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Modernizing Department of the Air Force Training and Education Approaches

Leveraging Stackable Certificates for Artificial Intelligence and Advanced Technologies



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Published by the RAND Corporation, Santa Monica, Calif.

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About This Paper

The U.S. Department of the Air Force (DAF) is balancing (1) the demands of strategic competition and ongoing conflict with (2) the constraints of a workforce that is consistently tasked to do more with less. In this context, the DAF needs to adopt innovative approaches and strengthen its technological capabilities to prepare its personnel for the challenges of strategic competition and future warfare.

As warfare becomes increasingly shaped by artificial intelligence (AI), autonomy, cyber capabilities, and data-driven operations, the DAF may consider treating technological fluency as a core element of readiness. We identify stackable certificate programs in AI and advanced technologies as a potential way to build these skills over time in critical missions and career fields and to modernize existing professional military education curricula.

The intended audience for this paper includes DAF training and development functions, personnel management offices, senior leaders, and policymakers.

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The draft, dated June 2026, was reviewed by formal peer reviewers and DAF subject-matter experts.

The views expressed in this publication are those of the authors and do not reflect the official policy or position of the U.S. Department of War or the U.S. Government. Review of this material does not imply U.S. Department of War endorsement of factual accuracy or opinion.

Funding

Funding for this research was made possible through the concept formulation provision of the Department of the Air Force–RAND Sponsoring Agreement (contract FA7014-22-D-0001). PAF uses concept formulation funding to support a variety of activities, including research plan development; direct assistance on short-term, decision-focused Department of the Air Force requests; exploratory research; outreach and communications initiatives; and other efforts undertaken in support of the development, execution, management, and reporting of PAF's approved research agenda.

Acknowledgments

We are grateful to Anna White Hewitt for contributing important data analysis and cost evaluation to this paper. We appreciate the guidance and programmatic support of Sean Robson and Emmi Yonekura in shaping this effort. Finally, we thank our peer reviewers, Lisa Harrington and Stephani Wrabel, for their insightful comments and feedback on this paper.

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Warfare is increasingly shaped by artificial intelligence (AI), autonomy, cyber capabilities, and data-driven operations, and U.S. adversaries are investing heavily in these technologies in ways that could reduce U.S. military advantage.¹ As the Commission on the National Defense Strategy warned in 2024, today's force is already strained to meet the needs of strategic competition and potential multitheater war.² That reality, along with ongoing operational and personnel demands from conflict with Iran and from U.S. Department of War (DOW) efforts to deter the People's Republic of China in the Indo-Pacific,³ suggests that the U.S. Department of the Air Force (DAF) may need to continue building a force able to generate decision advantage, integrate emerging technologies, and fight effectively in a faster, more complex battlespace.

In an era of constrained resources, technological fluency may increasingly need to be treated as a core element of warfighter readiness, not a niche skill or one-time educational requirement. Airmen and guardians must continuously adapt as these capabilities evolve. The DAF could consider investing in targeted, ongoing, "just-in-time" training in AI, data literacy, and cyber-enabled operations to ensure that the force remains lethal, agile, and capable of doing more with less. While this report focuses on officer and warrant officer (WO) populations, future studies could extend this framework to enlisted and civilian personnel in support of a more comprehensive, force-wide approach to AI integration.

For officer populations, specifically, stackable, scaffolded continuous training through a certificate model in AI and advanced technologies could be a particularly promising approach for several reasons. First, it recognizes the pace of technological change and gives airmen and guardians recurring opportunities to stay current and knowledgeable regarding capabilities relevant both to their career fields and to their assigned missions. Second, by leveraging existing offerings from industry and civilian higher education, adopting stackable certificates could provide access to high-quality, flexible, and often

¹ This paper was written with the aid of large language models. In particular, we used RAND's version of GPT-5.4 in the following ways: (1) to revise or synthesize language into clearer and/or shorter passages and to better emphasize key claims and (2) to suggest alternative ways of structuring the flow. All output from the large language model was edited and verified by the authors.

² Commission on the National Defense Strategy, *Commission on the National Defense Strategy*, July 2024, p. ix.

