NGA
Data Strategy
2021

Mission Today. Mission Tomorrow.

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Foreword and Introduction

Letter from the Director

Our data supports our critical mission, fueling decision-making and mission advantage at all levels. From warfighters in the field to policymakers in Washington, our customers and our partners depend on NGA and NGA's data to protect our nation's security and to show the way.

It is essential that we take all actions necessary to sustain our advantage in GEOINT—and that includes managing our data as a key strategic asset. With the holistic enterprise approach mapped out within this new Data Strategy, NGA sets forth a path for leading the way and staying ahead of our competitors.

To maintain advantage, we must deliver and analyze data at the speed of mission. We must pursue transformative strategies to modernize NGA's data and analytics capabilities, inspire our people and accelerate delivery of data products and services.

Like our Technology Strategy published in May 2020, this Data Strategy is directly tied to NGA's overall strategic goals and mission imperatives. It recognizes that data is critical to driving future artificial intelligence and machine-learning initiatives and achieving mission requirements.

Only by leveraging our data as a strategic asset will we create and enable the next-generation GEOINT required for future success. We will succeed by instilling a coordinated and sustained focus on deliberate data governance and management within our organizational culture, making data more discoverable, accessible and reusable while simultaneously creating an entire workforce of committed and energized data stewards.

This is how we chart the course forward. This is how we win the race.

Robert D. Sharp
VADM, USN
Director
National Geospatial-Intelligence Agency

Letter from the Chief Data Officer and Chief Data Scientist

NGA is a data organization. Yet the tremendous growth in data worldwide presents a significant challenge and opportunity for the agency as it creates and acquires data on a daily basis. Only when data is used strategically can it provide value in supporting our mission today and mission tomorrow. Data itself has little intrinsic value — what really matters to our customers are the actionable insights that can be gleaned from data.

The only way to stay ahead of our strategic competitors is if data is governed and applied in deliberate ways. This Data Strategy will guide us through a near-term transformation, so everyone, everywhere nurtures data as a strategic asset for insight, impact and integrity — to better deliver on our mandates and truly show the way.

Data should drive our business and mission decisions. We must accelerate a shift in our data and analytics abilities. The digital environment and modern data management are foundational to advanced analytics and automation. It is imperative that we create the means to improve how data drives better decision–making and leads to NGA-wide success.

Our goal is to be disruptors in the digital revolution. The race is on, and successful agencies and organizations are already using data and advanced analytics as competitive assets. Those that successfully harvest vast troves of data can improve productivity, make faster and more accurate decisions, reduce costs, increase competitive advantage over adversaries, discover new models and innovations and better engage customers, employees and partners.

We must become an agency with a high analytic IQ. As outlined in our companion strategy, the NGA Technology Strategy, which was published in May 2020, NGA must be capable of driving continuous improvement by our builders and makers in the workforce as a whole. We need to embrace adaptability and speed to quickly predict trends and discover new data insights. We need to best leverage data science — which we define as the art and craft of people leveraging technology to create value out of data — to deliver our GEOINT mission.

So why a Data Strategy, and why now? Today, data is our most powerful, non-depletable, durable strategic asset. As NGA's Chief Data Officer and Chief Data Scientist, our shared goal is to provide a vision and a plan of what we as an agency want to do with our data and how we begin to support accessing, sharing and managing the content and analytics. The NGA Data Strategy will focus on making data easily discoverable and accessible, improve data reuse and create cross-domain efficiencies for next-generation GEOINT enablement. It is our humble attempt to influence our culture through continuously improving our critical, foundational data capabilities, mission models and digital tradecraft to better serve our customers and maintain our GEOINT supremacy.

Deepak Kundal
Chief Data Officer
National Geospatial-Intelligence Agency

Andrew L. Brooks
Chief Data Scientist
National Geospatial-Intelligence Agency

Executive Summary

> ## NGA Vision for Data
>
> *NGA will create, manage and securely share trusted data with the speed, accuracy and precision that our customers' missions demand.*
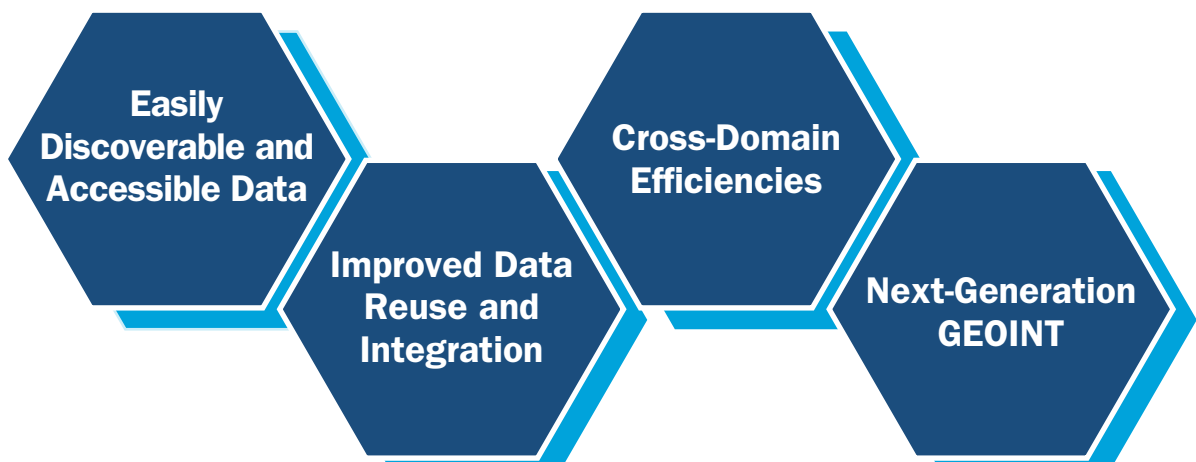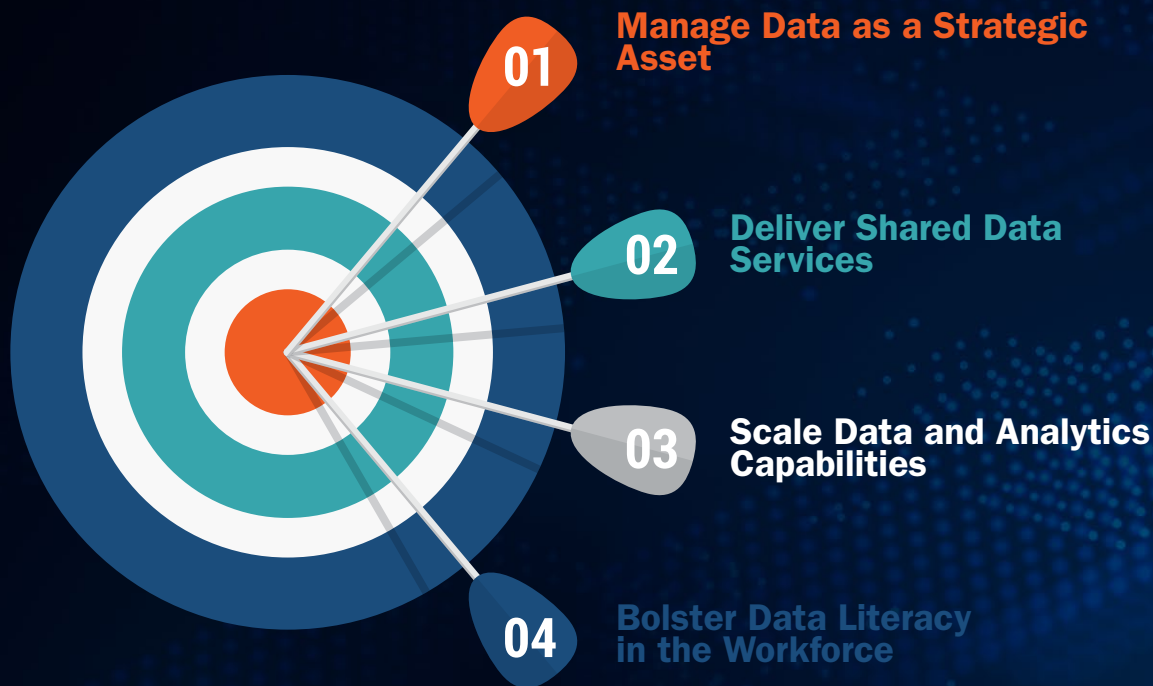
Data is NGA's Strategic Asset

