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AI FOR GOVERNMENT

AI Powered Supply Chains & Smarter Logistics

Accelerating DoD Readiness

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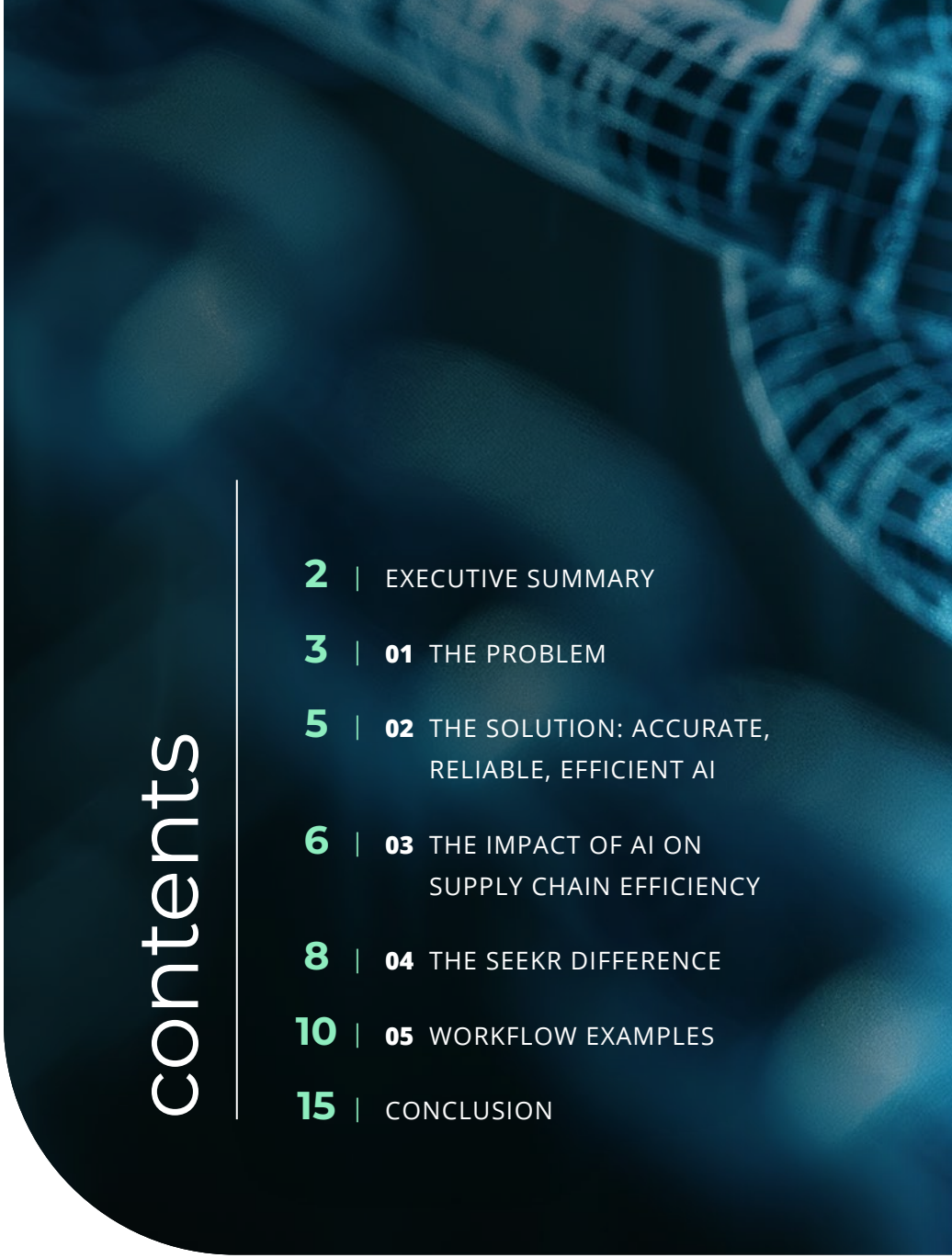
seekr®
AI FOR GOVERNMENT

AI-Powered Supply Chains & Smarter Logistics:

