



TECH TALENT PROJECT

Memos for a Tech Transition

Executive Summaries

August 2020

The Tech Talent Project is a nonpartisan, nonprofit project dedicated to increasing the ability of the U.S. government to recruit modern technical leaders in order to achieve critical economic, policy, and human outcomes. It was founded in 2017 by former technology leaders from the Obama and Trump White Houses. In April 2020, we joined with the Partnership for Public Service to publish *Tech Talent for 21st Century Government* which focused on identifying the key positions requiring significant modern technical expertise and clarifying the critical skill sets leaders in those roles need to have. In addition, Tech Talent is building a pool of recruits who are open to filling some of those roles. Tech Talent is pulling together a group of leaders who have the skills the government needs and a passion for serving their fellow citizens.

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Preface

The greatest challenge of modern policymaking rests not in the development of new ideas, but rather in their implementation. Some of the boldest policy ambitions of the last decade have been derailed due to the failure to understand how a technology works, or simply failing to implement it properly.

Recent experiences have clearly shown this risk. In 2013, the Affordable Care Act enrollment was nearly derailed when the Healthcare.gov site crashed. Inadequate data that at times relies on faxes has hindered the response to COVID-19. State unemployment systems have been unable to handle the recent surge of applications, much less process expanded unemployment benefits now contemplated by Congress.

Any presidential agenda in the 21st century must prioritize technology expertise to accomplish its goals. Seizing the opportunities of technology — and ensuring its proper governance — requires leaders who deeply understand how technology can affect the American people, our national security, the economy and our competitiveness in the global landscape.

For the first time, the presidential transition process will receive technology-focused agency review briefs — written by expert technologists and policymakers, who themselves served in the agencies — to assess the current technological capacity, critical items for the first 200 days, and key technical leadership positions for 2021. The Tech Talent Project is pleased to present these preparatory briefs as an initial step to ensure the 2021 administration is ready on Day One.

How to use these briefs:

- ***For the candidate and senior transition leadership:*** We have attached executive summaries noting tech opportunities and challenges in key agencies, and focusing on COVID-19 response and recovery.
- ***For the first 200 days:*** Each agency review includes initial ideas on actions for the first 200 days of a new administration or term, including key technology policy and digital service roles.
- ***For the agency transition teams:*** We welcome input from the transition teams on the executive summaries, whether for transition to a new term or a new administration. In August, the Tech Talent Project will provide longer white papers on key agencies' tech capacity, with starting points for the agency reviews and where this tech transition project can provide further support.

We have also included a list of **Six Key Takeaways** from this tech transition project, reflecting common themes and recommendations that span these critical agencies. Leadership and talent matter. We were gratified to have a nonpartisan group of more than 80 technology experts contribute to this effort and prepare the recommendations and insights here. We also recognize that there is more work to be done.

The Tech Talent team and our technical advisors welcome further conversation with the transition teams to support their preparation for the administration in 2021. This is the first time tech transition briefs have been developed and provided to both campaigns during an election year, but we hope it won't be the last.

Sincerely,
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6 Key Takeaways from the Technology Transition Memos

The Tech Talent Project brought together more than 80 agency and technical experts to outline the technology capacity, leadership and opportunities in nine federal agencies that are key to COVID-19 response and recovery. Below are six key takeaways.

1. Agencies need leaders with modern technical expertise from Day One.¹

Appoint modern, tech-savvy leaders² into key leadership roles, especially procurement and operations, and appoint leaders with significant modern technical expertise³ into key tech leadership roles. Key approaches include:

- Pair nontechnical leadership with modern technical advisors and bring them to the table.
- Prioritize strong data leadership, especially in agencies pushing for AI and machine learning.
- Grow the modern tech pipeline at all levels to enable an agency to effectively use and buy tech.
- Invest time and resources to upskill America's existing workforce.

2. Build a robust, secure modern data infrastructure to fuel data-driven policymaking, service, and innovation.

The federal government is replete with examples of how the government stumbles when it does not make effective use of data and how it can dramatically improve lives when it does. It is one of the reasons Congress passed the [Foundations for Evidence-based Policymaking Act of 2018](#), which requires agencies to make better use of their data to measure and improve their performance and policymaking, as well as provide greater transparency in the operation of government for the American people. Moreover, the OPEN Government Data Act requires federal agencies to publish their information online as open data, using standardized, machine-readable data formats, including their metadata. Data collected and maintained by the federal government is a national asset held in trust for the American people and is a powerful tool for advancing science, policy, and innovation. In 2021, the administration should prioritize building a modern data infrastructure to enable robust, secure sharing of data within agencies, between agencies, and with the American public.

3. Double down on agency gains.

Lean into and build upon existing success in each department. Loss of momentum derails many digital transformation efforts. Accelerate continual improvement by being attentive to what is *working* agency-wide. In some cases, leadership needs to double down on the progress already underway within departments. A strong plan for continuing important technology projects as well as for developing the department's workforce (e.g., accessing apps and working from anywhere without compromising security) will enable the department to minimize major disruptions to government services. For example, Veterans Affairs is undergoing three major technical overhauls that are critical to its effectiveness. The 2021 administration should focus on making these work.

4. Ineffective technical procurement underlies much information technology (IT) project failure.

¹ Each memo highlights key agency roles that would benefit from professionals who understand and have a proven track record with modern technology. We identified types of positions using the 2016 Plum Book, the Partnership for Public Service's transition job descriptions and interviews with people who know the agency or political appointments. Yet, no single source for political appointments exists and some classifications may be incorrect.

² Tech savvy leaders have responsibilities that extend beyond technology systems, but which "[require an understanding of modern technology and the ability to hire, retain and effectively use technologies for policy, digital service and innovation.](#)"

³ Someone with significant modern technical expertise should have experience and a proven track record using a consistently evolving, iterative approach to technology to deliver effective, continually improving services rather than simply completing projects, and using the best-in-class technologies that support this approach.

A 2019 U.S. Government Accountability Office (GAO) report cites poor acquisitions and ineffective IT management as a major source of IT project failure, placing the issue on their High Risk List (HRL).⁴ Reform requires substantial support for procurement managers in government to become informed digital and technical buyers. Current procurement regulations underprioritize and undervalue whether an actual procurement meets its operational goals. Tradeoffs between the process of procuring technology and meeting or exceeding the desired operational goals almost always lean toward adhering to traditional processes. In his 2017 exit memo, Office of Management and Budget Director Shaun Donovan warned, “Government needs a critical mass of top-flight in-house technical talent in order to be a good buyer of private sector services — otherwise, government will do a poor job of specifying the solutions it truly needs, won’t be able to evaluate accurately which contractors are the best ones to deliver those solutions, will manage contractors badly, and won’t be able to drive continuous iteration of how agencies work to support execution of the latest best practices (e.g., today, moving agencies from ‘waterfall’ to agile development, from monolithic systems to modular systems, from repetitive rebuilding of services to reuse of services, including extant, commercially available, cloud-based services).”

5. Adopt agile, human-centric product development models.

“Users of government services bear the cost of administering government programs if services are not designed to minimize burdens of time, money and complexity. [At the VA, t]his can mean that veterans must try 12 times to sign up for healthcare...”⁵ Embrace modern technical approaches that center to the experience of the user, especially, secure and reliable cloud services, customer-centered design, agile development, shared services, a “continual upgrade” model of technology refresh and replacement, and enhanced cybersecurity while retaining the ability of agencies to focus on their mission, goals and objectives. Agencies must consider the shifting expectations of people in the United States who wish to connect and be communicated with in fundamentally different ways, ways that, “respond to people’s raised expectations” in the internet age⁶. “Modernizing government services includes delivering user experiences in the public sector at least as good as citizens enjoy in the private sector,” according to Chris Liddell, assistant to the president and deputy chief of staff for policy coordination at the White House.⁷

6. High-impact changes that can be made right now.

- Audit Federal Information Security Management Act (FISMA) levels. The over-classification of government systems, and lack of clarification around low, medium and high, continues to impede rapid adoption of appropriate technologies. This is costly and inefficient. Move FISMA security levels from highest to medium for technical systems that aren’t classified, etc., to increase the ability of the government to improve digital delivery and use data effectively.
- Get individuals with significant modern technology expertise into the right positions. Appoint chief information officers (CIO), chief data officers (CDO) and agency leadership with high technical literacy.

⁴ Government Accountability Office, “[Agencies and OMB Need to Continue Implementing Recommendations on Acquisitions, Operations, and Cybersecurity](https://bit.ly/2BJWuXo),” GAO-20-311T: December 11, 2019. Retrieved from <https://bit.ly/2BJWuXo>

⁵ Partnership for Public Service and Tech Talent Project, “Tech Talent for 21st Century Government,” April 16, 2020, 22. Retrieved from <https://bit.ly/32zaM8k>

⁶ Harriet Green and Myra Hunt, “What we mean by ‘digital,’” *Defradigital Blog UK*, November 2017. Retrieved from <https://bit.ly/2BZ5sQQ>, quoting Tom Loosemore

⁷ Partnership for Public Service and Tech Talent Project, “Tech Talent for 21st Century Government,” April 16, 2020, 7. Retrieved from <https://bit.ly/32zaM8k>

Office of Management and Budget (OMB)

Technology Transition Brief: Executive Summary

Overview

The Office of Management and Budget plays a leading role in ensuring that a president's campaign promises are translated into meaningful action across the federal government. The president's budget, president's management agenda, and agency strategic plans with specific performance goals released within the first year reflect these commitments and actions that OMB and agencies work to achieve. In the modern era, implementing these promises relies on modern information technology, which functions as "the backbone of how government serves the public in the digital age."⁸ COVID-19 has demonstrated how IT systems across all levels of government are ill-equipped to handle normal workloads, much less the massive increased burdens that stress them during a crisis. For example, technical failures in the Small Business Administration's E-Tran system made it difficult to get \$350 billion in much-needed assistance to America's small-business owners in a timely fashion.⁹ State unemployment insurance systems are antiquated and likewise unable to handle today's massive increase in unemployment, leaving hardworking Americans without timely assistance for them and their families.

IT implementation failures can also stymie major policy priorities outside crisis management and, by law, OMB plays an important role in overseeing federal agencies' IT management. For example, limited OMB oversight of Healthcare.gov contributed to failures that threatened to unravel former President Obama's signature policy priority.¹⁰ In the wake of additional demands that COVID-19 has placed on technical infrastructure, the presidential transition and planning teams must pay attention to the government-wide management challenges underpinning federal digital service delivery and technology policy.

This document outlines actions OMB can take within the first 200 days of 2021 to make significant progress improving technology policy and capacity across the federal government. During this critical early period of a new administration or new presidential term, OMB must address urgent challenges, such as COVID-19, while developing and executing a coherent strategy to build a truly modern technology capacity within all agencies.

Key Technology Opportunities: First 200 Days of 2021

Technology pervades almost every issue or initiative coordinated by OMB, and COVID-19 response and recovery is no exception. During this crisis, OMB has played a role in getting technology and policies in place to conduct the nation's business while teleworking, facilitating data sharing to track the spread of COVID-19 across the country, and addressing outdated systems that underpin the delivery of benefits at an unprecedented scale. In all of these key efforts, technology policy and operations are critical, and they will remain critical into the next phase of COVID-19 response and recovery.

In the first 200 days of 2021, OMB has the opportunity to set a coherent strategy to drive and invest in

⁸ The White House, "President's Management Agenda." Retrieved from <https://bit.ly/2DM83Oq>

⁹ Zachary Warmbrodt, "Small business loan program stumbles as SBA system crashes," *Politico*, April 6, 2020. Retrieved from <https://politi.co/3jfmGu1>

¹⁰ Government Accountability Office, "Healthcare.gov: CMS Has Taken Steps to Address Problems, but Needs to Further Implement Systems Development Best Practice," GAO-15-238, March 2015. Retrieved from <https://bit.ly/2ZBv5jw>

modernization across the government's critical systems, as well as to set policy and guidance around critical technology-related issues. This strategy rests on four pillars:

1. **Strengthening and deploying OMB's own technology assets.** OMB has a wealth of technology assets at its disposal, including the U.S. Digital Service (USDS). USDS is an effective modern technology unit that deploys small groups of technology experts to work with and empower civil servants. These multidisciplinary teams bring best practices and new approaches to agencies and departments across the government. In the first 60 days of 2021, OMB can quickly review and prioritize the USDS portfolio as needed and begin expanding the USDS team accordingly. USDS staff reached 200+ team members at its peak; in 2021, OMB leadership should determine the right capacity and achieve it. Further, OMB leadership should review the USDS portfolio to recalibrate resources as necessary to high-impact agencies and issues such as COVID-19 response and recovery. OMB can also deploy its other technology assets, such as those at the Office of the Federal Chief Information Officer and the Office of Federal Procurement Policy to assist in a whole-of-government approach to COVID-19 response and recovery.
2. **Set the tone and pace for government-wide technology modernization efforts.** In the first 200 days of 2021, OMB will have the opportunity to take key management actions to support modernization across the government. On the management side, the Government Performance and Results Act (GPRA) of 1993 led most recently to the GPRA Modernization Act of 2010, which requires the development of cross-agency goals through a president's management agenda (PMA) as well as priority goals within each agency. The PMA can be drafted to clearly define success with actionable goals that advance the acquisition and implementation of information technology and the recruitment and retention of those with the skills to implement and leverage it for the benefit of the government's customers. Root cause barriers (e.g., Authority To Operate, slow hiring process) should be identified early, based on experience to date with a clear escalation path to resolve in a timely fashion, and new models for investing in technology, like the Department of Homeland Security's [Procurement Innovation Lab](#), should be encouraged.

On the budget side, the first budget request is finalized quickly (March 2021) and without the normal time to prepare. The transition and planning teams should identify priority requests that help OMB and the broader technology community fulfill, or at least make a downpayment on, modernization efforts given it will be the most important budget of the term (e.g., level of investment for Technology Modernization Fund).

3. **Recruit individuals with technology expertise into the right positions.** Accomplishing government-wide technology modernization requires leaders who understand the critical role modern technology plays in delivery of services. OMB can hire a top modern technology team in concert with broader technology teams, such as the Office of Science and Technology Policy (OSTP). This team extends beyond the USDS team lead and federal chief information officer, chief information security officer, and also includes the deputy director for management and the administrators of the Office of Federal Procurement Policy, the Office of Federal Financial Management, and Office of Information and Regulatory Affairs within OMB, as well as positions including the chief data scientist, U.S. chief technology officer, and others within OSTP. With a team in place, this group can establish efficient business processes and meeting cadences that bring key actors across organizational boundaries among OMB, OSTP, the General Services Administration (GSA) and technology councils to strategically optimize technology resources across government. Of course, technology expertise among leadership is not enough; the government's ability to recruit and retain a talented workforce is hobbled by outdated personnel laws, policies and practices. As one of the key agencies responsible for reforming the government's human capital practices, OMB can set clear goals for identification, recruitment and retention of individuals with the right skills to advance the government's technology

capabilities and work with the Office of Personnel Management (OPM) to implement.¹¹ Some of these hires might come from new or expanded fellowships and other talent circulation mechanisms, which could be championed by USDS, OSTP and others. It will take even more creative approaches like these to make a dent in the government's technology talent gap.

4. **Work closely with the White House and OSTP to ensure whole-of-government transformation.** No major agenda item can be accomplished by one organization alone; most require collaboration and coordination across a wide number of offices and agencies across the federal government. With respect to technology policy and priorities, OMB collaboration with the White House, OSTP and other policy offices will be key. A regular cadence of coordination could improve the shared accomplishments of all organizations. Likewise, clarifying roles and responsibilities will help resolve potential conflicts before they arise in areas that are inherently crosscutting (e.g., cyber, AI, and supply chain). For instance, clarifying OMB's responsibility for privacy of data managed by the federal government as distinguished from OSTP's responsibility for the government's policy posture over data privacy, generally, can help ensure no one is stumbling over one another achieving important objectives. In particular, responsibility for open government and open data initiatives can be moved from OSTP to OMB, which is consistent with recent legislation on the requirements for open data.

Key Technology Policy and Digital Service Positions

In 2021, the administration should ensure that it is properly structured to bring tech expertise into the Executive Office of the President (EOP) decision-making processes for all of the president's policy priorities. Below is a list of the top six significant leadership roles in OMB that can be filled by individuals with high "tech IQ" in order to accomplish the goals outlined in this memo.

- *Deputy Director for Management, PAS.*¹² The OMB deputy director for management has many roles. This individual serves as the federal government's chief performance officer and develops and executes the administration's management agenda, including its information technology, financial management, acquisition, organizational performance and human capital policies. In overseeing OMB's management arm, the deputy director should work effectively with several technical leaders and provide thoughtful guidance on key issues. For example, the deputy director oversees the Office of the Federal Chief Information Officer and chairs the Chief Information Officers Council, along with other government management councils. As the government's chief performance officer, the deputy director for management also helps set and measure agency performance goals, many of which are technical in nature, according to a Partnership for Public Service analysis.
- *Administrator/Federal Chief Information Officer, Office of E-Government and Information Technology, PA.*¹³ The federal chief information officer, located in OMB, oversees the

¹¹ Only 6 percent of the federal government's workforce, and only 3 percent of its IT workforce, is under 30. (The U.S. Department of Housing and Urban Development does not have a single IT professional under 30.) A study also found that the single biggest factor determining the retention of the IT workforce is age of employee (not pay/benefits, performance rating, etc.). A major IT hiring campaign to modernize the IT workforce is critical. Eliminating redundant contracts could free up resources to hire critical federal positions. Critical pay authority could also be utilized to pay up to Level I or II of the executive schedule for the most critical positions (up to 800 government-wide) with OPM approval.

¹² Partnership for Public Service and Tech Talent Project, "Tech Talent for 21st Century Government," April 16, 2020, 13. Retrieved from <https://bit.ly/32zaM8k>

¹³ Partnership for Public Service and Tech Talent Project, "Tech Talent for 21st Century Government," April 16, 2020, 15. Retrieved from <https://bit.ly/32zaM8k>

government's internal information technology and leads the Office of E-Government and Information Technology. The federal CIO focuses on reviewing the government's use of technology and leverages OMB's budgetary, political and priority-setting strengths to define the best possible technology infrastructure and innovative solutions. The federal CIO largely uses influence and convening power to support agency CIOs throughout the government. The CIO leads the interagency Chief Information Officers Council — comprising the major federal departments and agencies' CIOs — on behalf of OMB's deputy director for management. The federal CIO should help set high expectations for government CIOs to increase the ability of their agencies to serve users and effectively accomplish their organizational mission, as well as deeply understand the current state of CIO effectiveness. They can then focus on providing the support, policies and resources to bridge that gap.

