_____

DEFENSE INNOVATION BOARD
APPOINTING A DEPARTMENT OF DEFENSE CHIEF DIGITAL ENGINEERING RECRUITMENT AND MANAGEMENT OFFICER

The FY20 National Defense Authorization Act (NDAA) included many provisions signaling to the Department of Defense (DoD) the focus Congress is placing on DoD efforts to recruit, develop, and retain digital talent. In §230, Congress directed DoD to "promote and maintain digital expertise and software development as core competencies" in both its civilian and military workforces. The §230 provision also included language that allows the Secretary to appoint a new role in the Department, which Congress refers to as a "Chief Digital Engineering Recruitment and Management Officer." This Defense Innovation Board report explores the roles, responsibilities, and organizational placement of this official, as well as opportunities and challenges, and provides recommendations for the Secretary of Defense to consider should he pursue this innovative digital talent option provided by Congress.

Overview

The Defense Innovation Board (DIB), since inception, has emphasized the need for the Department of Defense (DoD) to prioritize digital talent management. Dating back to our initial recommendations on incorporating computer science as a core competency in recruiting and training, to creating Innovation-Science-Technology-Engineering-Math (ISTEM) career fields, to the *Software Acquisition and Practices* (SWAP) Study emphasis on creating new paths for digital talent, and our most recent call to action in the *Workforce Now*[1] and *Campaign for an AI Ready Force* reports, the DIB has emphasized the need for a paradigm shift within DoD in its approach to digital talent and implications for a digitally-competent and competitive workforce.[2]

Developing a highly capable digital workforce is critical to achieve the broader digital transformation outlined in the DoD Digital Modernization Strategy to integrate digital technology into the full range of DoD operations, from personnel management to strategic planning to operations and battlefield management. While other aspects of any organization's digital transformation, such as infrastructure and process, are just as critical, the DIB is encouraged to see a strong emphasis on digital talent in the FY20 NDAA. The Department will earn enormous returns by improving how it brings in and develops new talent, and how it cultivates digital talent already resident within the workforce.

---

[1] In our most recent workforce recommendation, *Workforce Now*, we called on the Department to take immediate action to prevent the critical loss of digital talent already resident in our uniformed service members. In extensive interviews, the DIB found the two biggest reasons service members with digital skills leave the service are lack of opportunity to apply their digital skills in existing billets and no existing career paths for them to advance their digital abilities.
https://media.defense.gov/2019/Oct/31/2002204196/-1/-1/0/WORKFORCE_NOW.PDF

[2] DIB recommendations can be found at https://innovation.defense.gov/Recommendations/

NDAA § 230: DoD Policy On Digital Talent Management

The FY20 NDAA §230 directs DoD to establish policy to "promote and maintain digital expertise and software development as core competencies" in both its civilian and military workforces.[3] The provision in the NDAA calls on DoD to improve the recruitment and hiring of digital engineering[4] talent, develop tailored career tracks, and assess progress with appropriate metrics; this aligns with many previous DIB recommendations, as noted earlier. This DIB report will focus on the permissive language Congress included in §230 that states "the Secretary of Defense may appoint a civilian official responsible for the development and implementation of the policy and implementation plan."

Current Department of Defense Efforts

To date, the Department has taken positive steps to recruit, develop, and retain digital talent. Some examples of this include DoD's Digital Modernization Strategy goal to cultivate talent for a digital-ready workforce; DoD's Digital Engineering Strategy goal to transform the culture and workforce to adopt and support digital engineering across the lifecycle; the Office of the Under Secretary of Acquisition & Sustainment (A&S) Human Capital Initiative, focusing on developing software expertise within the acquisition workforce; DoD's Cyber Workforce Framework (driven by the Federal Cybersecurity Workforce Assessment Act) to develop DoD's cyber workforce; and the Defense Digital Service's Civilian-Hiring-As-A-Service program. Across DoD, the Service Secretaries of the Military Departments - the Secretary of the Army, Secretary of the Air Force, and Secretary of the Navy (which includes the Marines) - have all undertaken efforts to prioritize and address the issue of transforming the workforce. However, many of these efforts are slow to produce results, and difficult to change the large and interconnected yet disparate personnel policies across DoD.

Our *Workforce Now* report noted, "apart from the growing cyber workforce, DoD has taken only modest steps to create formal pathways for service members with these critical skills. The Department needs to rapidly accelerate building the capability and capacity of its digital and STEM workforce... [and] the slow pace of change is not for lack of trying; rather, [DoD] personnel reform is both a complex and complicated riddle to unravel, involving layers of law, regulation, policy, and – perhaps most of all – culture. Each Service has recently launched admirable efforts to address underlying challenges that affect their personnel systems, many of them including specific measures to tackle the particularly urgent challenges of recruiting,

---

[3] Full language included in Appendix B.