Accelerating DoD Readiness

EXECUTIVE SUMMARY

The Department of Defense (DoD) faces critical challenges in maintaining the operational efficiency and readiness of its supply chains, partially due to fragmented logistics systems within the Defense Industrial Base (DIB) and in response to dynamically evolving and contested environments. Disconnected data, siloed systems, and outdated processes limit visibility and hinder effective decision-making, which jeopardize the military's ability to respond rapidly and effectively to supply chain risks and dynamic threats and disruptions. While predictive analytics have been explored, the lack of supply chain data integration across platforms exposes gaps in situational awareness and operational resilience, especially as adversaries increase



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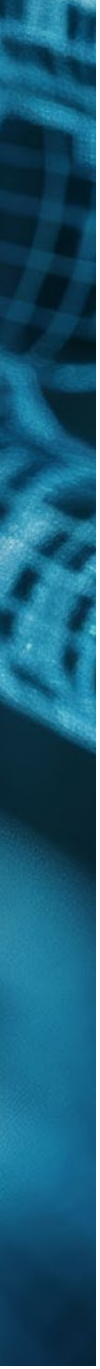


efforts to disrupt these systems. As a result, there is a growing need for a unified, AI-driven solution to enhance supply chain readiness, reduce inefficiencies, automate supply chains, and ensure that the warfighter remains well-equipped in increasingly contested environments.

The SeekrFlow AI platform offers an enterprise AI platform that addresses these gaps by leveraging agentic AI, Retrieval-Augmented Generation (RAG) and fine-tuning techniques to integrate and streamline supply chain data from multiple sources, and data in different formats for AI-driven analysis. With its ability to use agents to connect disparate systems and provide real-time, actionable insights, SeekrFlow-produced agents improve decision-making and enhance operational efficiency across military logistics operations.

The SeekrFlow platform's ability to generate agents that are independently able to optimize inventory management, forecast supply needs, and generate predictive models for wargaming scenarios provides the DoD with greater supply chain agility and resilience. By automating routine tasks and improving transparency in data reporting, SeekrFlow's agentic workforce enhances the accuracy, efficiency and reliability of logistics data and operations, empowering military leaders to make proactive, informed decisions that strengthen warfighter readiness and capacity to respond in dynamic and high-stakes environments.

01

THE PROBLEM

Department of Defense supply chains face operational challenges due to fragmented and outdated logistics systems within the (DIB). Disconnected databases, siloed data, and manual processes limit visibility into supply chain readiness.

While conventional software solutions have been explored, they remain isolated efforts that fail to integrate into the broader supply chain, leading to inefficiencies, high sunk costs, and poor situational awareness of readiness and risks. With growing threats from foreign adversaries, clear insights into supply chain readiness and resilience are essential to maintaining the warfighter's advantage.

Challenges include:

Data Siloing and Fragmentation: Current logistics systems are too siloed, hindering the integration of valuable data across departments. This prevents logistics teams from leveraging the efficiency seen in commercial supply chains.

Need for Data Interoperability: The lack of shared terminology and frameworks ("co-ontology") limits system interoperability for the purposes of sharing critical logistics data across platforms.

With growing threats from foreign adversaries, clear insights into supply chain readiness and resilience are essential to maintaining the warfighter's advantage.

Complexity of Forward Edge Operations: Operations at the frontlines are often disconnected, making it harder to provide timely and synchronized support compared to the more integrated supply chain, which serves as a model of enterprise-grade support.

Optimizing Inventory and Supply Flow: Using high-quality, integrated data can help optimize existing inventory and improve the speed at which supplies are directed to the most critical needs.

Limited Data-Centric Operations: While units may be optimizing logistics, the military as a whole still faces a "bimodal" challenge—some units are advanced in data-centric practices, while others operate using outdated or disconnected approaches.

Authoritative Data Systems: Ensuring that logistics data is trustworthy, up-to-date, free of bias, and easily accessible in real-time at the point of need is critical. More decision makers can do more with data at scale, if they can leverage accurate and trustworthy generative AI capabilities.