- *Administrator, Office of Federal Procurement Policy (OFPP), PAS:* Responsible for providing overall direction for government-wide procurement policies, regulations and procedures and to promote economy, efficiency and effectiveness in acquisition processes. Technology is a significant part of the Administrator's portfolio as the federal government spends more than \$90 billion on technology.
- *Administrator, Office of Information and Regulatory Affairs, PAS:¹⁴* The administrator of the Office of Information and Regulatory Affairs (OIRA), which is part of OMB, oversees a key federal organization that collects information from customers, applicants and beneficiaries, including via websites and digital services. The 1980 Paperwork Reduction Act (PRA) placed OIRA in charge of government-wide policies regarding the collection of information and minimizing the burden on people interacting with government. At the time, it principally meant streamlining tax and other paper forms and surveys. It also gave OIRA a powerful role managing information, privacy and statistical policies — even more crucial in today's digital age. OIRA approves new information collection requests from agencies, which includes reviewing every new form. The OIRA administrator should work with the federal chief information officer, digital service offices such as USDS and customer-focused agencies such as the Department of Veterans Affairs (VA) to modernize government's information collection rules and processes — including those in the PRA— to ensure agencies can deliver smooth and satisfying digital experiences for the public.
- *Administrator, U.S. Digital Service, term-limited SL appointment:¹⁵* The USDS administrator is responsible for building and deploying a rotating team of 150 to 200 digital experts to address citizen-facing challenges at federal agencies across government. The administrator's role includes developing USDS' ability to attract, select and hire short-term technical talent from around the country, and bring that talent to project teams in USDS and at other agencies. The USDS has also helped further the CTO's mission to expand the number of technical experts advising, discussing, debating and aiding policymaking. The administrator should have deep experience building and leading highly effective modern technical teams. In the past, the administrator has been charged with solving high-visibility, high-leverage crises as well as working with the White House and agencies to prevent such crises in the first place.¹⁶

¹⁴ Partnership for Public Service and Tech Talent Project, "Tech Talent for 21st Century Government," April 16, 2020, 13. Retrieved from <https://bit.ly/32zaM8k>

¹⁵ Partnership for Public Service and Tech Talent Project, "Tech Talent for 21st Century Government," April 16, 2020, 13. Retrieved from <https://bit.ly/32zaM8k>

¹⁶ Partnership for Public Service and Tech Talent Project, "Tech Talent for 21st Century Government," April 16, 2020, 13. Retrieved from <https://bit.ly/32zaM8k>

- *Federal Chief Information Security Officer (CISO), career SES*: While the role has evolved over time, it is generally understood to guide cybersecurity policy, planning and implementation in the U.S. federal government. A federal CISO who understands information security technology is key to guiding the federal government toward security solutions that work.

We have adopted the following appointment type descriptions from the 2016 Plum Book:

- PAS = Presidential Appointment with Senate Confirmation
- PA = Presidential Appointment (without Senate Confirmation)
- CA = Career Appointment
- NA = Noncareer Appointment

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Office of Science and Technology Policy (OSTP)

Technology Transition Brief: Executive Summary

Overview

Every year, more Americans rely on the digital world to interact with the government, businesses and each other — a trend that has accelerated rapidly during the COVID-19 pandemic. Any presidential policy agenda will require a keen understanding of technology and how it affects our citizens, our national security, the economy and our future competitiveness in the global landscape. The last administration vividly experienced this when the failure of the Healthcare.gov website endangered President Obama's signature policy priority to provide affordable health care to all Americans. The pandemic has revealed similarly intense challenges, as the U.S. Department of the Treasury struggles to get stimulus payments into the hands of needy Americans because of aged, patchwork systems. The U.S. intelligence and national security communities are raising alarms about foreign attacks on our infrastructure, including the integrity of our elections this fall. To meet the full range of challenges of the presidency in 2021, technologists will be essential advisors at the decision-making table.

The White House Office of Science and Technology Policy (OSTP) plays a critical role in ensuring that the president can leverage technology for better policymaking and service delivery across the federal government. Deep, strategic tech expertise among the president's closest advisors can help the president and cabinet members identify *when* they need to ask a science or technology question, *what questions* to ask, and *of whom*. For example, as seen during the Ebola virus outbreak in 2014 and critical to effective COVID-19 response today, OSTP experts are uniquely positioned to engage world-class experts and to coordinate the massive task of sharing data — with appropriate privacy protections — across hospitals and public health departments, other relevant federal agencies and the public, so that Americans can be safer and healthier as we beat this pandemic.

To prepare for the significant challenges of 2021, from COVID-19 response to economic stimulus to strengthening the United States technology prowess on the world stage, the administration should prioritize building its science and technology leadership in the Executive Office of the President (EOP).

Key Technology Opportunities: First 200 Days of 2021

In the first 200 days of 2021, the president has an opportunity to enlist the best and brightest minds in science and technology to help advance the administration's policy agenda and, in particular, inform a strong, data-driven, coordinated COVID-19 response and recovery strategy. Thus, the two most important presidential appointments for OSTP are the director (also known as the president's science advisor) and chief technology officer, each of whom has broad authority to direct the scientific and technology policy agenda for the administration.

Specifically, the 2021 administration should prioritize: structuring OSTP for effective science and technology leadership in the EOP; strengthening EOP and interagency tech policy processes, as well as engaging with the private sector and academia; and hiring for diverse, strategic expertise and cross-functional leadership.

1. **Technology Expertise at the Highest Levels:** Providing the president with a clear, dependable path to OSTP leadership and expertise is crucial to ensuring top presidential priorities are informed by independent advice on the impacts of technology. We recommend three structural commitments to ensure successful communication flows:

- Designate OSTP director and U.S. chief technology officer (CTO) as assistants to the president and members of the Domestic Policy Council (DPC), National Security Council (NSC), and National Economic Council (NEC).
 - Designate OSTP division associate directors as deputy assistants to the president.
 - Designate associate director's deputies, including a chief data scientist, as special assistants to the president.
2. **Technology-Informed Decision Processes:** Effective presidential leadership requires strong cross-agency collaboration, and needs better processes to integrate technology expertise. OSTP should proactively seek and build relationships across the EOP and federal agencies to support coordinated, informed federal technology policy. We recommend three actions to strengthen interagency efforts on tech:
- Strengthen the National Science and Technology Council¹⁷ as a leadership council on par with the NSC, NEC and DPC, and with a broader mandate to elevate innovation policy discussions.
 - Reestablish and strengthen the Technology Policy Task Force,¹⁸ led by the U.S. CTO and including the EOP's technology components to advise other policy councils on both technology and its impact in society.
 - Leverage the existing tech and technology policy talent in agencies through agency details to EOP, interagency reviews and other interagency initiatives.
 - Use the convening power of the White House to engage expertise in the private sector and academia, including the President's Council of Advisors on Science and Technology, 90-day reviews and other advisory gatherings.
 - Collaborate with the Office of Management and Budget (OMB) to drive government modernization.
3. **Diverse, Strategic Expertise and Cross-Functional Leadership:** OSTP should use its flexible hiring authorities to strategically bring science and technology expertise into OSTP and across the EOP for critical policy areas. Key technology positions within OSTP require both 1) strong substantive technical and technology policy knowledge and 2) effective cross-functional leadership. Moreover, given the broad impacts of technology across diverse communities, OSTP and EOP policymaking as a whole will benefit from leaders and staff with diverse experiential backgrounds and perspectives.

Key Technology Policy and Digital Service Positions

To meet the challenges of the 21st century, administrations need to make full use of their technologists in developing and implementing policy initiatives. While the role of the presidential science advisor dates back to the 1940s, technology advice has only recently become a regular part of EOP decision making. EOP has only developed formal policymaking processes and direct access to principals within the last eight years. Below are the key roles in OSTP required to develop and implement effective technology policy for the administration in 2021.

- *Director of the Office of Science & Technology Policy, PAS:* The OSTP director, also known as “the president’s science advisor,” has two main responsibilities: science and technology for policy, and policy for science and technology (S&T). “S&T for policy” means ensuring that the president and senior leaders in the White House have independent advice on the scientific or technological facts and analysis to inform the policy issues before them, “including, but not

¹⁷ The White House, “Establishment of the National Science and Technology Council,” Executive Order 12881, Nov. 23, 1993. Retrieved from <https://bit.ly/2CxK9WP>

¹⁸ The White House, “[TQ in Public Policy](https://bit.ly/3fLGVqt),” Jan. 4, 2017. Retrieved from <https://bit.ly/3fLGVqt>

limited to, the economy, national security, homeland security, health, foreign relations, the environment, and the technological recovery and use of resources.”¹⁹ Policy for S&T refers to development and establishment of policy for both the government and private sector to foster robust and responsible science and technology in the United States.

The OSTP director is nominated by the president and subject to confirmation by the U.S. Senate. The president should also designate the OSTP director to the position of assistant to the president for science and technology, which confers additional authority to the OSTP director to provide confidential advice to the president, manage the National Science and Technology Council, and co-chair the President’s Council of Advisors on Science and Technology. We also recommend that in forming the National Security Council, National Economic Council, and Domestic Policy Council, the president designate both the OSTP director and U.S. CTO (described below) as members, and that they be invited to participate in these council meetings by default given the increasing importance of technology expertise in public policy matters.

- *U.S. Chief Technology Officer, PAS:* Recognizing the critical importance of technology to the development of policy and the delivery of government services, the American Innovation and Competitiveness Act authorized the president to specifically appoint a U.S. CTO as one of the four OSTP assistant directors. [Past CTOs](#) have advised the president on using technology, data, and modern innovation techniques to create effective public policy and build the capacity of government, as well as the needed regulatory landscape for new discoveries and technologies. We recommend that the CTO be appointed as both an associate director and assistant to the president, tasked with chairing the EOP’s Technology Policy Task Force, and equipped with a team to help the president set the national technology policy agenda, identify and support the most significant technology opportunities across government, and respond to the impacts of tech innovation.
- *OSTP Division Associate Directors, PAS:* The president may appoint up to four associate directors, one of whom may serve as the U.S. CTO. These science and technology experts are subject to Senate confirmation, and their areas of focus are at the discretion of the OSTP director. This flexibility in hiring and agency focus allows the president and director to tailor OSTP’s work to presidential policy priorities. Historically, associate directors’ expertise has ranged from oceans and environment to the physical sciences and engineering; national security and international affairs; innovation; technology; and energy. We recommend associate directors also be designated as deputy assistants to the president.
- *OSTP Associate Director Deputies, PA:* We recommend ensuring that the CTO and other associate directors have strong direct-hire deputies with the designation of Special Assistant to the President (SAP), which bolsters the ability to recruit top talent and can enable those experts to more effectively develop and work toward the relevant presidential priorities. Past CTO deputies have specialized in a range of areas, including telecommunications regulation, digital delivery of government services, open data, internet policy, intellectual property, privacy, and encryption.
- *U.S. Chief Data Scientist, PA:* We additionally recommend appointing one of the CTO deputies to serve as chief data scientist of the United States, with the additional title of SAP. It is well-recognized that the vast trove of government data is a key asset to effective policymaking, performance monitoring, economic growth, and innovation in both the public and private sectors. As seen when the role of chief data scientist was created in 2015, this person — in collaboration with OMB and other key agencies — can help foster data-driven innovation and build

¹⁹ Presidential Science and Technology Advisory Organization Act of 1976, 42 USC Sec. 6613. Retrieved from <https://bit.ly/3fsIFL0>

communities to support diverse initiatives such as precision medicine and criminal justice, as well as provide support to chief data officers across the federal government.

The president, OSTP director and CTO have wide latitude to staff the agency with experts in areas that best advance the president's policy priorities and meet the most significant challenges of the administration. With its ability to flexibly hire top-tier technologists, OSTP should also make use of its ability to "dual-hat" these highly sought experts to other councils, like the DPC, NEC, or Council on Environmental Quality, or to task them for specific 90-day reviews that require technology expertise.

We recommend strong attention, in close consultation with the OSTP director and CTO, to mapping presidential policy priorities to the relevant top tech talent. As examples, science, technology and innovation areas addressed in current and prior administrations have included:

- American manufacturing innovation and entrepreneurship
- STEM education
- Advanced materials and nanotechnology
- Space
- Biotechnology
- Quantum computing
- Community-based innovation
- Criminal justice and social service delivery reform
- Privacy and data governance
- Emerging technology and AI
- Data science
- Technology ethics and fairness
- Technology economics and competition policy
- Internet policy and governance
- Telecom, universal broadband access and Federal Communications Commission regulation
- Equity in the tech economy and employment

We have adopted the following appointment type descriptions from the 2016 Plum Book:

- PAS = Presidential Appointment with Senate Confirmation
- PA = Presidential Appointment (without Senate Confirmation)
- CA = Career Appointment
- NA = Noncareer Appointment

U.S. Department of Health and Human Services (HHS) Technology Transition Brief: Executive Summary

Overview

The Department of Health and Human Services' excellence and failure are tied to technology. Composed of 11 operating divisions and 14 staff divisions, HHS' diverse components support and regulate more than 25 percent of the American economy, including health care delivery, health insurance, the pharmaceutical industry, the medical device industry and the medical IT industry.

Six HHS agencies are central to managing the public health response to COVID-19:

- *Assistant Secretary for Preparedness and Response*, whose mission is to save lives and protect Americans from 21st-century health security threats;
- *Centers for Medicare and Medicaid Services*, by itself overseeing the largest federal budget (discretionary and nondiscretionary), drives major sectors of the economy;
- *The National Institutes of Health*, which has 27 separate research institutes and centers;
- *The Food and Drug Administration*, which ensures the safety, efficacy and security of human and veterinary drugs, biological products and medical devices; and the safety of our nation's food supply, cosmetics and products that emit radiation;
- *The Health Resources and Services Administration*, which has responsibilities for access to health care services for people who are uninsured, isolated or medically vulnerable; and
- *The Centers for Disease Control and Prevention*, which is responsible for protecting people from health, safety, and security threats.

Transforming tech at HHS is critical to addressing the current pandemic and beyond. Despite positive steps, two of HHS' biggest challenges remain hiring and retaining technical talent and sustaining a strategic approach to digital technology and data. Today's and tomorrow's health crises will not wait for HHS to complete this struggle. The pandemic is exacerbating existing gender, socioeconomic and racial inequities in America's health care ecosystem. We need better transparency in health pricing, cost and underlying data to make health care affordable for all Americans. We need to make more public health data — particularly COVID-19 data — open and machine-readable by default and without cost. We need to empower patients; support providers to improve their services, such as telemedicine; strengthen the path for drug discovery via machine learning at FDA and NIH; transform the Centers for Medicare and Medicaid Services from a fee-based to value-based care organization; and make underlying technology systems interoperable.

Prioritizing digital, data and innovation talent will take extraordinary urgency, as well as operational and political will. It will also set America's path in health care for the next decade. In the first 200 days, the administration should establish a data-driven COVID-19 response and command center within the White House to coordinate efforts at the federal, state and local level. But both near-term and long-term success will hinge on recruiting and supporting political leaders who understand modern technology at every HHS agency. HHS will need proven modern technical experts who have respect for civil servants, the ability to work within HHS, and are empowered to address top department goals. In addition, the department will need to attract a critical mass of digital and data talent, and upskill the technical workforce. This memo outlines high-priority issues and solutions, including for high-impact, agency-specific projects.

Key Technology Opportunities: First 200 Days of 2021

Below are three major areas of opportunity in 2021 that the administration can take to immediately address the COVID-19 pandemic and to improve national health outcomes for the long term:

- 1. Appoint leadership with experience and a proven track record delivering services or products using modern technical best practices, and give them the authority to manage, execute and coordinate technical capabilities.**
 - *Hire leadership with modern technical expertise.* This leadership is key to directing and influencing political pressure and includes [chief information officers](#) who are “capable of making significant decisions to radically improve the protection and use of information for digital delivery,”²⁰ and [chief technology officers](#) who “focus on developing technologies, services and products that serve the [...] American public.”
 - *Within the first 200 days develop a plan to attract, support and retain needed technical talent.* This plan would:
 - Pair every agency lead with a modern technical, digital or data advisor. Leaders with significant modern technical expertise²¹ for the six key agencies related to COVID-19 response — Assistant Secretary for Preparedness and Response, CMS, CDC, FDA, NIH and HRSA — will bring that expertise into day-to-day decisions.
 - Expand the HHS Digital Service beyond CMS. Currently the HHS Digital Service is clustered at CMS. To more quickly increase digital expertise at HHS in other agencies, expand the Digital Service to the six critical COVID-19 response agencies.
 - Develop and present a clear, succinct tech workforce plan to Congress. This plan would improve technical hiring at HHS by, in part, increasing headcount for modern technical expertise and clarifying OPM job classifications. Stringent regulations on HHS headcount prevent the agency from growing a modern technical workforce.
 - Develop a plan for upskilling the technical workforce. No long-term digital and data transformation will be effective without a workforce that has the dedicated support for learning and a clear career path.
 - Provide student loan forgiveness for those with strong technical backgrounds in exchange for public service at agencies like HHS. Student loan forgiveness has drawn professionals from other well-paid industries into public service (e.g., medicine, etc.).
 - *Prioritize processes, funds and incentives that support agile and iterative development.* IT and modern service delivery capacity varies greatly across HHS. In addition, some of the HHS CIO’s agency-wide requirements make it hard to build technology with modern practices. For example, the CIO’s Enterprise Performance Life Cycle has 43 distinct major documents to complete to develop a new software application.
- 2. Launch and empower a data-driven COVID-19 response and command center.** Experience shows the most effective crisis response centers require sufficient data, on-the-ground knowledge sources and authority to develop effective responses. They also report directly to the principal agency or political executive. Key actions:

²⁰ Partnership for Public Service and Tech Talent Project, “Tech Talent for 21st Century Government,” April 2020, 10. Retrieved from <https://bit.ly/2ZCorcL>

²¹ *Modern technologists* use a “continuously evolving, iterative approach to technology that focuses on delivering effective, continually improving services rather than completing ‘projects,’ and have experience with best-in-class technologies that support this approach.” A role requiring *significant technical expertise* means that it requires a technologist with experience and a proven track record delivering technical services or products using modern industry best practices.

