United States Government Accountability Office

Report to the Committee on Armed Services, House of Representatives

December 2023

ARTIFICIAL INTELLIGENCE

Actions Needed to Improve DOD's Workforce Management

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Why GAO Did This Study

DOD has invested billions of dollars to integrate AI into its warfighting operations. This includes analyzing intelligence, surveillance, and reconnaissance data, and operating lethal autonomous weapon systems. DOD identified cultivating a workforce with AI expertise as a strategic focus area in 2018. However, in 2021 the National Security Commission on Artificial Intelligence concluded that DOD's AI talent deficit is one of the greatest impediments to the U.S. being AI-ready by the Commission's target date of 2025.

House Report 117-118, accompanying a bill for the National Defense Authorization Act for Fiscal Year 2022, includes a provision for GAO to review DOD's AI workforce. This report evaluates the extent to which DOD has (1) defined and identified its AI workforce and (2) established plans and strategies to address AI workforce issues, among other objectives. GAO assessed DOD strategies and plans, reviewed laws and guidance that outline requirements for managing an AI workforce, and interviewed officials.

What GAO Recommends

GAO is making three recommendations to DOD to assign responsibility and establish a timeline for completing the additional steps to define and identify its AI workforce; and update its Human Capital Operating Plan to be consistent with key department strategic documents related to AI workforce issues. DOD partially concurred with the recommendations, offering revisions. GAO made clarifications, as described in the report.

View GAO-24-105645. For more information, contact Alissa H. Czyz at (202) 512-3058 or czyza@gao.gov.

What GAO Found
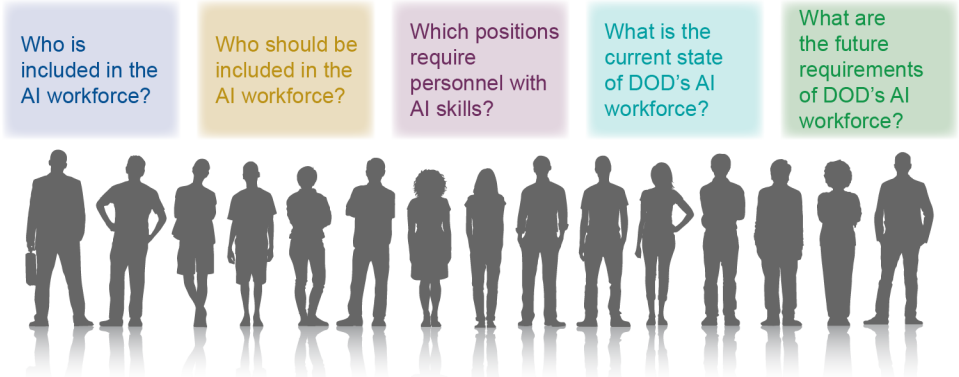
The Department of Defense (DOD) typically establishes standard definitions of its workforces to make decisions about which personnel are to be included in that workforce, and identifies its workforces by coding them in its data systems. DOD has taken steps to begin to identify its artificial intelligence (AI) workforce, but has not assigned responsibility and does not have a timeline for completing additional steps to fully define and identify this workforce. DOD developed AI work roles—the specialized sets of tasks and functions requiring specific knowledge, skills, and abilities. DOD also identified some military and civilian occupations, such as computer scientists, that conduct AI work. However, DOD has not assigned responsibility to the organizations necessary to complete the additional steps required to define and identify its AI workforce, such as coding the work roles in various workforce data systems, developing a qualification program, and updating workforce guidance. DOD also does not have a timeline for completing these additional steps. Assigning responsibility and establishing a timeline for completion of the additional steps would enable DOD to more effectively assess the state of its AI workforce and be better prepared to forecast future workforce requirements (see figure).

Questions DOD Cannot Answer Until It Fully Defines and Identifies Its AI Workforce

Who is included in the AI workforce?

Who should be included in the AI workforce?

Which positions require personnel with AI skills?

What is the current state of DOD's AI workforce?

What are the future requirements of DOD's AI workforce?

Source: GAO analysis of Department of Defense (DOD) and other federal workforce planning guidance. | GAO-24-105645

DOD's plans and strategies address some AI workforce issues, but are not fully consistent with each other. Federal regulation and guidance state that an agency's Human Capital Operating Plan should support the execution of its Strategic Plan. However, DOD's Human Capital Operating Plan does not consistently address the human capital implementation actions for AI workforce issues described in DOD's Strategic Plan. DOD also uses inconsistent terms when addressing AI workforce issues, which could hinder a shared understanding within DOD. The military services are also developing component-level human capital plans that encompass AI and will cascade from the higher-level plans. Updating DOD's Human Capital Operating Plan to be consistent with other strategic documents would better guide DOD components' planning efforts and support actions necessary for achieving the department's strategic goals and objectives related to its AI workforce.

Contents

Abbreviations

AI	artificial intelligence
CDAO	Chief Digital and Artificial Intelligence Office
DOD	Department of Defense
NICE	National Initiative for Cybersecurity Education
OPM	Office of Personnel Management
STEM	Science, Technology, Engineering, and Mathematics

December 14, 2023

The Honorable Mike Rogers
Chairman
The Honorable Adam Smith
Ranking Member
Committee on Armed Services
House of Representatives

The Department of Defense (DOD) has invested billions of dollars to integrate artificial intelligence (AI) into its warfighting, support, and business operations to maintain America's strategic position and prevail on future battlefields.[1] The *2018 DOD AI Strategy* states that AI refers to the ability of machines to perform tasks that normally require human intelligence—for example, recognizing patterns, learning from experiences, drawing conclusions, making predictions, or taking action—whether digitally or as the smart software behind autonomous physical systems.[2] In 2018, DOD identified cultivating a leading AI workforce (hereafter referred to as an AI workforce) as a strategic focus area.[3] However, in 2021 the National Security Commission on Artificial Intelligence concluded that DOD's AI talent deficit represented one of the greatest impediments to the U.S. being AI-ready by 2025.[4]

The House Armed Services Committee report accompanying a bill for the National Defense Authorization Act for Fiscal Year 2022 included a

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[1]GAO, *Artificial Intelligence: DOD Should Improve Strategies, Inventory, Process, and Collaboration Guidance*, GAO-22-105834 (Washington, D.C.: Mar. 30, 2022); DOD, *Summary of the 2018 Department of Defense Artificial Intelligence Strategy: Harnessing AI to Advance Our Security and Prosperity* (2018*)*; and GAO, *Artificial Intelligence: Status of Developing and Acquiring Capabilities for Weapon Systems*, GAO-22-104765 (Washington, D.C.: Feb. 17, 2022).

[2]Department of Defense, *Summary of the 2018 Department of Defense Artificial Intelligence Strategy*.

[3]This report uses "AI workforce" to refer to both the civilian and military workforces, unless otherwise specified.

[4]The John S. McCain National Defense Authorization Act for Fiscal Year 2019 established the National Security Commission on Artificial Intelligence to examine AI's impact on issues such as national security and defense. To be AI-ready by 2025, DOD must establish a common digital infrastructure, a digitally literate workforce, and modern AI-enabled business practices. National Security Commission on Artificial Intelligence, *Final Report* (2021).

provision that we assess DOD's AI workforce.[5] This report (1) describes the tools DOD uses to recruit personnel to meet its AI workforce needs, and evaluates the extent to which DOD (2) has defined and identified its AI workforce and (3) has established plans and strategies that address AI workforce issues.

To address these objectives, we reviewed relevant laws, regulations, executive orders, and DOD and military service plans and strategies that outline goals and processes related to the AI workforce. We interviewed and collected documentation from officials in DOD and the Office of Personnel Management (OPM). We also interviewed officials and collected documentation from the military services and six DOD and Defense Intelligence Enterprise organizations to ensure we gathered information from organizations that conduct AI work.[6] We selected these organizations based on our analysis of documents and the importance of AI to the organization.[7] Although our sample is non-generalizable, the information obtained from officials representing the six selected organizations offered useful insights and perspectives on AI workforce issues in the DOD and DOD's efforts to address them. See appendix I for additional details on our objectives, scope, and methodology.

We conducted this performance audit from January 2022 to December 2023 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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[5]H.R. Rep. No. 117-118, at 66 (2021).

[6]The military services include the Army, Marine Corps, Navy, Air Force, and Space Force. The six DOD and Defense Intelligence Enterprise organizations include the Defense Advanced Research Projects Agency, U.S. Army Combat Capabilities Development Command Army Research Laboratory, Department of the Air Force-Massachusetts Institute of Technology AI Accelerator, National Security Agency, National Geospatial-Intelligence Agency, and the intelligence element of the Air Force.

[7]The Defense Intelligence Enterprise includes the Defense Intelligence Agency, National Security Agency, National Geospatial-Intelligence Agency, National Reconnaissance Office, and intelligence elements of the Army, Navy, Marine Corps, Air Force, and Space Force.

Background

AI and Its Importance to National Security

DOD has a long history of working with AI and investing in its research and development. Since the late 1950s, the Defense Advanced Research Projects Agency has engaged in research aimed at applying AI principles to defense challenges. In 1981, the Navy established its Center for Applied Research in AI. More recently, in 2017 DOD established the Algorithmic Warfare Cross-Functional Team, known as Project Maven, to develop AI projects and facilitate their placement into permanent DOD programs, according to DOD officials.

In July 2017 we convened a Forum on AI to consider the policy and research implications of AI's use in four areas with the potential to significantly affect daily life—cybersecurity, automated vehicles, criminal justice, and financial services. Twenty-three members of industry, government, academia, and nonprofit organizations participated in the forum. They identified accessing requisite human capital as one of four AI challenges facing the nation.[8]

In June 2021 we published an AI accountability framework that identifies key practices to help ensure accountability and responsible use of AI by federal agencies and other entities involved in the design, development, deployment, and continuous monitoring of AI systems.[9] The AI accountability framework describes the broader community of stakeholders involved in AI development, including technical stakeholders such as data scientists, data engineers, developers, cybersecurity specialists, program managers, and others. These technical stakeholders are responsible for ensuring that the AI system solves the problem initially identified, uses data sets appropriate for the problem, selects the most suitable algorithms, and evaluates and validates the system to ensure it is functioning as intended. The broader community of stakeholders also includes others engaged in the development of AI, such as policy and legal experts, subject matter experts, and individuals using the AI system or impacted by its use. See figure 1 for an example of the community of stakeholders engaged in AI development.

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[8]GAO, *Artificial Intelligence: Emerging Opportunities, Challenges, and Implications*, GAO-18-142SP (Washington, D.C.: Mar. 28, 2018).

[9]GAO, *Artificial Intelligence: An Accountability Framework for Federal Agencies and Other Entities*, GAO-21-519SP (Washington, D.C.: June 30, 2021).

