Booz
Allen®

TRANSFORM COMMAND AND CONTROL FOR MULTIDOMAIN OPERATIONS

CONTENTS

INTRODUCTION

Our adversaries are waging a new kind of war with sophisticated capabilities that threaten our freedom of action and erode our historical overmatch in every operating domain. To counter this threat, the U.S. Department of Defense (DOD) is transforming how it protects vital national interests with its Joint All-Domain Command and Control (JADC2) concept.

JADC2 aims to connect and network sensors, weapons, command and control (C2) systems, and intelligence data from all military services to enable faster, better decisions and more effective engagement against adversary threats. It will enable the joint force to converge effects from all five domains—land, sea, air, space, and cyber—and even operate in concert with partners and allies.

But legacy sensors and systems, developed separately by each of the military services, aren't compatible with those of the other services and sometimes not even within a single service. In future conflicts, when decisions need to be made and targets need to be engaged within minutes or seconds, this incompatibility hinders decision making and lethality.

MODERNIZING C2 SYSTEMS FOR A NEW ERA

To overcome these barriers and deliver on the promise of JADC2, DOD needs to transform its C2 systems. They need to be able to collect and merge multidomain data, quickly process the data using artificial intelligence (AI) and machine learning (ML), and provide information to understand the battlespace and deliver coordinated combat effects—all faster than the enemy.

In this eBook, we explore key aspects of modernizing C2 systems for the Army, Air Force, and Joint Forces. You'll learn how transformed C2 systems can:

- Connect any sensor to any C2 node to any shooter to defend against threats and execute fires in a strategically relevant timeframe

- Deliver relevant information and capabilities to warfighters and operators at all echelons

- Fuse and share data and intelligence in real and near-real time from enterprise to edge, across domains and countries

You'll also learn about the technological advancements needed to realize these next-generation C2 capabilities and how they are being implemented today. These technologies include data centricity and fusion, cloud infrastructure, edge connectivity and convergence, battle management capabilities, and AI and ML.

As DOD works to realize its JADC2 vision, automating and advancing C2 systems as described in this eBook is an essential step toward that future.

C2-ENABLED LONG-RANGE PRECISION FIRES FOR THE ARMY

IMAGINE
THIS SCENARIO:

An ally in the Indo-Pacific region has information about a threat escalation in its area of responsibility. The ally shares the intelligence with the U.S. military, which tasks an asset to assist. It detects a long-range missile launched by a foreign national group toward an allied target. The ally tracks the missile and maps its trajectory, sharing the information nearly instantaneously with the U.S. Indo-Pacific Command (INDOPACOM). The U.S. Air Force reacts by tasking patrolling F-35s to further assess the threat, transmitting the target track to a modernized U.S. Army C2 system for a coordinated U.S. and ally counterfire mission.

This leading-edge C2 system ingests data from the F-35s and mission partners, in addition to a variety of other sources including satellites, unmanned aerial vehicles, and land- and sea-based sensors. The system fuses and analyzes the data, with help from AI, and presents commanders with a three-dimensional picture of all relevant information in real time. They create a fires plan that matches the best shooter to the mission, and the Army launches a long-range missile that successfully eliminates the enemy shooter. All of this happened in minutes.

LEGACY C2 SYSTEMS HAVE SEVERAL CONSTRAINTS

For the U.S. Army, JADC2 means developing new ways to increase situational awareness, interoperability, and integration with Joint Forces to connect any sensor to any C2 node to any shooter—to defend against threats and execute fires in a strategically relevant timeframe.

For example, the Army's long-range precision fires (LRPF) weapons systems provide essential options in deterrence and conflict. But for even cutting-edge LRPF weapons systems to be a superior capability in tomorrow's complex, joint warfighting environment, they must have robust "kill chains"—the military concept of the structure of an attack—to neutralize their targets. That's why all-domain integration of intelligence, sensors, C2 systems, and weapons is needed.