³ David Vergun, "This Week in DOW: Dismantling Iran Threat, Protecting Homeland, Sharpening Arctic Readiness," U.S. Department of War, March 13, 2026; DOW, *2026 NDS: National Defense Strategy*, January 23, 2026. The Department of War is designated the Department of Defense under Public Law 81-216, National Security Act Amendments of 1949.

virtual instruction while reducing the cost of building and sustaining all training organically within the DAF. Third, a certificate model allows training to be tailored, progressive, and mission-relevant, enabling airmen and guardians to build competence over time rather than through one-time exposure. Finally, using stackable credentials creates a clear, measurable pathway for developing the technological fluency that is increasingly required for warfighting and leadership in an era of strategic competition.

In this paper, we offer two approaches to integrating stackable certificates into DAF training and education systems: integrating stackable certificates to deliver agile technical skill training to the workforce, where it would benefit career fields or missions, and updating professional military education (PME) curricula with stackable certificates where appropriate and feasible. As AI and advanced technologies increasingly shape military effectiveness, airmen and guardians must be prepared not only to operate alongside these capabilities but also to lead with them. In a resource-constrained environment and an era of strategic competition, adopting supplemental agile technical skill training and modernizing PME curricula with stackable certificate programs could offer practical ways to build a more lethal, adaptable, and cost-effective force.

Exploring a New Approach: Stackable Certificates

According to the U.S. Department of Labor, stackable certificates are credentials designed to be earned in sequence over time, allowing individuals to build qualifications progressively and advance along a defined career pathway.⁴ Stackable certificates can break a longer educational program into defined, assessable segments that contribute toward a higher-level qualification when combined. Each certificate must define specific competencies and involve assessments, prerequisites should be logical, and the pathway to achieve competencies and complete certificates should be transparent and sensible to both the program designer and the learner.⁵

RAND researchers have examined credential-stacking programs in civilian, postsecondary contexts and found that outcomes vary:⁶ Stackable certificates can be effective in enabling students to build credentials over time, but effects are mixed and depend significantly on program design, institutional support, and the quality of information provided to participants about the value of different credentials.⁷ There have been fewer assessments of stackable certificate models in military or government organizational contexts, and it is not yet clear how findings from civilian higher education transfer to a military environment with different incentive structures, career progression systems, and training requirements. Given this evidentiary uncertainty, the recommendations in this paper should be understood as promising options warranting further evaluation rather than as established best practices. In particular, before implementing stackable certificate programs at scale, the DAF should

⁴ John P. Pallasch, "Understanding Postsecondary Credentials in the Public Workforce System," Training and Employment Notice No. 25-19, Attachment I: "Credential Resources," U.S. Department of Labor, 2020, p. I-3.

⁵ Education Strategy Group, *Stackability Guide: Building Credential Connections Within Institutions*, February 2023; Christine Carpenter, "Stackable Credentials: Living Links Between Learning and Work," *CAEL Pathways Blog*, March 24, 2021.

⁶ Lindsay Daugherty, Jenna W. Kramer, Drew M. Anderson, and Robert Bozick, *Stacking Educational Credentials in Ohio: Pathways Through Postsecondary Education in Health Care, Manufacturing and Engineering Technology, and Information Technology*, RAND Corporation, RR-A136-1, 2020; Jonah Kushner, Elaine W. Leigh, Phoebe Rose Levine, and Melanie A. Zaber, *Promising Practices for Building Stackable Credential Infrastructure*, RAND Corporation, PE-A4555-1, February 2026.

⁷ RAND Corporation, "Stackable Credentials: Making College Work for More Students," *Policy Currents*, January 11, 2024.

invest in pilot programs and outcome assessments to build an evidence base specific to its own organizational context.

Stackable certificate pathways can take three forms. *Vertical stacking* builds expertise within a single domain, moving from foundational to intermediate and advanced skills. *Horizontal stacking* builds competence across related areas at a similar level, whether aligned to rank or required skill level. *Supplemental stacking* adds specialized credentials to an existing core program, allowing technical training to augment rather than replace current instruction. Such pathways “offer a way to acquire knowledge progressively—earning short-term credentials to help fill immediate skill gaps while building a foundation for long-term success.”⁸

In the rest of this paper, we discuss two approaches for the DAF to adopt stackable certificates in AI and advanced technologies to modernize existing training and education programs. First, the DAF can implement stackable certificate programs tailored to career fields and mission areas that require cutting-edge technological competencies for mission success. Second, the DAF can modernize its existing PME curricula to incorporate stackable certificates for education on AI and advanced technologies. We discuss both approaches below before considering stackable certificates for the DAF’s newly reestablished warrant officer corps. We conclude with a discussion of implementation considerations.