Figure 1: Example of the Community of Stakeholders Engaged in AI Development
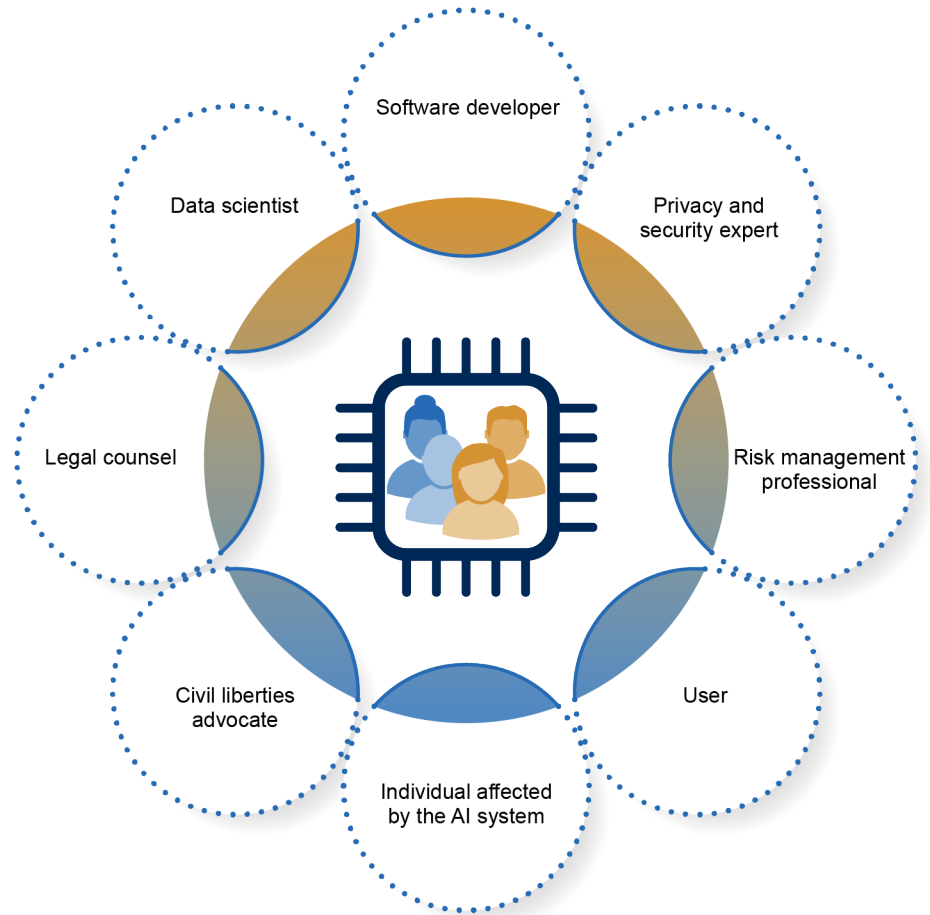
Source: GAO. | GAO-24-105645

As we reported in February 2022, DOD identified a variety of potential warfighting and non-warfighting uses for AI across the department.[10] DOD's potential AI uses in warfighting operations include analyzing intelligence, surveillance, and reconnaissance sources; fusing data to provide a common operating picture on the battlefield; supporting semiautonomous and autonomous vehicles; and operating lethal autonomous weapon systems. Potential non-warfighting uses for AI (i.e., support and business operations) include resolving unmatched financial transactions, predicting maintenance needs, vetting security clearances,

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[10]GAO-22-104765.

and analyzing warfighter health screenings. Figure 2 shows DOD's three categories of potential AI uses and how they relate to risk to human life if AI fails.

Figure 2: Uses of Artificial Intelligence (AI) at the Department of Defense
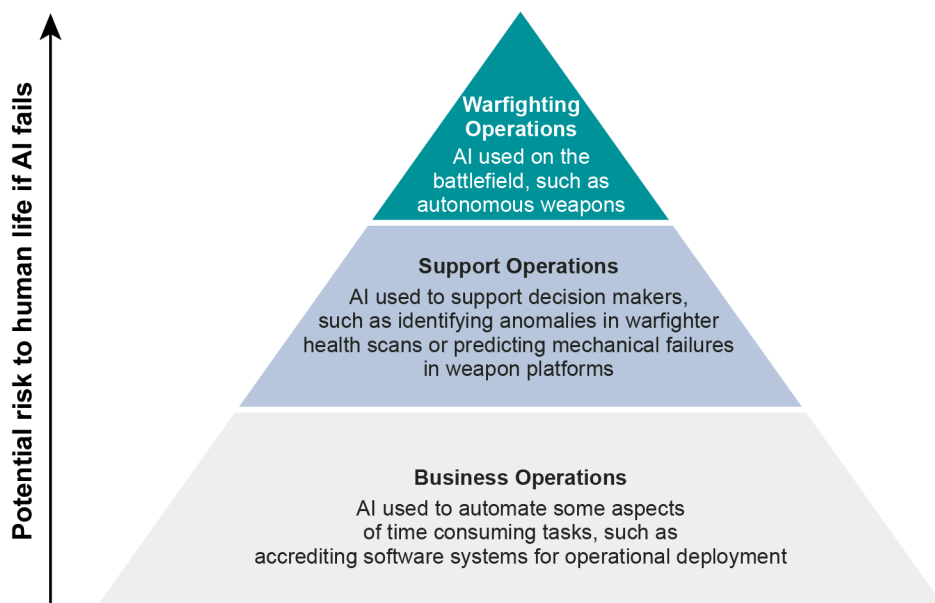
Source: GAO representation of Department of Defense information. | GAO-24-105645

In February 2022 we also reported that DOD is currently pursuing AI capabilities for warfighting that largely focus on (1) recognizing targets through intelligence and surveillance analysis, (2) providing recommendations to operators on the battlefield (such as where to move troops or which weapon is best positioned to respond to a threat), and (3) increasing the autonomy of uncrewed systems.[11] Several potential applications of AI can be trained for integration into multiple weapon platforms, such as aerial drones that are used across all the military services. See figure 3 for a depiction of how these types of AI capabilities can work.

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[11]GAO-22-104765.

Figure 3: Notional Example of Artificial Intelligence on the Battlefield
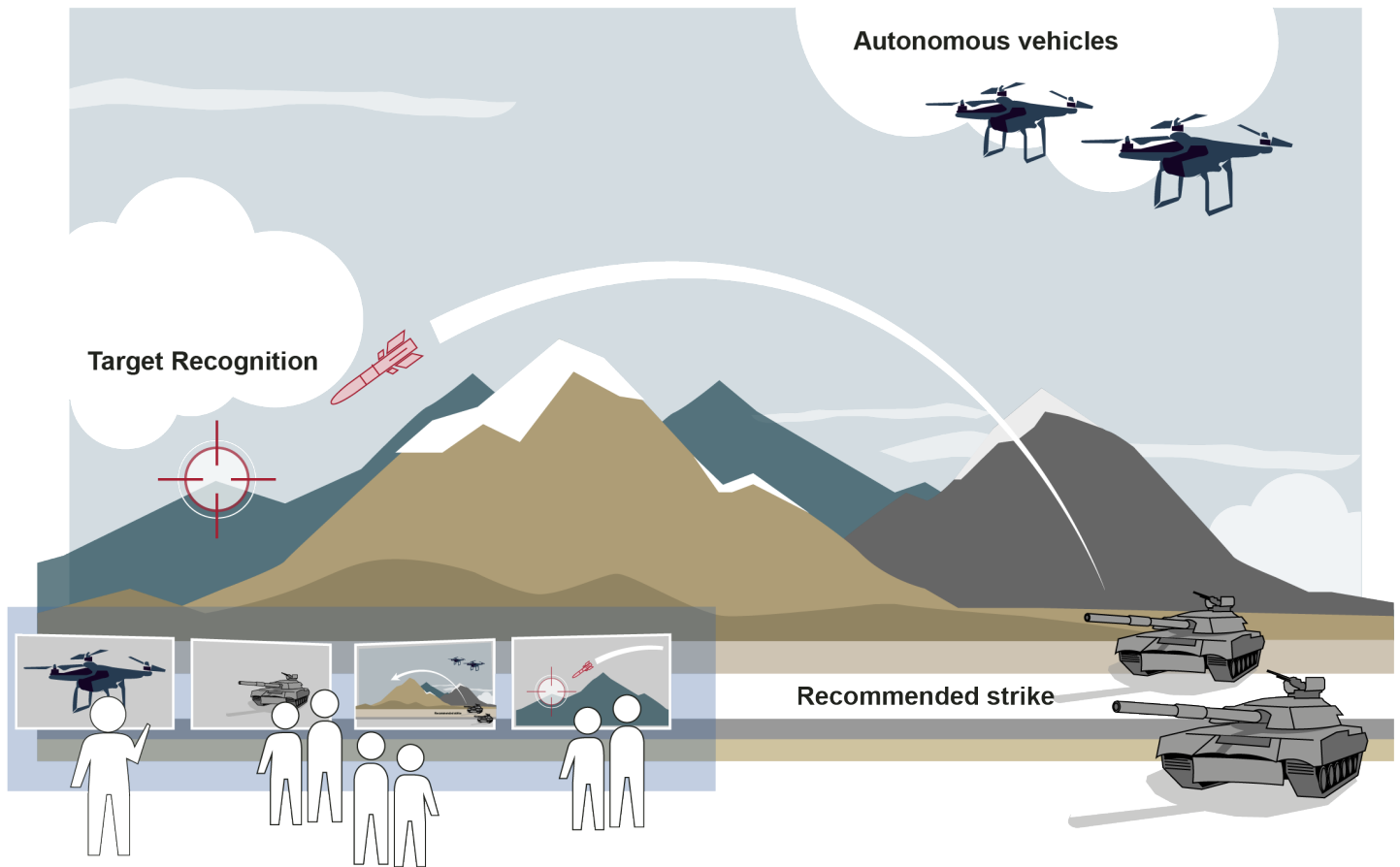
Source: GAO depiction of Department of Defense (DOD) provided information. I GAO-24-105645

NOTE: The notional example depicts AI capabilities that focus on (1) recognizing targets through intelligence and surveillance analysis, (2) providing recommendations to operators on the battlefield, and (3) increasing the autonomy of uncrewed systems.

Additionally, in March 2022 we reported that the *2018 DOD AI Strategy* and related plans include some, but not all, characteristics of a comprehensive strategy, and DOD lacked a high-level plan or roadmap that captures all requirements, activities, and milestones to fully develop its AI inventory.[12] We concluded that DOD would be better positioned to help managers ensure accountability and responsible use of AI in government programs and processes by ensuring future AI strategies and plans include key elements of a comprehensive strategy and select

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[12]GAO-22-105834.

internal controls. As a result, we recommended that DOD issue guidance to the Chief Digital and AI Office (CDAO), military services, and relevant DOD organizations requiring the inclusion of all characteristics of a comprehensive strategy in future AI strategies and associated plans and the consideration of the key governance practices outlined in the GAO AI accountability framework. We also recommended the CDAO in collaboration with the Office of the Under Secretary of Defense (Comptroller) and other entities, as appropriate, develop a high-level plan or roadmap that captures all requirements, activities, and milestones that support the preparation of DOD's AI portfolio inventory and budget data. DOD concurred with each of our recommendations. As of November 2023, DOD had not fully implemented them.

In June 2023, we reported that DOD would be better positioned to acquire AI capabilities in a manner that accounts for the unique challenges associated with AI by issuing department-wide AI acquisitions guidance.[13]

Workforce Development in the Federal Government and DOD

Defining and identifying workforces. The federal government defines and identifies its workforces through one or more approaches. Federal law requires OPM to publish standards and define occupations for the federal government.[14] Generally, OPM develops occupational series that include positions in a similarly specialized line of work designated by a title and number (e.g., data science, 1560).[15] Occupational series developed by OPM include computer science (1550), data science (1560), and computer engineering (0854). DOD often defines its workforces through OPM's occupational series and classification standards, according to officials with the Defense Civilian Personnel Advisory Service.

