



FUTURE OF THE FEDERAL IT WORKFORCE UPDATE

MAY 2020

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EXECUTIVE SUMMARY

The Future of the Federal IT Workforce Update examines the primary challenges facing the Federal IT workforce and highlights technology changes that impact those issue areas.

To prepare this update, nearly two dozen experts were interviewed, including agency Chief Information Officers (CIOs) and Chief Human Capital Officers (CHCOs), agency IT practitioners, private industry executives, IT innovators, consultants, and emerging technology researchers. Building on the insights gleaned from these qualitative interviews, the team analyzed hundreds of Federal statutes, policies, and reports; private sector studies and initiatives; and related news articles. In addition, public and private sector data and metrics were compared and analyzed to provide detailed, quantitative support for this update's findings.

The Future of the Federal IT Workforce Update is structured around:

1. Examining the current state of the Federal IT workforce,
2. Identifying and evaluating possible future workforce trends, and
3. Proposing a path forward toward developing a modern, 21st century workforce.

This update includes 10 recommendations on how we might prepare the 21st century IT workforce to optimize the business of Government. Implementing these recommendations simultaneously will improve employee engagement and workplace satisfaction, which will help agencies achieve their missions.

Background

The Federal Government is striving to adapt to the rapid pace of modern technological change, with initiatives such as IT infrastructure modernization, cyber threat mitigation, and artificial intelligence all being elevated in both policy and implementation. As such, it is critical that Federal IT workers are able to support, manage, and identify risks in new technologies across Government, enabling mission-driven delivery of effective and efficient services to the public.

In January 2017, the Federal CIO Council (CIOC) released the State of Federal IT (SOFIT) report,¹ which provided a comprehensive examination of the successes and challenges facing the Federal IT policy landscape. Drawing upon the workforce-related Cross-Agency Priority (CAP) Goals in the President's Management Agenda (PMA),² and building on the success of SOFIT, the CIOC has undertaken a similar examination of the Federal IT workforce during this time of significant change and disruption.

Primary Issue Areas and Drivers of the Future

The update is organized around five Primary Issue Areas (PIAs) which form the essential actions required to build an IT workforce for the future. Each PIA is dependent upon the others, and together they form the pillars of a modern, adaptable, and effective Federal IT workforce.

- 1. Recruit / Hire:** As an increasing number of Federal employees near retirement eligibility, it is essential that Government is able to quickly and efficiently recruit and hire the best IT talent in order to adapt to constantly evolving technologies.
- 2. Retain:** Government will need to offer its IT workforce opportunities for growth, access to cutting-edge technological tools, and rewards for high performance so they will want to continue to serve agency missions and the public good.
- 3. Reskill:** Agency-specific and Governmentwide training opportunities will keep IT workers flexible and adaptable in order to keep up with both the pace of innovation and changes that will continue to disrupt the way we conduct work.
- 4. Augment:** The Federal IT workforce must continue to be supported by agile, flexible groups from

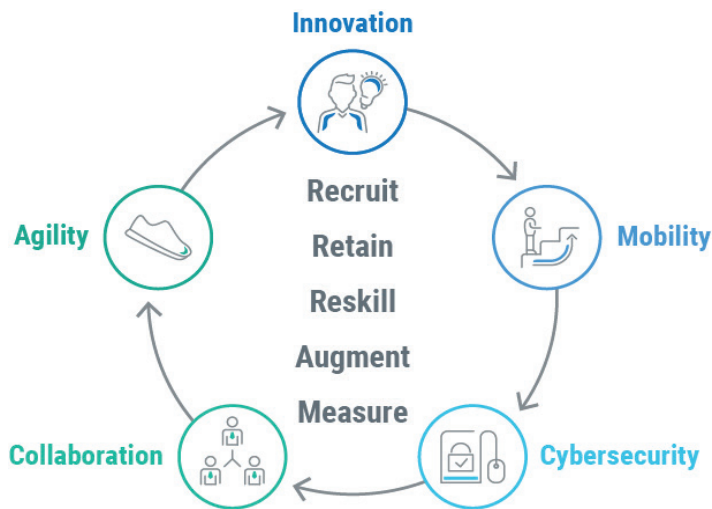
both within Government and the private sector, providing surge capacity, access to expertise in cutting-edge process improvements, and emerging or highly specialized technological capabilities.

- 5. Measure:** Without sufficient qualitative and quantitative data, it will be impossible to gauge successes. Opportunities to leverage data will be identified in order to chart the best path forward by providing a focus on measuring alongside each of the other PIAs.

The Drivers of the Future of the IT Workforce (*as seen in the outside circles of Figure ES 1 on page 5*) underpin each of the PIAs (*located on the inside of the diagram*). The PIAs must be examined in the light of every driver and the roles these drivers play in shaping the workforce. The considerations for each driver of the future can be described as follows:

- Innovation:** The increasing pace of technological change is constantly impacting the modern workplace. Recent years have seen changes ranging from the adoption of new programming languages and cloud-based applications to paradigm shifts in emerging technologies, such as robotic process automation and machine learning. Additional training and collaboration opportunities will enable the IT workforce to be flexible enough to adapt to these changes, enabling agencies to execute their missions.
- Mobility:** Increased flexibility in all of the PIAs will allow the Federal Government to adapt to the workforce of the future. This includes providing vertical career mobility and rewarding high performers, as well as horizontal career mobility opportunities such as reskilling, detailing, and industry exchange programs.
- Cybersecurity:** All IT work requires some degree of security knowledge and protections, from basic sharing of unclassified documents to defending the nation's most critical IT assets. As such, a skilled and qualified IT workforce is needed to manage an increasingly complex array of security policies and tools to mitigate evolving threats.
- Collaboration:** As the world grows increasingly more interconnected, so must the Federal IT workforce. This includes coordinating across agencies and cross-functional teams. With the rise of regional offices and improved telework

Figure ES 1: Primary Issue Areas and Drivers Impacting the Federal IT Workforce



Future of the Federal IT Workforce – Federal Project Team

- Annette Maldonado, CIO Council
- Alycia Yozzi, CIO Council
- Doc McConnell, Office of Management and Budget
Office of the Federal Chief Information Officer
- Trey Bradley, General Services Administration
Office of Government-wide Policy

technologies, a more geographically dispersed workforce can now be productive over vast physical distances.