[4] Defined in FY2020 NDAA Sec. 230 as "the discipline and set of skills involved in the creation, processing, transmission, integration, and storage of digital data, including data science, machine learning, software engineering, software product management, and artificial intelligence product management". The DIB notes that the §230 provision uses the term "digital engineering" to cover increasingly important digital disciplines (software, data science, and artificial intelligence/machine learning (AI/ML)), but notably, makes no mention of cyber. This is likely because the cyber community has a head start on the development of cyber people, organizational structures, and capabilities, but it reveals the need for the Department to define the universe of skills and find the right structure to demonstrate the relation and distinctions between and among "digital engineering talent" vs "cyber talent." Given the head start the DoD cyber workforce has, the DIB strongly encourages DoD to accelerate the development of its digital engineering talent base with a separate, dedicated effort. However, given the close relationship between cyber and the digital engineering disciplines, DoD will need to keep the communities closely aligned, with the potential for consolidating efforts in the future.

training, and fielding a digitally capable force. The DIB unequivocally and enthusiastically praises these efforts and they should continue apace with support from Congress and the Administration; however, while these sweeping reforms work their way through an appropriately deliberate process, the Department's digital readiness crisis is getting worse."[5]

DoD (Digital) Workforce Responsibilities

Many DoD components play important roles in military and civilian personnel management across DoD, and digital engineering personnel issues are no exception. Here are some of the key stakeholders (in no particular order):

- Under Secretary of Defense for Personnel and Readiness (OSD P&R)
- Under Secretary of Defense for Research and Engineering (OSD R&E)
- Under Secretary of Defense for Acquisition and Sustainment (OSD A&S)
- Service Secretaries (SecArmy, SecAf, SecNav)
- Joint Chiefs of Staff (JCS)
- Chief Information Officer (OSD CIO)
- Defense Digital Service (DDS)
- Outside government stakeholders: Congress, the Office of Personnel Management (OPM), and the Office of Management and Budget (OMB)

Though there are multiple coordinating mechanisms in place, personnel management is largely decentralized across the Services and various civilian offices, each with their own unique needs and ways of doing business. For example, the Air Force may decide to create a new Specialty Code - a full career track equivalent to a pilot - for AI, while the Army may instead decide to tag or code people in existing career tracks with an AI Additional Skill Qualifier. While the OSD P&R advises the Secretary and Deputy Secretary on recruitment, career development, pay and benefits and military readiness - or Total Force Management - it is the Services and other OSD components that have control over implementation over those types of decisions, resulting in significant differences in personnel policies and approaches. This can be a positive for the Department, as approaches can align to culture within a certain Service or field, but can also result in a seeming schizophrenic codification of the same skill.

Chief Digital Engineering Recruitment & Management Officer: DoD's "Digital People Officer"

Building up a robust digital workforce within the decentralized DoD bureaucracy requires many separate efforts. Absent major structural overhaul consolidating all personnel decisions within one office, the best way to help all stakeholders succeed is to create a central resource and enabler.

The NDAA §230 provision empowers the Secretary of Defense to appoint a Chief Digital Engineering Recruitment and Management Officer (CDERMO) to help DoD prioritize and drive

---

[5] https://media.defense.gov/2019/Oct/31/2002204196/-1/-1/0/WORKFORCE_NOW.PDF

the paradigm shift on approaches to digital talent. The CDERMO would bring strategic focus to the digital talent gap and develop and implement necessary digital talent personnel policy changes, functioning as a force-multiplier for OSD and Service personnel organizations. The DIB strongly endorses the immediate establishment and appointment of the CDERMO position. However, to avoid a lengthy acronym and take a more modern and widely-accepted name that will resonate with the type of talent DoD is trying to attract, the DIB proposes the position be re-named the Digital People Officer (DPO),[6] which we will use through the remainder of the report.

The DIB believes a DPO could enable current DoD offices with authority over personnel decisions by helping them more effectively and rapidly recruit, develop, and retain digital talent, serving as a central repository of knowledge, best practices, tools, and services. This approach leverages existing structures and personnel across DoD in priority talent gap areas to scale results beyond just one office.

