National Geospatial-Intelligence Agency (NGA)



**Source Directorate**

**Task Order (TO): 0014**

**Statement of Work (SOW)**

**13 November 2019**

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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 Source Directorate. (U) All background and scope contained in the Base SOW are applicable to this Task Order (TO). This TO supports the Source mission areas, including Data Collection and Collection Operations, Foundational GEOINT, Content Conveyance and Safety of Navigation. Introduction, background, objectives and scope material contained in the Base NEE SOW are applicable to this TO. The contractor shall provide all appropriate support to assist accomplishment of the requirements stated below.

## Background

The Source Directorate’s Mission is to collects, create, and brokers authoritative GEOINT content and services based on an intimate knowledge of customer needs and powered by a unique command of the GEOINT supplier market, unparalleled tradecraft expertise, and cutting-edge technology to support national security priorities. To accomplish this mission efforts are broken in to four main thrusts: Data Collection and Collection Operations, Foundational GEOINT, Content Conveyance and Safety of Navigation.

### Data Collection and Collection Operations

The National Geospatial-Intelligence Agency (NGA), Source Directorate (S), Data Collection and Collection Operations efforts manage the tasking, acquisition and processing of many types of data for analysis and production. Source acquires geospatially relevant data from many sources: space-based satellites, airborne platforms, maritime vessels, partnerships, commercial and open source.

### Content Conveyance

Source, as lead for Content Conveyance, is working to optimize the user experience by increasing product insight and delivery confidence for GEOINT. Bridging the gap between customers and capability providers, Content Conveyance will ensure discoverability and delivery of imagery, maps, products and other GEOINT data to customers around the globe in the timeframe they require it, format needed, and on their mission domain.

### Foundation GEOINT

Foundational GEOINT comprises the data, products and services that describe the earth’s physical and cultural characteristics. Foundational GEOINT includes topography, bathymetry, precise imagery, geodesy, geographic names, political boundaries, human and cultural geography and more. Source collects and creates foundational data from land, sea and air platforms, scientific methods and research programs to provide authoritative content.

### Safety of Navigation (SoN)

Source provides authoritative geospatial data, information, products and services to enable the safe and efficient movement within the air and maritime domains, including geomatics information essential to accurate global positioning and navigation in the land, sea, air and space domains.

## Scope

The Contractor shall perform SE&I and test services work in accordance with the requirements specified in this task order. 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 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 GEOINT Enterprise Architecture (GEA), 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 mission capabilities and solutions.
* **Enterprise Level Requirements Engineering.** The NEE contractor shall provide services to develop, document, decompose and allocate strategic requirements to establish and enable GEOINT Mission Solutions (e.g., GEOINT 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 collaborate/support the NGA Segment Engineering (NSE) contractor in tracing 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 program and project level solutions come together seamlessly to deliver comprehensive mission capabilities.
* **Enterprise Analysis and Assessment.** The NEE contractor shall provide services to perform Capabilities-based Analysis, Business Engineering (Pre-Acquisition Engineering) and AoAs, Trade Studies, and Engineering Assessments.
* **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 representations of architectures, systems, services, subsystems, and components supporting GEOINT and use software to conduct performance, capacity, and proof-of concept MS&A across the NGA, National System for Geospatial-Intelligence (NSG), Allied System for Geospatial-Intelligence (ASG), commerce, and Mission Partner paradigms.

# 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

Refer to Base SOW.

## Reference Documents

Refer to Base SOW.

# Description of Work

## 3.1 Enterprise and Solutions Architecture Engineering Support

Source 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 GEOINT Enterprise Architecture (GEA), inclusive of business, data, network, security and solutions-level sub-architectures, to ensure enterprise systems work together in an integrated fashion to deliver mission capabilities and solutions. Key activities of Enterprise and Solutions Architecture Engineering may include the following: systems analysis necessary to define and document the As-Is Architecture; planning, design, and systems engineering work necessary to build and portray the To-Be Architecture; the development of conceptual, logical and physical architecture and technical roadmaps defining the time-phased schedule for the path of systems and services from the As-Is to the To-Be Architecture; 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 GEOINT Enterprise Architecture 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 a number of critical activities including planning, programming, budgeting, and mission execution. Architecture information also supports key engineering services such as requirements decomposition and inter/intra segment integration.

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

1. Shall design and update Enterprise-level digital models/representations architectures which capture Enterprise requirements and provide roadmaps to balance cost, schedule and performance.
2. Shall support the continued development, maintenance, and documentation of the GEOINT Enterprise Architecture (GEA).
3. Shall define, develop, document, and maintain the NGA, NSG, ASG, United Stated Government (USG), commercial and foreign partner As-Is and To-Be Architectures consistent with the NGA GEOINT CONOPs 2022 (and future CONOPS) and Source Foundation Strategy 2022 (and future strategies).
4. Shall define, develop, recommend, and support implementation approaches ensuring optimized cloud architecture(s). This includes reviewing proposed architectures of commercial imagery service vendors and assessing the viability and suitability.
5. Shall recommend, develop and operate architecture tools which support analysis and decision making through architecture data in the form of models, simulations, reports and views so that stakeholders may use architecture data in either the acquisition or development lifecycle to answer investment and divestment questions.
6. Shall create appropriate and effective architecture information and artifacts (in accordance with 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.
7. Shall assess architectural artifacts and components for compliance with NGA, NSG, ASG, USG, commercial and foreign partner 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.
8. Shall use the Joint Architecture Reference Models (JARM) to describe, analyze, and identify potential architectural service gaps, support AOA, leverage existing resources, and assist with invest and divest decisions for the agency.
9. Shall use MBSE methods and tools to build and maintain digital systems models of services, components, systems and subsystems across the NGA, NSG, ASG, USG, commercial and foreign partners. Use MBSE to link requirement and design artifacts to solution and enterprise level architectures.
10. Shall utilize the enterprise architecture and artifacts to improve the quality of NGA’s investments and engineering decisions by understanding, describing, and refining the alignment of GEOINT capabilities to people, process and technology. Assist with alignment of IT strategy and planning with the Agency's business and mission goals.
11. Shall manage and maintain the necessary processes and tools for automated maintenance and management of architecture artifacts within the repository for the enterprise.
12. Shall manage enterprise architecture documentation in collaboration with the Configuration Management function executed within NGA Foundational Engineering (NFE).

### Solutions-level Architecture Support

The next level of architecture decomposition below Enterprise Architecture defining 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.

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

1. Shall analyze architecture information to provide recommendations for program investments and solution-level architecture and engineering.
2. Shall assist the Government in architecting and planning the transition from paper based processes to digital representations integrating architectures, requirements, integration, scheduling, budgeting and other data needed for systems engineering
3. Shall build, vet, and baseline solutions-level architectures consistent with the enterprise architecture.
4. Shall conduct systems analysis to support re-use or development of like 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. Shall collaborate with Office/Program Office/Project Engineering and Foundational Systems Engineering to understand 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. Shall design solutions-level architecture digital models/representations which fulfill program requirements and provide solutions which balance cost, schedule and performance across the enterprise.
7. Shall develop and document necessary quick reaction architecture requirements for warfighter support capabilities and initiatives in appropriate enterprise architecture baselines.
8. Shall identify and support enterprise-wide capabilities in the Source mission area to meet mission requirements.
9. Shall perform engineering and integration support for systems migrating to NGA’s Cloud domains by conducting compatibility assessments for Platform as a Service (PaaS), Infrastructure as a Service (IaaS) and interfacing within the agency on schedules and Cloud migration efforts.
10. Shall maintain the baselined special access program (SAP) architecture and support transition activities from this architecture framework into the Commercial Cloud Services (C2S) or its follow-on, other clouds and NSG integration in increments, and as approved by the Government. Shall support the migration of CAP/SAP architectures into the NGA/NSG To-Be Architecture.
11. Shall maintain the baselined architecture and support transition activities from this architecture framework into the Commercial Cloud Services (C2S), NGA Cloud or its follow-on, other clouds and NSG integration in increments, and as approved by the Government.
12. Shall coordinate and prioritize the full migration of the enterprise systems identified for migration to the Cloud on the Unclassified Cloud (UC), Secret Cloud (SC), and Top-Secret Cloud (TC) domains, and assess other related systems to determine assistance from Source Agile team to CIO-T for Cloud migration activities.
13. Shall assist the Government in developing requirements, architecting, testing, integration, scheduling, budgeting and planning for integrating new products, services and capabilities into enterprise architectures.
14. Shall apply “cloud native” systematic engineering approaches to plan, design, architect, develop, operate and use cloud technologies and platforms for mission solutions.

### Executable Technical Roadmap Development and Support

Activities necessary to build, manage and execute time-phased, technical roadmap(s) which identify the 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. Shall define, develop, document and maintain the time-phased, strategic and technical roadmap(s) which move NGA from the current As-Is Architecture to the To-Be Architecture and current mission capabilities to future mission capabilities.
2. Shall coordinate across all elements of the NGA, NSG, ASG, USG, commercial and foreign partners’ GEOINT Infrastructure Service Provider (ISP)/Application Service Provider (ASP) response to identify dependencies (on- premise and in the cloud) in support of architectural decisions.
3. Shall coordinate with service providers to integrate changes into the Technical Roadmap.

### Business Architecture Support

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

1. Shall provide expertise and support for Business Architecture, design, implementation approaches and recommendations for the NGA, NSG, and ASG ensuring the alignment of strategic vision, goals and objectives with GEOINT Doctrine, policy, regulations, organizations, capabilities, initiatives, customers, finances, value streams, supply chains, products and services for informed Government decisions. This includes changes related to the use of Cloud architecture.
2. Shall promote shared infrastructure and applications to reduce costs and improve information flow.
3. Shall report on the optimization and usage of shared infrastructures and applications to reduce costs and improve information flow imported into and exported out of the NGA, NSG and ASG enterprise.
4. 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.
5. Shall mitigate risks and facilitate issue resolution for the Enterprise Cross Domain Solution (ECDS), Amazon Web Services (AWS) Diode, and others as needed.
6. Shall assist the Government in developing business architecture to transition the Acquisition processes from paper to digital models/representations integrating architectures, requirements, integration, scheduling, budgeting and other data needed to augment, automate and accelerate the Acquisition Process.
7. Shall implement and support the maintenance of the content of the Geopolitical Entities, Names, and Codes (GENC) Registry. This includes managing the source code development to support Content Management Tool (CMT) on the NSG Standards Registry (NSGREG), and enhancing the GENC CMT Version 1.0 to improve the workflow to verify the integrity of the data within the GENC database.

### Data Architecture/Data Services Architecture Support

The commonly used data and metadata formats for NGA, NSG, ASG, USG, commercial, and foreign partners; the business rules for data access, releasability, conflation, validation, quality, retention, storage management, and refresh; and the technical services architecture to support 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. Shall collaborate with the NSG Data Engineering (NDE) contractor and Government to incorporate the DSA-G into the Enterprise and Solution Architectures, Enterprise Requirements, Enterprise Technical Roadmaps, Business Architecture and Enterprise Integration engineering.
2. Shall provide support for Data and Data Services Architecture, design, implementation approaches and recommendations for NGA, NSG, and ASG operations.
3. Shall collaborate with NDE contractor to ensure data execution efforts are aligned with NGA priorities.

### Network Architecture and Engineering Support

Network engineering support to reach across the NGA, NSG, ASG, USG, commercial, and foreign partner networks, to include network diagrams and configurations to aid in planning and evolving the NGA, NSG and ASG networks.

Network Architecture and Engineering activities the contractor shall support in the performance of this Task Order include:

1. Shall providing expertise and support for Network Architecture, design, implementation approaches and recommendations for NGA, NSG, and ASG operations.

### Security Architecture and Engineering Support

Supports the government with securing the enterprise infrastructure through the security architecture for the NGA, NSG, ASG, USG, commercial, and foreign partner networks with direction from the Chief of Security Engineering and in collaboration/coordination with the Cyber 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. Shall engineer and implement Enterprise Security Services to ensure secure operation and defense of the NGA, NSG, and ASG operations.
2. Shall provide engineering support to current Enterprise Security Services (IDAM, Cross Domain, Network and Host Defense, Cyber Security Operations capabilities) to include integration, upgrades and replacements.
3. Shall provide 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 cyber security policies and directives.
4. Shall collaborate with cyber security contractor, operations and accreditation teams on execution of design, engineering, upgrade and integration activities.
5. Shall support 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.

