National Guard Bureau Chief Information Officer/J6

Five-Year Information Technology Strategic Plan

31 January 2023

Foreword

As the information technology (IT) landscape continues to evolve, the National Guard (NG) is designing and delivering an IT capability that promises to meet and exceed the digital needs of the 21st century. We are leveraging technology to achieve information superiority and rapidly adapt to the changing character of war.

Increasing our ability to influence the use of IT in unforeseen ways will be at the forefront of meeting the global challenges of the future.

We must effectively manage the reality of budgetary constraints and strained workforce resources to continue IT advancement into the future. Digital Modernization will increase our battlespace awareness and enable better decision-making at all levels of the NG in support of our mission.

We must build a NG that is increasingly capable of responding to the multifaceted nature of our global and domestic operational challenges. Innovation is essential in our approach to ensure we efficiently manage IT investments to meet the desired effect across our mission requirements. Managing the development of IT capability in support of effective command and control of NG assets is critical to that end.

The National Guard Bureau Chief Information Officer/J6 (NGB CIO/J6) Five-year Information Technology Plan is our roadmap for developing and using IT capabilities to support a more modern, lethal, agile, and resilient NG over the next five years.

Daniel R. Hokanson
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Chief, National Guard Bureau

NGB CIO/J6 Director Executive Summary

There is an increased call for IT as a critical enabler for the effective command and control of forces executing operations across the NG. IT is especially essential for the NG's dual mission as both a Federal and State response force, requiring collaboration with mission partners.

The skillful acquisition and implementation of IT capability is a complex undertaking. The NGB CIO/J6 Five-Year IT Strategic Plan introduces IT-related goals and objectives that provide essential support to the following four lines of effort (LoEs) that guide and focus our way forward:

1. Modernize C4 Capability.

2. Enable decision superiority with data, analytics, and artificial intelligence / machine learning (AI/ML) technologies.

3. Reform Processes, Policies and Authorities.

4. Shape the Force for Emerging IT Requirements and Technologies.

See Figure 1 for a detailed breakdown. The goals and objectives aligned to the LoEs in this plan leverage innovative technologies, strengthen cybersecurity, cultivate talent, and provide greater efficiency. This plan will also transition the NG to Department of Defense (DoD) Enterprise shared services, enhance the ability to collaborate with mission partners during a conflict, and enhance response capabilities to natural disasters while improving business practices.

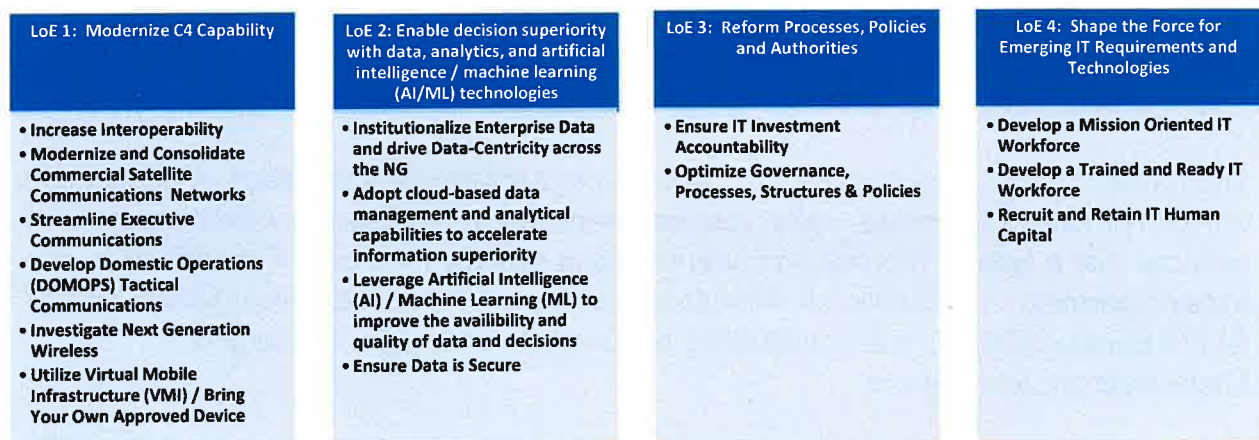| LoE 1: Modernize C4 Capability	LoE 2: Enable decision superiority with data, analytics, and artificial intelligence / machine learning (AI/ML) technologies	LoE 3: Reform Processes, Policies and Authorities	LoE 4: Shape the Force for Emerging IT Requirements and Technologies
• Increase Interoperability • Modernize and Consolidate Commercial Satellite Communications Networks • Streamline Executive Communications • Develop Domestic Operations (DOMOPS) Tactical Communications • Investigate Next Generation Wireless • Utilize Virtual Mobile Infrastructure (VMI) / Bring Your Own Approved Device	• Institutionalize Enterprise Data and drive Data-Centricity across the NG • Adopt cloud-based data management and analytical capabilities to accelerate information superiority • Leverage Artificial Intelligence (AI) / Machine Learning (ML) to improve the availibility and quality of data and decisions • Ensure Data is Secure	• Ensure IT Investment Accountability • Optimize Governance, Processes, Structures & Policies	• Develop a Mission Oriented IT Workforce • Develop a Trained and Ready IT Workforce • Recruit and Retain IT Human Capital

Figure 1. NGB CIO/J6 Strategic Lines of Effort and Goals

This plan is based upon the DoD, Joint Staff, and NGB regulatory guidance for modernization of IT capabilities. In addition, it includes contributions from the Army, Air Force, Army National Guard, and Air National Guard technology and modernization strategies and plans.

This plan highlights approaches and critical enablers for accomplishing the NG's missions more effectively and efficiently in synchronization with DoD's CIO-led efforts to create a more secure, coordinated, seamless, transparent, and cost-effective IT architecture that transforms data into actionable information and ensures dependable mission execution in the face of a persistent cyber threat.

This plan's fundamental approach will focus on crucial NGB-J6 strategic initiatives that impact the NGB with reach to the NG Joint Force Headquarters-State . These strategic initiatives include shared situational awareness, Data Management, Cloud Initiatives, and Capability Development. Management of these initiatives will enable continual, comprehensive NG-wide IT modernization in a standard, coordinated way. It will accelerate the transition to foundational enterprise capabilities and services, freeing NG components to focus on their mission.