- **Agility:** The Federal Government needs to adapt and scale its use of technology more quickly than ever before. In addition to utilizing agile development methodology and continuous improvement, processes and procedures must also minimize downtime and be adaptable to changing circumstances and expectations in the workforce.

By considering each of the Primary Issue Areas for the IT workforce and the Drivers of the Future, Federal leaders will have added insights into planning their workforce initiatives. This will ensure agencies have access to the highly skilled and adaptable IT professionals needed to take advantage of new opportunities and tackle the technological challenges of tomorrow.

Acknowledgments

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INTRODUCTION: THE EVER-CHANGING IT WORKFORCE

Recent years have seen a significant focus on modernizing Federal legacy IT systems, with a drive to update older technologies with more efficient and cost-effective solutions. However, the impact of these new IT resources is only as strong as the workforce that installs, operates, and maintains them. As such, Federal IT professionals must have the knowledge and skills required to support agency operations. The Federal Government must continue to prioritize a highly skilled and adaptable IT workforce in order to fulfill agency mission objectives and provide critical services to all Americans.

The Makeup of the IT Workforce

One way to explore the definition of the Federal IT workforce is to examine the GS-2210 job series, which replaced the previous GS-0334 series in June 2001. This *Information Technology Management Series* “covers two-grade interval administrative positions that manage, supervise, lead, administer, develop, deliver, and support information technology (IT) systems and services.”³ The job series also provides specific undergraduate education and experience requirements depending on the General Schedule (GS)-level of the individual position. While there have been a number of updates to classification guidance for other job series, the *Interpretive Guidance for the Information Technology Management Series, 2200* remains unchanged since June 2001.⁴

However, during the interview process for this update, some interviewees indicated that they believe the definition of the Federal IT workforce should be broader than the GS-2210 job series. These interview findings show that there are a number of other technical and non-technical positions that closely relate to IT and belong in the expanded IT workforce sphere. These IT-related positions include the GS-0301 *Miscellaneous Administration and Program Series*, GS-0332 *Computer Operation Series*, GS-0335 *Computer Clerk and Assistant Series*, GS-0854 *Computer Engineering Series*, and GS-1550 *Computer Science Series*, among others.

Human resource employees play a critical role in recruiting and hiring Federal IT professionals, developing the IT position descriptions, publishing agency job announcements, and managing the interview and selection process. In addition, the acquisition workforce is a vital part of the IT workforce, procuring the IT infrastructure and resources necessary for IT professionals to perform their job functions. Policy professionals also play an important role, helping to draft requirements and provide oversight of IT policy materials. Interview findings for this update suggest that by taking a broad and holistic approach to understanding which individuals make up the IT workforce ecosystem, the Federal Government can take the actions necessary to achieve agency-mission objectives with the technologies of the future.

Characteristics of the Future IT Workforce

One important influence on the workforce of the future will be the individuals that make up the workforce, with incoming generations of workers being more attuned to diversity and inclusion.⁵ In fact, 47% of millennials in one survey said they actively look for diversity and inclusion initiatives when considering employment options.⁶ The Federal Government needs to take steps to capitalize on opportunities presented by the changing workforce, which will require attracting new IT workers who come from a larger and more diverse talent pool.

The Government also faces a workforce that is increasingly eligible for retirement, making it imperative to bring in younger workers to fill open positions. The figure CH1 (*page 7*) illustrates this consideration in the IT workforce, with only approximately one-fifth of Federal IT workers under the age of 40 as of 2017. There is an additional challenge in that there may not be as many job openings available to bring in younger workers until older IT workers choose to retire.

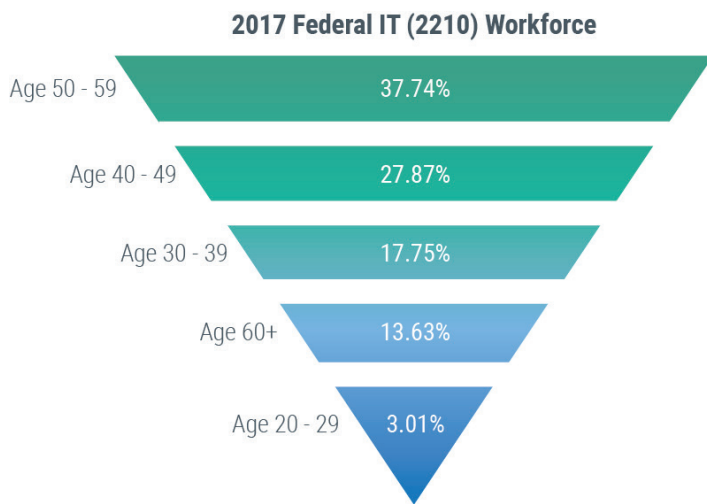


Figure CH1: Federal IT Workforce by Age ¹⁰

Age is not the only consideration the Federal Government faces when it comes to its IT workforce. Representation of minority groups has continually increased as a percentage of Federal IT workers, closely matching the makeup of the broader Federal workforce. However, the percentage of women in Federal IT positions has dropped in recent years, while the broader trend of women in Federal positions has remained relatively unchanged.

Technology is also changing expectations of individuals in the workforce. Many IT professionals want to use the latest collaborative tools and technologies to work more effectively with their coworkers virtually. This trend should continue in the future, as younger generations are already comfortable sharing ideas seamlessly across the internet.

“Collaborative technology will be a huge part of the IT workforce. We need an environment to help us talk to anyone, anywhere.”

While Federal workplaces can be hubs of collaboration, cybersecurity concerns will persist, and a balance will need to be achieved. IT workers will need to have access to the best tools and have the freedom to innovate while working in secure environments. Government has already been able to achieve both security and collaboration through open data and open source software standards.^{7, 8} This trend should continue to support the IT workforce of the future.

