

# AI Solutions for Army Mission Command

## *From chaos to clarity*

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“War is the realm of uncertainty; three quarters of the factors on which action in war is based are wrapped in a fog of greater or lesser uncertainty.”

- Carl von Clausewitz, *On War*, 1830

“War is an art and as such is not susceptible of explanation by fixed formula.”

- Gen. George Patton, *War as I Knew It*, 1947

“In counterinsurgency, communication is not just a support activity – it is the decisive operation.”

- Gen. David Petraeus, *Commander’s Counterinsurgency Guidance*, 2008

Quotes from military leaders underscore war’s complexity and enduring need for clear communication. As the Army transitions under Transformation in Contact (TiC), one of its most consequential shifts is how it communicates – rolling back the fog of war and making it as much science as art. This paper examines how artificial intelligence (AI) can overcome the limits of current digital systems and enable faster, smarter decisions in complex environments.

From Flander’s Field and Belleau Wood to Ramadi and Helmand, the Army relied on radio-based voice communications to transmit vital information and enable timely decisions. But as battlefields grew more complex, voice alone proved insufficient. The Army supplemented radio with text-based platforms, offering greater security and chat logs as data repositories. Yet these digital platforms introduced a new challenge: fragmented chat data across multiple channels, overwhelming commanders and slowing decision-making. This article proposes an AI/machine learning (ML)/large language model (LLM)-powered assistant to solve information overload. It will analyze, summarize, and visualize operational insights from chat messages, giving leaders a dynamic, real-time picture of the fight. This concept aligns with Department of Defense and Army initiatives to integrate AI into mission command, planning, and decision-making (Pfaff & Hickey, 2025). The following sections outline the problem, proposed solution, and implementation strategy.

Modern Army operations generate massive volumes of digital communication, particularly through chat-based systems like Joint Battle Command-Platform (JBC-P) and Android Tactical Assault Kit (ATAK). Commanders and staff are overwhelmed by the

volume, velocity, and fragmentation of these messages, impairing situational awareness and slowing decision-making.

At Joint Multinational Readiness Center (JMRC), where I serve as an observer controller/trainer (OC/T), I’ve observed units using these systems – including some of the first to field the Integrated Tactical Network (ITN), the Army’s latest communication platform. Despite ITN’s secure, real-time data transmission and the Army’s TiC initiative, commanders and staff struggle to exploit even a fraction of its potential. The technology delivers unprecedented situational awareness, yet units remain as blind as submarine skippers without sonar. The reasons are twofold.

First, radio communication is active – both parties engage to send and receive messages. Text-based communication is passive; senders have no assurance their messages are seen. High-volume chat often forces receivers to request re-sends, creating delays and confusion. Second, the Army’s force structure and processes were built around radio primacy – radio telephone operators at echelon, synchronized battle rhythms, and command posts tuned to radios. While technology evolved, organizational systems did not.

The result is a surge in collected information without an ability to analyze and synthesize it for timely decisions at any echelon – operational, or strategic. The U.S. Army War College warns current staff processes cannot manage this data deluge and identifies AI as critical for transforming raw data into actionable knowledge (Pfaff & Hickey, 2025). Multidomain operations amplify this challenge, demanding rapid synthesis to maintain tempo and achieve decision dominance (Burdette et al, 2025). The Army must adopt innovative technologies to restore clarity and speed to mission command.

We propose an AI/ML/LLM-powered assistant integrated with Army-approved digital communication platforms. This assistant will ingest chat data across multiple rooms and devices, apply natural language processing (NLP) to extract key events, entities, and relationships, and visualize them on geospatial maps over time – providing commanders with a dynamic, real-time common operating picture (COP) derived from textual communications. This approach supports the “make sense” phase of the Joint All-Domain Command and Control (JADC2) cycle, where AI processes massive data volumes to enable decision-making (Pfaff & Hickey, 2025). It aligns with the Army’s vision for AI-enabled mission command and operational concepts (Burdette et al, 2025). To achieve this, the assistant must incorporate key

features addressing the challenges outlined above.

