

# Cultivating a Defense Department Workforce for the Digital Era

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The Biden administration faces a host of competing priorities at the Department of Defense (DoD). Its new leadership team must define its approach to a shifting global landscape that is far from settled. DoD writ large must also modernize its aging infrastructure and equipment and cope with a stagnant budget, all the while continuing to develop and procure new technology to ensure U.S. safety and security in a world of twenty-first century threats. However, underlying each of these is the need for a highly skilled technical workforce—encompassing strong leadership, management, and individual subject matter experts—necessary to lead in the Digital Era.

Though the Pentagon has a legacy of leading in science and technology, it has struggled to adapt its [industrial age approach to personnel management](#). As a result, it is struggling to recruit and retain the science, technology, engineering, and mathematics (STEM) workforce across the enterprise that it needs to compete. While pockets of success may exist in places like DoD Research and Engineering and the National Security Agency, the ubiquity of digital systems and increasing pace of technology development requires the entirety of the defense enterprise to integrate technologists throughout its ranks. The DoD must no longer treat people as interchangeable parts; instead, it must manage skills, experiences, and preferences to build a modern workforce.

## **Q1: We've been continually hearing about hiring STEM talent for years, isn't there enough?**

**A1:** Building a technical workforce extends beyond hiring entry-level STEM professionals, though progress is still needed in this area. In a [recent CSIS study on the DoD's technical workforce](#), data from the Office of Personnel Management's [Fedscope](#) show that, while the percentage of STEM talent in DoD's civil service is higher compared to that of the general federal workforce, it is smaller than other agencies with a technical focus, like the Department of Energy and Department of Commerce. Further, the analysis showed that only a small fraction of civilian STEM professionals are promoted to the Senior Executive Service in DoD. The result is a leadership cadre with little direct experience in managing the technology budget, policy, and—most importantly—the people in their portfolio. The absence of STEM champions in leadership is a contributing factor to personnel turnover. DoD must retain and promote STEM personnel into leadership roles.

## **Q2: Won't STEM talent want more money than DoD can pay?**

**A2:** The Pentagon obscures consequential impediments to recruitment and retention [by focusing on a trade-off](#) STEM talent must make between Silicon Valley salary and public service. As Amy Zegart and Kevin Childs write, a recruiting strategy of [“If you want to make money, go into industry, but if you want a mission bigger than yourself, work for me”](#) is ineffective. In fact, compared to all other federal civil employees, federal STEM positions [have higher salaries and length of service on average](#). However, to get in the door, federal hires face a lengthy and opaque

onboarding process that can extend into a year or more of waiting, which may deter professionals who are in high demand across the economy, such as software engineers, computer scientists, and data architects. Once inside DoD, STEM professionals often find they face [a culture of micromanagement that restricts authorities and access](#), a lack of resources—whether outdated [computers and software](#) or [data](#)—and insufficient personnel to successfully do their jobs.

DoD may never be able to compete dollar for dollar with a Silicon Valley salary—but it may not have to. A streamlined and transparent hiring process combined with a work environment where technical talent can excel would make DoD an attractive employer. The Pentagon’s leadership should prioritize information technology modernization efforts to meet industry standards to ensure that STEM personnel have the tools and authorities they need to solve tough problems quickly. It should also actively manage the hiring process, including by sending frequent communications to prospects throughout the process. Organizations like the [Defense Digital Service](#) (DDS) have demonstrated the effectiveness of improving the hiring process and work environment as a means to bring in technical talent; the new administration should now address the challenge of adapting and scaling throughout the enterprise.

### **Q3: Will hiring more STEM displace the existing workforce?**

**A3:** The complexity and scope of DoD’s mission still require a variety of expertise and experience. STEM professionals must understand their users, the mission needs, and the operating environments where their technology will live. Non-STEM professionals must understand the range and feasibility of technology options to better communicate with system developers. Modernizing the workforce requires building interdisciplinary teams that co-locate technologists, operators, and analysts. As the pace of technology development increases—in part driven by the speed at which software may be deployed and updated—integrating STEM and non-STEM professionals is necessary to break down the cultural and communication barriers between technologists and users that hinder system development.

Further, the new DoD leadership should also look for opportunities to [up-skill its existing workforce](#), including by promoting digital literacy efforts. For example, the U.S. Space Force will require [digital literacy training and education](#) for each of its employees. As computing infrastructure, data, and networks underpin the functionality of DoD, all its employees must be fluent in the language of digital systems.

### **Q4: Will all of this workforce development be accomplished and completed by the incoming administration?**

**A4:** At In our [research brief](#) on the topic of DoD STEM talent management, we found that the defense cyber workforce has been successfully working for years to overcome many of the recruitment and retention barriers discussed here. The DDS, [Air Force Kessel Run](#), and the [U.S. Army Software Factory](#) have also demonstrated that DoD can in fact recruit, hire, retain, and promote technical professionals, particularly digital talent, in a competitive job market. To truly become a technical organization, DoD must adapt, integrate, and scale the processes and approaches of these individual organizations. Our findings illustrate the efficacy of flattening technical hierarchies, pooling and centrally managing STEM talent, and encouraging permeability and career flexibility across the defense ecosystem to allow professionals to rotate and refresh their skills and experience. Cultivating a twenty-first century defense workforce is about transforming and managing the entirety of the defense enterprise. The daunting task will require [major personnel policy, organizational, and cultural changes](#) that must be a priority of this incoming administration and the ones that follow, but it is one that is absolutely necessary to meet the security challenges of the modern era.

## Author

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