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Transitioning to Tech

Transitioning Service Members and Veteran Perceptions Regarding a Career in the Technology Sector

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Center for a New American Security

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Introduction

Military experience provides service members with a range of technical and soft skills that can prepare them for meaningful employment in the private sector. Unfortunately, perceptions about the differences between military service and civilian employment can hinder the transition process, leading some veterans to believe they are unqualified for certain roles, or unaware of the steps they can take to gain meaningful employment in positions that seem vastly different from the work they did in uniform. This can be particularly true in the technology sector, where stereotypes and misperceptions—on both sides—can make the gap between military service and employment in a place like Silicon Valley seem insurmountable. However, as many have demonstrated, veterans can successfully make the leap to meaningful employment in the technology sector, and the firms that hire them can benefit from the skills and experience transitioning service members bring to the field. Understanding veteran perceptions about opportunities in technology is therefore an important first step in identifying the hurdles, both real and perceived, to expanding this pathway and getting more military veterans into meaningful employment in this sector.

This white paper uses a mixed-methods approach to examine veteran opportunities and perceptions of opportunities in the technology sector. It begins with an overview of current support efforts specific to employment and education in the technology sector provided by the government's Transition Assistance Program (TAP), technology companies, and veteran-serving nonprofit organizations. The paper then examines the attitudes of veterans in transition with a focus on perceptions of employment opportunities in the technology sector and perceived gaps between the skills transitioning service members have and the skills they believe are necessary to pursue a career in technology. The white paper concludes with recommendations for relevant departments, agencies, programs, employers, veteran-serving organizations, transitioning service members, and veterans.

For the purposes of this paper, employment in "technology" is broadly defined to include both jobs that require specific technological skills and general employment in companies that produce technology products. Technology companies range from small startups to large software and e-commerce corporations with a myriad of job titles and a variety of roles requiring different skill sets. The span of technological expertise can cross industries, including technological support and information management for large brick-and-mortar businesses and the medical and financial industries.

The analysis provided in this white paper is informed by a survey that CNAS and VetsinTech, a veteran-serving nonprofit, performed from August 31, 2021, through September 18, 2021. The survey yielded over 1,000 responses from veterans, transitioning service members, and active-duty service members. The analysis also incorporates feedback from interviews with action officers at the Department of Defense (DoD), the Department of Veterans Affairs (VA), and the Department of Labor (DoL), as well as veterans currently employed in the technology sector and those who seek to hire veterans in the technology sector.

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Career Orientation and Opportunities Provided for Transitioning Service Members

The DoD provides two main programs to prepare transitioning service members for employment after separation: TAP and the SkillBridge program.

THE TRANSITION ASSISTANCE PROGRAM

TAP is a mandatory career transition program for service members in the process of separating from military service. Established by Congress in 1991, the program provides information and resources to transitioning service members on the benefits available to them to successfully reintegrate into civilian life, including employment. TAP is coordinated across six federal agencies: the DoD, VA, DoL, Department of Education (DoEd), Office of Personnel Management (OPM) and Small Business Administration (SBA). The mandatory elements of TAP include an individualized transition plan, a financial plan, and a skills assessment for civilian jobs, all with the goal of meeting career readiness standards (CRS). The core components of TAP may assist transitioning service members into careers in the technology sector if such employment is already of interest to a transitioning service member and part of their individualized transition plan. However, since TAP is generalized for all transitioning service members, the specifics of a career in the technology sector are generally not emphasized during the TAP process.[1] TAP also does not collect information on participants' career fields of interest, nor does it track job placement after separation.[2]

In addition to the mandatory courses in preparation for CRS certification, transitioning service members have the option to attend a variety of courses geared toward specific post-separation circumstances. Optional courses relevant to veterans interested in a career in the technology sector include Vocational Career and Credential Exploration, which allows for personalized career coaching, and the employment workshop, which highlights emerging technologies needed to network and search for employment.

THE SKILLBRIDGE PROGRAM

SkillBridge is a DoD program connecting transitioning service members with private sector employers for training experience. Service members are able to participate while still in uniform for up to 180 days prior to their separation from service. Service members participating in SkillBridge retain their DoD pay and benefits, meaning industry partners do not carry a cost for training these service members.[3] While transitioning service members are not guaranteed employment at the company training them, the skills service members gain during the training makes them more competitive candidates for careers within the company or across the sector. Relaunched in 2019 as a reformulation of the previous Career Skills Program from 2014, over 30,000 transitioning service members have participated in SkillBridge as of 2020.[4] Technology companies or companies with significant technology aspects within their industry have partnered with SkillBridge since its inception, and currently comprise approximately 25 percent of the over 1,100 partner organizations.[5] Technology companies participating in SkillBridge include AT&T, Amazon, Microsoft, and General Dynamics Information Technology.[6]

The Challenge of Military Transitions to the Technology Industry

Successful transitions from military service into civilian careers require veterans to have: a) an awareness of the full range of employment opportunities available to them; b) an understanding of their own interests and desires in relation to those opportunities; and c) an awareness of, and access to, the education and skill training required to obtain desired employment.[7] When these standards are not met, the transition from the military to the civilian workforce can be suboptimal and an overwhelming and frustrating experience.