- Appoint one national COVID-19 coordinator, reporting to the president, located in the White House, who understands health care technology and works closely with HHS.
 - Create a centralized data “owner,” a COVID-19 chief data officer (CDO), reporting to the national coordinator, to enable a data-driven COVID-19 response nationally.
 - Appoint a COVID-19 communications and user experience lead, reporting to the national coordinator, who uses digital tools effectively to communicate with the American public to ensure the accurate, up-to-date general knowledge needed to control an outbreak.
3. **Launch a clear data-driven COVID-19 operational response, including a plan for national public health reporting requirements related to COVID-19** to alleviate confusion on who reports what information and to which agencies or departments, and a plan for communicating these in a clear, easy-to-understand way. This data reporting structure should be targeted to and designed for U.S. government audiences as well as the public at large so all can respond in an aligned way without causing internal conflict. Key actions:
- *Create the central operational capability to use COVID-19 data to drive decision-making and coordinate federal work.* For example, tactical decisions by the director of Biomedical Advanced Research and Development Authority (BARDA) or other leaders on R&D investments in medical countermeasures (e.g., ventilators, innovation in PPE design, vaccines, therapies, tests) would benefit from data showing real-time or anticipated needs in communities.
 - *Clarify data and operational responsibilities among federal, state and local governments to determine the level of information and action needed federally.* The lack of an overall data standard and reporting process for COVID-19-related data leads to [large variation in data quality across the country](#), particularly in racial and socio-economic status. HHS must identify key data and analysis to respond, help shape national reporting requirements, monitor and model at a federal level, create a policy change feedback loop, and allocate resources.
 - *Build on existing federal, state and local government efforts, as well as monitoring, modeling and feedback systems implemented by other institutions.* Federal data collection attempts have strained already overstretched health systems, and state and local public health departments. At this stage of the pandemic, the work includes reviewing existing data and efforts, de-duplicating and aligning data across disparate systems, and convening groups to collaborate more effectively, such as coordinating and data sharing among CDC, CMS, FDA, ASPR, HRSA and the Federal Emergency Management Agency. Much positive case reporting to state-based public health agencies occurs using fax machines, often without critical information and with inconsistent data standards.
 - *Create a two-sided market where the federal government gathers and analyzes state experience and best practices to fund, set standards for, vet and create a list of technologies.* Examples include data systems, contact tracing technologies, and PPE that states could use for their own acquisitions. Engage GSA to create a contract vehicle that states could use to streamline that vetting and procurement process and avoid duplication. Work with state and local governments using effective practices and assist those who are not, so they can knowledgeably navigate sales pitches by companies who may overpromise and underdeliver.
 - *Continue to support and coordinate ongoing research and improvements in treating the disease — while organizing, authorizing and making accessible work that improves care and outcomes.* Current initiatives by BARDA, NIH, DOD and others have focused on vaccine research, as well as testing new therapies such as convalescent plasma, monoclonal antibodies and tests such as antigen, antibody, molecular, etc. Yet in the absence of a widely vaccinated public, improvements in treatment and care are critical. HHS must play a key role in organizing, authorizing and making accessible work that improves care and outcomes — both prospective work such as new clinical trials, and retrospective work such as data mining and registries. Tracking outcomes and improvement of care require strong data and digital infrastructure.
 - *Improve COVID-19-related support for clinicians and first responders, including clearer digital assets and data sharing.* A lack of training and access to authoritative sources of COVID-19

information has sparked confusion and resulted in the issuing of guidance by many nongovernment organizations. Across the [health care system, there are more than six](#) federally funded dedicated resources and 1-800 numbers for clinicians related to HIV/AIDS, which has helped ensure that doctors can have their questions answered, yet there is not a single dedicated resource for clinical COVID-19 support.²² Similar modern technical resources, like messaging services and chat, can help clinicians struggling to provide care on the ground.

Key Technology Policy and Digital Service Positions

HHS needs a blend of modern technical expertise, strategic leadership, and a clear vision to motivate people and shape the process to fulfill its mission. This memo does not evaluate existing technical leaders, but instead identifies: 1) political roles to be filled, and 2) key career roles that should be evaluated and filled over time, both in the Immediate Office of the Secretary (IOS) and in key divisions. The first political appointees will need to identify future critical roles to fill.

Roles requiring tech-savvy leaders. Below is a list of politically appointed roles with responsibilities that extend beyond technology systems, but who “require an understanding of modern technology and the ability to hire, retain and effectively use technologies for policy, digital service and innovation.”²³ The political appointees leading key agencies must have a strong understanding of how modern technology works and affects their mission (e.g., CDC, FDA, NIH and HRSA). These roles include:

Within IOS:

- *HHS Deputy Secretary, PAS:* The deputy secretary is the chief operating officer of the department and oversees all operations within the department. To oversee dramatic improvements in data, digital delivery and modernization, the deputy secretary needs to have modern tech literacy and technical judgement.

Within other key staff divisions

- *Assistant Secretary for Preparedness and Response (ASPR), PAS:* Responsible for leading the nation’s medical and public health preparedness for, response to, and recovery from disasters and public health emergencies. Must be tech-savvy and thoughtful about how tech can be used in critical responses (e.g., COVID-19).

Within CMS

- *CMS Administrator, PAS*

Roles requiring modern technologists. Below is a list of critical, politically appointed leadership that should be modern technologists. They should have experience and a proven track record using a consistently evolving, iterative approach to technology to deliver effective, continually improving services rather than simply completing projects, and using the best-in-class technologies that support this approach. In particular, we note that HHS will need a designated leader or leaders to develop and execute a strategy bringing together disparate value-based-care initiatives from across the agency, such as Medicare and Medicaid, and scaling successful models from the Center for Medicare and Medicaid Innovation (CMMI). This includes efforts underway to improve payment systems, data sharing and other infrastructure required to operate a health plan that intends to pay for value.

Other modern technology roles include:

²² Centers for Disease Control and Prevention, “Hotlines and Referrals.” Retrieved from <https://bit.ly/32t4Yx7>

²³ Partnership for Public Service and Tech Talent Project, “Tech Talent for 21st Century Government,” April 16, 2020, 7. Retrieved from <https://bit.ly/32zaM8k>

Within IOS:

- *HHS Chief Information Officer, CA*: Responsible for the development and implementation of information technology infrastructure. Must understand modern information security and other modern technical approaches as this role will have a major influence in department security posture and decisions.
- *HHS Chief Technology Officer, PA*: The CTO's office tests and validates solutions to solve challenging problems in the delivery of health and human services. This role is the thought leader and catalyst for innovation in the agency, and has little to no budget or oversight authority.
- *HHS Chief Data Officer, PA*: Oversees the department's data and AI strategy.

Within other key staff divisions

- *Director of Biomedical Advanced Research and Development Authority (BARDA)*: Supports the transition of medical countermeasures such as vaccines, drugs and diagnostics from research through advanced development toward consideration for approval by the FDA and inclusion into the Strategic National Stockpile.
- *National Coordinator for Health IT, Office of the National Coordinator (ONC), NC-SES*: Responsible for supporting the adoption of health information technology and the promotion of nationwide health information exchange to improve health care.

COVID-19 response (new, proposed roles described above and distinct from regular operating staff)

- *COVID-19 Coordinator, PA*
- *COVID-19 Chief Data Officer, PA*
- *COVID-19 Communications and User Experience Lead, PA*

Within CMS

- *CMS Deputy Administrator for Innovation/Director, Center for Medicare and Medicaid Innovation (CMMI) (these two roles are typically filled by the same person), CA*
- *Director, Center for Medicare, NC-SES*

Within FDA

- *Principal Deputy Commissioner, NC-SES*

Critical nonpolitical roles requiring technical expertise. Below is a list of nonpolitical roles with portfolios that are critical to effective, scalable programs and therefore require technical expertise. Many of these roles are currently filled. This paper does not pass judgement on the current position holders, but merely notes them as key technical roles for the success of any HHS agenda or strategy. Such roles include:

- *Chief information officer and chief data officer* (and where it exists, CTO) for each operating division/agency. These will be important support roles, and the appropriate political appointees above can help identify and vet the right candidates.

Within IOS:

- *HHS Chief Information Security Officer*: Responsible for leading internal security practices at HHS and across the agencies. Deep understanding of modern information security and other modern technical approaches are necessary for this role.

Within other key staff divisions

- *ASPR Director of Incident Command and Control (ICC)*: Leads the collection, analysis and dissemination of information to provide situational awareness, inform strategy, policy, plans and

requirement recommendations for operational public health and medical preparedness and response.

- *ASPR Director of Emergency Management and Medical Operations (EMMO)*: Responsible for supporting health care systems in developing resilience to 21st-century threats through leadership, public/private partnerships, and technical and medical support.
- *HRSA, Chief Information Officer*

Within CDC

- *Director, Center for Surveillance, Epidemiology and Laboratory Services*
- *Director, Division of Health Informatics and Surveillance, Center for Surveillance, Epidemiology and Laboratory Services*

Within CMS

- *Chief Operating Officer*
- *Deputy Administrator for Operations*
- *Director, Data and Systems Group, Center for Medicaid and CHIP Services*
- *United States Digital Services, Executive Director*

Within FDA

- *Chief Information Officer*
- *Chief Health Information Officer*

We have adopted the following appointment type descriptions from the 2016 Plum Book:

- PAS = Presidential Appointment with Senate Confirmation
- PA = Presidential Appointment (without Senate Confirmation)
- CA = Career Appointment
- NA = Noncareer Appointment

U.S. Department of Defense (DOD) Technology Transition Brief: Executive Summary

Overview

In presenting the 2018 National Defense Strategy, then-Secretary of Defense Jim Mattis stated, “Our competitive edge has eroded in every domain of warfare — air, land, sea, space and cyberspace. And it is continually eroding.” Failure to embrace digital technology is a major driver of this decline. At the same time, strategic competitors have raced to digital modernization. For example, China’s doctrine of “civil military” fusion has led to rapid advances in military applications of emerging technologies like artificial intelligence (AI), robotics and autonomous vehicles. Adversaries with fewer resources to field conventional advantages — such as Russia, Iran, North Korea and threat actors — are exploiting digital technology. They deploy cyberattacks and online disinformation to gain asymmetrical advantages in various theaters and damage the very fabric of American society.

The Department of Defense has made progress in technological modernization, but recent gains are fragile and isolated. Regaining our competitive edge requires significant changes to budgeting, requirements definition, the acquisition process, testing and evaluation, rapid fielding of new technology, infrastructure modernization, data management, civilian and military personnel policies, and training and education.

The common barrier in all of these areas is senior leaders’ lack of digital acumen and a workforce ill-equipped for a modern approach. To regain its technological edge, the department requires an empowered cohort of technical leadership and an enduring defense innovation strategy embraced by those senior civilian and military leaders. This transition brief explores how senior DOD leaders can repair these systemic weaknesses with unprecedented urgency, rigor and political will.

Key Technology Opportunities: First 200 Days of 2021

Below are four major areas of opportunity in 2021 to establish the administration’s commitment to tech innovation in the military:

1. **Appoint and empower modern technical leadership.** Appointing leaders with technological acumen — and empowering them to manage, execute and coordinate technical capabilities, and bring them to the table — are key to advancing the department’s technological modernization. There are several critical technical leaders to appoint in 2021 (listed at the end of this brief) who drive technology R&D and procurement within DOD. Historically, these appointees have often lacked the background in digital technology disciplines to influence innovation. In 2021, the administration has a unique opportunity to appoint a cohort of strong, modern technical leaders to continue DOD’s transformation to a modern, data-informed, software-competent organization. Modern technical leaders possess a constantly evolving, iterative approach to technology focused on delivering effective, continually improving services rather than just completing projects. They also understand best-in-class digital technologies that support this approach (e.g., data, cloud and agile software). Since the COVID-19 pandemic began, DOD has begun changing how it operates abroad and is grappling with the transition to a remote workforce. The urgency of finding and supporting modern technical leaders has only increased. To improve the ability of these senior leaders to drive technological transformation, the department should:
 - *Pair every presidentially appointed, Senate-confirmed official with a digital or innovation advisor.* This will help Senate-confirmed leaders address key day-to-day digital challenges at

DOD, such as properly identifying military officers, enlisted personnel and civilians with prized technical skills and matching them with roles based on ability; identifying and helping to transform outdated tools (e.g., absence of modern development environments and cloud infrastructure), obsolete practices (e.g., cybersecurity based solely on compliance checklists) and more.

- *Increase senior civilian technical advisors and field chief technology officers (CTO) in the military.* Individuals should be selected for their ability to envision new applications of mature and emerging technologies, technical and business acumen, and experience running modern technical program delivery. Embedding them closer to “customers” in Services and Combatant Commands will accelerate effective technology adoption. If linked back to Defense Digital Service (DDS), field CTOs would serve as a network of people and ideas to accelerate digital transformation across the enterprise.

2. **Expand and enrich the tech workforce.** A focus on human capital is the missing link to defense innovation. DOD struggles to attract modern technical professionals at the scale required. The 2021 administration should accelerate ongoing efforts to expand and streamline the flow of talent from outside the department to bring in current industry perspectives, especially on data, cloud, agile software, AI and innovation. Within the first 200 days, the department should develop a plan to expand and enrich the tech workforce. The plan should:

- *Attract new technical talent, and prioritize highly qualified expert hires.* The department has a massive shortage of technical talent. Congress has given the DOD a range of hiring authorities to more expeditiously hire and more generously pay exceptional tech talent, but they are too infrequently used. Senior leaders should train and incentivize midlevel leaders and HR professionals to use direct and expedited hiring authorities. It should also work with Congress to increase fellowships and rotations from industry, academia and elsewhere to increase the permeability between the private and public sectors. These actions will inform the new administration’s technology agenda and provide the digital and data leaders needed to execute it.
- *Upskill the existing nontechnical workforce in agile software, product management, data, cloud and AI.* Most major industries have undertaken massive technology upskilling initiatives; DOD must follow suit. For example, in late 2018, the Air Force launched the Computer Language Initiative to identify and financially reward coders and technology-savvy airmen by treating coding skills the same as foreign language proficiency. Meanwhile, Naval-X launched several successful internal upskilling initiatives, such as Warfighter Centered Design, to train sailors and Marines on techniques (e.g., scrum, agile product management, and design thinking) to dramatically enhance their ability to think critically, collaborate and adopt new technologies.
- *Unlock the department’s talent by managing military servicemembers with technical skills to remain in technical positions throughout their careers, and measure this capability in the force.* DOD cannot hire or contract its way out of this digital deficit. All the human capital DOD needs to cultivate the most digitally capable military in the world exists within the ranks today. Under the current systems, tech talent cannot follow a digital technical career path and continue to be promoted. Make coding a core competency of the military by launching new pathways to advancement, promotion criteria, billet selection and career field management.
- *Measure digital readiness in the force.* Readiness measures help DOD leaders and Congress assess the health of the force and guide investment. It’s time to invent *digital readiness* metrics to measure our modernization progress and make informed tradeoffs about the force. If the department cannot measure digital readiness, leaders cannot justify the choices they need to make to modernize.
- *Launch a prototype of a digital defense civilian corps.* Create a new pathway to grow the pool of people with tech skills inside and outside of DOD to effectively buy, build and use tech-enabled military systems for intermittent consultants. In the first 200 days, the secretary of defense should announce an intention to build a prototype of this concept using existing intermittent

consultants/special government employee hiring authorities to assemble a moderately sized network of part-time advisors or partner with OMB's implementation of the National Reserve Digital Corps, should Congress implement the National Security Commission on AI's recommendation to stand it up. The secretary should set a three-year plan to work with Congress to transition it to a permanent status and scale it to a national program.

3. **Update data strategy, frameworks, infrastructure and governance.** In the words of Gen. David Goldfein, chief of staff of the Air Force, "Data is the new currency of warfare." But DOD is still stuck in the industrial age; it's past time to enter the information age.

If the department is to meet its objectives in the national defense strategy, it must overhaul its approach to data strategy, frameworks, infrastructure and governance for technology, particularly AI. Currently, the department's policies and procedures for technology treat it as a problematic overhead to be curtailed, rather than fuel for the mission. This constrains how, when and where data is stored; how data is classified; who can use it; and how it may be shared. And it has prevented the department from proposing a holistic approach to data from a technical, strategic or budgetary perspective. As a result, DOD suffers from obsolete software, decrepit infrastructure, proprietary interfaces, a dearth of data scientists, reluctance to share information and a profound lack of scalable, modern cloud infrastructure to make data affordable, accessible and maneuverable.

The fundamental shift in thinking is the recognition that advances in data strategy do not lead to savings of time and cost, but of battles and lives. DOD has made decades-long investments in hardware, sensors and collection platforms; consequently, DOD has never collected more data. Yet DOD lacks the ability to automate the processing and sharing of that data at the speed of relevance and at scale. Since that data fuels the engines of AI and machine learning (ML), advances in AI are moot until the department can promote a robust data ecosystem. Early in 2021, the secretary of defense should issue directives to update data strategy, frameworks, infrastructure and governance:

- *Empower the CIO and newly established DOD chief data officer to design a single enterprise architecture for federated data exchange.*
- *Establish a new civilian data scientist cadre under the CDO.*
- *Relaunch an acquisition initiative to ensure each service and the DOD's Fourth Estate has access to a modern, commercial multi-cloud platform with abundant storage, transport and compute.*
- *Present Congress with a plan to disestablish the Defense Information Systems Agency. Services and Combatant Commands must be able to do the same.*

4. **Double down on what works.** DOD has been on a journey of unmistakable digital modernization and cultural change; however, the victories are isolated and the progress fragile. The next secretary must double down by committing additional resources and sustaining focus. These include:

- *Develop agile funding mechanisms and break down distinctions between appropriations.* DOD would need far fewer dollars for tech modernization if it could have greater flexibility in how it spent them. As noted in the landmark "Software Study" by the Defense Innovation Board — which led Congress to authorize agile software development pilots and a "software color of money" — siloed money leads to siloed work.²⁴ Moreover, as former U.S. Deputy CTO Nick Sinai testified to Congress, "It can be hard to rapidly try, buy and scale a new technology in government — in part because it requires taking money from other programs, initiatives and even future investments." Ultimately, as Michèle Flournoy noted recently, "This is not about spending more; it is about spending smarter."

²⁴ Defense Innovation Board, "Software Acquisition and Practices Study," May 2019. Retrieved from <https://bit.ly/2ZJ8H7Z>

- *Bolster learning between public and private sectors.* DOD leaders should mandate tripling billets for training/education with industry rotational programs. Improving digital talent management means exposing military and civilian personnel to industry capabilities and best practices.
- *Pursue acquisition reform at scale.* Calls for acquisition reform have battered the department, with waves of reforms landing on the wave before it. Yet in the last three years, progress has emerged: a consensus around rapid acquisition procedures borne in Iraq and Afghanistan; middle tier acquisition to make tailoring easier and faster; and commercial services openings (CSOs) and other transaction authorities (OTAs) to access new commercial products and services. The DOD should make these the expectation, rather than the exception, for any acquisition where the unit cost of the final product is less than \$1 billion. Senior leaders must incentivize acquisition personnel to use the authorities given to the DOD by Congress to promote more agile acquisition. The department might also consider working with Congress to set up a separate acquisition cadre for software, since the skills required for software are unique from those demanded by hardware.
- *Conquer the valley of death.* The department requires innovative private sector capabilities in order to advance technological modernization. But pathbreaking companies seeking to work with the department often find themselves in a “valley of death” between prototype and program of record. Defense Innovation Unit and Special Operations Command have worked hard to solve this problem, and their efforts should be scaled. The next secretary of defense should work with Congress to provide the department with a greater pool of funds to use as a bridge between these two stages.
- *Protect, expand and bridge the innovation archipelago.* The entrepreneurial spirit and dedication of the department’s workforce has created islands of innovation all over the department. These island chains of new approaches and fresh perspectives — the innovation archipelago — exist in a cultural and investment climate that is hostile to innovation. Consider Naval X, Kessel Run, National Security Innovation Network, SOFWERX, AFWERX, Army Applications Lab ... and a hundred others. The next administration must build the bridges to connect the islands so that the drivers of bottom-up innovation can focus on the mission instead of survival.

