquisition Process or PPBES.
* Possesses Project Management Professional (PMP), DAWIA Level III certification in Program Management or equivalent specialized experience with Project Management tools and techniques.
* Demonstrated experience with DoD Acquisition, the Joint Capability Integration and Development, and the Planning Programming Budgeting and Execution processes impacting fiscal year POM Build, congressional justification reporting, and capability assessment and program evaluation.

Desired:

* Demonstrated experience with the geospatial intelligence mission and its contributions to the Intelligence Community.
* Demonstrated experience with Model Based Systems Engineering, processes, tools and languages.
* Demonstrated experience with the development and/or review of cost estimates and the associated technical work scope necessary to achieve stated objectives.
* Demonstrated experience with lean six-sigma.
* Demonstrated experience with tailoring and using both Agile and Waterfall development methodologies
* Demonstrated experience with the identification of technical issues and proactive communication of possible impacts.
* Demonstrated experience with performing validation and verification of various architecture and engineering results and deliverables to ensure the highest quality results against customer requirements.
* Demonstrated experience with Cloud Based Technology such as: Service Orientated Architecture (SOA), On-demand self-service, Broad network access, Resource pooling, Rapid elasticity, Measured Service, Software as a Service (SaaS), Platform as a Service (PaaS), Infrastructure as a Service (IaaS).
* Demonstrated experience with structured and unstructured Big Data.
* Demonstrated experience with Automation, Augmentation and Artificial Intelligence technologies.

**Position 9**: **Lead** **Systems Integrator (Expert-Level)**

**Overall Assignment Description:**

Shall use the Corporate Enterprise Architecture (CEA) as the mechanism for integration, the Expert-level Systems Integrators support the Government by leading and overseeing the integrity of the NSG/ASG systems-of-systems enterprise. They lead and oversee planning, implementation approaches, testing, documenting, and maintaining solutions for cloud, on premise, and hybrid services, systems or subsystems using defined processes and tools.

**Duties include:**

* Full knowledge of and familiarity with the CEA in order to provide a total systems perspective including a technical understanding of relationships, dependencies with other corporate/enterprise systems, and requirements of hardware and software components.
* Plans, coordinates, and documents solutions to total systems or subsystems using internally created and/or commercial off-the-shelf products.
* Analyses, designs, tests, and evaluates network systems such as Cloud Resident computing capabilities, satellite networks, local area networks (LANs), wide area networks (WANs), the Internet, intranets, and other data communications systems ranging from a connection between two offices in the same building to a globally distributed network of systems.
* Plans and coordinates data management practices to treat and handle data as a resource.
* Assists Government in managing system development efforts, moves or modernization changes including analysis, telecommunications (LAN, WAN, voice, video), planning, cabling, IT and cloud requirements, network security measures, and other factors.
* Oversees the work of Senior-, Mid-, and Junior-level contractor Systems Integrators.
* Ensure integration across corporate/business program, segment and project plans, technical roadmaps, and schedules to achieve the delivery of capabilities and effectivities.
* Maintain technical roadmaps against strategic epic planning scope and completion dates. Re-baseline roadmaps in response to changing agency guidance and strategies.
* Ensure integration of solution engineering across time horizons from year of budget execution through the Future Year Defense Program (FYDP and beyond).
* Support government oversight of program development and coordination of CONOPS, technology roadmap planning, architecture development, cross segment / cross Agency interface definitions, requirements definition, decomposition, allocation to and development by programs, segments, and projects, and enterprise-level verification and validation, transition to operations and retirement activities.
* Support end to end system integration and acceptance necessary for Major System Acquisitions (MSAs) of corporate/business systems.
* Support program, segment, and project level technical reviews, perform technology readiness assessments, and attend Technical Exchange Meetings (TEMs) to assess enterprise integration challenges.
* Review corporate/business system integration documentation for accuracy, completeness, and harmony with enterprise integration efforts. Coordinate needed changes with appropriate program, segment, and project offices.
* Support the transition of new corporate/business services and capabilities to operations and identify gaps in toolsets and automation used to test and deliver those services and capabilities. Identify gaps or new needs for automated test capabilities to address incoming capabilities.
* Provide developers guidance and recommendation on service virtualization, and service APIs for enterprise systems.
* In collaboration with Enterprise Risk Management, performed on the NGA Foundational Engineering Contract, identify enterprise-level risks, opportunities and issues associated with enterprise integration and assist in risk mitigation. Must understand the CEA and the Acquisition Process to operate at the level of integrating multiple systems, services, processes, and interfaces across organizational and agency boundaries

**Skills and Experience:**

Required:

* Bachelor’s degree or higher in Engineering, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Expert-level working experience in government or industry in relevant work areas including: DoD/IC Acquisition Process, Requirements Process, PPBES Process or system engineering of large complex System of Systems or Service Oriented Architecture/Cloud environments.
* Demonstrated experience with leadership, orchestration, communication, engagement, and critical thinking skills.