Along with the people who support NGA's critical mission, NGA data is a key strategic asset that fuels decision support and mission advantage at all levels. From the forward-deployed warfighter to NGA staff to the strategic-level policymakers who require it, data must be delivered and analyzed at the speed of mission to gain decision advantage over our adversaries. NGA's digital modernization relies on enterprise data management policies, standards and practices to guide us through our transformation. Improving workforce skills in the data fields necessary for effective data management will determine our future success.

This Data Strategy links NGA's Mission Imperatives with existing NGA guidance. It defines the actions that NGA will take to implement the Department of Defense (DOD) Data Strategy and IC strategies to streamline focus and inspire the workforce to support key goals required to modernize NGA's data and analytics capabilities. NGA must deliberately and carefully manage its data over time to enable the outcomes described in this strategy to accelerate delivery of data products and services to all of NGA's customers. Those customers include internal analysts, DOD, IC, National System for Geospatial Intelligence (NSG), Allied System for Geospatial Intelligence (ASG), and other international partners.

Focus Areas

To close the gap between NGA's current capabilities and lay the foundation to deliver mission tomorrow, the NGA Data Strategy establishes the following focus areas.

Easily Discoverable and Accessible Data

Improved Data Reuse and Integration

Cross-Domain Efficiencies

Next-Generation GEOINT

01 Manage Data as a Strategic Asset

02 Deliver Shared Data Services

03 Scale Data and Analytics Capabilities

04 Bolster Data Literacy in the Workforce

Key Goals to Support NGA's Mission and Workforce

To achieve the desired results, we will pursue four key goals to meet our mission and business needs to support decision-making at all levels. These key goals will enable a deliberate and coordinated approach to managing and curating data.

NGA Vision for Data

Treating data* as a strategic asset is a major component of enabling NGA's mission to provide GEOINT to customers. Members of NGA's workforce, spanning mission leadership, builders and makers, and the workforce at large, must be energized stewards of this data strategy in order to deliver a sustained GEOINT advantage to NGA's customers.

Our Vision to Guide Mission Tomorrow

NGA will create, manage and securely share trusted data with the speed, accuracy and precision that our customers' missions demand.

To achieve NGA's vision for data, the enterprise will pursue the following principles to achieve the goals and objectives within its Data Strategy.

Accelerated

- We can rapidly take action and make decisions.
- We can deliver GEOINT with speed, accuracy and precision.
- We can enable the workforce to pivot quickly and work at the speed of mission.

Shared

- It is our data, not my data.
- Data is a strategic asset.
- NGA data is accessible and discoverable for both mission and business.
- There are pathways to access data across the enterprise.

Trusted

- Our data is secure and resilient.
- We know the source and lineage of the data.
- We have transparency and visibility of data to support both mission and business needs.
- We understand the risk to our data.

* See Notes on page 27 for NGA data definitions.

NGA Today and Tomorrow

Data and analytics initiatives provide the foundational support for NGA's strategic guidance and are the fuel for the NGA Moonshot.

Mission Today

NGA has a long history of critical partnerships across the DOD, IC, commercial industry and international partners to support key missions through data and intelligence analysis. As the amount and variety of data continue to increase, NGA has implemented initiatives such as the Artificial Intelligence, Automation and Augmentation (AAA) cross-functional team and entities such as Data Corps to focus on delivering data-informed analysis to NGA and its mission partners. Similarly, NGA directorates have started to explore and adopt tradecraft practices to implement data-informed processes to augment decision-making capabilities.

NGA must leverage data as a strategic asset to continually improve the GEOINT products it creates and provides to customers. NGA's data is critical to support future AI and machine-learning (ML) initiatives and will be the fuel to launch NGA's Moonshot effort, which is the agency's operational framework that prioritizes innovation and competing successfully.

Data is the lifeblood of generating the key insights required to give decision-makers at all levels the knowledge to attain strategic advantage.

While NGA has ambitious plans in progress to transform how internal and external customers consume data to support mission priorities, there must be a coordinated and sustained focus on executing this Data Strategy's key tenets. The four goals at the heart of the Data Strategy are based on the focus areas and challenges voiced by mission and technology stakeholders across over 25 NGA offices.

Enabling Mission Tomorrow

To enable mission tomorrow from where we are today, our vision principles, focus areas and key goals will be our guide to establish the priorities to address current capability gaps and lay the foundations for the delivery of forward-leaning data and analytics tradecraft and techniques in the future.

This is how we ensure data becomes a ubiquitous asset for the GEOINT enterprise. A first step to this culture shift is to acknowledge and internalize that the term "NGA data" means all data, including raw data and NGA-created data, and regardless of source, it must be viewed as a strategic asset and accessible to all those we support.

This strategy represents our near- and mid-term goals for the agency's data and analytics efforts. This Data Strategy must not be a static document. It is meant to inform resources and funding decisions in the coming years. We will update this strategy as we achieve our mission goals and grow our capabilities to meet the challenges of tomorrow.