Adopting Stackable Certificates for Artificial Intelligence and Advanced Technologies

As a first step, the DAF should conduct a functional mission analysis to identify which career fields and mission areas require agile skill training in AI and advanced technologies. These career fields and units can establish AI literacy and progress toward the acquisition and application of specialized technological skills by leveraging stackable certificates focused on executing tasks in such areas as cybersecurity, network engineering, or cloud computing. These certificates could be organized through vertical, horizontal, or supplemental pathways. Several existing programs could form part of a stackable certificate–based advanced technology training model, such as the DAF–Massachusetts Institute of Technology AI Accelerator, which is designed to educate airmen and guardians on AI fundamentals and applications, and AFWERX, which “connects Airmen and Guardians to commercial innovators using virtual collaboration, immersive training and networking opportunities to inspire ideas and cultivate a more creative force;”⁹ the Air Force Institute of Technology (AFIT), which provides graduate-level education in science, technology, engineering, and AI to military and civilian personnel; and Air University’s Global College, which offers flexible distance and online professional development that could support virtual and hybrid delivery of stackable certificate content. Beyond these existing resources, the DAF would need to adopt a broader portfolio of stackable certificates to support the development of advanced skills and provide a practical bridge between formal instruction and operational application.

As an exercise in scoping such an approach, in Table 1, we present notional investment pathways for using stackable certificates to acquire AI skills across the active-duty population, drawing on our

⁸ Harvard Extension School, Harvard Division of Continuing Education, “Stacking Certificates and Degrees: Everything You Need to Know,” blog post, last updated March 26, 2026.

⁹ AFWERX, “Overview,” webpage, undated.

informed judgment. Stackable certificates in these areas could be tailored to specific career fields or mission requirements and structured through the vertical, horizontal, or supplemental stacking patterns discussed above.

Table 1. Pathways for the Department of the Air Force’s Investment in Artificial Intelligence and Advanced Technologies

Skill	Priority	Description	How to Obtain Knowledge	Feasibility of Stackable Certificate for Obtaining Knowledge	Potential Stacking Pattern
Basic AI literacy	High	Understanding of AI concepts, such as machine learning, natural language processing, and their potential applications	Online courses, internal workshops, introductory webinars, curated reading lists	High: stackable certificate approach could provide basic AI literacy	Horizontal or supplemental
Domain expertise	Critical	Deep understanding of DAF operations, workflows, and unique challenges within a specific career field	Ongoing experience and specialized training related to one's position; AI implementation discussions specific to relevant areas of work	Medium: stackable certificates would not be enough on their own to achieve domain expertise	Supplemental
Data science proficiency	High	Collection, cleaning, analysis, and interpretation of data to provide power to AI solutions	University degree programs, specialization courses in data science, bootcamps, DAF-specific data analysis training	Medium: stackable certificates would not be enough on their own to achieve domain expertise	Vertical
Programming knowledge	Medium	Understanding coding languages, particularly Python, to facilitate interactions with technical teams and basic model development	Codecademy-style online courses, workshops or seminars, self-study with dedicated practice projects, focused electives	High: stackable certificate approach could provide advanced coding literacy	Vertical or horizontal
Specialized technological skills	Varies by project	Advanced areas, such as cybersecurity, network engineering, and cloud computing for deployment and management of complex AI systems	Specialization courses or degree programs; projects that focus on collaboration with information technology or engineering for skill transfer	High: stackable certificate approach could provide access to specialization	Vertical or supplemental

Given this framework, the U.S. Space Force (USSF) might traditionally approach workforce investments in AI and advanced technologies by accessing guardians with data science degrees and augmenting their foundational knowledge with USSF-focused data analysis training. This reflects opportunities for incorporating stackable certificates in a vertical stacking pattern, in which additional specialized credentials could build on an existing technical base. Alternatively, the U.S. Air Force (USAF) might find that it already has enough data scientists but lacks domain expertise, which requires organizational and operational experience rather than a specific degree emphasizing advanced technologies. In that case, the solution may lie less in deeper technical specialization and more in adjacent organizational, operational, or mission knowledge, which aligns more closely with horizontal or supplemental certificate stacking approaches. Within existing career field-specific or unit-level

training programs, this kind of supplemental training could augment existing curricula by enabling targeted, mission-relevant technical skill acquisition without displacing the broader training curriculum.