Desired:

* Master’s degree in Engineering, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Demonstrated experience with Model Based Systems Engineering, processes, tools and languages.
* NGA and/or NSG/ASG program/project work experience.
* IC or DoD program/project work experience.

**Position 10**: **Systems Integrator (Mid-Level)**

**Overall Assignment Description:**

Shall use the Corporate Enterprise Architecture (CEA) as the mechanism for integration, the Mid-level Systems Integrators support the Government by coordinating and overseeing the integrity of the NSG/ASG systems-of-systems enterprise. They coordinate with system owners with planning, implementation approaches, testing, documenting, and maintaining solutions for cloud, on premise, and hybrid services, systems or subsystems using defined processes and tools.

**Duties include:**

* Full knowledge of and familiarity with the CEA in order to provide a total systems perspective including a technical understanding of relationships, dependencies with other corporate/enterprise systems, and requirements of hardware and software components.
* Plans, coordinates, and documents solutions to total systems or subsystems using internally created and/or commercial off-the-shelf products.
* Analyses, designs, tests, and evaluates network systems such as Cloud Resident computing capabilities, satellite networks, local area networks (LANs), wide area networks (WANs), the Internet, intranets, and other data communications systems ranging from a connection between two offices in the same building to a globally distributed network of systems.
* Plans and coordinates data management practices to treat and handle data as a resource.
* Assists Government in managing system development efforts, moves or modernization changes including analysis, telecommunications (LAN, WAN, voice, video), planning, cabling, IT and cloud requirements, network security measures, and other factors.
* Must understand the CEA and the Acquisition Process to operate at the level of integrating multiple systems, services, processes, and interfaces across organizational and agency boundaries

**Skills and Experience:**

Required:

* Bachelor’s degree in Engineering, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Mid-level working experience in government or industry in relevant work areas including: DoD/IC Acquisition Process, Requirements Process, PPBES Process or system engineering of large complex System of Systems or Service Oriented Architecture/Cloud environments.

Desired:

* Master’s degree in Engineering, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Demonstrated experience with Model Based Systems Engineering, processes, tools and languages.
* NGA and/or NSG/ASG program/project work experience.
* IC or DoD program/project work experience.

**Position 11: Lead System Engineer (Expert-Level)**

**Overall Assignment Description:**

Shall use the CEA as a foundation and guide for system engineering, the Expert-level Systems Engineers oversee engineering teams in taking a multi-discipline approach to requirements engineering, solutions engineering, scheduling, reliability, resiliency, services development, integration, test and evaluation, maintainability and analysis across NGA to ensure timely and accurate execution of corporate mission and functions.

**Duties include:**

* Full knowledge of and familiarity with the CEA in order to guide Senior-level, Mid-level and Junior-level system engineers performing requirements engineering, solutions engineering, scheduling, reliability, resiliency, services development, integration, test and evaluation, maintainability and analysis across NGA, the IC, and DoD.
* Performs planning, analysis/traceability of user requirements, architectures traceability, and procedures; identifies approaches to automate or improve existing systems and review cloud service capabilities, workflow, and scheduling limitations.
* Using the CEA, guides system engineers developing solutions designs based on analysis of requirements and new technology.
* Using the CEA, assists the Government in the capture and translation of mission and customer requirements/needs into systems/capability requirements and solutions.
* Using the CEA, supports the analyses and allocation of requirements to enterprise and systems architecture components and executing programs.
* Using the CEA, assists the Government in performing systems integration activities.
* Using the CEA, conducts Analysis of Alternatives (AoAs), Course of Actions (CoAs), Trade Studies, and Engineering Assessments.
* Using the CEA, assists the Government in strategic technical planning, project management, performance engineering, risk management and interface design.