## Key Features

- Multi-platform chat integration
- Real-time NLP-based message parsing and summarization
- Entity recognition (units, locations, events, threats)
- Temporal and spatial mapping of key events
- Customizable dashboards for commands and staff
- Secure deployment on Army networks
- Support for mission rehearsal and after-action-review (AAR)

These features reflect the Army’s emphasis on leveraging AI to enhance effectiveness, speed, and scale in decision-making (Lohn & Jackson, 2022). Existing commercial off-the-shelf (COTS) solutions like GeoBit AI and Rocket.Chat demonstrate chat-to-map synthesis and secure deployment, while SILVIA’s NATO use highlights voice/text AI integration. CAMOGPT and Cyviz meet DoD security standards and offer scalable visualization, proving operational viability (CAMOGPT, n.d.; Cognitive Code, n.d.; Cyviz, n.d.; GeoBit, n.d.; Rocket.Chat, n.d.).

## Benefits

- **Improved situational awareness**  
*Operational Challenge:* Commanders often receive fragmented updates across multiple chat platforms, making it difficult to form a coherent battlefield picture in real time. *COTS Solution:* GeoBit AI converts unstructured chat into geospatial visualizations using natural language queries. Commanders can see unit movements, threat reports, and key events mapped dynamically, improving understanding and response (GeoBit, n.d.).
- **Faster decision-making**  
*Operational Challenge:* Staffs spend valuable time manually parsing chat logs and compiling summaries, delaying critical decisions during fast-paced operations. *COTS Solution:* CAMOGPT and Rocket Chat provide AI-powered summarization tools that extract key information from chat threads, enabling rapid comprehension and timely decisions without manual synthesis (CAMOGPT, n.d.; Rocket.Chat, n.d.).
- **Reduced cognitive burden**  
*Operational Challenge:* Staff officers face overwhelming message volume, causing fatigue, missed information, and slower responses. *COTS Solution:* SILVIA uses voice and text command processing to streamline interaction with digital systems. Its explainable AI highlights relevant data, reducing manual filtering, allowing staff to focus on analysis and planning (Cognitive Code, n.d.).

Platform	Chat Synthesis	Geospatial Mapping	Secure Deployment	Military Use
GeoBit AI	✓	✓	⚠	⚠
Rocket.Chat	✓	✓	✓	✓
SILVIA	✓	⚠	✓	✓
Lattice	⚠	✓	✓	✓
CAMOGPT	✓	⚠	✓	✓
Cyviz	⚠	✓	✓	✓

Comparison of COTS AI-Powered Assistants (Anduril, n.d.; CAMOGPT, n.d.; Cyviz, n.d.; Cognitive Code, n.d.; GeoBit, n.d.; Rocket.Chat, n.d.)

- **Enhanced coordination**  
*Operational Challenge:* Units in different domains (land, air, cyber) and echelons struggle to maintain synchronized communication and shared understanding. *COTS Solution:* Rocket Chat integrates with geospatial tools and deploys securely across networks, enabling seamless communication between tactical units, headquarters, and coalition partners – supporting both vertical and horizontal coordination (Rocket.Chat, n.d.).
- **Scalable support**  
*Operational Challenge:* Modern operations require tools that scale across domains and adapt to diverse missions – from humanitarian assistance to high-intensity conflict. *COTS Solution:* Anduril Lattice fuses sensor data from multiple domains (air, land, sea, cyber) into a unified COP. Its edge computing capabilities allow scaling and adaptation to varied operational environments, supporting Joint All-Domain Command and Control (JADC2) objectives (Anduril, n.d.).

These benefits mirror findings in both military and civilian sectors. AI-driven systems streamline decision-making, improve data visibility, and enhance agility (Bourgeois, 2014). In military contexts, AI strengthens command and control (C2) resilience and enables adaptive mission command (Burdette et al, 2025; Jensen & Kwon, 2025).