02

THE SOLUTION

THE SOLUTION: ACCURATE, RELIABLE, & EFFICIENT AI

A mission-ready logistics solution must convert complex supply chain data into actionable insights through an intuitive interface designed for logistics domain experts. This can be achieved by using techniques like Retrieval-Augmented Generation (RAG) and Agentic AI orchestration (multiple expert agents collaborating to automate tasks), ensuring data reliability and accuracy.

SeekrFlow can help the DoD develop an AI-driven agentic process that employs tools to enhance DoD operational resilience through superior supply chain analytics. This capability integrates innovative AI into existing defense frameworks, boosting real-time decision-making. The result is AI employment that is transparent, making defense logistics and supply chain management reliable, efficient, and resilient.

SeekrFlow is an end-to-end AI and GenAI platform for developing, validating, running, and scaling custom Large Language Models (LLMs) and LLM agents expertly trained by supply chain data, on any cloud infrastructure, at the tactical edge or in air-gapped environments. With proprietary content collection and patented analysis technologies, SeekrFlow trains trustworthy models with reduced bias and error. SeekrFlow automates data prep, AI model pre-training, fine-tuning, deployment, and monitoring through a single system accessible via API, SDK, or low-to-no-code Web UI, ideal for non-technical users.

> Integrating innovative AI tools into existing defense frameworks boosts DoD operational resilience and real-time decision-making.

03

THE IMPACT

THE IMPACT OF AI ON SUPPLY CHAIN EFFICIENCY

Department of Defense supply chains face operational challenges due to fragmented and outdated logistics systems within the (DIB). Disconnected databases, siloed data, and manual processes limit visibility into supply chain readiness.

While conventional software solutions have been explored, they remain isolated efforts that fail to integrate into the broader supply chain, leading to inefficiencies, high sunk costs, and poor situational awareness of readiness and risks. With growing threats from foreign adversaries, clear insights into supply chain readiness and resilience are essential to maintaining the warfighter's advantage. Challenges include:

Improve Operational Efficiency: SeekrFlow's AI-powered solutions streamline data processes and decision-making, significantly improving the efficiency of military logistics operations. By automating the generation and analysis of supply chain data, it reduces manual oversight and accelerates decision timelines. This enables personnel to focus on high-priority tasks, reducing time spent on repetitive tasks and optimizing resource allocation. Military supply chains can operate faster, more accurately, and with minimal waste.

Fill a Critical Gap: SeekrFlow fills the critical gap in military logistics by integrating disparate data sources, systems, and platforms into a unified AI-driven ecosystem. By creating a single source of truth in one system of record, and automated data preparation, SeekrFlow enables military leaders to access real-time, authoritative data on supply chain status, risk factors, and readiness levels. This integration eliminates data silos (across different formats and types of data), and offers insights that are otherwise difficult to obtain, providing a comprehensive understanding of logistics operations and their vulnerabilities in contested environments.

Ensure Supply Chain Readiness: Enhanced supply chain readiness is critical to ensure warfighters are fully supported during deployments and missions. With SeekrFlow, military operations can achieve greater supply chain readiness by improving real-time situational awareness and forecasting. AI models and AI agents continuously analyze and predict supply and demand, identifying potential shortages or bottlenecks before they impact operations. Multiple agents work together to orchestrate supply chain changes, automating simpler tasks so employees save time, while ensuring human-in-the-loop oversight for critical decisions. This leads to more proactive, informed decisions regarding inventory management, ensuring that materials and resources are always available when needed.

Multiple agents work together to orchestrate supply chain changes to automate simpler tasks, thus saving time while ensuring human oversight for critical decisions.