To integrate stackable certificates within appropriate career field or mission-specific skill training, senior leaders, career field managers, and unit-level commanders could consider building on the DAF–Massachusetts Institute of Technology AI Accelerator program to create a flexible network of stackable credentialing and development opportunities. Such an approach would cultivate a network of relationships with universities and corporations engaged in cutting-edge technological innovations. This web of affiliation could allow the DAF to draw on existing experience, curricula, and delivery platforms rather than bearing the full start-up, implementation, and execution costs of developing and sustaining these programs on its own. It could also expand access to high-quality, flexible instruction while reducing the institutional burden associated with building new skill training infrastructure from scratch.

Before adopting stackable certificates for AI and advanced technological skill training in targeted career fields or mission areas, the DAF should assess where stackable certificates would prove most effective in linking the workforce to agile skill training mechanisms, what costs such an approach will generate, and potential resource trade-offs between existing approaches and stackable certificate pathways. Any stackable certificate program would also need to align with USAF and USSF competence-based learning frameworks and existing Career Field Education and Training Plans (CFETPs) to ensure institutional integration and that certificate content maps to recognized proficiency standards at each skill level. Future research should explore these areas to enable DAF adoption of stackable certificates.

Integrating Stackable Certificates Within Professional Military Education

PME is the established system through which DOW “prepares Service members for increasing levels of Service and joint leadership responsibilities.”¹⁰ Comprising different levels of education and professional development for specific rank categories, PME “conveys the broad body of knowledge and develops the habits of mind essential to the military professionals’ expertise in the art and science of war.”¹¹ Identifying mechanisms to integrate education on AI and advanced technologies within DAF education and training systems is particularly important given the current environment in which technology is advancing rapidly, spurring efforts like DOW’s adoption of an AI strategy.¹² Integrating stackable certificates within PME could equip the DAF to “evolve in response to technological advancements and global security shifts.”¹³ Such an effort would also align with Air Education and

¹⁰ Department of Defense Instruction 1322.35, *Military Education: Program Management and Administration*, Vol. 1, Office of the Under Secretary of Defense for Personnel and Readiness, April 26, 2022, p. 22.

¹¹ Department of Defense Instruction 1322.35, 2022, p. 22.

¹² Peter B. Hegseth, “Artificial Intelligence Strategy for the Department of War,” memorandum to senior Pentagon leadership, commanders of the combatant commands, and defense agency and DOW field activity directors, U.S. Department of War, January 9, 2026.

¹³ Eric A. Wismar, “Future-Proofing PME: How AI Is Redefining Adaptive Wargaming and Strategic Readiness,” *Wild Blue Yonder*, June 20, 2025.

Training Command's (AETC's)¹⁴ AI-powered curriculum development tool that aims to “reduce development timelines and deliver more agile and responsive training to Airmen.”¹⁵

We do *not* argue that stackable certificates should replace PME and the associated leadership development and relationship-building benefits inherent to this established educational system. DOW's military education system accomplishes a variety of requirements and satisfies established learning objectives, and supplanting this system with a solely virtual technology-focused model would not satisfy the PME requirements set by Congress, DOW, the service, or accreditation standards. Instead, we suggest that PME programs and schoolhouses can integrate stackable certificates into their existing curricula, either by replacing outdated lesson material (while maintaining accreditation requirements) or by augmenting existing courses where feasible (without overburdening instructors and students alike with too much content). Doing so could help ensure that joint warfighters have access to education on AI and advanced technologies alongside the strategic and professional development that PME is designed to provide.

Updating existing DAF PME curricula with online-accessible stackable certificates may enable AETC to adopt dynamic learning models for emerging competencies, providing options to modernize current educational structures by leveraging partnerships with a diverse network of providers offering synchronous, asynchronous, virtual, and in-person learning options. Adopting hybrid learning models that incorporate just-in-time education on AI and advanced technologies may be particularly relevant at a time when the DAF is seeking to strengthen technical training and technological exposure while managing personnel tempo and cost pressures.