But realizing this level of connection and coordination is complex and requires boosting the capabilities of current tactical Army C2 systems, such as the Advanced Field Artillery Tactical Data System (AFATDS). These systems are bogged down by several interrelated challenges, including:

- **COMPLEXITY:** Current systems are incredibly complicated. Each system has its own data store, servers, visualization, and more—making them incompatible with one another and hindering information exchange not only among Army systems but also with other branches, allies, and partners. For example, even if information can be moved from one system to another, the receiving system may not have the right geospatial product to display the information on a map. This complexity—along with system architectures that tend to be standalone, closed, and proprietary—hamper both integration and the introduction of upgrades and new technologies.

- **DUPLICATION:** Individual systems have traditionally been developed in relative isolation to meet too many require-ments. Then when the systems are fielded, it's discovered that many capabilities are irrelevant because they duplicate capabilities that are native to other systems.
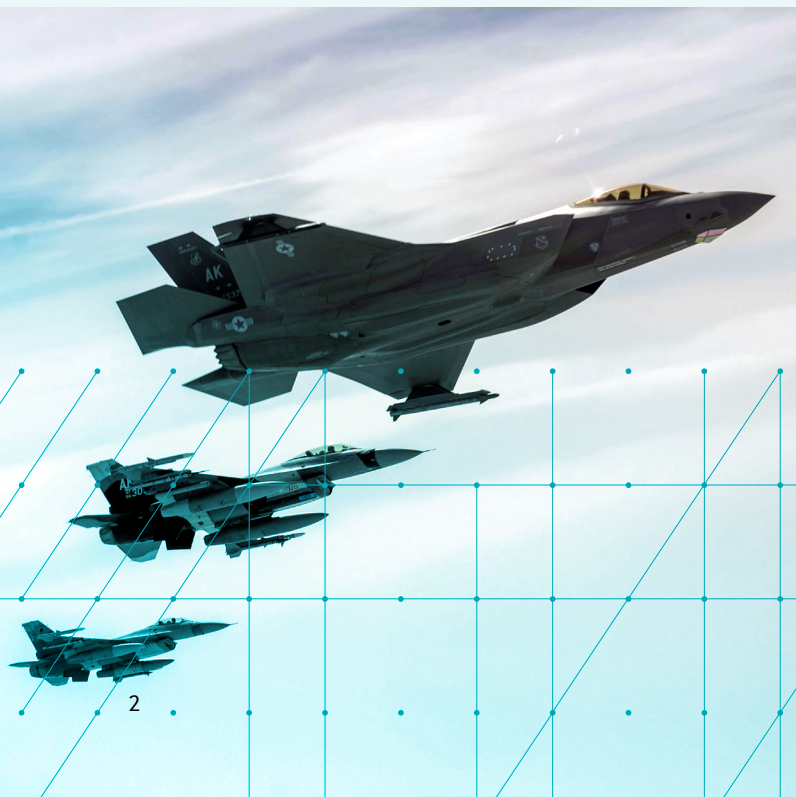
- **PEOPLE:** System complexity also affects human resources. Because systems are overly complicated, people have a hard time using them, and training people to use new and upgraded systems takes too long.

- **INSUFFICIENT ANALYTIC CAPABILITIES:** The availability of so much data has made timely, relevant data integration and analysis a significant challenge. One problem is the vital step of ensuring data is clean and accurate. In addition, current analytic capabilities are challenged to understand what data is important and what is not, and to prioritize the important data.

- **INADEQUATE DATA VISUALIZATION:** Current systems lack clear data visualization capabilities, so those who need to act on data have a hard time accessing and understanding it. Visualization capabilities must also work with new data types that may show up on the battlefield in the future.

The threats of today and tomorrow can only be countered if the entirety of U.S., allied, and partner systems work as a unified capability. For LRPF, this means moving from myriad complicated, decentralized systems to a place where the Army has a cloud of data from every fielded system that can also be combined with non-Army data. And the command post computing environment that depends on that data needs to be scalable and expandable via software—not built on unique baked-in communications requirements and architectures.

In other words, what matters most is data access and the ability to move data to where it's needed, when it's needed. Realizing this vision begins with modernizing three components of Army C2 systems: connectivity, edge systems, and battle management.