### Source Architecture and Engineering Support

Supports the government with the collection, creation, dissemination and brokering of authoritative and non-authoritative GEOINT content and services based on customer needs. Provide architecture and engineering support to implement brokering services. Work within the Source directorate, and across capability providers and with the larger NGA, NSG, ASG, USG, commercial, and foreign partner networks.

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

1. Shall support the establishment of brokering services that return value-driven solutions to customers from diverse supplier markets.
2. Shall lead modernization and innovation to create authorities content, including experimentation with automation and machine learning.
3. Shall provide engineering support for the lifecycle of enterprise level project such as: Innovative GEOINT Application Provider Program (IGAPP), Visualization services GEOINT App Store (GAS); and other content conveyance related efforts. This includes planning, design, development, integration, maintenance and replacements.
4. Shall provide technical expertise to support program development of secure applications and systems by providing technical guidance for implementation of ICD-503 required controls, and provide recommendations for streamlining and optimizing security processes.
5. Shall collaborate with cyber security contractor, operations and accreditation teams on execution of design, engineering, upgrade and integration activities. Identify areas within the security approval process to modernize and streamline approvals for new applications.
6. Shall perform mission planning activities to support the definition of mission needs and processes, and their evolution to the future enterprise.
7. Shall support the government’s efforts to integrate new and improved GEOINT systems, services and capabilities across Foundational GEOINT (FG) production domains with the goals to enable the Visualization services, Object- Based Production (OBP) and successful hosting in multiple levels of the NGA Cloud.

## Requirements Engineering

Source requires SE&I support in Strategic, Enterprise, and Capabilities-level Requirements Engineering. Resources applied against this effort shall assist the Government in aligning traceability of capabilities and needs through developing, documenting, decomposing and allocating strategic (i.e., GEOINT Enterprise Capabilities Documents (ECDs), Statements of Capabilities (SOCs) and Capabilities Description Documents (CDDs), Capability-Oriented Requirement (COR) sets, Service-Oriented Requirement (SOR) sets,) through solution (i.e., System and Software Requirements Documents (SysRDs and SRDs) level requirements to establish and enable GEOINT mission solutions for all customers of the NGA, NSG, ASG, USG, commercial and foreign partners . The collective requirements engineering activity is inclusive of agile methodologies to define requirements using capabilities, epics, features and user stories. This service includes top-down and bottom-up planning and coordination with respect to 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.

### Strategic to Enterprise Level Requirements Engineering Support

The contractor shall support the Government in developing, documenting, decomposing and allocating mission needs from strategic to Enterprise level requirements to establish and enable GEOINT mission solutions for all customers of the NGA, NSG, ASG, USG, commercial and foreign partners.

The contractor shall support Strategic to Enterprise Level Requirements Engineering activities in the performance of this Task Order to include, but are not limited to:

1. Shall support requirements engineering, solutions engineering, scheduling, reliability, resiliency, services development, integration, test and evaluation, maintainability and analysis across the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies
2. Shall support the continued development, maintenance, and documentation of all NGA strategic requirements/needs repositories, digital representations, documents to include the GEOINT ECD, all relevant SOCs, Enterprise repository (NRAI), CDDs, NGA GEOINT CONOPS 2022 and future CONOPS.
3. Shall support the decomposition and allocation of all NGA strategic requirements/needs from the GEOINT ECD, all relevant SOCs, CDDs and the NGA GEOINT CONOPS 2022 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.
4. Shall capture quick reaction warfighter support requirements in appropriate enterprise requirement repositories, digital representations, documents and baselines. Advocate for expedited warfighter support requirements/needs within the appropriate programs, segments and projects.
5. Shall capture, and manage an Enterprise Requirements Database to provide a centralized location to capture all requirements and requirements documentation. Collaborate with Foundational Systems Engineering for execution and management.
6. Shall 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.
7. Shall manage and share the Enterprise Requirements Baseline to enable stakeholders to develop acquisition strategies, identify areas for investing and divesting, and provide traceability of requirements from the GEOINT ECDs, SOCs, CDDs, and NGA GEOINT CONOPS 2022 through solutions engineering.
8. Shall provide a self-service user interface which allows customized requirement queries against the authoritative requirements database and baseline. Collaborate and work with NFE for execution and management.
9. Shall manage requirements artifacts in collaboration with the Configuration Management function within NFE.
10. Shall validate decomposed, allocated requirements from the strategic documents to solution programs, segments and projects and coordinate with the user to demonstrate perceived intent and further develop requirements.
11. Shall coordinate with users and stakeholders to develop enterprise level requirements for new mission needs and to determine viable solutions for each request.
12. Shall capture new strategic requirements/needs and the associated Strategic Roadmaps from any NGA, NSG, or ASG 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 Solutions.
13. 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.
14. Shall support and represent the Government Requirements Team at governance boards for approval of new user needs and requirements.
15. Shall recommend new processes and methodologies to decrease the requirements satisfaction timeline and to increase requirements visibility and efficiency across the NGA, NSG, ASG, USG, commercial and foreign partners.
16. Shall utilize MBSE to document and trace system 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.
17. Shall define, evaluate, and document information security requirements for new IT initiatives and cyber capabilities.
18. The contractor shall collaborate with the NSE contractor in the allocation/traceability of Enterprise requirements to programs requirements.
19. The contractor shall collaborate with the NFE contractor in the configuration control, configuration management of Enterprise and Solution requirements.

### Capabilities Requirement Analysis Support

The NEE contractor shall provideservices to support the Government in ensuring new strategic, functional, or operational capabilities address current and future requirements.

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

1. Shall 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. Shall identify and validate legacy capabilities which 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. Shall 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. Shall conduct capabilities retirement analysis engineering activity in collaboration with Enterprise and Capabilities-level Requirements Engineering.
5. Shall perform divestment analyses to identify overlapping capabilities or existing functions can be absorbed into enduring/new systems to minimize duplication.
6. Shall conduct requirements traceability using JARM Technical Service Types (TSTs)) for duplication analysis and provide reports to the Government describing the findings.
7. Shall automate the analysis and reporting needed to detail the gaps and duplication in the enterprise capabilities provided by internal and external partners.
8. Shall assess the NGA, NSG, ASG, USG, commercial and foreign partner software/service repositories (e.g. the GEOINT Solutions Marketplace (GSM)) for reuse opportunities).
9. Shall provide support to the government in navigating the JCIDS process, developing required technical documents and attending JCIDs related meeting.

### Interface/Service Definition Support

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 enterprise architecture.

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

1. Shall assist the government in advancing the enterprise from a point-to-point interface environment to a services-oriented/API-oriented environment.
2. Shall define and mature system and service interfaces and the interactions across the NGA, NSG ASG, USG, commercial and foreign partner baselines.
3. Shall ensure the detailed interface definitions are consistent with the defined enterprise architecture.
4. Shall conduct analysis to identify Industry best practices, standards and management of service oriented, cloud and API environments to ensure optimum efficiencies.
5. Shall create new APIs to allow for integration of systems

### External Site Architecture Transition (ESAT)

The NEE contractor shall provideservices supporting Government’s ESAT activities to include planning for deactivation and disposal readiness (DDR) of retired 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. Shall develop and maintain the overall ESAT project schedule.
2. Shall develop and maintain site specific project plans and product/service deployment schedules.
3. Shall support systems engineering and integration transition activities at external sites and provide systems integration guidance.
4. Shall conduct technology analyses and understand technological details of the products/services to include interfaces with and dependencies on other products/services both internal and external customers.
5. Shall provide proposed recommendations on 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. Shall provide baseline architecture decision aids enabling the government to assess, manage, plan and execute architectural decisions (strategic or program).
7. Shall engage sites and stakeholders to develop site engineering transition packages.
8. Shall develop detailed transition and deployment plans, and support program transition events, ensuring all enterprise participants’ transition steps are clearly articulated, understood, and rehearsed in advance.
9. Shall 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. Shall create various communications artifacts to support weekly status briefings.
11. Shall support interfaces with external customer systems. Address integration directly with necessary NGA Programs of Record and segments.
12. Shall 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. Shall provide Security Engineering support for the development/preparation, review, and technical exchange with regard to system security packages for NGA and DoD/IC partner networks (e.g. CENTCOM’s 25-28 process)
14. Shall coordinate Infrastructure Service Provider (ISP) provisioning, network access, security, and contractual requirements across NGA, NSG and other required DoD/Government entities.
15. Shall coordinate and execute transition and deployment plans transitioning required mission capabilities into operations with minimum disruption to ongoing mission operations.
16. Shall conduct site specific network/system/application testing and provide coordinating support to test events, including both formal and informal testing at external sites.
17. Shall develop performance requirements, to include generation of ISP requirements, to support products and services.
18. Shall 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)

The Contractor shall provide support under the Enterprise Integration Engineering (Cross Organization and Program Office) 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 sensor segments; 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 GEOINT CONOPS 2022 (to include future CONOPS) and CIO-T Strategy 2022 (and future strategies). Enterprise Integration Engineers also work with Program Offices Engineers to integrate and synchronize individual 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 provideIntegration services aligning the planned, in-work and delivered capabilities, programs, projects, systems, segments and services ensuring 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 spanning the NGA, NSG, ASG, USG, Mission Partner, commercial, and foreign partner enterprise. For example, Commercial GEOINT works with numerous NGA and IC partner programs, segments, and projects to collect and integrate an ever-increasing amount of available data. Properly integrating the data into the NSG is critical to ensure mission outcomes are achieved. Enterprise coordination will collaborate with the NGA, NSG, ASG, USG, Mission Partner, commercial and foreign entities to ensure integration of the data.

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

1. Shall develop Requests for Change (RFCs) to allocate requirements for enterprise commercial geospatial products, services and capabilities into the NSG.
2. Shall support the government with integration across the NGA, NSG, ASG, USG, commercial and foreign partner enterprise ensuring alignment of architecture, requirements and as-built capabilities, services and features are in compliance with all license and sharing agreements. Coordinate with mission partners to review relevant Request for Change (RFC) and assess potential impacts to programs.
3. Shall support the government with integration across the NGA, NSG, NASA, NOAA, FAA, Mission Partner, commercial, NATO, BGS, and other foreign partner enterprise ensuring alignment of architecture, requirements and as-built capabilities, services and features are in compliance with all license and sharing agreements.
4. Shall ensure integration across program, segment and project plans, technical roadmaps, and schedules to achieve the delivery of capabilities and effectivities.
5. Shall maintain technical roadmaps against strategic planning scope and completion dates. Re-baseline roadmaps in response to changing agency guidance and strategies.
6. Shall ensure integration of solution engineering across time horizons from year of budget execution through the Future Year Defense Program (FYDP) and beyond.
7. Shall support government oversight of program development and coordination of CONOPS, technology roadmap planning, architecture development, cross Segment/Agency interface definitions, requirements definitions, decomposition, allocation to and development by programs, segments, and projects, and enterprise-level verification and validation, transition to operations and retirement activities.
8. Shall support integration across the planned, in-work, and delivered services related to sensor integration programs, ensuring all the “parts” connect, operate together successfully, and are consistent with enterprise plans and strategies.
9. Shall support integration activities and interactions with the IC, external agencies and the DoD to include sensor and platform acquisition, related ground architecture development efforts, and sensor acquired ground components necessary for consumers of the resultant data and information, and military organizations.
10. Shall support end to end system integration and acceptance necessary for Major System Acquisitions (MSAs).
11. Shall support program, segment, and project level technical reviews, preform technology readiness assessments, and attend Technical Exchange Meetings (TEMs) to assess integration challenges.
12. Shall review system integration documentation for accuracy, completeness, and harmony with enterprise integration efforts. Coordinate needed changes with appropriate program, segment, and project offices.
13. Shall support the transition of new 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.
14. Shall provide developers guidance and recommendation on service virtualization and service APIs for enterprise systems.
15. In collaboration with Enterprise Risk Management, performed on the NGA Foundational Engineering Contract, shall identify enterprise-level risks, opportunities and issues associated with enterprise integration and assist in risk mitigation.