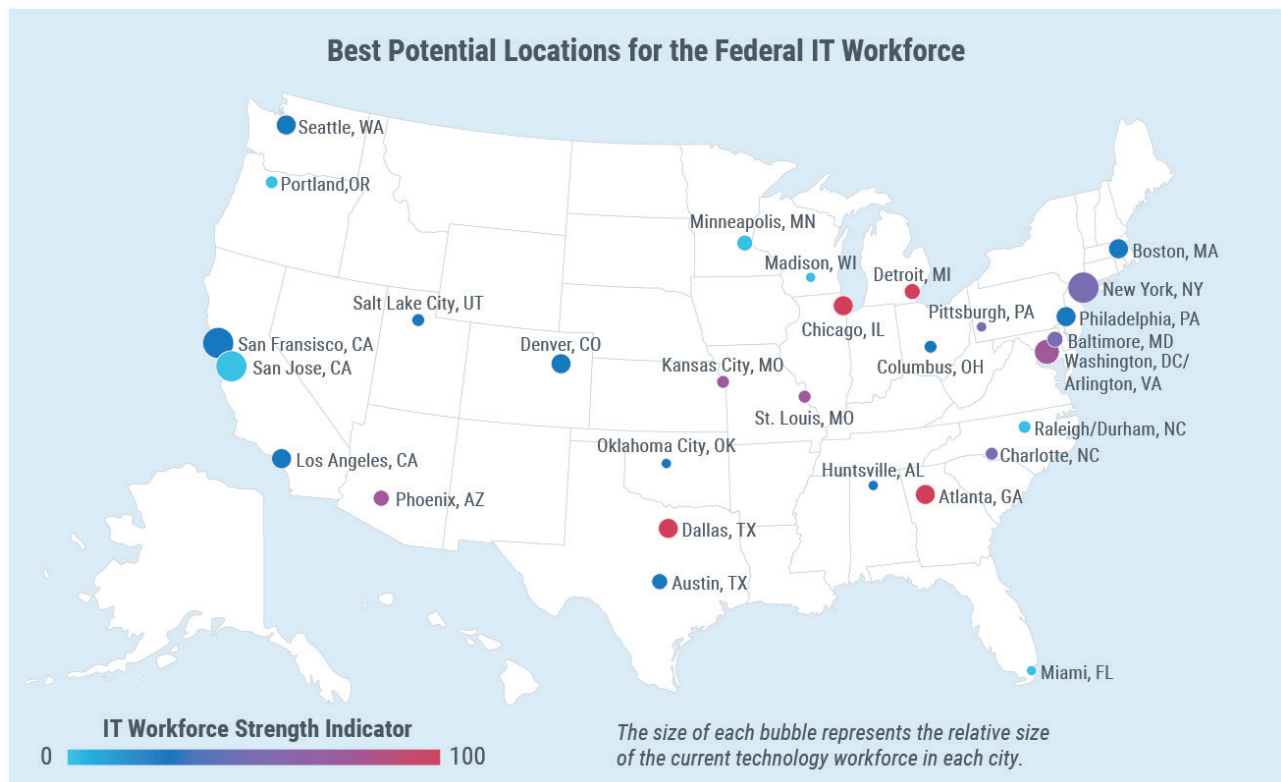


Figure CH3: Potential Locations for the Federal IT Workforce of the Future ^{11, 12}

Not only do workers want to have collaborative and secure workplaces, their expectations of where they work are also changing. With the ability to connect remotely across multiple places of work, individuals are seeking to perform work when and where they feel most comfortable. This trend has been witnessed in the Federal space as well, with the Office of Personnel Management reporting the percentage of eligible employees teleworking increased from 29% in 2012 to 51% in 2016.⁹

In addition to providing new telework flexibilities, Government can improve its recruiting efforts by engaging with top IT talent where it already exists. The figure above (*figure CH3 on page 7*) provides a map of the top and growing hubs of technology, taking into account factors such as universities with a large number of IT graduates, companies employing IT professionals, and innovation zones. Layered on top of this are economic factors, such as cost of living, economic growth rates, and areas where the Federal Government already has some regional presence. With better technology resources and collaboration tools, individuals could be allowed to stay where they currently reside, rather than facing a potentially disruptive move away from friends and family or higher living costs in the Washington, D.C. metropolitan area.

The IT Jobs and Skills of the Future

While it is difficult to predict which jobs might be automated or even become obsolete, there are a number of skills that experts agreed seemed likely to remain relevant. Disciplines such as project management, user-centered design, and cybersecurity threat mitigation all share a focus on customer needs and understanding the underlying mission of the agencies they support. Given all of the above factors influencing the IT workforce, the diverse needs of Federal agencies, and the unpredictability of the future, this update advocates for policies and programs that enable a flexible, adaptable, and agile IT workforce that can shift, grow, and effectively respond to an ever-changing environment.

RECRUITING & HIRING: BUILDING THE WORKFORCE OF TOMORROW



Drivers	Objectives
Innovation	<ul style="list-style-type: none"> Hiring for adaptability and learning new concepts quickly. Expanding recruiting tactics (e.g., job fairs, leveraging commercial platforms).
Mobility	<ul style="list-style-type: none"> Leveraging flexible pathways into government service (e.g., direct hire, internships). Allowing IT workers to exit and come back to government without penalty.
Cybersecurity	<ul style="list-style-type: none"> Recruiting cybersecurity subject matter experts (SMEs) from events, such as hackathons. Incorporating baseline cybersecurity skill requirements into all IT positions.
Collaboration	<ul style="list-style-type: none"> Developing streamlined, standard position descriptions across government. Recruiting the best talent in the country, employing them closer to where they live.
Agility	<ul style="list-style-type: none"> Removing barriers and improving the speed of the hiring process. Adapting to the expectations of the next generation of IT workers.

Key Statistics

- As of 2017, average time-to-hire was 106 days in government,¹³ compared with 22.9 days across the U.S.¹⁴
- Competitive public job announcements made up just 20% of all Federal hires made in FY 2017.¹⁵
- Nearly two thirds of the Federal IT workforce is over 40 years of age.¹⁶
- Those interviewed for this report mentioned recruiting and hiring issues more often than any other primary IT workforce issue.