In some instances federal laws may direct one or more federal agencies on how they should define and identify specific workforces. For example, Congress passed the Defense Acquisition Workforce Improvement Act in 1990 to formally define DOD's acquisition workforce and directed DOD to

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[13]GAO, *Artificial Intelligence: DOD Needs Department-Wide Guidance to Inform Acquisitions*, GAO-23-105850 (Washington, D.C.: June 29, 2023).

[14]*See* section 5105 of title 5 United States Code; OPM, *The Classifier's Handbook* (Aug. 1991) and *Introduction to the Position Classification Standards* (Aug. 1991, revised Aug. 2009).

[15]OPM, *Introduction to the Position Classification Standards*.

identify the positions that DOD must include in the workforce.[16] According to DOD officials and our analysis of DOD guidance, DOD defines its workforces by establishing a standard definition that describes the workforce in sufficient detail such that decisions can be made about which personnel are included in the workforce. DOD identifies its workforces by coding the workforce in DOD's various manpower data systems (which we refer to in this report as "workforce data systems").[17]

In other instances, the federal government may use work roles—the specialized sets of tasks and functions requiring specific knowledge, skills, and abilities—to assist in defining and identifying workforces.[18] For example, DOD used the work roles from its DOD Cyber Workforce Framework to help define and identify its cyber workforce.[19] OPM provided guidance to support the framework for coding and identifying cyber positions.

Workforce and human capital planning. Federal regulation and OPM provide guidance and direction for workforce planning to federal agencies, including DOD. Federal regulation requires federal agencies to include strategic planning and alignment in their human capital planning.[20] This requirement is intended to ensure human capital programs are consistent with agency mission, goals, and objectives. Federal regulation also states that federal agencies' human capital planning should promote

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[16]Defense Acquisition Workforce Improvement Act, Pub. L. No. 101-510, § 1201-1211 (1990) (relevant sections codified as amended at 10 U.S.C. §§ 1701-1764).

[17]According to Defense Civilian Personnel Advisory Service officials and our analysis of DOD guidance, DOD codes civilian personnel using the OPM occupational series and classification standards. DOD codes military personnel using codes unique to each military service that represent the primary military occupation of a service member. Less frequently, for the cyber workforce and other workforces, DOD codes personnel using codes unique to each work role. DOD Instruction 1336.05, *Automated Extract of Active Duty Military Personnel Records* (July 28, 2009; Incorporating Change 3, Effective August 26, 2021) and DOD Instruction 8140.02, *Identification, Tracking, and Reporting of Cyberspace Workforce Requirements* (Dec. 21, 2021).

[18]*Federal Cybersecurity Workforce Assessment Act of 2015,* Pub. L. No. 114-113, § 302 (2015). Codified at 5 U.S.C. § 301 note.

[19]The DOD Cyber Workforce Framework establishes the department's authoritative lexicon based on the work an individual is performing and describes the work performed by the cyber workforce as defined in DOD Directive 8140.01, *Cyberspace Workforce Management* (Oct. 5, 2020*)*.

[20]5 C.F.R. § 250.203 (2023).

a high-performing workforce by identifying and closing skill gaps, and implementing programs to attract and retain quality talent.[21]

OPM issued a five-step workforce planning model to help federal agencies implement a systematic process for identifying and addressing the gaps between the current workforce and future workforce requirements.[22] The planning model helps determine the current workforce resources and how they will evolve over time, including the numbers, kinds, and location of workers needed to accomplish the agency's strategic requirements.

Furthermore, DOD issued its own guidance for workforce and human capital planning. According to DOD policy, its strategic human capital planning provides a prescriptive methodology to assess the current state of a workforce, identify skill and competency gaps and strengths, forecast emerging and future workforce requirements, and develop strategies to address gaps.[23] In addition, DOD's workforce planning guide outlines best practices and provides a template with a number of core requirements. The department identified these best practices as essential, such as including the workforce size as part of the current workforce analysis and evaluating future workforce requirements as part of the future workforce analysis.[24]

DOD has established forums to develop and implement workforce-related policies and programs. For example, DOD established the Deputy's Workforce Council as the department's principal forum for programs related to people management, personnel policy, and total force requirements.[25] According to officials, offices such as the CDAO also

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[21]5 C.F.R. § 250.203 (2023).

[22]The five steps are (1) set strategic direction, (2) conduct workforce analysis, (3) develop workforce action plan, (4) implement and monitor workforce action plan, and (5) evaluate and revise workforce action plan. OPM, *Workforce Planning Guide* (Nov. 2022).

[23]DOD Instruction 1400.25, Volume 250, *DOD Civilian Personnel Management System: Civilian Strategic Human Capital Planning (SHCP)* (June 7, 2016).

[24]An assessment of the current and future AI workforce would address questions such as who is and should be included in the workforce, what is the current state and future requirements of the workforce, and which positions require personnel from the workforce. DOD, *Defense Civilian Personnel Advisory Service: Strategic Workforce Planning Guide* (May 2019).

[25]DOD Directive 5105.79, *DOD Senior Governance Framework* (Nov. 8, 2021).

have leadership roles in workforce-related forums, which include the DOD Digital Talent Management Forum.

We have identified strategic human capital management as a high-risk area for the federal government.[26] In particular, we have previously found that mission-critical skills gaps across federal agencies in fields such as science, technology, engineering, and mathematics pose a high risk to the nation. In addition, we previously identified leading practices for the federal government in workforce planning and recruitment and hiring.[27] The leading practices include having a process to address skills and competency gaps, as well as developing customized strategies to recruit highly specialized and hard-to-fill positions.

2018 DOD AI Strategy

The *2018 DOD AI Strategy* directs DOD to accelerate the adoption of AI and emphasizes that a strong, technologically advanced department is essential for protecting the security of the nation. In addition, the *2018 DOD AI Strategy* establishes four strategic focus areas, including cultivating a leading AI workforce.

Entities with Roles and Responsibilities for the AI Workforce

The following organizations and positions have responsibilities for different aspects of the AI workforce:

- **OPM** defines occupations for the federal government, among other duties, in its role as the chief human resources agency and personnel policy manager for the federal government.[28]

- **Under Secretary of Defense for Personnel and Readiness** oversees DOD's strategic human capital planning and issues guidance for all DOD components regarding personnel

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[26]GAO, *High-Risk Series: Efforts Made to Achieve Progress Need to Be Maintained and Expanded to Fully Address All Areas*, GAO-23-106203 (Washington, D.C.: Apr. 20, 2023).

[27]GAO, "Leading Practices in Human Capital Management," accessed Apr. 5, 2023, https://www.gao.gov/leading-practices-human-capital-management; *State Department: Additional Actions Needed to Address IT Workforce Challenges*, GAO-22-105932 (Washington, D.C.: July 12, 2022); *Human Capital: Transforming Federal Recruiting and Hiring Efforts*, GAO-08-762T (Washington, D.C.: May 8, 2008); and *Human Capital: Key Principles for Effective Strategic Workforce Planning*, GAO-04-39 (Washington, D.C.: Dec. 11, 2003).

[28]OPM also governs the general classification system. 5 U.S.C. § 5105; OPM, *The Classifier's Handbook* (Aug. 1991); and OPM, "About Us," accessed Feb. 2, 2023, https://www.opm.gov/about-us.

management.[29] The Defense Civilian Personnel Advisory Service develops and implements civilian human resources plans, policies, and programs for DOD.

- **CDAO** serves as the Functional Community Manager for the data, analytics, and AI workforce.[30] In addition, the CDAO leads and oversees DOD's strategy development and policy formulation for AI, including defining the AI workforce.[31] The CDAO is also an Office of the Secretary of Defense Principal Staff Assistant.[32]

- **Chief Information Officer** serves as a co-chair of the Cyberspace Workforce Management Board, which has approval authority for adding, modifying, and removing work roles to the DOD Cyber Workforce Framework.[33]

- **Director of Administration and Management** serves as the department's Performance Improvement Officer and is responsible for the Strategic Management Plan and Annual Performance Plan.[34]

[29]DOD Instruction 1400.25, Volume 250 and DOD Directive 5124.02, *Under Secretary of Defense for Personnel and Readiness (USD(P&R))* (June 23, 2008).

[30]Chief Digital and Artificial Intelligence Officer Memorandum, *Office of the Secretary of Defense Functional Community Manager for the Data, Analytics and Artificial Intelligence Workforce Designation* (May 2023). Functional Community Managers are responsible for the Strategic Human Capital Planning for their assigned occupations within the civilian workforce. DOD Instruction 1400.25, Volume 250.

[31]Deputy Secretary of Defense Memorandum, *Initial Operating Capability of the Chief Digital and Artificial Intelligence Officer* (Feb. 1, 2022). The CDAO stood up in February 2022 as the successor organization of the Joint AI Center, which integrated the Joint AI Center, Defense Digital Services, and Chief Data Officer into one organization. Chief Digital and Artificial Intelligence Officer, *Chief Digital and Artificial Intelligence Officer Reaches Full Operating Capability* (June 1, 2022).

[32]Principal Staff Assistants assign responsibilities and provide policy guidance to the heads of other DOD components, among other duties. DOD Directive 5100.01, *Functions of the Department of Defense and Its Major Components* (Dec. 21, 2010) (incorporating change 1, effective Sept. 17, 2020).

[33]The Under Secretary of Defense for Personnel and Readiness and the Principal Cyber Advisor also serve as chairs of the Cyberspace Workforce Management Board. DOD Directive 8140.01, *Cyberspace Workforce Management* (Oct. 5, 2020) and DOD Manual 8140.03, *Cyberspace Workforce Qualification and Management Program* (Feb. 15, 2023).

[34]DOD, Director of Administration & Management, "Performance," accessed July 5, 2023, https://dam.defense.gov/Performance-mgmt/.

Related Workforces

In addition to DOD's AI workforce, several other DOD workforces also encompass AI.[35]

Innovation workforce. DOD refers to its "innovation workforce" in a number of documents. For example, the Deputy Secretary of Defense memo directed the establishment of an Innovation Workforce Team in May 2022 to develop actionable recommendations for innovation workforce requirements and career pathways, among other tasks.[36] DOD does not yet have a standard definition for its innovation workforce, but according to officials the department considers AI a part of its innovation workforce.

Digital workforce. DOD refers to its "digital workforce" in a number of documents. For example, the 2019 *DOD Digital Modernization Strategy* establishes cultivating talent for a ready digital workforce as a goal for the department.[37] DOD does not yet have a standard definition for its digital workforce, but according to CDAO officials the department considers AI a part of its digital workforce. Section 909 of the National Defense Authorization Act for Fiscal Year 2022 defines digital talent as including positions and capabilities in, or related to, AI, data science, autonomy, and software development.[38]

DOD Uses a Variety of Tools to Recruit AI Personnel

DOD organizations and the military services told us they use a variety of tools to recruit AI personnel—both uniformed service members and civilians. These tools include a mixture of human resource flexibilities and recruitment incentives.[39] The following information provides examples of how DOD uses various tools to recruit AI personnel.