### Enterprise Integration and Modernization Support

The NEE contractor shall provideservices supporting the on-going Program Office and CAP/SAP modernization efforts for the Analytic Services environment, Exploitation Services environment, Foundation GEOINT environment, Mission System Resiliency, IT Infrastructure, and GEOINT Needs and Collection System Management services.

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

1. Shall provide Cloud and Database Engineering expertise to support the development of cloud native capabilities, which align with and maintain the existing source enterprise projects, pipelines and mission applications in coordination with other government and government vendor teams.
2. Shall use the functionality found in the NGA development environments, communicate directly with support teams to provide feedback, and resolve any issues impacting the development, operations and sustainment of source enterprise applications.
3. Shall provide engineering, integration, and architecture analysis to support modernization efforts to incorporate standards-based, Commercial Off the Shelf (COTS) technology (e.g. ESRI’s ArcGIS) as the platform 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.
4. Shall support the execution of pilots to inform the Analytic and Exploitation Environment, Structured Observation Management (SOM) with regard to Activity Based Intelligence (ABI) and Object Based Production (OBP) systems development, and the transition capabilities to operational systems of record. Assist with Analytic and Exploitation Environment integration summits and leadership and integration meetings with key stakeholder organizations.
5. Shall support the development and integration of Source capabilities for GEOINT Services, to include IGAPP, MoW and GAS support. Provide systems engineering and integration for the planning and integration of geospatial capabilities in delivering NGA's Content Conveyance;
   1. Identify Agency, Directorate and office goals, strategic objectives and priorities for geospatial data integration;
   2. Develop and use clear, concise verbal and written materials to describe integration activities, issues, and recommendations to office, directorate, and agency leaders;
   3. Work in direct collaboration with the agency to advance source related capabilities.
6. Shall support the government modernization efforts by defining the interfaces between programs and pilots to ensure a cohesive workflow.
7. Shall support the identification, planning, design, development and integration of Automation, Artificial Intelligence and Augmentation (AAA) technologies into the modernization efforts.
8. Shall conduct TEMS, Design Reviews, Deep Dives, and Requirements Analysis sessions to review and decompose requirements to ensure enterprise-level mission needs and requirements are supported.
9. Shall develop solutions using AAA technologies to modernize GEOINT Needs and Collection Management leading to the successful implementation of GEOINT Broker concepts and legacy component retirement.
10. Shall support the modernization efforts in using AAA to automate tipping, cueing and collection management across the GEOINT architecture, on all security domains and mission geographic locations in all data repository environments (on and off premise and in the cloud).
11. Shall support the review and assess 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.
12. Shall support pilot program execution to inform modernization systems development and service integration. Support engineering activities during development to ensure correctness and completeness 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.
13. Shall develop and maintain integration project plans and schedules for each Modernization effort to ensure program, project, and/or segment requirements and schedules are aligned, baselined, and integrated into the end-to-end system.
14. Shall support Foundation GEOINT Mission initiatives by integrating myriad efforts across the Source Foundation GEOINT office (SF) domains (e.g. Aeronautical, Maritime, Human Geography, Geomatics), Research (R) (e.g. Enterprise Engine’s Machine Learning), and the efforts within the CIO-T Program Integration office.
15. Shall support the Enterprise System Resiliency efforts working with NSG, ASG, and other mission partners as applicable by providing engineering and integration expertise.
16. Shall support the Governments enterprise wide Compartmented/Special Access Program (CAP/SAP) modernization and data integration into the NSG, ASG and applicable systems. Coordinate with mission partners to engineer solutions to meet required security standards for CAP/SAP data storage and processing authorization.
17. Shall support the IT Infrastructure Modernization efforts working with NSG, ASG, and other mission partners as applicable by providing engineering and integration expertise.
18. Shall plan for the delivery of capabilities and features across programs to enable program/project alignment with each other and defined effectivities. Establish the basic cadence for the enterprise and synchronize non-agile functions with programs using an agile cadence.
19. Shall use Model-Based Systems Engineering (MBSE) tools and methodologies to support ongoing enterprise integration and modernization efforts.
20. Shall coordinate and document impacts and guide solutions/resolution of technical issues. Record lessons learned in appropriate database.
21. Shall work with the Source project teams to integrate and synchronize individual project tool solutions and integrate these into the project database.

### NGA Test Organization Support

The NEE contractor shall provide NSG/ASG Enterprise integration testing services to include planning, coordinating and manually performing integration, interoperability, operational and functionality testing for a multitude of NSG/ASG programs, Mission Partner, 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. Shall collaborate with Platform Services/DevOps to facilitate developer insertion into DevOps environments and automated cloud-hosted test tools.
2. Shall further expand automated test capabilities to include automated testing of coded functions of GEOINT applications, and machine learning for automated generation of test code.
3. Shall assist with the modernization of testing and quality assurance
4. Shall support agile, end-to-end system, operational, integration, and regression testing and analysis on NGA, NSG, and ASG mission production systems, GEOINT services, and corporate business applications.
5. Shall support early integration testing of multiple interactive systems to demonstrate stability and readiness for operational exposure.
6. Shall perform requirements decomposition to identify and develop test cases and objectives.
7. Shall conduct system workflow and interoperability analysis to identify test case insertion points.
8. Shall conduct assessment of risk to the enterprise, architecture, legacy capabilities, and end user to determine the risk priority and scope of planned testing.
9. Shall coordinate test participation with all NGA stakeholders, mission partners, other NSG/ASG programs, segments, and projects, de-conflicting schedule and resource conflicts.
10. Shall generate detailed Discrepancy Reports (DRs) and track developer and program office Technical Investigation (TI) updates to determine need for re-test.
11. Shall perform analysis of test case results and analyze output from artifacts against risk to the NSG/ASG to develop a recommendation for operational readiness. Coordinate recommendation with program, segment, and project office to determine the appropriateness of deployment with liens, delayed deployment, or partial operationalization of capabilities.
12. Shall 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
13. Shall develop Operational Test and Evaluation (OT&E) criteria and system acceptance tests.
14. Shall coordinate with NGA Foundational Engineering (NFE) contractor to maintain and update NSG/ASG Test & Evaluation Master Plan (TEMP).
15. Shall assist with early planning for the architecture and engineering of cloud environments to determine the optimal setup and workflow test configurations within cloud environments.
16. Shall collaborate and coordinate with development teams to support agile test practices, and test-driven and behavior-driven development principles.
17. Shall identify and recommend candidate systems or test functions for automation, profiling, and load testing.
18. Shall execute tools or scripts in appropriate test environments to determine specific areas of a system, service, or capability to be analyzed manually and in more detail.
19. Shall perform network virtualization to model and simulate application performance experienced by end users.
20. Shall apply automated test solutions developed by engineers and define automated acceptance tests to validate system behaviors.
21. Shall perform adaptive test engineering.
22. Shall provide performance profiling analysis.
23. Shall modify scripts for DevTest tools for the virtualization of specific services.
24. Shall execute load testing for applicable customers during the development phase of their acquisition lifecycle.
25. Shall conduct API test engineering.
26. Shall 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 efficiencies, how to optimize utility, or if deployment should occur.
27. Shall analyze performance trends and user experience data to identify parameters for automated governance processes facilitating a digital/automated, Go/No Go capability.
28. Shall 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.
29. Shall conduct trend and root cause analysis and communicate with program offices and developers.
30. Shall develop and execute Chaos testing approaches

## Enterprise Analysis and Assessment

The NEE contractor shall provide support to Capabilities-based Analysis, Business Engineering (Pre-Acquisition Engineering), Analysis of Alternatives (AoAs), Trade Studies, JCIDS technical documents, and Engineering Assessments. Resources applied against this effort shall assist the Government in establishing structured processes and methodologies facilitating Capabilities-based Analysis, Business/Pre-Acquisition Engineering, and AoA’s, Trade Studies and Engineering Assessments.

### Capabilities-based Analysis

The NEE contractor shall provideservices to analyze NGA’s legacy systems and the capabilities and services they provide and develop well-defined and executable Legacy System Retirement Plans (LSRPs) for the smooth transition 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. Shall support top-down, enterprise coordination and planning to retire legacy entities into receiving entities (future providers).
2. Shall perform legacy system retirement analyses to ensure conformance to evolving solutions and enterprise architectures and enterprise integration.
3. Shall collaborate with Capability Analysis and Pre-Acquisition Engineering Activities and recommend time-phased retirement of legacy systems.
4. Shall coordinate legacy system retirements through appropriate governance authorities, Program Management Office (PMOs) and Business/Product Owners.
5. Shall 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. Shall ensure legacy system retirements are consistent with the GEA and To-Be Architecture and meet the needs in the GEOINT ECD, SOCs, and CDDs, to ensure there is no detrimental impact to cost, performance, schedule and mission outcomes.
7. Shall perform analysis on requirements for retiring systems to ensure enduring requirements are identified and allocated to to-be architecture service groups and Program Offices.
8. Shall 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. Shall use Model-Based Systems Engineering (MBSE) methods and tools to model transition capabilities and services to new systems.

### Business Engineering (Pre-Acquisition Engineering)

The NEE contractor shall provide services for the decomposition of enterprise business architecture into defined business processes and solutions architectures for the planning of IT program acquisitions for new GEOINT systems 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. Shall develop and present decision quality analysis in detailed report and/or summary briefing format which informs 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 decision making.
2. Shall develop User Concept of Operations (CONOPS) on GEOINT initiatives by engaging with the NGA, NSG, ASG, USG, commercial and foreign partner user communities 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. Shall 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. Shall decompose Enterprise business architectures into defined business processes.

### AoAs, Trade Studies and Engineering Assessments

The NEE contractor shall provide services to perform AoAs, trade studies comparison and engineering assessments of the operational effectiveness, suitability, risk, lifecycle costs, technology maturity, satellite and sensor integration, security and other critical factors of system, software, service, methodology choices impacting the GEOINT 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-based 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. Shall 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 pertaining to Source associated systems and services.
2. Shall conduct in-depth verification and validations, and adjudication of recommendations in previously completed AoAs, trade studies, and engineering studies.
3. Shall establish standards across NGA Enterprise for performing AoAs, trade studies, and engineering assessments by creating templates, scripts and process flows to simplify the execution of some of the common repeatable tasks.
4. Shall recommend tools and techniques to easily compare, overlay, ingest and merge AoA, trade study, and engineering study data across the enterprise.
5. Shall 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, maintaining and use of software and/or digital representations of satellite and system architectures, subsystems, services, and components across the NGA, SAGE (CAP/SAP), NSG, ASG, USG, Mission Partner, commercial and foreign partners’ 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 GEOINT architectures (i.e., ground, airborne, overhead). The MS&A activity shall conduct performance analysis, determine mission testing requirements, and provide/recommend measures of effectiveness (MOE) for new and existing capabilities to meet GEOINT and intelligence analysts’ 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. Shall 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. Shall conduct Modeling, Simulation and Analysis to simulate, forecast and assess proposed activities/initiatives on emerging trends and disruptive forces which will impact and guide the GEOINT 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 in collection systems (Impact on collection capabilities and ground architecture)
5. Systems and applications resident inside and outside of NGA Cloud.
6. Automation of tasks and capabilities and resultant impact on architecture.
7. Automation of exploitation, incorporating adhoc tipping and cueing into planned collection decks and resultant impact on architecture.
8. New capabilities to support Activity Based Intelligence (ABI) and advanced analytics.
9. Impacts of machine learning and performance issues caused by big data, such as ever increasing sources of GEOINT content from multiple providers.
10. Impacts on communications and data transport systems within architectures and overall architectural timeliness and responsiveness.
11. Shall develop MS&A performance and mission effectiveness algorithms, methodologies, and programs needed to support NGA, NSG, ASG, USG, Commercial and Foreign Partner 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., C2S, NGA cloud, stand-alone networks, thick clients, etc.).
12. Shall interface with external NSG, ASG, USG, Commercial and Foreign Partners 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 owned and/or used by NSG, ASG, USG, Commercial and Foreign Partners as applicable in studies development.
13. Shall perform Enterprise-level performance and mission effectiveness analysis and deliver assessments and recommendations which inform/influence future enterprise architecture designs, capabilities, and roadmaps.
14. 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.
15. 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.
16. 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).
17. Shall perform MS&A performance and mission effectiveness analysis on commercially available services and products and recommend which should be included into 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.
18. Shall provide site specific modeling, simulation and analysis to support engineering activities.
19. Shall develop capacity impacts to include modeling of predictive impacts.
20. 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.
21. 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,
22. 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.
23. Shall quantify “as-is” 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.
24. Shall perform variable-fidelity end-to-end MS&A spanning GEOINT categories, current/future NSG/ASG source/destination services and NGA/external/cloud IT resources to inform current and future architectures and CONOPS.
25. 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.
26. Shall migrate, maintain and operate required tools in C2S or Government Cloud unless otherwise directed.  Provide systems administration support through Web Services and LINUX.
27. Shall ensure MS&A’s use of C2S or Government Cloud complies with ODNI CIO and NGA rules, standards, directives, and instructions.
28. 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.
29. Shall utilize machine learning to optimize MS&A analytical processes
30. 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; often necessary when conducting MS&A on SAP programs.
31. 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)
32. Shall provide comparisons of alternative enterprise architectures against high priority intelligence problems as directed by the government.
33. Shall conduct performance quantification of competing communication system architectures and associated ground systems.  Performance quantifications shall include, but are not limited to:
34. Design assumptions against test data
35. Performance impact of adding satellites to existing constellations to include collection fulfillment and ground architectures
36. SATCOM Ground Station design and location
37. SATCOM Gap Analysis
38. Message Latency for inclusion in design assumptions
39. Impact of adversarial actions on communication systems
40. Shall utilize MS&A system(s) sharing a common data schema where work can be shared across all NGA supported mission areas such as overhead, tactical, and ground.