Key Technology Policy and Digital Service Positions

Below are the most significant leadership roles required to address DOD’s technology modernization challenges. Note that the political and budgetary environment changes the relative importance of these positions. For example, in a polarized environment when it is difficult to confirm presidentially appointed, Senate-confirmed (PAS) officials, focusing on deputy assistant secretary appointments, which do not require confirmation, might allow for more rapid progress against priorities.

Roles requiring tech-savvy leaders. Below is a list of politically appointed roles with responsibilities that extend beyond technology systems, but who “require an understanding of modern technology and the ability to hire, retain and effectively use technologies for policy, digital service and innovation.”²⁵ These roles include:

- *Deputy Secretary of Defense, PAS:* The second-in-command of DOD historically has served as both a second secretary and also a chief management officer overseeing internal matters.

²⁵ Partnership for Public Service and Tech Talent Project, “Tech Talent for 21st Century Government,” April 16, 2020, 7. Retrieved from <https://bit.ly/32zaM8k>

- *Secretary, Department of the Army, PAS:* Highest ranking civilian official in the Army. Reports directly to the secretary of defense and serves as the “de facto” secretary of defense for the largest concentration of personnel in DOD.
- *Secretary, Department of the Navy, PAS:* Highest ranking civilian official in the Navy and Marine Corps. Reports directly to the secretary of defense and serves as the “de facto” secretary of defense for all things maritime. As the primary force projection capability, Navy modernization is inextricably linked to foreign policy, overseeing all of the Navy and the Marine Corps.
- *Service Secretary, Department of the Air Force, PAS:* Highest ranking civilian official in the Air Force and Space Force. Reports directly to the secretary of defense and serves as a “de facto” secretary of defense for all things in air and space. Air Force has been at the vanguard of digital modernization; sustaining momentum is essential.
- *Undersecretary of Defense for Policy (USD/P), PAS:* Directs policy, strategy development and planning, and often stands in for the secretary of defense or deputy secretary of defense on foreign policy matters. Key influence on digital modernization as the link between strategy and technology and through the assistant secretary of defense for strategy, plans and capabilities overseeing vital documents like the national defense strategy.
- *Undersecretary of Defense (Comptroller)/Chief Financial Officer, PAS:* Principal staff assistant and adviser to the secretary of defense and the deputy secretary of defense for budgetary and fiscal matters, including developing and executing on the Defense Department’s annual budget. Any reforms to budgeting or adjustment to “colors of money” depend on the comptroller as an ally.
- *Undersecretary of Defense for Intelligence (USD/I), PAS:* Oversees DOD’s intelligence and security components, including massive intelligence agencies (e.g., National Security Agency, Defense Intelligence Agency, National Reconnaissance Office, National Geospatial-Intelligence Agency, etc.) that are significant consumers and developers of digital tech and talent.
- *Director of Cost Assessment and Program Evaluation (CAPE), PAS:* Provides independent analytic advice to the secretary of defense on all aspects of DOD’s program, including alternative weapon systems and force structures, the development and evaluation of defense program alternatives, and the cost-effectiveness of defense systems. CAPE can play a major role in “de-risking” political divisions about all emerging technologies and usually has a seat at the table for all budget and management reform discussions.
- *Undersecretary, Department of the Army, PAS:* Second highest ranking civilian official in the Army.
- *Undersecretary, Department of the Navy, PAS:* Second highest ranking civilian official in the Navy.
- *Service Undersecretary, Department of the Air Force, PAS:* Second highest ranking civilian official in the Air Force, reports to the secretary of the Air Force.

Roles requiring modern technologists. Below is a list of critical, politically appointed leadership that should be highly trained and experienced modern technologists. They should have experience and a proven track record using a consistently evolving, iterative approach to technology to deliver effective,

continually improving services rather than simply completing projects, and using the best-in-class technologies that support this approach. Such roles include:

- *Chief Management Officer, PAS*: Recently created No. 3 role to manage DOD internal operations, focusing on finding business process efficiencies. This new role's authority and influence can be wielded strategically to provide the key managerial support required to lead a digital and innovation transformation.
- *Undersecretary of Defense for Acquisition and Sustainment (USD(A&S)), PAS*: Supervises all DOD acquisition policy and the largest acquisitions, as well as oversees all logistics, maintenance, sustainment and contract administration. This position has become the focal point of key software reforms and is DOD's primary liaison to industry, including Silicon Valley.
- *Undersecretary of Defense for Personnel and Readiness (USD(P&R)), PAS*: Key role setting all policy for human capital, both civilian and military, as well as overseeing all readiness assessment and preparations; needs to be a strong candidate empowered by the secretary to achieve meaningful improvements for tech talent.
- *Undersecretary of Defense for Research and Engineering (USD(R&E)), PAS*: Serves as DOD's chief technology officer, developing and overseeing DOD technology strategy and massive R&D enterprise for a portfolio that covers AI, autonomy, hypersonics, space, biotech, digital engineering, etc. This role can be the key ally or the barrier to progress in the DOD innovation ecosystem, as the Defense Innovation Unit, Defense Innovation Board, DARPA, Strategic Capabilities Office, and National Security Innovation Network all fall under R&E.
- *Director of Operational Test and Evaluation, PA*: Oversees operational and live fire test and evaluation of DOD weapons systems, including legacy software testing, making this position the linchpin to increasing the velocity of acquisition and modernization.
- *Chief Information Officer, PAS*: Responsible for the information enterprise, including cybersecurity, communications (e.g., 5G), and information systems and networks, including AI development, infrastructure and policy. Until recently, CIOs have come from the government or traditional defense industry. A visionary and courageous CIO with modern technical expertise is a make-or-break decision for digital modernization.
- *Director of the Defense Advanced Research Project Agency (DARPA), PA*: A non-confirmed political appointment that has historically been an apolitical technical pick, this leader has outsized influence on the long-term technical direction of the R&D enterprise. This director approves new DARPA programs and reviews ongoing investments, while also setting DARPA's priorities and ensuring a balanced investment portfolio.
- *Service Acquisition Executives, Departments of the Army, Navy and Air Force, PAS*: Each of these three positions supervises acquisition policy overseeing all logistics, maintenance, sustainment and contract administration in their respective services. As budgets and authorities have shifted from the Office of the Secretary of Defense (OSD) to the services, these roles have become the key players in setting technical vision, strategic direction and resource allocation for upgrading current systems and designing new ones. Transformational leaders here make historic impact; conventional leaders slow or halt progress.

Critical nonpolitical roles requiring technical expertise. Below is a list of nonpolitical roles with portfolios that are critical to effective, scalable programs and therefore require technical expertise. Such roles include:

- *Chief Data Officer, Office of the Secretary of Defense, Schedule A*: Strengthens data governance, implements data strategy, and accelerates the transition to a data-driven culture.
- *Director, Defense Digital Service, Schedule A*
- *Director, Defense Innovation Unit, R&E, Schedule A*
- *Executive Director, Defense Innovation Board, Schedule A or GS*
- *Director of the Joint Artificial Intelligence Center (JAIC), military*: Reports to the chief information officer and is responsible for developing and adopting AI for the benefit of America's national security.
- *Chief Technology Officer, Joint Artificial Intelligence Center (JAIC), Schedule A*
- *Director, Strategic Capabilities Office, Schedule A*

We have adopted the following appointment type descriptions from the 2016 Plum Book:

- PAS = Presidential Appointment with Senate Confirmation
- PA = Presidential Appointment (without Senate Confirmation)
- CA = Career Appointment
- NA = Noncareer Appointment

DRAFT

U.S. Department of the Treasury (Treasury)

Technology Transition Brief: Executive Summary

Overview

As COVID-19 forced stay-at-home orders and social distancing, the Department of the Treasury worked to send \$1,200 stimulus checks to roughly 180 million Americans, including more than 30 million people who had lost their jobs. These payments were to support Americans as bills, expenses and rent came due. They were also intended to provide critical support to the lowest-income Americans, including around 9 million people who were not required to file taxes, did not participate in federal tax programs, and whose information was not contained in Treasury's recent tax filer databases. Two months into issuing impact payments, approximately 35 million, or 19 percent of all expected recipients, were still waiting to receive their checks or deposits.

The Internal Revenue Service (IRS) created online tools to help non-tax-filers request payments and to help tax filers track their payments, including the "Get My Payment" tool, but glitches kept many from actually doing so. For example, nearly 80 million Americans waited for more than a month to receive their stimulus checks, and millions of low-income families may not receive their checks at all, if they are unaware of the online filing procedures. The opposite problem happened when Treasury sent stimulus payments worth \$1.4 billion to 1.1 million dead individuals because it was unable to reconcile its recipient lists against a Social Security Administration database of death records. In the meantime, some of the nation's most vulnerable are invisible to the Department because their incomes are so low that they do not show up on federal tax rolls and thus did not appear on the initial recipient list.

As one of the federal government's most public-facing agencies, Treasury is responsible for administering policies and delivering services that touch every American, no matter who they are or where they live. The pandemic has underscored the vital role technology plays in delivering these services, but even before COVID-19, outdated technology at the IRS caused high-profile failures, including an 11-hour outage on Tax Day 2018. The IRS has had to reprogram hundreds of IT systems to administer the Affordable Care Act of 2010, the Tax Cuts and Jobs Act of 2017, and the Taxpayer First Act of 2019, often without the necessary funding.

In the first 200 days of 2021, Treasury will continue to play an important role in the administration's efforts toward COVID-19 response and economic recovery. Given that Tax Day will fall within the first 200 days of 2021, even if the filing deadline is moved to July 15 again, Treasury must drastically strengthen remote and socially distant work capabilities to efficiently provide the American public with customer support processing, regardless of whether they file tax forms online or by paper. Moreover, Treasury needs to guarantee the efficiency and integrity of any additional rounds of stimulus payments so that those most in need actually receive the money they need to keep a roof over their heads and food on the dinner table. Finally, Treasury has the opportunity to make investments in its IT infrastructure by quickly fixing operational barriers to modernization in the areas of hiring, budgeting and security protocols.

Key Technology Opportunities: First 200 Days of 2021

Below are three major areas of opportunity in 2021 for Treasury to take steps to strengthen its technology capacity and deliver on its mission:

1. **Strengthen remote work capacity across Treasury to serve citizens during a pandemic, starting with IRS.** IRS should develop and implement protocols to ensure remote operation of key services without severe risks to data privacy. Most IRS activities are conducted onsite and on secure systems in order to protect the privacy of taxpayers' data. As a result, when IRS offices, call centers and walk-in service centers were shut down for months in spring 2020, Americans were left without a way to have their tax return-related questions answered, and IRS was left with 4.7 million unopened paper tax returns (as of May 22, 2020).²⁶ To alleviate these issues next tax season, IRS should find ways to relax in-person work requirements without compromising security. Possible strategies include increasing the use of secure VPN and remote call center systems, as well as carving out access groups to specific, authorized employees to conduct selected activities remotely. In order to determine the optimal strategy to balance remote work and security, IRS should convene a group consisting of both leadership and career employees.
2. **Increase cross-agency data sharing.** Data sharing hurdles delayed CARES Act relief payments for those for whom the IRS did not have information, such as non-tax-filers, those without bank accounts, or those receiving untaxed Social Security benefits. IRS had to work with the Social Security Administration, Department of Veterans Affairs and Railroad Retirement Board to acquire the relevant datasets. IRS also paid more than \$1.4 billion in relief to 1.1 million deceased individuals due to the lack of internal data-sharing protocols between IRS and the Bureau of Fiscal Service, the Treasury agency tasked with allocating government funds. Actions to improve cross agency sharing include:
 - *Charge a single official, such as the Treasury chief data officer, with the responsibility of assessing and implementing critical data sharing protocols.* This official will ensure that if Congress implements another round of stimulus relief, Treasury stands ready to implement it without the delays seen in spring 2020. Such efforts should facilitate two-way data sharing with other federal agencies, due to the likelihood of other agencies implementing means-tested programs that will require access to IRS tax records. In addition, because many non-tax-filers, low-income or unbanked populations are also likely receiving benefits from state-administered programs such as Medicaid and Supplemental Nutrition Assistance Program, Treasury should work with states to obtain more accurate, complete data. In order to prevent future payments from being sent to decedents, Treasury might explore the possibility of statutory change to provide Treasury agencies with permanent access to death records from the Social Security Administration.
 - *Establish a department-wide data model.* The model should integrate the data under its purview and promote evidence-based decision-making in support of Objective 4.1 of the [Treasury Strategic Plan](#). Treasury should also work toward setting government-wide data standards for financial data, with a strong focus on cybersecurity.
3. **Fix operational barriers to data and modern technical initiatives that serve citizens.**
 - *Utilize effective hiring practices.* Formally recognize a severe shortage of candidates for IT roles, which allows Treasury to use direct hire authority (DHA) for these roles. DHA permits quicker recruitment timelines and industry-standard recruitment methods, drawing earlier stage technologists and data scientists who might otherwise enter the private sector.
 - *Improve IT budgeting.* Leverage the Franchise Fund authority to set up a revolving fund for IT modernization across the bureaus, where each bureau keeps independent accounts to manage their own multiyear working capital. Restore the IT budgets of departmental offices and IRS to 2010

²⁶ Internal Revenue Service, *National Taxpayer Advocate: Objectives Report to Congress* (Washington, DC: <https://bit.ly/2CMJqkg> , 2020), 3.

levels to fund remote work provisions, the costs of integrating data systems, and other modernization projects.

- *Audit security ratings.* Shift many of the departmental offices' default security rating under Federal Information Security Management Act (FISMA) from FIPS-199 "high" to "moderate," which is in line with most of Treasury's peer agencies on the Financial Stability Oversight Council (FSOC). This change allows Treasury to leverage commercial off-the-shelf software, upgrade its systems more easily, and more efficiently allow data systems to interoperate.

Key Technology Policy and Digital Service Positions

Below are the most significant leadership roles required to address Treasury's technology modernization challenges.

Roles requiring tech-savvy leaders. Below is a list of politically appointed roles with responsibilities that extend beyond technology systems, but who "require an understanding of modern technology and the ability to hire, retain and effectively use technologies for policy, digital service and innovation."²⁷ These roles include:

- *Assistant Secretary for Management, PA:* One of the principal policy advisors to the secretary and deputy secretary on the development and execution of the budget for Treasury and the internal management of the Department and its bureaus.
 - *Departmental Budget Director, Officer of the Assistant Secretary for Management, CA*
 - *Chief Human Capital Officer, Office of the Assistant Secretary for Management, CA:* Responsible for department-wide policy and oversight in all areas of human capital management.
- *Assistant Secretary for Tax Policy, Department of the Treasury, PAS:* Responsible for developing and implementing tax policies and programs; reviewing regulations and rulings to administer the Internal Revenue Code, negotiating tax treaties, providing economic and legal policy analysis for domestic and international tax policy decisions, and providing estimates for the President's budget, fiscal policy decisions, and cash management decisions.
- *Chief of Staff, Office of the Secretary of the Treasury, NA:* Responsible for managing the day-to-day operations of the department generally and the secretary's office specifically, coordinating policy development and review within the department and with other agencies and the White House and assisting in setting the overall strategic direction of the department. The chief of staff is also responsible for advising the secretary on a wide variety of policy and management issues as well as on economic and market conditions.
- *Deputy Secretary, PAS:* No. 2 at Treasury and plays a primary role in the formulation and execution of Treasury policies and programs in all aspects of the department's activities.
- *General Counsel, PAS:* Serves as senior legal and policy adviser to the secretary, the deputy secretary and other senior departmental officials.
- *Internal Revenue Service*
 - *General Counsel, Internal Revenue Service, PAS:* Serves as the chief legal advisor to the IRS commissioner on all matters pertaining to the interpretation, administration and enforcement of the Internal Revenue Code, as well as all other legal matters.
 - *National Taxpayer Advocate, Internal Revenue Service, Appointed by the Secretary of the Treasury:* Responsible for helping taxpayers in resolving problems with the Internal Revenue Service via the office's approximately 1,400 case advocates. Also identifies

²⁷ Partnership for Public Service and Tech Talent Project, "Tech Talent for 21st Century Government," April 16, 2020, 7. Retrieved from <https://bit.ly/32zaM8k>

systemic problems within the IRS and can propose changes in administrative practices and identify potential legislative changes to address these problems.

Roles requiring modern technologists. Below is a list of critical, politically appointed leadership that should be highly trained and experienced modern technologists. They should have experience and a proven track record using a consistently evolving, iterative approach to technology to deliver effective, continually improving services rather than simply completing projects, and using the best-in-class technologies that support this approach. Such roles include:

Office of the Assistant Secretary for Management

- *Chief Data Officer, CA*
- *Chief Information Officer, CA:* Responsible for enabling Treasury to provide information technology services to citizens, private industry and government that are efficient, effective, secure and reliable.
- *Chief Technology Officer, CA*
- *Senior Procurement Executive, CA:* Leads the Office of the Procurement Executive. Responsible for the Department's acquisition system, including: policy development; establishment of acquisition goals; evaluation and monitoring of bureau organizations; strategic sourcing, governance of federal-wide and Treasury procurement systems; career management; and continual improvement of the acquisition environment.
- *Senior Agency Official for Records Management, CA:* Acts on behalf of the secretary to ensure the agency efficiently and appropriately complies with all applicable records management statutes, regulations, National Archives and Records Administration (NARA) policy and Office of Management and Budget (OMB) policy.

Bureau of the Fiscal Service

- *Fiscal Assistant Secretary, Bureau of Fiscal Service, CA:* Responsible for developing policy and overseeing the operations of the financial infrastructure of the federal government in the areas of payments, collections, debt financing, accounting, delinquent debt collection and shared services.
- *Commissioner, Bureau of the Fiscal Service, CA:* Provides leadership, policy direction and guidance for Fiscal Service's efforts to transform financial management and the delivery of shared services in the federal government and oversees bureau operations.
- *Chief Information Officer, Bureau of Fiscal Service, CA*

Internal Revenue Service

- *Chief Information Officer, Internal Revenue Service, CA*
- *Deputy Commissioner for Operations Support, Internal Revenue Service, CA:* Provides executive leadership for customer service, processing, tax law enforcement and financial management operations, and is responsible for overseeing IRS operations and for providing executive leadership on policies, programs and activities. Assists and acts on behalf of the IRS commissioner in directing, coordinating and controlling the policies, programs and the activities of the IRS; in establishing tax administration policy, and developing strategic issues and objectives for IRS strategic management.
- *Deputy Commissioner for Services and Enforcement, Internal Revenue Service, CA:* Serves as the IRS commissioner's key assistant acting on behalf of the commissioner in establishing and enforcing tax administration policy and upholding IRS' mission to provide America's taxpayers top quality service by helping them understand and meet their tax responsibilities.