NGB will continue to leverage IT governance forums, including NG CIO Executive Council and NG Requirements Oversight Council, to achieve positive outcomes including:

- Increased contract and acquisition efficiency with reduced duplication of efforts - increasing IT return on investment.
- Consistent, standardized enterprise IT architectures - supporting faster fielding of new capabilities, interoperability, usability, and improved cybersecurity.
- Increased budget transparency for DoD IT expenditures - decreasing waste and ensuring the proper use of IT funds.
- Leveraging Best Business Practices and Technology Trends - increasing procedural efficiency and reducing complexity.
- Developing a talent management strategy to explore techniques to retain a high-quality workforce - maintain and train a modern technical workforce.

The future NG digital environment enabled through intelligent integration of IT over time will also provide a seamless, agile, resilient, transparent, and secure infrastructure and services that advance information superiority and simplify information sharing with mission partners. Ultimately, all of these advances will assist the Chief of the National Guard Bureau (CNGB) in accomplishing his priorities of People, Readiness, Modernization, and Reform.

Table of Contents

I. NGB CIO/J6 Roles and Responsibilities

NGB CIO/J6 serves as the senior IT executive of the NGB and advises the CNGB and Vice Chief of the National Guard Bureau (VCNGB) in accomplishing statutory responsibilities required by the Clinger-Cohen Act of 1996, relevant DoD Directives, and Departments of the Army and Air Force regulations. These responsibilities include:

- Serving as the senior IT professional advising CNGB and VCNGB on all IT matters.
- The development of the NGB's IT policies, strategies, and architectures in accordance with CNGBI 6000.01B.
- Synchronizing and integrating significant IT portfolio investments, including those of Army and Air National Guard organizations and the NG JFHQs-State, as appropriate.
- Planning and implementing key IT NGB initiatives.
- Analyzing, evaluating, establishing, and maintaining systems that support information exchanges and collaboration for NG operations and activities in coordination with the Air National Guard, Army National Guard, and their respective services.

The responsibilities of the NGB-J6 influence organizational elements across all NG IT organizations, the DoD, and the NG JFHQs-State.
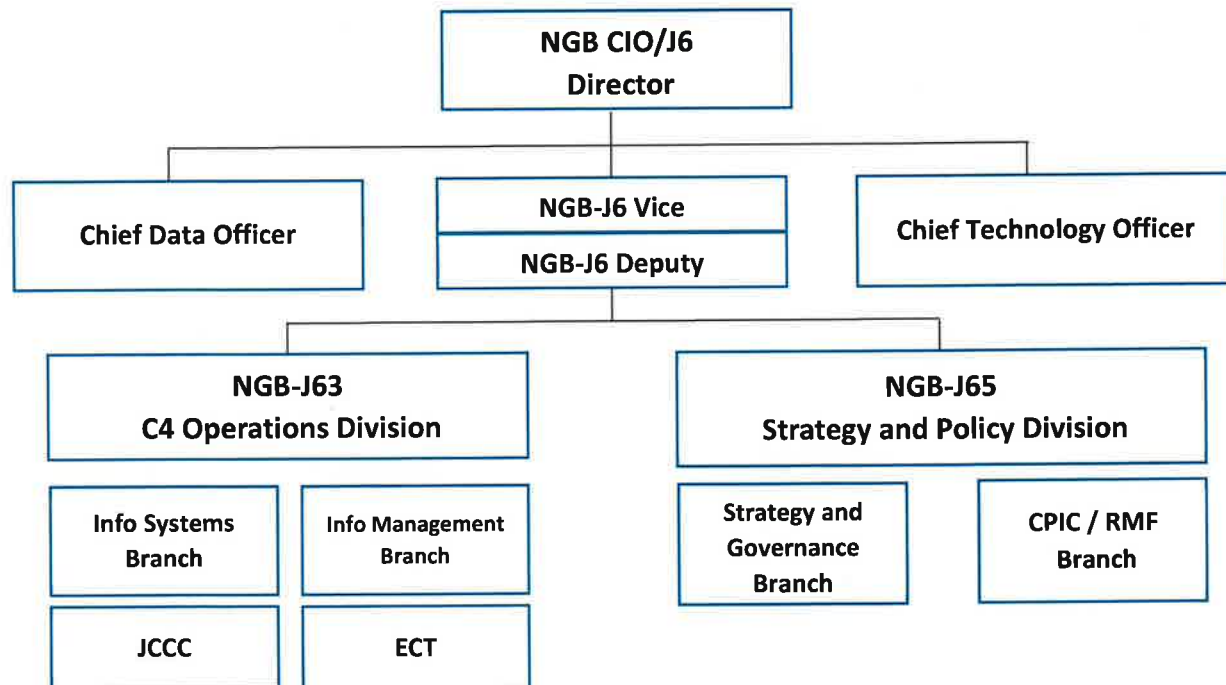

Figure 2. NGB CIO/J6 Organizational Chart

II. Current Strategic Framework

Strategic planning begins at the executive level and becomes more refined as it develops. The 2022 National Defense Strategy outlines that the Department will focus on safeguarding and advancing vital U.S. national interest. The NDS priorities include:

- Defending the homeland, paced to the growing and multi-domain threat posed by the PRC
- Deterring strategic attacks against the United States, Allies, and partners
- Deterring aggression, while being prepared to prevail in conflict when necessary - prioritizing the PRC challenge in the Indo-Pacific region, then the Russia challenge in Europe
- Building a resilient Joint Force and defense ecosystem

In addition, the National Defense Strategy informs the National Military Strategy, which is applicable to NG Soldiers and Airmen while working in their Title 10 role in support of Army and Air Force missions, while working in their Title 32 role preparing for Title 10 missions, and when engaging in Secretary of Defense-directed Title 32 operations. The NG is constitutionally unique and fulfills two key roles as the primary combat reserve of the Army and the Air Force, as well as a joint military force for all-hazard's first response and other assigned domestic missions. Furthermore, the NGB is the focal point at the strategic level for non-Federalized NG matters that are not the responsibility of the Secretary of the Army, the Secretary of the Air Force, or the Chairman of the Joint Chiefs of Staff, in law or DoD policy. The NGB strategic framework approach includes developing the NGB Strategic Plan to implement the NDS.