## 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. |

3.6.1.1 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.

3.6.1.2 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 and COR and TM 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 monthly 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 | 3.7.3 | Award +120 Days | Quarterly | PM/CO/COR | 1 Electronic Copy to PMO Email Address Contractor Defined, Government Approved |
| Monthly Financial Report | 002 | 3.7.4 | Award +30 Days | Monthly | COR/TM | 1 Electronic Copy to PMO Email Address  Contractor Defined, Government Approved |
| Monthly Staffing Report | 003 | 3.7.5 | Award +30 Days | Monthly | COR/TM | 1 Electronic Copy to PMO Email Address  Government Defined |
| Monthly Activity Report | 004 | 3.7.7 | Award +30 Days | Weekly | COR/TM | 1 Electronic Copy to appropriate TM Email Address(es) Contractor Defined, Government Approved |
| Transition Plan | 005 | 3.6.2 | Award + 7 days | As Required | PM/CO/COR | 1 Electronic Copy to PMO Email Address  Contractor Defined, Government Approved |
| Reports, Briefings, Evaluations, Technical Assignments, Transition Plan,  Minutes, White Papers Etc. | 006 | 3.0 | As Required | As Required | COR/TM | 1 Electronic Copy to PMO Email Address, or applicable Technical Monitor  Contractor Defined, Government Approved |
| Requirement Trace Reports | 007 | 3.2 | As Required | As Required | COR, TM & GPOC | 1 Electronic Copy to PMO Email Address, or applicable Technical Monitor  Contractor Defined, Government Approved |
| Digital Models, Digital representations | 008 | 3.0 | As Required | As Required | COR, TM, GPOC | Electronic delivery as defined by Government  Contractor Defined, Government Approved |
| Monthly Telecommuting Report | 009 | 4.1 | As Required | Monthly | GPOC, CO, COR | 1 Electronic Copy to PMO Email Address  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, NCW, Valley Forge, PA, St. Louis Metropolitan Area, Denver, CO, Los Angeles, CA, and Washington Metropolitan Area (WMA) (Contractor facility). Other work locations will be considered if conducive to the effective performance of work. Possible examples of justified alternative work locations include primary locations of corporate SCIF, Lab or test/demonstration facilities. The contractor shall receive prior written approval for the alternative work location from the COR. The contractor shall work with the Government COR to obtain pre-approval on any requests for unclassified telework to be performed as specified in the task order SOW.

**Telecommuting (Telework)**

Contractors 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 practices. The Contractor shall not conduct any permanent telecommuting for technician staff under TO 0014. Any situational (ad hoc) telecommuting shall be in accordance with the Contractor’s disclosed practices and follow the guidance as outlined below. The Contractor shall be responsible for any travel time and costs associated with their permanent telecommuting work location.

The Contractor shall request, within 60 days of contract/task order award, any positions/work that it would like to perform through telework in accordance with the applicable Task Order Statement of Work (SOW). The request shall contain the following

1. Position # or Work Breakdown Structure (WBS)
2. Location of Telecommute
3. Nature of Work
4. Duration of Telecommute

The Government Point-of-Contact (GPOC) and Contracting Officer’s Representative (COR) will review requests for telecommuting for unclassified work functions within the boundaries and guidance outlined below:

Program Management Office (PMO) Support: Unclassified PMO work (e.g. contracts, finance, program security, subcontracts, staffing and program management, or program manager) may be performed via telecommuting and billed to the task order without prior COR/GPOC coordination and CO approval.

Technical Staff: Unclassified technical work may be performed on a limited basis via telecommuting at the specific request of the GPOC. Additionally, the technical work may be performed via telecommuting and billed to the contract/task order only with prior COR/GPOC coordination and CO approval.

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 provide one (1) consolidated monthly Telecommuting Report in conjunction with the submitted Monthly Financial Report (MFR) deliverable for all of the Unclassified telecommuting work functions outlined above. The Telecommuting Report shall include the following information at a minimum at no cost to the Government:

* Contractor Name(s);
* GPOC who is receiving direct support from the Contractor via telecommuting (other than PMO);
* Dates and number of telecommuting hours being charged to the contract; and
* CLIN(s) charged

See the listing in Appendix B: Position Descriptions

## Government Furnished Property (GFP)

The Government will provide the following GFP for TO 0014:

**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.

* Specific to the two personnel supporting SFD (as shown in Appendix A), unclassified laptops, monitors, and required peripherals are provided by the government for contractor use.

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 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 0014 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 a standard profile of Office productivity tools that includes Microsoft Office, Adobe Reader and 7-Zip file manager.

**Data:** The Government will provide access to all available NGA data to support the requirements of the TO 0014 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)

Refer to the Base SOW section 9.3 and Section H.4 in the Base contract.

Anticipated Travel Requirements

*NOTE: The below list of trips is not intended to be all-inclusive or exact, but is a representation of the trips to be expected for each Program.*

| **# of Trips** | **From** | **To** | **# of Days** | **# of FTEs** | **Program** | **Color of Money** |
| --- | --- | --- | --- | --- | --- | --- |
| 2 | NCE | STL | 4 | 3 | SFG | O&M |
| 1 | NCE | OCONUS | 5 | 3 | SFCAA | O&M |
| 2 | Valley Forge/WMA | NCW | 2 | 2 | SFNAG (WMM) | RDT&E |
| 2 | Valley Forge/WMA | New York City | 1 | 2 | SFNAG (WMM) | RDT&E |
| 4 | Valley Forge | Pentagon | 1 | 1 | SFNAG (WMM) | RDT&E |
| 1 | Valley Forge/WMA | Houston | 3 | 2 | SFNAG (WMM) | RDT&E |
| 4 | Valley Forge | WMA | 1 | 1 | SFNAG (WMM) | RDT&E |
| 1 | WMA | TBD Europe | 5 | 1 | SFNAG (WMM) | RDT&E |
| 2 | Valley Forge/WMA | Boulder, CO | 2 | 2 | SFNAG (WMM) | RDT&E |
| 2 | WMA | TBD Conferences | 5 | 1 | SFNAG (WMM) | RDT&E |
| 0-4 | Valley Forge/WMA | Ad hoc | 1-5 | 1-2 | SFNAG (WMM) | RDT&E |
| 2 | NCW | NCE | 4 | 2 | SFD | O&M |
| 3 | NCE | STL | 4 | 4 | SFCAB | O&M |
| 1 | NCW | NCE | 4 | 1 | SFCAB | O&M |
| 1 | NCE | STL | 4 | 1 | SFCAB | O&M |
| 1 | NCW | NCE | 4 | 1 | SFCAB | O&M |
| 2 | NCE | OCONUS | 4 | 1 | SXMC | RDT&E |

Travel is NTE $120,000 per year for O&M positions and $100,000 per year for RDT&E positions.

# 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**

| **Position ID\*** | **Location** | **Position Description  #** | **TO Section** | **FTE** | **Skill Level** | **Service Category** | **Job Title** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 01-14-S-01-0001 | WMA | 23 | 3.1-3.5, 3.7, 4.1 | 1 | 4 -Expert | Senior Management | Program Manager |
| 01-14-SXMC-01-0002 | WMA | 3 | 3.1; 3.2; 3.3; 3.4 | 1 | 4 – Expert | Engineering and Architecture | Systems Engineer |
| 01-14-SXMC-02-0003 | WMA | 1 | 3.1; 3.2; 3.3; 3.4 | 1 | 3 – Senior | Engineering and Architecture | Systems Engineer |
| 01-14-SXMC-03-0004 | WMA | 1 | 3.1; 3.2; 3.3; 3.4 | 1 | 3 – Senior | Engineering and Architecture | Systems Engineer |
| 01-14-SXMC-04-0005 | WMA | 1 | 3.1; 3.2; 3.3; 3.4 | 1 | 3 – Senior | Engineering and Architecture | Systems Engineer |
| 01-14-SXMC-05-0006 | WMA | 1 | 3.1; 3.2; 3.3; 3.4 | 1 | 3 – Senior | Engineering and Architecture | Systems Engineer |
| 01-14-SXMC-06-0007 | WMA | 3 | 3.1; 3.2; 3.3; 3.4 | 1 | 4 – Expert | Engineering and Architecture | Systems Engineer |
| 01-14-SFD-01-0008 | STL | 4 | 3.1 | 1 | 1 - Junior | Engineering and Architecture | Cloud Engineer |
| 01-14-SFD-02-0009 | STL | 5 | 3.1 | 1 | 3 – Senior | Engineering and Architecture | Database Engineer |
| 01-14-STT-01-0010 | NCE | 6 | 3.1 | 1 | 4 – Expert | Engineering and Architecture | Systems Integrator |
| 01-14-STT-02-0011 | NCE | 6 | 3.1 | 1 | 4 – Expert | Engineering and Architecture | Systems Integrator |
| 01-14-STT-03-0012 | CO | 7 | 3.1 | 1 | 3 – Senior | Engineering and Architecture | Systems Integrator |
| 01-14-STT-04-0013 | NCW | 8 | 3.1 | 1 | 3 - Senior | Engineering and Architecture | Systems Engineer |
| 01-14-SFCA-01-0014 | WMA | 9 | 3.1; 3.2 | 1 | 3 – Senior | Engineering and Architecture | Systems Engineer |
| 01-14-SFCA-02-0015 | WMA | 10 | 3.1; 3.2 | 1 | 2 - Mid | Engineering and Architecture | Systems Engineer |
| 01-14-SFCA-03-0016 | WMA | 11 | 3.1; 3.2 | 1 | 3 - Senior | Engineering and Architecture | Systems Integrator |
| 01-14-SFCAB-01-0017 | NCW | 12 | 3.1; 3.2; 3.3 | 1 | 4-Expert | Engineering and Architecture | Systems Engineer |
| 01-14-SFCAB-02-0018 | NCW | 13 | 3.1; 3.2; 3.3 | 1 | 3-Senior | Engineering and Architecture | Systems Engineer |
| 01-14-SFCAB-03-0019 | NCW | 13 | 3.1; 3.2; 3.3 | 1 | 3-Senior | Engineering and Architecture | Systems Engineer |
| 01-14-SFCAB-04-0020 | NCW | 13 | 3.1; 3.2; 3.3 | 1 | 3-Senior | Engineering and Architecture | Systems Engineer |
| 01-14-SFCAB-05-0021 | NCW | 13 | 3.1; 3.2; 3.3 | 1 | 3-Senior | Engineering and Architecture | Systems Engineer |
| 01-14-SFCAB-06-0022 | NCW | 14 | 3.1; 3.2; 3.3 | 1 | 2-Mid | Engineering and Architecture | Cyber Security Engineer |
| 01-14-SFCAA-01-0023 | NCE | 15 | 3.1; 3.3 | 1 | 3 – Senior | Administrator | Database Administrator |
| 01-14-SFCAA-02-0024 | NCE | 16 | 3.1; 3.2 | 1 | 3 - Senior | Engineering and Architecture | User Interface Developer |
| 01-14-SFCAA-03-0025 | NCE | 17 | 3.1 | 1 | 2-Mid | Engineering and Architecture | Cartographic Developer |
| 01-14-SFG-01-0026 | WMA | 18 | 3.1.1 | 1 | 3 – Senior | Engineering and Architecture | Software Engineer |
| 01-14-SFA-01-0027 | NCW | 19 | 3.1 | 1 | 4 - Expert | Engineering and Architecture | System Engineer |
| 01-14-SFA-02-0028 | NCW | 19 | 3.1 | 1 | 4 - Expert | Engineering and Architecture | System Engineer |
| 01-14-SFNA-01-0029 | CA | 20 | 3.1; 3.2 | 1 | 4-Expert | Engineering and Architecture | Enterprise Architect |
| 01-14-SCD-01-0030 | NCE | 21 | 3.1; 3.2; 3.3; 3.4; 3.5 | 1 | 4-Expert | Engineering and Architecture | Systems Engineer |
| 01-14-SFNAG-01-0031 | KOP | 22 | 3.1, 3.2 | 1 | 4 – Expert | Engineering and Architecture | Systems Engineer |
| 01-14-SFNAG-02-0032 | WMA | 22 | 3.1, 3.2 | 1 | 4 – Expert | Engineering and Architecture | Systems Engineer |

|  |
| --- |
|  |

**Appendix A Key:**

Signifies Critical Staffing Position

AA-BB-CCCC-12-3456 (First two Columns 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 a degree based on the position requirements 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

**Administration**

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

# Appendix B: Position Descriptions

Position 1: Systems Engineer (Senior)

**Overall Assignment Description:**

Senior-level Systems Engineers guide 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 the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies to ensure timely and accurate GEOINT.