Focus Areas

The four focus areas below represent the voice of NGA stakeholders from across the agency. These focus areas will guide our investments in people and technologies to advance data-informed decision-making at the speed of mission.

Easily Discoverable and Accessible Data
NGA's data can be intuitively discovered, easily accessed and responsibly shared with those who need it.

Improved Data Reuse and Integration
NGA data assets can be easily reused for anticipated and unanticipated purposes.
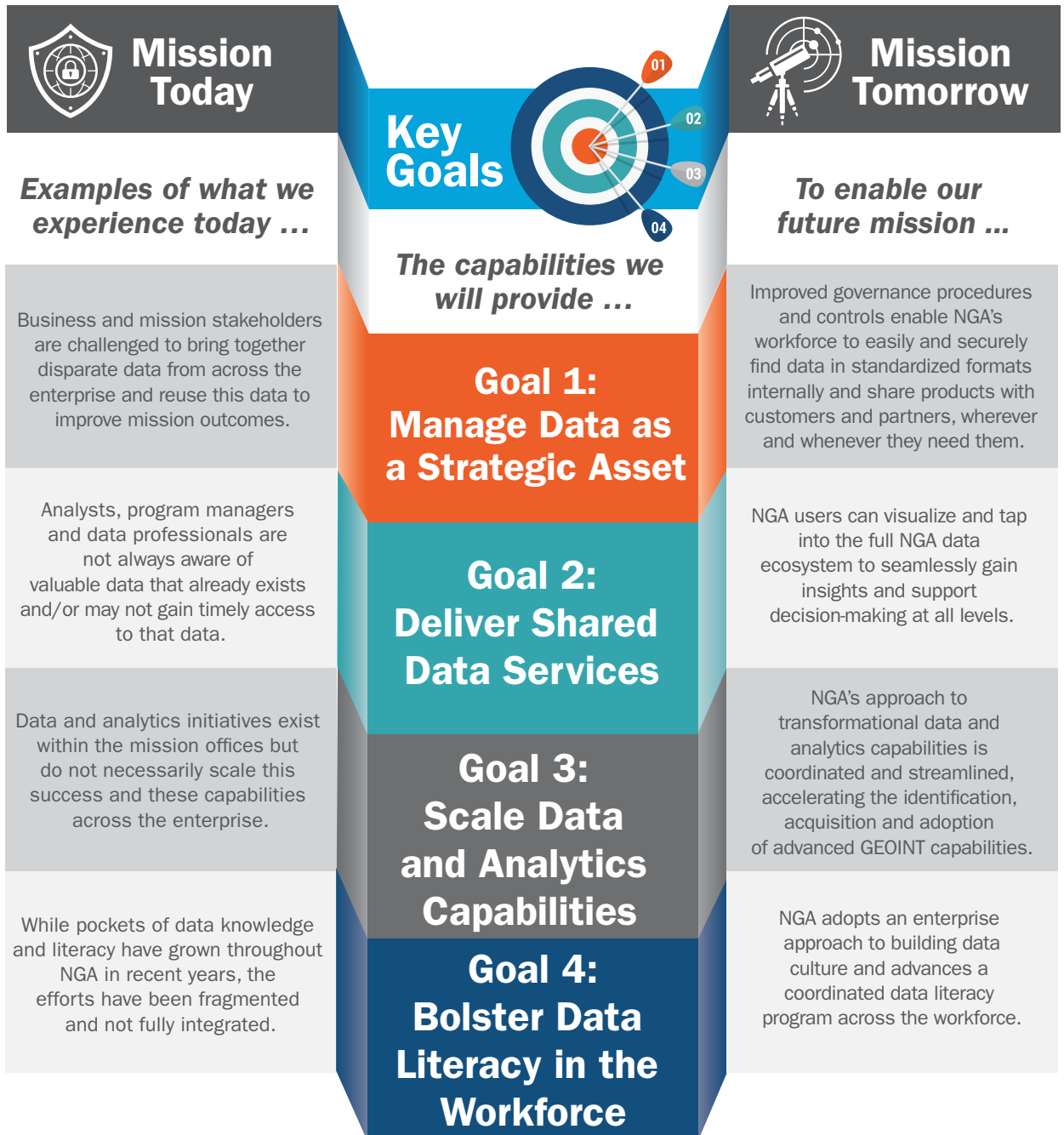
Cross-Domain Efficiencies
NGA's customers and workforce can efficiently find data across security domains to perform impactful data and analytics activities.

Next-Generation GEOINT
GEOINT production is aided by AI/ML to enhance production capacity and the mission impact of GEOINT products.

Key Goals

We will aggressively pursue four key goals to provide capabilities to our stakeholders to deliver on our Data Strategy. The next section provides an overview of each goal as well as the objectives and initiatives necessary to achieve it.

Mission Today

Examples of what we experience today ...

Business and mission stakeholders are challenged to bring together disparate data from across the enterprise and reuse this data to improve mission outcomes.

Analysts, program managers and data professionals are not always aware of valuable data that already exists and/or may not gain timely access to that data.

Data and analytics initiatives exist within the mission offices but do not necessarily scale this success and these capabilities across the enterprise.

While pockets of data knowledge and literacy have grown throughout NGA in recent years, the efforts have been fragmented and not fully integrated.

Key Goals

The capabilities we will provide ...

Goal 1: Manage Data as a Strategic Asset

Goal 2: Deliver Shared Data Services

Goal 3: Scale Data and Analytics Capabilities

Goal 4: Bolster Data Literacy in the Workforce

Mission Tomorrow

To enable our future mission ...

Improved governance procedures and controls enable NGA's workforce to easily and securely find data in standardized formats internally and share products with customers and partners, wherever and whenever they need them.

NGA users can visualize and tap into the full NGA data ecosystem to seamlessly gain insights and support decision-making at all levels.

NGA's approach to transformational data and analytics capabilities is coordinated and streamlined, accelerating the identification, acquisition and adoption of advanced GEOINT capabilities.

NGA adopts an enterprise approach to building data culture and advances a coordinated data literacy program across the workforce.
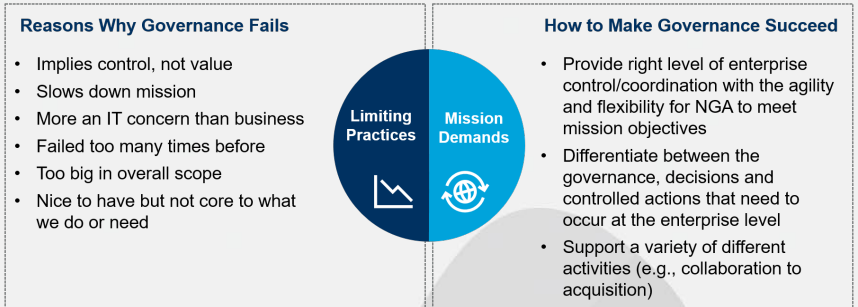
The Way Ahead

GOAL 1: Manage Data as a Strategic Asset

NGA will deploy a data governance framework to ensure we proactively, strategically and consistently manage data while enabling agility, flexibility and innovation.