Roles in other key agencies

- *Deputy Assistant Secretary, Office of Intelligence and Analysis, CA:* Supports the formulation of Treasury policy and the execution of departmental authorities through all-source analysis of the

financial underpinnings of national security threats, our adversaries' financial vulnerabilities, the impact of U.S.-targeted financial measures, and threats to international financial stability.

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U.S. Department of Veterans Affairs (VA) Technology Transition Brief: Executive Summary

Overview

The Department of Veterans Affairs (VA) provides health care for veterans through a network of more than 1,200 health care facilities and 120 million annual outpatient visits. The management of this enormous system currently relies on fragile and antiquated technology for electronic health records (EHR), inventory tracking, asset management and financial information. In order to upgrade these systems, VA is undertaking a remarkably comprehensive IT overhaul, unparalleled by any other department in the federal government. One of these projects, a modernized EHR, is the most complex health care IT project in history; this EHR has already failed to be modernized three times, costing taxpayers almost \$2 billion. The fourth and current attempt is already delayed and over budget, leaving this \$16 billion effort at risk for high-profile failure in the first 200 days of 2021. More important, failure would mean that veterans cannot reap the benefits of a fully integrated, user-friendly EHR system. Such benefits would include increased quality of care, greater patient convenience, and better identification of veterans at risk for dying by suicide, as well as greater interoperability and consistency between the VA and the Department of Defense (DOD) for continuity of care.

VA's EHR modernization is so challenging in part because VA operates the largest integrated health care network in the United States. Naturally, this network has played a large role in the response to COVID-19; however, weaknesses in technology across VA have undermined its mission. For example, telehealth services helped deliver specialized care to veterans in rural America in pre-pandemic times, and serve a vital function in delivering health care to veterans during a pandemic. As the number of daily telehealth visits at VA has grown 30-fold during the pandemic, VA has been able to route only one out of every three visits through modern cloud systems. Consequently, VA is paying more to operate a system that is less secure and provides a lower quality experience to veterans. Going forward, implementation of large new IT projects — including a new EHR, a new supply chain system, and a new financial management system — across hundreds of VA health care facilities, especially in a post-COVID-19 operating environment, will be massively disruptive and complicated. This will affect 1,255 health care facilities serving 7.2 million veterans each year, with an estimated 126.5 million outpatient visits in 2021.

This document outlines actions VA can take within the first 200 days of 2021 to ensure that VA's modernization efforts are successful so that fewer taxpayer dollars are wasted and more veterans get the support they need. The department can continue to build a veteran-centric, digitally enabled organization by doubling down on the technology accomplishments of the past few years, ramping up its infrastructure for COVID-19 response and recovery, and ensuring that the current modernization efforts have the necessary tools and talent for success.

Key Technology Opportunities: First 200 Days of 2021

Below are three major areas of opportunity in 2021 to establish the administration's commitment to tech innovation to serve our nation's veterans:

1. **Do not redo or undo the current strategy in the first 200 days.** The current major IT projects (EHR modernization, defense medical logistics standard support, and financial management business transformation) are critical to operate the agency, to responsibly steward taxpayer dollars, and to serve veterans. Quickly audit progress across these three programs: What has been completed so far?

What is going well? What budget do we have currently? Then refresh the current execution plan in a time-bound manner.

2. **Reestablish and fortify a VA modern tech talent pipeline.** The VA does not currently have the workforce necessary to carry out these three major IT projects, let alone the hundreds of other projects underway. No amount of time or money can fix this without the right talent. In this vein, requiring Senate confirmation for the VA chief information officer (CIO) has presented significant recruiting challenges. The VA CIO is one of only two CIOs in the federal government requiring Senate confirmation (the other being the DOD CIO). Removing [this requirement](#) will increase the pool of qualified candidates.²⁸ In addition to building strong technical leadership, develop a plan for updating the tech workforce within the first 200 days that includes thorough and realistic training programs for existing staff.
3. **Quick wins that are possible in the first 200 days include, but are not limited to, the following:**
 - *Launch a flagship mobile application that is veteran-centric, digitally enabled VA and would be a popular, positive, bipartisan announcement.*
 - *Enable veterans to electronically sign for all their interactions.*
 - *Increase the distribution of digital therapies to veterans using mobile apps.* These include connected devices (e.g., blood pressure cuffs, asthma inhalers, EKGs, ultrasounds) that send data from the patient VA databases for review by their clinical teams.
 - *Leverage private sector hires and upskill existing employees.* Private sector hires can help lay the groundwork for modernization projects, build demonstration projects, and mentor existing technology team members. This is one successful approach, though insufficient to the vital task of reskilling all 16,000 members (full-time employees and contractors) of the Office of Information and Technology (OIT). Successful ways to attract new, top-tier talent include:
 - Fully resource the digital service team within the Office of the CTO at the VA. Dedicating energy to recruiting more technologists into these 50 roles will have exponential positive impacts on VA, as will expanding the team size. Since its inception, the team has brought more than 100 experienced technologists into the VA to lead programs such as cloud adoption, API management and the relaunched VA.gov.
 - Recruit experts from the private sector health care industry who have experience with major commercial EHR migrations to join VA's EHR modernization project.
 - Recruit tech talent from America's top universities by expanding the number of positions focused on entry-level talent within VA's OIT, which is increasingly mature enough to benefit from and support this talent. Coding It Forward is one possible federal-wide internship program for graduate-level civic-minded technical talent.
 - Continue to support at least 15 Presidential Innovation Fellows (PIF). The PIF program pairs the innovation economy's technologists, designers and strategists with top changemakers in the federal government. PIF is a proven recruitment mechanism for lasting leadership; both the second and third VA chief technology officers began as PIFs.
 - *Audit the Federal Information Security Management Act (FISMA) levels of each VA system and reduce those listed as FISMA High to FISMA Moderate (or lower).*
 - *Expand the urgent-telehealth pilot in San Francisco to more parts of the country.*
 - *Expand clinical resource hubs.* These hubs use virtual care as a way to redistribute clinical service to areas where they are in short supply.
 - *Expand Atlas Sites.* These sites provide virtual care access points for veterans in areas with poor connectivity. They are located in Walmart stores and The Veterans of Foreign Wars of the US

²⁸ Carey, Maeve P., "Presidential Appointments, the Senate's Confirmation Process, and Changes Made in the 112th Congress," October 9, 2012. Retrieved from <https://bit.ly/3eNGi4N>

(VFW) locations. Pods are set up in these locations to allow veterans to engage in virtual visits with VA providers.

Key Technology Policy and Digital Service Positions

Tech talent is central to the IT advancement of VA. The department has identified the most critical roles within the agency requiring experts with a deep understanding of modern technology. These include political appointments and career positions.

Roles requiring tech-savvy leaders. Below are politically appointed roles with responsibilities that extend beyond technology systems, but which “require an understanding of modern technology and the ability to hire, retain and effectively use technologies for policy, digital service and innovation.”²⁹ These roles include:

- *Deputy Secretary, PAS*
- *Assistant Secretary, Office of Enterprise Integration, PAS*

Roles requiring modern technologists. Below is a list of critical, politically appointed leadership that should be highly trained and experienced modern technologists. They should have experience and a proven track record using a consistently evolving, iterative approach to technology to deliver effective, continually improving services rather than simply completing projects, and using the best-in-class technologies that support this approach. Such roles include:

- *Assistant Secretary for Information and Technology and Chief Information Officer, PAS*

Critical nonpolitical roles requiring technical expertise. Below is a list of nonpolitical roles with portfolios that are critical to effective, scalable programs and therefore require technical expertise. Such roles include:

Office of Information Technology

- *Chief Technology Officer:* Sets technical strategy for VA’s product lines, and oversees work to improve veterans’ online experiences with the VA. VA’s Digital Service team works within OCTO.
- *Executive Director, Demand Management, (Head of API/Lighthouse program):* Directs VA’s Project Special Forces assisting projects with agile implementation, OIT policy, assisting projects that are experiencing challenges with delivery or performance and enabling developers to build mobile and web apps utilizing standards-based software development kits and application programming interfaces designed to serve VA’s veterans.
- *Principal Deputy Assistant Secretary and Deputy Chief Information Officer,*
- *Chief of Staff*
- *Executive Director, IT Program Integration*
- *Deputy Chief Information Officer – Office of Quality, Performance and Risk*
- *Deputy Chief Information Officer – Account Management Office*
- *Deputy Chief Information Officer – Account Manager for Health*
- *Deputy Chief Information Officer – Account Manager for Benefits*
- *Deputy Chief Information Officer – Account Manager for Corporate and Enterprise*
- *Executive Director, Office of Technical Integration*
- *Senior Advisor, Electronic Health Records Modernization Integration*
- *Associate Deputy Assistant Secretary – Enterprise Program Management Office*
- *Associate Deputy Assistant Secretary – Information Technology Operations and Services*
- *Deputy Chief Information Officer – IT Resource Management*

²⁹ Partnership for Public Service and Tech Talent Project, “Tech Talent for 21st Century Government,” April 16, 2020, 7. Retrieved from <https://bit.ly/32zaM8k>

- *Deputy Chief Information Officer and Chief Information Security Officer – Office of Information Security*
- *Executive Director, Information Security Policy and Strategy*
- *Deputy Chief Information Officer – Strategic Sourcing*
- *Executive Director, Acquisition and Category Management*

Roles in other key offices

- *Executive Director, VA Office of Electronic Health Record Modernization*
- *VA Chief Innovation Officer and Principal Lead, VA Innovation Center*
- *Executive Director, Veteran Experience Measurement and Analytics, Veterans Experience Office*
- *Executive Director of VBA's Compensation Services, career*
- *Chief Human Capital Officer*
- *Director, Technology Acquisition Center*
- *Assistant Secretary for Office of Procurement, Acquisition and Logistics*
- *Chief Veterans Experience Officer*
- *Executive Director, Office of Research Oversight (10R)*
- *Director, System Redesign and Improvement (10E2F)*
- *Assistant Deputy USH for Health Informatics (10A7)*
- *Chief Officer, Connected Care (10A7D)*
- *All facility Chief Information Officers*

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U.S. Department of Agriculture (USDA)

Technology Transition Brief: Executive Summary

Overview

Every month, more than 35 million Americans rely on the Department of Agriculture for supplemental nutrition assistance, and that number has grown by more than 6 million in the first three months of the COVID-19 pandemic. With levels of household food insecurity nearly doubling in 2020, modern technology is necessary to get nutrition assistance to Americans who need help putting food on the table.

Many of USDA's highly used, public-facing programs, such as Supplemental Nutrition Assistance Program (SNAP), are underpinned by a patchwork of old and complex technical systems across every state, territory, county, and thousands of localities. When these systems fail, it can devastate millions of Americans. Congress authorized the Pandemic-Electronic Benefit Transfer (EBT) program in the Families First Coronavirus Response Act and gave USDA billions of dollars to place the value of school meals on EBT cards for families to use in grocery stores. While this program held the potential to address unprecedented rates of child hunger, more than 25 million eligible children had not received these benefits within two months of the money being allocated. This was due to the challenges of school districts transferring beneficiary lists to outdated state computer systems. Put another way, millions of children went hungry because states and localities struggled with technical problems. Additionally, while USDA has real commitment from existing employees and has made tremendous progress to help SNAP recipients purchase groceries online, the program still has to reach more states and grocers — an expansion that will help people in communities with stay-at-home orders, or who live with individuals vulnerable to COVID-19, to safely shop.

COVID-19 only reinforces the need for modern technology at USDA. This would allow the department to better provide nutrition assistance, food inspections, farming support, animal health, infrastructure investments, housing and business loans, and forest management for millions of Americans. In the first 200 days of 2021, USDA should enact a coherent strategy to drive the modernization of USDA-related federal, state and local systems. This strategy should rest on five pillars: 1) expand the SNAP Online Purchasing Program; 2) enable Food and Nutrition Services (FNS) to support modernization across USDA-related systems; 3) improve remote access to USDA services; 4) focus on effective collection and use of data; and 5) automate repetitive administrative tasks particularly around data submittals and filing application forms. Such a strategy would drive improvements that save taxpayer money, support hardworking farmers and feed families across the country.

Key Technology Opportunities: First 200 Days of 2021

In the first 200 days of 2021, USDA can set customer-focused policy and guidance around critical technology-related issues and set a coherent strategy to drive and invest in modernization of USDA-related federal, state and local systems. Below are five major opportunities for USDA:

1. **Ensure that the SNAP Online Purchasing Pilot program operates in all states and expand the number of retailers that participate.** COVID-19 has dramatically increased the urgency of allowing SNAP EBT benefits to be used for online grocery purchases. The SNAP Online Purchasing Pilot has rapidly expanded to meet this need; as of June 2020, it has been authorized in 40 states. However, given the intricacies of accepting SNAP EBT benefits online, only four retailers have been authorized to date. The agency should aspire to enable online grocery retailers to accept EBT payments with the same ease that they currently accept credit card payments, without compromising program integrity. Ultimately, more authorized retailers result in more choice and a better experience for EBT clients.

2. **At the Food and Nutrition Service, create and appoint a chief technology officer (CTO) of programs focused on payment technology.** A CTO of programs' initial responsibility would be to lead research and consulting around technologies that support EBT payments, online ordering and other transactions related to nutrition assistance. The individual who fills the role should have high-level tech leadership experience in industry-leading payment systems, rather than specific expertise around implementation.
3. **Enable farmers and ranchers to interact easily, comprehensively and remotely with USDA.** The farmers.gov website was created to make it easier for farmers and ranchers to engage with USDA. Despite the recent addition of an online application for the Coronavirus Food Assistance Program (CFAP), the site still has limited functionality, requiring offices to stay open during the pandemic. Increasing the number of tasks that farmers and ranchers can complete online will reduce health risks and increase trust in government, as will improving the connectivity of county offices, providing more mobile tools like smartphones and tablets to allow data to be inputted by staff going into the field and integrating end-to-end digital workflows.
4. **Focus on effective collection and use of data.** By connecting farmers.gov to program participation data, Farm Production and Conservation (FPAC) could understand the needs of farmers better by deriving a 360-degree view of program participation in county offices. Just as important, there is data from Farm Programs, Crop Insurance, Crop Reports and Conservation programs that can be better integrated and utilized to improve service delivery. Similarly, mission areas like rural development support housing, infrastructure, utilities and economic development activities in areas that need it most. Better field technology and data management can make it easier for communities to work with USDA field offices and state offices to apply for funding, comply with reporting, and help people pull themselves up.
5. **Streamline and automate repetitive administrative tasks.**
 - *Identify and audit issues of excessive complexity across agencies.* Currently, making changes to FNS systems requires multiple approvals, and making changes to state systems involves ensuring that states adhere to a nearly 700-page handbook. Each step has a good intention, but the net result is a lack of agility and unnecessarily increased administrative burden for both Americans and USDA employees.
 - *Evaluate supply chain and food issues.* COVID-19 caused significant disruptions to supply chains for farmers and ranchers. FPAC should evaluate the challenges farmers and ranchers faced as their supply chains were disrupted and the difficulties experienced in implementing the Coronavirus Food Assistance Program, which provides direct relief to producers facing price declines and added marketing costs due to COVID-19.³⁰

Key Technology Policy and Digital Service Positions

Below is a list of six critical leadership roles that need technologically savvy individuals or technologists in the first 200 days in order to accomplish the goals outlined in this memo:

Roles requiring tech-savvy leaders. Below is one politically appointed role with responsibilities that extend beyond technology systems, but which “require an understanding of modern technology and the ability to hire, retain and effectively use technologies for policy, digital service and innovation.”³¹

³⁰ U.S. Department of Agriculture, “[Coronavirus Food Assistance Program](https://bit.ly/30raGwT),” 2020. Retrieved from <https://bit.ly/30raGwT>

³¹ Partnership for Public Service and Tech Talent Project, “Tech Talent for 21st Century Government,” April 16, 2020, 7. Retrieved from <https://bit.ly/32zaM8k>

- *Deputy Secretary, PAS*: Co-lead for current IT Modernization Cross-Agency Priority (CAP) goal. Functions as chief operating officer of the nearly 100,000-employee agency, managing day-to-day operations and interacting with Congress, industry, food safety advocates and other stakeholders; may travel domestically and abroad to advance USDA's goal.

Roles requiring modern technologists. Below is a list of critical, politically appointed leadership that should be highly trained and experienced modern technologists. They should have experience and a proven track record using a consistently evolving, iterative approach to technology to deliver effective, continually improving services rather than simply completing projects, and using the best-in-class technologies that support this approach. Such roles include:

- *Chief Information Officer, CA*: Responsible for all aspects of developing, delivering and defending USDA information technologies. The office vision is to provide a high-performing IT workforce and system delivering reliable, timely and value-added service.
- *CTO of Programs, Food and Nutrition Service (new recommended position)*: Would lead research and consulting regarding technologies that support EBT payments, online ordering and other transactions related to nutrition assistance.

Critical nonpolitical roles requiring technical expertise. Below is a list of nonpolitical roles with portfolios that are critical to effective, scalable programs and therefore require technical expertise. Such roles include:

- *Chief Acquisition Officer*
- *Chief Data Officer*
- *Chief Human Capital Officer*

We have adopted the following appointment type descriptions from the 2016 Plum Book:

- PAS = Presidential Appointment with Senate Confirmation
- PA = Presidential Appointment (without Senate Confirmation)
- CA = Career Appointment
- NA = Noncareer Appointment

U.S. Department of Education (ED)

Technology Transition Brief: Executive Summary

Overview

Millions of students rely on the Department of Education, either for applying for and receiving student loans or for funding provided to their school system. These objectives cannot be reached without effective technology and data systems. ED relies on an almost five-decades-old system to process more than 21 million student loan applications annually. This system is currently being completely overhauled, and if this fails or is further delayed, ED will miss a congressionally mandated deadline in the first 200 days of 2021. Each milestone of the project creates a risk point that could lead to disruption of financial aid services. Even without a pandemic, effective technology is fundamental to supporting students.

That said, COVID-19 has disrupted the education of more than 50 million K-12 students and millions more postsecondary students. Many schools and state education departments have not had the technical resources and expertise to adapt to online learning environments — reflecting and exacerbating existing educational inequities. An [800,000 student study of the Zearn platform](#) found that at the end of March, when lockdowns began in the U.S., the number of students from the lowest-earning families who participated in online math classes every week plunged by 62 percent. Among students from the highest-earning households, the decrease was less pronounced — down 21 percent.³² That disparity wasn't always the case. Looking at the past four years of data, high- and low-income kids were participating in online math at similar rates, yet when schools closed and learning became remote, a shocking divergence between high- and low-income children occurred. This could be due to broadband access, parent participation, the school's integration of online tools, etc. Whatever the case may be, math test scores are important and reliable indicators of economic mobility. If low-income students fall further behind because of school shut-downs, they may have increased difficulties closing the academic gap which would have long-term effects on economic mobility.

