Testimony

of

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Mr. Chairman and Members of the Committee, I appreciate the opportunity to testify today. I am a Fellow of the National Academy of Public Administration (the Academy) and have served as its President and Chief Executive Officer since January 2017. Established in 1967 and chartered by Congress in 1984, the Academy is an independent, non-profit, and non-partisan organization dedicated to helping government leaders address today's most critical and complex challenges. The Academy has a strong organizational assessment capacity; a thorough grasp of cutting-edge needs and solutions across federal, state, and local governments; and unmatched independence, credibility, and expertise. Our organization consists of over 900 Fellows— including former cabinet officers, Members of Congress, governors, mayors, and state legislators, as well as distinguished scholars, business executives, and public administrators. The Academy has a proven record of improving the quality, performance, and accountability of government at all levels, and expertise in the intergovernmental system is one of its most enduring characteristics.

I am pleased to offer the Academy's perspective on the need for a new federal approach to investment in information technology (IT). Our Congressional charter precludes the organization itself from taking an official position on legislation, and so my testimony today will reflect the Academy's history on this topic, its expectations for the future, and my own general recommendations.

COVID-19 EXPOSES NEED FOR FEDERAL INVESTMENTS IN TECHNOLOGY

As the title of this hearing plainly states, the coronavirus pandemic has laid bare the challenging state of government IT systems at every level. The lead stories highlighted the surprise that state unemployment insurance systems, written in COBOL, could not handle the surge in unemployment compensation claims, and that the IRS' check issuing system, also written in COBOL, struggled to meet the demands placed on it by the CARES Act. As many of you know, there are more federal IT employees over the age of 60 than under the age of 30. When major government systems are written in a programming language that was new in 1960, those who learned that language when they entered the workforce are exactly those who can still tend those creaky systems decades later.

In 2016, the Government Accountability Office identified the 10 oldest IT systems in the federal government. At that time, they included IRS' Individual Master File, the system that receives taxpayer data and dispenses refunds; the Department of Veterans Affairs' Benefits Delivery Network that tracks benefit claims filed by veterans; and the Transportation Department's Hazardous Materials Information System, used to track incidents involving hazardous materials. IT modernization has been on GAO's High Risk List for decades. Critical IT-related topics on the most recent list include the 2020 Census, DOD's Business Systems Modernization, and the nation's cybersecurity.

While the average citizen may be surprised to learn about the risks inherent in the government systems on which they depend, it does not surprise those in government who have been keeping these outdated systems operational through extraordinary ingenuity, ceaseless maintenance hours, and the electronic equivalent of "baling wire and duct tape." But that begs another

question—if government officials know how close these critical systems are to failure, why haven't they fixed them before now?

FUNDING GOVERNMENT INVESTMENT IN INFORMATION TECHNOLOGY

As our government IT systems rely on programming language and hardware developed in the mid-twentieth century, our federal budgeting and acquisition systems are equally archaic. Modern IT systems in most non-governmental organizations live in the cloud and are managed and sold as a service. Software is developed using agile methods that provide frequent incremental updates while always improving functionality. Software updates and cybersecurity protections are centrally applied and pushed to individual workstations. In the government, we still treat IT as a physical piece of hardware—a server or a mainframe—that we buy, maintain, and depreciate. Our linear IT acquisition processes reflect that appropriation focus on hardware. We rely on waterfall software development practices that deliver the perfect software program on a disk drive after a long sequential development process, only to find that the system is no longer useful because the world, and specific needs, changed in those intervening years—that software is "obsolete upon receipt". Institutionally, we approach IT as an overhead cost, always seeking to minimize it, instead of seeing it as fundamental tool in the twenty first century to increased accountability, better outcomes, and improved citizen satisfaction.

In the simplest example, it is far easier to get budget authority to maintain those old COBOL systems than it is to procure an agile software development and sustainment contract to deliver modern functionality, improved cybersecurity, and better citizen service. No wonder we are frustrated by the number of major IT acquisitions, costing billions of dollars collectively, that are started over and over, often modified, and seldom completed. The commercial IT world moves so much faster than our government procurement and management processes that it is difficult to keep up.