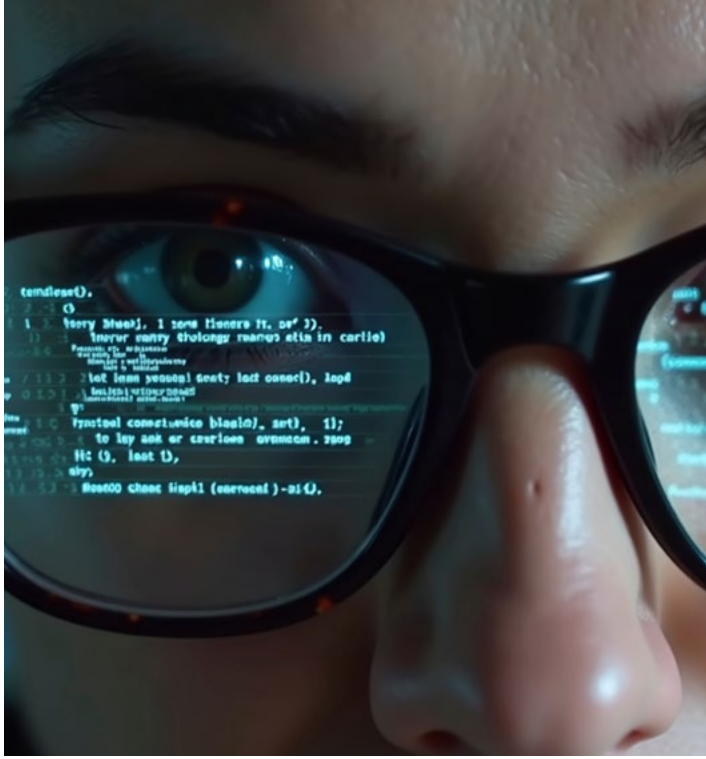
Create Resilient Supply Chains: SeekrFlow enhances supply chain resilience by leveraging advanced AI algorithms and models to assess risk and mitigate disruptions. Through predictive analytics, it identifies potential vulnerabilities—such as geopolitical instability or infrastructure failures—and suggests alternative strategies for securing resources. By ensuring flexibility in logistics operations and providing actionable insights for supply route optimization, SeekrFlow helps military supply chains adapt quickly to unforeseen challenges. This increased resilience is crucial for maintaining operational effectiveness even in contested and hostile environments.

04 THE SEEKR DIFFERENCE

AI Agentic Workflow: SeekrFlow employs a patented, AI agentic workflow process. When given a model building task definition, the AI agent drafts a "plan" of the steps and sequence needed to solve the problem. Seekr's AI-Ready Data Engine allows the AI agent to ingest and understand an agency's principles, rules, policies and guardrails, across data in any format. The AI agent walks the user through the model building process and automatically generates labeled training data. These question-and-answer data sets are generated automatically, removing the laborious and expensive tasks of manually collecting, curating, and labelling data; this allows faster, more accurate LLM development.

Patented Accuracy for Predictability: SeekrFlow's patented platform automates data collection, curation, and labelling, making it easy to customize any foundation model with existing data in almost any format. SeekrFlow prompts users for organization-specific data for, which tunes the LLM to behave according to organizational principles (e.g., policies, procedures, guidelines, etc.). This patented process iteratively conforms the model to a specific domain's requirements with minimal human intervention which produces a finely tuned specialist model that adheres to user performance expectations. This iterative, AI-based approach also ensures the model accurately reflects user requirements and increases model accuracy and relevance by three times and six times, respectively.

The SeekrFlow approach far exceeds customization of existing foundational LLMs such as Llama or GPT and goes



beyond using Retrieval Augmented Generation (RAG), a novel AI framework that combines LMs with traditional information retrieval systems to generate more accurate results, faster.

Explainable and Transparent GenAI: SeekrFlow integrates rich explainability features that make it simple to compare model responses and detect hallucinations at the source (token level, dataset level). SeekrFlow allows users to understand model bias and hallucinations by employing token-based Confidence Scores on a