Some of the additional challenges that veterans face when searching for a new career are translating military skills to the civilian workplace, finding the location that best facilitates post-military career goals, public stigma surrounding service members' mental health, and possibilities of long deployments (for reserve component service members).[8] Federal and state governments offer resources to help veterans identify jobs and careers that fit their skill set during their transition, including TAP.[9] However, while these programs focus on employment for transitioning service members, they do not focus specifically on opportunities in the technology sector and the technology-related skills that service members may bring to the industry.

Despite the lack of comprehensive programs focused on veteran employment in this area, there is a meaningful presence of veterans in the technology sector. Amazon, Hewlett-Packard, and Cisco employ the highest rates of veteran employees, with 3.98 percent, 3.63 percent, and 3.31 percent, respectively. Other top technology companies include Microsoft, Intel, Oracle, Facebook, Apple, Google, and Adobe, whose veteran employees make up just over 1 percent of their employees.[10] As veterans make up 5 percent of the working age population (ages 18–64), this finding indicates an underrepresentation of veterans and significant room for additional veteran employees at these major technology companies.[11] Given that approximately 200,000 veterans transition from active duty to civilian status annually, there is ample opportunity for technology companies to access more of the talent leaving military service.

According to a 2020 survey by the Consumer Technology Association, the top three hard skills most valued by technology companies are data analytics, software development, and project management. Additional hard skills in demand by technology leaders included engineering, artificial intelligence, machine learning, cloud computing, social media, ad tech, systems architecture, cybersecurity, computer networking, DevOps, IT Help Desk Support, automation, machine and equipment repair services, and machine and equipment operators. The same survey emphasized the value placed on soft skills. The top three soft skills needed by technology companies were effective communication skills, problem-solving, and critical thinking. Additional soft skills requested by tech companies were willingness to learn, teamwork, creativity, adaptability, dependability, open-mindedness, time management, organization, and conflict resolution.[12]

Given this breadth of desired skills, it is possible that more veterans could obtain meaningful employment in the technology sector. While some research has found that programs encouraging veterans to focus on careers that similarly align with their military experience may better assist veterans in finding jobs, the perceived differences between military service and work in the technology sector may present unique hurdles. For one, many veterans may believe that work in the technology sector requires very specific technical skills, which are not the focus of most military occupational specialties. Furthermore, those with military training in technical skills may not believe they are advanced or specific enough for work in the civilian technology sector.

INDUSTRY INITIATIVES

In 2016, several large technology companies signed a pledge to increase their hiring of veterans and military spouses by 2021, with Hewlett-Packard committing to hire 3,000 veterans, SpaceX committing to hire 500 veterans, and First Data committing to 15 percent or more of all new hires being veterans.[13] In the intervening five years, the companies have instituted several efforts to recruit veterans and military-affiliated individuals as employees. The Microsoft Military Affairs team conducts a Software and Systems Academy, a full time DoD-approved program available on SkillBridge that helps veterans in technical training (covered in more detail later).[14] Facebook launched several tools and programs to recruit and retain veterans. These efforts include the Facebook Military Skills Translator tool, which defines how skills learned during military service can transfer to specific careers at Facebook. The Facebook Veterans and Allies Resource Group is an in-person veteran and military community that boasts speaker series, happy hours, and mentorship.[15] Amazon hosts virtual hiring events for transitioning service members, apprenticeships, and a verified SkillBridge program.[16] Google's "Grow with Google" program provides a direct military occupational skills translator, providing tailored job searches to transitioning service members based on their military experience. Google further provides opportunities for VA-funded training and engineering certifications on the Google Cloud.[17]

The Veteran Tech Pathways (VTP) Survey

To examine veteran perceptions about employment in the technology sector, CNAS conducted a survey of over 1,000 veterans and active-duty service members regarding the technology skills they gained during military service, their perceptions of and inclinations toward a potential career in technology, and their perceptions of the potential of veterans in general to succeed in the technology sector. Because the survey sample was drawn primarily from a VetsinTech database there are advantages and limitations to the data. Those interested in obtaining a job in the tech sector will be overrepresented, meaning that their transition experiences may not be reflective of the entire veteran population. However, the resulting data can provide an especially rich look at the attitudes and experiences of those who are proactive about moving from military service to employment in technology fields.