**Duties include:**

* Guides 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 the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies.
* Guides the 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.
* Guides Mid-level and Junior-level system engineers developing solutions designs based on analysis of requirements and new technology.
* 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.
* Conducts 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.
* Operates at the level of integrating multiple systems, services, processes, and interfaces within a Major Systems Acquisitions across organizational and agency boundaries

**Skills and Experience:**

Required:

* Bachelor’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.
* 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.
* Experience with and strong understanding of 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.
* Working knowledge of Model Based Systems Engineering, processes, tools and languages.
* Working knowledge of Software Development Frameworks.
* INCOSE Certified System Engineering Professional (CSEP) certification.
* Documented work experience in the field of geospatial intelligence.
* Licensure as a professional engineer.
* 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 knowledge of the current NSG/ASG and NRO enterprises.

**Position 2:** Cloud Architect (Expert)

**Overall Assignment Description:**

Expert Cloud Architects assist in leading and overseeing the planning and development of cloud services architectures. They ensure analysis of cloud service alternatives are conducted and prioritized to ensure the Government properly architects business and mission solutions using cloud bases systems and services.

**Duties include:**

* Assists with leading cultural change for cloud adoption.
* Assists with overseeing development and coordination of cloud architectures.
* Develops cloud strategies and coordinating adoption of cloud-based solutions.
* Oversees the work of Senior-, Mid-, and Junior-level contractor Cloud Architects.

**Skills and Experience:**

Required:

* Master’s degree in Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Expert experience in cloud-based systems architecting.
* One or more Cloud Certifications
  + Cloud Certified Solutions Architect
  + AWS Certified
  + Cisco Certified Networking Administrator – Cloud
  + Cisco Certified Network Professional – Cloud
  + IBM Certified Cloud Solution Architect
  + MCSE Cloud Platform and Infrastructure
  + VMware Certified Professional (VCP7-CMA)

Desired:

* Previous working experience in government or industry, within Cloud Architect profession.
* Experience architecting solutions using structured and unstructured Big Data.
* Experience architecting solutions using Automation, Artificial Intelligence, and Augmentation technologies.
* Experience architecting solutions using Model Based Systems Engineering.

Position 3: Systems Engineer (Expert)

**Overall Assignment Description:**

Expert Systems Engineers assist in leading 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 the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies to ensure timely and accurate GEOINT.

**Duties include:**

* Assists the Government in directing requirements engineering, solutions engineering, scheduling, reliability, resiliency, services development, integration, test and evaluation, maintainability and analysis across the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies.
* Assists with the 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.
* Advises the Government on proposed changes to the solutions designs based on analysis of requirements and new technology.
* 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.
* Assist in leading 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.
* Provides expert advice to the Government in the areas of relating vision, strategy, plans, needs, requirements, and process and capability developments.
* Operates at the level of integrating multiple Major Systems Acquisitions across organizational, agency, department, and governmental/national boundaries.
* Demonstrated knowledge of the current NSG/ASG and NRO enterprises.
* Oversees and coordinates the work of Senior-, Mid-, and Junior-level contractor Systems Engineers.

**Skills and Experience:**

Required:

* 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.
* Expert 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.
* Experience with and strong understanding of systems engineering lifecycle.

Desired:

* Doctorate 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.
* Working knowledge of Model Based Systems Engineering, processes, tools and languages.
* Software Development Framework certification.
* INCOSE Expert System Engineering Professional (ESEP) certification.
* Licensure as a professional engineer.
* Membership or leadership participation in any of the following professional organizations:
  + ACSM
  + ASCE
  + ASPRS
  + OGC
  + SAREM
  + USGIF
* Extensive work experience in the field of geospatial intelligence.
* Experience engineering solutions using Cloud-based technologies.
* Experience engineering solutions using structured and unstructured Big Data.
* Experience architecting solutions using Automation, Artificial Intelligence, and Augmentation technologies.
* Demonstrated expertise in photogrammetry, remote sensing, image science, information sciences, geographic information systems, geomatics, or related fields.

Position 4: Cloud Engineer (Junior)

**Overall Assignment Description:**

Junior-Level Cloud Engineers define and support implementation approaches and plans to ensure optimum cloud performance and reliability across the servers, networks, and related utilities and hardware that comprise the cloud infrastructure.  They conduct analysis and make reliable engineering recommendations to ensure six sigma reliability/resiliency of the cloud infrastructure.  They monitor and report on cloud utilization and plan continuous process improvement.

**Duties include:**

* Applies the principles of “cloud native” development as described in “The Twelve-Factor App” (https//12factor.net) through a systematic, engineering approach to the design, architecture, requirements elicitation, development, operation and use of cloud technologies and platforms for mission solutions.
* Leverages software-, platform- and infrastructure- as-a-service to deliver GEOINT solutions.
* Ensures optimum efficiencies for the utilization of cloud services.
* Integrates systems by creating new Application Program Interfaces (API’s)
* Creates and maintains automated software deployment pipelines using Continuous Integration/Continuous Deployment (CI/CD) tools.

**Skills and Experience:**

Required:

* Bachelor’s degree in Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Junior-level working experience in government or industry supporting or leading cloud-based systems engineering efforts.
* Experience using:
  + Jenkins CI/CD
  + GitLab
  + JavaScript

Desired:

* One or more Cloud Certifications
  + AWS Certified Developer – Associate
  + AWS Certified DevOps Engineer – Professional
  + Cloud Foundry Developer
* Experience in Scripting/automation via PowerShell, VBscript, AutoIT, Python or the like

**Position 5**: Database Engineer (Senior)

**Overall Assignment Description:**

Database Engineers partner with Software Product Teams and end users to understand needs, make recommendations for database architectures. Once recommendations are approved, the Database Engineer implements leveraging modern, database technologies such as PostGRES and NOSQL database technologies. The Database Engineer is proficient in modern, cloud offerings and cloud database services, how to work with them, and how they fit in modern, cloud native applications that leverage the twelve factors found at <https://12factor.net>. This includes how to build and deploy modern cloud native data architectures, data processing and analytics pipelines and being able to make appropriate tradeoff decisions in data architectures between stable, structured, persistent data and dynamic, streaming, perishable data.

**Duties include:**

* Conditioning software for inclusion in a database.
* Leverages software-, platform- and infrastructure- as-a-service to deliver GEOINT solutions.
* Ensures optimum efficiencies for the utilization of cloud native or cloud enabled databases.
* Creates and maintains data architecture using automated software deployment pipelines with Continuous Integration/Continuous Deployment (CI/CD) tools.

**Skills and Experience**

Required:

* Bachelor’s degree in Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Senior-level working experience in government or industry supporting or leading cloud-based systems engineering efforts.
* Demonstrated experience using the following technologies:
  + PostGRES/PostGIS
  + NoSQL
  + Amazon Web-Services
  + Cloud Foundry

Desired:

* Master’s degree in Computer Science, Information Technology, Management Information Systems, or related STEM degree program.

**Position 6**: Systems Integrator (Expert)

**Overall Assignment Description:**  Expert level systems integrators working under the direction of the Content Conveyance Senior GEOINT Officer. Will plan, coordinate, and perform full lifecycle systems engineering and integration support to NGA/ST to modernize NGA's Content Conveyance mission activities. Assists the government in providing subject matter expertise to optimize the user experience for Ingesting, Storing, and Exposing (existing and new sources) GEOINT data and content; in partnership with IPD and other CIOT programs. Provide Subject Matter Expertise to shorten the timeline associated with adopting, integrating, and properly exposing new Sources/Suppliers products/services and develop trade space options for efficient Content Conveyance planning, programming, budgeting, and execution cycles.

**Duties include:**

* Provides expert advice to the Government in the areas of relating vision, strategy, plans, needs, requirements, and process and capability developments.
* Conducts solution assessments, scheduling analysis, and integration across IPO product lines and other services to enable Content Conveyance mission functions.
* Capture and translate mission and customer requirements into products and capabilities for optimized solutions; partner with Product Managers for backlog grooming and roadmap sequencing of features.
* Conducts: planning; captures, analyzes, traces user requirements; architecture traceability, procedures, and problem identification to automate or improve existing systems and review cloud service capabilities, workflow, and scheduling limitations for existing user workflows and to enable improvements.
* Provide expertise to interpret and implement customer data requirements
* Ability to effectively influence and seamlessly work with IPOs, Chief Data Officer (CDO), and other CIOT capability providers to meet the goals of Content Conveyance
* 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.
* Strong team player, self-starter, comfortable working in a complex/multifaceted development environment
* Ability to work independently and as a team leader under tight deadlines managing priorities
* Demonstrated ability to work in a multi-contractor / government organization
* Maintain and track an Agile schedule in an appropriate project management capability (JIRA, Confluence, etc.)

**Skills and Experience:**

Required:

* Bachelor’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.
* Expert level working experience in government or industry in relevant work areas including: DoD/IC Acquisition Process, Requirements Process, NGA Production and Dissemination, IC TCPED.
* Expert experience working system integration or system engineering experience in government or industry.

Desired:

* Working knowledge of Model Based Systems Engineering, processes, tools and languages.
* Working knowledge of Software Development Frameworks.
* Documented work experience in the field of geospatial intelligence.
* Working knowledge of photogrammetry, remote sensing, image science, information sciences, geographic information systems, geomatics, or related fields.
* Demonstrated knowledge of the current NSG/ASG and NRO enterprises.

**Position 7**: Systems Integrator (Senior)

**Overall Assignment Description:**  Senior level systems integrator working under the direction of the Content Conveyance Senior GEOINT Officer. Will plan, coordinate, and perform full lifecycle systems engineering and integration support to NGA/ST to modernize NGA's Content Conveyance mission activities. Assists the government in providing subject matter expertise to optimize the user experience to ‘find and get’ GEOINT data and content; in partnership with IPD and other CIOT programs. Provide Subject Matter Expertise to shorten the timeline associated with adopting, integrating, and properly exposing new Sources/Suppliers products/services and develop trade space options for efficient Content Conveyance planning, programming, budgeting, and execution cycles.

**Duties include:**

* Conducts solution assessments, scheduling analysis, and integration across IPO product lines and other services to enable Content Conveyance mission functions.
* Capture and translate mission and customer requirements into products and capabilities for optimized solutions; partner with Product Managers for backlog grooming and roadmap sequencing of features.
* Conducts: planning; captures, analyzes, traces user requirements; architecture traceability, procedures, and problem identification to automate or improve existing systems and review cloud service capabilities, workflow, and scheduling limitations for existing user workflows and to enable improvements.
* Provide senior level expertise to interpret and implement customer data requirements
* Ability to effectively influence and seamlessly work with IPOs, Chief Data Officer (CDO), and other CIOT capability providers to meet the goals of Content Conveyance
* 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.
* Strong team player, self-starter, comfortable working in a complex/multifaceted development environment
* Ability to work independently and as a team leader under tight deadlines managing priorities
* Demonstrated ability to work in a multi-contractor / government organization
* Maintain and track an Agile schedule in an appropriate project management capability (JIRA, Confluence, etc.)