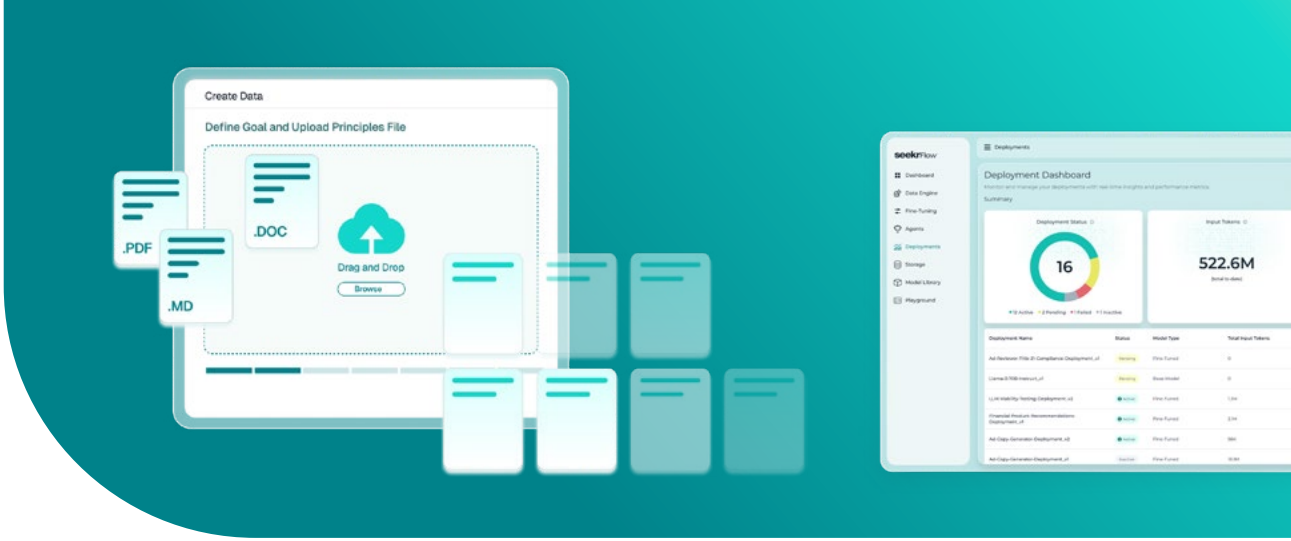
0-100 rating. Confidence scores are calculated on each model response during inference, and SeekrFlow provides a view into the underlying text chunks of training data that positively or negatively influence the model's accuracy for user feedback. This improves trust in the LLM's outputs, where users can contest the model results and incorporate feedback to improve model accuracy. By keeping human analysis "in the loop," we reduce technical risk by allowing users to "own their own intelligence."

Speed and Cost-Effectiveness: SeekrFlow is 90% less expensive than traditional data preparation because Seekr automates the preparation of training data to avoid costly and manual methods. As part of the fine-tuning process, SeekrFlow makes data generation, synthesis, augmentation, labeling, and curation, 2.5x faster than traditional data preparation methods, reducing data preparation time from months to days.

Foundation Model, Infrastructure, and Hardware Agnostic: SeekrFlow utilizes open source and proprietary foundation models, and deploys in a commercial, government, or private cloud of choice (e.g., AWS, Oracle, Azure, GCP) as well as containerized on-premises using open source or OpenShift Kubernetes. SeekrFlow leverages all leading GPU chipsets such as NVIDIA and Intel, and other AI accelerators such as Intel Gaudi 2 and the newest Gaudi 3, where Seekr leverages our strategic partnership with Intel. Seekr's capability also operates on a preconfigured Intel AI Accelerator or an AI PC for smaller workloads as required. This allows flexible deployments for various customer configurations in the cloud, at the edge, and in disconnected (DDIL) operational environments.

Secure AI at the Edge: The Seekr AI Edge Appliance is a pre-configured, all-in-one solution designed for rapid deployment of AI workloads in air-gapped or contested environments —whether at the edge or in a disconnected data center. Agencies can start using SeekrFlow within hours, without orchestrating complex AI infrastructure, and the AI Appliance can access GPUs and AI accelerators on-premises to lower costs, protect data and prevent data movement, and power AI applications at the tactical edge.

05 WORKFLOWS



SUPPLY CHAIN WORKFLOW EXAMPLES

The following is a set of proposed workstreams for an LLM development company that wants to tackle these supply chain and logistics challenges in a single, integrated environment—combining retrieval-augmented generation (RAG) with fine-tuning to achieve higher accuracy and efficiency.

