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Reskilling the U.S. Military Workforce for the Agentic AI Era: A Framework for Educational Transformation

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

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ABSTRACT

The rapid emergence of agentic artificial intelligence (AI) systems represents a paradigm shift in military operations, demanding fundamental transformation of US military education. This paper presents a comprehensive framework for reskilling and redesigning military education to address critical workforce readiness gaps in the era of autonomous AI systems.

Utilizing a mixed-methods review of defense reports, case studies, and quantitative workforce data, this paper develops a comprehensive framework for reskilling the defense force to address critical readiness gaps in the era of autonomous AI. Through analysis of current AI adoption trends, quantitative workforce assessments, and educational limitations, we identify that only 10-15% of military personnel feel adequately trained for agentic AI integration despite significant investments exceeding $600-900 million in next-generation AI capabilities. Our proposed solution features a multi-tiered educational architecture with progressive competency levels, a continuous curriculum

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development pipeline, and layered technology integration. The framework addresses identified skills gaps through foundational AI literacy for all personnel, operational competence for mid-career leaders, and strategic AI leadership development. Implementation strategies include phased rollout over 24-36 months, multi-stakeholder engagement models, and comprehensive assessment mechanisms. Findings demonstrate that successful agentic AI integration requires not only technical upskilling but also fundamental changes in pedagogical approaches, institutional culture, and resource allocation—with optimal distribution of 30-40% to technology infrastructure, 20-25% to faculty development, 15-20% to curriculum design, and program evaluation. This research provides actionable recommendations for military education institutions to prepare personnel for human-AI teaming, autonomous system oversight, and ethical AI application in complex operational environments. decrease medical as well as financial burden, hence improving the management of cirrhotic patients. These predictors, however, need further work to validate reliability. All results and proposals are from cited literature.

Keywords: Agentic AI; military education; reskilling defense forces; workforce development; AI integration.

1. INTRODUCTION

The United States military faces a transformative challenge with the emergence of agentic artificial intelligence systems capable of autonomous decision-making and coordinated operations (Joshi, 2025). Unlike previous AI generations focused on data analysis, agentic AI systems demonstrate proactive problem-solving and multi-agent coordination, representing a fundamental shift in military operations (Hosseini & Seilani, 2025; Flournoy, 2023).

The Department of Defense's substantial investments in AI capabilities, including recent allocations exceeding $600 million for next-generation agentic AI, underscore the strategic importance of this technology (Steckler & Mayville, 2025). However, technological advancement alone is insufficient for effective integration. As research indicates, "the advantages of AI will be realized by the military that can best employ it" (Cruickshank, 2023), highlighting the critical need for comprehensive workforce development. Scharre (2023) provides critical context on the geopolitical competition for AI dominance, underscoring the strategic necessity of the educational framework proposed herein. Furthermore, Cummings (2024) offers specific validation for the human-AI teaming and oversight challenges that the multi-tiered curriculum is designed to address.

This paper addresses this imperative by conducting a mixed-methods review of defense reports, case studies, and quantitative workforce data to develop the first integrated educational framework specifically designed for agentic AI readiness in the U.S. military. The resulting framework not only provides a model for future defence education reforms but also serves as a guide for allied nations adapting to autonomous AI systems.

This manuscript employs several standard abbreviations from a U.S. military and governmental context, including DoD (Department of Defense), PME (Professional Military Education), NCO (Non-Commissioned Officer), ISR (Intelligence, Surveillance, and Reconnaissance), HR (Human Resources), and DIU (Defense Innovation Unit).

2. LITERATURE REVIEW

2.1 Military AI Evolution and Current State

The integration of artificial intelligence into military operations has evolved through distinct phases, from basic automation to contemporary agentic systems capable of autonomous decision-making (Zarrar & Kakar, 2024). Recent developments demonstrate rapid operationalization, with systems now processing vast amounts of intelligence data, generating operational plans, and coordinating complex multi-domain operations with minimal human intervention.

Current adoption spans multiple military branches, with the U.S. Central Command, Air Force, and Army implementing generative AI technology for various applications from intelligence analysis to logistics optimization. This expansion aligns with international governance efforts seeking to establish norms for responsible military AI use while fostering global cooperation (Wilner & Atkinson, 2025).

2.2 Technical and Workforce Challenges

Despite significant progress, military AI integration faces substantial challenges. Technical concerns include system reliability, security vulnerabilities, and operational effectiveness in complex environments. Workforce readiness presents equally critical challenges, with traditional education paradigms struggling to keep pace with technological acceleration (Joshi, 2025a).

Research indicates particular concern regarding ethical implementation and appropriate human oversight mechanisms. The integration of autonomous systems necessitates robust testing methodologies, explainable AI components, and ethical governance frameworks to ensure responsible deployment (Joshi, 2025).