## Implementation Considerations

The proposed AI-powered assistant must comply with Army cybersecurity and data governance policies, including the VAULTIS framework (Visible, Accessible, Understandable, Linked, Trustworthy, Interoperable, Secure) (Pfaff & Hickey, 2025). Integration with existing platforms will require coordination with program managers and network authorities to maintain interoperability and security.

Initial deployment should target units slated for combat training center (CTC) rotations to support OC/T functions and validate operational utility. The U.S. Army War College recommends bottom-up refinement through operational experimentation, as demonstrated

by XVIII Airborne Corps and U.S. Indo-Pacific Command's Stormbreaker initiative (Pfaff & Hickey, 2025). Rocket.Chat's deployment flexibility and Anduril's JADC2 integration show existing platforms can support experimental rollouts and refinement (Rocket.Chat, n.d.; Anduril, n.d.).

While COTS products approximate the solution, the Army must tailor its AI assistant to meet exact requirements. Lessons from SAP GCSS-A (Global Combat Support System-Army) and Oracle IPPS-A (Integrated Personnel and Pay System) rollouts underscore the risk of insufficient customization – both faced user dissatisfaction and retraining cycles (U.S. Government Accountability Office, 2021; U.S. Department of Defense, 2023). Any chosen COTS solution must include precise specifications for functionality.

To ensure adoption and performance, we recommend an Agile Software Development Life Cycle (SDLC) approach (U.S. Government Accountability Office, 2020). This will also mitigate risk and ensure adaptability of the AI assistant.

- **Interactive Prototyping:** Deploy a minimum viable product (MVP) in pilot programs for user feedback.
- **Sprint Cycles:** Use 2–4-week development sprints with stakeholder reviews.
- **User Stories:** Frame requirements from the commander's perspective.

**Continuous Integration/Continuous Deployment (CI/CD):** Automate testing and deployment to Army networks (NIPR/SIPR) for rapid updates.

Beyond technical deployment, the Army must prepare its workforce and organizational structures to fully leverage AI capabilities. This requires a deliberate transformation strategy.

### Organizational and Workforce Adaptation

AI integration requires deliberate organizational transformation. The Army must codify AI-related roles through additional skill identifiers (ASIs), establish training pipelines, and create human-machine teams (HMTs) that combine human judgment with AI precision (Pfaff & Hickey, 2025). Institutions such as the Mission Command Center of Excellence (CoE) and the Army Artificial Intelligence Integration Center (AI2C) are already laying the groundwork. To guide this transformation, Kotter's 8-Step Change Model offers a practical framework for integrating AI/ML/LLM technologies into Army systems and processes (Kotter, 1996):

1. **Establish Urgency** – Use CTC OC/T observations to highlight gaps in situational awareness.
2. **Form a Guiding Coalition** – Include AI2C, Mission Command CoE, and CTC leadership.

3. **Create a Vision for Change** – “AI-Enabled Mission Command for Decision Dominance.”
4. **Communicate the Vision** – Integrate into professional military education, doctrine updates, and leader development programs.
5. **Empower Broad-Based Action** – Remove barriers like lack of training; encourage commanders to adopt technology.
6. **Generate Short-Term Wins** – Demonstrate any success at CTCs with AI-assisted AARs.
7. **Consolidate Gains, Produce More Change** – Expand to division and corps-level exercises.
8. **Anchor New Approaches in Culture** – Codify AI roles, update doctrine, ensure strategic alignment.

Although Holistic Health and Fitness (H2F) doctrine did not involve IT, it provides a model for integrating new capabilities through doctrine, leadership, and training (Department of the Army, 2020). The Army's experience with digital transformation in logistics and personnel systems reinforces the need to align technology with organizational culture and workflows (Burdette et al, 2025). With organizational alignment underway, the next priority is ensuring long-term sustainment and resourcing.

### Sustainment and Resourcing

AI-powered requires sustainable funding and acquisition pathways. The War College study emphasizes flexible mechanisms such as Other Transaction Authorities (OTAs) and Programs of Record for rapid prototyping, iterative development, and scalable deployment (Pfaff & Hickey, 2025). Cost estimates range from \$60,000 annually for basic models to several million for advanced LLMs, plus infrastructure and data preparation costs (Pfaff & Hickey, 2025).