Findings

- ✓ A modern IT workforce hiring process requires cooperation between trained IT SMEs and HR professionals.
- ✓ Government job announcements may not be attracting the best applicants due to the length, complexity, and arcane nature of the Federal hiring process.
- ✓ The required time investment by IT job seekers and compensation structure are the most significant barriers to Federal recruiting, and that structure limits career mobility.
- ✓ Pilot programs in cybersecurity and digital services recruiting, hiring, and reskilling have enabled Government to innovate.
- ✓ High-tech workers desire a modern culture, office environment, and IT infrastructure.
- ✓ Highly qualified, diverse IT talent is entering the Federal workforce primarily through special hiring authorities.
- ✓ Industry and the Federal Government have both benefited from IT workforce-focused partnerships and exchanges.

Overview

Federal IT recruiting and hiring is an important consideration in developing the IT workforce of the future. Recruiting and hiring concerns were cited by Federal executives significantly more often than any other Primary Issue Area in this update.

Opportunities and Challenges

The aging Federal workforce has become an increasingly mentioned topic in internal Government reports^{17, 18} and news articles.¹⁹ One article states that there are now 4.5 Federal IT professionals aged 60 or older for every one IT professional under 30, more than doubling the ratio from a decade ago.²⁰ However, the Federal Government performs well in some metrics in this PIA. While agencies struggle to keep pace with private sector pay at the senior levels, positions for those who have attained a bachelor's degree or lower level of education have a 5-34% higher level of direct compensation than their commercial counterparts.²¹ Additionally, many IT executives and practitioners interviewed for this update said that their agency's mission was a primary reason they began and continue to enjoy serving in their Federal careers. The Federal Employee Viewpoint Survey (FEVS) also indicates a high level of Governmentwide employee satisfaction related to mission, with "Opportunity to Contribute to Achieving Organizational Mission" scores rising 3% over five years, reaching 85% in 2018.²²

Even highly motivated mission-driven employees can be discouraged by a lack of career mobility. This lack of mobility has led to some stagnation; some employees are giving up on improving their skills and staying in the same positions for longer than in the private sector, not leaving room for the next generation of IT professionals to enter the Federal workforce. Combined with time-to-hire issues and pipeline issues, many agencies are still struggling to even maintain their current IT workforce and keep pace with new technological innovations.

The Future of Federal Recruiting and Hiring

Federal agencies need to more quickly and easily recruit and hire adaptable IT professionals with a breadth and depth of competencies in order to

take on the technological challenges of tomorrow. This can only be accomplished by identifying and adopting best practices that have been developed across Government and the private sector. Some of these best practices include creating common competency-based position descriptions; recruiting through commercial platforms, job fairs, and hackathons; using a SME-based assessment process; and leveraging direct hiring authorities. Top agency officials, IT practitioners, and industry leaders all agree that the Government will only meet future IT workforce needs by enacting a more holistic, enterprise-wide approach to reforming the competitive hiring process.

RETAINING & RESKILLING: MAINTAINING AN INNOVATIVE WORKFORCE



Drivers	Objectives
Innovation	<ul style="list-style-type: none"> • Providing workers with modern IT infrastructure, platforms, and tools. • Supporting innovative IT professionals through interagency rotation programs.
Mobility	<ul style="list-style-type: none"> • Providing accountability by rewarding high-performing IT workers. • Removing barriers to IT workforce career mobility by enhancing training efforts.
Cybersecurity	<ul style="list-style-type: none"> • Enhancing the breadth of cybersecurity skills of all Government employees. • Leveraging and expanding cybersecurity reskilling pilot programs.
Collaboration	<ul style="list-style-type: none"> • Improving interagency collaboration by creating IT communities of practice. • Increasing IT worker flexibility through telework options and collaborative tools.
Agility	<ul style="list-style-type: none"> • Improving the speed of detailing both inside and between agencies. • Responding to changes in office culture and the needs of younger IT professionals.

Key Statistics

- In 2018, Federal employees had a median job tenure of 8.3 years, compared with 3.8 years for private-sector employees.²³
- By 2022, at least 54% of workers across the world will need significant reskilling in order to keep up with the pace of technological innovation.²⁴
- Only 32% of respondents in the FY 2018 Governmentwide FEVS survey said that their work unit takes steps to deal with a poor performer who cannot or will not improve.²⁵
- Those interviewed for this report cited performance management as their top concern twice as often as any other consideration in this Primary Issue Area.

Findings

- ☑ The IT workforce performance evaluation process in the Federal Government varies between agencies and significantly differs from industry norms.
- ☑ The required time investment by IT job seekers and compensation structure are the most significant barriers to Federal recruiting, and that structure limits career mobility.
- ☑ Pilot programs in cybersecurity and digital services recruiting, hiring, and reskilling have enabled Government to innovate.
- ☑ High-tech workers desire a modern culture, office environment, and IT infrastructure.
- ☑ Government IT experts are more effective and remain in their positions longer when they have access to cross-functional training and cross-agency detailing.
- ☑ Industry and the Federal Government have both benefited from IT workforce-focused partnerships and exchanges.

Overview

It is critical that Federal IT workers feel empowered to remain in Government long enough to grow their careers and enact meaningful improvements. Future Federal IT workers will increasingly require that they:

- Perform their duties in a modern workplace environment similar to what they might find in industry,
- Feel like their careers offer opportunities for growth and advancement, and
- Have access to training opportunities to keep up with the pace of technological innovation.

Reskilling and retention efforts are clearly linked together in the development of a highly qualified IT workforce. The majority of Government and industry leaders interviewed for this update identified **career mobility** as a primary driver for the future of the Federal IT workforce.

Other important considerations around retaining and reskilling include:

- **Performance evaluation and performance management**
- **Workplace culture, telework, and training programs** as methods of remaining competitive in the evolving job market
- **Modern skills frameworks and career tools** will enable IT workers to develop new and innovative career pathways
- **Detailing, communities of practice, and rotation programs** will help the IT workforce of the future to keep up with the pace of technological change

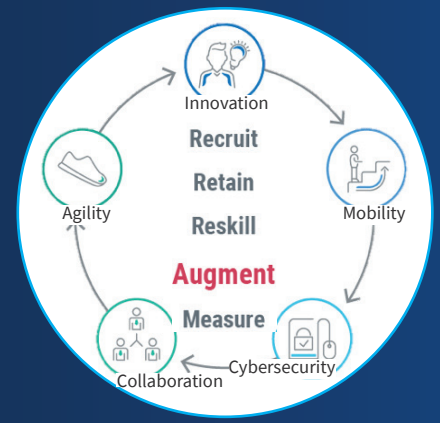
“Both Government and industry leaders seemed to agree that reskilling existing workers is a preferable alternative to hiring whenever possible.”