- **Direct hire authorities.** Officials from multiple DOD organizations and military services, including the National Geospatial-Intelligence Agency, Army, and Air Force, said they use direct hire authorities to

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[35]DOD is working to expand the scope of the cyber workforce to include the technological areas pertaining to AI, cloud, data and secure software development. *DOD Cyber Workforce Strategy 2023-2027* (Mar. 1, 2023).

[36]DOD, Deputy Secretary of Defense Memorandum, *Building the Innovation Workforce* (May 16, 2022).

[37]DOD, *DOD Digital Modernization Strategy* (July 12, 2019).

[38]Pub. L. No. 117–81 § 909 (2021).

[39]For the purposes of this report, human resource flexibilities refer to tools designed to assist managers, supervisors, and employees on personnel matters dealing with recruiting the federal workforce.

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recruit AI personnel. Direct hire authorities allow an agency to expedite the typical hiring process by eliminating certain steps traditionally required for competitive hiring. Section 3304 of title 5 of the United States Code permits agencies to use direct hire authorities for civilian personnel when OPM has determined that a severe shortage of candidates or critical hiring need exists.[40] According to Air Force documentation, direct hire authorities enable the Air Force to hire the right candidate more quickly than the traditional competitive hiring process. For example, Air Force documentation identified the use of direct hire authorities to fill mission-critical and hard-to-fill civilian positions, including AI personnel, as a good practice.

- **Special pay authorities.** Officials from multiple DOD organizations and military services, including the Office of the Under Secretary of Defense for Research and Engineering, Army, and Air Force, told us they use special pay authorities to recruit AI personnel. Various sections under title 5 of the United States Code allow agencies to use special pay authorities that pay higher rates to employees in select circumstances.[41]

- **Direct commissioning authority.** Army officials said that the Army Futures Command uses direct commissioning authority to recruit military personnel performing AI-related work. Direct commissioning authority allows the military services to commission individuals with relevant training or experience as officers up to the rank of colonel or captain. For example, officials said that direct commissioning authority enables the U.S. Army Combat Capabilities Development Command Army Research Laboratory to recruit high quality military personnel and attract AI talent.

- **Student loan repayment.** Officials from multiple DOD organizations and military services, including the National Geospatial-Intelligence Agency, Navy, and Air Force, told us that they use student loan repayments to recruit civilian AI personnel. Section 5379 of title 5 of the United States Code allows agencies to make student loan repayments on behalf of an eligible employee who signs a service agreement for not less than 3 years with the agency in order to recruit or retain highly qualified personnel. For example, according to Air Force documentation the Air Force provides applicants with up to

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[40]Congress has also provided authority to the Secretary of Defense to exercise direct hire authority to fill critical hiring needs. See, for example, section 1105 of the National Defense Authorization Act for Fiscal Year 2017, Pub. L. No. 114-328, § 1105 (2016) and 5 U.S.C. § 9905.

[41]5 U.S.C §§ 5305, 5333, 5377, 5753, and 5754.

$30,000 through the Student Loan Repayment Program for a 3-year service commitment to hire graduates in science, engineering, cyber, and information technology, which include AI positions.

- **Scholarships-for-service.** Officials from multiple DOD organizations and military services, including the Army, Navy, and Air Force, told us that they use scholarships-for-service to recruit civilian AI personnel. For example, Navy officials stated that the Navy uses the Science, Mathematics, and Research for Transformation Scholarship-for-Service Program to attract science, technology, engineering, and mathematics (STEM) students, which would include AI talent. This program offers scholarships for undergraduate, master's, and doctoral students currently pursuing a degree in one of 24 STEM disciplines, such as computer science and operations research. Scholars receive full tuition, annual stipends, and internships in exchange for a service commitment with DOD after graduation.[42]

- **Regional sites.** Army officials told us they use regional sites as a tool to recruit AI personnel. The U.S. Army Combat Capabilities Development Command Army Research Laboratory maintains regional sites in California, Illinois, Massachusetts, Pennsylvania, and Texas, which officials said is a significant incentive to attract civilian talent from throughout the country.

- **Telework.** An official from the Office of the Under Secretary of Defense for Research and Engineering told us that they use telework to recruit AI personnel when feasible. The Telework Enhancement Act of 2010 defines telework or teleworking as a work flexibility arrangement under which an employee performs the duties and responsibilities of such employee's position, and other authorized activities, from an approved worksite other than the location from which the employee would otherwise work.[43] An official said that Science and Technology Reinvention Laboratories use flexible telework options to attract AI talent.

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[42]The Science, Mathematics, and Research for Transformation Scholarship-for-Service Program is a one-for-one commitment; for every year of degree funding, the scholar commits to working for a year with the DOD as a civilian employee. DOD Scholarship-for-Service Program, "About DOD SMART Scholarship Program," accessed Mar. 29, 2023, https://www.smartscholarship.org/smart?id=about_smart.

[43]Pub. L. No. 111-292, § 6501 (2010).

DOD Has Taken Some Steps to Define and Identify Its AI Workforce, but Has Not Completed All Necessary Actions

DOD has made efforts to define and identify its AI workforce, and plans to complete additional steps. However, DOD has not assigned responsibility and lacks a timeline for completing the additional steps.

DOD Has Made Efforts to Define and Identify Its AI Workforce

With the publication of the *2018 DOD AI Strategy*, DOD began taking steps to define and identify its AI workforce. The CDAO—the successor organization to the Joint AI Center—leads DOD's efforts with support from a number of DOD organizations and military services. For example, the CDAO and other staff offices within the Office of the Secretary of Defense developed and approved five AI work roles. In addition, other DOD organizations and the military services have made various efforts to begin defining and identifying their AI workforces, such as the Air Force's establishment of AI-special experience identifiers.[44]

Steps Taken by the CDAO and Other Staff Offices within the Office of the Secretary of Defense

In its *2018 DOD AI Strategy*, DOD established "cultivating a leading AI workforce" as a strategic focus area for the department.[45] It also identified several aspects of cultivating an AI workforce that needed further development, such as streamlining approaches to develop and attract AI talent and building a culture that embraces experimentation.

DOD also determined that it is not yet postured to compete with industry in hiring the large numbers of experienced, top-tier AI talent needed to build and deploy AI across the department. In response, in its 2020 *DOD AI Education Strategy* DOD established certifying and tracking AI talent

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[44]Organizations include Defense Intelligence Enterprise organizations, such as the National Security Agency and the National Geospatial-Intelligence Agency.

[45]DOD, *Summary of the 2018 Department of Defense Artificial Intelligence Strategy* (2018).

as one of four key pillars for accelerating the delivery of AI capabilities.[46] In addition, within this strategy DOD defined six AI "archetypes," or categories of personnel with similar AI education and training needs. The archetypes include categories of personnel who create AI tools, run AI systems to support end-users, and drive culture and policy change to enable responsible AI adoption.[47]

In September 2021, the Joint AI Center analyzed DOD's AI workforce environment. Specifically, the Joint AI Center conducted and analyzed discovery interviews with AI workforce stakeholders from 16 DOD organizations to gather information. The interviews highlighted that DOD lacked a consistent understanding of its AI workforce and how the workforce is managed. For instance, the Joint AI Center reported that DOD used multiple and sometimes isolated approaches to defining and developing its AI workforce. Eleven of 16 organizations (69 percent) participating in the interviews cited the lack of a definition for the AI workforce as a reason for not having begun to develop AI workforce strategies within their respective organizations.

In late 2021 and early 2022, the Joint AI Center conducted additional analyses to assist the development of a DOD AI strategic human capital plan.[48] The Joint AI Center surveyed personnel in DOD organizations and the military services to, in part, identify which occupations may include

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[46]The other three pillars include (1) prioritize AI awareness for senior leaders, (2) create a common foundation for DOD's digital workforce, and (3) create a cadre of Integrated Product Teams to deliver AI capabilities. DOD, *2020 Department of Defense Artificial Intelligence Education Strategy* (Sept. 2020). Since DOD published the education strategy, the CDAO has been assigned as the functional community manager for the data, analytics, and AI workforce. Chief Digital and Artificial Intelligence Officer Memorandum, *Office of the Secretary of Defense Functional Community Manager for the Data, Analytics and Artificial Intelligence Workforce Designation*.

[47]The 2020 *DOD AI Education Strategy* states that DOD segmented its entire workforce into the six AI archetypes to respond to a statutory mandate in the National Defense Authorization Act for Fiscal Year 2020, which directed the Secretary of Defense to develop a strategy to educate service members in relevant occupational fields on AI. *See National* Defense Authorization Act for Fiscal Year 2020, Pub. L. No. 116–92, § 256 (2019). According to the 2020 *DOD AI Education Strategy*, DOD used the archetypes as an analytical framework to inform key strategy decisions, including how DOD should prioritize and sequence new actions and investments, manage costs, and establish foundations needed to achieve a long-term vision for the department's digital workforce.

[48]The Joint AI Center was integrated into the CDAO when the CDAO stood up in February 2022 as the successor organization of the Joint AI Center.

personnel performing AI work.[49] Over 24 of 93 respondents (more than 26 percent) self-identified as operations researchers. Between approximately five and nine respondents (5 to 10 percent) each self-identified as one of six other occupational series that included computer scientists, meteorologists, and information technology specialists. In addition, stakeholders from DOD organizations and the military services said that establishing a standard definition for the AI workforce was one of their top recommendations. CDAO officials told us that they plan to perform additional analyses to include data and analytics in addition to AI. CDAO officials planned to complete this work by October 2023.[50]
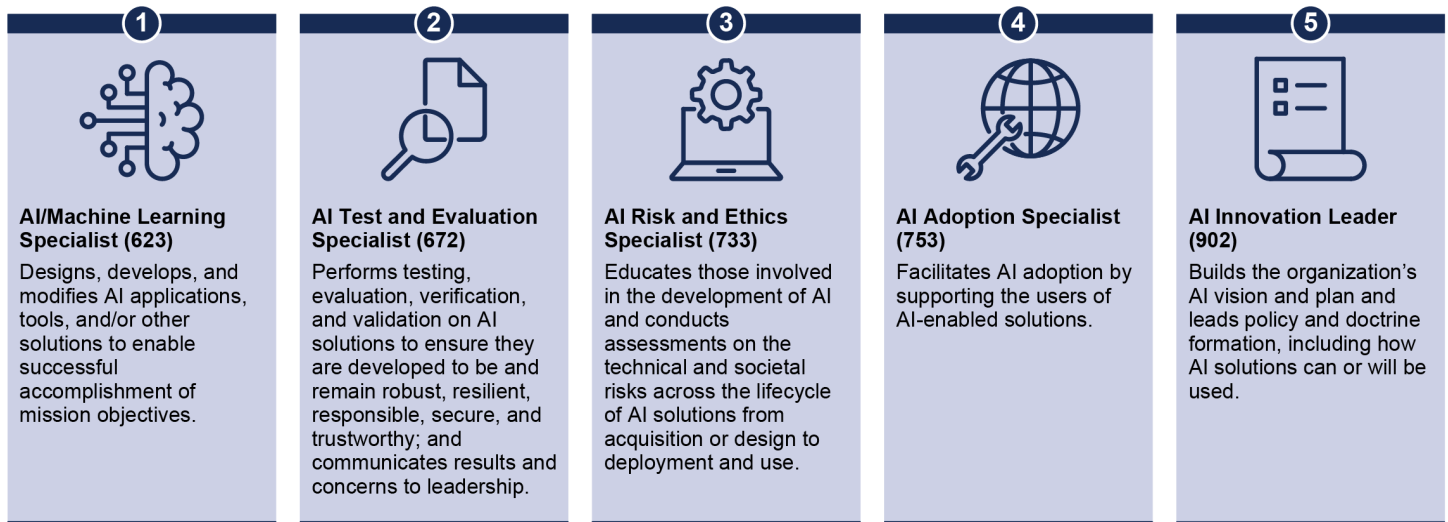
As of August 2023, DOD had developed and approved five AI work roles, which officials said will assist with coding and identifying the AI workforce in DOD's various workforce data systems. See figure 4 for a description of the five AI work roles.[51]

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[49]As part of the Joint AI Center's analysis of DOD's AI workforce environment, it had defined AI talent as "individuals with the ability to engage in AI/machine learning or AI/machine learning-related work tasks intended to advance, maintain, and/or execute AI/machine learning capabilities." However, DOD has not formally adopted this working definition. Ninety-three of 110 civilian personnel who self-identified as performing AI work responded to the survey. The survey results are not authoritative or generalizable, according to DOD officials and our analysis of the information provided by DOD.