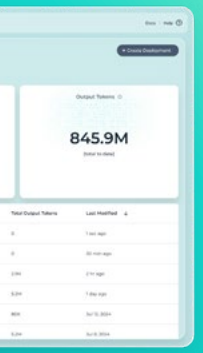
1. DATA INGESTION & KNOWLEDGE BASE SETUP

Objective: Build a centralized repository of supply chain data warehousing, regulatory, zoning, market trends—alongside authoritative military logistics databases.

Key Tasks:

- **Data Pipeline Creation:** Automate data ingestion from diverse sources (geo-zoning data, macroeconomic reports, procurement records), plus siloed defense data.
- **RAG Infrastructure:** Use retrieval-augmented generation to fetch the latest info on zoning, risk trends, and operational constraints. This ensures the LLM has up to date "ground truth" at query time, rather than relying solely on static training data.
- **Access Controls & Security:** Implement enterprise-level permissions so external (commercial) and internal (military) data remains siloed where needed, but still accessible via a single LLM management platform.

Why It Matters: Consolidating data ends the "silo effect" that both commercial and military experts highlight. This single source of truth underpins every subsequent LLM-driven application, unlocking synergy between data sets and speeding up robust insights.



2. LLM FINE-TUNING & CUSTOMIZATION

Objective: Achieve domain-specific accuracy for supply chain optimization and logistics by fine-tuning a foundational model with curated enterprise data.

Key Tasks:

- **Domain-Specific Fine-Tuning:** Train on historical supply chain transactions, location feasibility studies, and relevant military logistics documents to embed expert terminology (e.g., "co-ontology," "bimodal" operations).
- **Human-in-the-Loop Evaluation:** Use smaller sets of "gold standard" Q&A examples from experts (commercial and military) to refine responses.
- **Version & Model Management:** Within a single enterprise LLM platform, agencies can manage multiple model versions; some models are tuned for warehouse site selection, others for supply chain risk forecasting, and some are tuned for military logistics.

Why It Matters: Merging RAG with a domain-tuned model ensures the LLM can interpret highly specific questions (zoning regulations, "war reserve" inventory pooling) with correctness. Fine-tuning on real operational data cements authoritative answers that unify supply chain best practices and military readiness requirements.

3. WAREHOUSE & LOGISTICS OPTIMIZATION

Objective: Leverage LLM insights to pinpoint warehouse locations, stage logistics, and forecast demand in alignment with both commercial and defense needs.

Key Tasks:

- **Predictive Analytics & Recommendation Engine:** Use the LLM's search optimization capabilities (Section II-A) to parse market and demographic data, highlight hotspots for new warehouses, and compute ROI for expansions.
- **3D Modeling & AR Simulation:** Integrate modality features (Section II-C) so planning teams can visualize floor layouts, staging areas, and potential pinch points in shipping routes.
- **Interactive Dashboards:** Deploy AI-driven data visualization (maps, charts, scenario-based overlays) so supply chain managers and military planners can quickly spot trends and bottlenecks, then run "what if" scenarios.

Why It Matters: Getting the right warehouse in the right place is the bedrock of supply chain efficiency. In a military context, it also means ensuring warfighters get supplies on time, under real constraints. The LLM environment translates complex data into clear, data-driven decisions—at speed.

4. RISK ANALYSIS & DEMAND FORECASTING

Objective: Centralize market trend analysis and operational risk identification to support both commercial speculation (where to invest) and forward military planning (how to sustain the force).

Key Tasks:

- **RAG-Powered Trend Monitoring:** Automatically pull in shifting economic indicators, policy changes, or conflict data to gauge supply risk.
- **Fine-Tuned Demand Forecasting:** Tap historical purchase orders, usage rates, and known patterns (e.g., spikes in certain material) to forecast future needs.
- **Supplier Ranking & Reliability:** Borrow from AI's supplier risk assessment (Section II-A) to highlight top vendors and highlight potential vulnerabilities in the chain.

Why It Matters: Speculative development in commercial settings mirrors the challenge of predicting ammunition, spare parts, or medical supply demands in a prolonged operation. The LLM architecture—fueled by real-time retrieval—can advise on robust strategies and preempt disruptions.