In support of the National Guard Bureau Strategic Planning System, the NGB CIO/J6 Five-year IT Strategic Plan ensures that all IT equities required to support the National Defense Strategy are accounted for and aligned to the DoD IT Strategy. This includes the DoD CIO's strategic documents centered on the DoD Digital Modernization Strategy.
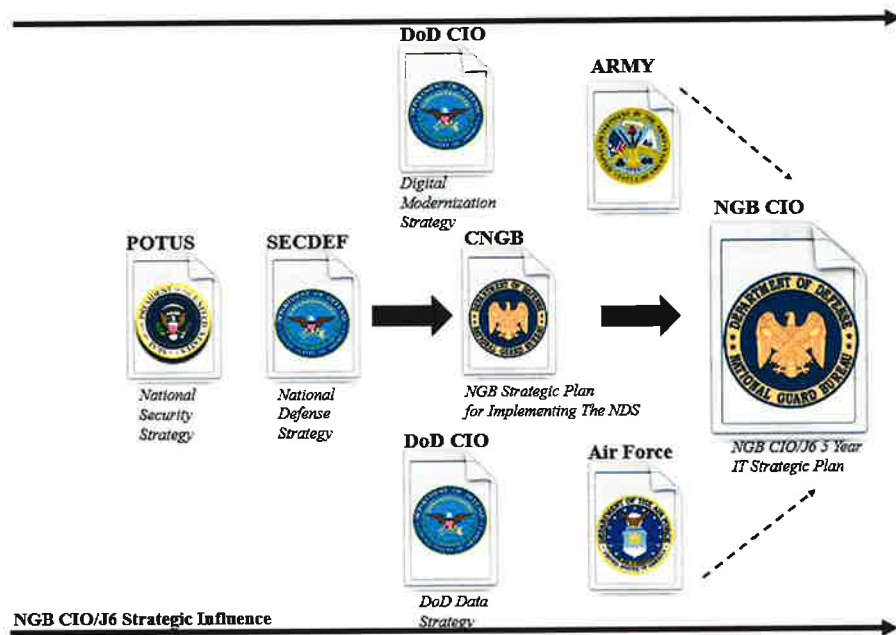
Figure 3. NGB CIO/J6 Five-Year IT Strategic Plan Document Framework

The NGB CIO/J6 Five-Year IT Strategic Plan is nested and aligned to the DoD CIO's priorities which are Cybersecurity, Artificial Intelligence, Cloud Computing Environment (Cloud) and Command, Control and Communications (C3), and the goals outlined in the DoD Digital Modernization Strategy.

In this document, the NGB Strategic LoEs take the previously mentioned documents and priorities into consideration while ensuring the goals and objectives are tailored specifically for the NG. It also aligns and maintains consistency with the CNGBI 6000.01B which establishes policy and assigns responsibilities for the NGB Joint IT Portfolio Management (PfM) Program. In addition to the established LoEs, the NGB CIO/J6 maintains a solid strategic pulse on the major NGB IT initiatives, as depicted in Figure 3. The key IT-related developmental areas are as follows: Governance, NGB Data Management (including AI/ML), Cloud Management utilization, Capability Development, Innovate and Reform, Operational Improvement, SSA, Mission Partner Environment, and Joint All Domain Command and Control (JADC2). These IT-related areas also support leveraging reform as a force multiplier going into the future.

Figure 4. Major NG IT Initiatives

These areas form the foundational focal point for continued strategic development and require iterative analysis. The NG's participation in established DoD processes is the key to achieving the desired outcomes to support the warfighting mission and domestic operational demands. Constant analysis is necessary to support the ever-changing IT environment. When coupled with constrained DoD resourcing, this effort is needed to stay ahead of near-peer competitors. For the NG, this requires keeping up with the pace of State and Local capabilities for Domestic Operational demands and ensuring the mission success of the NG through a strong IT strategic direction that complements the NG's Title 10, Title 32, and State active-duty responsibilities.

III. The Need for Advancement

The NDS calls for the Joint Forces to defend the homeland and deter aggression within the context of long-term strategic competition against rapidly modernizing adversaries. in the 2022 NG Posture Statement, the CNGB stated, "The warfight is a primary mission and at the heart of everything the NG does." As part of our Title 10 warfighting mission, the NG needs to prepare to face an increasingly dynamic and contested environment. Adversaries will project power and contest access to multiple domains using long-range, mobile power-projection forces that will be difficult to find and target. The NG must prepare to face modern adversaries on today's multi-regional, multi-functional, and multi-domain battlefield to support globally integrated operations. Current adversaries do not recognize national or combatant command regional boundaries and implement strategies based on access denial. While the Title 10 warfighting mission is the NG's priority, Title 32 missions conducted in the homeland, including all-hazards domestic operations (DOMOPS). Routine support of civil support authorities must also be considered.

Robust systems and communications depend on our IT capabilities. We must ensure that disruption of IT doesn't become mission failure in relation to domestic turmoil or disasters (natural and manufactured). In a highly dynamic domestic crisis or battlespace, actionable information must be rapidly gathered to drive the necessary effects despite the many possible existing threats (for example, adversarial, crippled infrastructure, civil unrest, or even a pandemic like Coronavirus-2019).

The current operational environment for NG responses includes many participants. Partnerships are key to excellent outcomes with our Federal, State, Local, and Tribal (FSLT) partners. Our State Partnership Program and other international partners provide an essential synchronized, integrated advantage. If we cannot effectively and reliably communicate with our partners, we are not providing the full potential that technology can bring to bear in terms of speed and accuracy. This shortfall can lead to an inability to provide the direct support needed at the right time and place.

One of the critical challenges at the joint level of the NG is the ability to see the entire NG force. The Army and Air National Guard both have effective processes to see themselves. Joint Force Headquarters-State elements must similarly use established self-assessment processes inherent in the Joint Training System. The Defense Readiness Reporting System also supports in joint exercises such as Ardent Sentry and others to self-evaluate success as joint organizations.