GENERAL DEMOGRAPHICS OF RESPONDENTS

Of the respondents, 87 percent indicated that they were veterans and no longer serving, while 9 percent indicated that they were currently serving in the Guard or Reserves. The survey included respondents from the Army, Air Force, Navy, Marine Corps, and Coast Guard. The bulk of respondents indicated that they had last served in the military in the pay grades of E-4 to E-6 and just under 20 percent of respondents indicated that they had served as commissioned officers, in keeping with the general distribution of ranks within the services. Relatedly, most respondents had completed between four and six years of service, but a full 15 percent had completed over 20 years of service in the military.

Of those active military and veterans surveyed, 85 percent indicated that they had considered a career in the technology sector at some point. A majority of respondents, 54 percent, described themselves as being employed in the technology field, yielding a robust sample for assessing factors correlated with employment in this area.

TECH EXPERIENCE IN SERVICE AND TRANSITION

When asked if they have any training in technology or information systems from their time in the military, only 46 percent of respondents indicated their belief that they gained technological experience during their time in uniform (with another 10 percent being unsure). However, when asked whether they received

specific training during their time in service, including in Amazon Web Services, cybersecurity, cloud computing, data science, Java, SQL, and Python, 64 percent of respondents indicated that they did, in fact, have training on these platforms during their time in service. The nearly 20 percent difference in responses between transitioning service members' perceptions that they had technological training during their time in service and their reported experience with specific platforms indicates that even veterans with formal experience may have self-limiting beliefs that affect the rate at which they apply for jobs or aspire to careers in the technology sector.

As mentioned above, the technology industry also relies on employees with a range of non-technical skills and expertise in operational functions. When asked about their experience with relevant soft skills and expertise, to include communications, human resources, project and product management, and problem solving, 94 percent of respondents indicated that their military experience provided them with training and experience, indicating that expanded awareness of how these skills are used in the industry may increase interest in technology among transitioning veterans.

Transitioning service members evaluate their post-military career prospects at different points in their military career, as depicated in Figure 1. Survey respondents were asked how many months prior to separation they considered their post-transition employment or education plans. Overall, about a third of respondents, 32 percent, indicated that they did not plan for their post-transition career options until after they left military service, while another 28 percent indicated that they made their post-service career decisions a year or more before leaving active duty. This general pattern holds across career fields, with most considering their next steps during their final year of service.

However, there are a couple interesting differences when looking across the employment fields where veterans ended up. The employment field with the most proactive service members is engineering, where 38 percent of the veterans who found post-military employment in this field making plans for their next steps a year or more before separating from the military, and only 19 percent waiting until after separation. On the other end of the spectrum are those veterans who reported being employed by the government after leaving military service. Of this group, only 25 percent made their decisions more than a year before separating, and a full 38 percent made the decision about post-military careers after leaving the military. This may indicate a more intentional decision-making process for service members pursuing employment beyond the government or in more technical fields.

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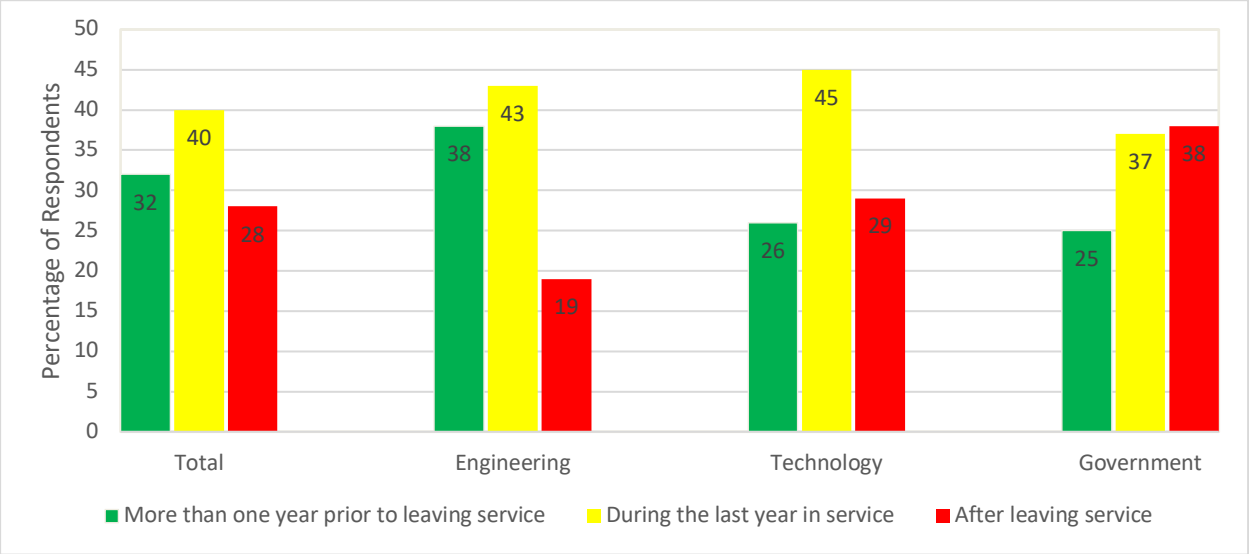
FIGURE 1: POST-SERVICE EMPLOYMENT DECISION TIMELINE BY SECTOR