[50]As of November 2023, the work has not been completed.

[51]Work roles refer to specialized sets of tasks and functions requiring specific knowledge, skills, and abilities. Federal Cybersecurity Workforce Assessment Act of 2015, Pub. L. No. 114-113, § 302 (2015). DOD added the five AI work roles to the DOD Cyber Workforce Framework in September 2022. See app. II of this report for more information on the DOD Cyber Workforce Framework.

Figure 4: Artificial Intelligence (AI) Work Roles

① AI/Machine Learning Specialist (623)
Designs, develops, and modifies AI applications, tools, and/or other solutions to enable successful accomplishment of mission objectives.

② AI Test and Evaluation Specialist (672)
Performs testing, evaluation, verification, and validation on AI solutions to ensure they are developed to be and remain robust, resilient, responsible, secure, and trustworthy; and communicates results and concerns to leadership.

③ AI Risk and Ethics Specialist (733)
Educates those involved in the development of AI and conducts assessments on the technical and societal risks across the lifecycle of AI solutions from acquisition or design to deployment and use.

④ AI Adoption Specialist (753)
Facilitates AI adoption by supporting the users of AI-enabled solutions.

⑤ AI Innovation Leader (902)
Builds the organization's AI vision and plan and leads policy and doctrine formation, including how AI solutions can or will be used.

Source: GAO analysis of Department of Defense (DOD) information. | GAO-24-105645

DOD carried out the following key activities to develop and approve the five AI work roles:

- **Developed AI work roles.** DOD officials designated as subject matter experts collaborated to develop the five work roles and associated knowledge, skills, abilities, and tasks. For example, the AI and machine learning specialist work role consists of designing, developing, and modifying existing AI applications and tools.

- **Administered focus groups and surveys.** DOD administered focus groups and surveys to help ensure the optimal amount of stakeholder involvement. For example, the office of the Chief Information Officer facilitated eight focus groups with officials from 14 DOD organizations who were designated by DOD to be AI and data subject matter experts to consider revising or adding AI and other related content to the DOD Cyber Workforce Framework. DOD also administered two post-focus group surveys.

- **Reviewed AI work roles.** Subject matter experts and the Cyber Workforce Advisory Group conducted reviews of the AI work roles.

- **Approved AI work roles.** The Cyber Workforce Management Board approved the five AI work roles and added them to the DOD Cyber

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Workforce Framework.[52] Each work role includes a unique three-digit code, which will ultimately assist DOD to code and identify its AI workforce in DOD's various workforce data systems. The addition of the AI work roles to the framework was a significant step toward fully defining and identifying the DOD AI workforce, according to CDAO officials.[53]

In November 2023, DOD published the 2023 DOD *Data, Analytics, and Artificial Intelligence Adoption Strategy*. The strategy is intended to help accelerate the adoption of advanced data, analytics, and artificial intelligence technologies within DOD. Additionally, the strategy identifies expanding digital talent management as an enabler to help sustain DOD's AI readiness.[54]

Efforts Made by Other DOD Organizations and the Military Services

Other DOD organizations and the military services have also made various efforts to begin defining and identifying their AI workforces, including the following examples:[55]

- The National Geospatial-Intelligence Agency added AI-related competencies to the personnel records within its personnel data system, according to officials. The officials told us this enables managers and others to identify AI personnel through informal, self-directed word searches.

- The U.S. Army Combat Capabilities Development Command Army Research Laboratory defined three competencies that capture most of its AI workforce, according to officials. The officials told us that the laboratory can partially identify personnel performing AI work by tracking those competencies in the laboratory's personnel database.

- The Air Force established six special experience identifiers to identify its enlisted personnel with AI or machine learning experience or

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[52]The DOD Cyber Workforce Framework describes the work performed by the full spectrum of the cyber workforce, and the framework is DOD's authoritative reference for identifying, tracking, and reporting DOD cyberspace positions. DOD Directive 8140.01.

[53]The work roles define the AI work to be performed by DOD personnel through a series of knowledge, skills, abilities, and tasks. DOD and other federal agencies can use work roles to define workforces.

[54]Expanding digital talent management includes increasing hiring, training, and retention for the most critical data, analytics, and AI-related work roles. 2023 DOD *Data, Analytics, and Artificial Intelligence Adoption Strategy* (Nov. 2023).

[55]Organizations include Defense Intelligence Enterprise organizations, such as the National Security Agency and the National Geospatial-Intelligence Agency.

training.[56] These identifiers are added to enlisted personnel records in the personnel data system as appropriate.

- The Navy is in the process of developing and approving a robotics rating for enlisted personnel, which will include aspects of AI, and is capable of mapping civilian AI workers to OPM occupational groups such as data science and engineering, according to officials.

DOD Plans to Complete Additional Steps to Define and Identify Its AI Workforce

While the CDAO leads the process to fully define and identify DOD's AI workforce, officials from multiple organizations told us the remaining steps to fully define and identify the AI workforce will rely on work to be performed by multiple DOD organizations. These organizations include the Office of the Under Secretary of Defense for Personnel and Readiness, as well as the Office of the Chief Information Officer and the military services. Table 1 describes the additional steps and the potential organizations the CDAO identified as responsible for performing the work.[57]

Table 1: Additional Steps to Fully Define and Identify the Artificial Intelligence (AI) Workforce, as Identified by the CDAO

Steps	Work to be done	Potential responsible organizations
Coding work roles	Load three-digit codes for the five AI work roles into workforce data systems to facilitate identifying positions that require AI work.[a]	Chief Digital and AI Office (CDAO), Under Secretary of Defense for Personnel and Readiness, DOD organizations, military services
Determining key identifiers for AI work roles	Conduct DOD-wide focus groups with AI subject matter experts to determine which of the AI tasks and knowledge, skill, and ability statements from the AI work roles are considered essential.	CDAO, Chief Information Officer
Updating the Cyber Workforce Management Board charter	Update the charter to formally add the CDAO as a voting member.	CDAO, Chief Information Officer

[56]Special Experience Identifiers provide a means to track individuals and identify positions requiring or providing unique experience or training that would otherwise be lost in the personnel data system. These identifiers are established when identifying training, skills, or experience is critical to the assignment match or deployment needs and when no other personnel data system-based identification is appropriate or available. Air Force Manual 36-2100, *Military Utilization and Classification* (Apr. 7, 2021).

[57]As noted later in this report, the CDAO has not yet assigned responsibility to these organizations to take actions to complete the additional steps.

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Steps	Work to be done	Potential responsible organizations
Updating workforce guidance	Update DOD Directive 8140.01 *Cyberspace Workforce Management* and DOD Manual 8140.03 *Cyberspace Workforce Qualification and Management Program*.[b] Among other things, the updates are expected to reflect the expansion of the DOD Cyber Workforce Framework and add CDAO roles and responsibilities, such as being the office of primary responsibility for the AI and data workforce element.	CDAO, Chief Information Officer
Developing a qualification program	Determine the qualifications for serving in the five AI work roles, such as education, training, and personnel qualifications.	CDAO, Chief Information Officer, DOD organizations, military services Approval required from the Cyber Workforce Advisory Group and Cyber Workforce Management Board

Source: GAO analysis of Department of Defense (DOD) information, to include documentation provided by, and interviews with, DOD officials. | GAO-24-105645

[a]DOD documentation states that the data systems are already set up to accept work role codes and perform data analytics.

[b]In February 2023, DOD published the initial version of DOD Manual 8140.03, which provides guidance on the Cyberspace Workforce Qualification and Management Program. For example, the program outlines qualification standards and requirements for each work role in the DOD Cyber Workforce Framework, which includes the AI work roles. DOD Manual 8140.03, *Cyberspace Workforce Qualification and Management Program* (Feb. 15, 2023).

In addition, CDAO officials told us that before DOD will consider its AI workforce fully defined and identified, DOD plans to align the future AI workforce definition with the information contained in OPM's AI occupational series once it is published.[58] However, as of April 2023 OPM had not developed an AI occupational series or updated an existing occupational series with AI-related duties as required by statute, according to officials.[59] OPM officials told us OPM conducted a study, which found that AI work is performed in various occupational series in the Federal government and specializations. The officials told us that OPM determined that creating one occupational series or multiple AI

[58]Federal law requires OPM to publish standards and define occupations for the federal government, including DOD. 5 U.S.C. § 5105 and OPM, *The Classifier's Handbook* (Aug. 1991). GAO has ongoing work examining the extent to which federal agencies have complied with selected federal policy and guidance on AI. This includes the requirement in section 105 of the AI in Government Act of 2020, Pub. L. No. 116-260 (2020), for OPM to establish an occupational series, or update and improve an existing occupational job series, to include positions whose primary duties relate to AI. This work was expected to be completed in fourth quarter of fiscal year 2023, according to OPM officials. However, as of first quarter fiscal year 2024, OPM officials told us the interpretive guidance is pending stakeholder review and final OPM approval for issuance.

[59]Section 105 of the AI in Government Act of 2020 required the Director, OPM to establish the occupational series not later than 18 months after enactment or June 2022.

series is not conducive to individual agency needs and missions. These officials stated that instead of creating an AI occupational series, OPM will develop and issue classification interpretive guidance to help agencies such as DOD identify AI work and determine how to classify positions that perform AI work and how to qualify applicants for AI positions. According to OPM officials, they expected to issue the interpretive guidance in fourth quarter fiscal year 2023. However, as of first quarter fiscal year 2024, OPM officials told us the interpretive guidance is pending stakeholder review and final OPM approval for issuance.[60]

CDAO Has Not Assigned Responsibility and Lacks a Timeline for Completing the Additional Steps

CDAO has not assigned responsibility or provided a timeline to the organizations responsible for completing the additional steps needed to define and identify the AI workforce, although the CDAO has begun notifying the various DOD organizations of their potential responsibilities in completing these additional steps. For example, in 2022 and early 2023 CDAO officials said they briefed representatives from the relevant DOD organizations to make them aware of the additional steps and their potential involvement at meetings of the department's Digital Talent Management Forum. However, this did not include the CDAO assigning responsibility to those organizations to take actions to complete the steps.