ALL-DATA CONNECTIVITY

A central component of transformed Army C2 systems is data connectivity—meaning that if a communications link exists, data can be transferred back and forth between those assets and converged into a central node even if different data standards are being used. This requires a technology layer that "translates" or processes the different data standards into a common language or message format for C2 fusion.

With secure and open data platforms, sensors and weapons systems can communicate and share data within a unified C2 system. Providing the integration of legacy systems needed to enable multidomain operations like distributed long-range fires requires moving from closed, isolated systems to open, government-owned platforms and other architectures and standardized interfaces. This approach not only frees data—it allows the latest technologies and innovations to be incorporated in the future.

Modern C2 systems are also built with a data-centric approach, as opposed to a traditional network-centric one. A data-centric approach means that technology within the communications network makes use of all the data, rather than requiring the data to be in specific standards and formats. This enables the C2 system to ingest, process, and integrate all data, regardless of origin, type, or classification, for tactical use.

EDGE SYSTEM CONVERGENCE

Modernized Army C2 systems must be able to connect edge systems from across domains, including sensors, forward weapons systems, intelligence sources, forward decision makers, and more. Enabling edge systems to seamlessly and dynamically interface unlocks information that was previously inaccessible.

Converging edge systems in this way helps accelerate the sensor-to-shooter timeline to optimize employment of LRPF weapons systems. Operational capabilities and benefits include:

- A new level of interoperable connectivity and data fusion achieved through an open framework and a common reference architecture

- Combat networks that can integrate data sources rapidly thanks to government-owned application programming interfaces (APIs), making information immediately accessible

- Data combined from a broader set of sensors that brings more fidelity, accuracy, and reliability to data than any one source by itself could achieve

- An always-on data architecture that can deliver data discovery, security, and synchronization across multiple endpoints

- A software-defined infrastructure that can enable rapid connection to any compute environment, from enterprise to edge

- An ability to adapt to evolving and emerging requirements, technologies, threats, and missions

BATTLE MANAGEMENT TO ACCELERATE EFFECTS

The battle management capability of modernized Army C2 systems paints a common operating picture for joint and coalition forces, predicated on data connectivity and edge system convergence. It provides commanders with contextual visualization and understanding of available data to establish a shared, clear understanding of the battlespace, available resources, and force and asset employment options. Together, this common operating picture improves the speed, scale, and effectiveness of decision making.
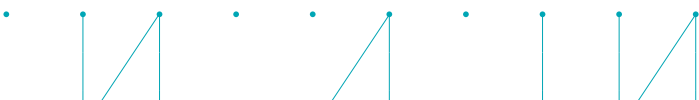
This capability is essential for LRPF at the edge—a dynamic, quickly changing environment where decisions must be made on a relevant time scale. The system enables more capable, faster targeting and increases the ability to coordinate fire support requests and provide target-quality information to the right shooter in near-real time. It also supports complex multipath, multidirectional, and resilient attacks in addition to more traditional attacks.

Realizing such C2 battle management capabilities depends heavily on AI and ML, which also reduce the risk of human error. Advanced AI and ML algorithms synthesize and analyze the huge volumes of data gathered from multiple sources to build a cohesive picture of the operating environment and present a course of action—such as when to use what weapon—to accelerate sensor-to-shooter effects.

BOOZ ALLEN IS THE ARMY'S C2 SYSTEMS PARTNER

The U.S. Army is continuously improving how it operates as part of the Joint Force and ensuring its ability to dominate against current, emerging, and future threats. Yet developing the modern C2 systems needed to support new LRPF weapons will not be an easy undertaking.

Booz Allen is working to revolutionize targeting to achieve faster, more agile response. For a high-value target list, this includes shifting the paradigm from a slow and cumbersome planned targeting decision cycle to significantly shortening the kill chain from days to minutes. AI provides the fidelity needed to inform fire and counterfire decisions in the moment.