2.3 Educational Transformation Needs

Military education institutions require fundamental transformation to address emerging AI competencies. Current systems, designed for industrial-age warfare, lack the agility to incorporate rapidly evolving technological requirements (Biggs, 2025). This creates significant gaps in workforce readiness that could undermine substantial technological investments.

Analysis reveals that successful AI integration demands not only technical skills but also cultural adaptation and ethical reasoning capabilities. Educational approaches must address human-AI teaming dynamics, trust development, and appropriate use case identification across diverse operational contexts (Cruickshank, 2023).

3. PROPOSED ARCHITECTURE AND FRAMEWORK DIAGRAMS

3.1 Methodology

This research employs a mixed-methods approach combining:

3.1.1 Literature anazlysis

Comprehensive review of current research on AI integration in military education, including defense publications, academic journals, and industry reports from 2020-2025.

3.1.2 Case study examination

Analysis of existing AI education initiatives within military institutions, including:

- Army's AI integration in professional military education (Biggs, 2025)
- Air Force's adaptive learning programs (Stilwell, 2020)
- Defense Innovation Unit's training partnerships

3.1.3 Gap analysis

Identification of skills requirements versus current educational offerings through comparison of:

- DoD AI strategy documents
- PME curriculum reviews
- Industry skill demand projections

This section presents the architectural framework for implementing agentic AI education across military institutions. The proposed approach integrates tiered learning models, technological infrastructure, and organizational structures to create a comprehensive ecosystem for military AI education.

3.2 Tiered Learning Architecture

The tiered learning architecture (Fig. 1) establishes progressive competency levels aligned with military career progression. This structure ensures that AI education delivery is appropriately matched to personnel roles and responsibilities, as identified in workforce readiness assessments.

3.3 Curriculum Development Pipeline

The curriculum development pipeline (Fig. 2) implements continuous improvement cycles based on operational feedback and technological evolution. This agile approach addresses the rapid pace of AI advancement and overcomes limitations identified in current training programs.

3.4 Technology Integration Architecture

The layered technology architecture (Fig. 3) provides a scalable foundation for integrating diverse AI tools and platforms used in current military applications. This design ensures interoperability while maintaining security standards.

3.5 Implementation Roadmap Timeline

The implementation roadmap (Fig. 4) outlines a structured approach to deploying AI education across military institutions, aligning with the tiered framework and addressing current readiness gaps identified in quantitative assessments.

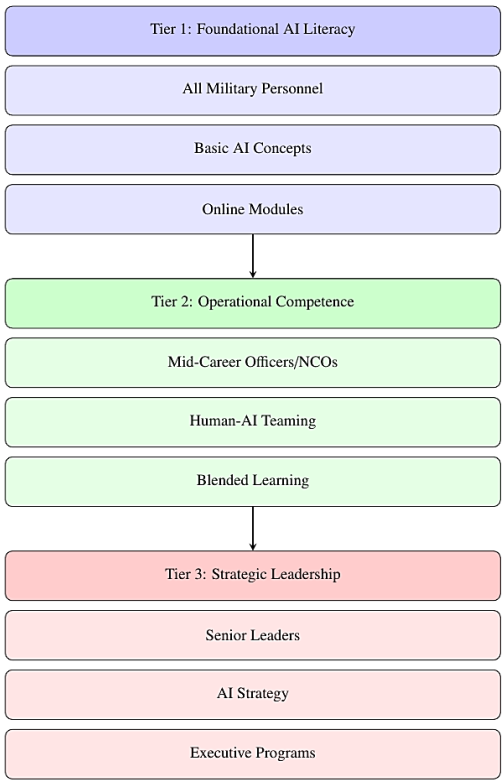

Fig. 1. Three-Tiered Military AI Education Framework integrating foundational literacy for all personnel, operational competence for mid-career leaders, and strategic leadership development. This vertical, progressive approach addresses the AI skills gap across military ranks while ensuring ethical implementation

3.6 Stakeholder Engagement Model

The stakeholder engagement model (Figure 5) facilitates collaboration between military institutions and external partners, leveraging industry expertise and academic research to accelerate AI education development, following proven partnership frameworks.

3.7 Assessment and Evaluation Framework

The assessment framework (Fig. 6) establishes metrics for evaluating AI education effectiveness across multiple dimensions, from basic participation to operational impact. This approach addresses measurement challenges identified in current program evaluations.

3.8 Resource Allocation Model

The resource allocation model (Fig. 7) prioritizes investments based on implementation requirements and expected returns, informed by cost-benefit analyses of current AI training programs. This ensures optimal utilization of limited resources while maximizing educational impact.

