NGA has identified the following specific eNGAge requirements. This list is updated as new requirements are identified and as eNGAge opportunities are filled.

**eNGAge Out** – Requirements for NGA employees to have immersive experiences with industry or academia

**Geodetic Survey Program**

NGA Source Applied Sciences has identified a training and development requirement for a member of Team NGA to work with industry or academia for up to one year to enhance capabilities and help define future needs and capabilities for the Geodetic Survey Program.

The ideal industry or academia host would be a survey instrument company, terrestrial LIDAR developer, or developer of new gravity or geodetic collection methods.

**New Gravity and/or Magnetic Data**

NGA Source Applied Sciences has identified a training and development requirement for a member of Team NGA to work with industry or academia for up to one year in the area of new gravity and/or magnetic data collection, processing, and analysis to help NGA improve technical capabilities in this area.

The ideal industry or academia host would be an expert in gravity and/or magnetic collection, analysis, and modeling methods.

**Atomic Clock Performance and Characterization**

NGA Source Applied Sciences has identified a training and development requirement for a member of Team NGA to work with industry or academia for up to one year in the area of atomic clock performance and characterization to help NGA improve technical capabilities in this area.

The ideal industry or academia host would be an expert in atomic clocks both terrestrial and satellite based.
**Machine Learning**

NGA Analysis has identified a training and development requirement for a member of Team NGA to work with industry or academia for approximately one year to enhance capabilities and support the requirement for gaining alternative perspectives and experiences on convolutional neural network machine learning and algorithm development. The Team NGA member would learn by working with the development of convolutional neural network machine learning systems and algorithms.

The ideal industry or academia host would be one that currently develops convolutional neural networks for machine learning, specifically computer vision.

**Computer/Machine Vision**

NGA Analysis has identified a training and development requirement for a member of Team NGA to work with industry or academia for approximately one year to enhance capabilities and support the requirement for gaining alternative perspectives on algorithm development and signal processing for machine vision, object detection, and feature extraction. The Team NGA member would learn by working with a team to develop algorithms for machine vision in imagery and would provide insight into national security-specific requirements and possible focus areas and use cases.

The ideal industry or academia host would be one that currently develops and uses signal processing and algorithm development for machine vision, object detection, and feature extraction from commercial overhead imagery.

**GEOINT Data Discovery, Visualization, and Analytics**

NGA Analysis has identified a training and development requirement for a member of Team NGA to work with industry or academia for approximately one year to gain insight into managing large volumes of data, including constructing and implementing data strategy and developing tools and techniques for visualizing and analyzing geospatially enabled data.

The ideal industry or academia host would be one that is developing strategies or currently managing large volumes of geospatial data and conducting analysis and visualization of that data to gain deeper insights.
**Commercial GEOINT Collection**

NGA Analysis has identified a training and development requirement for a member of Team NGA to work with industry or academia for approximately one year to provide planning, dissemination strategies, and insight into the national security applications of space-based next-generation commercial GEOINT collection systems.

The ideal industry or academia host would be one that is currently developing, planning, or implementing space-based commercial GEOINT collection systems and constellations.

**Analytic Modeling**

NGA Analysis has identified a training and development requirement for a member of Team NGA to work with industry or academia for approximately one year to enhance capabilities and implementation of analytic modeling strategies to provide automated alerts and tipping/queueing follow-on action.

The ideal industry or academia host would be one that is currently developing or implementing automated GEOINT collection strategies or analytic environments and services.

**Analytic Production and Design Center - Multiple**

NGA’s Analytic Production and Design Center has identified several opportunities for a member of Team NGA to work with industry or academia for approximately one year to enhance NGA’s capabilities and help define future needs. The future state vision of NGA in 2020 calls upon us to continue to transition from a provider of static products to a provider of dynamic GEOINT content, analysis, and services. It requires NGA to make its analysis more structured with robust metadata-tagging, and to be easily accessible. The ideal industry or academia host will have expertise in one or more of the following areas:

1. **Production Managers** where GEOINT production workflows are managed efficiently with end-to-end customer service and strict deadlines, thus enhancing production capabilities.
2. **Editors** where reporting is held to strict accuracy standards and tight deadlines, thus enhancing knowledge of editing, reviewing, and publishing.
3. **Graphic Designer or Advanced Visualization Specialist** (interactive, 2D, 3D) to expertly use custom visualizations to convey dynamic content (data and imagery), thus enhancing knowledge of developing and publishing custom visualizations while adhering to tight deadlines.