For example, integrating stackable certificates into DAF systems could ameliorate existing challenges associated with the cost of in-residence PME models. Traditional in-residence PME incurs significant expenses to the service across permanent change of station (PCS) budgetary costs and students' time out of their operational units.¹⁶ Military personnel budgets obligate fiscal year funds for four types of PCS moves: accession, training, operational, and rotational, with training travel covering PME-related PCS moves. According to DOW comptroller documentation, the DAF spent \$89.026 million for training-related PCS moves in fiscal year 2025 and \$77.636 million in fiscal year 2026, with \$88.279 million obligated in fiscal year 2027.¹⁷

The DAF could potentially reduce PME-related PCS costs by converting some in-residence PME coursework to virtual delivery through a hybrid, temporary duty (TDY)–based model. For example, students could travel to PME for a defined period on TDY to complete leadership development engagements, relationship-building with classmates, and coursework that requires in-person instruction. Students could then return to their duty stations to complete any remaining PME

¹⁴ While this report focuses on AETC as the primary audience, AETC and the Space Training and Readiness Command (STARCOM) maintain significant institutional alignment and partner closely on training and developing Airmen and Guardians. Future research should evaluate how the approaches discussed in this report may apply to STARCOM's portfolio.

¹⁵ Dan Hawkins, “AFCDA Explores AI-Powered Curriculum Development to Accelerate Training, Enhance Readiness,” Air Education and Training Command, March 26, 2025.

¹⁶ Kelly Atkinson, Lisa M. Harrington, Anna White Hewitt, R. Gordon Rinderknecht, Albert A. Robbert, Kelly Piazza, James Fan, Anthony Lawrence, Jessica Lu, Nathan Thompson, Sankalp Kumar, and Anton Wu, *Air Force Assignment Durations: Modeling Policy Changes and Their Effects on Cost, Readiness, and Retention*, RAND Corporation, RR-A3735-1, 2026.

¹⁷ Office of the Under Secretary of War (Comptroller), *Department of War Budget Fiscal Year 2027: Military Personnel Programs*, April 2026, p. 25.

curriculum requirements virtually through synchronous and asynchronous schoolhouse coursework. Cost savings in this model would derive from converting existing PME curriculum to virtual delivery, not from adding stackable certificate content, which would augment rather than replace existing requirements. Any realistic cost estimate would need to account for TDY travel costs, which would offset a portion of the PCS savings.¹⁸ Separately, the DAF could consider incorporating stackable certificate programming into the virtual portion of the curriculum to ensure that PME students have access to current, mission-relevant instruction on AI and advanced technologies. These two elements—virtualizing existing PME content and adding stackable certificate content—are distinct decisions with distinct cost implications, and the DAF should evaluate them independently.

The two approaches to integrating stackable certificates within PME—replacing existing course content with stackable certificates and augmenting existing courses by adding stackable certificate content—have different and, in some respects, opposite implications for cost and mission. A replacement model, in which stackable certificates substitute for portions of in-residence PME curricula, is most directly connected to potential PCS cost savings because it could reduce the in-residence requirement that drives those costs. However, this approach carries greater risk to PME’s professional formation mission, in that it reduces the time students spend in the schoolhouse environment that develops the habits of mind and professional relationships that PME is designed to foster. An augmentation model, in which stackable certificates are added to existing PME curricula, better preserves PME’s professional formation mission and in-residence requirements, but it does not reduce PCS costs because students still attend PME in full. It also adds to the instructional load for both students and faculty. The DAF should weigh these trade-offs explicitly when determining which approach, or combination of approaches, best serves its educational and resource objectives.

In addition to cost-related challenges, RAND researchers have found that DOW struggles to optimize its return on PME investment. As one team noted, “Services and schools report[ed] that postgraduate assignments often do not build on the skills learned during officer PME experiences.”¹⁹ If AETC integrates stackable certificates into PME curricula, students could build on the stackable certificates earned in their PME programs when they return to their units, applying their education on AI and advanced technologies gained in PME through operational application when executing mission requirements in post-PME assignments.

Finally, integrating stackable certificates into the existing PME system could equip AETC with options to innovate military education delivery models in the future. For example, recent RAND research suggests that career field managers should “identify opportunities to leverage flexible career development practices to promote skill development and career growth,” including “remote training for skill development or virtual developmental education credit.”²⁰ Should the DAF adopt a hybrid

¹⁸ A June 2026 media article indicates that the U.S. Army has adopted distance learning approaches to reduce moves for military education assignments: “by stabilizing soldiers for two years while they attend [Captain’s Career Course and similar] courses, the Army avoided more than 5,000 school-related PCS moves in 2025.” See John Vandiver, “Army to Cut Thousands of PCS Moves in Push for Stability,” *Stars and Stripes*, June 15, 2026. The DAF should evaluate the Army’s approaches and lessons learned in adopting distance learning programs to reduce PME-related PCS moves.