The Future of Federal Retention and Reskilling

Agencies should encourage the best and brightest IT workers to remain in their positions by modernizing IT infrastructure and tools, as well as the Federal performance management and evaluation processes. Government should also provide an attractive

workplace environment that includes opportunities for telework and to be based in regional offices. Finally, IT career mobility and flexibility should be improved by loosening the GS system’s time and grade restrictions, enabling industry rotation programs, and increasing opportunities for interagency detailing.

AUGMENTING: COMMERCIAL AND INTRAGOVERNMENTAL CONSULTING IN THE FEDERAL IT WORKFORCE



Drivers	Objectives
Innovation	<ul style="list-style-type: none"> Promoting industry civic leave programs to attract innovators and IT problem solvers. Training acquisitions professionals in emerging technologies such as artificial intelligence.
Mobility	<ul style="list-style-type: none"> Supporting industry rotation programs for Federal employees to learn best practices. Empowering intragovernmental groups to become embedded in agencies for longer periods of time.
Cybersecurity	<ul style="list-style-type: none"> Utilizing skilled cybersecurity SMEs across Government to develop requirements. Leveraging private sector surge capacity to address critical cybersecurity needs.
Collaboration	<ul style="list-style-type: none"> Improving knowledge transfer between augmentation groups and agency IT staff. Building cross-functional product and service procurement teams with IT SMEs.
Agility	<ul style="list-style-type: none"> Leveraging industry’s IT workforce flexibilities to respond to the rapid pace of technological change. Increasing the usage of small, startup-like groups from Government to Industry.

Key Statistics

- Management of IT acquisitions and operations has been on the Government Accountability Office (GAO) high-risk list since 2015. Out of five removal criteria, only “leadership commitment” has been fully met.²⁶
- A 2017 study found digital service teams recruit private sector workers into Government more easily, with approximately 70% of these professionals joining due to interest in public service.²⁷
- In FY 2016, 22 agencies and GAO identified \$19.2 billion in obligations across 109,742 IT-related contracts. However, 28.7% were not initially categorized as IT spending.²⁸
- Interviewees commented on digital service teams such as U.S. Digital Service and GSA’s 18F more than any other single topic in this Primary Issue Area, accounting for 38% of these discussions.

Findings

- ☑ Industry and the Federal Government have both benefited from IT workforce-focused partnerships and exchanges.
- ☑ Contractors are providing agility and expertise in technological niches.
- ☑ Taxpayers get the best value from the Government IT contracts when they are managed by acquisition officers and project managers with technology-specific training.

Overview

The capabilities and skills of Government employees are augmented by a host of commercial service providers and contractors who can leverage the agility and flexibility of the private sector. Intragovernmental digital service teams, such as the U.S. Digital Service (USDS),²⁹ the General Service Administration's (GSA) 18F office,³⁰ and GSA's Centers of Excellence (CoEs)³¹ can provide innovative assistance in support of critical IT projects. The Federal IT workforce of the future should expect continued growth in augmentation services due to an increased focus on cloud-based procurement and workforce issues³² and a continued mandate to procure the best and most cost-effective IT solutions for the American people.^{33,34}

Leveraging Industry's IT Workforce Flexibilities

The private sector has a number of tools and strategies unavailable to the Federal Government to recruit, hire, retain, and reskill the best available IT workforce talent. With less strict compliance requirements when assessing a candidate's qualifications, including not always relying on traditional education and work experience, industry can instead focus on technical skills assessments.³⁵ Industry also has different levers to use to recruit and retain highly skilled IT workers, including larger overall compensation packages, well-developed performance evaluation processes, and the ability to tie pay to performance. Government can learn from and adapt many of these flexibilities; however, some of these are unique to the private sector and can be leveraged by augmenting the Federal IT workforce through contracting and procurement.

Intragovernmental Augmentation Offerings

While there are a number of areas in which Government can leverage industry expertise and best practices, there are a significant number of "inherently governmental functions" for which vendors and contractors cannot augment the Federal IT workforce.³⁶ For these purposes, and others including cases where agencies may seek a more mission-driven approach, they may wish to pursue intragovernmental offerings to augment their internal IT workforce. Intragovernmental groups can function as consultants, IT staff augmentation, or

surge support and offer agencies distinct benefits and challenges when compared to relying on IT procurement from private industry.

Digital Service Teams and Centers of Excellence

There are a number of intragovernmental resources agencies can utilize to augment their IT workforce and help them overcome challenges related to IT projects.³⁷

- USDS is one of the most well-noted Federal digital service teams. It was created in August 2014 to bring together the best engineering, design, and Government talent to change the Federal approach to technology.
- 18F, which can be contracted to provide IT services via Inter-Agency Agreements, partners with Federal agencies to improve the user experience of Government services by helping agencies build and buy technology.³⁸
- The CoEs seek to centralize top Government IT talent, leverage private-sector best practices, and operate with a teaming mindset to collaborate across Government agencies.
- The CoEs have teams focused on five functional areas: 1) cloud adoption; 2) contact center; 3) customer experience; 4) data analytics; and 5) infrastructure optimization.
 - These teams are designed to have a cross-functional combination of GSA IT professionals, detailees from other agencies, and industry partners.

“Since the CoEs came to my agency, reskilling hasn't been as much of a problem because our people want to learn from them.”

Figuring Out the Balance

The Federal Government faces a delicate balancing act when deciding how to manage its IT needs: whether it should develop internal capabilities or look to augment from the private sector.

Regardless of how the Federal Government decides to build and manage the other elements of its IT workforce capabilities, it is important for agencies to

build productive relationships in the private sector and academia. Increased collaboration will foster innovation, improve the agencies' IT knowledge and research in emerging technologies, and can help develop a pipeline for new talent to come into Government. One way to accomplish this goal is to encourage agencies, private industry, and academia to develop and expand IT workforce exchange programs, making it easier for IT professionals to transfer back and forth between these sectors.