Data management and integration must allow for interoperable and seamless data exchanges that add speed to decision-making at all levels. Cloud computing will significantly impact warfighting, support of civil authorities, and business operations in the future. The Department of Defense is actively accelerating the delivery of artificial intelligence-enabled capabilities through the Chief Digital and Artificial Intelligence Office (CDAO). The CDAO is partnering with industry to securely deliver commercial cloud capabilities in alignment with mission requirements. The NG must maintain direct coordination with the CDAO and other DoD partners to preserve and expand our military IT advantage by synchronizing the development and delivery of innovative technology faster than our adversaries.

There is a critical need to strengthen human processes and procedures with improved technical interoperability to ensure that the NG can respond efficiently. In addition, the NG must tailor its capabilities to match the many challenges faced in its environment now and in the future.

IV. NGB CIO/J6 Future State

The Future State outlined in Figure 5 below represents a NG that leverages enterprise-level data management and IT capabilities to provide decisive, tailored, and effective responses to domestic crises, and to defend the homeland and support the warfighting mission when called upon. This means the NG must process data efficiently to operate effectively in a complex and ever-changing environment. To do this, the command, control, communications, and computer (C4) capability of the National Guard must have the suitable systems, methods, and policies required to process the raw data from developing operations into actionable decision points.

NGB CIO/J6 FUTURE STATE:
A RELIABLE, INTEROPERABLE, AND SECURE IT CAPABILITY TO THE NATIONAL GUARD BUREAU AND THE JFHQS-STATE, AND MISSION PARTNERS THAT ENABLES PREDICTIVE AND TAILORED RESPONSES FOR BOTH DOMESTIC AND WARFIGHTING MISSIONS BY LEVERAGING ENTERPRISE LEVEL DATA MANAGEMENT, ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING, SUPPORTED BY A MODERNIZED WORKFORCE.

Figure 5. NGB CIO/J6 Future State Statement

It will allow the NGB and NG JFHQs-States to achieve unparalleled National awareness, reach and effect. The NGB CIO/J6 Future State will guide and shape every LoE, goal, and objective within the plan. It will lead the NG into the next five years of capability development and modernization. The NGB CIO/J6 Future State depends on IT infrastructure, IT capabilities, data management, technical training, and policies that are established as foundational and complementary to the NG mission.

One of the key enablers to the NGB CIO/J6 Future State is maturing the Shared Situational Awareness (SSA) capability, where stakeholders are empowered with relevant, timely information to enhance decision making versus slowing mission accomplishment. The shared common operating picture of the future in support of the NG will be enriched with background information gathered from all connected systems and enhanced by real-time analytics that exposes relationships, patterns, and provides insight into their potential causes and predicted effects. The system will need to anticipate when decisions, re-planning, or re-tasking are required based on ongoing mission assessments of the situation.

We must leverage advances in machine learning to automate many of the standard functions that today require dedicated personnel, thus freeing up future staff to focus on those missions that can only be performed using human skill and intelligence. Solutions will need to be sized and tailored to the user environment and mission requirements. The challenge remains to deliver raw and analyzed data locally, regionally, and nationally to a diverse set of users. Providing timely and actionable information as early as possible to inform the actions of a decision-maker has always been, and will always be, the goal.

V. NGB CIO/J6 Strategic Lines of Effort

The NGB-J6 established four Strategic LoEs to organize and align the Directorate with DoD strategic direction over the next five years. Additionally, the goals and objectives set under each LoE will guide the NGB-J6 Future-State direction and will serve to measure success. Section II mentions that each LoE is linked to and compatible with the DoD CIO's priorities and the *DoD Digital Modernization Strategy's* goals. The diagram below depicts the NGB-J6 Strategic LoEs.
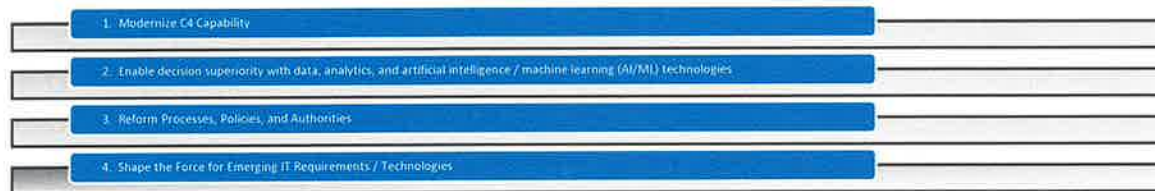
1. Modernize C4 Capability

2. Enable decision superiority with data, analytics, and artificial intelligence / machine-learning (AI/ML) technologies

3. Reform Processes, Policies, and Authorities

4. Shape the Force for Emerging IT Requirements / Technologies

Figure 6. NGB CIO/J6 Strategic LoEs

These LoEs assist in ensuring information/data is available to support all domains of warfighting and non-warfighting missions. Our strategic future-state can be achieved with agile, efficient, effective, and interoperable technologies, and practices combined with strengthening our alliances with industry. The goal is to dominate time, space, and complexity in future responses across all functional domains in support of the NG mission.

Line of Effort 1: Modernize C4 Capability

LoE 1: Modernize C4 Capability

- Increase Interoperability
- Modernize and Consolidate Commercial Satellite Communications Networks
- Streamline Executive Communications
- Modernize Tactical Communications
- Investigate Next Generation Wireless
- Utilize Virtual Mobile Infrastructure and Bring Your Own Approved Device

The NG needs to have mobile communications to support NG warfighting and non-warfighting missions. An expeditionary, portable, protected, simple, and intuitive communications network is required to enable operations in a congested and contested environment. These communications also must be resilient and optimized to increase speed while being scalable to facilitate mobility as part of a unified data network.

We must work to drive and influence more responsive, predictable, and agile acquisitions that better support capability areas and divest of legacy technologies. This partnership will help deliver mission assurance, improve mission effectiveness and realize IT efficiencies.

To provide the best communications for our leadership, we must create a seamless communication and IT environment. It will leverage robust capabilities to protect data (at rest, in transit, or in use) and integrate improved cyber and electronic warfare capabilities across a full spectrum to ensure continuous access to ongoing and emerging operations.