¹⁹ Charles A. Goldman, Paul W. Mayberry, Nathan Thompson, and Travis Hubble, *Intellectual Firepower: A Review of Professional Military Education in the U.S. Department of Defense*, RAND Corporation, RR-A1694-1, 2024, p. x.

²⁰ Tahina Montoya, Kelly Atkinson, and Lisa M. Harrington, *Modifying Air Force Intelligence Career Development in Response to Targeted Permanent Change of Station Reductions*, RAND Corporation, RR-A3735-3, 2026, p. 11.

delivery model for PME in the years ahead, integrating stackable certificates into PME will have equipped the DAF with a novel foundational for virtual training in the future.

Adopting Stackable Certificates: Implementation for Warrant Officers

Using stackable certificates for just-in-time training and to augment existing PME curricula could be particularly well aligned with the DAF's new reestablished WO cadre. Since December 2024, the USAF has graduated more than 100 WOs used "to expand technical expertise in the cyber and information technology fields."²¹ Reintroducing the WO program creates an opportunity for more intentional human capital management, and the DAF could use stackable certificates to equip this cadre of technical experts with flexible, just-in-time training and tailored PME to support technical mission needs.

WOs can leverage stackable certificates to complete ongoing training on AI, advanced technologies, cyber capabilities, and other mission-specific requirements while assigned to their units and performing their standard duties. This approach ensures that WOs maintain access to just-in-time training on quickly evolving competencies and skill sets, ensuring that WOs are equipped with the most updated training available to perform their duties as technical advisers. WO career field managers can explore integrating stackable certificate programs into WO skill-level training requirements, partnering with non-DAF organizations to connect WOs with these training programs (similarly to how other career fields leverage civilian training organizations, such as the force support career field for culinary training requirements). DAF career field managers should ensure that WO stackable certificate programs are scaffolded appropriately to provide the proper mix of vertical, horizontal, and supplemental training to augment existing training programs.

Regarding stackable credentials and PME, RAND researchers have evaluated whether WOs should attend PME given their intended functional role as technical advisers in the USAF. The researchers recommended that "stakeholders consider sending the USAF WO corps to participate in joint PME granting programs, which will prepare them for interfacing with internal and external stakeholders in a joint environment."²² For primary-level PME offered to officer grades of O-1 to O-3, however, the researchers recommended against WO enrollment and recommended that "WOs . . . complete technical proficiency training instead."²³

For primary-level PME, the aforementioned RAND research team recommended against WO enrollment and recommended technical proficiency training as a substitute. Stackable certificates are well suited to deliver this technical proficiency training, providing WOs with sequenced, progressively advanced credentials in AI, cybersecurity, and other mission-relevant technological areas in lieu of primary-level PME attendance. This approach keeps WOs focused on building the deep technical expertise that their roles require without diverting time to PME programming designed for a different

²¹ Secretary of the Air Force Public Affairs, "Update on Recent DAF Efforts," December 2, 2025.

²² Kelly Atkinson and Angela K. Clague, *Should U.S. Air Force Warrant Officers Attend Professional Military Education? An Assessment of Programmatic Objectives and Options*, RAND Corporation, RR-A2997-4, 2025, p. v.

²³ Atkinson and Clague, 2025, p. 16.

developmental purpose. For joint PME programs at higher levels, for which the researchers recommended WO participation, the DAF could consider integrating stackable certificates to be a supplemental element within existing curricula—adding targeted, mission-relevant technical instruction alongside the professional and joint development content those programs are designed to deliver. In both cases, the DAF and AETC should take care to ensure that all applicable mandates and accreditation requirements are satisfied.