Roles & Responsibilities

The DIB envisions the role of the DPO to be part convener, part guide and influencer, part implementer, and part independent evaluator. An overview of core functions and responsibilities is listed below, with a detailed concept for a DPO Position Description included as Appendix A. The DPO will:

- Provide guidance and standardization on digital engineering disciplines, careers, and team compositions (civilian and military). The DPO should think through creative ways to foster greater workforce permeability (moving in and out of government service).
- Provide guidance and tools for tracking, development, upskilling, training, and education.
- Develop and share processes and tools to recruit and hire digital talent; includes authority to pilot/prototype methodologies and tools used for hiring.
- Directly support hiring for senior technical positions.
- Develop appropriate standards and metrics to assess progress.
- Identify and champion necessary policy and legal changes.
- Connect with other parts of the government and non-government organizations to find valuable insights for DoD. *See private sector examples below.*

Organizational and Reporting Structure

The DIB recommends the DPO be established as an independent office, piloted and incubated within the Defense Digital Service (DDS). DDS solves technical challenges by scoping the problem, working with users to develop, test, and refine solutions through experimentation, and then producing prototypes that if successful, can scale across the Department. Initially putting the DPO under DDS is modeled on how incubators support early stage startups and would provide the DPO with the infrastructure, technology, and policies needed to have the highest

---

[6] Chief People Officer is a common position title throughout the private sector, as companies have sought to re-think how they manage their people. https://medium.com/@peopletech/the-hottest-hypergrowth-new-hire-chief-people-officer-920b0e6507a8

likelihood of success. It will also ensure a direct-report to the Secretary and Deputy Secretary of Defense. The DIB recommends the Director of DDS select the first DPO and oversee the early development of this new role.

It is critically important that the DPO be provided the best chance to succeed within a big bureaucracy that is not always welcoming of new initiatives. Here is why DDS is the best option to incubate the new office:

- The Director DDS is a direct report to the Secretary of Defense and can remove barriers at the highest levels.
- DDS is a credible source of both technology and technology talent expertise. As an offshoot of the U.S. Digital Service, DDS brings in private sector talent and approaches to tackle DoD technology problems *with* DoD teams.
- DDS already has significant experience with programs to recruit and hire new people, as well as initiatives to train and upskill DoD civilians and service members.
- DDS has the right digital infrastructure, culture, and network to help the DPO move quickly to establish itself.

The DIB strongly believes DDS is the ideal organization stand up and incubate the DPO to maximize its chances of success; however, it should be noted DDS's core mission is to solve technology problems and not recruit or manage talent for the rest of the Department. Once the DPO matures in 1-2 years, the Secretary should transition the role out of DDS into either a stand-alone, direct report strategic advisor to the Secretary or assigned as a strategic advisor at the Under Secretary level in one of the OSD components. At that time, DoD should have a much better sense of how it wants to structure its digital engineering talent and connect it more closely to the cyber community.

Digital Workforce Transformation: Industry Examples

DoD is not the only large organization adjusting its workforce to harness digital technologies to improve performance. There are many examples, good and bad, in the public and private sectors. Despite many unique factors facing DoD, Department leaders can learn valuable lessons from the outside about how to attract, organize, and develop digital talent. Below are just a few examples. The DPO should build a wide network across government and industry to translate industry best practices into effective action.

Microsoft[7]
DoD can learn from Microsoft's Core Services Engineering and Operations (CSEO) team how cultural and structural changes are transforming its existing workforce through improved mentorship, skill development, and accountability. DIB Board Member Kurt DelBene is leading an internal digital transformation within CSEO. To transform their traditional IT and business operations, DelBene's team put a major emphasis on workforce recruitment and development. The team built new career tracks focused around digital disciplines (for example, software

---

[7] https://www.microsoft.com/en-us/itshowcase/inside-the-transformation-of-it-and-operations-at-microsoft

engineering) instead of domain knowledge (for example, human resources), and uses a matrixed approach to pull in needed talent on project teams.

Novartis[8]

Novartis, a global healthcare company with 100,000 employees around the world, offers a great example of the need for training and learning to support organizational digital transformation and workforce upskilling. Novartis appointed a Chief Learning Officer (CLO) to create an environment of continuous learning so the company can better adapt to the fast pace of emerging, evolving, and expiring skills. The CLO built distinct programs for three audiences (senior leaders, digital practitioners, and all other employees) to allow for unique content and format delivery. Novartis will spend over $1 billion over the next five years on a full range of digital skills training opportunities, from online courses to in-person workshops.

PWC[9]

PricewaterhouseCoopers (PwC) is another organization DoD can turn to for lessons on how to develop its internal digital talent. PwC is a multinational professional services network of firms with 250,000 employees. PwC's chairman made digital upskilling a core business priority. PwC uses a host of tech-enabled platforms to screen, assess, and develop employees, from podcasts to games to mobile apps. This is an ongoing, high-priority effort with leadership support, digital tools, and resources. In just a few years, PwC has seen improvements in capabilities (robotic process automation, AI, analytics), retention, and productivity.