Partnerships are key to excellent outcomes, and our FSLT and international partners give us an essential synchronized, integrated advantage. Executing operational missions in collaboration with a dynamic set of mission partners will remain a significant challenge. As part of our modernization effort, we will seek opportunities to develop concepts and capabilities with those partners. If we cannot effectively and reliably communicate with our partners, we cannot coordinate with them to support where it is needed most. We must strive to bring partners together to advance best practices and collective defenses that promote security and resilience.

One of the significant joint initiatives, "Joint All Domain Command and Control" (JADC2), is the art and science of decision-making and the ability to translate those decisions into action, leveraging capabilities across all domains and with mission partners to achieve an operational advantage in both competition and conflict. The NG must influence direct areas in and around the JADC2 concept development for activities in the homeland or "civil support" tasks and missions. A successful JADC2 end state for the NG is a concept that includes all mission areas and robust training for NG Soldiers and Airmen. The NGB needs to advocate for a JADC2 platform to enable effective command and control for future cross-domain operations that achieves both warfighting mission training and readiness requirements during domestic operations.

The NGB and the NG JFHQs- State will modernize with commercial or DoD cloud technologies and methodologies to ensure our information security. The NGB and NG JFHQs-State will automate to the maximum extent possible and leverage cloud capabilities such as artificial intelligence to provide high reliability and assurance without excessive cost or administrative burdens. Cloud service providers and common services will enable increased support of rapid incident response and predictive mitigations.

Goal 1.1: Increase interoperability within the NGB and the NG JFHQs-State, State, Local, and Tribal mission partners

Interoperability is the ability to act together coherently, effectively, and efficiently to achieve tactical, operational, and strategic objectives. It can also be expressed as the condition achieved among C4 systems or items of C4 equipment when information or services can be exchanged directly and satisfactorily between them and their users. In the NG, we must utilize interoperability to include the requirements faced in response to domestic operations. The interoperability goal for the next generation includes the utilization and adoption of capabilities in a seamless IT environment that enables more secure and effective information sharing across warfighting domains and domestic operations. One of the major goals is leveraging interoperability in a way that enables the CNGB to see the entire NG force, both Army and Air through a JADC2 platform, increasing SSA. This level of interoperability will ensure precision information sharing, tailored responses, and data-supported decision-making.

The NGB will strengthen not only technical interoperability but also human and procedural interoperability. The NGB will use exercises, training opportunities, and leader exchanges to strengthen that interoperability and refine our approaches. This approach creates a more resilient mission-ready force.

Objectives

1.1.1	Increase Competency and Awareness
1.1.2	Enable a dynamic operating environment with an open architecture
1.1.3	Achieve Interoperability with Federal, State, Local and Tribal (FSLT) and international partners
1.1.4	Achieve Interoperability with DoD systems
1.1.5	Ensure robust cybersecurity measures are implemented

Goal 1.2: Modernize and Consolidate a Commercial Satellite Network supporting all NGB and State-owned DOMOPS platforms

Modernize and consolidate a Commercial Satellite Network in support of all NGB and State-owned DOMOPs platforms to facilitate a robust and redundant Satellite

capability that is easily accessible and streamlined for use across the States, Territories, and the District of Columbia and in any DOMOPS environment.

Objectives

1.2.1	Establish a reliable and Accessible Commercial Satellite Integrated Network
1.2.3	Ensure equipment meets both DOMOPS and Warfighter missions
1.2.3	Ensure future technology can utilize Low Earth Orbit/Medium Earth Orbit Constellations

Goal 1.3: Streamline Executive Communications

Employ a secure, effective, and interoperable communications capability (voice, video, and data) supporting the CNGB while traveling outside the National Capitol Region. Provide an expeditionary common operational picture capability with next-generation analytics dashboards for rapid response and decision-making.

Objectives

1.3.1	Modernize the systems platform to include next-generation wireless technology
1.3.2	Achieve and sustain interoperability with State and Federal systems
1.3.3	Ensure a dynamic, secure operating environment while modernizing the SATCOM transport architecture
1.3.4	Leverage Best Business Practices and Innovative Technology Trends

Goal 1.4: Modernize Tactical Communications in support of National Guard operations and activities

Work with the States, Territories, and the District of Columbia to modernize a light, scalable, fast, and reactive tactical communications element that can meet the ever-changing NG operations and activities. Emerging requirements are seeing a major shift in the way tactical communications systems are being used. States are actively not using large, cumbersome systems such as the Disaster Incident Response Emergency Communications Terminal. As outlined in CNGBI 3000.04, the NGB J6 is responsible for establishing and managing joint information technology mission area portfolios for operations and business systems.

Objectives

1.4.1	Conduct a risk analysis and capability gap assessment of the States, Territories, and the District of Columbia that outlines the need for tactical systems provided by NGB
1.4.2	Continue to modernize the Joint Incident Site Communications Capability system to meet the needs of the States
1.4.3	Migrate the Joint Incident Site Communications Capability to a true Joint program of record

Goal 1.5: Investigate Next-Generation Wireless

Fully incorporate and integrate 5th Generation (5G) wireless capabilities and leverage their use across the NG to seamlessly transfer data and data processing. Increase wireless capabilities in all platforms by leveraging next-generation wireless processing speeds using network slicing and Software Defined-Wide Area Network technologies to decrease response times and decision-making for real-time domestic crises.

Objectives

1.5.1	Identify and develop critical areas requiring large data transfer with low latency
1.5.2	Research and develop Concept of Operations CONOPS for utilization of 5G integration into key NG mission areas
1.5.3	Continue research into the next-generation wireless (post-5G)

Goal 1.6: Utilize Virtual Machine, Mobile Infrastructure, and Bring Your Own Device

A secure virtual machine and mobile infrastructure solution enables access to enterprise services from a non-government furnished device without storing data on user devices. Ensure an effective Multi-Factor Authentication solution in concert with Identity Credential, Access Management, and Zero Trust Architecture. Utilize applications to support remote workforce operations with personal devices. A personal device can be connected to virtualized cloud-based capabilities and/or host secure, containerized applications. This should result in a decrease of government-furnished equipment (GFE) reliance. This would decrease the cost and reduce the necessity of GFE.