The disruption of schools also created a series of cascading crises. Students dependent on school lunch programs suddenly found themselves without access to meals. Millions of students were left without critical mental health services that schools also provide, even as students struggle with the lack of academic support, social interaction and daily routine. To address this, schools and state education departments must coordinate policies, improve data sharing systems and support local infrastructure to help identify and support students in need. Heartbreaking consequences will persist across these students' lifetimes if America does not provide an equitable academic experience in the digital world.

Key Technology Opportunities: First 200 Days of 2021

Below are five opportunities the administration has in the first 200 days to ensure that ED can meet its mission in 2021 and beyond:

1. **Address the most immediate issues involving COVID-19**, including:
 - *Continue to implement CARES Act funding and reporting, issue regulatory waivers, and implement any additional economic recovery funding.*
 - *Ensuring consistent data reporting, through both CARES Act and the Civil Rights Data Collection, will be vital to helping protect vulnerable student populations. Some of this will be through ED's own data and reporting systems. In other cases, ED will need to*

³²Retrieved from <https://bit.ly/3gmcTQW>. The data is accessible via the "Online Math Participation" tab under the heading "Education."

provide guidance and support for states to collect the data from school systems and institutions of higher education.

- *Assess and prioritize Next Gen Federal Student Aid (Next Gen FSA) Initiative during the first 200 days.* Assess the progress of the Next Gen FSA Initiative, including any pending solicitations or procurements as well as the operational progress made from contracts awarded over the last two years. The Next Gen FSA Initiative is ED's largest digital service project and is an ambitious undertaking to modernize the entire financial aid system used to support the application, awards and servicing of student loans and grants.

2. **The Office of Educational Technology should coordinate efforts to close the home connectivity gap, particularly with the Federal Communications Commission (FCC).** It also should help provide guidance and best practices for online learning, hybrid models of learning, and managing the data privacy tensions that arise with digital learning resources. The closure of all schools in the spring of 2020 shifted learning to online systems and platforms. Many schools across the country are adopting hybrid models to accommodate staggered school schedules and offer ongoing online learning to parents who do not believe it is safe to send their child back to school.
3. **Appoint modern technical leadership, bring them to the table, and give them the authority to manage, execute and coordinate technical capabilities.** ED's technology infrastructure is vital in supporting \$120 billion in loans, grants and work-study funding annually to 13 million students attending 5,767 institutions of postsecondary education. The multi-year modernization effort is moving the system off a 46-year-old COBOL-based system to improve quality across the student aid lifecycle including 1) informing students and families about the availability of federal student aid programs and the process of applying for and receiving aid; 2) processing millions of Free Application for Federal Student Aid (FAFSA) applications; 3) disbursing, reconciling and accounting for billions of dollars of federal student aid funds that are delivered to students annually; 4) managing the outstanding federal student loan portfolio and securing repayment from federal student loan borrowers; 5) offering free assistance to students, parents and borrowers throughout the entire financial aid process; and 6) providing oversight and monitoring of all program participants — schools, financial entities and students. The office is also in charge of implementing the FUTURES Act, which requires the Internal Revenue Service (IRS) to share data with ED to support FAFSA simplification.
4. **Increase the capacity of ED to collect and analyze data.** Data collection, both directly through ED as well as through state departments of education, is critical for ensuring that our most vulnerable students are supported during COVID-19. This data is also vital for civil rights protections, particularly important for special needs, low-income and minority students. With COVID-19, civil rights data collected by ED is perhaps even more important, particularly without the assessment data from 2019-2020 and likely 2020-2021. The Civil Rights Data Collection contains some of the most high-profile information ED shares with the public about the nation's schools, and this data collection has been stalled because of COVID-19. Until 2020, data collection has taken place every two years since 1968, and since 2011-2012, it has collected relevant data from every public school in America. Even before COVID-19, ED needed to increase capacity to effectively analyze the data and to provide more quality controls on the collection of this data.
5. **Reauthorize the Higher Education Act which could again provide job training and other higher education support to dislocated workers.** The Higher Education Act, last authorized in December 2008 during the financial crisis, is overdue for reauthorization and progress stalled at the end of 2019.

Key Technology Policy and Digital Service Positions

Roles requiring tech-savvy leaders. Below is a list of politically appointed roles with responsibilities that extend beyond technology systems, but which “require an understanding of modern technology and the ability to hire, retain and effectively use technologies for policy, digital service and innovation.”³³

These roles include:

- *Deputy Secretary, PAS:* Develops and implements policies and programs relating to elementary and secondary education; conducts intergovernmental relations; addresses interests from safe and drug-free schools to special education and rehabilitative services; serves as chief operating officer.
- *Undersecretary, PAS:* Oversees the department’s postsecondary and vocational education functions and plans for the implementation of strategic goals in these areas.
- *Chief Strategy and Transformation Officer, Office of Federal Student Aid (FSA), PA*
- *Assistant Secretary, Office of Elementary and Secondary Education, PAS:* Oversees matters related to pre-K, elementary and secondary education; manages a budget of about \$16 billion, which covers 85 unique grants and programs, representing a grant portfolio of approximately \$22.5 billion.
- *Assistant Secretary, Office of Planning, Evaluation and Policy Development, PAS:* Manages the department’s major planning, evaluation, policy development and budget activities, and coordinates these activities with the department’s principal offices and outside organizations, such as Congress, OMB and state education agencies.
- *Assistant Secretary, Office of Finance and Operations, PAS:* Responsible for the overall direction and administration of the ED’s administrative management functions. Develops and implements administrative management priorities, policies and procedures, and provides viewpoints and policies in the development of overall ED policies and plans.

Roles requiring modern technologists. Below is a list of critical, politically appointed leadership that should be highly trained and experienced modern technologists. They should have experience and a proven track record using a consistently evolving, iterative approach to technology to deliver effective, continually improving services rather than simply completing projects, and using the best-in-class technologies that support this approach. Such roles include:

- *Chief Information Officer, Department of Education, CA:* Responsible for managing and improving the planning and control of information technology investments and leading change to improve the efficiency and effectiveness of agency operations.
- *Chief Privacy Officer, Department of Education, CA:* Provides leadership, oversight and coordination to ensure departmental compliance with government initiatives regarding the acquisition, release and maintenance of information.
- *Chief Operating Officer, Office of Federal Student Aid, PA:* Responsible for operations supporting the management of the student financial assistance programs authorized under Title IV of the Higher Education Act of 1965. These programs provide grant, work-study and loan funds to students attending college or career school.
- *Director, Office of Educational Technology, PA:* Responsible for developing national education technology policy and establishing the vision for how technology can transform teaching and learning and how to make everywhere, all-the-time learning possible for early learners through K-12, higher education, and adult education.
- *Deputy Director, Office of Educational Technology, PA*

³³ Partnership for Public Service and Tech Talent Project, “Tech Talent for 21st Century Government,” April 16, 2020, 7. Retrieved from <https://bit.ly/32zaM8k>

Critical nonpolitical roles requiring technical expertise. Below is a list of nonpolitical roles with portfolios that are critical to effective, scalable programs and therefore require technical expertise. Such roles include:

- *Deputy General Counsel with IP expertise, Office of General Counsel*

We have adopted the following appointment type descriptions from the 2016 Plum Book:

- PAS = Presidential Appointment with Senate Confirmation
- PA = Presidential Appointment (without Senate Confirmation)
- CA = Career Appointment
- NA = Noncareer Appointment

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U.S. Department of Homeland Security (DHS) Technology Transition Brief: Executive Summary

Overview

As Americans potentially carrying COVID-19 returned from China in February, local and state officials scrambled for accurate information about whom to quarantine and monitor. The Department of Homeland Security collected traveler demographic and contact information and passed that information along to the Centers for Disease Control (CDC), which then shared it with state and local officials. However, inaccuracies in arrival times, location data and telephone numbers hampered a process whose success depended on speed and accuracy. A case study of airport entry monitoring in California published by the CDC noted that “substantial time was devoted to addressing incorrect traveler contact information [...] which compromised timely contact of travelers or completely precluded reaching some travelers.” These types of data and system errors are avoidable in a world where seamless data transfers happen all the time on commercial platforms for everything from booking travel to delivering groceries. In this public health crisis, Americans deserve no less from the government agencies charged with protecting them.

A pandemic is only one of many threats that DHS needs technology expertise to help address. Established in the wake of the September 11, 2001 terrorist attacks, DHS brings together 22 different federal departments and agencies in an effort to consolidate functions such as emergency management, counterterrorism, cybersecurity and immigration from across the federal government. These large government coordination challenges come with high-stakes technical demands. In May, DHS, through the Federal Emergency Management Agency (FEMA), was tapped to lead the federal response to coordinate more than 46,000 personnel drawn from 40 agencies — working closely with the Department of Health and Human Services (HHS) — to source and deliver personal protective equipment (PPE), medical equipment and supply testing facilities across the country. Meanwhile, DHS will continue grappling with key challenges including disaster relief, transportation security, cyber threats and immigration processing, all of which rely on critical technology expertise.

In 2021 and beyond, DHS should become a model for how improved technology and data use enables more effective policy and programs, whether deploying COVID-19 relief efforts or processing immigration and refugee applications. As the agency responsible for civilian cybersecurity, the department can and should replace burdensome information security requirements with modern cybersecurity guidelines. And with highly skilled, deeply experienced modern technical leadership, DHS can demonstrate how to effectively incorporate technology into broader agency policymaking.

Key Technology Opportunities: First 200 Days of 2021

Below are four major areas of opportunity to strengthen the technology capacity of DHS in 2021:

1. **Innovate to address COVID-19 recovery.** As a keystone agency for COVID-19 response and recovery, DHS should invest in modernizing its own technical infrastructure, as well as provide leadership for other agencies and state and local governments to address the effects of the pandemic:
 - *Invest in modern technology to improve FEMA’s resource distribution and data collection.* Strong emergency management requires better sharing of information including PPE availability and recovery fund distributions.
 - *Support state and local governments in sharing COVID-19 recovery best practices.* For example, DHS could launch a recovery innovation challenge for state and local governments.
 - *Rebuild the travel industry around health and security, while improving the passenger experience.* Specifically, DHS could launch a partnership among Transportation Security Administration (TSA), Customs and Border Protection (CBP), DHS’ Science & Technology

(S&T) Directorate and the Federal Aviation Administration (FAA), airports and airlines for this purpose.

- *Evaluate the security of new potential categories of critical infrastructure in light of the pandemic and social distancing (e.g., internet service providers, online communications systems).*
2. **Strengthen modern tech leadership.** In order to facilitate the 200-day action plan, DHS must focus on increasing its tech talent, particularly for key leadership roles on Day One:
- *Appoint a senior counselor to the secretary with significant technology experience and a portfolio spanning digital service delivery, technology policy, innovation, and IT.*
 - *Appoint a deputy secretary with a track record as an operational executive leveraging technology to improve delivery.*
 - *Create a new assistant secretary role in the Office of Strategy, Policy and Plans overseeing technology policy and implementation.*
3. **Improve cybersecurity talent and systems.** The cyberthreats to our national security on both private and public sector systems are significant and growing. The administration in 2021 should:
- *Move to immediately hire top-flight cybersecurity talent. These leadership roles protect federal civilian systems and provide model practices for other sectors.*
 - *Issue departmental guidance stating that DHS seeks to make technology innovation and policy a key departmental priority.*
 - *Begin an aggressive recruitment campaign for information security talent to put the Cybersecurity and Infrastructure Security Agency (CISA) on par with the National Security Agency (NSA) as the leading destination for top cybersecurity talent.*
 - *Work with the Office of Management and Budget (OMB) and CISA to rapidly modernize civilian federal information security policies and tools to increase security and enable modern digital service delivery.*
4. **Support technology advancement opportunities.**
- *Reimagine service delivery and benefits processing.* DHS operates massive services and benefits programs with clear potential to modernize, ranging from immigration benefits processing at U.S. Citizenship and Immigration Services (USCIS) to flood insurance at FEMA and TSA PreCheck. The department should:
 - *Appoint directors of relevant components (e.g., USCIS, FEMA, TSA) who clearly establish customer service and user experience as a top priority for their organizations.*
 - *Promote interagency coordination by centralizing cybersecurity innovation, as well as HR policies to professionalize the information security workforce.*
 - *Set ambitious goals for key benefits delivery agencies to improve customer service and reduce fees and processing times while increasing security.*
 - *Improve IT procurement and management.* Underpinning all of DHS' missions are challenges with basic procurement and management of IT systems. DHS should:
 - *Appoint a DHS CIO with a deep understanding of modern IT development and procurement, and empower them to actively oversee component CIOs and IT efforts.*
 - *Direct the Office of Program Accountability and Risk Management to conduct a study of oversight practices for agile IT projects and fully embrace the [Digital Services Playbook](#).*
 - *Encourage management innovations, like streamlined procurement processes and grant awards to encourage smaller tech companies to bid for DHS procurement contracts.*

Key Technology Policy and Digital Service Positions

Roles requiring tech-savvy leaders. Below is a list of politically appointed roles with responsibilities that extend beyond technology systems, but which “require an understanding of modern technology and

the ability to hire, retain and effectively use technologies for policy, digital service and innovation.”³⁴
These roles include:

- *Deputy Secretary, Department of Homeland Security, PAS:* Responsible to act for the secretary if the secretary delegates such powers or is unable to perform the functions and duties of the office.
- *Director, U.S. Citizenship and Immigration Services, PAS:* Oversees more than 18,000 employees processing immigration applications around the country and abroad.
- *Deputy Administrator, Federal Emergency Management Agency, PAS:* Assists the administrator in leading FEMA in its mission to support the American public and first responders, and to sustain and improve the government’s capability to prepare for, protect against, respond to, recover from and mitigate all hazards, according to the Partnership for Public Service.
- *Undersecretary for Management, Management Directorate, PAS:* Responsible for ensuring that DHS’ many employees have well-defined responsibilities and that managers and their employees have efficient means of communicating with one another, with other governmental and nongovernmental bodies, and with the public they serve.
- *Chief Privacy Officer, Office of Privacy, NA:* Primary responsibility for privacy policy at the DHS.

Roles requiring modern technologists. Below is a list of critical, politically appointed leadership that should be highly trained and have significant modern technical expertise. They should have experience and a proven track record using a consistently evolving, iterative approach to technology to deliver effective, continually improving services rather than simply completing projects, and using best-in-class technologies that support this approach. Such roles include:

- *Chief Information Officer, Management Directorate, PA:* Implements the programs necessary to align DHS’ Information Technology (IT) personnel, resources and assets. This includes all systems and infrastructure that support department-wide missions and activities. Provides DHS and its components with the IT services required to lead a unified effort to prevent and deter terrorist attacks.
- *Director, Cybersecurity and Infrastructure Security Agency, PAS:* Runs an agency that oversees and coordinates federal government civilian cybersecurity efforts, including operating a 24/7 cybersecurity incident command center.
- *Assistant Director for Cybersecurity Division, Cybersecurity and Infrastructure Security Agency, PA:* Directly responsible for cybersecurity of the civilian federal government, overseeing cybersecurity monitoring and operations as well as the development and adoption of major cybersecurity policies, products and services.
- *Chief Technology Officer, National Protection and Programs Directorate, CA:* Responsible for the conception, development and implementation of policies, procedures and standards that create and sustain a strong and flexible IT enterprise. This encompasses such areas as enterprise architecture, technical infrastructure, cybersecurity, application development and integration.
- *Executive Director of Digital Services, Management Directorate, TA:* Manages roughly 35 engineers, product managers, designers, and policy and operations experts working on core service delivery programs across the department.
- *Major Component CIOs, e.g. FEMA, USCIS, TSA, CBP, CA*

Political appointments (proposed) requiring significant modern technology expertise:

- *Senior Counselor to the Secretary for Technology & Implementation*
- *Assistant Secretary, Technology Policy and Implementation*
- *Counselors for Technology & Implementation in major components: e.g. USCIS, CBP, TSA, FEMA*

We have adopted the following appointment type descriptions from the 2016 Plum Book:

³⁴ Partnership for Public Service and Tech Talent Project, “Tech Talent for 21st Century Government,” April 16, 2020, 7. Retrieved from <https://bit.ly/32zaM8k>

- PAS = Presidential Appointment with Senate Confirmation
- PA = Presidential Appointment (without Senate Confirmation)
- CA = Career Appointment
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List of Critical Technical Positions, by agency³⁵

Below are the most significant leadership roles required to address the U.S. federal government's technology modernization and policy expertise. Note that the political and budgetary environment can change the relative importance of these positions. For example, in a polarized environment when it is difficult to confirm presidentially appointed, Senate-confirmed (PAS) officials, it is generally true that focusing on deputy assistant secretary appointments, which do not require confirmation, might allow for more rapid progress against priorities.

We have adopted the following appointment type descriptions from the 2016 Plum Book:

- PAS = Presidential Appointment with Senate Confirmation
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Office of Management and Budget (OMB)

In 2021, the administration should ensure that it is properly structured to bring tech expertise into the Executive Office of the President (EOP) decision-making processes for all of the president's policy priorities. Below is a list of the top six significant leadership roles in OMB that can be filled by individuals with high "tech IQ" in order to accomplish the goals outlined in this memo.

- *Deputy Director for Management, PAS.*³⁶ The OMB deputy director for management has many roles. This individual serves as the federal government's chief performance officer and develops and executes the administration's management agenda, including its information technology, financial management, acquisition, organizational performance and human capital policies. In overseeing OMB's management arm, the deputy director should work effectively with several technical leaders and provide thoughtful guidance on key issues. For example, the deputy director oversees the Office of the Federal Chief Information Officer and chairs the Chief Information Officers Council, along with other government management councils. As the government's chief performance officer, the deputy director for management also helps set and measure agency performance goals, many of which are technical in nature, according to a Partnership for Public Service analysis.
- *Administrator/Federal Chief Information Officer, Office of E-Government and Information Technology, PA.*³⁷ The federal chief information officer, located in OMB, oversees the government's internal information technology and leads the Office of E-Government and Information Technology. The federal CIO focuses on reviewing the government's use of technology and leverages OMB's budgetary, political and priority-setting strengths to define the best possible technology infrastructure and innovative solutions. The federal CIO largely uses influence and convening power to support agency CIOs throughout the government. The CIO leads the interagency Chief Information Officers Council — comprising the major federal

³⁵ Each executive summary highlights key roles in each agency that would benefit from a professional who understands and has a proven track record with modern technology. We have identified the type of position suggested, to the extent possible, using the 2016 Plum Book, the Partnership for Public Service's transition job descriptions and interviews with individuals who know the agency and/or political appointments. However, there is no single source for all political appointments and some of the political classifications might be incorrect.