5. STREAMLINED COMMUNICATION & REPORTING

Objective: Create frictionless sharing of updates, insights, and next steps among stakeholders—across commercial and military lines of effort.

Key Tasks:

- **NLP for Targeted Reporting:** Automated generation of concise, role-specific updates—ensuring high-level executives, base commanders, or warehousing staff get only what they need.

- **AR Training Modules:** Expand from standard text-based communication to AR-based simulations (Section II-C), ensuring that new or "data-native" teams can learn complex logistical pathways.
- **Cross-Organizational "Co-Ontology" Framework:** Bake in the concept of bridging data definitions and processes, so everyone speaks the same "logistics" language—vital for interagency or allied operations.

Why It Matters: Experts highlight the crippling effect of siloed communication. The LLM platform—backed by retrieval—can unify these domains, producing succinct, visually rich updates to drive real-time decision-making. This overcomes cultural friction by showing the practical value of data-centric operations.

6. ANTI-COUNTERFEITING

Objective: Anti-counterfeiting efforts are critical to ensuring the integrity and security of parts and equipment, which are vital for mission success.

Key Tasks:

- **Real-Time Anomaly Detection:** AI systems can continuously monitor the supply chain for inconsistencies, such as discrepancies in serial numbers, shipment origin, or labeling, flagging any potential counterfeits as they occur.
- **Pattern Recognition and Predictive Analytics:** Using advanced machine learning algorithms, AI can analyze historical data and identify emerging patterns in counterfeit activities, predicting potential vulnerabilities in the supply chain before they manifest.
- **Authentication of Parts and Components:** AI-powered co-pilots or agents can assist in verifying the authenticity of individual parts by cross-referencing data with a centralized, secure database of approved components, ensuring that only genuine products are used in mission-critical operations.

Why It Matters: Anti-counterfeiting efforts are essential in military supply chains because counterfeit parts or equipment can compromise mission success, endanger personnel, and undermine operational readiness by introducing unreliable or potentially dangerous components. Advanced machine learning models can detect counterfeit goods, analyze patterns of fraudulent activity, and track supply chain movements in real time to identify suspicious anomalies.

7. PRE-POSITIONING

Objective: Pre-positioning military supplies at strategic locations around the globe ensures that resources are available quickly during crises or operations, minimizing delays and maximizing operational efficiency. AI can optimize pre-positioning strategies

by predicting future supply needs, improving inventory management, and leveraging predictive analytics to ensure the right materials are in the right place at the right time.

Key Tasks:

- **Demand Forecasting and Predictive Analytics:** AI can analyze historical data, geopolitical trends, and real-time operational needs to predict future supply demands, ensuring critical materials are pre-positioned in locations where they are most needed.
- **Dynamic Inventory Optimization:** AI-driven systems can continuously monitor stock levels and adjust pre-positioning strategies in real time, automatically redirecting supplies to ensure optimal distribution based on changing operational priorities and mission requirements.
- **Geospatial Analysis for Strategic Positioning:** Agentic AI can leverage geographic and logistical data to optimize the placement of supplies in locations with the highest strategic value, accounting for factors such as transportation routes, access points, and threat levels, ensuring rapid deployment when required.

Why It Matters: Pre-positioning is crucial to the military and warfighters because it ensures that critical supplies, equipment, and resources are readily available at key locations, reducing response times during emergencies and enhancing operational flexibility. By having supplies in place ahead of time, the military can rapidly deploy forces, maintain combat readiness, and avoid costly delays, ensuring that warfighters have the necessary support to succeed in dynamic and high-pressure environments.

CONCLUSION

An enterprise-focused LLM solution—combining robust retrieval-augmented generation and fine-tuning—can be the unifying platform that addresses both the commercial supply chain's optimization needs and the military's readiness goals. By deliberately structuring data, refining models, and prioritizing clear communication, organizations move from siloed, ad hoc processes to integrated, data-powered decision-making.

SeekrFlow provides a transformative approach to military supply chain management by integrating innovative AI technologies to enhance situational awareness, streamline operations, and optimize resource allocation.

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