Objectives

1.6.1	Work with industry for secure communications and secure applications
1.6.2	Research and develop acquisition of mobile applications for NG use
1.6.3	Decrease reliance on GFE
1.6.4	Research and develop acquisition plan for future desktop platform

Line of Effort 2: Enable decision superiority with data, analytics, and artificial intelligence / machine learning (AI/ML) technologies.

LoE 2: Enable decision superiority with data, analytics, and artificial intelligence / machine learning (AI/ML) technologies

- Institutionalize Enterprise Data and drive Data-Centricity Across the NG
- Adopt Cloud-based Data Management and Analytical Capabilities to Accelerate Information Superiority
- Leverage AI, ML, and Big Data Analytics to improve the availability and quality of Data and Decisions
- Ensure Data is Secure

The future digital environment will provide seamless, agile, resilient, transparent, and secure infrastructure and services that advance information superiority and information sharing with mission partners to achieve decision superiority at all levels. The NGB will advance data capabilities, improve data access, and streamline software development by leveraging open architectures.

The ability to transform data into decisive action is critical to success in an increasingly automated and information-saturated environment. The NG must take advantage of emerging machine learning and artificial intelligence technologies to observe, orient, decide and direct actions in a more informed and autonomous manner.

We must position data to fully leverage advances in machine learning and robotics to automate many of today's tedious manual processes

Goal 2.1: Institutionalize Enterprise Data and drive Data-Centricity across the NG

To maintain decision advantage and the free exchange of critical information in any operational environment, the NG will continue to position data as a strategic asset and a key component of organizational decision making. The NG will achieve Information Superiority by fielding and sustaining key strategic data initiatives. This will require institutionalizing a Data Management Framework which will help standardize data management and drive data-centricity across the NG. The essential capabilities are establishing a sound data architecture, implementing enterprise data standards, practicing sound data governance, and fielding an elite digital workforce.

Objectives

2.1.1	Publish a NG implementation plan of the DoD Data Strategy and supporting publications
2.1.2	Increase data interoperability for shared situational sharing in support of DOMOPS and Defense Support of Civil Authorities – Homeland Defense (DSCA-HD) awareness information
2.1.3	Position NG data to be visible, accessible, understandable, linked, trusted, interoperable, and secure (VAULTIS)
2.1.4	Establish data governance and stewardship
2.1.5	Increase organizational transparency and data and decision quality

Goal 2.2: Adopt cloud-based data management and analytical capabilities to accelerate information superiority

To gain and maintain information superiority, data should be timely, accurate, accessible, and relevant for shared understanding. The force will access data broadly, position it for multi-level decision-making, and make informed strategic and tactical decisions based on reliable data. To this end, NGB will adopt cloud-based data management and analytical capabilities, including a data catalog and repository in multiple classifications to integrate data across NGB and mission partners. NGB will leverage cloud capabilities to maximize collaboration between the 50 States, three Territories, and the District of Columbia, driving efficiencies, accelerating innovation, and optimizing mission-critical processes.

Objectives

2.2.1	Establish data catalog, library, and repository in multiple classifications
2.2.2	Integrate data assets across NG and mission partners
2.2.3	Accelerate data exchange at the tactical edge
2.2.4	Establish an NGB knowledge graph to enable advanced data capabilities

Goal 2.3: Leverage Artificial Intelligence, Machine Learning, and Big Data Analytics to improve availability and quality of data decisions

The NGB will leverage data analytics, artificial intelligence, and machine learning to support domestic and warfighting missions. The NGB will partner with key organizations to deliver advanced data capabilities in support of the Joint Mission, ready and able to out-think, out-maneuver, and out-fight any adversary under conditions of disruptive change.

Objectives

2.3.1	Align with industry and academia to best utilize cutting edge, automated analytics
2.3.2	Align technologies with DoD initiatives
2.3.3	Increase the use of advanced human interfaces to optimize human-machine teaming

Goal 2.4: Ensure Data are Secure

Implement security best practices to safeguard data. As a critical asset data must be secure and trustworthy. Its sources cannot be questionable. Access to data needs to be controlled so that personnel with the proper authorities and requirements have seamless access, while those that don't have a "need-to-know" are denied access.

Objectives

2.4.1	Ensure data security, policy, plans, and procedures are established and implemented
2.4.2	Ensure zero-trust best practices are implemented
2.4.3	Implement and Advance Identity Credential and Access Management utilization

Line of Effort 3: Reform Processes, Policies, and Authorities

LoE 3: Reform Processes, Policies, and Authorities

- **Ensure IT Investment Accountability**
- **Optimize IT Governance Processes, Structures, and Policies**

The NGB must continue to evaluate how we operate to ensure we remain compliant with relevant IT DoD Instructions and Directives such as DoDI 8440.01 and DoDD 5144.02. We must strive to increase unification to simplify our business processes and systems. We must also adopt the expressions of adaptation and innovation to optimize NG reform processes, policies, and authorities in an ever-changing environment. Budget risk increases if funding decisions are delayed, risking early industry commitment to identified programs and competition and requiring additional funding from the NG budget. Trade-offs exist between science and technology advancements and Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities and Policy activities. Delays in funding cause rapid advances to be slowed down, endangering fielding, and testing of new and updated solutions. This does not mean that we do not have to exercise budget discipline. Budgets will likely be uncertain. The

NG will have to make hard decisions over the next few years; prioritization will be for efforts within the DoD and NG-level enterprise capabilities. We must always ask tough questions before resources are committed. Budget discipline also implies assessing how well the funds spent on resources improved readiness.

Governance and policy updates should work together to prioritize IT investment and development without stifling science and technology investments. Transformational strategic opportunities apply across many functional areas, including enhanced situational and operational awareness, artificial intelligence, and other technology synchronization. With the help of an appointed Chief Technology Officer and Chief Data Officer, the CIO will centralize authorities, responsibilities, and the strategic decision-making processes aimed at efficiently and effectively using technology to enhance the future of the NG.