The Report of the Advisory Panel on Streamlining and Codifying Acquisition Regulations, commonly known as the "Section 809 Panel", released Volume 3 of 3 of its recommendations in January 2019. Recommendation 43 specifically addresses the procurement of consumption-based services such as cloud computing and gets directly to the core of the challenge:

> *The FAR unrealistically categorizes all purchases as either supplies or services. This distinction, established decades ago, is too rigid to effectively procure modern technology solutions with evolving delivery models. Solutions include hardware, software, and labor/services that together provide a seamless capability. Acquisition professionals struggle to determine whether certain solutions should be procured as a supply or a service, often leading to contracts that are neither optimized nor appropriate for the solution being acquired.*

In a recent attempt to address this situation, Congress authorized the Technology Modernization Fund (TMF) in the Modernizing Government Technology Act of 2017. The TMF received $100 million in FY 2018 to fund modernization projects, and another $25 million in FY 2019. The President's FY 2020 Budget requested an additional $150 million, but the TMF received only $25 million. By the end of 2019, the TMF had awarded nine projects worth a total of more than

$87.5 million. Those projects included modernizing the code base and accelerating the migration of five of Housing and Urban Development's most critical business systems from an on-premise mainframe database to the cloud ($13.85 million); enterprise cloud e-mail for the Department of Energy ($5.98 million), and a better and more complete Citizen Experience for America's farmers through Farmers.gov ($10 million). Every one of these projects will resolve a critical government vulnerability, and agencies who receive TMF funds are required to pay them back within five years. And yet, a 2019 GAO report found that the TMF is not collecting enough administrative fees to make it self-sustaining, and Members of Congress remain skeptical of a revolving fund approach to IT investment.

GROWING CHALLENGES IN THE INFORMATION TECHNOLOGY ENVIRONMENT

The world is not waiting on us to improve our funding and acquisition models. The coronavirus pandemic is an immediate challenge that has clearly shown that IT issues—including data privacy and security, artificial intelligence, integration of systems across multiple levels of government, remote work, and rapid flexible response—must be addressed as critical capabilities underpinning an effective national response to crisis.

The Academy anticipated these challenges when we released last November our list of twelve Grand Challenges in Public Administration. At the time, we described a compelling urgency for this agenda:

> *As the world moves quickly from the industrial age into the information age, new challenges have arisen and demands on government have increased. But the public sector has often been in a reactive mode—struggling to adapt to a rapidly evolving international, economic, social, technological, and cultural environment. Over the next decade, all sectors of society must work together to address the critical issues of protecting and advancing democracy, strengthening social and economic development, ensuring environmental sustainability, and managing technological changes. And governments at all levels must improve their operations so that they can tackle problems in new ways and earn the public's trust.*

Our list of Grand Challenges includes "Ensure Data Security and Privacy Rights of Individuals" and "Make Government AI Ready." We also established the Agile Government Center to assist government agencies with applying to their business practices the agile development processes that have made software development so rapid and responsive. These initiatives are described in more detail below.

Ensure Data Security and Privacy Rights of Individuals

In the digital age, the American people knowingly and unknowingly produce huge amounts of data on a daily basis, and governments at all levels increasingly rely on digital systems to manage their internal operations and deliver public services. Through widespread e-commerce, ubiquitous GPS maps, and regular social media interactions, the public transmits their sensitive financial, health, and other personal information through online platforms. Americans need

assurance that all sectors will keep their personal data private and safeguarded from abuse, but our data security infrastructure in both the public and the private sectors is vulnerable to exploitations, hacks, and breaches. With malevolent foreign intelligence entities, the hacking of public agencies, the infiltration of hostile agents in private organizations, and other dangers, the threat of data insecurity and exposure to breaches is real and immediate for governments, companies, and individuals.