Overview

Our flexible, adaptive governance framework will provide the autonomy and flexibility to mission areas to enable decision-making at the speed of mission. Our adaptive governance framework will include the acceleration of the data stewardship program to support rapid, transparent decision-making.

Reasons Why Governance Fails

- Implies control, not value
- Slows down mission
- More an IT concern than business
- Failed too many times before
- Too big in overall scope
- Nice to have but not core to what we do or need

Limiting Practices

Mission Demands

How to Make Governance Succeed

- Provide right level of enterprise control/coordination with the agility and flexibility for NGA to meet mission objectives
- Differentiate between the governance, decisions and controlled actions that need to occur at the enterprise level
- Support a variety of different activities (e.g., collaboration to acquisition)

Shifting NGA's culture to a common goal of an adaptive governance that focuses on outcomes, not control, is essential to support the execution of the Data Strategy.

Challenges

Gaps in Execution of Data Governance and Management: Enterprise data governance is a recognized gap at NGA, but there is uncertainty as to the extent to which decisions should be centralized.

Data Standards Inconsistency: Data and metadata standards are highly customized and inconsistent across NGA's mission and within business units, and data stewards are not always empowered to enforce standards at the right levels.

Limited Cross-Domain Data Discovery and Availability: Moving between domains to access datasets could limit rapid response to mission needs.

Objectives and Initiatives

To manage data as a strategic asset and to develop a more adaptive and consistent approach to data governance, NGA must:

Commit to improving data centricity

- Operationalize the federated governance framework for making data-related decisions.
- Deploy an enterprise cross-domain data inventory and catalog with classification, tagging and lifecycle management.
- Coordinate the development of consistent enterprise data standards and taxonomies through the DOD and IC Joint Enterprise Standards Baseline.

Commit to improving data security

- Publish clear and unambiguous policies and processes for the management and security of NGA's data assets.
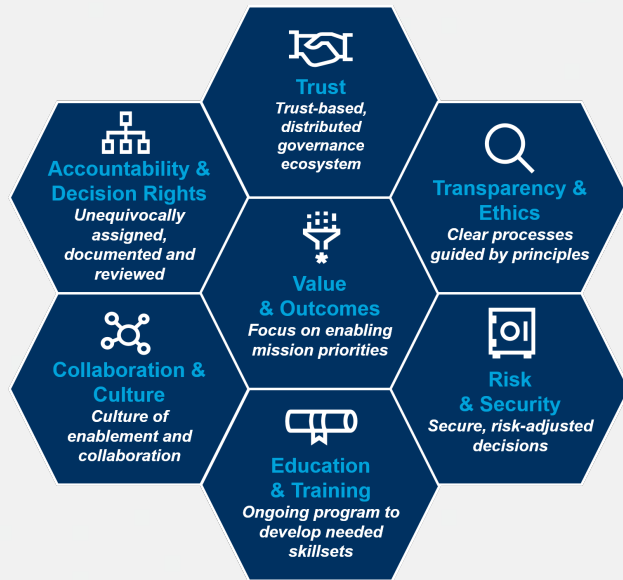
Adopt consistent approaches to data governance and management

- Enable data policy and standards development.
- Operationalize a data stewardship program to promote data quality and adherence to policies and standards.
- Communicate and optimize governance initiatives.
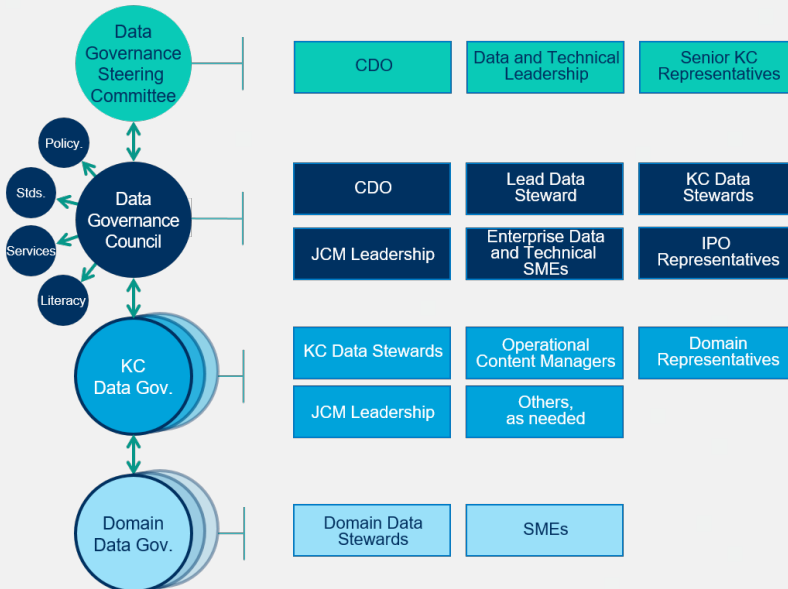
How We Will Operate

Managing data as a strategic asset must build on the existing governance efforts such as Enterprise Data Management to ensure the right people are able to leverage our data and analytics assets to inform decisions at the right time to deliver mission results. The goal is to provide the proper foundational governance framework to enable "just enough" data governance by shifting away from control-based processes and adopt a collaborative and automated (where possible) approach to data governance.

We will follow best practice foundational principles to deploy our governance framework.

Trust
Trust-based, distributed governance ecosystem

Accountability & Decision Rights
Unequivocally assigned, documented and reviewed

Transparency & Ethics
Clear processes guided by principles

Value & Outcomes
Focus on enabling mission priorities

Collaboration & Culture
Culture of enablement and collaboration

Risk & Security
Secure, risk-adjusted decisions

Education & Training
Ongoing program to develop needed skillsets

Governance Level / **Membership**

Data Governance Steering Committee	CDO	Data and Technical Leadership	Senior KC Representatives
Data Governance Council	CDO / JCM Leadership	Lead Data Steward / Enterprise Data and Technical SMEs	KC Data Stewards / IPO Representatives
KC Data Gov.	KC Data Stewards / JCM Leadership	Operational Content Managers / Others, as needed	Domain Representatives
Domain Data Gov.	Domain Data Stewards	SMEs	

A Closer Look

NGA's proposed federated governance framework will provide the agency a more transparent approach to decentralized versus centralized decision-making. The aim of this approach is to allow mission units the ability to establish policies and standards under a single, overarching strategic guidance.