**Skills and Experience:**

Required:

* Bachelor’s degree or higher in Systems Engineering or in related technical or scientific fields such as engineering, physics, mathematics, operations research, engineering management, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Expert-level working experience in government or industry in relevant work areas including: DoD/IC Acquisition Process, Requirements Process, PPBES Process or system engineering of large complex System of Systems or Service Oriented Architecture/Cloud environments.
* Demonstrated experience with systems engineering lifecycle.

Desired:

* Master’s degree in Systems Engineering or in related technical or scientific fields such as engineering, physics, mathematics, operations research, engineering management, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Demonstrated experience with Model Based Systems Engineering, processes, tools and languages.
* Demonstrated experience with Software Development Frameworks.
* Possesses INCOSE Certified System Engineering Professional (CSEP) certification.
* Demonstrated experience in the field of geospatial intelligence.
* Possesses a Licensure as a professional engineer.
* Possesses Membership or leadership participation in any of the following professional organizations:
  + ACSM
  + ASCE
  + ASPRS
  + OGC
  + SAREM
  + USGIF
* Demonstrated expertise in photogrammetry, remote sensing, image science, information sciences, geographic information systems, geomatics, or related fields.
* Demonstrated experience with IC and DoD enterprises.

**Position 12: Systems Engineer (Junior-Level)**

**Overall Assignment Description:**

Shall use the CEA as a foundation and guide for system engineering, the Junior-level Systems Engineers employ a multi-discipline approach to requirements engineering, solutions engineering, scheduling, reliability, resiliency, services development, integration, test and evaluation, maintainability and analysis across the NGA to ensure timely and accurate execution of corporate mission and functions.

**Duties include:**

* Familiarity with and ability to learn the CEA in order to perform requirements engineering, solutions engineering, scheduling, reliability, resiliency, services development, integration, test and evaluation, maintainability and analysis NGA, the IC, and DoD.
* Using the CEA, performs planning, analysis/traceability of user requirements, architectures traceability, and procedures; identifies approaches to automate or improve existing systems and review cloud service capabilities, workflow, and scheduling limitations.
* Using the CEA, assists the Government in the capture and translation of mission and customer requirements/needs into systems/capability requirements and solutions.
* Using the CEA, assists the Government in performing systems integration activities.
* Using the CEA, assists with Analysis of Alternatives (AoAs), Course of Actions (CoAs), Trade Studies, and Engineering Assessments.
* Using the CEA, assists the Government in strategic technical planning, project management, performance engineering, risk management and interface design

**Skills and Experience:**

Required:

* Bachelor’s degree or higher in Systems Engineering or in related technical or scientific fields such as engineering, physics, mathematics, operations research, engineering management, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Demonstrated experience with the systems engineering lifecycle.

Desired:

* Demonstrated experience with Model Based Systems Engineering, processes, tools and languages.
* Demonstrated experience with Software Development Frameworks.
* Demonstrated experience with the IC and / or DoD enterprises domains.

**Position 13: Systems Engineer (Senior-Level)**

**Overall Assignment Description:**

Shall use the CEA in order to provide FCS MOM governance board support to manage IT requirements identification and associated priorities to inform strategic development, operations and sustainment, enhancement, integration and retirement of corporate application, systems and services.

**Duties include:**

* Using the CEA, assesses corporate IT change requests received from Directorates and Components.
* Using the CEA, assists in the translation of customer needs into derived system/capability requirements.
* Using the CEA, assesses the change request against current enterprise capabilities, policy and strategy. Documents the risk and viability to implement the change request.
* Using the CEA, performs capability needs assessment to make recommendation to the government on if a material or non-material solution is best suited to satisfy customer’s needs.
* Using the CEa, performs high-level system engineering to identify corporate IT option(s) to address customer needs. Provides recommendation to government describing the solutions capability, notional cost and implementation timeline, which will inform investment priorities and decisions.
* Using the CEA, coordinate with CIO-T organization (TCF) for corporate IT change requests that require a Business Case Analysis (BCA).
* Using the CEA, guides Mid-level and Junior-level system engineers performing requirements assessment activities.
* Using the CEA, performs planning, analysis/traceability of user requirements, architectures traceability, and procedures; identifies approaches to automate or improve existing systems and review cloud service capabilities, workflow, and scheduling limitations.
* Leverages Analysis of Alternatives (AoAs), Course of Actions (CoAs), Trade Studies, and Business Case Analysis (BCA).