Our analysis reveals significant disparities between current educational offerings and the skills required for agentic AI integration. Table 1 summarizes the primary gaps identified.

Table 1. Military AI Skills Gap Analysis

Skill Category	Current Coverage	Required Enhancement
Technical AI Literacy	Basic digital literacy	Advanced AI concepts, system architecture
Ethical Decision-Making	Traditional ethics training	AI-specific ethical frameworks
Human-Machine Teaming	Limited exposure	Collaborative workflow design
System Oversight	Basic supervision skills	AI monitoring and intervention protocols
Adaptive Learning	Standardized training	Continuous skill refreshment

The analysis of current AI education programs is summarized in Table 2 provides validation for the framework's approach.

Table 2. Current Military AI Education Program Overview

Program	Target Audience	Primary Focus	Status
Army University PME	All officers	AI literacy integration	Ongoing implementation
DIU Thunderforge	Combatant commands	Operational AI tools	Active deployment
CalibrateAI Pilot	Army personnel	Generative AI adoption	Initial pilot phase
AI Bootcamps	Technical specialists	Intensive skill development	Documented success
DoD Talent AI	HR personnel	Skill identification	Operational
Industry Partnerships	Various units	Specific system training	Expanding

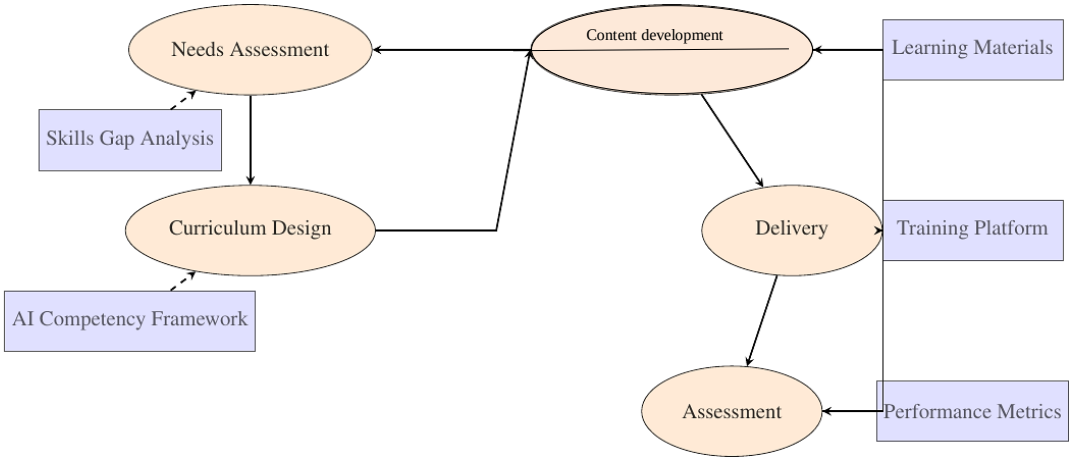

Fig. 2. AI Curriculum Development Pipeline with continuous improvement, addressing identified skills gaps through structured competency frameworks and adaptive learning platforms. Performance metrics enable iterative refinement based on workforce outcomes

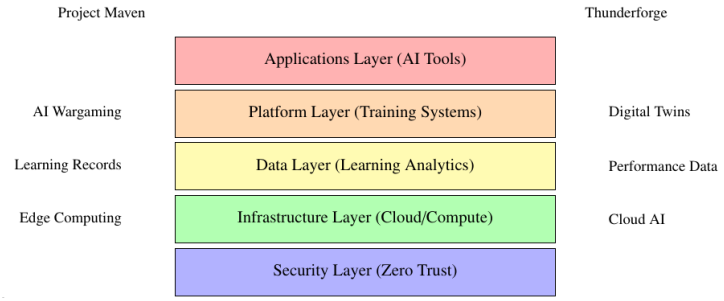

Fig. 3. Layered Technology Architecture for AI Education Integration, featuring operational AI tools such as Thunderforge and Project Maven, supported by advanced training platforms and data-driven learning analytics. The infrastructure enables real-time processing while maintaining security compliance

Similarly, the examination of AI software tools requiring military training (Table 3) demonstrates the comprehensive scope of training requirements that the framework must address.