Leveraging mature COTS platforms like Cyviz and Rocket.Chat can reduce development costs and accelerate timelines through OTAs. However, long-term sustainment demands more than initial savings. It requires lifecycle planning, vendor partnerships, and user-centered design, as shown by Army experiences with enterprise systems like Microsoft Dynamics 365 and Lightspeed POS (Bourgeois, 2014).

### Lifecycle plan includes:

- **Phase 1 – Pilot Deployment (Year 1):** Deploy an MVP to units scheduled for CTC rotations. Collect feedback from OC/Ts and end users to refine functionality.
- **Phase 2 – Operational Expansion (Years 2–3):** Scale deployment to division and corps-level exercises. Integrate with mission command systems and conduct interoperability testing.
- **Phase 3 – Full Operational Capability (Year 4-plus):** Achieve full integration across tactical,

operational, and strategic levels. Codify AI roles, update doctrine, and embed into Army-wide training and planning cycles.

### Funding strategy:

- **OTAs** – Enable rapid prototyping and iterative refinement
- **Programs of Record** – Provide long-term sustainment and institutional support
- **Vendor Partnerships** – Ensure tailored solutions, ongoing technical support, and alignment with evolving requirements

### Strategic Alignment and Future Outlook

This concept aligns with the Army's evolving approach to AI-enabled warfare. RAND's analysis highlights mass, deception, mission command, and cyber resilience as critical for future success (Burdette et al, 2025). AI tools that enable decentralized execution and strengthen C2 network resilience are valuable in contested environments (Jensen & Kwon, 2025). Ethical and governance challenges must also be addressed. The National Security Commission on Artificial Intelligence stresses that responsible AI requires transparency, accountability, and alignment with democratic values (National Security Commission on Artificial Intelligence, 2021). The Army must ensure AI tools uphold professional ethics (Wong & Gerras, 2015). Any COTS product selected for customization must meet strict standards:

- **Explainable outputs** – Manufacturers must clearly show how the assistant functions and link inputs to outputs.
- **Human-in-the-loop** – Humans remain accountable for all critical decisions. AI may generate the COP but operators must retain responsibility.
- **Alignment with Army Values** – Solutions must reflect National Security Commission on Artificial Intelligence-stated principles that: "...use of AI by officials must comport with principles of limited government and individual liberty (National Security Commission on Artificial Intelligence, 2021)."

By aligning technology, ethics, and governance, the Army can ensure AI integration strengthens mission command without compromising core values.

### Conclusion

The Army stands at a critical inflection point. As warfare becomes increasingly complex, data-saturated, and multidomain, the limitations of legacy communication systems are no longer acceptable.

This article has identified a clear and present problem: commanders are overwhelmed by fragmented digital communications, impairing their ability to make timely, informed decisions. Through firsthand OC/T observations at JMRC and alignment with strategic initiatives like TiC and JADC2, we have demonstrated that the current force structure and processes are misaligned with the capabilities of modern communication platforms.

Our proposed AI-powered assistant offers a transformative solution – one that synthesizes chat data into actionable insights, visualizes operational dynamics in real time, and restores decision dominance to commanders at every echelon. This concept is not speculative; it is grounded in existing COTS technologies, validated by operational use cases, and supported by both military doctrine and civilian digital transformation best practices.

Implementation must be deliberate and disciplined. We recommend an Agile SDLC approach, phased deployment, and integration with Army networks and training cycles. Organizational adaptation is equally critical, requiring new roles, training pipelines, and cultural change – guided by Kotter's 8-Step Model and informed by successful doctrinal shifts like H2F.

Ethical alignment is non-negotiable. Any AI solution must be transparent, accountable, and consistent with democratic values and Army professional standards. Human-in-the-loop safeguards and explainable outputs are essential to maintaining trust and legitimacy. The cost of inaction is measured not in dollars, but in lost tempo, missed opportunities, and diminished battlefield effectiveness.

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