Booz Allen is uniquely positioned to make this C2 vision a reality by building prototypes and delivering mission-ready capabilities. We have decades of experience building the Army's reference architectures, providing us with deep insight to modernize them for the future. In addition, we have the expertise to address technical challenges, including:

- **Modernizing cross-domain frameworks** to enable the mission

- **Implementing secure cloud solutions** to bring together existing networks

- **Establishing zero-trust architectures** to improve access and meet security requirements

- **Using a data-centric network approach** to support sharing of all data

- **Converging edge systems** to accelerate operations
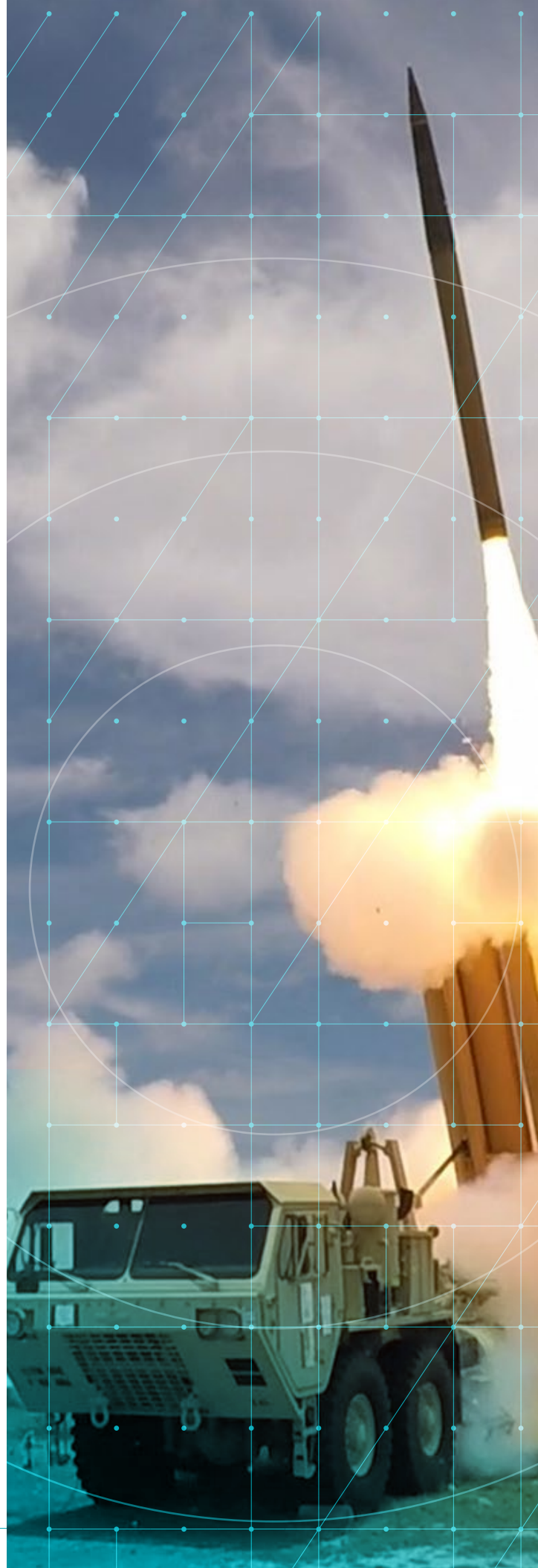
STREAMLINING C2 OPERATIONS FOR THE U.S. AIR FORCE

IMAGINE THIS SCENARIO:

You're piloting an F-35 and zeroing in on a critical target. The airspace is congested and chaotic, with manned and unmanned aircraft flying at all levels. You're also operating above Army maneuver forces, so you need to be positive that the target is confirmed and not one of your own. Compounding the challenge is the potential of adversaries to conduct electromagnetic warfare and cyberattacks to disrupt your own and others' sensors, communication links, and systems.

Yet despite the potentially overwhelming complexity, you're confident you'll succeed in this high-pressure mission. That's because it's being orchestrated by the power of a modern, integrated C2 system. It securely connects sensors, decision makers, and shooters across the battlespace—regardless of the data's characteristics or origin. It builds a common operating picture of the airspace and distributes it to those who need it. It employs AI and ML to integrate fires, deconflict the airspace, and improve and accelerate decision making. In addition, it communicates through multiple independent paths and cloud-native networks to evade electromagnetic attacks.