Not every digital transformation is successful. In fact, McKinsey estimates that 70% fail.[10] DoD should also learn from organizations that failed to meet expectations. Companies like GE, the Home Depot, and Procter & Gamble have all struggled to effectively apply digital technologies to their operations.[11] DoD should carefully study these digital transformation failures to build a more robust and resilient plan.

Summary

The need is clear for DoD to continue to improve how it develops, acquires, and applies digital technologies in all of its operations. Critical to this effort will be DoD's ability to attract, develop, and retain digital talent. The Department now has the opportunity, with official tasking

[8] https://www.novartis.com/stories/people-and-culture/enabling-130000-employees-grow-organization-committed-continuous-learning

[9] https://hbr.org/2018/10/how-we-teach-digital-skills-at-pwc, https://www.pwc.com/us/en/press-releases/2018/digital-workforce-transformation.html, https://www.zdnet.com/article/four-lessons-from-pwcs-digital-transformation-workforce-upskilling-efforts/

[10] https://www.forbes.com/sites/peterbendorsamuel/2018/07/18/where-most-companies-go-wrong-in-digital-transformation/#226ff56d6884

[11] https://go.forrester.com/blogs/a-blueprint-for-pragmatic-digital-transformation-the-home-depot-story/ , https://www.forbes.com/sites/martingiles/2019/11/20/home-depot-digital-transformation-speed-bump/#157310de5bc2, https://fortune.com/2018/05/24/ge-failure-immelt/, https://www.inc.com/alex-moazed/why-ge-digital-didnt-make-it-big.html, https://www.forbes.com/sites/blakemorgan/2019/09/30/companies-that-failed-at-digital-transformation-and-what-we-can-learn-from-them/#1687779d603c

and support from Congress, to quickly make great strides in better defining and filling its digital talent needs.

In summary, the DIB makes several specific recommendations:

- **Recommendation 1**: The Secretary should immediately task the Director of the Defense Digital Service to appoint a new Digital People Officer.

- **Recommendation 2**: The Digital People Officer should be established as an independent office, piloted and incubated within the Defense Digital Service.

- **Recommendation 3**: Within 1-2 years, the Secretary should transition the role out of the Defense Digital Service into either a stand-alone, direct report strategic advisor to the Secretary or assigned as a strategic advisor at the Under Secretary level in one of the OSD components.

- **Recommendation 4**: The Digital People Officer should directly engage with private and public sector leaders who are leading their own digital workforce transformations to identify best practices for implementation.

APPENDIX A:
DIB Proposal - DoD's Digital People Officer DPO Position Description

The duties and responsibilities for a Digital People Officer (DPO) suggested below are based on industry feedback on how similar positions operate (especially at top tech companies) and pockets of excellence across DoD and Federal government.

Duties and Responsibilities:

1. Senior Advisor on Policies, Processes, and Systems that Enable a Digital Workforce

- Identify areas where policies or laws are leading to unintended consequences that impact DoD's ability to build a digital workforce;
- Work with responsible offices to revise policies or issue waivers;
- Serve as subject matter advisor for DoD efforts to modernize personnel systems;
- Provide guidance and tools to help offices pick the right direct hire authorities given their workforce shaping objectives;
- Advise on policies affecting the establishment or management of MOS, occupational series, career ladders, or incentives for digital talent;
- Identify trainings or certifications used by legacy workforce to become digitally fluent and work with learning universities and career programs to promulgate;
- Develop or inform policies on best practices in organizing and structuring digital talent.

2. Provide Tools and Technologies to Assist in Recruitment

DoD struggles to procure and deploy commercial off-the-shelf (COTS) tools that would improve recruiters' and human resource specialists' ability to attract, vet, and manage candidates through the hiring lifecycle. Many recruiters want, but do not know how to procure, tools commonly used by their counterparts in the private sector - especially when the tools are low cost or subscription-based such as public job boards [ZipRecruiter[12]], cloud-based candidate relationship management tools [GoogleHire], applicant tracking systems [Lever, Guidehouse] and automated coding challenges [HireVue].

- Conduct user (i.e., recruiters, HR specialists) experience discovery and market research to understand the Department's needs and what COTS solutions can meet them;
- Lead procurement for blanket purchase agreements (BPAs) and indefinite delivery/indefinite quantity (IDIQ) contracts for recruitment tools and technologies;
- Supply a small number of licenses for each tool or technology that could be piloted by offices across DoD before purchasing their own;

---

[12] Tools and technology mentioned by name are examples (and should not be construed as an endorsement) of COTS solutions. All products or services mentioned in this document have been piloted by the Defense Digital Service and/or U.S. Air Force Kessel Run that can be used by other DoD components.