CDAO officials told us the CDAO continues to work with DOD organizations to complete some of the steps related to fully defining and identifying the department's AI workforce. The officials also told us that as of March 2023, the CDAO was working with the Office of the Under Secretary of Defense for Personnel and Readiness to design a competency model for the data scientist occupational series (1560).[61] However, the CDAO has not yet assigned responsibility or established a timeline to complete the additional steps necessary to fully define and identify the AI workforce.

The CDAO has the authority to assign responsibility and establish a timeline to the organizations responsible for completing the steps. When

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[60]In July 2023, OPM issued AI competencies for governmentwide use, which include general and technical competencies that were identified through an environmental scan for AI work. OPM Memorandum, *The AI in Government Act of 2020 – Artificial Intelligence Competencies* (July 6, 2023).

[61]In March 2023, CDAO officials also stated that they were beginning the process of developing an AI competency model. However, in November 2023, CDAO officials told us DOD would not be developing an AI competency model, but expected to update guidance to reflect the CDAO's roles and responsibilities, such as being the office of primary responsibility for the AI and Data work element. The officials also noted that areas relating to the AI workforce are rapidly evolving.

established in February 2022, the CDAO was designated as a Principal Staff Assistant with authorities related to AI and other areas as described in two Deputy Secretary of Defense memorandums.[62] As a Principal Staff Assistant, the CDAO can assign responsibilities to the heads of other DOD components and develop policies, among other duties.

DOD established cultivating a leading AI workforce as a strategic focus area for the department.[63] Further, the DOD instruction on *DOD Civilian Personnel Management System: Civilian Strategic Human Capital Planning* provides a methodology to assess the current state of the workforce, identify gaps, and forecast emerging and future workforce requirements to support the DOD mission.[64]

CDAO officials told us they do not want to fully define and identify the AI workforce until OPM completes its actions related to AI work. DOD wants to ensure the department's definition of its AI workforce aligns with OPM's efforts, according to CDAO officials. However, DOD can continue working on the additional steps before OPM completes its actions, because OPM plans to finalize its actions well before DOD's additional steps could be completed. For example, in September 2023 OPM officials told us that their actions should be complete in fourth quarter fiscal year 2023, while DOD officials estimated that it could take until January 2025 to complete one of their additional steps—updating workforce guidance.[65] Since DOD plans to be AI-ready by 2025, the department can assign responsibility, establish a timeline, and begin work on completing the additional steps without delay.

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[62]Deputy Secretary of Defense Memorandum, *Initial Operating Capability of the Chief Digital and Artificial Intelligence Officer* (Feb. 1, 2022); and Deputy Secretary of Defense Memorandum, *Role Clarity for the Chief Digital and Artificial Intelligence Officer* (Feb. 1, 2022).

[63]DOD, *Summary of the 2018 Department of Defense Artificial Intelligence Strategy* (2018).

[64]DOD Instruction 1400.25, Volume 250.

[65]DOD did not have estimated completion dates for the other additional steps as of July 2023. As of first quarter fiscal year 2024, OPM officials told us the interpretive guidance is pending stakeholder review and final OPM approval for issuance.

Until DOD does so, it will not be able to accurately assess the current state of its AI workforce or forecast future AI workforce requirements to support the DOD mission, as required.[66]

DOD Plans and Strategies Address Some AI Workforce Issues but Are Not Fully Consistent

DOD has published plans and strategies intended to support the department's strategic goals and strategic objectives, including those that address AI workforce issues. These include the *DOD Strategic Management Plan Fiscal Years 2022–2026* (hereafter referred to as the Agency Strategic Plan), the *Annual Performance Plan Fiscal Year 2023* (hereafter referred to as the Annual Performance Plan), and the *Fiscal Year 2022–Fiscal Year 2026 DOD Civilian Human Capital Operating Plan* (hereafter referred to as the Human Capital Operating Plan).[67]

The Human Capital Operating Plan should describe how an agency will execute human capital elements—including strategic goals and strategic objectives—identified within the Agency Strategic Plan and Annual Performance Plan.[68] The Human Capital Operating Plan also should serve as the strategic roadmap for numerous products and human capital business solutions to assist DOD in managing the life cycle of its civilian workforce.[69] The effectiveness of the Human Capital Operating Plan depends largely on engaging with stakeholders such as DOD senior management officials.[70] See figure 5 for a description of DOD strategies and plans.

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[66]DOD Instruction 1400.25, Volume 250.

[67]DOD, *DOD Strategic Management Plan Fiscal Years 2022–2026* (July 2022); *Annual Performance Plan Fiscal Year 2023* (July 2022); and *Fiscal Year 2022–Fiscal Year 2026 Department of Defense Civilian Human Capital Operating Plan* (June 2022). In March 2023, DOD updated its *DOD Strategic Management Plan Fiscal Years 2022–2026* and published the *Annual Performance Plan Fiscal Year 2024*. DOD, *DOD Strategic Management Plan Fiscal Years 2022–2026* (Mar. 2023).

[68]5 C.F.R. § 250.205 (2023) and OPM, *Human Capital Operating Plan (HCOP) Guidance Fiscal Years 2022–2026* (Dec. 2021).

[69]The Defense Civilian Personnel Advisory Service develops DOD's Human Capital Operating Plan. A Defense Civilian Personnel Advisory Service official told us that DOD reviews, approves, and updates the Human Capital Operating Plan annually.

[70]OPM, *Human Capital Operating Plan Guidance*.

Figure 5: DOD Strategies and Plans That Include Artificial Intelligence Workforce-Related Issues

National Defense Strategy

Serves as DOD's primary strategy document and provides a foundation for all other strategic guidance in the department.
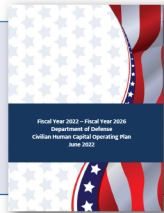
Agency Strategic Plan

Presents the long-term objectives DOD hopes to accomplish at the beginning of each new term of an administration.

Annual Performance Plan

Defines the level of performance to be achieved during the first two fiscal years after the plan is submitted.

Human Capital Operating Plan

Serves as the department's human capital implementation document and describes how an agency will execute the human capital elements stated within the Agency Strategic Plan and the Annual Performance Plan.

Source: GAO analysis of Department of Defense (DOD) information. | GAO-24-105645

Federal regulation and OPM guidance state that a Human Capital Operating Plan should support the execution of the Agency Strategic Plan.[71] This includes addressing the human capital implementation actions planned to support the strategic goals and priorities identified in the Agency Strategic Plan and Annual Performance Plan.[72]

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[71]5 C.F.R. § 250.205 (2023).

[72]Office of Management and Budget, *Circular No. A-11 Preparation, Submission, and Execution of the Budget* (Aug. 2022); 5 C.F.R. § 250.205 (2023); and OPM, *Human Capital Operating Plan Guidance*.

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However, we found that the Human Capital Operating Plan is not fully consistent with the Agency Strategic Plan and Annual Performance Plan. Specifically, the Human Capital Operating Plan does not consistently address human capital implementation actions for AI-related workforce issues, and DOD's plans were inconsistent in how they discussed AI-related terms.

Does not consistently address AI implementation actions. The Human Capital Operating Plan does not consistently address human capital implementation actions for the required strategic goals cited in the Agency Strategic Plan that relate to AI workforce issues. For example, Strategic Goal One—Making the Right Technology Investments and Transforming the Future Force—includes a strategic objective to build a strong foundation for future science and technology by investing in the department's workforce, laboratory, and testing infrastructure. To support this strategic objective, the Annual Performance Plan includes a performance measure to conduct an annual assessment of workforce, infrastructure, and industrial base capabilities and capacity to support the critical technology areas road maps.[73] However, the Human Capital Operating Plan does not discuss annual assessments of the workforce or reference critical technology, which includes AI.

In addition, Strategic Goal Four—Address Institutional Management Priorities—includes a strategic objective to accelerate DOD's adoption of AI. Additionally, the Annual Performance Plan identifies AI expertise and literacy within the department as a major management challenge to accelerating the adoption of AI.[74] However, the Human Capital Operating

[73]AI is considered a critical technology according to an Office of the Under Secretary of Defense for Research and Engineering memorandum published in February 2022. Under Secretary of Defense for Research and Engineering, *USD (R&E) Technology Vision for an Era of Competition* (Feb. 1, 2022).

[74]DOD, *FY 2021 Annual Performance Plan FY 2019 Annual Performance Report* (Jan. 2020). Major management challenge refers to programs or management functions that have greater vulnerability to waste, fraud, abuse, and mismanagement, such as programs and management functions we or another Inspector General have identified as high risk. For these programs and management functions, a failure to perform well could seriously affect the ability of an agency or the government to achieve its mission or goals. 31 U.S.C. § 1115(h)(5).

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Plan does not reference accelerating the adoption of AI or the AI expertise and literacy management challenge.[75]

Inconsistent AI-related terms. DOD's plans are also inconsistent in how they discuss AI-related terms. Some of the military services are also developing or planning to develop component-level human capital plans that encompass AI and will cascade from the higher-level plans.

For example, DOD's Agency Strategic Plan and Annual Performance Plan both use the term "critical technology areas" when discussing the need to conduct annual workforce assessments. Examples of DOD critical technologies include AI, quantum science, biotechnology, and microelectronics.[76] By contrast, when discussing the need to develop an inventory of skills gaps, the Human Capital Operating Plan uses terms such as the "innovation workforce" and "digital talent," but does not reference "critical technology areas."[77] If DOD-wide plans do not use consistent terminology, the proposed component level plans may also use the same inconsistent terms when addressing AI workforce issues. This could prevent a common department-wide understanding of AI workforce strategic goals and objectives.

A Defense Civilian Personnel Advisory Service official told us that they believe the human capital objectives and strategies described in the Human Capital Operating Plan align with strategic goals in the Agency Strategic Plan. However, the Human Capital Operating Plan does not identify or mention the strategic goals discussed above.[78]

The next annual review of the Human Capital Operating Plan provides an opportunity to address human capital implementation actions for AI workforce issues and ensure the use of consistent AI terminology. Until the Human Capital Operating Plan is fully consistent with the Agency

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[75]This includes both the most recent Human Capital Operating Plan and its immediate predecessor (i.e., the *Fiscal Year 2022-2026 DOD Civilian Human Capital Operating Plan* and the *Fiscal Year 2020-2021 DOD Civilian Human Capital Operating Plan*).

[76]Under Secretary of Defense for Research and Engineering, *USD (R&E) Technology Vision for an Era of Competition* (Feb. 1, 2022).

[77]As mentioned previously, DOD does not yet have a standard definition for its innovation or digital workforces. However, DOD officials use the undefined terms "innovation workforce" and "digital workforce" to refer to DOD's AI workforce, among other workforces.

[78]DOD's Human Capital Operating Plan does not reference the strategic goals discussed above: Strategic Goal One Making the right technology investments and Strategic Goal Four Address institutional management priorities.

Strategic Plan and Annual Performance Plan, efforts to develop the various component-level human capital plans may not fully implement actions necessary for achieving DOD's strategic goals and objectives.