CURRENT C2 SYSTEMS AREN'T UP TO THE TASK

For the U.S. Air Force, JADC2 means creating information dominance by delivering relevant information and capabilities to warfighters and operators at all echelons. This goes beyond providing a clear picture of the joint all-domain environment to include reducing decision cycle times and accelerating response.

But legacy Air Force C2 systems need modernized capabilities to present a common multidomain operating picture and support participation in integrated fire control networks. These systems have three challenges:

- **LACK OF RESILIENCY:** The Air Force relies on monolithic legacy C2 systems that are too large and centralized, and too dependent on big servers in operational locations. This makes them vulnerable because a single attack anywhere in the system can be crippling.

- **LIMITED DATA EXPLOITATION AND INTEGRATION CAPABILITIES:** Like all of DOD, the Air Force is contending with closed, proprietary digital environments that hamper interoperability and integration. Such segregated, vendor-locked systems are a barrier to connecting data networks and tactical platforms across domains to accelerate operational effectiveness.

- **LONG TIME TO DECISION:** Historically, C2 systems have been designed for a specific set of answers, and disparate systems cannot share data across Air Force platforms or domains. This makes decision making slow and cumbersome, even involving operators making phone calls and using chat windows to coordinate action.

To be sure, the Air Force is making strides in modernizing its C2 systems with its Advanced Battle Management System (ABMS) program. The path forward needs to focus on developing and fielding new innovations and capabilities in the areas of cloud, edge connect, and battle management.

ENABLING ACCESS TO DATA VIA CLOUD INFRASTRUCTURE

Transforming Air Force C2 systems requires a suite of cloud environments, networks, and applications to truly fight real-time threats with operational impact at a pace faster than our adversaries. The same capabilities that have been locked in servers at central operational locations need to be moved to cloud-network environments and then made available in distributed edge environments and across domains.

Such a cloud infrastructure needs to be built with modern solutions that accommodate data-centric requirements. Getting the right data to where it is needed is crucial. Open architectures, common standards, and government-owned application programming interfaces take data out of closed, proprietary legacy systems to maximize discovery and interoperability.

Enhanced resiliency is another benefit of moving to many distributed cloud networks and node capabilities at the edge to support real-time battles. Potential adversaries have developed electromagnetic technologies that can deny or degrade access to data or make access intermittent. In that environment, monolithic systems present a single point of failure if successfully attacked. By contrast, C2 capabilities made of systems-of-systems provide for more resilient operations, thanks to redundancies and technologies such as mesh networks that operate without traditional cloud infrastructure.

EDGE CONNECT TO MOVE INFORMATION WHERE IT'S NEEDED

Connectivity at the edge is another key focus in developing new Air Force C2 systems. Forward airborne forces need relevant data and information in a tactically significant timeline to achieve their missions. To realize this, hardware and software across the engagement chain must be integrated. Machine-to-machine data transmission needs to happen in seconds or sub-seconds.

Consider a cutting-edge target identification capability. A warfighter going into a target needs data transparency and digital connectivity across pertinent domains to ensure the target is correct—and not a friendly force vehicle, for instance. Fusing real-time sensor target data from multiple platforms with intelligence, cyber, and network data from across domains delivers higher quality target identification than relying on a single sensor.

But in the digital battlespace, traditional communications channels and networks may be disrupted or denied. Edge connect capabilities employ mesh networks to provide resiliency, redundancy, and scale—essentially creating innumerable data pathways to support tactical communications and C2. These form the foundation on which data access is sustained and edge computing capabilities can be launched. Modern tactical C2 systems can connect and integrate with legacy and future tactical communications systems.

EXPLOITING DATA WITH BATTLE MANAGEMENT CAPABILITIES

An integrated Air Force battle management C2 system is the interface that brings together data from cloud networks with edge-connected effectors to maximize effects in concert with the commander's priorities and directives. A modern tactical C2 system securely connects sensors, decision makers, and shooters across the battlespace. It builds, fuses, and distributes a common operating picture across the Joint and combined forces, and establishes remote voice and data communications for operational control from any location worldwide.