The Data Governance Steering Committee will set the high-level direction for governance activities, in accordance with NSG policies and direction, with the Data Governance Council providing more operational-level guidance to streamline execution of governance activities at the lower KC and domain governance levels. The KC Data Governance bodies will make governance recommendations to the Data Governance Council and escalate policy and standards recommendations when required. The Domain Data Governance bodies are the key entities that enable and enforce data governance decisions and policies.

The Data Governance Steering Committee will lead the efforts to streamline and communicate the key policies and standards to support data sharing, reuse and integration across NGA. These policies and standards include:

- Data registration and sharing
- Data access
- Data tagging and classification

- Data quality and metadata standards
- Data security policy (in coordination with the Chief Information Security Officer)

Consistent data tagging and classification policies and standards are critical to support data discoverability across security domains. The long-term goal of NGA's data catalog is for a cross-domain functionality to support greater cross-domain efficiencies.

Empowering the data stewards to enforce data policies and standards consistently is a priority for this initiative. The data stewardship program must mature to provide consistent training and oversight to enable the data stewards to support NGA's data governance program. The data stewards are the first line of defense for data quality and must be properly trained and equipped with the tools to automate processes and workflow tools to remove as many human biases as possible and promote transparency in decision-making processes.

Data Governance and AI/ML Initiatives

Effectively managing data as a strategic asset at the enterprise level is a critical foundational capability to support NGA's continued journey to advancing AI capabilities and competencies. Adaptive, flexible data governance is a key component of enabling data discoverability and integration to support AI and ML algorithms to advance NGA's GEOINT mission.
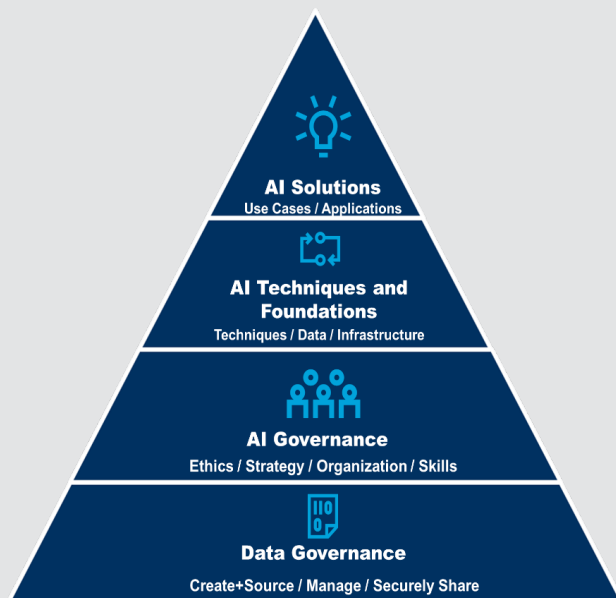
Data is at the heart of all AI/ML initiatives. This Data Strategy reinforces AAA efforts such as algorithm governance to ensure NGA has a consistent approach to building, managing, maintaining and deploying its models for the enterprise.

Supporting NGA's mission AI use cases, including ML, computer vision and natural language processing techniques, is a key priority for this Data Strategy. Data governance efforts will support better AI outcomes by improving the sources of data used for training. Further, data governance will help curate a knowledge base about data sources — both internal and external — including known potential features and bias.

Implementation Steps

1 Launch the Data Governance Steering Committee

- Obtain approval for the NGA Data Governance Framework.
- Execute communications to socialize governance framework and benefits.
- Recruit Steering Committee members.
- Draft and publish the Data Governance Steering Committee Charter.
- Conduct the Steering Committee kickoff and follow-on quarterly meetings for data investments.

2 Launch the Data Governance Council

- Develop and approve the data stewardship deployment strategy.
- Define stewardship roles, responsibilities, critical handoffs and relationships.
- Draft and publish the Data Governance Council charter and principles.
- Finalize the federated decision framework and set the direction for KC and domain governance deployment.

3 Enable Data Policy and Standards Development

- Deploy data standards and data policy working groups to conduct a gap analysis and develop prioritized data standards and policies.
- Define and deploy the escalation and issue resolution process.
- Launch ongoing standards recommendation, vetting and approval pilot processes.
- Broadly communicate governance standards, policies and enforcement roles.

4 Operationalize the Data Stewardship Program

- Execute stewardship training.
- Scope and execute a data stewardship pilot and capture lessons learned and best practices, including Data Corps and joint content manager best practices.
- Formally launch data steward quality management and governance execution at scale.
- Identify opportunities to automate governance execution.

5 Communicate and Optimize Governance Initiatives

- Measure and communicate benefits and impacts of data governance on data strategy and NGA mission objectives.
- Adjust/optimize data governance framework and practices based on performance results and lessons learned.

GOAL 2: Deliver Shared Data Services

NGA will deploy shared data services that break down data silos and enable members of NGA's workforce to directly and intuitively discover and access the data they need.

Overview

NGA will enable data sharing and access through services that deliver data (both consumed and created) directly to customers in an efficient and intuitive way. We will modernize our data and analytics processes, technologies and architectures to support this goal. Through the execution of this goal, members of the workforce will be able to visualize and utilize the data to which they should have access.

The delivery of these services will reduce time spent searching for and conditioning data and increase the time spent generating insight and decision support for mission. These services also will set the foundations to deliver AI capabilities to the agency and support integration into larger IC initiatives.
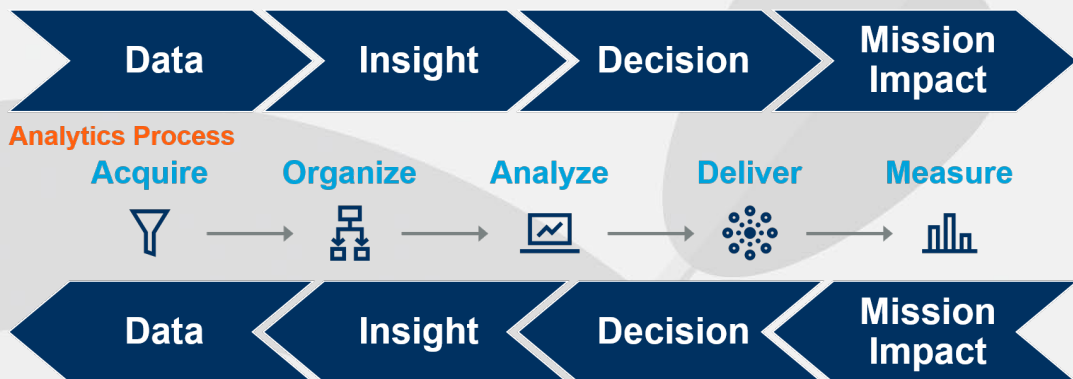
The delivery of mission impacts is critical to how we design a data architecture that supports the analytic process.