4. **3D Modeling/Printing** to expertly use Computer Aided Design software, Computer Numerically Controlled Milling, and 3D printing, thus enhancing knowledge of completing physical models with a high degree of realism.

**Industrial-Organizational Psychology**

NGA Human Development has identified a training and development requirement for a member of Team NGA to work with industry or academia for approximately one year to enhance capabilities and support the requirement for simulation techniques that improve understanding of employee behavior across the employment lifecycle (selection through attrition). The Team NGA member would learn by working with the design, development, and use of simulation techniques and technology using human capital data.

The ideal industry or academia host would be a researcher at the forefront of simulation techniques and technology with experience working with human capital data.

**Human Capital Data Science**

NGA Human Development has identified a training and development requirement for a member of Team NGA to work with industry or academia for approximately one year to enhance capabilities and support the requirement for human capital data science. The Team NGA member would learn cutting-edge analytic models and data science methodologies that deliver the right insights at the right time to human capital decision makers.

The ideal industry or academia host would be a partner at the forefront of human capital data modeling, predictive analysis, and visualization.
**Business Financial Data Expert**

NGA Financial Management is seeking a Business Financial Data Expert to join Team NGA for one year to help lead the design, development, and implementation of an overarching financial data and information strategy that leverages existing and future financial management systems, along with industry and commercial best practices supporting multi-million dollar operations.

The ideal eNGAge participant from industry or academia will have considerable experience designing and operating financial management systems utilizing large data analytics serving issues around auditability and corporate resource decision-making.

**Source Applied Sciences - Multiple**

NGA Source Applied Sciences has identified several areas where opportunities exist for formally trained scientists from industry or academia to join Team NGA for assignments up to one year to help fill knowledge and skill gaps in key and emerging areas requiring scientific expertise, specifically:

1. Core geophysical sciences including gravity collection, processing, modeling, and analytics.
2. Core geodetic sciences including datums, grids, projections, and transformations.
3. World magnetic modeling.
5. Core photogrammetric sciences including precise positioning, triangulation, and orthorectification.
6. 3D surface generation and editing (including DTMs and DSMs) using point clouds; new and emerging DEM generation capabilities.
7. Core geodetic survey and terrestrial LIDAR.

The ideal eNGAge participant for these opportunities will have expertise in one or more of the areas noted above, the ability to provide training to NGA analysts on new and
emerging techniques and processes in their field of expertise, and skill in knowledge transfer to help NGA meet mission requirements.

**Service Management**

NGA IT Services is seeking an Information Technology expert or System Engineer to join Team NGA for up to one year to transform government workforce management services provided by a combination of software solutions.

The ideal eNGAge participant from industry or academia will apply in-depth knowledge and experience with Applications Architecture, Business Intelligence Concepts, Cloud Computing, Database Technology, Mobile Content Provisioning and Network, Software, and Web Design enabling the end-states desired for government business systems solutions and personnel skillset management.

**Agile/DevOps**

NGA IT Services is seeking a System Engineer to join Team NGA for up to one year to transform systems acquisition and development by applying Agile and DevOps constructs and processes to enhance efficiency and improve current acquisition and development timelines.

The ideal eNGAge participant from industry or academia will apply in-depth knowledge and experience of Agile and DevOps practices supporting the transition to Agile systems acquisition. Formal certifications aligned with industry standards to include SAFe Agilist and SPC Certified are desired.

**Modeling and Simulation**

NGA IT Services is seeking an Information Technology expert or System Engineer to join Team NGA for up to one year to support modeling and simulation involving sizing and optimization of storage, compute, and transport in support of cloud-based solutions delivering optimal user experience.

The ideal eNGAge participant from industry or academia is a modeling and performance analysis expert, with knowledge in network optimization, big data, cloud technology, and current modeling and simulation applications/tool suites.
Cloud

NGA IT Services is seeking a System Engineer to lead the design, development, and implementation of an Enterprise Cloud solution utilizing new and emerging disciplines and innovations to support industry and commercial best practices with a focus on security.

The ideal eNGAge participant from industry or academia will have considerable experience designing, developing, and implementing large-scale cloud solutions with background and expertise in Agile development, web service design, and cloud infrastructure for multiple security fabrics.

Enterprise Data Services

NGA IT Services is seeking a Data Engineer to support the creation of a new architecture, services, policy governing data, including a large scale effort to tag, validate, and encapsulate data for delivery to the cloud as well as services to translate and transform data to optimize it for exploitation and analytics.