The Future of Federal IT Workforce Augmentation

The Federal IT workforce of the future can be composed of some of the most high-performing, innovative, collaborative, adaptable, and security-minded professionals in the world. However, even the best agency teams can benefit from an injection of knowledge from the private sector, fresh ideas from other Government organizations, and other opportunities to gain additional perspectives. Digital service teams, Centers of Excellence, and commercial vendors can all augment a strong Federal IT workforce.

CONCLUSIONS: BUILDING THE IT WORKFORCE OF THE FUTURE

Recommendations

The following actions are categorized according to the individuals or groups that would need to be primarily responsible for leading the implementation of these actions. These recommendations are for the entire IT workforce ecosystem and do not just relate to the GS-2210 job series. In all cases, agency CIOs should be involved in ensuring success, whether it is directly in a leadership role, working alongside other agency leaders such as CFOs, CHCOs, and CISOs (CxO), or championing the cause with Congressional and/or Administration leadership (C/A).

1: Develop a New Governmentwide Special IT Pay System

C/A

Recommendation:

The current General Schedule (GS) pay system is both unable to adapt to the pace of technological change and unable to meet the expectations of the new generations of IT workers. While professionals in the mid-ranges of the GS scale perform well compared with their private sector counterparts, entry-level positions and senior executives lag behind in compensation. This makes it especially hard to recruit and retain top talent. Special pay authorities for the IT workforce, such as those implemented previously by Office of Personnel Management (OPM) and currently at Internal Revenue Service, have partially worked around these systemic pay issues. However, the Federal Government should take a comprehensive approach to modernizing compensation and promotion to better compete with the private sector.

Relevant Findings:

- The IT workforce performance evaluation process in the Federal Government varies between agencies and significantly differs from industry norms.
- The required time investment by IT job seekers and compensation structure are the most significant barriers to Federal recruiting, and that structure limits career mobility.
- Pilot programs in cybersecurity and digital services recruiting, hiring, and reskilling have enabled Government to innovate.
- Highly qualified, diverse IT talent is entering the Federal workforce primarily through special hiring authorities.

2: Move to a Competency-based Classification Model for All IT Positions



Recommendation:

Without a common framework for defining the exact makeup of the IT workforce, agencies have been left with a patchwork of criteria that is ill-suited for sharing or reuse. A capabilities-driven classification system for the entire Federal IT workforce, similar to the National Initiative for Cybersecurity Education framework, would empower valuable tools such as reskilling programs, detailing, and common reusable position descriptions. Combined with a special IT pay schedule, this would create a governmentwide system similar to the Cyber Talent Management System at Department of Homeland Security (DHS).

Relevant Findings:

- A modern IT workforce hiring process requires cooperation between trained IT SMEs and HR professionals.
- Government job announcements may not be attracting the best applicants due to the length, complexity, and arcane nature of the Federal hiring process.
- Pilot programs in cybersecurity and digital services recruiting, hiring, and reskilling have enabled Government to innovate.
- Government IT experts are more effective and remain in their positions longer when they have access to cross-functional training and cross-agency detailing.
- All Federal IT workforce policies, pilot programs, and other initiatives require additional qualitative, quantitative, and longitudinal data.

3: Create Interdisciplinary Procurement Teams



Recommendation:

Productivity suffers when IT professionals are not involved in managing the contracts and vendor relationships that augment the IT workforce. Interdisciplinary procurement teams that have practical, hands-on experience managing modern technology solutions can be more responsive to the pace of innovation, decrease unnecessary costs, and improve outcomes. Government employees from contracting and procurement offices should involve their IT SME counterparts in the acquisition process for IT products and services, leveraging their skills and sharing knowledge.

Relevant Findings:

- Pilot programs in cybersecurity and digital services recruiting, hiring, and reskilling have enabled Government to innovate.
- Industry and the Federal Government have both benefited from IT workforce-focused partnerships and exchanges.
- Contractors are providing agility and expertise in technological niches.
- Taxpayers get the best value from Government IT contracts when they are managed by acquisition officers and project managers with technology-specific training.

4: Redesign the IT Recruiting and Hiring Processes to Attract Highly Qualified and Diverse Individuals



Recommendation:

The needs of the American people are underserved when Federal agencies recruit their IT workforce from limited talent pools. As such, Government should leverage commercial recruiting platforms and other proven methods such as job fairs and hackathons to attract the best available talent. Similarly, the hiring process should be redesigned in an industry-like manner, leveraging IT SMEs for job analysis and resume review and working alongside HR professionals, as recommended in the USDS-OPM hiring pilot.

Relevant Findings:

- A modern IT workforce hiring process requires cooperation between trained IT SMEs and HR professionals.
- Government job announcements may not be attracting the best applicants due to the length, complexity, and arcane nature of the Federal hiring process.
- The required time investment by IT job seekers and compensation structure are the most significant barriers to Federal recruiting, and that structure limits career mobility.
- Pilot programs in cybersecurity and digital services recruiting, hiring, and reskilling have enabled Government to innovate.
- Highly qualified, diverse IT talent is entering the Federal workforce primarily through special hiring authorities.

5: Make Federal IT Career Paths More Attractive to the Workforce of the Future



Recommendation:

The IT professionals of the future will demand more geographic and organizational flexibility than the generations that came before them. To guard against this problem, Government should leverage regional office and telework options to meet top IT professionals where they live. This will help attract the best IT talent, regardless of whether they want to relocate to Washington, D.C., and will make Government work a more attractive option for shorter position terms.

Relevant Findings:

- Pilot programs in cybersecurity and digital services recruiting, hiring, and reskilling have enabled Government to innovate.
- High-tech workers desire a modern culture, office environment, and IT infrastructure.
- Highly qualified, diverse IT talent is entering the Federal workforce primarily through special hiring authorities.

Additionally, the Federal Government should expand workforce rotational programs with industry. These programs can improve retention and the ability to adapt to the pace of technological innovation.

- Government IT experts are more effective and remain in their positions longer when they have access to cross-functional training and cross-agency detailing.
- Industry and the Federal Government have both benefited from IT workforce-focused partnerships and exchanges.