● Support Executive Recruitment for senior technical and highly qualified expert positions as contracting officer representative for recruiting services (e.g., contract vehicle used by MEPCOM, and DCSA to source candidates recruited by private sector headhunters);

● Maintain a single, online repository for information, guidance, and tools that can be accessed by customers (DoD recruiters, HR specialists, and hiring managers).

3. **Promote Best Practices for Hiring and Engaging Digital Talent**

● Manage enterprise-wide hiring pilots, working with the Office of Personnel Management (OPM) and the U.S. Digital Service (USDS) to implement the guidance from the 13 SEPT 2019 Memo "Improving Federal Hiring through the Use of Effective Assessment Strategies to Advance Mission Outcomes"[13];

● Conduct job analysis workshops with HR specialists, SMEs, and hiring managers to identify and define required competencies and proficiency levels for digital positions;

● Partner with personnel efforts across the Services to streamline Core Position Description documents for digital workforce needs;

● Create a repository of position descriptions that can be leveraged as a starting point by any DoD office to classify and hire for digital positions (particularly Software Engineers/Developers, Data Scientists, Designer, and Product Managers);

● Write and make available public facing job announcement templates and language proven to attract desired talent;

● Support direct commissioning efforts for technical positions;

● Work with Recruiters and HR Specialists across DoD to identify and amplify innovative recruiting strategies that can be leveraged by other components.

4. **Establish and Track Metrics on the Digital Workforce**

Individual Services and offices within DoD need to understand the effectiveness of their efforts to promote and maintain a digital workforce.

● Establish key performance metrics and tracking systems for the full measure of digital engineering workforce capability, capacity, and readiness (to include hiring, retention, expertise, diversity & inclusion, promotion, etc;

● Conduct surveys and provide COTS solutions for surveying (e.g., Qualtrics);

● Collect employment and labor condition data on digital positions for use by HR and hiring managers in hiring flexibilities or incentives packages;

● Conduct surveys on DoD brand awareness and messaging with target technical candidates to inform the language used in recruiting for both military and civilian;

13

https://www.chcoc.gov/sites/default/files/OPM%20Memo%20Improving%20Federal%20Hiring%20through%20the%20Use%20of%20Effective%20Assessment%20Strategies%20to%20Advance%20Mission%20Outcomes.pdf

APPENDIX B:
FY20 NDAA §230 Policy on the Talent Management of Digital Expertise and Software Professionals

(a) POLICY.—
(1) IN GENERAL.—It shall be a policy of the Department of Defense to promote and maintain digital expertise and software development as core competencies of civilian and military workforces of the Department, and as a capability to support the National Defense Strategy, which policy shall be achieved by —

(A) the recruitment, development, and incentivization of retention in and to the civilian and military workforce of the Department of individuals with aptitude, experience, proficient expertise, or a combination thereof in digital expertise and software development;

(B) at the discretion of the Secretaries of the military departments, the development and maintenance of civilian and military career tracks related to digital expertise, and related digital competencies for members of the Armed Forces, including the development and maintenance of training, education, talent management, incentives, and promotion policies in support of members at all levels of such career tracks; and

(C) the development and application of appropriate readiness standards and metrics to measure and report on the overall capability, capacity, utilization, and readiness of digital engineering professionals to develop and deliver operational capabilities and employ modern business practices.

(2) DIGITAL ENGINEERING DEFINED.—For purposes of this section, the term ''digital engineering'' means the discipline and set of skills involved in the creation, processing, transmission, integration, and storage of digital data, including data science, machine learning, software engineering, software product management, and artificial intelligence product management.

(b) IMPLEMENTATION PLAN.—Not later than May 1, 2020, the Secretary of Defense shall submit to the Committees on Armed Services of the Senate and the House of Representatives a plan that describes how the Department of Defense will execute the policy described in subsection (a).

(c) RESPONSIBILITY.—
(1) APPOINTMENT OF OFFICER.—Not later than 270 days after the date of enactment of this Act, the Secretary of Defense *may appoint* a civilian official responsible for the development and implementation of the policy and implementation plan set forth in subsections (a) and (b), respectively. The official shall be known as the ''Chief Digital Engineering Recruitment and Management Officer of the Department of Defense.''

(2) EXPIRATION OF APPOINTMENT.—The appointment of the Officer under paragraph (1) shall expire on September 30, 2024.