Conclusions

Cultivating a leading AI workforce within DOD is critical to maintaining America's strategic position and prevailing in future battlefields. Since 2018, DOD has made organizational changes and is investing billions of dollars to incorporate AI technology into its operations. CDAO and other staff offices within the Office of the Secretary of Defense have taken some steps to define and identify DOD's AI workforce. However, DOD has not formally assigned responsibility and does not have a timeline for completing the additional steps required to fully define and identify its AI workforce, such as coding the work roles in various workforce data systems, developing a qualification program, updating workforce guidance, and any other actions DOD may identify. Until DOD completes these and any other steps DOD identifies as necessary to fully define and identify the AI workforce, the department will not be able to accurately assess the current state of its AI workforce or forecast future AI workforce requirements to support the DOD mission, as required.

In addition, DOD has published plans and strategies that address some AI workforce issues. However, DOD's Human Capital Operating Plan is not fully consistent with its Agency Strategic Plan and Annual Performance Plan as it relates to AI workforce issues. By ensuring that the Human Capital Operating Plan addresses implementation actions and uses AI-related terms consistent with the Agency Strategic Plan and Annual Performance Plan, DOD will be better positioned to achieve the department's strategic goals and objectives related to AI throughout DOD and its components.

Recommendations for Executive Action

We are making the following three recommendations to DOD:

The Secretary of Defense should ensure the CDAO assigns responsibility to complete the additional steps necessary to fully define and identify DOD's AI workforce. (Recommendation 1)

The Secretary of Defense should ensure the CDAO establishes a timeline for additional steps necessary to fully define and identify the AI workforce. (Recommendation 2)

The Secretary of Defense should ensure that the Under Secretary of Defense for Personnel and Readiness updates the Human Capital Operating Plan to be consistent with the Agency Strategic Plan and

Annual Performance Plan relating to AI workforce issues in the next annual review. This should include (1) addressing the human capital implementation actions planned to support the strategic goals and priorities identified in the Agency Strategic Plan and Annual Performance Plan and (2) ensuring the use of consistent AI terminology. (Recommendation 3)

Agency Comments and Our Evaluation

We provided a draft of this report to DOD and OPM for review and comment. DOD provided written comments, which are reproduced in appendix III. DOD partially concurred with each of our three recommendations. DOD and OPM provided technical comments, which we incorporated into our report as appropriate.

DOD partially concurred with our first two recommendations that the CDAO should assign responsibility and establish a timeline for completing additional steps to fully define and identify DOD's AI workforce. In its written comments, DOD stated there is a conflation of workforce definition and identification processes for work roles compared to occupational series, and that there are inaccuracies regarding the order of operations, and proposed revisions to the examples highlighted in our recommendations.

We do not agree that we conflated workforce definition and identification processes for work roles compared to occupational series. We based our analysis on OPM and DOD guidance. DOD did not describe or elaborate on how the processes might be conflated in its written response or in its technical comments provided along with the response to our draft report. However, based on DOD's technical comments and updated information on DOD's planned actions obtained through follow-up discussions with CDAO officials, we made adjustments to our report and we also removed the specific examples of actions from our recommendations to provide DOD flexibility to identify the remaining actions needed to fully define and identify the AI workforce.

DOD also proposed that we revise the wording of the first two recommendations to include the Under Secretary of Defense for Personnel and Readiness as a coordinating office. We applaud DOD's emphasis on stakeholder coordination and recognize the value that coordination with the Under Secretary of Defense for Personnel and Readiness and others, such as the Chief Information Officer, can add to the department's efforts to define and identify the AI workforce. However, we did not make this change to the recommendations because of the CDAO's existing ability to coordinate with the Under Secretary of Defense

for Personnel and Readiness and others in its efforts to define and identify the AI workforce.

We continue to believe that DOD should assign responsibility and establish a timeline for completing the additional steps necessary to fully define and identify its AI workforce. Until these steps are completed, the department will not be able to accurately assess the current state of its AI workforce or forecast future AI workforce requirements to support the DOD mission.
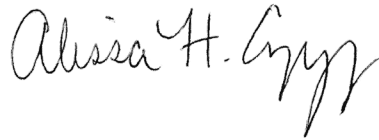
DOD partially concurred with our third recommendation and stated that the department recently completed a Human Capital Operating Plan Refresh for fiscal years 2022 through 2026.[79] DOD proposed that we revise the wording of the recommendation by adding language about stakeholder engagement. We appreciate DOD's emphasis on engaging with stakeholders and, as we noted in our report, the effectiveness of the Human Capital Operating Plan depends largely on engaging with stakeholders. However, we did not modify our recommendation because of the existing ability of the Under Secretary of Defense for Personnel and Readiness to engage with stakeholders.

We continue to believe that DOD will be better positioned to achieve its strategic goals and objectives related to AI if it ensures that its Human Capital Operating Plan addresses implementation actions and uses AI-related terms consistent with the Agency Strategic Plan and Annual Performance Plan.

We are sending copies of this report to the appropriate congressional committees, the Secretary of Defense, the Deputy Secretary of Defense, the Under Secretary of Defense for Personnel and Readiness, the Under Secretary of Defense for Research and Engineering, the Chief Information Officer, the CDAO, Secretaries of the Air Force, Army, and Navy, and the Director of OPM. In addition, the report is available at no charge on the GAO website at https://www.gao.gov.

[79]On November 30, 2023, DOD provided us a copy of the refresh, which is the action plan and metric updates to the Fiscal Year 2022–Fiscal Year 2026 DOD Civilian Human Capital Operating Plan. The refresh includes an initiative to initiate pilots for data, analytics, and artificial intelligence talent acquisition and a milestone to develop, implement, and assess a recruitment marketing campaign to promote civilian cyber/artificial intelligence career opportunities with DOD, among other things. *DOD Human Capital Operating Plan Fiscal Year 2024-2025*.

If you or members of your staff have any questions regarding this report, please contact me at (202) 512-3058 or czyza@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix IV.

Alissa H. Czyz
Director, Defense Capabilities and Management

Appendix I: Objectives, Scope, and Methodology

In a report accompanying a bill for the National Defense Authorization Act for Fiscal Year 2022, the House Armed Services Committee included a provision that we assess the Department of Defense's (DOD) artificial intelligence (AI) workforce.[1] This report (1) describes the tools DOD uses to recruit personnel to meet its AI workforce needs, and evaluates the extent to which DOD (2) has defined and identified its AI workforce and (3) has established plans and strategies that address AI workforce issues.

To address these objectives, we reviewed relevant laws, regulations, and DOD and military service plans and strategies that outline goals and processes related to the AI workforce. We also interviewed and collected documentation from DOD and Office of Personnel Management (OPM) officials.[2] In addition, we interviewed officials and collected documentation from the military services, three DOD organizations, and three Defense Intelligence Enterprise organizations to ensure we gathered information from organizations that conduct AI work.[3] We included three of the nine organizations from the Defense Intelligence Enterprise because the Intelligence Community identifies itself as a leader in developing and using technology crucial to the U.S. national security mission. We selected all six organizations based on our analysis of documents and internet searches for organizations that received positive assessments for their use or employment of AI, and the importance of AI to the organization. Although our sample is non-generalizable, the information obtained from officials from the six selected organizations offered useful insights and perspectives on AI workforce issues in the DOD and DOD's efforts to address them.

For objective one, we collected information on the tools human resource professionals use to recruit AI personnel throughout DOD. We interviewed and collected written responses to a set of questions from

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[1]H.R. Rep. No. 117-118, at 66 (2021).

[2]For the purposes of this report, the military services include the Army, Marine Corps, Navy, Air Force, and Space Force, which are a part of DOD during peacetime.

[3]For DOD organizations, we selected a DOD agency, a science and technology reinvention laboratory, and a federally funded research and development center/university-affiliated research center. For Defense Intelligence Enterprise organizations, we selected one military service intelligence organization and two DOD-level intelligence organizations. Specifically, we selected the Defense Advanced Research Projects Agency, U.S. Army Combat Capabilities Development Command Army Research Laboratory, Department of the Air Force-Massachusetts Institute of Technology AI Accelerator, National Security Agency, National Geospatial-Intelligence Agency, and the intelligence element of the Air Force.

officials representing six DOD organizations and five military services about the tools used by DOD to attract AI talent. In addition, we reviewed relevant policy documents, laws, and regulations that address the tools used by the department.

For objective two, we relied on documentation and interviews to assess the steps taken by DOD to define and identify its AI workforce and the additional steps DOD plans to complete for this process. We compared those completed and planned steps to the strategic focus areas identified in the *2018 DOD AI Strategy* and requirements established in DOD regulations. To conduct our assessment, we reviewed DOD documents including strategies, plans, and regulatory guidance.[4] Additionally, we discussed the steps DOD has taken and plans to complete with relevant DOD officials.

For objective three, we compared the plans and strategies that incorporate DOD's AI workforce to the requirements established in federal regulation and OPM guidance. To conduct our assessment, we reviewed current and previously published versions of the Human Capital Operating Plan, Agency Strategic Plan, and Annual Performance Plan. Additionally, we discussed departmental human capital plans and strategies, including those in development such as the DOD AI Strategic Human Capital Plan, with relevant officials. We also discussed service-level human capital plans and strategies, including those in development, with officials from the military services. We previously identified strategic human capital management as a high-risk area for the federal government.[5]

To address all our objectives, we interviewed officials and, where appropriate, obtained documentation from the following organizations:

- DOD
  - Chief Digital and AI Office

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[4]Documents we assessed include: *2018 DOD AI Strategy*; *DOD AI Education Strategy* (Sept. 2020); DOD Instruction 1400.25, Volume 250, *DOD Civilian Personnel Management System: Civilian Strategic Human Capital Planning (SHCP)* (June 7, 2016); DOD Directive 5105.79, *DOD Senior Governance Framework* (Nov. 8, 2021); DOD Directive 8140.01, *Cyberspace Workforce Management* (Oct. 5, 2020); and OPM, *The Classifier's Handbook* (August 1991).

[5]GAO, *High-Risk Series: Efforts Made to Achieve Progress Need to Be Maintained and Expanded to Fully Address All Areas*, GAO-23-106203 (Washington, D.C.: Apr. 20, 2023).

- Office of the Under Secretary of Defense for Personnel and
  Readiness

  - Defense Civilian Personnel Advisory Service

- Chief Information Officer

- Office of the Under Secretary of Defense for Research and
  Engineering

- Office of the Director of Administration and Management

- DOD Organizations

  - U.S. Army Combat Capabilities Development Command Army
    Research Laboratory

  - Defense Advanced Research Projects Agency

  - Department of the Air Force—Massachusetts Institute of
    Technology AI Accelerator

- Defense Intelligence Enterprise Organizations

  - National Geospatial-Intelligence Agency

  - National Security Agency

  - Air Force intelligence element

- Military Services

  - Army

  - Air Force

  - Navy

  - Marine Corps

  - Space Force

- OPM

  - Employee Services

We conducted this performance audit from January 2022 to December
2023 in accordance with generally accepted government auditing
standards. Those standards require that we plan and perform the audit to
obtain sufficient, appropriate evidence to provide a reasonable basis for
our findings and conclusions based on our audit objectives. We believe
that the evidence obtained provides a reasonable basis for our findings
and conclusions based on our audit objectives.