**Skills and Experience:**

Required:

* Bachelor’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.
* Senior-level working experience in government or industry in relevant work areas including: DoD/IC Acquisition Process, Requirements Process, NGA Production and Dissemination, IC TCPED.
* Senior-level experience working system integration or system engineering experience in government or industry.

Desired:

* Working knowledge of Model Based Systems Engineering, processes, tools and languages.
* Working knowledge of Software Development Frameworks.
* Documented work experience in the field of geospatial intelligence.
* Working knowledge of photogrammetry, remote sensing, image science, information sciences, geographic information systems, geomatics, or related fields.
* Demonstrated knowledge of the current NSG/ASG and NRO enterprises.

**Position 8**: Systems Engineer (Senior)

**Overall Assignment Description:**  Senior-level systems engineer will work under the direction of the ST TX and mission modernization leads from each division. Systems engineer will work division subject matter experts in ST to document existing workflows for Source foundation content production and conveyance. This systems engineer will capture current IT (HW and SW) used to perform content conveyance functions. This systems engineer will support the TX to present mission needs to the IPO’s, ISP, and ASP PMO’s to ensure continued support for mission essential content conveyance systems. Working with the cloud operations team, this systems engineer will help to define a transition of these production and dissemination systems to the cloud in order to reduce dependence on existing hardware that is end of life and to reduce manpower footprint to support these workflows.

**Duties include:**

* Conducts requirements engineering, solutions engineering, scheduling, reliability, resiliency, services development, integration, test and evaluation, maintainability and analysis across the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies.
* 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 for existing content conveyance workflows, including existing hardware and software systems used to achieve this mission.
* Assists the NGA/ST Technical Executive and Senior Geoint Officer 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.

**Skills and Experience:**

Required:

* Bachelor’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.
* Senior-level working experience in government or industry in relevant work areas including: DoD/IC Acquisition Process, Requirements Process, NGA Production and Dissemination, IC TCPED.
* Senior-level working system engineering experience in government or industry.

Desired:

* Working knowledge of Model Based Systems Engineering, processes, tools and languages.
* Working knowledge of Software Development Frameworks.
* Documented work experience in the field of geospatial intelligence.
* Working knowledge of photogrammetry, remote sensing, image science, information sciences, geographic information systems, geomatics, or related fields.
* Demonstrated knowledge of the current NSG/ASG and NRO enterprises.

**Position 9**: Systems Engineer (Senior) -Foundation GEOINT Mission Planning Program Manager

**Overall Assignment Description:**  Senior-level Systems Engineers guide 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 the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies to ensure timely and accurate GEOINT.

**Duties include:**

* Guides 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 the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies.
* Guides the 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.
* Guides Mid-level and Junior-level system engineers developing solutions designs based on analysis of requirements and new technology.
* 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.
* Conducts 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.
* Operates at the level of integrating multiple systems, services, processes, and interfaces within a Major Systems Acquisitions across organizational and agency boundaries.

**Skills and Experience:**

Required:

* Bachelor’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.
* 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.
* Experience with and strong understanding of 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.
* Working knowledge of Model Based Systems Engineering, processes, tools and languages.
* Working knowledge of Software Development Frameworks.
* INCOSE Certified System Engineering Professional (CSEP) certification.
* Documented work experience in the field of geospatial intelligence.
* Licensure as a professional engineer.
* 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 knowledge of the current NSG/ASG and NRO enterprises.
* Working knowledge of NGA data, systems and architecture related to, but not limited to, the following GEOINT realms:
* NGA FG Requirements Management
* Political Boundaries
* Controlled Imagery
* Elevation Modeling
* Topographic Modeling
* Human Geography
* Aeronautical Safety of Navigation
* Maritime Safety of Navigation
* Geodesy and Geophysics
* Geographic Names
* NOME VGI Production

**Position 10**: Systems Engineer (Mid)-Foundation GEOINT Mission Planning Technical Lead

**Overall Assignment Description:**  Mid-Level Systems Engineers guide 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 the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies to ensure timely and accurate GEOINT.

**Duties include:**

* Conducts requirements engineering, solutions engineering, scheduling, reliability, resiliency, services development, integration, test and evaluation, maintainability and analysis across the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies.
* 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.

**Skills and Experience:**

Required:

* Bachelor’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.
* 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:

* Working knowledge of Model Based Systems Engineering, processes, tools and languages.
* Working knowledge of Software Development Frameworks.
* INCOSE Associate System Engineering Professional (ASEP) certification.
* Documented work experience in the field of geospatial intelligence.
* Membership or active participation in any of the following professional organizations:
  + ACSM
  + ASCE
  + ASPRS
  + OGC
  + SAREM
  + USGIF
* Working knowledge of photogrammetry, remote sensing, image science, information sciences, geographic information systems, geomatics, or related fields.
* Demonstrated knowledge of the current NSG/ASG and NRO enterprises.
* Working knowledge of NGA data, systems and architecture related to, but not limited to, the following GEOINT realms:
* NGA FG Requirements Management
* Political Boundaries
* Controlled Imagery
* Elevation Modeling
* Topographic Modeling
* Human Geography
* Aeronautical Safety of Navigation
* Maritime Safety of Navigation
* Geodesy and Geophysics
* Geographic Names
* NOME VGI Production

**Position 11:** Systems Integrator (Senior) - Foundation GEOINT Mission Planning Technical Advisor

**Overall Assignment Description:**  Senior-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:**

* Provides a total systems perspective including a technical understanding of relationships, dependencies and requirements of hardware and software components.
* Supports planning, implementation approaches, and documentation of 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.
* Supports the planning and implementation approaches of 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.
* Guides the work of Mid- and Junior-level contractor Systems Integrators.
* Refer to Section 3.3: Enterprise Integration Engineering (Cross System and Segment) for a listing of expected work activities the Systems Integrator position would be required to support.

**Skills and Experience:**

Required:

* Bachelor’s degree in Engineering, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Senior-level or higher systems integration experience working in government or industry integrating large complex System of Systems or Service Oriented Architecture environments residing in cloud, on premise, or hybrid infrastructures.

Desired:

* Master’s degree in Computer Science, Information Technology, Engineering, Engineering Management, Management Information Systems, or related STEM degree program.
* Working knowledge of Model Based Systems Engineering, processes, tools and languages.
* Working knowledge of NGA data, systems and architecture related to, but not limited to, the following GEOINT realms:
* NGA FG Requirements Management
* Political Boundaries
* Controlled Imagery
* Elevation Modeling
* Topographic Modeling
* Human Geography
* Aeronautical Safety of Navigation
* Maritime Safety of Navigation
* Geodesy and Geophysics
* Geographic Names
* NOME VGI Production

**Position 12**: Systems Engineer (Expert)

**Overall Assignment Description**:

Expert Systems Engineers assist in leading 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 the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies to ensure timely and accurate GEOINT.

**Duties include:**

* Assists the Government in directing requirements engineering, solutions engineering, scheduling, reliability, resiliency, services development, integration, test and evaluation, maintainability and analysis across the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies.
* Assists with the 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.
* Advises the Government on proposed changes to the solutions designs based on analysis of requirements and new technology.
* 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.
* Assist in leading 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.
* Provides expert advice to the Government in the areas of relating vision, strategy, plans, needs, requirements, and process and capability developments.
* Operates at the level of integrating multiple Major Systems Acquisitions across organizational, agency, department, and governmental/national boundaries.
* Demonstrated knowledge of the current NSG/ASG and NRO enterprises.
* Oversees and coordinates the work of Senior-, Mid-, and Junior-level contractor Systems Engineers.
* Responsible for code redesign.
* Leverage PCF (Pivotal Cloud Foundry) and work to use modern coding approaches to stand up capabilities in Cloud environments, including Application Programming Interface (API) development and links to Cloud based storage.
* Coordinates test events, test scripts, both verification and validation for functional capabilities, dual ops comparison, and coordination with SME from offices.

**Skills and Experience:**

Required:

* 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.
* Expert 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.
* Experience with and strong understanding of systems engineering lifecycle.

Desired:

* Doctorate 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.
* Working knowledge of Model Based Systems Engineering, processes, tools and languages.
* Software Development Framework certification.
* INCOSE Expert System Engineering Professional (ESEP) certification.
* Licensure as a professional engineer.
* Membership or leadership participation in any of the following professional organizations:
* ACSM
* ASCE
* ASPRS
* OGC
* SAREM
* USGIF
* Experience in the field of geospatial intelligence.
* Experience engineering solutions using Cloud-based technologies.
* Experience engineering solutions using structured and unstructured Big Data.
* Experience architecting solutions using Automation, Artificial Intelligence, and Augmentation technologies.
* Demonstrated expertise in photogrammetry, remote sensing, image science, information sciences, geographic information systems, geomatics, or related fields.
* Experienced in test design and capability validation, following industry AGILE best practices and NGA processes.
* Experience with Cloud Foundry and AWS, one or more modern coding languages (Java, Python, Javascript, C#, PHP, etc.).
* Experience with Cloud Foundry and AWS, one or more modern geospatial databases (Oracle spatial, PostgreSQL, etc.).

**Positions 13**: Systems Engineer (Senior)

**Overall Assignment Description:**

Senior-level Systems Engineers guide 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 the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies to ensure timely and accurate GEOINT.

**Duties include**:

* Guides 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 the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies.
* Guides the 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.
* Guides Mid-level and Junior-level system engineers developing solutions designs based on analysis of requirements and new technology.
* 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.
* Conducts 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.
* Operates at the level of integrating multiple systems, services, processes, and interfaces within a Major Systems Acquisitions across organizational and agency boundaries
* Responsible for code redesign.
* Leverage PCF (Pivotal Cloud Foundry) and work to use modern coding approaches to stand up capabilities in Cloud environments, including Application Programming Interface (API) development and links to Cloud based storage.
* Coordinates test events, test scripts, both verification and validation for functional capabilities, dual ops comparison, and coordination with SME from offices.

**Skills and Experience:**

Required:

* Bachelor’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.
* 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.
* Experience with and strong understanding of 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.
* Working knowledge of Model Based Systems Engineering, processes, tools and languages.
* Working knowledge of Software Development Frameworks.
* INCOSE Certified System Engineering Professional (CSEP) certification.
* Documented work experience in the field of geospatial intelligence.
* Licensure as a professional engineer.
* 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 knowledge of the current NSG/ASG and NRO enterprises.
* Experienced in test design and capability validation, following industry AGILE best practices and NGA processes.
* Experience with Cloud Foundry and AWS, one or more modern coding languages (Java, Python, Javascript, C#, PHP, etc.).
* Experience with Cloud Foundry and AWS, one or more modern geospatial databases (Oracle spatial, PostgreSQL, etc.).

**Position 14**: Cyber Security Engineer (Mid)

**Overall Assignment Description:**

Mid-level Cyber Security Engineers support the refinement of information security requirements and ensure that the requirements are integrated into information technology component products and information systems through purposeful security architecting, design, development, and configuration.

**Duties include:**

* Supports development teams working to design and develop information systems or upgrade legacy systems.
* Supports product research and support Analysis of Alternative (AoA) activities that independently identify the most appropriate security solutions.
* Develops system concepts, contribute to the capability phase of the systems development lifecycle, and translate technology and environmental conditions (e.g., law and regulation) into system security designs and processes.
* Supports development and documentation of Security Architectures, Roadmaps, and investments.
* Responsible for assisting with managing all security requirements including NGA documentation and processes.
* Ensures system security compliance and requirements are met.