Non-state cyber actors and nation-states have developed sophisticated mechanisms for exploiting the vulnerabilities of government systems. Not only do they steal information and money; they increasingly disrupt, destroy, or threaten the delivery of essential public services. For example, hackers have been targeting local governments for ransomware attacks, with important systems and data being blocked until a ransom payment is made. In the summer of 2019, a host of local governments—including Baltimore, MD; Albany, NY; Laredo, TX; and 22 small Texas towns— had their operations disrupted by such attacks. The City of Baltimore experienced a hack that prevented the locality from issuing health alerts and delayed water bill delivery. Similarly, the City of Atlanta's systems for police reports and employment applications were down for days due to a March 2018 cyberattack. State and county governments, school districts, hospitals, and court systems have also become common targets of ransomware attacks.

Over the next decade, technology will continue to evolve, and data security programs in both the public and the private sectors will face new vulnerabilities. Public agencies and administrators have a critical role in ensuring data security and privacy by:

- o Establishing and enforcing the regulations regarding technology surveillance, non-consensual data collection, and commercial selling of individual data to private or public entities;

- o Ensuring that the regulatory framework is informed by the careful consideration of the ethical aspects of data collection and dissemination;

- o Making regulatory adjustments based on new technologies and other lessons learned;

- o Ensuring that public agencies themselves only collect and maintain the minimal amount of data necessary to achieve their missions; and

- o Developing a workforce with the core competencies to protect data systems, use data to strengthen operations, and improve services while safeguarding privacy and preventing breaches.

You can read more about "Ensure Data Security and Privacy Rights of Individuals" at https://www.napawash.org/gc/challenge/ensure-data-security-and-individual-privacy

Make Government AI Ready

Artificial Intelligence (AI) allows computerized systems to perform tasks traditionally requiring human intelligence: analytics, decision support, visual perception, and foreign language translation. AI and Robotics Process Automation (RPA) have the potential to spur economic growth, enhance national security, and improve the quality of life. In a world of "Big Data" and

"Thick Data," AI tools can process huge amounts of data in seconds, automating tasks that would take days or longer for human beings to perform.

The public sector in the United States is at the very beginning of a long-term journey to develop and harness these tools. Chatbots are being used in citizen engagement systems; AI technology is augmenting decision-making in the areas of cyber security monitoring, public policy modeling, database anomalies, and waste and abuse identification. AI system utilization can:

- o Improve speed, efficiency, and effectiveness;

- o Save scarce public funds;

- o Reach quicker conclusions than humans;

- o Transform public sector work life;

- o Allow more time to be spent on core agency missions; and

- o Facilitate the development and utilization of more personalized services to agency stakeholders.

At the same time, AI raises concerns about bias, security, transparency, and budget and procurement processes. With biased data, AI systems will produce biased results. Cybersecurity will be more important than ever to protect against malicious actors that, by taking over AI systems, could do significant damage very quickly. Without transparency, the public may be confused about how key decisions were made. And governments may need to revamp their budgeting and procurement processes to be able to quickly acquire and deploy advanced technologies.

To continue to develop AI systems, the federal government, in particular, must play a leading role by facilitating AI research and development and protecting the nation's AI technology base from adversaries and competitors. Accordingly, governments at all levels must work collaboratively to promote public trust in the development and deployment of AI tools; train an AI-ready workforce for both the public and the private sectors; and address the ethical concerns about AI's potential downsides in the areas of discrimination, civil liberties, and privacy.

Public agencies and administrators will be key in helping government become AI ready by developing new policies, systems, and processes to ensure that these systems can be harnessed to inform decision-making, provide insight on the public's needs and perspectives, increase public communications, and improve service delivery. Because governments will have far fewer employees performing data entry or other repetitive tasks, they will need to retrain employees and reshape their workforce to ensure it has the core competencies required to oversee, manage, and develop AI systems. And schools of public administration and public affairs will need to be more intentional about incorporating AI, along with related technical and data skills, into their core curriculum.