Goal 3.1: Ensure IT Investment Accountability

Embrace Enterprise-wide processes designed to enable Portfolio Management (PfM) best practices, especially through automation. Attain visibility and accountability of IT assets and their related spending to optimize the overall portfolio of IT Systems and investments.

Objectives

3.1.1 Increase PfM and app rationalization
3.1.2 Increase integration with Joint C4 PfM processes
3.1.3 Streamline IT investment review processes through business process reengineering and automation
3.1.4 Increase adherence with IT PfM requirements
3.1.5 Align Investments with mission areas

Goal 3.2: Optimize IT Governance Processes, Structures, and Policies

Develop a more unified NG to align enterprise-wide IT governance, processes, policies, and authorities and to enable data-informed and timely decisions. Tailor strategies to achieve effective domestic operations and warfighting responses, and governance objectives.

Objectives

3.2.1 Realign authorities to increase successful and effective governance and policy
3.2.2 Develop a strategic management process and governance structure that enables effective C4, information sharing, and technical collaboration
3.2.3 Develop a strategic management process and governance structure that enables effective business and resource management
3.2.4 Identify existing policies that present barriers to achieving desired capabilities and outcomes
3.2.5 Ensure that new policies support NGB strategic goals

Line of Effort 4: Shape the Force for Emerging IT Technologies and Requirements

LoE 4: Shape the Force for Emerging IT Requirements and Technologies

- Develop a Mission-Oriented Workforce
- Develop a Trained and Ready Workforce
- Recruit and Retain Human Capital

None of the capabilities we need are more important than our people. Therefore, these changes must inform adjustments to the IT workforce organization and structure as new capability solutions and operating concepts are deployed. Information Technology must consider modifications to the overall IT force structure.

Human capital requires implementing new hiring and training approaches that focus on developing diverse leaders with a broad scope of knowledge. Employees and employers must receive training and practical experience to learn, grow and meet the new challenges. One way is to adopt the "BEST" (Build, Empower, Sustain, and Train) concept to help maintain a highly skilled, diverse, and engaged workforce that becomes critical to accomplishing the mission.

Automation through technological advancement has become prevalent across the services and industry, but people achieve mission success. Because of this, it is essential to not lose sight of the human element as a

vital component of managing emerging technologies and having the training and ability to make the right decisions for the right reasons.

Goal 4.1: Develop a Mission-Oriented IT Workforce

Create a structured IT workforce to be agile and aligned to embrace new mission requirements and execute existing mission requirements at optimal capability. This includes activities to recruit, develop, design, care for and retain a workforce of this capacity.

Objectives

4.1.1 Change from Active Duty for Operational Support staffing management dependencies to a more functional based validated IT workforce authorization model
4.1.2 Improve IT workforce structure and alignment for improved mission performance
4.1.3 Leverage outside expertise (specialized subject matter expert-level integration) to provide additional insight into new information technologies and requirements

Goal 4.2: Develop a Trained and Ready IT Workforce

Create an IT workforce that is knowledgeable about future requirements and able to implement them. Through proper training through the utilization of modification table of organization and equipment, readiness will increase for all NG missions. The NG must advocate for a DOMOPS communications platform that can meet the needs of the States, Territories, and the District of Columbia. This will ensure Guardsmen are trained and ready for activation while maintaining multi-functional and multi-disciplined skills for increased preparedness. The NG will drive to modernize the workforce to accelerate the employment of innovative and emerging capabilities.

Objectives

4.2.1 Develop training programs that focus on a forward-thinking IT workforce
4.2.2 Increase access to virtual collaboration tools and training environments, systems, and infrastructures
4.2.3 Increase readiness for Federal activation
4.2.4 Use data collection and identification system to target critical civilian IT, cyber, and data analytics skill sets that can be utilized for essential NG missions and problem sets

Goal 4.3: Recruit and Retain Human Capital

Enable talent management strategies that optimize NG recruitment, development, and retention of high-quality and highly skilled Soldiers, Airmen, and civilians to support the entire echelon of operations. One of the CNGB's top four priorities in the "*2022 National Guard Bureau Posture Statement*" is People. The NG is devoted to its IT workforce and fostering a culture that contributes to optimizing human performance.

Objectives

4.3.1	Develop a talent management strategy plan to explore techniques to recruit and retain a high-quality IT workforce
4.3.2	Design and implement work culture and environment survey to gauge IT workforce culture
4.3.3	Invest in industry-standard IT team development and morale activities to cultivate optimal performance

VI. Closing

Since 1636, the NG has served America's needs in times of routine requirements, domestic crises, and war. The NG will continue to play a vital role in this endeavor. The IT capabilities, which are the backbone of NG operations, must be secure, reliable, and interoperable to do this effectively. Our mission success is dependent on effective communications at the tactical, operational, and strategic levels.

The focused strategic direction laid out in this document will be a stepping-stone for a NG that is better suited to engage the mission and be successful. It also aids in vertical and horizontal cohesion as it is aligned to the DoD, Army, and Air Force. This alignment will ensure a unity of effort and assist in accomplishing the DoD CIO's priorities laid out in the *DoD Digital Modernization Strategy* to modernize IT infrastructure at large.

Every Soldier and Airman will benefit from this plan. The objectives identified in this plan increase our effectiveness at all levels and produce a synergetic impact on the total force. As crises are a constant for the NG, strategically derived direction and planning are sometimes the only visible lighthouse in the storm. Along with the DoD, Army, and Air Force, the NG will be effectively steered to success to be Always Ready, Always There.