TAP EXPERIENCE

As TAP is the primary program that helps veterans prepare for employment after the military, it provides tools that are applicable to a broad range of the transition needs of service members. As a result, there is little time in the program for industry-specific instruction, but programs can vary by instructor and installation. Only 18 percent of VTP respondents report receiving any counseling, training, or education related to careers in the technology sector during TAP.

However, it appears this limited exposure may make a difference in the career trajectories of service members. Veterans who indicated that they received counseling, training, or education related to the technology sector during TAP were nearly twice as likely to pursue a career or experience in the technology sector than those who did not receive such guidance.[18] This indicates that more specific exposure and counseling may lead more transitioning service members in the direction of this growing field.

Received orientation to tech jobs during TAP	Employed in tech sector	Not employed in tech sector
Yes	14%	7%
No	86%	93%

VTP survey respondents were also asked what could have been provided to better prepare them for a career in technology, either while on active duty or during the transition process. Among the most common answers from respondents included access to training and engagement with technology companies earlier in the transition process. While TAP is not intended to provide such opportunities, the

SkillBridge program may meet those needs. Greater awareness among transitioning service members regarding the SkillBridge program may increase the ease with which they are able to pursue careers in the technology sector after transition.

However, we also found that thinking about a career in technology while in the military is not an essential step for employment in the sector. A full 37 percent of those employed in technology fields reported not thinking about pursuing such a career while they were still in service, warranting an examination of other factors beyond military service experience.

OTHER CORRELATES OF TECH EMPLOYMENT

Age

In keeping with general employment trends, respondents to the VTP survey who reported being employed in the technology sector were generally younger than their non-tech counterparts. The single largest age group among those employed in the technology sector was the 36–45 age group, while among non-technology sector employees, the age group of 46 and older comprised the largest group.

Age group	Employed in tech sector	Not employed in tech sector
18–35	25%	21%
36–45	43%	38%
46+	32%	41%

Gender

Within the overall technology industry (including both veteran and non-veteran employees), women fill 25 percent of computing roles, and, while women are attaining higher science, technology, engineering, and math degrees, they still lag male students in computer science programs.[19] Of VTP survey respondents, 87 percent of respondents in the technology industry identified as male and 13 percent identify as female, lagging significantly behind the industry. However, given that women in the military have historically made up less than 15 percent of the force, and have only recently started to approach around 17 percent of the force, there is certainly room for growth, but there does not appear to be a major underrepresentation of women veterans in the field.

Education: Degree and Area of Study

Of the VTP survey respondents, those who reported being employed in technology were more likely to have a bachelor's degree or higher than those employed in other fields (76 percent versus 67 percent for those not employed in technology). As for what respondents employed in technology reported studying, 35 percent identified computer science and mathematics as their field of study; 16 percent indicated they had studied business; and 9 percent indicated that they had studied engineering. Of those not working in the technology sector, business was the most popular area of study at 25 percent, with computer science and math in second at 19 percent, and 9 percent reported having studied engineering.