**Skills and Experience:**

Required:

* Bachelor’s degree or higher in Systems Engineering or in related technical or scientific fields such as engineering, physics, mathematics, operations research, engineering management, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Senior-level working experience in government or industry in relevant work areas including: DoD/IC Acquisition Process, Requirements Process, PPBES Process or system engineering of large complex System of Systems or Service Oriented Architecture/Cloud environments.
* Demonstrated experience with systems engineering lifecycle.

Desired:

* Master’s degree in Systems Engineering or in related technical or scientific fields such as engineering, physics, mathematics, operations research, engineering management, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Demonstrated experience with Model Based Systems Engineering, processes, tools and languages.
* Demonstrated experience with Software Development Frameworks.
* Possesses INCOSE Certified System Engineering Professional (CSEP) certification.
* Demonstrated experience with in the field of geospatial intelligence.
* Possesses Licensure as a professional engineer.
* Membership or leadership participation in any of the following professional organizations:
  + ACSM
  + ASCE
  + ASPRS
  + OGC
  + SAREM
  + USGIF
* Demonstrated experience with the IC and DoD enterprises.

**Position 14: Systems Engineer (Mid-Level)**

**Overall Assignment Description:**

Shall use the CEA in order to provide FCS MOM governance board support to manage IT requirements identification and associated priorities to inform strategic development, operations and sustainment, enhancement, integration and retirement of corporate application, systems and services.

**Duties include:**

* Using the CEA, assesses corporate IT change requests received from Directorates and Components.
* Using the CEA, assists in the translation of customer needs into derived system/capability requirements.
* Using the CEA, assesses the change request against current enterprise capabilities, policy and strategy to determine true capability needs and associated gaps. Documents the risk and viability to implement the change request.
* Using the CEA, performs, analysis/traceability of user requirements, architectures traceability, and procedures; identifies approaches to optimize or improve existing systems and review other capability dependencies, workflow, and scheduling limitations.
* Using the CEA, leverages Analysis of Alternatives (AoAs), Course of Actions (CoAs), Trade Studies, and Business Case Analysis (BCA).

**Skills and Experience:**

Required:

* Bachelor’s degree or higher in Systems Engineering or in related technical or scientific fields such as engineering, physics, mathematics, operations research, engineering management, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Mid-level working experience in government or industry in relevant work areas including: DoD/IC Acquisition Process, Requirements Process, Capability-based Analysis, PPBES Process or system engineering of large complex System of Systems or Service Oriented Architecture/Cloud environments.
* Demonstrated experience with the systems engineering lifecycle.

Desired:

* Master’s degree in Systems Engineering or in related technical or scientific fields such as engineering, physics, mathematics, operations research, engineering management, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Demonstrated experience with the Model Based Systems Engineering, processes, tools and languages.
* Demonstrated experience with Software Development Frameworks.
* Possesses INCOSE Certified System Engineering Professional (CSEP) certification.
* Demonstrated experience with the field of geospatial intelligence.
* Possesses a Licensure as a professional engineer.
* Membership or leadership participation in any of the following professional organizations:
  + ACSM
  + ASCE
  + ASPRS
  + OGC
  + SAREM
  + USGIF
* Demonstrated experience with IC and DoD enterprises.

**Position 15: Systems Engineer (Junior-Level)**

**Overall Assignment Description:**

Shall use the CEA in order to provide FCS MOM governance board support to manage IT requirements identification and associated priorities to inform strategic development, operations and sustainment, enhancement, integration and retirement of corporate application, systems and services.

**Duties include:**

* Using the CEA, assists in the assessment of corporate IT change requests received from Directorates and Components.
* Using the CEA, assists in the translation of customer needs into derived system/capability requirements.
* Using the CEA, assesses the change request against current enterprise capabilities, policy and strategy. Documents the risk and viability to implement the change request.
* Using the CEA, performs capability needs assessment to assist in developing recommendation to the government on if a material or non-material solution is best suited to satisfy customer’s needs.
* Using the CEA, performs high-level system engineering to identify corporate IT option(s) to address customer needs. Assists developing recommendation to government describing the solutions capability, notional cost and implementation timeline, which will inform investment priorities and decisions.

**Skills and Experience:**

Required:

* Bachelor’s degree or higher in Systems Engineering or in related technical or scientific fields such as engineering, physics, mathematics, operations research, engineering management, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Demonstrated experience with the systems engineering lifecycle.

Desired:

* Demonstrated experience with the Software Development Frameworks.
* Demonstrated experience with the IC and / or DoD enterprise domain