**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 within Cyber Security Engineering.
* DoD 8570 Level I (IASAE) certification compliance

**Desired:**

* DoD 8570 Level II (IASAE) certification compliance
* Mid-level working experience in government or industry supporting enterprise-level cyber security efforts involving architecting, designing, development, and configuration of cloud and on premise based systems and software
* Familiarity with security requirements, including NGA documentation and processes.
* Understanding and experience implementing of ICD-503

**Position 15:** Database Administrator (Senior)

**Overall Assignment Description:**

Assists in leading the Foundation GEOINT Standards (FGS) database management and FGS-DPS Cloud buildout to include database migration, edits, report generations and database administration, API integration with the user interface (UI) development.

**Duties include:**

* Assist in leading the Source Foundation GEOINT (SF) Standards Team in the role of building, maintaining useable database environment and structure to support the enhancement and maintenance of cloud based applications.
* Assist the customer in defining and shaping the FGS cloud based, DevOps strategic vision and buildout of SF symbology data-driven online presence using Continuous Integration/ Deployment (CI/CD) DevOps technologies.
* Strong team player, self-starter, comfortable working in a complex/multifaceted development environment
* Attend and contribute to the Defense Geospatial Information Working Group (DGIWG) technical meeting, an international Symbology Standards forum.
* Ability to work independently and as a team leader under tight deadlines managing priorities
* Ensure connectivity between application programing interface (APIs) both internal and external
* Demonstrated ability to work in a multi-contractor / government organization
* Ability to work with international partners, travelling to meet face-to-face when necessary but also able to work well via email and teleconference
* Provide expertise to interpret and implement customer data requirements
* Maintain and track an Agile schedule in an appropriate project management capability (Redmine, JIRA, etc.)

**Skills and Experience:**

Required:

* Bachelor’s degree IT, Computer Science or relevant field plus 6 +years’ experience to include 2+ years of Database Administration, System Engineering, System Integration, and/or Web Development experience
* 12 + years of experience in related field, with 3 year of recent NGA/IC experience
* Proficient in Linux, MySQL/PostGRES/ Relational Database, PHP/Python (LAMP)
* Experience with HTML5, JavaScript, SQL

Desired:

* Experience and knowledge of the NGA/DGIWG Data Product Specifications
* Understanding of the Global, Regional, Local and Urban/Specialized (GRLS) topographic data stores
* Experience with cloud-based or DevOps environment and/or open source capabilities (GitLab, Pivotal Cloud Foundry (PCF), Jenkins, AWS (Amazon Web Service) technologies, etc.)
* Familiarity with Cloud Services (Platform as a Service, Database as a Service, etc.)
* Knowledge of the NSG, preferably experience providing systems engineering to high visibility NSG segments

**Position 16**: User Interface Developer (Senior)

**Overall Assignment Description:**

Assist in in managing Foundation GEOINT standards databases providing database edits, report generation and assist with the FGS-DPS Cloud database and website user interface development and maintenance.

**Duties include:**

* Serve as a member of the Source Foundation GEOINT (SF) Standards Team in a role conducting web and tools development essential to providing clear, transparent communication across the customer, IC, DoD, and commercial stakeholders worldwide.
* Creating and managing responsive designs and understanding of the principles of good web user experience (UX), highly proficient with Adobe Creative suite, CSS, JavaScript, JQuery, HTML editors, and other web publishing tools.
* Creating and building to technical designs and specifications.
* Strong team player, self-starter, comfortable working in a complex/multifaceted development environment with very good communication, interpersonal, and organizational skills.
* Take a user-centered design approach and rapidly test and iterate a design.
* Ability to work with clients to understand detailed requirements and design complete user experiences that meet client needs and vision.
* Attend and contribute to the Defense Geospatial Information Working Group (DGIWG) technical meeting, an international Symbology Standards forum.
* Conduct Data Product Specification (DPS) database updates
* Conduct GEOINT Content Extraction Specification (GCES) database updates
* DPS custom reports to support standards development (pdf, xls, mysql and other formats)
* Assist Senior DBA/System Integrator with cloud migration activities to include:
* develop/improve/enhance metrics tools and metrics reporting
* develop/improve/enhance user interface for the FGS-DPS cloud instance
* Provide training on all tools and capabilities for NGA and contractor personnel
* Assist with GCES / DPS maintenance updates and functionality enhancements at the rate of 1 per quarter, with high priority bug fixes occurring as necessary to maintain operational status.

**Skills and Experience:**

Required:

* Bachelor’s degree in Web Design or IT with web development focus plus 1-3 years’ experience in a similar field.
* 1+ years of System Engineering, System Integration, and Web Development/Web based communication/collaboration tools experience
* Experience with Linux, Apache, PostGRES/ Relational Database, PHP/Python (LAMP)
* Proficiency in HTML5, CSS, JavaScript, User Experience Design (UXD – UI/UX)
* Proficient with Adobe Creative suite – Illustrator or Adobe XD or Axure and other web publishing tools

Desired:

* Experience with User Interface in the IC
* Familiarity with AWS (Amazon Web Service) Tools and Technologies, Repository within Git
* Familiar with website Analytics and other metrics systems
* Familiar with Pivotal Cloud Foundry

**Position 17**: Cartographic Developer (Mid)

**Overall Assignment Description:**

Develop and manage Foundation GEOINT standards symbology sets and graphics to support Data Product Specification report generation and assist with the review of the FGS-DPS Cloud database and website for proper symbology representation.

**Duties include:**

* Serve as a member of the National System for Geospatial-Intelligence (NSG) Standards Team and contribute to the development of cartographic standards using graphic design software.
* Additional support will be provided to government needs, and the GCES team.
* Create Data Product Specification (DPS) graphics to include:
  + Symbol sets in Illustrator, .SVG, JSON, and JPEG format.
  + Style sheets
  + Body text graphic figures
* Assist Senior Cartographers with symbology rules development for DPS.
* Provide new symbology development to support print, disconnected device, and web service mapping requirements.
* Assist with FGS-DPS website update review for proper graphic element display that is necessary to maintain operational status.
* Ability to research and contribute to Data Product Specifications (DPS)

**Skills and Experience:**

Required:

* 2+ years technical experience supporting the IC and/or NSG systems, segments, and architectures.
* Experience with graphic design software including Adobe Illustrator.
* Bachelor’s degree in engineering, graphic design, cartography, geography, Geographic Information Systems (GIS), or related technical field, or equivalent experience
* Experience creating, utilizing, and maintaining symbology sets
* Experience with GEOINT standards, specifications and framework.

Desired:

* Knowledge of web services, including the creation and implementation of various map symbology formats for web environments such as scalable vector graphics (SVG) and JSON.
* Experience publishing mapping products that implement ISO19131 series standards.
* Experience performing cartographic finishing, feature extraction, and data content management.
* Experience with the policies and practices of the following Standards organizations: ISO, ISO/IEC, INCITS L1, Open Geospatial Consortium (OGC - including the North American Forum), NATO and Coalition partner organizations.
* Knowledge of the following Standards organizations and their policies and procedures: OGC, ISO, GWG.
* Experience with data extraction, extraction guidance, and various schemas.
* Experience with a variety of maps and cartographic products, including various urban scale and tactical products, Topographic Maps (TM) 1:50k and 1:100k, Joint Operational Graphic (JOG) 1:250k, Tactical Pilotage Charts (TPC) 1:500k, Operational Navigation Chart (ONC) 1:1,000,000, Joint Navigational Chart (JNC) 1:2,000,000, and Global Navigational Charts (GNC) 1:5,000,000.
* Understanding of and have experience with cartography for military application

**Position 18**: Software Engineer (Senior)

**Overall Assignment Description:**

Develop and manage the source code to support Geopolitical Entities, Names, and Codes (GENC) standard Content Management Tool (CMT) on the NSG Standards Registry (NSGREG). Enhance the GENC CMT Version 1.0 to improve the workflow to verify the integrity of the data within the GENC database. This work includes adding safeguards to reduce the risk of database corruption on the NSG registry. Support the integration of the GENC CMT code baselines into the production instance of the NSG Standards Registry to include updating databases and WAR files. Add functionality to allow edits of published entities outside the baseline cycle to correct mistakes.

**Duties include:**

* Assist in managing the source code development to support Geopolitical Entities, Names, and Codes (GENC) standard Content Management Tool (CMT) on the NSG Standards Registry (NSGREG).
* Enhance the GENC CMT Version 1.0 to improve the workflow to verify the integrity of the data within the GENC database.
* Support the integration of the GENC CMT code baselines into the production instance of the NSG Standards Registry to include updating databases and WAR files.
* Add functionality to allow edits of published entities outside the baseline cycle to correct mistakes.
* Enhanced tools and capabilities for managing the content of the GENC, including customer-appropriate documentation
* Auto-generation of GENC, ISO, and GPC encodings (XML)
* Auto generation of Geopolitical Entity/Administrative subdivision Workbooks
* Tools and capabilities for generating technology-specific data-exchange encodings
* Training on all tools and capabilities for NGA and contractor personnel
* Successfully instantiate maintenance updates and functionality enhancements at the rate of 1 per quarter, with high priority bug fixes occurring as necessary to maintain operational status.

**Skills and Experience:**

Required:

* Bachelor’s degree in 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: Client Servers and managing MySQL database operations in a web environment.
* Experience with:
  + Java
  + Java Script
  + JSP
  + HIBERNATE
  + TOMCAT
  + HTML 5
  + CSS

Desired:

* Master’s degree in Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Experience with ISO 19100 series registry
* User experience focus
* NGA mission, products, & role in the NSG community
* GEOINT standards & processes including DISR

**Position 19**: Systems Engineer (Expert)

**Overall Assignment Description:**

Expert-level Systems Engineers assist in leading 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 the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies to ensure timely and accurate GEOINT.

**Duties include:**

* Assists the Government in directing requirements engineering, solutions engineering, scheduling, reliability, resiliency, services development, integration, test and evaluation, maintainability and analysis across the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies.
* Assists with the 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.
* Advises the Government on proposed changes to the solutions designs based on analysis of requirements and new technology.
* 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.

**Skills and Experience:**

Required:

* Bachelor’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.
* 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.
* Expert-level working system engineering experience in government or industry.

Desired:

* Working knowledge of Model Based Systems Engineering, processes, tools and languages.
* Working knowledge of Software Development Frameworks.
* INCOSE Associate System Engineering Professional (ASEP) certification.
* Documented work experience in the field of geospatial intelligence.
* Membership or active participation in any of the following professional organizations:
  + ACSM
  + ASCE
  + ASPRS
  + OGC
  + SAREM
  + USGIF
* Working knowledge of photogrammetry, remote sensing, image science, information sciences, geographic information systems, geomatics, or related fields.
* Demonstrated knowledge of the current NSG/ASG and NRO enterprises.

**Position 20**: Enterprise Architect (Expert)

**Overall Assignment Description:**

The candidate will provide services to develop, document, decompose and allocate strategic requirements to establish and enable the Arctic GeoData Cooperative. The will provide services to develop, document, decompose and allocate strategic requirements to establish and enable the Arctic GeoData Cooperative. They will collaborate/support with members of the Cooperative to ensure the goals of the Cooperative are being met. They will assist in development of future plans. They will provide Cross Organization and Program Office integration services to ensure discrete program and project level solutions come together seamlessly to deliver comprehensive mission capabilities. They will direct development of Statements of Capabilities (SOCs), Capability Requirements Policy and Instructions.

**Duties include:**

* Assist in leading the Arctic GeoData Cooperative ‘Public Private Partnership’ implementation including current members and future partners.
* Work closely with the members of the Arctic GeoData Cooperative to ensure the goals of the Cooperative are being met and assist in development of future plans.
* Provide development expertise of the Arctic GeoData Cooperative collaboration concept, one of NGA's largest Public Private Partnership Minimum Viable Product (MVP) opportunities.
* Develop a CONOPS for the Arctic GeoData Cooperative initiative.
* Work with Source Directorate and other members of the Cooperative to provide data layers necessary to develop monitoring capabilities of Foundation GEOINT data.
* Collaboratively engage the cross domain NGA Elevation office on ArcticDEM delivery for environmental public use and to solve Arctic defense problems.
* Enable Cooperative output to utilize GEOINT Services, establish a cloud solution, extract enriched data to expose on the NGA GRiD, provide a beta venue to test Machine Learning, and Big Data rich problem-solving via advanced analytics.
* Enables solutions engineering operational evaluation with mission users to iteratively develop GEOINT Value Proposition and business case (e.g. mission concepts, use cases, analysis) to enable “missionized” dual use GEOINT problem-solving addressing gaps and offset challenges.
* Perform Customer Outreach and Partner Engagement advocating GEOINT Functional Management.
* Ability to conceptualize, organize, and draw inferences from incomplete data and present a compelling analysis of findings and issue; expert ability to identify, articulate, document, and mitigate knowledge gaps or alternative approaches.