Table 3. Military AI Software Tools and Training Requirements

Software Platform	Primary Function	Key Training Requirements	Citation
Thunderforge (Scale AI)	Military planning	Multi-domain integration, scenario generation	(Harper, 2025)
Project Maven	ISR analysis	Object recognition, pattern analysis	(Requiroso, 2025)
Scale Agentic AI	Autonomous warfare	Multi-agent coordination, oversight	(*Scale AI, 2025*)
Anduril-OpenAI	System integration	Custom model development	(Knight, 2025)
PLA Generative AI	Intelligence analysis	Adversary AI understanding	(Insikt Group, 2025)
AI Training Systems	Personnel training	Adaptive learning, scenario generation	(Stilwell, 2020)
Digital Twin	Simulation	Virtual environment management	(Joshi, 2025)
Project Athena	Business operations	Process automation, workflow optimization	(measley, 2025)
Vehicle AI	Maintenance	Predictive maintenance, diagnostics	(Williams, 2025)
Secure Computation	Cyber operations	Encrypted data processing	(Pathak & Joshi, 2009)

The quantitative findings are summarized in Table 4 and Table 5 provide compelling evidence for the urgent need for this comprehensive framework.

Table 4. Quantitative Military AI Implementation Metrics

Metric Category	Value	Unit	Source Context
Investment	600	million USD	Pentagon agentic AI development (Steckler & Mayville, 2025)
Annual Savings	42	million USD	Defense contractor hiring pipelines (Joshi, 2025a)
Training Cost	8,400	USD/participant	AI bootcamp programs (Joshi, 2025a)
Wage Increase	28,000	USD/year	Post-AI training compensation (Joshi, 2025a)
Personnel Trained	15	%	Feeling adequately prepared for AI (Cruickshank, 2023)
Placement Rate	85	%	Within 6 months of training (Joshi, 2025a)
Skills-based Hiring	100	%	Projected 2030 technical fields (Joshi, 2025a)
AI Agent Deployment	25	%	Enterprises by 2025 (BW Online Bureau, 2025)
AI Agent Deployment	50	%	Enterprises by 2027 (BW Online Bureau, 2025)
Training Time Reduction	50	%	With increased retention (Stilwell, 2020)
Unit Size	2,500	personnel	AI system testing unit (Souki, 2025)
LLM Development	79	models	Chinese research institutes (Zarrar & Kakar, 2024)
Cloud Professionals	2,000,000	personnel	Demand in India by FY25 (BW Online Bureau, 2025)
Naval Platforms	3	ships	AI system testing (Souki, 2025)

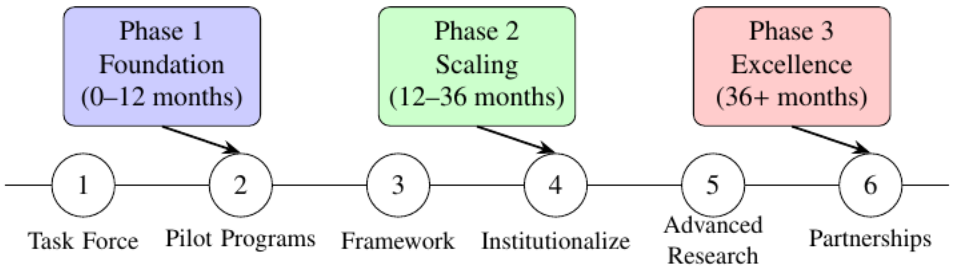

Fig. 4. Phased Implementation Roadmap with key milestones, beginning with foundational task force establishment and pilot programs, progressing through framework development and institutionalization, and culminating in advanced research initiatives and strategic partnerships

3.9 Architecture Integration and Synergies

The proposed architectural framework creates synergistic relationships between its components:

- **Vertical Integration**: The tiered learning framework (Fig. 1) aligns with career progression, while the technology architecture (Fig. 3) provides the infrastructure to support each tier.
- **Horizontal Coordination**: The stakeholder model (Figure 5) enables resource sharing and knowledge transfer, while the assessment framework (Figure 6) ensures continuous improvement across all components.
- **Temporal Alignment**: The implementation roadmap (Figure 4) sequences activities to

build capability progressively, with resource allocation (Figure 7) aligned with phase priorities.

- **Quality Assurance**: The curriculum pipeline (Figure 2) incorporates feedback mechanisms that inform all other architectural components, creating a self-improving system.

This integrated architecture addresses the comprehensive challenges identified in current military AI education, providing a scalable, sustainable framework for preparing the force for agentic AI operations. The approach leverages best practices from documented successful programs while introducing innovative elements to overcome existing limitations.

4. PROPOSED EDUCATIONAL FRAMEWORK

4.1 Multi-Tiered Architecture

The proposed framework establishes a three-tiered educational architecture aligned with military career progression and operational requirements:

Tier 1: Foundational AI Literacy – Basic AI concepts and ethical considerations for all military personnel, ensuring service-wide understanding of AI capabilities and limitations.

Tier 2: Operational Competence - Human-AI teaming and system oversight for mid-career officers and NCOs, focusing on practical integration into military workflows and processes.