Challenges

"My data" versus "NGA data": NGA is in the early stages of adopting a culture that views data as a strategic, shared asset. This is due to the historically siloed nature of the organization and comfort with existing processes.

Data Reuse and Integration: NGA data is often not available or prepared for reuse/integration.

Data Discovery, Access and Usability: Members of the workforce can experience difficulty finding and accessing data and transforming the data into a usable format that supports their analytic requirements.

Objectives and Initiatives

To deliver data as a shared service and streamline the ability to access data, NGA must:

Break down cultural and architectural barriers to data discoverability and access
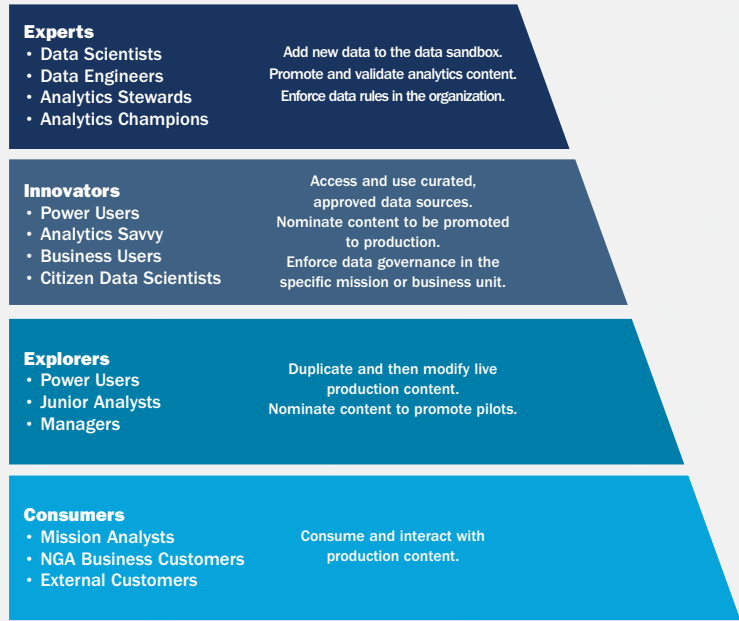
- Develop a cohesive, integrated, modern data architecture for the agency.
- Develop digital models of data systems and services.
- Deploy intuitive interfaces that enable users to easily explore and access data.

Make data discoverable across domains

- Build data pipelines that successfully deliver data from sources to consumers.
- Deploy processes that enable data services orchestration (e.g., request intake, demand management).

How We Will Operate

Finding, cleaning, transforming and sharing data in a trusted and timely manner to meet the mission and business needs of NGA's multiple internal and external stakeholder groups is a current and pervasive pain point across the agency. There are multiple mission requirements, stakeholders and outcomes that NGA's data must enable through a modern data architecture. To best meet our customers' missions and further enhance our business, industry and academic partnerships, deploying this modern data architecture will require a new approach to governance, processes, practices and workforce development to support these changes. We must begin to identify opportunities to procure and develop capabilities to support this data architecture.

Experts
- Data Scientists
- Data Engineers
- Analytics Stewards
- Analytics Champions

Add new data to the data sandbox.
Promote and validate analytics content.
Enforce data rules in the organization.

Innovators
- Power Users
- Analytics Savvy
- Business Users
- Citizen Data Scientists

Access and use curated, approved data sources.
Nominate content to be promoted to production.
Enforce data governance in the specific mission or business unit.

Explorers
- Power Users
- Junior Analysts
- Managers

Duplicate and then modify live production content.
Nominate content to promote pilots.

Consumers
- Mission Analysts
- NGA Business Customers
- External Customers

Consume and interact with production content.

Our modern data architecture must account for multiple data users – consumers, explorers, innovators and experts.

A Closer Look

Delivering data to NGA's stakeholders will require a measured approach to self-service delivery of data and analytics products, including data as a service. Understanding the key requirements based on mission and business needs is a critical requirement for designing this architecture. Similar to the developer portal for application programming interfaces (APIs) discussed in the NGA Technology Strategy, new data interfaces will be critical to improve data access.

We must find innovative ways to provide the workforce with insights into the data that exists and then design seamless and automated (where possible) interfaces to allow users data access while adhering to security policies and removing human biases in the request process.

NGA's data and analytics builders and makers — data architects, system architects, data engineers, developers, system engineers, business and mission analysts and data storage administrators — must work closer than ever to understand the customer requirements and translate those requirements into the delivery of repeatable data and analytics products. We will develop consistent processes to identify, prioritize and execute the customer requirements to enable mission, leveraging existing processes and infrastructure where possible.

We also must adopt modern, adaptive governance and design processes. Data registration and sharing policies, access and tagging standards as well as data quality standards must be consistent and automated when feasible.

Modern design practices such as DataOps will support the development and deployment of our data products. DataOps focuses on improving communication, integration and automation of data flows between data engineers, data architects, etc., and the many data consumers across the agency. The goal of DataOps is to reduce the cycle time of integrated data delivery between data managers and consumers.
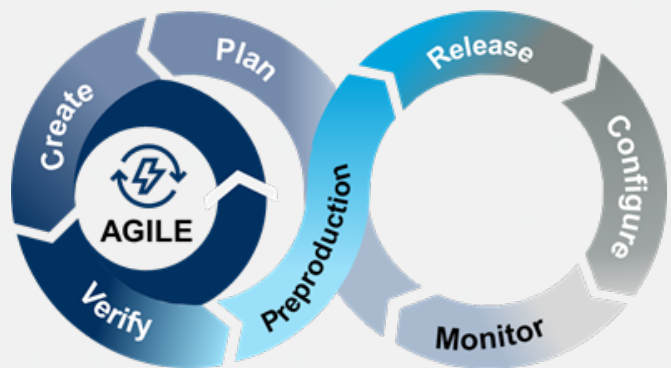
*DataOps, like DevOps, focuses on continuous delivery.*

Our approach to data architecture must not be repository-driven, but capability-driven to support mission outcomes. Maturing our architecture capabilities must focus on balancing the technologies to connect people to data through infrastructure versus virtualization designs. We will begin to identify opportunities to procure and develop capabilities — such as an augmented cross-domain data catalog, a data fabric, APIs and data virtualization — to support this modern data architecture.
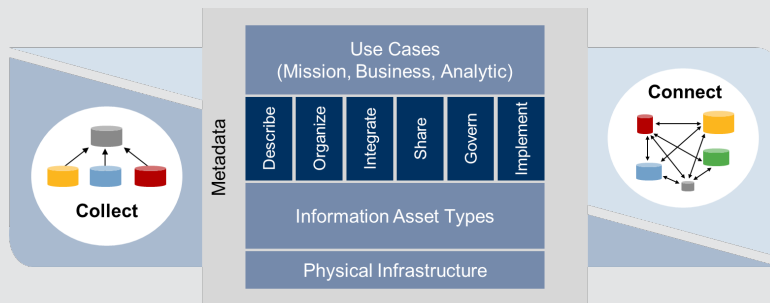
Design of our data architecture must balance collect vs. connect.