Battle management decisions are aided by AI, which fuses, correlates, and analyzes the vast amounts of data being ingested. ML can also be employed to train AI to provide options to commanders on whether to strike a target or take another action. Such data-driven fires and airspace integration accelerate responsiveness of the right asset to the right place without significant manual intervention, which is slow and risks introducing errors.

Ultimately, the ability to connect, ingest, fuse, correlate, and analyze data from across the multidomain spectrum can enhance effects integration on a global scale. With a variety of weapons systems available from across domains, the Air Force can present adversaries with a broad array of kinetic and non-kinetic effects in conjunction with its own domain weapons, increasing battlespace complexity to overwhelm and defeat the enemy.

BOOZ ALLEN IS THE AIR FORCE'S C2 SYSTEMS PARTNER

Booz Allen is helping the Air Force develop and deploy a wide range of joint all-domain solutions in support of its revolutionary ABMS initiative. We support modernization across all aspects of the Air Force's strategic and tactical C2 enterprise.

Employing open systems design, modern software, and AI and ML applications, we develop a connected ecosystem of digital capabilities and technologies across multiple platforms, including legacy systems and domains. This interoperable framework supports rapid data collection and analysis, uninterrupted communication, faster decisions, and enhanced performance—from enterprise to the tactical edge.

JOINT FORCE COORDINATION FOR FULL-SCALE OPERATIONS

IMAGINE THIS SCENARIO:

A military base in Europe is under attack. In the first hour, a drone swarm invades the airspace, but due to commercial clutter, it's not immediately clear if the drones are gathering intelligence or if they pose a kinetic threat. Then the swarm takes an aggressive formation against critical infrastructure, and the base detects increased coordinated communications around them. Based on these cues, the base increases its alert level and defense posture. Thanks to the forewarning, the base is better prepared for the second hour, when several cruise missiles join the assault. It's now clear that the threat needs to be countered quickly.

As the attack is unfolding, a C2 capability is combining data from a range of sensors to defend the base. To accurately counter the drone swarm, a specific set of sensors needs to be used based on the terrain, the style of the threat actor, and what the drones are doing. In addition, a separate set of sensors needs to be used for the cruise missile attack, which can detect objects coming from beyond the horizon to identify trajectories and timing.

The modern C2 system is able to fuse this data together, even though it is coming from different sensors in different formats and standards. Its modern analytic tools make sense of the collated data to deliver commanders a common operating picture and advice on the best effectors to engage the threat—all in a matter of seconds.

REINVENTING C2 SYSTEMS TO SUPPORT JADC2

As DOD moves to synchronize the Joint Force across domains to dominate the digital battlespace, it is crucial that it reinvents C2 systems. Today's C2 systems were built by each branch separately, with unique and often proprietary data architectures and application programming interfaces. With data locked in silos, warfighters cannot quickly access information across classification levels and service platforms to create a common operating picture or link sensors and effectors for rapid action. This, in turn, prevents joint forces from powerfully executing multidomain engagements at scale in a coordinated, integrated way.

As the services build new C2 systems and networks and modernize existing ones to connect with JADC2, it is crucial that new capabilities be developed and fielded—but not the way they've been built in the past. A new approach is needed. True joint operations at the scale and resiliency needed to combat peer adversaries require C2 capabilities built with a data-centric approach to connect systems across domains and enable coordinated theater-wide battles.

REALIZING NEXT-GENERATION DATA FUSION

Modern C2 capabilities begin with the data itself. Today, vital data and information are locked in disconnected systems, sensors, and weapons platforms, depriving Joint Force commanders of critical intelligence. Compounding the problem, U.S. partners and allies also have their own incompatible systems and networks.

To share data across these legacy systems, network infrastructures must be specially bridged and configured, and the data must be in specific standards or formats. Data-sharing permissions must be incorporated for new participants. Achieving all of this takes more time than today's fast-moving threat environment affords.