³⁶ Partnership for Public Service and Tech Talent Project, "Tech Talent for 21st Century Government," April 16, 2020, 13. Retrieved from <https://bit.ly/32zaM8k>

³⁷ Partnership for Public Service and Tech Talent Project, "Tech Talent for 21st Century Government," April 16, 2020, 15. Retrieved from <https://bit.ly/32zaM8k>

departments and agencies' CIOs — on behalf of OMB's deputy director for management. The federal CIO should help set high expectations for government CIOs to increase the ability of their agencies to serve users and effectively accomplish their organizational mission, as well as deeply understand the current state of CIO effectiveness. They can then focus on providing the support, policies and resources to bridge that gap.

- *Administrator, Office of Federal Procurement Policy (OFPP), PAS:* Responsible for providing overall direction for government-wide procurement policies, regulations and procedures and to promote economy, efficiency and effectiveness in acquisition processes. Technology is a significant part of the Administrator's portfolio as the federal government spends more than \$90 billion on technology.
- *Administrator, Office of Information and Regulatory Affairs, PAS:*³⁸ The administrator of the Office of Information and Regulatory Affairs (OIRA), which is part of OMB, oversees a key federal organization that collects information from customers, applicants and beneficiaries, including via websites and digital services. The 1980 Paperwork Reduction Act (PRA) placed OIRA in charge of government-wide policies regarding the collection of information and minimizing the burden on people interacting with government. At the time, it principally meant streamlining tax and other paper forms and surveys. It also gave OIRA a powerful role managing information, privacy and statistical policies — even more crucial in today's digital age. OIRA approves new information collection requests from agencies, which includes reviewing every new form. The OIRA administrator should work with the federal chief information officer, digital service offices such as USDS and customer-focused agencies such as the Department of Veterans Affairs (VA) to modernize government's information collection rules and processes — including those in the PRA— to ensure agencies can deliver smooth and satisfying digital experiences for the public.
- *Administrator, U.S. Digital Service, term-limited SL appointment:*³⁹ The USDS administrator is responsible for building and deploying a rotating team of 150 to 200 digital experts to address citizen-facing challenges at federal agencies across government. The administrator's role includes developing USDS' ability to attract, select and hire short-term technical talent from around the country, and bring that talent to project teams in USDS and at other agencies. The USDS has also helped further the CTO's mission to expand the number of technical experts advising, discussing, debating and aiding policymaking. The administrator should have deep experience building and leading highly effective modern technical teams. In the past, the administrator has been charged with solving high-visibility, high-leverage crises as well as working with the White House and agencies to prevent such crises in the first place.⁴⁰
- *Federal Chief Information Security Officer (CISO), career SES:* While the role has evolved over time, it is generally understood to guide cybersecurity policy, planning and implementation in the U.S. federal government. A federal CISO who understands information security technology is key to guiding the federal government toward security solutions that work.

³⁸ Partnership for Public Service and Tech Talent Project, "Tech Talent for 21st Century Government," April 16, 2020, 13. Retrieved from <https://bit.ly/32zaM8k>

³⁹ Partnership for Public Service and Tech Talent Project, "Tech Talent for 21st Century Government," April 16, 2020, 13. Retrieved from <https://bit.ly/32zaM8k>

⁴⁰ Partnership for Public Service and Tech Talent Project, "Tech Talent for 21st Century Government," April 16, 2020, 13. Retrieved from <https://bit.ly/32zaM8k>

Office of Science and Technology Policy (OSTP)

To meet the challenges of the 21st century, administrations need to make full use of their technologists in developing and implementing policy initiatives. While the role of the presidential science advisor dates back to the 1940s, technology advice has only recently become a regular part of EOP decision making. EOP has only developed formal policymaking processes and direct access to principals within the last eight years. Below are the key roles in OSTP required to develop and implement effective technology policy for the administration in 2021.

- *Director of the Office of Science & Technology Policy, PAS:* The OSTP director, also known as “the president’s science advisor,” has two main responsibilities: science and technology for policy, and policy for science and technology (S&T). “S&T for policy” means ensuring that the president and senior leaders in the White House have independent advice on the scientific or technological facts and analysis to inform the policy issues before them, “including, but not limited to, the economy, national security, homeland security, health, foreign relations, the environment, and the technological recovery and use of resources.”⁴¹ Policy for S&T refers to development and establishment of policy for both the government and private sector to foster robust and responsible science and technology in the United States.

The OSTP director is nominated by the president and subject to confirmation by the U.S. Senate. The president should also designate the OSTP director to the position of assistant to the president for science and technology, which confers additional authority to the OSTP director to provide confidential advice to the president, manage the National Science and Technology Council, and co-chair the President’s Council of Advisors on Science and Technology. We also recommend that in forming the National Security Council, National Economic Council, and Domestic Policy Council, the president designate both the OSTP director and U.S. CTO (described below) as members, and that they be invited to participate in these council meetings by default given the increasing importance of technology expertise in public policy matters.

- *U.S. Chief Technology Officer, PAS:* Recognizing the critical importance of technology to the development of policy and the delivery of government services, the American Innovation and Competitiveness Act authorized the president to specifically appoint a U.S. CTO as one of the four OSTP assistant directors. [Past CTOs](#) have advised the president on using technology, data, and modern innovation techniques to create effective public policy and build the capacity of government, as well as the needed regulatory landscape for new discoveries and technologies. We recommend that the CTO be appointed as both an associate director and assistant to the president, tasked with chairing the EOP’s Technology Policy Task Force, and equipped with a team to help the president set the national technology policy agenda, identify and support the most significant technology opportunities across government, and respond to the impacts of tech innovation.
- *OSTP Division Associate Directors, PAS:* The president may appoint up to four associate directors, one of whom may serve as the U.S. CTO. These science and technology experts are subject to Senate confirmation, and their areas of focus are at the discretion of the OSTP director. This flexibility in hiring and agency focus allows the president and director to tailor OSTP’s work to presidential policy priorities. Historically, associate directors’ expertise has ranged from oceans and environment to the physical sciences and engineering; national security and international affairs; innovation; technology; and energy. We recommend associate directors also be designated as deputy assistants to the president.

⁴¹ Presidential Science and Technology Advisory Organization Act of 1976, 42 USC Sec. 6613. Retrieved from <https://bit.ly/3fsIFL0>

- *OSTP Associate Director Deputies, PA:* We recommend ensuring that the CTO and other associate directors have strong direct-hire deputies with the designation of Special Assistant to the President (SAP), which bolsters the ability to recruit top talent and can enable those experts to more effectively develop and work toward the relevant presidential priorities. Past CTO deputies have specialized in a range of areas, including telecommunications regulation, digital delivery of government services, open data, internet policy, intellectual property, privacy, and encryption.
- *U.S. Chief Data Scientist, PA:* We additionally recommend appointing one of the CTO deputies to serve as chief data scientist of the United States, with the additional title of SAP. It is well-recognized that the vast trove of government data is a key asset to effective policymaking, performance monitoring, economic growth, and innovation in both the public and private sectors. As seen when the role of chief data scientist was created in 2015, this person — in collaboration with OMB and other key agencies — can help foster data-driven innovation and build communities to support diverse initiatives such as precision medicine and criminal justice, as well as provide support to chief data officers across the federal government.

The president, OSTP director and CTO have wide latitude to staff the agency with experts in areas that best advance the president’s policy priorities and meet the most significant challenges of the administration. With its ability to flexibly hire top-tier technologists, OSTP should also make use of its ability to “dual-hat” these highly sought experts to other councils, like the DPC, NEC, or Council on Environmental Quality, or to task them for specific 90-day reviews that require technology expertise.

We recommend strong attention, in close consultation with the OSTP director and CTO, to mapping presidential policy priorities to the relevant top tech talent. As examples, science, technology and innovation areas addressed in current and prior administrations have included:

- American manufacturing innovation and entrepreneurship
- STEM education
- Advanced materials and nanotechnology
- Space
- Biotechnology
- Quantum computing
- Community-based innovation
- Criminal justice and social service delivery reform
- Privacy and data governance
- Emerging technology and AI
- Data science
- Technology ethics and fairness
- Technology economics and competition policy
- Internet policy and governance
- Telecom, universal broadband access and Federal Communications Commission regulation
- Equity in the tech economy and employment

U.S. Department of Health and Human Services (HHS)

HHS needs a blend of modern technical expertise, strategic leadership, and a clear vision to motivate people and shape the process to fulfill its mission. This memo does not evaluate existing technical leaders, but instead identifies: 1) political roles to be filled, and 2) key career roles that should be evaluated and filled over time, both in the Immediate Office of the Secretary (IOS) and in key divisions. The first political appointees will need to identify future critical roles to fill.

Roles requiring tech-savvy leaders. Below is a list of politically appointed roles with responsibilities that extend beyond technology systems, but who “require an understanding of modern technology and the ability to hire, retain and effectively use technologies for policy, digital service and innovation.”⁴² The political appointees leading key agencies must have a strong understanding of how modern technology works and affects their mission (e.g., CDC, FDA, NIH and HRSA). These roles include:

Within IOS:

- *HHS Deputy Secretary, PAS:* The deputy secretary is the chief operating officer of the department and oversees all operations within the department. To oversee dramatic improvements in data, digital delivery and modernization, the deputy secretary needs to have modern tech literacy and technical judgement.

Within other key staff divisions

- *Assistant Secretary for Preparedness and Response (ASPR), PAS:* Responsible for leading the nation’s medical and public health preparedness for, response to, and recovery from disasters and public health emergencies. Must be tech-savvy and thoughtful about how tech can be used in critical responses (e.g., COVID-19).

Within CMS

- *CMS Administrator, PAS*

Roles requiring modern technologists. Below is a list of critical, politically appointed leadership that should be modern technologists. They should have experience and a proven track record using a consistently evolving, iterative approach to technology to deliver effective, continually improving services rather than simply completing projects, and using the best-in-class technologies that support this approach. In particular, we note that HHS will need a designated leader or leaders to develop and execute a strategy bringing together disparate value-based-care initiatives from across the agency, such as Medicare and Medicaid, and scaling successful models from the Center for Medicare and Medicaid Innovation (CMMI). This includes efforts underway to improve payment systems, data sharing and other infrastructure required to operate a health plan that intends to pay for value.

Other modern technology roles include:

Within IOS:

- *HHS Chief Information Officer, CA:* Responsible for the development and implementation of information technology infrastructure. Must understand modern information security and other modern technical approaches as this role will have a major influence in department security posture and decisions.
- *HHS Chief Technology Officer, PA:* The CTO’s office tests and validates solutions to solve challenging problems in the delivery of health and human services. This role is the thought leader and catalyst for innovation in the agency, and has little to no budget or oversight authority.
- *HHS Chief Data Officer, PA:* Oversees the department’s data and AI strategy.

Within other key staff divisions

- *Director of Biomedical Advanced Research and Development Authority (BARDA):* Supports the transition of medical countermeasures such as vaccines, drugs and diagnostics from research

⁴² Partnership for Public Service and Tech Talent Project, “Tech Talent for 21st Century Government,” April 16, 2020, 7. Retrieved from <https://bit.ly/32zaM8k>

through advanced development toward consideration for approval by the FDA and inclusion into the Strategic National Stockpile.

- *National Coordinator for Health IT, Office of the National Coordinator (ONC), NC-SES:* Responsible for supporting the adoption of health information technology and the promotion of nationwide health information exchange to improve health care.

COVID-19 response (new, proposed roles described above and distinct from regular operating staff)

- *COVID-19 Coordinator, PA*
- *COVID-19 Chief Data Officer, PA*
- *COVID-19 Communications and User Experience Lead, PA*

Within CMS

- *CMS Deputy Administrator for Innovation/Director, Center for Medicare and Medicaid Innovation (CMMI) (these two roles are typically filled by the same person), CA*
- *Director, Center for Medicare, NC-SES*

Within FDA

- *Principal Deputy Commissioner, NC-SES*

Critical nonpolitical roles requiring technical expertise. Below is a list of nonpolitical roles with portfolios that are critical to effective, scalable programs and therefore require technical expertise. Many of these roles are currently filled. This paper does not pass judgement on the current position holders, but merely notes them as key technical roles for the success of any HHS agenda or strategy. Such roles include:

- *Chief information officer and chief data officer* (and where it exists, CTO) for each operating division/agency. These will be important support roles, and the appropriate political appointees above can help identify and vet the right candidates.

Within IOS:

- *HHS Chief Information Security Officer:* Responsible for leading internal security practices at HHS and across the agencies. Deep understanding of modern information security and other modern technical approaches are necessary for this role.

Within other key staff divisions

- *ASPR Director of Incident Command and Control (ICC):* Leads the collection, analysis and dissemination of information to provide situational awareness, inform strategy, policy, plans and requirement recommendations for operational public health and medical preparedness and response.
- *ASPR Director of Emergency Management and Medical Operations (EMMO):* Responsible for supporting health care systems in developing resilience to 21st-century threats through leadership, public/private partnerships, and technical and medical support.
- *HRSA, Chief Information Officer*

Within CDC

- *Director, Center for Surveillance, Epidemiology and Laboratory Services*
- *Director, Division of Health Informatics and Surveillance, Center for Surveillance, Epidemiology and Laboratory Services*

Within CMS

- *Chief Operating Officer*

- *Deputy Administrator for Operations*
- *Director, Data and Systems Group, Center for Medicaid and CHIP Services*
- *United States Digital Services, Executive Director*

Within FDA

- *Chief Information Officer*
- *Chief Health Information Officer*

U.S. Department of Defense (DOD)

Below are the most significant leadership roles required to address DOD’s technology modernization challenges. Note that the political and budgetary environment changes the relative importance of these positions. For example, in a polarized environment when it is difficult to confirm presidentially appointed, Senate-confirmed (PAS) officials, focusing on deputy assistant secretary appointments, which do not require confirmation, might allow for more rapid progress against priorities.

Roles requiring tech-savvy leaders. Below is a list of politically appointed roles with responsibilities that extend beyond technology systems, but who “require an understanding of modern technology and the ability to hire, retain and effectively use technologies for policy, digital service and innovation.”⁴³ These roles include:

- *Deputy Secretary of Defense, PAS:* The second-in-command of DOD historically has served as both a second secretary and also a chief management officer overseeing internal matters.
- *Secretary, Department of the Army, PAS:* Highest ranking civilian official in the Army. Reports directly to the secretary of defense and serves as the “de facto” secretary of defense for the largest concentration of personnel in DOD.
- *Secretary, Department of the Navy, PAS:* Highest ranking civilian official in the Navy and Marine Corps. Reports directly to the secretary of defense and serves as the “de facto” secretary of defense for all things maritime. As the primary force projection capability, Navy modernization is inextricably linked to foreign policy, overseeing all of the Navy and the Marine Corps.
- *Service Secretary, Department of the Air Force, PAS:* Highest ranking civilian official in the Air Force and Space Force. Reports directly to the secretary of defense and serves as a “de facto” secretary of defense for all things in air and space. Air Force has been at the vanguard of digital modernization; sustaining momentum is essential.
- *Undersecretary of Defense for Policy (USD/P), PAS:* Directs policy, strategy development and planning, and often stands in for the secretary of defense or deputy secretary of defense on foreign policy matters. Key influence on digital modernization as the link between strategy and technology and through the assistant secretary of defense for strategy, plans and capabilities overseeing vital documents like the national defense strategy.
- *Undersecretary of Defense (Comptroller)/Chief Financial Officer, PAS:* Principal staff assistant and adviser to the secretary of defense and the deputy secretary of defense for budgetary and fiscal matters, including developing and executing on the Defense Department’s annual budget.

⁴³ Partnership for Public Service and Tech Talent Project, “Tech Talent for 21st Century Government,” April 16, 2020, 7. Retrieved from <https://bit.ly/32zaM8k>

Any reforms to budgeting or adjustment to “colors of money” depend on the comptroller as an ally.

- *Undersecretary of Defense for Intelligence (USD/I), PAS:* Oversees DOD’s intelligence and security components, including massive intelligence agencies (e.g., National Security Agency, Defense Intelligence Agency, National Reconnaissance Office, National Geospatial-Intelligence Agency, etc.) that are significant consumers and developers of digital tech and talent.
- *Director of Cost Assessment and Program Evaluation (CAPE), PAS:* Provides independent analytic advice to the secretary of defense on all aspects of DOD’s program, including alternative weapon systems and force structures, the development and evaluation of defense program alternatives, and the cost-effectiveness of defense systems. CAPE can play a major role in “de-risking” political divisions about all emerging technologies and usually has a seat at the table for all budget and management reform discussions.
- *Undersecretary, Department of the Army, PAS:* Second highest ranking civilian official in the Army.
- *Undersecretary, Department of the Navy, PAS:* Second highest ranking civilian official in the Navy.
- *Service Undersecretary, Department of the Air Force, PAS:* Second highest ranking civilian official in the Air Force, reports to the secretary of the Air Force.

Roles requiring modern technologists. Below is a list of critical, politically appointed leadership that should be highly trained and experienced modern technologists. They should have experience and a proven track record using a consistently evolving, iterative approach to technology to deliver effective, continually improving services rather than simply completing projects, and using the best-in-class technologies that support this approach. Such roles include:

- *Chief Management Officer, PAS:* Recently created No. 3 role to manage DOD internal operations, focusing on finding business process efficiencies. This new role’s authority and influence can be wielded strategically to provide the key managerial support required to lead a digital and innovation transformation.
- *Undersecretary of Defense for Acquisition and Sustainment (USD(A&S)), PAS:* Supervises all DOD acquisition policy and the largest acquisitions, as well as oversees all logistics, maintenance, sustainment and contract administration. This position has become the focal point of key software reforms and is DOD’s primary liaison to industry, including Silicon Valley.
- *Undersecretary of Defense for Personnel and Readiness (USD(P&R)), PAS:* Key role setting all policy for human capital, both civilian and military, as well as overseeing all readiness assessment and preparations; needs to be a strong candidate empowered by the secretary to achieve meaningful improvements for tech talent.
- *Undersecretary of Defense for Research and Engineering (USD(R&E)), PAS:* Serves as DOD’s chief technology officer, developing and overseeing DOD technology strategy and massive R&D enterprise for a portfolio that covers AI, autonomy, hypersonics, space, biotech, digital engineering, etc. This role can be the key ally or the barrier to progress in the DOD innovation ecosystem, as the Defense Innovation Unit, Defense Innovation Board, DARPA, Strategic Capabilities Office, and National Security Innovation Network all fall under R&E.