Implementing Stackable Certificates: Approaches and Considerations

Effective implementation of stackable certificates for AI and advanced technological training and education within the DAF will require careful consideration of several organizational, cultural, and structural factors:

- **Purpose, goals, and career development contributions of PME and other training pathways:** The DAF should clearly define how stackable certificates align with PME objectives, existing career development pathways, and broader technical training and workforce development structures to ensure that adopting stackable certificates supports both leadership growth and technical proficiency in support of the force’s overarching mission requirements.
- **Accreditation, quality assurance, and governance:** The DAF should establish clear standards for vetting and approving stackable certificate programs, including criteria for accreditation, quality assurance, and ongoing governance. Without a formal oversight mechanism, the proliferation of certificate offerings risks inconsistent quality and misalignment with DAF learning objectives and CFETP requirements.
- **Cultural, institutional, and policy resistance:** Adopting stackable certificates as a training and education resource will require overcoming cultural and policy resistance by coordinating among key stakeholders across PME, career field managers, and training stakeholders, potentially incentivizing participation through establishing clear career development pathways that integrate stackable certificate models.²⁴
- **Variations across partner institutions in the web of affiliation:** The DAF must coordinate with diverse partner institutions—each with distinct goals, scheduling timelines, and constraints—to work out funding arrangements and align curricula, credentialing standards, and training objectives.
- **Competing operational demands and burnout:** Stackable training should be designed with flexible delivery models that account for operational precedence and guard against overburdening personnel.
- **Retention risks from advanced AI competencies:** As service members gain advanced AI and technological skills, the DAF should implement retention incentives and career pathways that make continued service as rewarding as private-sector opportunities.

²⁴ Kelly Atkinson, Lisa M. Harrington, Kelly Piazza, R. Gordon Rinderknecht, and Elizabeth M. Goldsmith, *Considering U.S. Air Force Culture When Modifying Career Development Pathways for Longer Assignments*, RAND Corporation, RR-A3735-2, 2026.

To ensure that its expansion of technical training programs is successful, the DAF will need to be deliberate in its integration of stackable certificates for training and education so that they are compatible with airmen's and guardians' primary responsibilities and career trajectories. In particular, the DAF should determine whether ongoing and/or advanced technical training that benefits the force fits within the scope of service members' primary responsibilities and through which delivery models it can be most effectively offered.

To support professional development, the DAF could consider updating promotion and assignment processes to take stackable certificate completion into account and reward technological competencies that benefit the force. In doing so, the DAF should learn from and avoid repeating the shortcomings of the Army's flagship AI talent pipeline program, in which participants experienced significantly worse promotion outcomes than their peers.²⁵ This outcome highlights the need to ensure that technical skill development strengthens, rather than undermines, promotion and assignment opportunities for service members. Ideally, adopting dynamic skill training models will serve as a mechanism to retain talent because enabling service members to acquire advanced technological skills can support career growth and could reduce separation rates.²⁶

Overall, adopting stackable certificates for training and education on AI and advanced technologies could, if well designed and appropriately evaluated, enhance DAF workforce technological proficiency so that it remains at the forefront of innovation across critical technological skill areas—from AI literacy to cybersecurity—that are essential in an era of strategic competition.²⁷ A stackable certificate approach may also create opportunities for cost savings, including by potentially reducing PCS demands associated with some in-residence PME programs, while providing the workforce with more current and immediately applicable technological training. Over time, these cumulative skills can contribute to substantive knowledge development in the military workforce and equip the DAF to succeed in future conflict. While this paper focuses on PME and career field training as two illustrative delivery mechanisms, future research should explore the full range of options available to identify the most effective and resource-efficient approaches across different organizational contexts. This research should also extend this framework to enlisted and DAF civilian personnel, whose inclusion would enable a more comprehensive, force-wide strategy for building AI proficiency across the full personnel portfolio.

²⁵ Nathaniel Fairbank, "The Army Built an AI Talent Pipeline—But It's Filled with Career-Killing Roadblocks, Modern War Institute, January 14, 2026.

²⁶ Nelson Lim, "Stackable Certificates Could Be a Lifeline for Governments Facing an IT Talent Crisis," *Route Fifty*, July 11, 2024.

²⁷ J. M. Eddins, Jr., "The United States Air Force's Focus on AI Research and Development," *Airman Magazine*, May 21, 2024.

Abbreviations

AETC	Air Education and Training Command
AI	artificial intelligence
CFETP	career field education and training plan
DAF	U.S. Department of the Air Force
DOW	U.S. Department of War
OCONUS	outside the continental United States
PCS	permanent change of station
PME	professional military education
STARCOM	Space Training and Readiness Command
TDY	temporary duty
USAF	U.S. Air Force
WO	warrant officer

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