The connected operating environment of the future depends on C2 systems that can fuse and share data and intelligence in real and near-real time from enterprise to edge, across domains and countries. Networks must be flexible enough to discover and utilize data on their own, so that all data is usable—regardless of its source, format, or original intended use. The path forward

requires DOD to move from a network-centric to a data-centric approach, and it requires next-generation fusion technologies to realize interoperability and interconnectedness.

Consider this comparison of conventional and next-generation data fusion involving tracking aircraft in theater. With conventional fusion capabilities, relatively simplistic data from multiple radar systems on the same network can be correlated to show where high-altitude aircraft are flying. But introduce small low-altitude drones and commercial traffic to the battlespace, and data fusion needs change. If tactics involve reconnaissance or weaponized drones flying just above ground level, through the forest, or right behind moving vehicles—they might evade high-resolution, low-altitude radar, electro-optical infrared, or radio-frequency signature detection. To identify, track, and target these unique adversarial objects in motion, additional sensors are needed. Because their data output will be different from one another, next-generation data fusion techniques need to integrate all the different pieces of the spectrum, including data from nontraditional sources, and provide consensus and correlation.

Modern C2 systems provide the connective tissue to achieve this for joint operations. They ingest and fuse data from traditional and nontraditional sources—regardless of data type or classification. But bringing together dispersed data isn't enough. Data analysis is just as essential. In other words, data is only useful if it can be acted upon.

AI- and ML-powered advanced analysis enable complex engagement decisions at scale and speed in support of multidomain engagements. At the edge, AI and ML catalyze computing embedded in sensors for improved object detection, identification, and tracking. At the server level, these technologies provide greatly improved data fusion for automated operations, including data correlation, consensus, and multiple-intelligence capabilities.

AI and ML can also be employed to increase scale and resilience. As systems become compromised in battle, these technologies enable data to use the optimal path available at the moment—faster than a human can comprehend. They deliver the richest data possible given the network conditions and capabilities and move data around the tactical network dynamically and intelligently. This distributed capability provides the scale and resilience needed to contend with peer adversaries pursuing multiple attack vectors simultaneously.

ENABLING COORDINATED ASYMMETRIC WARFARE

New C2 capabilities are critical to empower the Joint Force to meet the asymmetric threat of modern conflict with an asymmetric response of its own. The United States and its partners and allies need to be able to fight as a network to create a web of effects to deter and defeat adversaries in both the conventional and gray zone battlespace. Modern C2 systems fuse data and intelligence from legacy systems in novel ways to support military decision making and enable interoperability and integration.

For example, in a conventional force-on-force battle, the engagement response is joint—requiring the on-demand orchestration of myriad sensors, platforms, and systems. Air Force sensors identify and confirm a target for an Army long-range precision fires weapon. But the airspace in between is congested with aircraft, unmanned aerial systems, and munitions from multiple service branches, each with sensors of their own.

C2 systems with next-generation data fusion capabilities provide commanders with a continuously updated, real-time view of the battlespace, including friendly force and adversary locations and activities. They also provide access to effects producers from other domains, such as the ability to use non-kinetic effects in conjunction with the Joint and combined kinetic options. This orchestrated response increases the complexity of what the adversary must deal with, achieving Joint Force overmatch.

To further increase the challenge for adversaries, tactical C2 capabilities are dispersed across the battlespace yet connected through redundant independent communications paths, which enhances resilience. A cloud-native common data fabric provides the backbone for connecting disparate C2 systems, data platforms, and tactical networks. Open architectures and secure connections ensure that data from diverse sources is shared, protected, and secured. AI and ML techniques inform decisive action faster than possible with human analysis.

BOOZ ALLEN IS THE DOD'S JOINT FORCES C2 SYSTEMS PARTNER

"Joint" is the operative concept in the digital battlespace of the future. Booz Allen brings deep mission understanding across all military domains and branches, making us uniquely positioned to deliver on JADC2 goals in support of Joint Force objectives. We understand DOD's emerging missions and challenges, and we bring to that understanding our expertise in advanced technologies and ability to deliver and field engineering solutions.