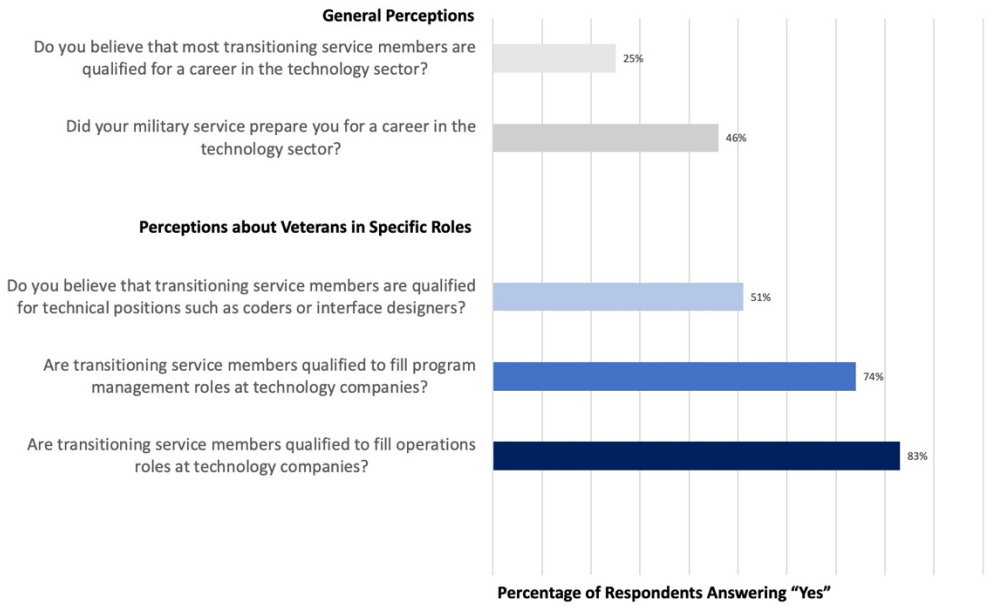
Controlling just for those veterans who expressed an interest in working in the technology sector, the survey revealed that 35 percent of those employed in tech studied computer science and math. For those who had an interest in tech but were not currently employed in the sector, that figure dropped to 23 percent.

Together, these findings highlight the strong correlation between focused, advanced education and employment in the technology sector. However, the prevalence of veterans who have studied computer science and math but are not currently in the technology sector may indicate further hurdles to entering the field and a potential pool for further recruitment.

Perceptions of Tech and the Modern Workforce

As discussed above, only 46 percent of those surveyed indicated that they believe their time in military service prepared them with the hard skills they think the tech sector requires for employment. In keeping with this pessimistic attitude toward technology employment opportunities, the majority of veterans, 75 percent, believe that most veterans are not qualified for a career in tech. However, when we asked about specific roles within technology companies, 83 percent and 74 percent of respondents indicated that transitioning service members are qualified to fill operations and program management roles, respectively. And surprisingly, 51 percent of respondents even felt that transitioning service members were qualified for technical positions such as coders and interface designers. This discrepancy in attitudes (as depicted in Figure 2) may indicate that there are overall perceptions of the technology sector that seem daunting to veterans but that perceptions of the sector are less intimidating when broken down in terms of specific skill sets.

FIGURE 2: SURVEY RESPONSES REGARDING PERCEPTIONS OF TRANSITIONING SERVICE MEMBERS AND VETERANS IN THE TECHNOLOGY SECTOR



To further examine how perceptions may influence transitions to the technology sector, the VTP survey also solicited attitudes toward workplace culture, and found that veterans who transitioned to a career in the technology sector were slightly less likely to prioritize "structure" than their non-technology counterparts. Within the technology sector, 48 percent either agree or strongly agree with the sentiment, "I enjoy having a clear and structured mode of life," while 59 percent of respondents in other sectors feel the same. In terms of confidence in the workplace, there was no significant difference in respondents reporting being able to handle challenges on the job. There was, however, less perceived likelihood of others using a respondent's military status when judging their performance in the tech sector than in other areas. For the respondents employed outside of the tech sector, 44 percent felt that "people sometimes use my military status when judging my performance," compared to only 35 percent of the respondents employed in the tech sector. Service members who had transitioned into technology were also more likely than their non-tech counterparts (78 percent to 66 percent) to agree with the statement, "I feel like I belong at my organization."[20]

Overall, these findings show that veteran perceptions of the technology sector may be limiting the number of veterans who pursue employment in this area. Broadly, veterans may believe that there are unique skills required that most veterans do not have. They may also have a perception of a workplace culture in technology companies that is less structured than they are accustomed to or comfortable with. However, when asked about specific skills, perceptions of veteran qualifications increase significantly. Likewise, veterans employed in technology appear to find greater satisfaction and their veteran status less of an issue in their place of employment than do their veteran peers in other sectors.

Recommendations

Looking at the three elements required for successful transitions to employment helps to frame potential steps forward. As with service member and veteran transitions to other civilian career fields, successful transitions to employment in the technology sector require them to have: a) an awareness of the full range of employment opportunities available to them; b) an understanding of their own interests and desires in relation to those opportunities; and c) an awareness of, and access to, the education and skills training required to obtain desired employment. As these factors relate to employment in technology, the primary challenges appear to be in increasing awareness of the field and the skills necessary for meaningful employment, as well as the need for appropriate education and credentialing. Below are summary recommendations for federal agencies, technology sector employers, veteran-serving nonprofit organizations and educational institutions, and for transitioning service members and veterans that could improve successful service member and veteran transitions to the technology sector.