The ideal eNGAge participant from industry or academia will have considerable experience leading data engineering, web service development, data analytics and cloud related initiatives on a large scale. Skills required in server side RESTful, SOAP, and web service development; experience in test-based development and continuous integration; and knowledge of JAVA, SQL, and No SQL databases.

Security Engineering

NGA IT Services is seeking a Security Engineer with background in perimeter, host, and transport layer security and defense-in-depth concepts in data center and cloud environments that is able to define security requirements and develop solutions based on data center to cloud migration processes.

The ideal eNGAge participant from industry or academia will have extensive knowledge of physical and virtual security solutions and their applications as defined by the NIST 800-53 set of controls in accordance with the Risk Management Framework (RMF).
Required certifications: CISSP or CASP and CCSP. Experience with SecDevOps is highly desired.

**Computer/Machine Vision**

NGA Analysis is seeking a scientist or engineer to join Team NGA for up to one year immersed in our Applied Sciences office to advance NGA’s understanding and application of machine vision techniques for EO, radar, and MSI commercial overhead imagery.

The ideal eNGAge participant from industry or academia will have experience with signal processing and algorithm development for machine vision, object detection, and feature extraction from EO, SAR, MSI, or HIS imagery and will apply their in-depth knowledge and experience to develop automated detection capabilities for NGA.

**Machine Learning**

NGA Analysis is seeking a scientist or expert in convolutional neural network machine learning to join Team NGA for up to one year immersed in our Applied Sciences office, to work on advancing NGA’s understanding of machine learning techniques.

The ideal eNGAge participant from industry or academia will apply in-depth knowledge and experience with convolutional neural networks, machine learning, and algorithm development for machine vision, object detection, and automated entity extraction to help NGA develop automated machine vision systems.

**GEOINT Data Discovery, Visualization, and Analytics**

NGA Analysis is seeking an expert data analyst or scientist to join Team NGA for up to one year to provide new insight and expertise for implementation GEOINT data strategy and developing tools and techniques for visualizing and analyzing large volumes of data.

The ideal eNGAge participant from industry or academia will apply in-depth practical knowledge and experience in managing and analyzing large volumes of geospatially enabled data and geographic information systems to enable and achieve new outcomes.
Analytic Production and Design Center - Multiple

NGA’s Analytic Production and Design Center has identified opportunities for a member of industry or academia to join Team NGA for approximately one year to enhance NGA’s capabilities and help define future needs. The eNGAge participant will assist with developing NGA staff to make our analysis dynamically structured, better metadata-tagged, and easily accessible. Candidates should also demonstrate the ability to provide training to Team NGA on new and emerging techniques and processes in their field of expertise in areas that include creating and implementing a transparent and user-friendly end-to-end production system; familiarizing the Analytic Production and Design Center workforce with cutting-edge visualization software and equipment; and identifying solutions that will allow the 3D Model Shop to use hardware with Wi-Fi capability installed such as 3D printers or lasers. The ideal eNGAge participant will have expertise in one or more of the below areas, as demonstrated through experiences with technical journals, media outlets, and peer reviewed content:

1. **Production Managers** to enhance NGA GEOINT production workflows so that they are efficient and collaborative with end-to-end customer service and adhere to strict deadlines. The ideal eNGAge participant will bring expert-level knowledge of enterprise content management systems and production teams, and assist NGA with developing staff into project leaders.

2. **Editors** to enhance NGA editing capabilities in a fast-paced environment. The ideal eNGAge participant would be an expert in substantive editing and adhering to policy, guidelines, and style, and have a vast knowledge of and experience with using enterprise content management systems.

3. **Graphic Designer or Advanced Visualization Specialist** to enhance our capability to convey dynamic content (data, imagery, and geospatial material). The ideal eNGAge participant would be an expert in developing custom visualizations including graphic design and animation.

4. **3D Modeling/Printing** to enhance our capability to conceptualize, design, and produce 3D models. The ideal eNGAge participant would be an expert in Computer Aided Design software, Computer Numerically Controlled Milling, and 3D printing.
**Industrial-Organizational Psychology**

NGA Human Development is seeking an Industrial-Organizational Psychologist to join Team NGA for one year to advance NGA’s ability to use cutting-edge measurement, analytic, and simulation techniques to obtain or improve meaningful organizational outcomes.

The ideal eNGAge participant from industry or academia will apply in-depth knowledge and experience with advanced measurement, psychometrics, and simulation techniques and technology to further NGA’s understanding of the workforce across the employment lifecycle and identify recommendations to improve workforce performance.