- *Director of Operational Test and Evaluation, PA*: Oversees operational and live fire test and evaluation of DOD weapons systems, including legacy software testing, making this position the linchpin to increasing the velocity of acquisition and modernization.
- *Chief Information Officer, PAS*: Responsible for the information enterprise, including cybersecurity, communications (e.g., 5G), and information systems and networks, including AI development, infrastructure and policy. Until recently, CIOs have come from the government or traditional defense industry. A visionary and courageous CIO with modern technical expertise is a make-or-break decision for digital modernization.
- *Director of the Defense Advanced Research Project Agency (DARPA), PA*: A non-confirmed political appointment that has historically been an apolitical technical pick, this leader has outsized influence on the long-term technical direction of the R&D enterprise. This director approves new DARPA programs and reviews ongoing investments, while also setting DARPA's priorities and ensuring a balanced investment portfolio.
- *Service Acquisition Executives, Departments of the Army, Navy and Air Force, PAS*: Each of these three positions supervises acquisition policy overseeing all logistics, maintenance, sustainment and contract administration in their respective services. As budgets and authorities have shifted from the Office of the Secretary of Defense (OSD) to the services, these roles have become the key players in setting technical vision, strategic direction and resource allocation for upgrading current systems and designing new ones. Transformational leaders here make historic impact; conventional leaders slow or halt progress.

Critical nonpolitical roles requiring technical expertise. Below is a list of nonpolitical roles with portfolios that are critical to effective, scalable programs and therefore require technical expertise. Such roles include:

- *Chief Data Officer, Office of the Secretary of Defense, Schedule A*: Strengthens data governance, implements data strategy, and accelerates the transition to a data-driven culture.
- *Director, Defense Digital Service, Schedule A*
- *Director, Defense Innovation Unit, R&E, Schedule A*
- *Executive Director, Defense Innovation Board, Schedule A or GS*
- *Director of the Joint Artificial Intelligence Center (JAIC), military*: Reports to the chief information officer and is responsible for developing and adopting AI for the benefit of America's national security.
- *Chief Technology Officer, Joint Artificial Intelligence Center (JAIC), Schedule A*
- *Director, Strategic Capabilities Office, Schedule A*

U.S. Department of the Treasury (Treasury)

Below are the most significant leadership roles required to address Treasury's technology modernization challenges.

Roles requiring tech-savvy leaders. Below is a list of politically appointed roles with responsibilities that extend beyond technology systems, but who "require an understanding of modern technology and the ability to hire, retain and effectively use technologies for policy, digital service and innovation."⁴⁴ These roles include:

⁴⁴ Partnership for Public Service and Tech Talent Project, "Tech Talent for 21st Century Government," April 16, 2020, 7. Retrieved from <https://bit.ly/32zaM8k>

- *Assistant Secretary for Management, PA*: One of the principal policy advisors to the secretary and deputy secretary on the development and execution of the budget for Treasury and the internal management of the Department and its bureaus.
 - *Departmental Budget Director, Officer of the Assistant Secretary for Management, CA*
 - *Chief Human Capital Officer, Office of the Assistant Secretary for Management, CA*: Responsible for department-wide policy and oversight in all areas of human capital management.
- *Assistant Secretary for Tax Policy, Department of the Treasury, PAS*: Responsible for developing and implementing tax policies and programs; reviewing regulations and rulings to administer the Internal Revenue Code, negotiating tax treaties, providing economic and legal policy analysis for domestic and international tax policy decisions, and providing estimates for the President's budget, fiscal policy decisions, and cash management decisions.
- *Chief of Staff, Office of the Secretary of the Treasury, NA*: Responsible for managing the day-to-day operations of the department generally and the secretary's office specifically, coordinating policy development and review within the department and with other agencies and the White House and assisting in setting the overall strategic direction of the department. The chief of staff is also responsible for advising the secretary on a wide variety of policy and management issues as well as on economic and market conditions.
- *Deputy Secretary, PAS*: No. 2 at Treasury and plays a primary role in the formulation and execution of Treasury policies and programs in all aspects of the department's activities.
- *General Counsel, PAS*: Serves as senior legal and policy adviser to the secretary, the deputy secretary and other senior departmental officials.
- *Internal Revenue Service*
 - *General Counsel, Internal Revenue Service, PAS*: Serves as the chief legal advisor to the IRS commissioner on all matters pertaining to the interpretation, administration and enforcement of the Internal Revenue Code, as well as all other legal matters.
 - *National Taxpayer Advocate, Internal Revenue Service, Appointed by the Secretary of the Treasury*: Responsible for helping taxpayers in resolving problems with the Internal Revenue Service via the office's approximately 1,400 case advocates. Also identifies systemic problems within the IRS and can propose changes in administrative practices and identify potential legislative changes to address these problems.

Roles requiring modern technologists. Below is a list of critical, politically appointed leadership that should be highly trained and experienced modern technologists. They should have experience and a proven track record using a consistently evolving, iterative approach to technology to deliver effective, continually improving services rather than simply completing projects, and using the best-in-class technologies that support this approach. Such roles include:

Office of the Assistant Secretary for Management

- *Chief Data Officer, CA*
- *Chief Information Officer, CA*: Responsible for enabling Treasury to provide information technology services to citizens, private industry and government that are efficient, effective, secure and reliable.
- *Chief Technology Officer, CA*
- *Senior Procurement Executive, CA*: Leads the Office of the Procurement Executive. Responsible for the Department's acquisition system, including: policy development; establishment of acquisition goals; evaluation and monitoring of bureau organizations; strategic sourcing, governance of federal-wide and Treasury procurement systems; career management; and continual improvement of the acquisition environment.
- *Senior Agency Official for Records Management, CA*: Acts on behalf of the secretary to ensure the agency efficiently and appropriately complies with all applicable records management

statutes, regulations, National Archives and Records Administration (NARA) policy and Office of Management and Budget (OMB) policy.

Bureau of the Fiscal Service

- *Fiscal Assistant Secretary, Bureau of Fiscal Service, CA*: Responsible for developing policy and overseeing the operations of the financial infrastructure of the federal government in the areas of payments, collections, debt financing, accounting, delinquent debt collection and shared services.
- *Commissioner, Bureau of the Fiscal Service, CA*: Provides leadership, policy direction and guidance for Fiscal Service's efforts to transform financial management and the delivery of shared services in the federal government and oversees bureau operations.
- *Chief Information Officer, Bureau of Fiscal Service, CA*

Internal Revenue Service

- *Chief Information Officer, Internal Revenue Service, CA*
- *Deputy Commissioner for Operations Support, Internal Revenue Service, CA*: Provides executive leadership for customer service, processing, tax law enforcement and financial management operations, and is responsible for overseeing IRS operations and for providing executive leadership on policies, programs and activities. Assists and acts on behalf of the IRS commissioner in directing, coordinating and controlling the policies, programs and the activities of the IRS; in establishing tax administration policy, and developing strategic issues and objectives for IRS strategic management.
- *Deputy Commissioner for Services and Enforcement, Internal Revenue Service, CA*: Serves as the IRS commissioner's key assistant acting on behalf of the commissioner in establishing and enforcing tax administration policy and upholding IRS' mission to provide America's taxpayers top quality service by helping them understand and meet their tax responsibilities.

Roles in other key agencies

- *Deputy Assistant Secretary, Office of Intelligence and Analysis, CA*: Supports the formulation of Treasury policy and the execution of departmental authorities through all-source analysis of the financial underpinnings of national security threats, our adversaries' financial vulnerabilities, the impact of U.S.-targeted financial measures, and threats to international financial stability.

U.S. Department of Veterans Affairs (VA)

Tech talent is central to the IT advancement of VA. The department has identified the most critical roles within the agency requiring experts with a deep understanding of modern technology. These include political appointments and career positions.

Roles requiring tech-savvy leaders. Below are politically appointed roles with responsibilities that extend beyond technology systems, but which “require an understanding of modern technology and the ability to hire, retain and effectively use technologies for policy, digital service and innovation.”⁴⁵ These roles include:

- *Deputy Secretary, PAS*
- *Assistant Secretary, Office of Enterprise Integration, PAS*

Roles requiring modern technologists. Below is a list of critical, politically appointed leadership that should be highly trained and experienced modern technologists. They should have experience and a

⁴⁵ Partnership for Public Service and Tech Talent Project, “Tech Talent for 21st Century Government,” April 16, 2020, 7. Retrieved from <https://bit.ly/32zaM8k>

proven track record using a consistently evolving, iterative approach to technology to deliver effective, continually improving services rather than simply completing projects, and using the best-in-class technologies that support this approach. Such roles include:

- *Assistant Secretary for Information and Technology and Chief Information Officer, PAS*

Critical nonpolitical roles requiring technical expertise. Below is a list of nonpolitical roles with portfolios that are critical to effective, scalable programs and therefore require technical expertise. Such roles include:

Office of Information Technology

- *Chief Technology Officer:* Sets technical strategy for VA's product lines, and oversees work to improve veterans' online experiences with the VA. VA's Digital Service team works within OCTO.
- *Executive Director, Demand Management, (Head of API/Lighthouse program):* Directs VA's Project Special Forces assisting projects with agile implementation, OIT policy, assisting projects that are experiencing challenges with delivery or performance and enabling developers to build mobile and web apps utilizing standards-based software development kits and application programming interfaces designed to serve VA's veterans.
- *Principal Deputy Assistant Secretary and Deputy Chief Information Officer,*
- *Chief of Staff*
- *Executive Director, IT Program Integration*
- *Deputy Chief Information Officer – Office of Quality, Performance and Risk*
- *Deputy Chief Information Officer – Account Management Office*
- *Deputy Chief Information Officer – Account Manager for Health*
- *Deputy Chief Information Officer – Account Manager for Benefits*
- *Deputy Chief Information Officer – Account Manager for Corporate and Enterprise*
- *Executive Director, Office of Technical Integration*
- *Senior Advisor, Electronic Health Records Modernization Integration*
- *Associate Deputy Assistant Secretary – Enterprise Program Management Office*
- *Associate Deputy Assistant Secretary – Information Technology Operations and Services*
- *Deputy Chief Information Officer – IT Resource Management*
- *Deputy Chief Information Officer and Chief Information Security Officer – Office of Information Security*
- *Executive Director, Information Security Policy and Strategy*
- *Deputy Chief Information Officer – Strategic Sourcing*
- *Executive Director, Acquisition and Category Management*

Roles in other key offices

- *Executive Director, VA Office of Electronic Health Record Modernization*
- *VA Chief Innovation Officer and Principal Lead, VA Innovation Center*
- *Executive Director, Veteran Experience Measurement and Analytics, Veterans Experience Office*
- *Executive Director of VBA's Compensation Services, career*
- *Chief Human Capital Officer*
- *Director, Technology Acquisition Center*
- *Assistant Secretary for Office of Procurement, Acquisition and Logistics*
- *Chief Veterans Experience Officer*
- *Executive Director, Office of Research Oversight (10R)*
- *Director, System Redesign and Improvement (10E2F)*
- *Assistant Deputy USH for Health Informatics (10A7)*
- *Chief Officer, Connected Care (10A7D)*
- *All facility Chief Information Officers*

U.S. Department of Agriculture (USDA)

Below is a list of six critical leadership roles that need technologically savvy individuals or technologists in the first 200 days in order to accomplish the goals outlined in this memo:

Roles requiring tech-savvy leaders. Below is one politically appointed role with responsibilities that extend beyond technology systems, but which “require an understanding of modern technology and the ability to hire, retain and effectively use technologies for policy, digital service and innovation.”⁴⁶

- *Deputy Secretary, PAS:* Co-lead for current IT Modernization Cross-Agency Priority (CAP) goal. Functions as chief operating officer of the nearly 100,000-employee agency, managing day-to-day operations and interacting with Congress, industry, food safety advocates and other stakeholders; may travel domestically and abroad to advance USDA’s goal.

Roles requiring modern technologists. Below is a list of critical, politically appointed leadership that should be highly trained and experienced modern technologists. They should have experience and a proven track record using a consistently evolving, iterative approach to technology to deliver effective, continually improving services rather than simply completing projects, and using the best-in-class technologies that support this approach. Such roles include:

- *Chief Information Officer, CA:* Responsible for all aspects of developing, delivering and defending USDA information technologies. The office vision is to provide a high-performing IT workforce and system delivering reliable, timely and value-added service.
- *CTO of Programs, Food and Nutrition Service (new recommended position):* Would lead research and consulting regarding technologies that support EBT payments, online ordering and other transactions related to nutrition assistance.

Critical nonpolitical roles requiring technical expertise. Below is a list of nonpolitical roles with portfolios that are critical to effective, scalable programs and therefore require technical expertise. Such roles include:

- *Chief Acquisition Officer*
- *Chief Data Officer*
- *Chief Human Capital Officer*

U.S. Department of Education (ED)

Roles requiring tech-savvy leaders. Below is a list of politically appointed roles with responsibilities that extend beyond technology systems, but which “require an understanding of modern technology and the ability to hire, retain and effectively use technologies for policy, digital service and innovation.”⁴⁷

These roles include:

- *Deputy Secretary, PAS:* Develops and implements policies and programs relating to elementary and secondary education; conducts intergovernmental relations; addresses interests from safe and drug-free schools to special education and rehabilitative services; serves as chief operating officer.

⁴⁶ Partnership for Public Service and Tech Talent Project, “Tech Talent for 21st Century Government,” April 16, 2020, 7. Retrieved from <https://bit.ly/32zaM8k>

⁴⁷ Partnership for Public Service and Tech Talent Project, “Tech Talent for 21st Century Government,” April 16, 2020, 7. Retrieved from <https://bit.ly/32zaM8k>

- *Undersecretary, PAS*: Oversees the department’s postsecondary and vocational education functions and plans for the implementation of strategic goals in these areas.
- *Chief Strategy and Transformation Officer, Office of Federal Student Aid (FSA), PA*
- *Assistant Secretary, Office of Elementary and Secondary Education, PAS*: Oversees matters related to pre-K, elementary and secondary education; manages a budget of about \$16 billion, which covers 85 unique grants and programs, representing a grant portfolio of approximately \$22.5 billion.
- *Assistant Secretary, Office of Planning, Evaluation and Policy Development, PAS*: Manages the department’s major planning, evaluation, policy development and budget activities, and coordinates these activities with the department’s principal offices and outside organizations, such as Congress, OMB and state education agencies.
- *Assistant Secretary, Office of Finance and Operations, PAS*: Responsible for the overall direction and administration of the ED’s administrative management functions. Develops and implements administrative management priorities, policies and procedures, and provides viewpoints and policies in the development of overall ED policies and plans.

Roles requiring modern technologists. Below is a list of critical, politically appointed leadership that should be highly trained and experienced modern technologists. They should have experience and a proven track record using a consistently evolving, iterative approach to technology to deliver effective, continually improving services rather than simply completing projects, and using the best-in-class technologies that support this approach. Such roles include:

- *Chief Information Officer, Department of Education, CA*: Responsible for managing and improving the planning and control of information technology investments and leading change to improve the efficiency and effectiveness of agency operations.
- *Chief Privacy Officer, Department of Education, CA*: Provides leadership, oversight and coordination to ensure departmental compliance with government initiatives regarding the acquisition, release and maintenance of information.
- *Chief Operating Officer, Office of Federal Student Aid, PA*: Responsible for operations supporting the management of the student financial assistance programs authorized under Title IV of the Higher Education Act of 1965. These programs provide grant, work-study and loan funds to students attending college or career school.
- *Director, Office of Educational Technology, PA*: Responsible for developing national education technology policy and establishing the vision for how technology can transform teaching and learning and how to make everywhere, all-the-time learning possible for early learners through K-12, higher education, and adult education.
- *Deputy Director, Office of Educational Technology, PA*

Critical nonpolitical roles requiring technical expertise. Below is a list of nonpolitical roles with portfolios that are critical to effective, scalable programs and therefore require technical expertise. Such roles include:

- *Deputy General Counsel with IP expertise, Office of General Counsel*

U.S. Department of Homeland Security (DHS)

Roles requiring tech-savvy leaders. Below is a list of politically appointed roles with responsibilities that extend beyond technology systems, but which “require an understanding of modern technology and

the ability to hire, retain and effectively use technologies for policy, digital service and innovation.”⁴⁸
These roles include:

- *Deputy Secretary, Department of Homeland Security, PAS*: Responsible to act for the secretary if the secretary delegates such powers or is unable to perform the functions and duties of the office.
- *Director, U.S. Citizenship and Immigration Services, PAS*: Oversees more than 18,000 employees processing immigration applications around the country and abroad.
- *Deputy Administrator, Federal Emergency Management Agency, PAS*: Assists the administrator in leading FEMA in its mission to support the American public and first responders, and to sustain and improve the government’s capability to prepare for, protect against, respond to, recover from and mitigate all hazards, according to the Partnership for Public Service.
- *Undersecretary for Management, Management Directorate, PAS*: Responsible for ensuring that DHS’ many employees have well-defined responsibilities and that managers and their employees have efficient means of communicating with one another, with other governmental and nongovernmental bodies, and with the public they serve.
- *Chief Privacy Officer, Office of Privacy, NA*: Primary responsibility for privacy policy at the DHS.

Roles requiring modern technologists. Below is a list of critical, politically appointed leadership that should be highly trained and have significant modern technical expertise. They should have experience and a proven track record using a consistently evolving, iterative approach to technology to deliver effective, continually improving services rather than simply completing projects, and using best-in-class technologies that support this approach. Such roles include:

- *Chief Information Officer, Management Directorate, PA*: Implements the programs necessary to align DHS’ Information Technology (IT) personnel, resources and assets. This includes all systems and infrastructure that support department-wide missions and activities. Provides DHS and its components with the IT services required to lead a unified effort to prevent and deter terrorist attacks.
- *Director, Cybersecurity and Infrastructure Security Agency, PAS*: Runs an agency that oversees and coordinates federal government civilian cybersecurity efforts, including operating a 24/7 cybersecurity incident command center.
- *Assistant Director for Cybersecurity Division, Cybersecurity and Infrastructure Security Agency, PA*: Directly responsible for cybersecurity of the civilian federal government, overseeing cybersecurity monitoring and operations as well as the development and adoption of major cybersecurity policies, products and services.
- *Chief Technology Officer, National Protection and Programs Directorate, CA*: Responsible for the conception, development and implementation of policies, procedures and standards that create and sustain a strong and flexible IT enterprise. This encompasses such areas as enterprise architecture, technical infrastructure, cybersecurity, application development and integration.
- *Executive Director of Digital Services, Management Directorate, TA*: Manages roughly 35 engineers, product managers, designers, and policy and operations experts working on core service delivery programs across the department.
- *Major Component CIOs, e.g. FEMA, USCIS, TSA, CBP, CA*

Political appointments (proposed) requiring significant modern technology expertise:

- *Senior Counselor to the Secretary for Technology & Implementation*
- *Assistant Secretary, Technology Policy and Implementation*

⁴⁸ Partnership for Public Service and Tech Talent Project, “Tech Talent for 21st Century Government,” April 16, 2020, 7. Retrieved from <https://bit.ly/32zaM8k>

- *Counselors for Technology & Implementation in major components: e.g. USCIS, CBP, TSA, FEMA*

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