FOR FEDERAL AGENCIES:

- (DoL) Increase coordination between TAP, private sector veteran outreach, and nonprofit organizations to provide holistic support across the military-veteran lifecycle to prepare and help match transitioning service members and veterans with career opportunities at technology companies.
- (DoL) Expand partnerships with technology companies in the Registered Apprenticeship Program, in coordination with the DoL Veterans Employment and Training Service, to place interested veterans within the technology industry.
- (DoD) Increase access for vetted nonprofits to provide industry-focused educational and career-prep services for service members in transition.
- (DoD) Recognize and accommodate variable post-military career planning timelines with greater access to TAP and other resources throughout, and beyond, time in uniform.
- (DoD) Work with SkillBridge partners to extend eligibility for apprenticeships after military service.

- (DoD) Make SkillBridge utilization and subsequent hiring data public to help identify best pathways to meaningful post-military employment.
- (DoD) Improve tracking of service members' technical skill set requirements and certifications earned during military service to enable more accurate comparisons of military experience and private sector requirements.
- (DoD & VA) Track job placement by industry at regular intervals post-separation.

FOR TECHNOLOGY SECTOR EMPLOYERS:

- Expand recruiting timelines and outreach to service members not just at the point of transition, but before and after they have left service.
- Work beyond "skills translators" and build road maps for requirements for upskilling from military specialties to specific employment opportunities.
- Partner with veteran-serving nonprofits and educational institutions to build holistic, supportive pathways to employment.
- Provide resources highlighting the skill sets and requirements beyond hard technical skills, which can increase awareness of opportunities for which veterans may otherwise believe they are not qualified.
- Partner with nonprofit organizations, trade organizations, universities, and community colleges to engage with service members, transitioning service members, and veterans through hackathons, certification programs, and sector-specific networking events.

FOR EDUCATIONAL INSTITUTIONS:

- Partner with veteran-serving nonprofits and employers to build holistic, supportive pathways to employment.
- Augment traditional academic programs with certifications and hands-on programs to help fill specific employment requirements.
- Understand the role educational institutions play not just in providing specific programs of instruction, but in providing veterans a space to explore multiple career options.
- Build out career counseling and orientation services for adult learners who may not have identified specific employment goals.

FOR VETERAN-SERVING NONPROFIT ORGANIZATIONS:

- Provide the connective expertise between the government, educational institutions, and technology sector companies.
- Solicit, consolidate, and disseminate hiring trends across the technology sector.
- Constantly update and disseminate detailed road maps, highlighting educational and experience requirements, for transitions from military service to specific roles.
- Educate veterans about the full range of military skill sets that align with employment in tech.

FOR TRANSITIONING SERVICE MEMBERS AND VETERANS INTERESTED IN EMPLOYMENT IN THE TECHNOLOGY SECTOR:

- Consider all training and education opportunities available during transition, including the GI Bill, and the Veteran Readiness and Employment program (VR&E, formerly known as the Vocational Rehabilitation program), which supports opportunities for apprenticeships, on-the-job training, and employment assistance for qualified individuals.
- Consider post-service employment interests prior to attending TAP and seek industry-specific guidance during the TAP experience.

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- Participate in voluntary technology industry opportunities while still on active duty, including hackathons, trainings, and networking.
- Maintain records of technical skills, trainings, and certifications gained during time in service.
- Make deliberate decisions on where to live after military service tailored to employment goals.
- Seek out supportive ecosystems that can provide a) educational and upskilling opportunities, b) nonprofit support, and c) a robust range of employment opportunities.

Areas for Further Consideration

While this white paper focused on veteran employment in the technology sector, transitioning service members further contribute to the technology landscape through entrepreneurship. Of companies founded by veterans, 34 percent are information technology (IT) companies—a similar representation to the 37 percent of non-veteran companies focused on IT.[21] As military veterans continue to find success in areas like cybersecurity, future research should identify potential synergies and pathways for tapping into the veteran population to meet the needs of this growing sector.

Veterans in the technology sector who enter the Reserves or National Guard may provide cutting-edge skills back to the military. Launched in 2021, the United States Digital Corps may also provide opportunities for veterans in the technology sector to bring their private sector skills back into the government through two-year fellowships.[22] Further research may also shed light on the contribution that veterans in the technology sector provide back to the government and national security sector, both in terms of part-time military service and in promoting public-private collaboration on cybersecurity.

Conclusion

The story of veterans transitioning from military service into the technology sector is a story of untapped potential. Opportunities in the technology sector continue to grow while the supply of qualified workers continues to fall well short of demand.[23] Over 200,000 service members transition from active duty annually with a range of hard and soft skills that would serve the technology industry well. This presents a great opportunity for veterans to find meaningful employment in this area. There are, however, hurdles in the transition process that need to be addressed.