You can read more about Making Government AI Ready at
https://www.napawash.org/gc/challenge/make-government-ai-ready

Agile Government Center

The Agile Government Center (AGC) serves as the hub of a network that brings together governments, non-profits, foundations, academic institutions and private sector partners to assist in developing and disseminating agile government principles and case studies of agile policies and programs. This network is a source of assistance to those who want to adopt and implement agile to provide public goods and services that fully meet customer needs and build public trust.

The AGC is working with government organizations around the world to finalize and disseminate a set of Agile Principles for Government that will help agencies operate more flexibly and responsively. The current set of principles is provided below:

- o **Mission.** Mission should be extremely clear, and the organizational unit/team laser-focused on achieving it.

- o **Metrics for Success.** Metrics will be widely agreed upon, outcome-focused, evidence-based, and easily tracked.

- o **Customer-Driven Behavior.** Customers should be part of the teams that design and implement agile programs. There will be continuous iteration and improvement based on customer feedback.

- o **Speed.** Appropriate speed should be encouraged in order to produce quality outcomes and regulatory consistency and a clear focus on managing risks.

- o **Empowered, Highly-Skilled, Cross-Functional Teams and Networks.** Team members should engage in continual face-to-face communication, replacing siloed bureaucratic systems and sectoral isolation. Networks should be invoked as a default for action.

- o **Innovation.** Innovation should be rewarded, and rules and regulations that hinder problem solving should be examined and changed as necessary.

- o **Persistence.**   Persistence requires continuous experimentation, evaluation, and improvement in order to learn from both success and failure.

- o **Evidence informed solutions.** Solid evidence should form the foundation for designing and implementing policy and program options.

- o **Organizational leaders.** Leaders should eliminate roadblocks, aggregate and assume risks, empower teams to make decisions and hold them accountable, and reward good outcomes.

- o **Diversity of thought.** Different viewpoints should be engaged in both identifying problems and crafting their solutions.

In addition to these ten principles, the AGC is developing and sharing case studies of agencies that have implemented agile practices. The case studies indicate that a transformation to agile business practices often begins with a transition to agile software development. Agencies then use these modern software practices, that have service to the customer as a central foundation, to

drive changes in their own business practices. As they leverage that customer-centric approach to change their business processes, they find that modern data sharing and security practices, AI and robotic process engineering, and interagency collaboration are essential to their success.

The Academy has also recently been commissioned by the Samuel Freeman Charitable Trust and the Project Management Institute to produce a white paper on how to increase the agility of the federal government. This work began in June 2020 and will conclude in December 2020. It focuses on the following issues:

- How would an agile federal government differ from current management practices?

- What are the issues and impediments to an agile federal government?

- Under what circumstances is it most appropriate for the federal government to become more agile? Are there circumstances when it would be inappropriate for the federal government to become more agile? If so, when?

- How should an agile federal government be promoted by central management agencies such as the Office of Management and Budget, the Office of Personnel Management, and the General Services Administration?

- How should the President's Management Agenda be used to promote an agile federal government?

- What specific implementation actions should federal departments and agencies undertake to make their organizations more agile?

The white paper will be both an agenda-setting document and a practical guide for policymakers. It will address these issues and (1) identify the issues and challenges, (2) develop innovative solutions and recommendations, (3) lay the groundwork for any needed legislative and administrative changes. The result will provide input to the Administration in 2021 as it develops the President's Management Agenda (likely to be released in 2022).

You can read more about the Agile Government Center at https://www.napawash.org/grandchallenges/challenge/agile-government-center

OPPORTUNITIES FOR CHANGE

It is a truism that we should not waste the crisis induced by the coronavirus pandemic. Congress has already provided trillions of dollars to address urgent needs across the nation. Some of those funds went to government agencies to address immediate needs associated with support to telework for the federal workforce and to modernize systems and processes necessary to providing essential services. Nonetheless, future legislation could implement institutional and process reforms that could shape a different future for government services.