Appendix II: Department of Defense Cyber Workforce Framework

The Office of the Department of Defense (DOD) Chief Information Officer implemented the DOD Cyber Workforce Framework to meet the requirements described in the Federal Cybersecurity Workforce Assessment Act of 2015.[1] DOD derived its framework from the National Initiative for Cybersecurity Education Cybersecurity Workforce Framework (NICE Framework), which was created by the National Institute of Standards and Technology.[2] According to DOD, the DOD Cyber Workforce Framework

- establishes the department's authoritative terminology based on the work an individual is performing and not their position title, occupational series, or designator;

- facilitates the uniform identification, tracking, and reporting required by the Federal Cybersecurity Workforce Assessment Act of 2015;[3]

- serves as DOD's cyberspace coding structure for authoritative personnel and workforce data systems;[4] and

- helps organizations recruit, train, educate, and retain a qualified cyberspace workforce.[5]

In addition to describing the work performed by the full spectrum of the cyber workforce, the DOD Cyber Workforce Framework has expanded to include five artificial intelligence (AI) work roles as well as six data and

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[1]Pub. L. No. 114-113, § 302 (2015) and codified at 5 U.S.C. § 301 note.

[2]The NICE Framework provides a set of building blocks for describing the tasks, knowledge, and skills that are needed to perform cybersecurity work performed by individuals and teams. National Institute of Standards and Technology, "NICE Framework Resource Center," accessed Mar. 20, 2023, https://www.nist.gov/itl/applied-cybersecurity/nice/nice-framework-resource-center.

[3]In December 2022 we recommended that the Army, Marine Corps, and Air Force take steps to integrate U.S. Cyber Command work roles—which are not contained in the DOD Cyber Workforce Framework—into service-specific personnel data systems of record to improve the tracking of cyber personnel. GAO, *Military Cyber Personnel: Opportunities Exist to Improve Service Obligation Guidance and Data Tracking*, GAO-23-105423 (Washington, D.C.: Dec. 21, 2022).

[4]The *DOD Dictionary of Military and Associated Terms* (May 2023) defines cyberspace as a global domain within the information environment consisting of the interdependent networks of information technology infrastructures and resident data, including the internet, telecommunications networks, computer systems, and embedded processors and controllers.

[5]DOD Instruction 8140.02, *Identification, Tracking, and Reporting of Cyberspace Workforce Requirements* (Dec. 21, 2021).

eight software engineering work roles.[6] Work roles are used as additional occupational descriptors, along with civilian occupational series, military occupational codes, and specialty codes. Each work role contains a definition; tasks; and knowledge, skills, and ability statements that describe what is needed to execute critical functions.[7]

For example, the AI/Machine Learning Specialist work role designs, develops, and modifies AI applications, tools, and other solutions to enable successful accomplishment of mission objectives. The AI/Machine Learning Specialist work role includes 21 tasks and 50 knowledge, skills, and ability statements. See table 2 for examples of those tasks and knowledge, skills, and ability statements.[8]

Table 2: Examples of Tasks and Knowledge, Skills, and Ability Statements for the Artificial Intelligence (AI)/Machine Learning Specialist Work Role

Task	Design and develop machine learning models to achieve organizational objectives.
Task	Determine methods and metrics for quantitative and qualitative measurement of AI risks so that sensitivity, specificity, likelihood, confidence levels, and other metrics are identified, documented, and applied.
Knowledge	Knowledge of emerging trends and future use cases of AI.
Knowledge	Knowledge of how AI is developed and operated.
Skill	Skill in creating machine learning models.
Skill	Skill in testing and evaluating machine learning algorithms or AI solutions.
Ability	Ability to collect, verify, and validate test data.

Source: GAO analysis of Department of Defense (DOD) information. | GAO-24-105645

The DOD Cyber Workforce Framework leverages the original NICE Framework.[9] The concept for the NICE Framework began in 2007 and grew out of the recognition that the cybersecurity workforce had not been

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[6]In September 2022 DOD added five AI work roles to the DOD Cyber Workforce Framework: AI/Machine Learning Specialist (623), AI Test and Evaluation Specialist (672), AI Risk and Ethics Specialist (733), AI Adoption Specialist (753), and AI Innovation Leader (902). DOD, "DOD Cyber Workforce Framework," accessed Mar. 7, 2023, https://public.cyber.mil/wid/dcwf/.

[7]DOD Instruction 8140.02, *Identification, Tracking, and Reporting of Cyberspace Workforce Requirements* and DOD, "DOD Cyber Workforce Framework."

[8]DOD, "AI/ML Specialist," *DOD Cyber Workforce Framework*, accessed Mar. 7, 2023, https://public.cyber.mil/dcwf-work-role/ai-ml-specialist/.

[9]DOD, "DOD Cyber Workforce Framework," accessed Mar. 10, 2023, https://dodcio.defense.gov/Cyber-Workforce/DCWF/.

defined and assessed.[10] The National Institute of Standards and
Technology posted the first version of the NICE Framework in September
2012.[11]

The NICE Framework provides a set of building blocks for describing the
tasks, knowledge, and skills needed to perform cybersecurity work
performed by individuals and teams. Through these building blocks, the
NICE Framework enables organizations to develop their workforces to
perform cybersecurity work.[12] Additionally, the NICE Framework helps
provide a common language of the cybersecurity work and of the
individuals who carry out that work. The use of common terms and
language helps to organize and communicate the work to be done and
the attributes of those qualified to perform that work.[13]

[10]The National Institute of Standards and Technology led the development of the NICE
Framework with support from various agencies, to include DOD and the Department of
Homeland Security.

[11]National Institute of Standards and Technology, *NICE Framework Resource Center*,
accessed Mar. 7, 2023, https://www.nist.gov/itl/applied-cybersecurity/nice/nice-framework-
resource-center and National Institute of Standards and Technology, "NICE Framework
History," *NICE Framework Resource Center* (Feb. 28, 2023), accessed Mar. 7, 2023,
https://www.nist.gov/itl/applied-cybersecurity/nice/nice-framework-resource-center/nice-
framework-history.

[12]National Institute of Standards and Technology Special Publication 800-181, revision 1,
Workforce Framework for Cybersecurity (NICE Framework) (Nov. 2020).

[13]National Institute of Standards and Technology, *Workforce Framework for
Cybersecurity*.

Appendix III: Comments from the Department of Defense

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
1500 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-1500

MANPOWER AND
RESERVE AFFAIRS

OCT 2 0 2023

Ms. Alissa H. Czyz
Director, Defense Capabilities and Management
U.S. Government Accountability Office
441 G Street, NW
Washington DC 20548

Dear Ms. Czyz,

Enclosed is the Department of Defense (DoD) proposed response to the GAO Draft Report GAO-24-105645SU "ARTIFICAL INTELLIGENCE: Actions Needed to Improve DOD's Workforce Management," dated August 31, 2023 (GAO Code 105645).

Should you have any questions, please contact Ms. Sukeena Blair, Primary Action Officer, at sukeena.d.blair.civ@mail.mil, or (571) 372-1666.

Sincerely,

for
Grier Martin
Performing the Duties of the Assistant Secretary
of Defense for Manpower and Reserve
Affairs

Enclosure:
As stated

ENCLOSURE

**GAO DRAFT REPORT DATED AUGUST 31, 2023
GAO-24-105645SU (GAO CODE 105645)**

**"ARTIFICIAL INTELLIGENCE: Actions Needed to Improve DOD's Workforce
Management"**

**DEPARTMENT OF DEFENSE COMMENTS
TO THE GAO RECOMMENDATION**

RECOMMENDATION 1: The Secretary of Defense should ensure the CDAO assigns
responsibility to complete the additional steps necessary to fully define and identify the AI
workforce, to include coding the work rules in various personnel data systems, developing an AI
competency model, determining the scope of the AI workforce, and other steps identified by the
CDAO.

DoD RESPONSE: DoD Partially Concurs. As written, there is a conflation of workforce
definition and identification processes for work roles compared to occupation series. There are
also inaccuracies regarding the order of operations. DoD proposes revising this recommendation
to read: "The Secretary of Defense should ensure that the CDAO completes the additional steps
necessary to fully define and identify the AI workforce, to include publishing interpretive
guidance, setting work role qualifications, assigning components to code the work roles in
various manpower data systems and personnel data systems, and other steps identified by the
CDAO in coordination with the Under Secretary of Defense for Personnel and Readiness.

RECOMMENDATION 2: The Secretary of Defense should ensure that the CDAO establishes
a timeline for additional steps necessary to fully define and identify the AI workforce, to include
coding the work roles in various personnel data systems, developing an AI competency model,
and determining the scope of the AI workforce, and other steps identified by the CDAO.

DoD RESPONSE: DoD Partially Concurs. As written, there is a conflation of workforce
definition and identification processes for work roles compared to occupation series. There are
also inaccuracies regarding the order of operations. DoD proposes revising this recommendation
to read: "The Secretary of Defense should ensure that the CDAO establishes a timeline for
additional steps necessary to fully define and identify the AI workforce, to include publishing
interpretive guidance, setting work role qualifications, assigning components to code the work
roles in various manpower data systems and personnel data systems, and other steps identified by
the CDAO in coordination with the Under Secretary of Defense for Personnel and Readiness."

RECOMMENDATION 3: The Secretary of Defense should ensure that the Under Secretary of
Defense for Personnel and Readiness updates the Human Capital Operating Plan to be consistent
with the Agency Strategic Plan and Annual Performance Plan – as it relates too AI workforce
issues – in the next annual review. This should include: (1) addressing the human capital
implementation actions planned to support the strategic goals and priorities identified in the
Agency Strategic Plan and Annual Performance Plan, and (2) ensuring the use of consistent AI
terminology.

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ENCLOSURE

DoD RESPONSE: DoD Partially Concurs. The title 5, Code of Federal Regulations 250, Subpart B, §250.204 "Agency roles and responsibilities" states at (a)(1) "Align with Executive branch policies, and priorities, as well as with individual agency missions, goals, and strategic objectives. Agencies must align their human capital management strategies to support the Federal Workforce Priorities Report, agency strategic plan, agency performance plan, and agency budget." In accordance with §250.204(a)(1), DoD has recently completed a Human Capital Operating Plan Refresh for Fiscal Year (FY) 2022 and FY 2026. This refresh includes strategic alignment to the President Management Agenda, Federal Workforce Priorities Report, the DoD Strategic Management Plan, and other related strategic initiatives. As such, DoD proposes revising this recommendation to read: "The Secretary of Defense should ensure that the Under Secretary of Defense for Personnel and Readiness updates the Human Capital Operating Plan to be consistent with the Agency Strategic Plan and Annual Performance Plan - engaging all stakeholders, as appropriate, relating to AI workforce issues in the next annual review. This should include: (1) addressing the human capital implementation actions planned to support the strategic goals and priorities identified in the Agency Strategic Plan and Annual Performance Plan, and (2) ensuring the use of consistent AI terminology."

2

Appendix IV: GAO Contact and Staff Acknowledgments

GAO Contact	Alissa H. Czyz, (202) 512-3058 or czyza@gao.gov.
Staff Acknowledgments	In addition to the contact named above, Penney Harwell Caramia (Assistant Director), Andrew Avery, Tracy Barnes, Pamela Davidson, Erik Goepner, Paris Hall, David Hinchman, Amie Lesser, Steven Lozano, Lillian Ofili, Lucas Smith, Jessica Steele, and Emily Wilson made key contributions to this report.