**Skills and Experience:**

Required:

* Master’s degree in Systems 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: Enterprise Architecture, Solution Architecture, Data Architecture, Department of Defense Architecture Framework (DoDAF), or Intelligence Community’s (IC) Program Architecture Guidance (PAG).
* Expert experience in technical collection, collection system development, requirements policy development and requirements management.
* Expert knowledge of the DoD/IC and its components, missions, and interrelationships, including the ability to lead broad-based teams regarding key issues.
* Knowledge of and experience with any of the following: programmatic management, strategic planning, systems analysis, evaluation techniques, or requirement and performance management.
* Expert knowledge and work experience in intelligence operations providing needs, capability gaps and capability requirements support to policy, planning, and/or operations strategy and development for a variety of disciplines (e.g. Geospatial Intelligence, elevation data and processes, Measurements and Signatures Intelligence, and Communication Systems).

Desired:

* Doctorate in Systems Engineering, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Expert knowledge of and experience with any of the following: programmatic management, strategic planning, systems analysis, evaluation techniques, or requirement and performance management.
* Experience applying quantitative and qualitative analytic techniques to lead teams evaluating and recommending appropriate alternatives to complex issues.
* Expertise in in the identification of alternatives, threats and scenarios, effectiveness, risk, and cost.

**Position 21: Systems Engineer (Expert)**

**Overall Assignment Description:**

The candidate will provide services to discover, screen and assess new and emerging GEOINT capabilities to satisfy mission needs and user requirements. They will provide services to develop, document, maintain and implement functional profiles for Commercial GEOINT imagery, data, products, and analytic services to support the screening and scoring of vendor solutions. They will provide Cross Organization integration services to ensure commercial solutions flow seamlessly from discovery to assessment, acquisition, integration and operations, appropriately.

**Duties include:**

* Assists the Government in directing requirements engineering, solutions engineering, scheduling, reliability, resiliency, services development, integration, test and evaluation, maintainability and analysis across the National System of Geospatial-intelligence (NSG), Allied System of Geospatial-intelligence (ASG) and Federal Agencies.
* 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 assessing Commercial capabilities by gathering vendor data to populate product profiles, determining performance fit based on functional profiles, and determining risk ranking based on various criteria.
* Assists the Government in developing, maintaining, and updating functional profiles for imagery, data, products and analytic services.
* Assists the Government in performing systems integration activities.
* Assist in leading Analysis of Alternatives (AoAs), Course of Actions (CoAs), Trade Studies, and Engineering Assessments.
* Assists the Government in strategic technical planning, project management, performance engineering, and risk management.
* Provides expert advice to the Government in the areas of relating vision, strategy, plans, needs, requirements, and process and capability developments.
* Oversees and coordinates the work of Senior-, Mid-, and Junior-level contractor Systems Engineers.

**Skills and Experience:**

Required:

* Bachelor’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.
* Expert 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.
* Experience with and strong understanding of systems engineering lifecycle.

Desired:

* Master’s 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.
* Working knowledge of Model Based Systems Engineering, processes, tools and languages.
* Membership or leadership participation in any of the following professional organizations:
  + ACSM
  + ASCE
  + ASPRS
  + OGC
  + SAREM
  + USGIF
* Extensive work experience in the field of geospatial intelligence.
* Experience architecting solutions using Automation, Artificial Intelligence, and Augmentation technologies.
* Demonstrated knowledge of the current NSG/ASG and NRO enterprises.

**Position 22**: Systems Engineer (Expert)

**Overall Assignment Description:**

The candidate will assist in overseeing maintenance of policy interfaces and relationships with Department of Defense (DoD) Joint Capability Integration and Development System (JCIDS), Intelligence Community Acquisition Model, Independent Cost Estimate Policy and Intelligence Planning, Programming, Budgeting and Evaluation for a sustained global geomagnetic data collection and modeling program.They will assist in directing development of Statements of Capabilities, Analytic Issue Papers, and Capability Requirements Policy and Instructions (JCIDS documentation).

**Duties include:**

* Direct development and proposed Statements of Capabilities, Analytic Issue Papers, and Capability Requirements Policy and Instructions.
* Assist in overseeing maintenance of policy interfaces and relationships with Department of Defense (DoD) Joint Capability Integration and Development System, Intelligence Community Acquisition Model, Independent Cost Estimate Policy and Intelligence Planning, Programming, Budgeting and Evaluation.
* Establish maintenance, insight, and understanding of customer requirements related to intelligence gaps and non-material solutions.
* Assist in managing team cognizance of intelligence capability gaps, potential mission or enterprise needs and intelligence capability proposals.
* Assist in leading, planning, directing and orchestrating studies and performance modeling of proposed IC capabilities.
* Assist in leading, planning, directing, orchestrating, assessing and evaluating the quality of analysis and ensure competitive and alternative analyses are conducted on topics related to capability requirements and non-material solutions.
* Assist in leading the DoD and IC program and resource allocation process that includes developing strategic resource management plans and strategies, conducting program and systems analysis, and independently evaluate programs and resources related to both the National Intelligence Program (NIP) and Military Intelligence Program (MIP).
* Advise the DoD and DNI by providing alternative approaches for programs, requirements, and budgets to establish priority objectives, address projected threats, estimate costs, risk and tradeoffs, and identify/minimize resource constraints.
* Assist in leading teams conducting in-depth, detailed analysis and evaluation of proposed NIP/MIP investments to independently document mission and cost effectiveness levels.
* Assist in leading teams conducting in-depth analysis of NIP/MIP policies, missions, plans, and capabilities, ensuring linkage to the National Intelligence Strategy and DoD priorities.
* Assist in leading, planning, and authoring resource strategies, analytical issue papers, strategic evaluations, background papers, talking points, resource issue papers, and/or other analytical products applying extensive subject matter knowledge to support the NGA, DoD, and IC senior leadership in making informed programmatic decisions.
* Assist in leading the development and presentation of findings, conclusions, options, and recommendations to Office of Director of National Intelligence (ODNI) and IC senior management.
* Assist in leading the analysis and evaluation (on quantitative/qualitative basis) the effectiveness of current and planned NIP/MIP investments in meeting established DoD/IC goals and objectives. Evaluate and advise on organization, methods, procedures, and resources (NIP and MIP where appropriate) programs.
* Assist in leading independent analyses of capabilities and programs, presenting alternative courses of action, identifying cost and mission impacts and clarifying the advantages and disadvantages of each alternative.
* Assist with direct development and proposed AoA and Oversee AoA development and execution.
* Assist with the MagQuest challenge and advise NGA on submitted solutions.
* Assist in briefing WMM to a wide range of audiences across the Federal government without training.
* Assist in building consensus on contentious issues and to foster a collaborative work environment across the USDI/ODNI, IC, Joint Staff, USG, and international partners
* Initiate, cultivate, and maintain productive working relationships with IC and other DoD/ United States Government elements in order to study and identify new and innovative ways of generating and depicting needs and capability gaps that more directly capture utility.
* Apply quantitative and qualitative analytic techniques to lead teams evaluating and recommending appropriate alternatives to complex issues.

**Skills and Experience:**

Required:

* Master’s degree in Systems Engineering, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Knowledge of the DoD/IC and its components, missions, and interrelationships, including the ability to lead broad-based teams regarding key issues.
* Knowledge of IC and DoD collection management or needs/requirements management procedures and governing documents, as well as planning, programming, and budgeting processes.
* Expert-level knowledge of and experience with any of the following: programmatic management, strategic planning, systems analysis, evaluation techniques, or requirement and performance management.
* Experience with a government challenge similar to MagQuest. Must be eligible to work on MagQuest documentation and challenge development.
* Knowledge of the World Magnetic Model (WMM) and its impacts to global navigation.

Desired:

* Doctorate in Systems Engineering, Computer Science, Information Technology, Management Information Systems, or related STEM degree program.
* Expertise in the development of AoAs and how they fit into the Milestone Decision Authority‘s (MDA‘s) decision process Expert experience in technical collection, collection system development, requirements policy development and requirements management.
* Knowledge in intelligence operations providing needs, capability gaps and capability requirements support to policy, planning, and/or operations strategy and development for a variety of disciplines (e.g. Geospatial Intelligence, geodetic /geophysical /geomagnetic data and processes, Measurements and Signatures Intelligence, and Communication Systems).
* Expert-level experience in building an AoA Study team tailored to for the inherent nature of the AoA to be accomplished, along with the time and money available to complete the AoA.
* Expert-level experience in in the identification of alternatives, threats and scenarios, effectiveness, risk, and cost.
* Expert-level experience in the development of the various AoA Products Most AoAs produce four major products: (1) A study plan which defines the background, goals, methodology, tools, schedule, etc. of the AoA, (2) A midterm progress briefing to summarize early work and future plans, (3) A final report to document the AoA in detail, and (4) A final briefing to summarize the final results of the AoA
* Expert-level experience in the Defense Acquisition System is structured to manage the nation‘s investments in technologies, programs, and product support which allows the achievement of National Security Strategy and support for the United States Armed Forces.
* Expert-level experience in the AoA DOD acquisition process.
* Expert-level experience in the Joint Capabilities Integration and Development System (JCIDS) Analysis and AoAs to include the FAA, the FNA, and the FSA.
* Expert-level experience in the AoA study team selection to include organizations who typically contribute members to an AoA study team include: Operating Command (OC), Implementing Command (IC), services, other service Organizations, Non-DoD Organizations, Oversight/Advisory Organizations
* Expert-level experience in development of a well-considered study plan that establishes a roadmap of how the analysis must proceed, who is responsible for doing what, and why they are doing it. Time and effort spent on the study plan before beginning the analysis helps to ensure a high quality AoA.
* Expert-level experience in designing a study plan that is structured to aid in the development of the AoA Final Report. The study plan must be updated—it's a "living document"—throughout the AoA effort to reflect new information and changing study perceptions and direction.
  + Study Plan Preparation and Review
  + Preparing for Analysis
  + Scoping the Analysis
  + Constraints and Assumptions
  + Scenarios and Threats
  + Physical Environment

Position 23: 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 NSES 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 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 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 GEOINT mission.

**Duties may include:**

* Provide Contract Management support to the NSES PMO to ensure the timely execution of all financial, staffing and administrative contract actions.
* Provide program management support to 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.
* Work with 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.
* Consult and coordinate with the NSES PMO and appropriate Government TO Leads for new resource requirements and associated cost estimates resulting from technical work scope adjustments.
* In coordination with the NSES PMO and Government TO Leads, establish and implement streamlined processes and procedures enabling the rapid respond to surge requirements for increased contract personnel.
* Pre-coordinate all travel and training with the NSES PMO and Government TO Leads prior to scheduling.
* Ensure programmatic alignment and adherence to the NGA Vision, Planning and Programs, CIOT Priorities and TA Priorities.
* Ensure the accuracy, quality, configuration management and timely delivery of all required TO deliverables to include the 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 NSES PMO and Government TO Leads a comprehensive understanding of the health/status of all TO activities.
* Support the coordination of program management activities between the TA Engineering Offices and Divisions, 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:

* Master’s degree in 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.
* Experience in 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.
* Project Management Professional (PMP), DAWIA Level III certification in Program Management or equivalent specialized experience with Project Management tools and techniques.

Desired:

* Knowledge of the geospatial intelligence mission and its contributions to the Intelligence Community.
* Working knowledge of Model Based Systems Engineering, processes, tools and languages.
* Experience with the development and/or review of cost estimates and the associated technical work scope necessary to achieve stated objectives.
* Experience in lean six-sigma.
* Experience in tailoring and using both Agile and Waterfall development methodologies
* Experience with the identification of technical issues and proactive communication of possible impacts.
* Experience in performing validation and verification of various engineering results and deliverables to ensure the highest quality results against customer requirements.
* Working knowledge of Cloud-based technologies.
* Working knowledge of structured and unstructured Big Data.
* Working knowledge of Automation, Augmentation and Artificial Intelligence technologies.
* Experience with and strong understanding of systems engineering lifecycle.