DOD is rapidly making progress across critical JADC2 priorities. With transformative advances such as next-generation data fusion, data-centric approaches, and powerful AI and ML technologies, DOD can accelerate that progress to stay ahead of potential adversaries now and in the future.

MODULAR DETACHMENT KIT

Booz Allen's Modular Detachment Kit (MDK) is an integrated software/hardware system-of-systems that accelerates sensor-to-shooter effects by enhancing battlespace awareness, sensing, connectivity, and data fusion across multiple warfighting domains, networks, sensors, and weapon systems. The overarching goal of MDK is to integrate remote and local sensors, datalinks, and radio assets into a tactical battle management C2 environment to provide near real-time C2 of geographically dispersed assets.

MDK uniquely addresses today's in-theater C2 needs unlike any other solution, making it easier for commanders and warfighters to get their job done today while providing a robust platform to build out future capabilities. Leveraging modular, tailorable, scalable, decentralized C2 and sensor nodes—MDK builds, fuses, and distributes a common operating picture across the joint all-domain spectrum. It also establishes remote voice and data communications to positively control any military operation from any location.

At Project Convergence 2022, the capabilities and practical application of MDK were demonstrated in both the maritime- and land-centric scenarios. Highlights included:

- Integrating data from multiple sensors, including remotely piloted vehicles, and injecting tracks and targets into the common operational picture

- Sending specific targets digitally to U.S. Army Pacific AFATDS on classified networks for forwarding through to the mission partner network for fire mission processing at both the Army's multidomain task force and fires cells

- Facilitating network and cursor-on-target links to the Defense Advanced Research Project Agency's (DARPA's) system-of-systems enhanced small unit (SESU) team—the first time it's been able to connect outside its system

- Providing interface/message format diagnostics for DARPA SESU to ensure proper automated data exchange

- Extending classified and unclassified networks for airfield connectivity

CONCLUSION

A revolution in U.S. military capabilities is under way—one in which harnessing all-source multidomain data will enable decision advantage and overmatch in the digital battlespace.

Booz Allen is the digital integrator that advances technology transformation to develop modern C2 systems that accelerate JADC2. We blend mission understanding with cutting-edge technology to deliver operational capabilities that solve hardware and software integration challenges.

We excel in the technical areas needed to overcome the obstacles to modernizing C2 systems. Some of the key elements of our approach include:

- **Modular open architectures** owned by the government to enable flexible development and continuous innovation while avoiding vendor lock in

- **Cloud-native network environment and common data fabric** to integrate and fuse data across domains and forces

- **Modern software development approaches,** including secure DevOps and MLOps (DevOps for ML), to quickly and continuously update and improve application code, and to standardize and scale AI models and adapt them to the form factor

- **Next-generation AI and ML algorithms** to accelerate decision making and rapidly identify threats and optimize response at the point of need

- **Zero-trust security** to protect critical networks while securely sharing information both across the Joint Force and with mission partners

- **Edge technologies**, such as data processing and network slicing, to overcome bandwidth and latency challenges and maintain connectivity in the absence of the cloud network

We're committed to working side by side with DOD to empower a truly Joint Force. To learn more about how Booz Allen can help your organization realize the potential of modernized C2 systems to excel in the digital battlespace, please visit BoozAllen.com/DigitalBattlespace.

Booz Allen.

About Booz Allen

Booz Allen is the premier digital integrator for the Department of Defense, blending decades of mission experience with state-of-the-art AI/ML, next-generation data solutions, networking, cyber, and advanced software development to help the department achieve decision advantage. We bring our defense clients the best emerging technology to help them quickly and easily modernize, achieve interoperability, and win. We design open architectures to avoid vendor lock, lower lifecycle cost, and maintain a technological edge. Our technologists work hand-in-hand with our domain experts to build solutions that deliver the warfighter mission-critical information in today's digital battlespace. We're accelerating innovation to help defend the nation.

To learn more, visit:
www.BoozAllen.com/DigitalBattlespace
(NYSE: BAH)

For more information, please contact:

Khalid Syed
Senior Vice President
syed_khalid@bah.com