Tier 3: Strategic Leadership - AI strategy and policy development for senior leaders, emphasizing resource allocation, capability development, and strategic advantage.

This progressive structure ensures appropriate skill development at each organizational level while maintaining alignment with career progression pathways (Cruickshank, 2023).

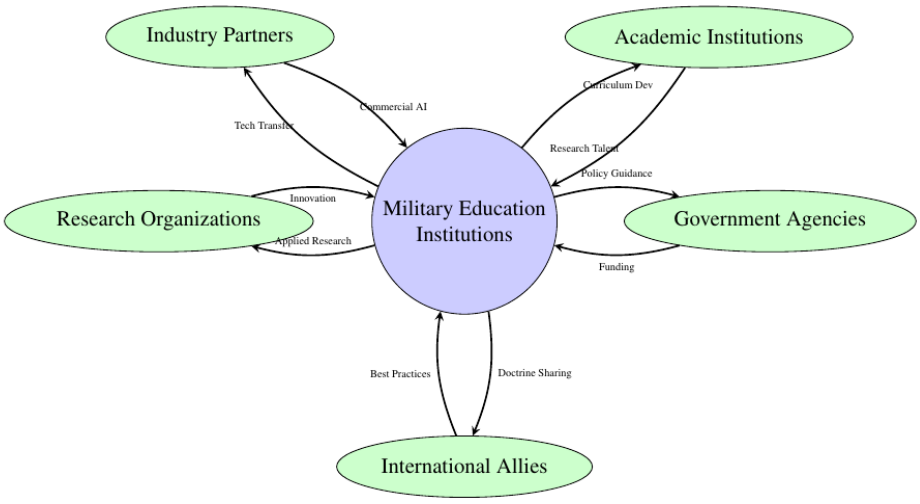

Fig. 5. Multi-Stakeholder Engagement Model for AI Education Ecosystem, centered on military education institutions collaborating with industry partners for technology transfer, academic institutions for curriculum development, government agencies for policy alignment, international allies for doctrine sharing, and research organizations for innovation

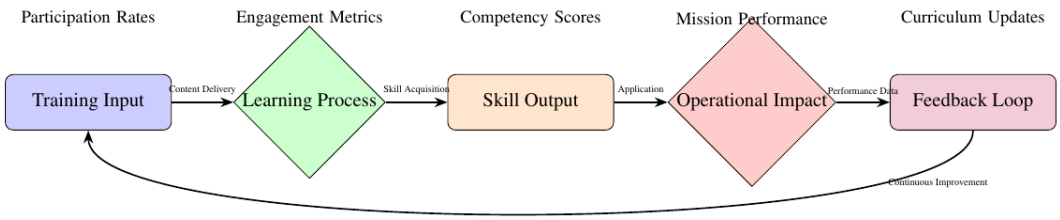

Fig. 6. Comprehensive Assessment Framework for AI Education Effectiveness, measuring participation in AI training initiatives, engagement through adaptive platforms, competency development against established frameworks, operational impact on mission performance, and continuous curriculum refinement

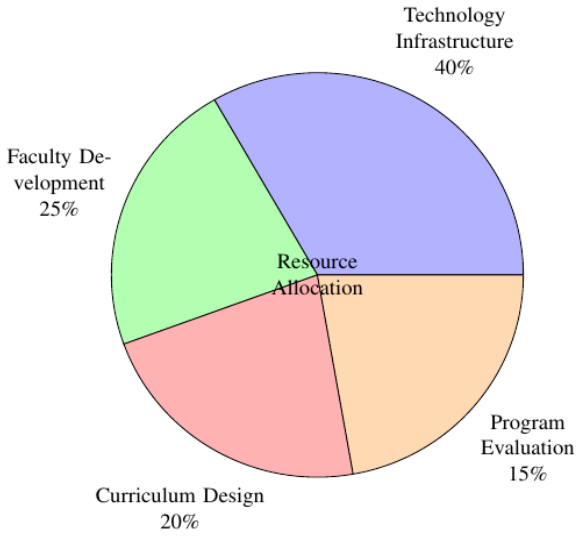

Fig. 7. Proposed Resource Allocation Model for AI Education Implementation, prioritizing technology infrastructure for real-time AI systems, faculty development to address AI skills gaps, curriculum design for enhanced military learning, and program evaluation to measure workforce impact, guided by AI-ready workforce principles

4.2 Curriculum Development and Delivery

The framework incorporates continuous curriculum development cycles based on operational feedback and technological evolution. This agile approach addresses the rapid pace of AI advancement through:

- Regular needs assessment based on skills gap analysis
- Competency-aligned curriculum design
- Technology-enhanced content delivery
- Comprehensive performance assessment
- Continuous improvement mechanisms

Delivery methods combine traditional instruction with technology-enhanced learning, including digital twins for simulation training and adaptive learning platforms for personalized skill development (Biggs, 2025).