6: Improve Recognition for the Best Performers and Innovators in Federal IT



Recommendation:

The highest-performing IT professionals want to be part of a culture that rewards hard work and promotes positive outcomes. With so many career options available to them in and out of government, retaining the IT workforce of the future will be more challenging. A modernized performance management and evaluation framework should be introduced to accompany the aforementioned special pay and classification systems in order to create a more attractive workplace for the best IT workers.

Relevant Findings:

- The IT workforce performance evaluation process in the Federal Government varies between agencies and significantly differs from industry norms.
- High-tech workers desire a modern culture, office environment, and IT infrastructure.
- Government IT experts are more effective and remain in their positions longer when they have access to cross-functional training and cross-agency detailing.

7: Compare the Effectiveness of IT Workforce Programs with the Private Sector



Recommendation:

It is impossible to track performance of IT workforce initiatives without collecting and compiling enough relevant data. Leveraging a governmentwide classification framework for all IT workers, longer-term collection of longitudinal data on Federal IT workforce inputs and outcomes should be increased in frequency and depth.³⁹

Relevant Findings:

- The IT workforce performance evaluation process in the Federal Government varies between agencies and significantly differs from industry norms.
- High-tech workers desire a modern culture, office environment, and IT infrastructure.

In addition, the Bureau of Labor Statistics should conduct a pilot program to determine the feasibility of collecting similar data for IT workers in the commercial sector.

- Industry and the Federal Government have both benefited from IT workforce-focused partnerships and exchanges.
- All Federal IT workforce policies, pilot programs, and other initiatives require additional qualitative, quantitative, and longitudinal data.

8: Expand Existing Pilot Programs to Improve Recruiting Efforts



Recommendation:

Some of the Federal Government's greatest IT workforce success stories have come from small, agile teams that are able to innovate through the design and implementation of pilot programs. Once proof of concept has been demonstrated, these programs should be scaled in a controlled fashion in order to take advantage of any best practices that have been identified. Examples include job fair programs, hackathons, code challenges, and other public recruiting programs such as those undertaken at U.S. Agency for International Development (USAID), Department of Defense (DOD), OPM, and DHS.

Relevant Findings:

- A modern IT workforce hiring process requires cooperation between trained IT SMEs and HR professionals.
- The required time investment by IT job seekers and compensation structure are the most significant barriers to Federal recruiting, and that structure limits career mobility.
- Pilot programs in cybersecurity and digital services recruiting, hiring, and reskilling have enabled Government to innovate.
- Highly qualified, diverse IT talent is entering the Federal workforce primarily through special hiring authorities.

9: Increase Adoption and Long-Term Impact of Intragovernmental Augmentation Offerings



Recommendation:

Private sector contractors have long played an important role in augmenting the Federal IT workforce. However, intragovernmental IT workforce augmentation may be a better fit for situations in which knowledge transfer to agency staff is paramount or when internal resources are limited. Groups such as 18F, USDS, and the GSA Centers of Excellence provide agency customers with additional innovative capacity and agility.

Relevant Findings:

- Pilot programs in cybersecurity and digital services recruiting, hiring, and reskilling have enabled Government to innovate.
- Highly qualified, diverse IT talent is entering the Federal workforce primarily through special hiring authorities.
- Government IT experts are more effective and remain in their positions longer when they have access to cross-functional training and cross-agency detailing.

These groups are largely staffed by IT professionals with significant private sector experience and have a mission-focused mindset. However, these services are still underutilized. Their usage should be expanded through the application of working capital funds, and more opportunities should be created for underserved agencies to participate.

- Taxpayers get the best value from Government IT contracts when they are managed by acquisition officers and project managers with technology-specific training.

10: Employ More Technical SMEs Who Are Trained as Project Managers



Recommendation:

The Federal Government can gain valuable expertise through the private sector contractors who augment the Federal IT workforce. However, one significant limitation is that the managers overseeing these contracts are often not technical SMEs. Agencies should recruit, reskill, and retain additional project managers with technical skills and knowledge. These technically minded project managers can work closely together with contracting officers to ensure that Government IT workforce contracts are performing in an efficient manner in support of their agencies' missions.

Relevant Findings:

- Government IT experts are more effective and remain in their positions longer when they have access to cross-functional training and cross-agency detailing.
- Contractors are providing agility and expertise in technological niches.
- Taxpayers get the best value from Government IT contracts when they are managed by acquisition officers and project managers with technology-specific training.