Appendix A: References

a. NGB Posture Statement 2022

b. DoD Policy 5105.77, 30 October 2015, "National Guard Bureau (NGB)" Incorporating Change 1, 10 October 2017

c. DoD Policy Clinger Cohen Act of 1996

d. CNGB Instruction 3000.04, 24 January 2018, "National Guard Bureau Domestic Operations"

e. CNGB Instruction 6000.01B, 24 May 2021, "National Guard Bureau (NGB) Joint Information Technology Portfolio Management"

f. DoD National Defense Strategy 2022

g. DoD Digital Modernization Strategy, 12 July 2019, "DoD Information Resource Management Strategic Plan" Fiscal Years 2019-2023

h. DoD Directive 8440.01, 24 December 2015, "DoD Information Technology (IT) Service Management (ITSM)"

i. DoD Directive 5144.02, 17 September 2017, "DoD Chief Information Officer"

Appendix B: Lines of Effort, Goals, and Objectives Outline

1. Line of Effort 1: Modernize C4 Capability
    1.1. Goal 1.1: Accelerate interoperability within the NGB, the States, Territories, and the District of Columbia as well as Federal, local, and tribal mission partners
        1.1.1. Increase Competency and Awareness
        1.1.2. Enable a dynamic operating environment with an open architecture
        1.1.3. Achieve Interoperability with Federal, State & Local systems
        1.1.4. Achieve Interoperability with DoD systems
        1.1.5. Ensure robust cybersecurity measures are implemented
    1.2. Goal 1.2: Modernize and consolidate a Commercial Satellite Network supporting all NGB and State-owned DOMOPS platforms
        1.2.1. Establish a reliable and Accessible Commercial Satellite Integrated Network
        1.2.2. Ensure equipment meets both DOMOPS and Warfighter missions
        1.2.3. Ensure future technology can utilize LEO/MEO Constellations
    1.3. Goal 1.3: Streamline Executive Communications
        1.3.1. Modernize the systems platform to include next-generation wireless technology
        1.3.2. Achieve and sustain interoperability with State and Federal systems
        1.3.3. Ensure a dynamic secure operating environment while modernizing the SATCOM transport architecture
        1.3.4. Leverage Best Business Practices and Technology Trends
    1.4. Modernize Tactical Communications in support of NG operations and activities
        1.4.1. Conduct a risk analysis of all 54 States and Territories that outlines the need for tactical systems provided by NGB
        1.4.2. Continue to modernize the Joint Incident Site Communications Capability system to meet the needs of the States
        1.4.3. Migrate the Joint Incident Site Communications Capability to a true Joint program of record
    1.5. Investigate Next Generation Wireless
        1.5.1. Identify and develop critical areas requiring large data transfer with low latency
        1.5.2. Research and develop Concept of Operations CONOPS for utilization of 5G integration into key NG mission areas
        1.5.3. Continue research into the next-generation wireless (post-5G)
    1.6. Utilize Virtual machine and mobile infrastructure and Bring Your Own Device
        1.6.1. Work with industry for secure communications and secure applications
        1.6.2. Research and develop Acquisition of mobile applications for NG use
        1.6.3. Decrease GFE inventory and reliance
        1.6.4. Research and develop Acquisition Plan for Future Desktop Platform
2. LoE 2: Enable decision superiority with data, analytics, and artificial Intelligence / machine learning (AI/ML) technologies
    2.1. : Institutionalize Enterprise Data and drive Data-Centricity across the NG
        2.1.1. Publish a NG Data Management Implementation Plan and complimentary policy
        2.1.2. Increase interoperability for SSA information sharing in support of DOMOPS and DSCA-HD
        2.1.3. Position NG data to be Visible, Accessible, Understandable, Linked, Trusted, Interoperable and Secure (VAULTIS)
        2.1.4. Establish Data Governance and Stewardship

2.1.5. Increase organizational transparency and data and decision quality
2.2. Adopt a Cloud-based management and analytical capabilities to accelerate information superiority
    2.2.1. Establish data catalog, library, and repository in multiple classifications
    2.2.2. Integrate data assets from across NGB and mission partners
    2.2.3. Accelerate the use of data at the tactical edge
    2.2.4. Establish an NGB knowledge graph to enable advanced data capabilities
2.3. Leverage Artificial Intelligence, Machine Learning, and Big Data analytics to improve availability and quality of data decisions
    2.3.1. Align with industry and academia to best utilize cutting edge, automated analytics
    2.3.2. Align technologies with DoD initiatives
    2.3.3. Increase the use of Advanced Human Interfaces to optimize human-machine teaming
    2.3.4. Establish NGB centric artificial intelligence capabilities
2.4. Ensure Data is Secure
    2.4.1 Ensure Data Security, Policy, Plans, and Procedures are established and implemented
    2.4.2 Ensure Zero Trust best practices are implemented
    2.4.3 Implement and Advance Identity credential and access management use

3. LoE 3: Reform Processes, Policies and Authorities
3.1. Ensure IT Investment Accountability
    3.1.1. Increase Portfolio Management (PfM) and Application Rationalization
    3.1.2. Increase integration with Joint C4 PfM processes
    3.1.3. Streamline IT investment review processes through Business Process Reengineering and automation
    3.1.4. Increase adherence with IT PfM requirements
    3.1.5. Align Investments with Mission Areas
3.2. Optimize Governance, Processes, Structures & Policies
    3.2.1. Realign and shape authorities to increase successful and effective governance and policy
    3.2.2. Develop a strategic management process and governance structure that enables effective C4, information sharing, and technical collaboration
    3.2.3. Develop a strategic management process and governance structure that enables effective business and resource management
    3.2.4. Identify existing policies that present barriers to achieving desired capabilities and outcomes
    3.2.5. Ensure that new policies support NGB strategic goals

4. LoE 4: Shape the Force for Emerging Requirements and Technologies
4.1. Develop a Mission-oriented Workforce
    4.1.1. Change from Active Duty for Operational Support staffing management dependencies to a more functional based validated workforce authorization model
    4.1.2. Improve workforce structure and alignment for improved mission performance
    4.1.3. Leverage outside expertise (specialized subject matter expert-level integration) to provide additional insight into new technologies and requirements
4.2. Develop a Trained and Ready Workforce
    4.2.1. Develop training programs that focus on a forward-thinking workforce

        4.2.2.   Increase access to virtual training environments, systems, and infrastructure

        4.2.3.   Increase readiness for Federal activation

        4.2.4.   Use data collection and identification system to target critical civilian IT, cyber, data analytics skill sets that can be used for essential NG missions and problem sets

4.3. Recruit and Retain Human Capital

        4.3.1.   Develop a talent management strategy plan to explore techniques to retain a high-quality workforce

        4.3.2.   Design and implement work culture and environment survey to gauge workforce culture

        4.3.3.   Invest in industry-standard team development and morale activities to cultivate optimal performance