4.3 Implementation Strategy

Implementation follows a phased approach over 24-36 months:

4.3.1 Phase 1: Foundation (0-12 months)

- Establish cross-service AI education task force
- Develop standardized competency frameworks
- Launch pilot programs for validation
- Initiate faculty development initiatives

4.3.2 Phase 2: Scaling (12-36 months)

- Expand program reach across all service branches
- Institutionalize AI education standards
- Develop advanced specialized training modules
- Establish partnership networks with academic institutions

4.3.3 Phase 3: Excellence (36+ months)

- Integrate AI education throughout career lifecycle
- Establish AI as core military competency
- Develop advanced research programs
- Expand international education partnerships

5. QUANTITATIVE ANALYSIS

5.1 Workforce Readiness Assessment

Current research reveals significant workforce readiness challenges. Analysis indicates that only 10-15% of military personnel feel adequately trained for agentic AI integration, creating substantial capability gaps despite significant technological investments (Cruickshank, 2023).

Table 5. Quantitative Military AI Implementation Metrics

Metric	Value	Source
AI Investment	$600M	(Steckler & Mayville, 2025)
Personnel Readiness	10-15%	(Cruickshank, 2023)
Training Placement Rate	85%	(Joshi, 2025a)
Annual Wage Increase	$28,000	
Training Cost	$8,400	
Annual Contractor Savings	$42M	

Training effectiveness data demonstrates promising outcomes for structured programs. Intensive AI training initiatives show 85% placement rates within six months of completion, with participants realizing average wage increases of $28,000 annually (Joshi, 2025a). These results highlight the potential return on educational investment when implementing comprehensive training approaches.

5.2 Resource Allocation and Impact

Financial analysis reveals substantial investments in military AI capabilities, with recent allocations exceeding $600 million for next-generation agentic AI systems (Steckler & Mayville, 2025). Cost-benefit assessment demonstrates that strategic investments in AI education can yield significant returns, with defense contractors realizing $42 million in annual savings through improved hiring pipelines and enhanced workforce capabilities (Joshi, 2025a).

Training program costs average approximately $8,400 per participant for intensive 12-week AI bootcamps, with documented effectiveness in rapidly developing critical technical competencies. These programs demonstrate the feasibility of scalable workforce development when implementing evidence-based educational approaches (Joshi, 2025a).

6. TECHNICAL CONSIDERATIONS

6.1 Security and Implementation

Secure implementation of AI systems requires robust technical frameworks. Research in secure multi-party computation protocols demonstrates approaches for maintaining data privacy while enabling collaborative AI operations across military organizations (Pathak & Joshi, 2009). These security considerations are particularly critical for agentic AI systems operating in contested environments.

Technical architecture must incorporate layered security approaches, including encryption protocols, access controls, and continuous monitoring mechanisms. These measures ensure system integrity while maintaining operational flexibility across diverse military contexts (Joshi, 2025).

6.2 Ethical and Governance Frameworks

Agentic AI implementation necessitates comprehensive ethical guidelines and governance structures. Research emphasizes the importance of explainable AI components, human oversight mechanisms, and accountability frameworks to ensure responsible deployment (Joshi, 2025). These considerations are particularly critical for autonomous systems operating in complex military environments.

International cooperation plays a vital role in establishing normative frameworks for military AI use. Collaborative efforts seek to balance technological advancement with ethical considerations and legal obligations under international humanitarian law (Wilner & Atkinson, 2025).

7. CONCLUSION AND RECOMMENDATIONS

The integration of agentic AI into military operations represents both an unprecedented opportunity and a formidable challenge that demands immediate and systematic action. Our comprehensive analysis reveals a critical disconnect between substantial technological investments—exceeding $600 million in next-generation AI capabilities—and workforce readiness, with only 15% of military personnel feeling adequately prepared for agentic AI integration. This gap underscores the urgent need for fundamental transformation across military education systems.

The proposed multi-tiered educational framework addresses this imperative through structured

progression from foundational AI literacy to operational competence and strategic leadership. By aligning educational objectives with career progression and operational requirements, the framework ensures appropriate skill development at each organizational level. The integrated architecture—encompassing curriculum development pipelines, technology infrastructure, stakeholder engagement models, and assessment mechanisms—provides a comprehensive approach to workforce transformation.