Supporting NGA data services will require tight coordination among core data and analytics roles and skill sets – balancing their respective areas of expertise — to accelerate delivery of advanced analytics data science and AI/ML current and future ambitions. The ultimate goal should be to centralize these roles where possible for streamlined delivery.

Data management competencies and roles recommended in this key goal are foundational for agency-wide pursuits in AI/ML and advanced analytics. These roles share responsibility with data science and mission/business stakeholders to build products and services collaboratively and yield the full value of NGA data.
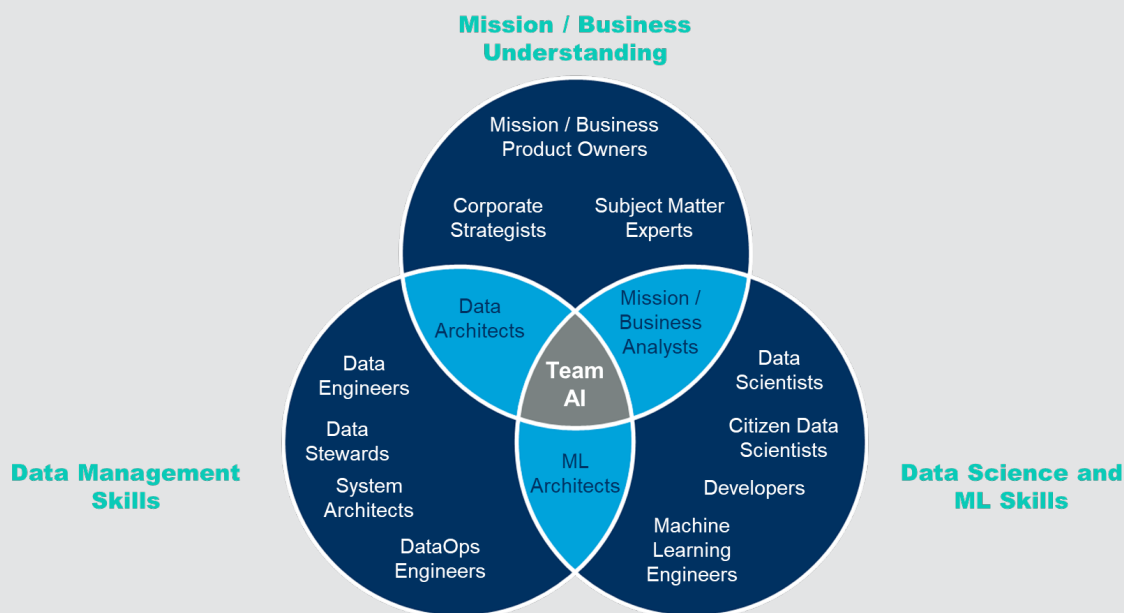
Data management and data science teams must balance expertise with mission/business understanding to yield successful AI teams that produce agency value and mission success.

Implementation Steps

1 **Establish the Shared Data Service Foundations**

- Document NGA tools across data ingest, storage and consumption to identify existing, overlapping and/or missing capabilities.

- Assess existing tools for their ability to collect and share metadata (such as data catalogs, data integration, data virtualization, semantic technology).

- Establish processes such as request intake and demand management.

- Conduct strategic communications and marketing.

- Deploy architecture (iterative step).

2 **Conduct a Data Services Pilot**

- Determine viable, prioritized datasets to be first movers into the modernized data architecture.

- Deploy targeted architectures to support the pilot.

- Capture and communicate lessons learned for scaling.

3 **Enable Data Discovery Through a Data Catalog**

- Collect functional requirements for building an enterprise data catalog.

- Deploy the enterprise cross-domain data catalog.

- Capture and apply lessons learned from the data catalog process.

4 **Develop Processes and Pipelines to Deliver Data to Customers**

- Refine request and requirements processes.

- Configure pipelines based on requirements and usage.

- Deliver data to customers.

- Monitor and communicate performance and results.

5 **Coordinate Across Data, Application and Engineering Teams to Accelerate Data Sharing Via APIs**

- Add APIs to legacy applications to enable consistent integration patterns and easier interactions with other systems.

- Add APIs and apply a modern service-centric architecture iteratively to large applications, avoiding the temptation to fix direct integrations all at once or do entire rewrites.

GOAL 3: Scale Data and Analytics Capabilities

NGA will coordinate and scale best-of-breed data and analytics initiatives across the enterprise in order to accelerate the identification, acquisition and adoption of advanced GEOINT capabilities.

Overview

We will deploy a coordinating framework that links key data and analytics (D&A) stakeholders across NGA to foster collaboration among the multiple data and analytics groups and promote a culture of sharing. We will champion the data and analytics initiatives that will transform how NGA operates.

Key stakeholder groups will provide inputs for scaling data and analytics initiatives to the enterprise.

Challenge

Siloed Data and Analytics Initiative efforts: Data and analytics initiatives often exist in silos across NGA. There needs to be more communication and coordination to identify and scale best-of-breed initiatives to the enterprise.

Objectives and Initiatives

To transform the way data and analytics capabilities are pursued and scaled, NGA must:

Coordinate scaling of best-of-breed data and analytics initiative across the enterprise

- Coordinate and scale viable data and analytics pilot projects to build cohesion among NGA's data, analytics, data science and related research initiatives.

How We Will Operate

NGA's Data Governance Steering Committee, with the support of the CDO, will lead the coordination of data and analytics initiatives across the agency, to identify and prioritize opportunities to scale pilots to production. The steering committee will track these data and analytics initiatives and support the identification of dependencies, disconnects and gaps among initiatives to foster more collaboration across NGA.

A Closer Look

NGA will ensure its workforce is trained and equipped to take advantage of and apply transformational data and analytics capabilities that will be critical to this effort.