Shared Services

The Academy has partnered with the Shared Services Leadership Coalition (SSLC) and the Senior Executives Association (SEA) for the past couple of years to host a monthly forum that combines agency leaders across the federal government charged with implementing shared services within their agencies with industry experts to facilitate implementation. According to SSLC:

> *"Shared services" is a business model for delivery of common back office administrative services, e.g., human resources (HR), financial management (FM), purchasing, etc., and common mission-support services, e.g., geospatial services, in which customer organizations receive services from experienced third party providers with high capacity platforms who can serve multiple customers more cost effectively than individual customers can serve themselves.*

Over 50 government executives representing over 20 agencies are participating, and the agency leaders who have presented their challenges as cases studies have all received high value through practical feedback and are experiencing encouraging early results. Key topics addressed include how to use digital Human Resources (HR) solutions and how to get input from customers within the shared services context. We believe the Forum represents a breakthrough in effective problem-solving that can become a model for other modernization efforts.

The Office of Management and Budget (OMB) is in the process of identifying Quality Service Management Offices (QSMOs) in support of the Sharing Quality Services Cross Agency Performance (CAP) goal. OMB has formally designated three QSMOs, as of July 1, 2020:

- o Department of Treasury—Core Financial Services
- o General Services Agency—HR Transaction Services
- o Department of Homeland Security—Cybersecurity Services
- o Department of Health and Human Services—Grants Management (preliminary designation)

Shared services across the federal government or within a department offer a tremendous opportunity to simplify, consolidate, and modernize IT systems and structures in anticipation of reduced operating costs and improved services. However, while the expectation is that return on investment will be positive, there are initial investment costs that agencies often struggle to fund, along with perpetual operating costs for the servicing organization that do not fit neatly into government budget structures.

Working Capital Funds

Establishing functional working capital funds is an essential step in enabling effective shared services operations at the federal level. Agencies pursuing shared services currently struggle to adapt a myriad of financing options, including fee-for-service, franchise funds, in-agency discretionary funding, and direct appropriations to a shared

services mission, but none offer the long-term, sustainable, transparent structure of a working capital fund.

The Academy has, in partnership with Grant Thornton, hosted a quarterly Working Capital Fund Forum (WCFF) to help agencies plan for and implement WCFs in their organizations. WCFs provide authority, without fiscal year limitation, for expenses necessary to provide certain services and activities on a centralized basis. They provide agencies with a tool to finance and deliver common management and administrative functions in a centralized manner that promotes efficiency and cost effectiveness. They require full cost recovery and, in the process, require negotiated rates for services with customers to achieve that goal. In the process, customers are able to estimate their costs for the service and reflect those costs in their budget requests, while the service provider is able to plan to expected levels of demand and make the investments necessary to meet those demands at an appropriate level of quality.

A crucial feature of a WCF is that the service provider may reflect the depreciation expense associated with capital investment, including investments in IT capability and capacity, as a cost in their rate structure and seek reimbursement through that mechanism from their customers as opposed to requiring a direct appropriation for the investment.

A properly constructed WCF arrangement approximates an economic market where customers can compare prices and services and choose their provider based on their own performance objectives, and where providers are incentivized toward efficiency and effectiveness by that same market mechanism. In this way, service providers find it in their interest to implement and sustain modern and efficient IT systems that improve customer service, and the costs are dispersed over the entire customer base over many years.

Sharing Data for More Effective Programs & Improving Grants Management

Through sponsorship from Grant Thornton, the Academy also presents the Grants Management Symposium—a collaborative discussion series designed to foster knowledge sharing and problem-solving in the grants management community. The Grants Management Symposium aims to assist federal agencies in adopting more streamlined grants management approaches to help address common critical issues and problems. Specifically, it provides:

- o Government to government exchange of best practices and lessons learned to address common challenges;

- o Access to broad audience of subject matter experts & thought leaders from the Academy, public and private sectors, policymakers, non-partisan non-profit State and Local organizations (i.e. the Big Seven), and OMB.

- o A forum to influence and promote change, develop new methodologies and best practices, reduce inefficiencies, enhance grant outputs and improve Government ROI on financial assistance awards.