7.1 Key Findings and Implications

Our research yields several critical insights with far-reaching implications for military education and force development:

1. **Skills Gap Magnitude**: The 15% readiness rate among military personnel indicates a substantial gap that could undermine the significant technological investments in AI systems. This disparity threatens to create a scenario where advanced capabilities outpace the workforce's ability to effectively employ them.
2. **Resource Allocation Imperative**: The optimal distribution of resources—40% to technology infrastructure, 25% to faculty development, 20% to curriculum design, and 15% to program evaluation—reflects the balanced approach needed to address both technological and human capital requirements simultaneously.
3. **Continuous Learning Necessity**: The rapid evolution of AI technologies, evidenced by projections showing 50% enterprise deployment of AI agents by 2027, necessitates continuous education models rather than traditional one-time training approaches.
4. **Multi-stakeholder Collaboration**: Successful implementation requires robust partnerships between military institutions, industry leaders, academic organizations, and international allies to leverage diverse expertise and accelerate capability development.

7.2 Strategic Recommendations

Based on our analysis, we recommend the following actionable strategies:

7.2.1 Immediate Priorities (0-6 months)

Establish Cross-Service AI Education Task Force: Create a dedicated organization with representation from all military branches to coordinate AI education initiatives and standardize competency frameworks.

Conduct Comprehensive Skills Gap Analysis: Implement systematic assessment of current workforce capabilities against projected AI integration requirements to identify specific training needs.

Launch Faculty Development Programs: Initiate urgent upskilling of military educators and instructors to build the foundational expertise required for AI curriculum delivery.

Develop AI Education Standards: Create standardized competency frameworks and certification requirements to ensure consistent quality across military education institutions.

7.2.2 Medium-Term Initiatives (6-24 months)

1. **Implement Tiered Education Framework**: Roll out the progressive learning architecture across all professional military education institutions, ensuring alignment with career progression pathways.
2. **Establish AI Certification System**: Develop comprehensive credentialing programs that recognize and validate AI competencies across military occupational specialties.
3. **Deploy Digital Training Infrastructure**: Implement the layered technology architecture to support scalable, secure AI education delivery across distributed learning environments.
4. **Formalize Partnership Networks**: Establish structured collaboration frameworks with industry partners, academic institutions, and allied nations to leverage external expertise and resources.

7.2.3 Long-Term Vision (24+ months)

1. **Integrate AI Throughout Career Lifecycle**: Embed AI education as a continuous requirement across all career stages, from accession through senior leadership development.
2. **Establish AI as Core Military Competency**: Institutionalize AI literacy as a fundamental requirement parallel to traditional military skills like leadership and tactics.

3. **Develop Advanced Research Programs**: Create dedicated AI research initiatives within military education institutions to drive innovation and maintain technological advantage.
4. **Expand International Education Partnerships**: Build global AI education networks to facilitate doctrine development, interoperability, and shared learning.

7.3 Concluding Perspective

The successful integration of agentic AI into military operations transcends technical implementation—it represents a fundamental transformation in how military personnel think, decide, and operate. As Joshi (Joshi, 2025) emphasizes, "successful military implementation of Agentic AI requires robust testing methodologies, explainable AI components, and ethical governance mechanisms." These elements must be embedded throughout military education to ensure the US maintains its competitive advantage.

The rapid pace of AI advancement, demonstrated by the projection that 50% of enterprises will deploy AI agents by 2027, necessitates immediate action. The window for proactive adaptation is closing rapidly, and delayed investment in human capital could render technological investments less effective or even counterproductive.

By embracing comprehensive educational transformation, the US military can position itself not merely as an adopter of agentic AI, but as an innovator and leader in human-AI collaboration. This approach will ensure mission success in an increasingly complex and technologically advanced battlespace while maintaining the ethical foundations and strategic oversight required for responsible AI deployment.

The time for incremental change has passed. The era of agentic AI demands bold, comprehensive transformation of military education to build the force capable of dominating future conflicts through superior human-machine teaming and strategic innovation.

Future research should focus on validating the framework's efficacy through more focused and longitudinal studies and adapting it to the evolving contemporary tactical applications as needed.

DECLARATION

This work is exclusively a survey paper synthesizing existing published research. No novel experiments, data collection, or original algorithms were conducted or developed by the authors. All content, including findings, results, performance metrics, architectural diagrams, and technical specifications, is derived from and attributed to the cited prior literature. The authors' contribution is limited to the compilation, organization, and presentation of this pre-existing public knowledge. Any analysis or commentary is based solely on the information contained within the cited works. Figures and tables are visual representations of data and concepts described in the referenced sources.

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Author(s) hereby declare that generative AI technologies such as Large Language Models, etc have been used during writing or editing of this manuscript. This explanation will include the name, version, model, and source of the generative AI technology and as well as all input prompts provided to the generative AI technology.