The CDO, Chief Data Scientist, AAA and Data Corps as well as the Chief Information Officer and Information Technology Services, Research, Analysis and Source directorates will be the key members to initially collaborate in support of the Agency's data and analytics initiative coordination efforts, and others will be identified in the future. Managing data- and analytics-related activities as a portfolio will be the primary near-term objective of this committee. NGA will identify and empower a portfolio manager to track, monitor and report the progress of these initiatives.
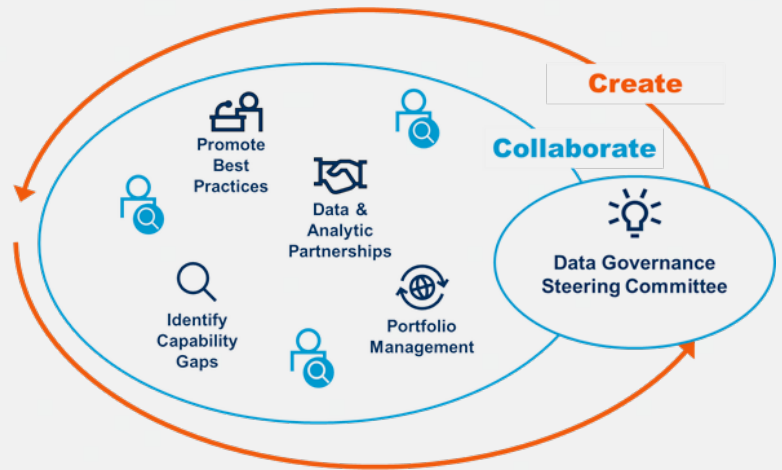
The Data Governance Steering Committee will provide consistency to support and scale best-of-breed data and analytics initiatives.

Implementation Steps

1 Develop the Data and Analytics Center of Excellence

- Identify, assign and empower Integrated Program Offices (IPOs).
- Determine the process to support idea generation and prioritization.
- Define a process to assemble, define and document the current portfolio of data and analytics projects, initiatives and efforts.
- Determine a process for conducting risk and opportunity analyses.
- Establish a shared vision for next-generation GEOINT, and develop plans to support this vision.

2 Communicate Data and Analytics Initiative Progress

- Define key reporting metrics.
- Establish a regular cadence for reporting updates to the steering committee portfolio to NGA leadership and the workforce.
- Establish and communicate a process for monitoring data and analytics activities and developing plans to get there.

3 Deliver Advanced Analytics, AI and Machine-Learning Strategy

- Identify key stakeholder groups, including within the agency, the NSG and ASG as well as the other international partners.
- Develop actionable plans for delivering data capabilities that enable the mission imperatives.
- Create implementation plan.
- Define key implementation and adoption metrics.

GOAL 4: Bolster Data Literacy in the Workforce

NGA will promote a data culture by bolstering the agency's data literacy program to drive consistency in data governance and data management and enhance our preparedness for the mission today and the mission tomorrow.

Overview

We will build workforce skills and the data literacy program to provide an enterprise, coordinated approach to improving NGA's collective level of data literacy and capability through training, education, exposure and experience opportunities.

Challenges

Skills and talent shortfalls: NGA is in the early stages of addressing the data literacy needs across the workforce. There are multiple data literacy efforts (formal and informal) that exist across the agency. These silos of data literacy excellence need to be bolstered, shared and coordinated across the enterprise as next steps in maturing NGA's data literacy.

Objectives and Initiatives

To develop a coordinated, enterprise approach to building a data culture and increasing the workforce's data acumen, NGA must:

Bolster and advance NGA's data literacy program

- Establish proper priorities and baselines as well as training and education pipelines.
- Design and deploy tailored learning paths to support the growth of NGA's workforce as a whole.

How We Will Operate

Data acumen/data literacy is a core capability of a truly digital society. The ability to read, write and communicate data in NGA's mission and business contexts is a foundational capability to enable NGA's mission tomorrow. Effectively increasing data literacy in organizations must be a coordinated effort to establish the proper priorities and baselines as well as training and education pipelines.
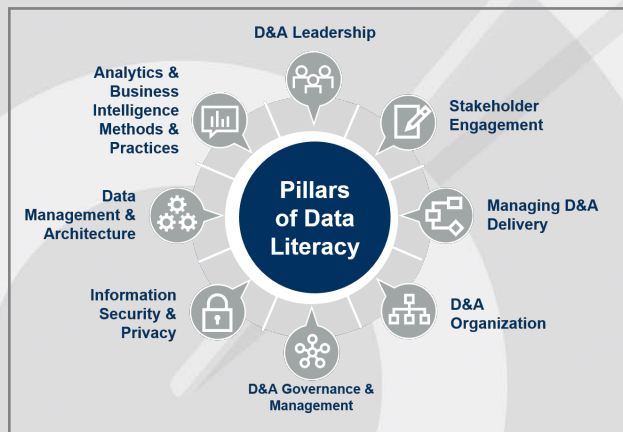
Key pillars to build enterprise data literacy

A Closer Look

The Human Development (HD) directorate (specifically Career Services) and the CDO will be key partners in this data literacy effort with support from the directorate training and tradecraft offices. Coordinating NGA's data literacy program through an identified enterprise data literacy lead who works with both the CDO and HD to develop a data literacy training curriculum and roadmap will be critical to our shared data literacy success. We will design and deploy tailored learning paths to support the growth of NGA's workforce as a whole to improve our overall level of data literacy.

Implementation Steps

1 | **Refine and Accelerate the NGA Data Literacy Program**

- Conduct an enterprise data literacy assessment.

- Develop the data literacy curriculum and roadmap with HDT and respective directorate's training and tradecraft offices.

- Determine technology platform requirements to support the data literacy curriculum.

- Deploy the data literacy curriculum and learning path management with the NGA College and HD.

2 | **Craft Advanced Data Literacy Roadmap**

- Identify needed advanced data literacy skills and opportunities, such as AI, machine learning and computer vision.

- Implement technical mentorship program.

- Bolster support for grassroots community-based skills and knowledge exchange activities.

Notes: NGA Data Terminology

The NGA Data Strategy is a guide for all of NGA's data*
that supports NGA's GEOINT and corporate missions, sources and structures.

NGA GEOINT and Corporate Mission Data

- **NGA GEOINT Mission Data:** This is content related to supporting NGA's GEOINT mission. This data may be statistical data and information derived from, among other things, remote sensing, mapping, and surveying technologies as well as mapping, charting, geodetic data, and related products, including data that informs multiple intelligence and DOD programs.

- **Corporate Data:** This is content related to NGA's corporate function to plan and operate programs and initiatives across the agency. This data includes acquisition, engineering, contracting and financial data and data that is used to track business progress such as calculated metrics and forecasts. This data also includes personnel data of NGA employees and contractors as well as the HR management systems.

*NGA will continue to ensure that all NGA data is handled in a manner that protects the privacy and civil liberties of U.S. Persons in accordance with the Constitution and all applicable laws and policies.

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