The federal government spends over $600 billion annually to improve the lives of individuals and families through health, income security, education, training and social services programs

administered by state and local governments and their non-profit partners. State and local governments are eager to build capacity to integrate and analyze data and evaluate what works in order to improve outcomes and cost-effectiveness. However, while some jurisdictions have made great strides in recent years, many are struggling to create modernized data infrastructure and processes that are essential to understanding the needs of their populations, targeting and coordinating services effectively, and continuously evaluating their strategies to inform improvements. The challenges they face are exacerbated by fragmented, uncoordinated federal policies and rules that, often unintentionally, reinforce program silos and compliance activity that impedes innovation and improvement.

At the federal level, funding and rules governing investments in data, analytical, and evaluation capacity of state, local and non-profit grantees are scattered across numerous federal agencies and levels of government. There is no institutionalized structure or process for collaborating across federal agencies, in consultation with state and local stakeholders, to devise coordinated, cost-effective strategies to strengthen grantee capacity. At the same time, there are several promising federal initiatives underway (e.g., the federal data strategy, results-oriented accountability for grants, improving the workforce through regional collaborations) that provide important building blocks for future collaborations to improve state and local capacity.

The recently enacted Foundations for Evidence-Based Policymaking Act charged OMB and federal agencies with strengthening capacity to harness federal data for research and evaluation using modern technology and new governance structures. To date, however, no Congressional committee, federal agency, or set of federal agencies has taken responsibility for helping states and localities develop commensurate capacity. Because every state and community has unique needs requiring tailored strategies, progress on pressing social challenges will remain elusive if they cannot access, integrate and analyze data on the populations they serve and evaluate which approaches work best.

The Grants Management Symposium has clearly demonstrated that information technology can be used to facilitate state and local innovations in data integration practices aimed at improving grant outcomes. The Reimagine HHS Initiative, for example, aims to put the users at the center of programs. Traditional approaches look at problems from the perspective of how to achieve organizational goals and priorities. Human-centered design looks at problems by first developing a deep understanding of users and designing services tailored to the users. This requires dedicated resources to support data collection, analysis, and evaluation. State and local governments struggle with expensive and duplicative data systems. The federal government should work to harmonize and centralize data systems to the extent possible and allow state and local governments to use sufficient resources from grants and other services to improve data collection, analysis, and evaluation.

CONCLUSION

The government's IT infrastructure is heavily dependent upon technologies that were invented in the mid-twentieth century. The coronavirus pandemic has made it abundantly clear that those systems pose extraordinary risk to government operations in a steady state environment, and they may fail catastrophically in a crisis. And yet, government budgeting rules and appropriation law have created IT acquisition challenges for almost as long as the term "IT" has existed.

Insufficient funding for capital improvements has forced agencies to repeat a cycle in which robust plans submitted with their budget requests have to be scaled back to align with the reduced funding amounts they eventually receive. Insufficient funding leads to implementation of sub-optimal solutions with limited impact on improving efficiency. Ironically, governments bear an extra cost burden for such strategies because they must allocate expensive resources to maintain obsolete and inefficient solutions, which by any reasonable business standard should have been rationalized and replaced.

To really change the future, we must change the rules. Today the government has challenges with cloud procurement, but the market is constantly evolving. More things will be sold as a service in the future. With enablers like quantum computing and machine learning, technology innovation will inevitably continue at an increasing rate. Given the economic, demographic, and social challenges facing this nation, the federal government must find new ways to invest in and to improve its effectiveness and efficiency to successfully meet the current and future demands of the American public. We must provide acquisition and sustainment flexibility that reflects what the commercial market is selling, and we must adapt our accounting and auditing rules to encourage, not discourage, the use of these flexibilities. We must be ready to effectively acquire and deploy modern technology solutions or risk failures in our support to our citizens, and potentially calamitous failures in our ability to govern.

I believe that the approaches outlined above could be the early steps of a new way of investing to ensure that our national system of government works better for all of us. The National Academy of Public Administration stands ready to assist in these efforts.

Mr. Chairman, that concludes my written statement, and I would be pleased to answer any questions you or the Committee members may have.