ENDNOTES

- 1 CIO Council. State of Federal IT Report. <https://www.cio.gov/resources/sofit/>
- 2 The White House. President's Management Agenda. April 2018. <https://www.whitehouse.gov/wp-content/uploads/2018/04/ThePresidentsManagementAgenda.pdf>
- 3 OPM. Interpretive Guidance for the Information Technology Management Series, GS-2210. June 2001. <https://www.opm.gov/policy-data-oversight/classification-qualifications/reference-materials/itmanagement.pdf>
- 4 OPM. Policy: Classification & Qualifications Reference Materials. <https://www.opm.gov/policy-data-oversight/classification-qualifications/reference-materials/#url=Classification-Guidance>
- 5 Gallup. "3 Ways Millennials Can Advance Workplace Diversity and Inclusion." 11/30/2018. <https://www.gallup.com/workplace/245084/ways-millennials-advance-workplace-diversity-inclusion.aspx>
- 6 Weber Shandwick. Millennials at Work: Perspectives on Diversity & Inclusion. 12/06/2016. <https://www.webershandwick.com/news/millennials-at-work-perspectives-on-diversity-inclusion/>
- 7 M-16-21. Federal Source Code Policy: Achieving Efficiency, Transparency, and Innovation through Reusable and Open Source Software. 8/8/2016. https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2016/m_16_21.pdf
- 8 M-13-13. Open Data Policy-Managing Information as an Asset. 5/9/2013. <https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2013/m-13-13.pdf>
- 9 OPM. Status of Telework in the Federal Government, Fiscal Year 2016. November 2017. Page 33. <https://www.telework.gov/reports-studies/reports-to-congress/2017-report-to-congress.pdf>
- 10 Data Sources: FedScope, NextGov, 2017.
- 11 Data sources: Bureau of Labor Statistics, CPI-U April-July 2019 (City and Regional data), <https://www.bls.gov/regions/home.htm>; Bureau of Labor Statistics, May 2018 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates, Selected occupational codes: 15-1111, 15-1121, 15-1122, 15-1131, 15-1132, 15-1133, 15-1134, 15-1141, 15-1142, 15-1143, 15-1151, 15-1152, 15-1199, 17-2061. <https://www.bls.gov/oes/current/oessrcma.htm>;
OPM, Major Work Locations of the Executive Branch, February 2018, Table 2, <https://www.opm.gov/policy-data-oversight/data-analysis-documentation/federal-employment-reports/reports-publications/major-work-locations-of-the-executive-branch.pdf>; Brookings, The Rise of Innovation Districts: A New Geography of Innovation in America, May 2014, <https://www.brookings.edu/essay/rise-of-innovation-districts/>; CBRE Research, 2019 Scoring Tech Talent, <https://www.cbre.us/research-and-reports/Scoring-Tech-Talent-in-North-America-2019>.
- 12 The "IT Workforce Strength Indicator" is a composite of the following metrics for each location: How many Government employees there already are, how much tech talent there already is, how fast the tech sector is growing there, and the cost of living (CPI-U) and renting there (negative influences).
- 13 Statement of Mark Reinhold, Associate Director for Employee Services at OPM before the Subcommittee on Regulatory Affairs and Federal Management, Committee on Homeland Security and Governmental Affairs, United States Senate. 3/1/2018. <https://www.hsgac.senate.gov/imo/media/doc/Mark%20Reinhold%20TESTIMONY1.pdf>
- 14 "How Long Does it Take to Hire? Interview Duration in 25 Countries." Glassdoor. 8/9/2017. <https://www.glassdoor.com/research/time-to-hire-in-25-countries/>
- 15 OPM data compiled from Enterprise Human Resources Integration-Statistical Data Mart (EHRI-SDM), Federal Employee Viewpoint Survey (FEVS), and agency submissions.
- 16 Analysis of Fedscope data, 2017.
- 17 GAO-12-878. OPM Needs to Improve Management and Oversight of Hiring Authorities. September 2012.

<https://www.gao.gov/assets/680/678814.pdf>

- 18 GAO-19-181. Key Talent Management Strategies for Agencies to Better Meet Their Missions. March 2019. <https://www.gao.gov/assets/700/698084.pdf>
- 19 Federal News Network. “Government hiring of young people continues to be terrible.” 3/1/2019. <https://federalnewsnetwork.com/commentary/2019/05/government-hiring-of-young-people-continues-to-be-terrible/>
- 20 Nextgov. “The Government’s Struggle to Hire Young Tech Talent is Worse Than You Thought.” 12/1/2017. <https://www.nextgov.com/cio-briefing/2017/12/governments-struggle-hire-young-tech-talent-worse-you-thought/144225/>
- 21 Congressional Budget Office. Comparing the Compensation of Federal and Private-Sector Employees, 2011 to 2015. Pages 1-3, 11-17. <https://www.cbo.gov/system/files/115th-congress-2017-2018/reports/52637-federalprivatepay.p>
- 22 OPM. 2018 Federal Employee Viewpoint Survey Governmentwide Report. Page 7. <https://www.opm.gov/fevs/reports/governmentwide-reports/governmentwide-management-report/governmentwide-report/2018/2018-governmentwide-management-report.pdf>
- 23 BLS. Employee Tenure 2018 Report. <https://www.bls.gov/news.release/pdf/tenure.pdf>
- 24 World Economic Forum. Future of Jobs Report 2018. http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf
- 25 CAP Goal Action Plan: Workforce for the 21st Century. September 2019. Slide 15. https://www.performance.gov/CAP/action_plans/sept_2019_People_Workforce_for_the_21st_Century.pdf
- 26 GAO-19-157SP. Substantial Efforts Needed to Achieve Greater Progress on High-Risk Areas. March 2019. Pages 123-126. <https://www.gao.gov/assets/700/697245.pdf>
- 27 IBM Center for the Business of Government. Digital Service Teams: Challenges and Recommendations for Government. 2017. Pages 25-26. <http://www.businessofgovernment.org/sites/default/files/Digital%20Service%20Teams%20-%20Challenges%20and%20Recommendations%20for%20Government.pdf>
- 28 GAO-18-42. Agencies Need to Involve Chief Information Officers in Reviewing Billions of Dollars in Acquisitions. January 2018. Pages 12-18. <https://www.gao.gov/assets/690/689346.pdf>
- 29 United States Digital Service. <https://www.usds.gov/>
- 30 GSA. “18F: Digital service delivery.” <https://18f.gsa.gov/>
- 31 GSA. “The Centers of Excellence.” <https://www.gsa.gov/about-us/organization/federal-acquisition-service/technology-transformation-services/the-centers-of-excellence>
- 32 CIO Council. Federal Cloud Computing Strategy. Section III: Procurement, Section IV: Workforce. <https://cloud.cio.gov/strategy/>
- 33 M-16-12. Category Management Policy 16-1: Improving the Acquisition and Management of Common Information Technology: Software Licensing. 6/2/2016. https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2016/m-16-12_1.pdf
- 34 M-16-20. Category Management Policy 16-3: Improving the Acquisition and Management of Common Information Technology: Mobile Devices and Services. 8/4/2016. https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2016/m_16_20.pdf
- 35 Hired. 2019 State of Salaries Report. Section 03: Advanced degrees don’t pay for themselves. <https://hired.com/page/state-of-salaries/tech-talent-education-trends>
- 36 Federal Acquisition Regulation (FAR). Subparts 2.1, 3.1101, 7.302, 7.503. FY 2019. <https://www.acquisition.gov/sites/default/files/current/far/pdf/FAR.pdf>
- 37 USDS. “Our Mission.” <https://www.usds.gov/mission>
- 38 GSA. “18F History and funding.” <https://18f.gsa.gov/about/#history-and-funding>
- 39 Please see the “Focus on Measuring” callout boxes located throughout the rest of this report for additional details on this topic.