This report found that veterans have many of the skill sets technology employers seek in their workforce. These skills include both specific technology-related certifications and experiences and a broad range of non-technical experiences and behaviors needed within the technology sector. However, this report also found that, when asked in general terms, veterans were not confident of their skills or of the ability of most veterans to succeed in the technology sector but, when asked about specific skill sets and roles, veterans were more likely to believe that they were qualified for employment in this area.

Many transitioning service members and veterans are not aware of employment opportunities available to them in the technology sector, making it difficult for them to envision a career path for themselves after transition. Further, without an awareness of employment opportunities available to them, transitioning service members may not fully understand the relevant education and skills they may already possess that could lead to a career in the technology sector, nor the education and skills training they may need—and how to get them—to open doors to a career in this field.

These findings highlight the need to “demystify” employment in the technology sector for transitioning veterans. And as many service members are not thinking of post-military employment until their last year

in service (or later) providing information on this tremendously fast-growing field can go a long way to increasing the options available to veterans, while also filling a crucial role in America's economy. It appears that highlighting the opportunities in this sector during TAP, as well as some discussion of the specific skills needed in the technology industry, would help many veterans to see employment in this area as an option.

These steps can greatly increase veteran interest and confidence in gaining employment in the sector, but these steps must also be paired with private sector efforts to reach out to this potential pool. As 37 percent of respondents employed in tech did not think of it until after they had left military service and given that those employed in tech appear to have higher levels of education than their non-tech counterparts, there is clearly a role for veteran-serving nonprofits and educational institutions to orient veterans to the wide range of opportunities in this sector and to provide clear pathways for gaining the skills necessary for meaningful employment.

Appendices

APPENDIX A: SURVEY METHODOLOGY AND QUESTIONS

CNAS and VetsinTech administered a survey regarding transitioning service members' and veterans' experiences and perceptions of employment in the technology sector. The survey was conducted between August 27, 2021 and September 18, 2021. The survey was distributed through the VetsinTech email list and through CNAS social media platforms. 1,140 individuals responded to the survey instrument, though not all respondents answered all questions.

1. Are you currently serving, or have you ever served, in the United States military?
    a. Yes
    b. No

2. In which branch or branches of the military have you served? (check all that apply)
    a. Air Force
    b. Air Force Reserve
    c. Air National Guard
    d. Army
    e. Army National Guard
    f. Army Reserve
    g. Coast Guard
    h. Coast Guard Reserve
    i. Marine Corps
    j. Marine Corps Reserve
    k. Navy
    l. Navy Reserve
    m. Space Force

3. What is your current military status?
    a. Discharged or retired—no longer serving in the military
    b. Currently serving in the Reserves or National Guard
    c. Currently serving on active duty

4. What was your pay grade upon separation from military service or, if still serving, what is your current pay grade?

5. How many years of military service have you completed?

6. How many years has it been since you separated from the military?

7. What is your current employment or military service status? (Check all that apply)
    a. I am currently employed (non-military employment)
    b. I am currently enrolled as a student in a university, college, certificate program, or technical training program
    c. I am currently serving in the Reserves or National Guard
    d. I am still on active duty

8. How many months prior to your transition from military service did you decide on your post-service employment or education plans?

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a. 12 months or longer
b. 9–12 months
c. 6–9 months
d. 3–6 months
e. 1–3 months
f. After separation

9. In which field are you employed?

10. In school, what was (or is) your major or area of study?

11. Do you think your major or area of study is a good pathway for a career in the technology sector?
a. Yes
b. Maybe
c. No

12. Do you have any training in technology or information systems from your time in the military?
a. Yes
b. Maybe
c. No

13. Do you have experience in any of the following areas as a result of your military service? (Check all that apply)
a. Python
b. Java
c. SQL
d. AWS
e. Cybersecurity
f. Cloud computing
g. Data science
h. Other (Please specify)

14. Do you have experience in any of the following skill sets from your military service? (Check all that apply)
a. Communication
b. Conflict management
c. Human resources
d. Legal
e. Operations
f. Persuasion
g. Problem solving
h. Product management
i. Project management
j. Recruiting

15. Have you considered a career in the technology sector?
a. Definitely not
b. Probably not
c. Neutral
d. Probably yes
e. Definitely yes

16. While serving in the military, did you consider a career in the technology sector?
    a. Yes
    b. No

17. During the Transition Assistance Program (TAP), did you receive any counseling, training, or education related to careers in the technology sector?
    a. Yes
    b. No