Details of the AI usage are given below:

1. Proof Reading
2. Validating References

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

Biggs, A. T. (2025). Enhancing professional military education with AI: Best practices

for effective implementation. *Journal of Military Learning.* https://www.armyupress.army.mil/Journals/Journal-of-Military-Learning/Journal-of-Military-Learning-Archives/JML-April-2025/Enhancing-pme-with-ai/

BW Online Bureau. (2025). The necessity for upskilling and reskilling in an agentic AI era. *BW People.* https://www.bwpeople.in/article/the-necessity-for-upskilling-and-reskilling-in-an-agentic-ai-era-557843

Cruickshank, I. (2023). An AI-ready military workforce. *Joint Force Quarterly, 110.* https://ndupress.ndu.edu/Media/News/News-Article-View/Article/3449468/an-ai-ready-military-workforce/

Cummings, M. L. (2024). Human-AI teaming in defense operations: Challenges and opportunities. RAND Corporation.

Flournoy, M. A. (2023). AI is already at war: How artificial intelligence will transform the military. *Foreign Aff., 102,* 56.

Harper, J. (2025). Combatant commands to get new generative AI tech for operational planning, wargaming. *In DefenseScoop.* https://defensescoop.com/2025/03/05/diu-thunderforge-scale-ai-combatant-commands-indopacom-eucom/

Hosseini, S., & Seilani, H. (2025). The role of agentic AI in shaping a smart future: A systematic review. *Array, 100399.*

Insikt Group. (2025). Artificial eyes: Generative AI in China's military intelligence [Research report]. Recorded Future. https://www.recordedfuture.com/research/artificial-eyes-generative-ai-chinas-military-intelligence

Joshi, S. (2025). Agentic generative AI and national security: Policy recommendations for US military competitiveness SSRN. *Social Science Research Network.* https://doi.org/10.2139/ssrn.5529680

Joshi, S. (2025a). The impact of AI on veteran employment and the future workforce development: Opportunities, barriers, and systemic solutions. *World Journal of Advanced Research and Reviews, 27*(2), 328–341. https://doi.org/10.30574/wjarr.2025.27.3.3147

Knight, W. (2025). OpenAI is working with Anduril to supply the US military with AI. *Wired.* Retrieved September 24, 2025, from https://www.wired.com/story/openai-anduril-defense/

measley. (2025). Army evaluating generative AI tools to support business ops. *In DefenseScoop.* https://defensescoop.com/2025/01/14/army-project-athena-generative-ai-streamline-business-operations/

Pathak, R., & Joshi, S. (2009). Secure multi-party computation protocol for defense applications in military operations using virtual cryptography. In S. Ranka, S. Aluru, R. Buyya, Y.-C. Chung, S. Dua, A. Grama, S. K. S. Gupta, R. Kumar, & V. V. Phoha (Eds.), *Contemporary computing* (pp. 389–399). Springer. https://doi.org/10.1007/978-3-642-03547-0_37

Requiroso, K. (2025). Pentagon advances generative AI in military operations amid US-China tech race. *In eWEEK.* https://www.eweek.com/news/pentagon-generative-ai-military-operations/

Scale AI. (2025). Accelerating agentic warfare capabilities. Retrieved September 24, 2025, from https://scale.com/agentic-warfare

Scharre, P. (2023). Four battlegrounds: Power in the age of artificial intelligence. W. W. Norton & Company.

Souki, N. E. (2025). Pentagon's new gen-AI can analyze war but doesn't understand war. *In Inside Telecom.* https://insidetelecom.com/us-uses-generative-ai-military-applications/

Steckler, J., & Mayville, R. (2025). Emerging tech & American isolationism: Consequences for AI, drone, and space launch technologies [Research report]. Belfer Center for Science; International Affairs. https://www.belfercenter.org/sites/default/files/2025-07/DETSP_EmergingTech-AmericanIsolationism_v1-02.pdf

Stilwell, B. (2020). How the Army and Air Force integrate AI learning into combat training. *In Military.com.* https://www.military.com/military-life/how-army-and-air-force-integrate-ai-learning-combat-training.html

Williams, L. C. (2025). The Army wants AI to aid in vehicle repairs. *In Defense One.* https://www.defenseone.com/defense-systems/2025/08/army-wants-ai-aid-vehicle-repairs/407645/

Wilner, A., & Atkinson, R. (2025). Artificial intelligence and national defence: A strategic foresight analysis (CIGI Paper 316). Centre for International Governance Innovation. https://www.cigionline.org/publications/artifi

cial-intelligence-and-national-defence-a-strategic-foresight-analysis/

Zarrar, H., & Kakar, S. A. (2024). Generative artificial intelligence its military applications by the US and China – Lessons for South Asia. *Journal of Computing & Biomedical Informatics.* https://jcbi.org/index.php/Main/article/view/494

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