18. What could have been provided to better prepare you for a career in technology, either while on active duty or during the transition process? (Check all that apply)
    a. Access to training and credentialing
    b. Engagement with technology companies
    c. Career counseling focused on careers in technology
    d. Skills translation from the military to the technology sector
    e. Opportunities for hands-on experience
    f. Other

19. In your estimation, what percentage of transitioning service members would be qualified for a career in the technology sector?
    a. 0%
    b. 1–10%
    c. 11–25%
    d. 26–50%
    e. 51–75%
    f. 76–99%
    g. 100%

20. What types of roles do you think transitioning service members are qualified to fill within technology companies? (Check all that apply)
    a. Technical positions (coders, app builders, interface designers, user experience designers)
    b. Product management
    c. Project management
    d. Human resources
    e. Legal
    f. Operations
    g. Sales
    h. Other (please specify)

Please read each of the following statements and decide how much you agree with each according to your attitudes, beliefs, and experiences.

21. I enjoy having a clear and structured mode of life,
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

22. My current organization provides a clear and structured everyday life.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

23. Whatever comes my way in my job, I can usually handle it.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

24. I feel like I belong at my current organization.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

25. In my organization, other people sometimes use my military status when judging my performance.
    a. Strongly disagree
    b. Disagree
    c. Somewhat disagree
    d. Neither agree nor disagree
    e. Somewhat agree
    f. Agree
    g. Strongly agree

26. What is the highest level of school you have completed or the highest degree you have received?
    a. Less than a high school degree
    b. High school graduate (high school diploma or equivalent, including GED)
    c. Some college but no degree
    d. Associate degree (2 year)
    e. Bachelor's degree (4 year)
    f. Master's degree
    g. Doctoral degree
    h. Professional degree (JD, MD)

27. Do you identify as Spanish, Hispanic, or Latino or none of these?
    a. Yes
    b. None of these

28. How do you identify yourself?
    a. Asian
    b. American Indian or Alaska Native
    c. Black or African American
    d. Middle Eastern or North African
    e. More than one race
    f. Native Hawaiian or Pacific Islander
    g. White/Caucasian
    h. Other

29. What is your gender?
    a. Male
    b. Female
    c. Nonbinary
    d. Prefer not to answer

30. What is your marital status?
    a. Married
    b. Single
    c. In a long-term, non-married relationship

31. What is your age?

32. In which state do you currently reside?

APPENDIX B: INTERVIEW QUESTIONS FOR DOD, VA, AND DOL

1. Can you describe your office's role in providing career guidance or training for transitioning service members?

2. What programs exist for service members interested in the technology sector?
    a. Certifications?
    b. Skills crosswalks?
    c. Career counseling?

3. When working with transitioning service members, what civilian career paths do you see most frequently desired? [Open ended]
    a. [If technology not mentioned, probe question] Do careers in the technology sector ever arise? If so, how frequently? What types of jobs?

4. Can you describe the process of how your office aids transitioning service members in identifying the skills gained in service that may be applicable for civilian employment?

5. Is there anyone else that you recommend we speak with?

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12. "Future of Work: 2020 CTA Member Survey," (Consumer Technology Association, October 2020), https://shop.cta.tech/collections/research/products/future-of-work-2020-cta-member-survey?_ga=2.210255957.1185165832.1631134278-1662732740.1631134278.
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15. "Veterans @ Facebook," Facebook Careers, https://www.facebook.com/careers/facebook-life/veterans.
16. "Come build the future with us," Amazon Jobs, https://www.amazon.jobs/en/military.
17. "Grow with Google," Google, https://grow.google/programs/veterans-commitment/#?modal_active=none.
18. However, it is possible that those transitioning service members already looking for employment in the technology sector may be more likely to remember it being mentioned during the TAP experience or may have actively sought out technology sector–specific opportunities during TAP.
19. Sarah K. White, "Women in tech statistics: The hard truths of an uphill battle," *CIO,* March 8, 2021, https://www.cio.com/article/3516012/women-in-tech-statistics-the-hard-truths-of-an-uphill-battle.html.
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21. Jason Dempsey, Emma Moore, and Damon J. Phillips, "Veteran Tech Entrepreneurial Ecosystems," (Center for a New American Security, 2019), https://www.cnas.org/publications/reports/veteran-tech-entrepreneurial-ecosystems.
22. United States Digital Corps, https://digitalcorps.gsa.gov/.
23. There are nearly half a million job openings in cybersecurity alone, yet U.S. universities are currently producing less than a third of the number of graduates with computer skills to fill job openings. See James Manyika and William H. McRaven, "Innovation and National Security: Keeping Our Edge," Independent Task Force Report No. 77 (Council on Foreign Relations, Innovation and National Security Task Force, 2019).