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EXECUTIVE FUNCTION:

Leveraging the 2022 President Management Agenda to Increase Efficiency, Improve Trust, and Instill Resiliency

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Executive Function

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Introduction

The President's Management Agenda (PMA) defines Government-wide management priorities for all Federal agencies to improve how Government operates and performs. The Biden-Harris Management Agenda advances an equitable, effective, and accountable vision across Government and delivers results for all Americans by prioritizing the following strategic values:

- **Equity** – The administration commits to demonstrate that advancing equity is not a zero-sum game that benefits some communities at the expense of others. Equity benefits all Americans, not a select privileged few.
- **Dignity** – The US Government is comprised of, is accountable to, and serves all of its people. The dignity of dedicated Federal employees is crucial to executing on the mission of the Federal Government. To this end, the PMA is committed to improving collaboration and participation throughout its work.
- **Accountability** – The PMA aims to foster and grow public trust by promulgating the utmost integrity and stewardship in its every initiative and action.
- **Results** – The collaborative work of the PMA achieved across agencies should be proactive, actionable, and solve real problems facing America's families, workers, businesses, and communities.

The PMA drives sustained, multi-year, Government-wide efforts to advance each of the three PMA priorities and their supporting strategies. These priorities and strategies set the foundation for a necessary investment in US Government that will require engagement and collaboration from many stakeholders. Through the PMA, cross-agency teams will further seek stakeholder input, define workstreams, set work plans and measures, advance collaborative efforts, and assess and measure progress across Government organizations.

Structure of the PMA

The Biden-Harris President Management Agenda institutionalizes its vision and values through three priorities and their derivative strategies:

Priority 1: Strengthening and Empowering the Federal Workforce

- **Strategy 1.1:** Attract and hire the most qualified employees, who reflect the diversity of our country, in the right roles across the Federal Government
- **Strategy 1.2:** Make every Federal job a good job, where all employees are engaged, supported, heard, and empowered, with opportunities to learn, grow, join a union and have an effective voice in their workplaces through their union, and thrive throughout their careers
- **Strategy 1.3:** Reimagine and build a roadmap to the future of Federal work informed by lessons from the pandemic and nationwide workforce and workplace trends
- **Strategy 1.4:** Build the personnel system and support required to sustain the Federal Government as a model employer able to effectively deliver on a broad range of agency missions

Priority 2: Delivering Excellent, Equitable, and Secure Federal Services and Customer Experience

- **Strategy 2.1:** Improve the service design, digital products, and customer-experience management of Federal High-Impact Service Providers by reducing customer burden, addressing inequities, and streamlining processes
- **Strategy 2.2:** Design, build, and manage Government service delivery for key life experiences that cut across Federal agencies
- **Strategy 2.3:** Identify and prioritize the development of Federal shared products, services, and standards that enable simple, seamless, and secure customer experiences across High Impact Service Providers

Priority 3: Managing the Business of Government to Build Back Better

- **Strategy 3.1:** Foster lasting improvements in the Federal acquisition system to strengthen the U.S. domestic manufacturing base, support American workers, lead by example toward sustainable climate solutions, and create opportunities for underserved communities
- **Strategy 3.2:** Build capacity in Federal financial management and through Federal financial assistance to catalyze American industrial strategy, address climate-related risks, and deliver equitable results

The priority areas and supporting strategies are described in greater depth below.

Priority 1: Strengthening and Empowering the Federal Workforce

Ensuring a Government that delivers for all demands a focus on those who keep Government running and deliver services each day. The strength of any organization rests on its people. More than four million Americans work for the Federal Government. Yet, the Federal Government is not yet the model employer our Federal workforce expects and deserves. Below average employee engagement levels make clear that the Federal Government must be unwavering in its support for the Federal workforce.

To this end, the administration commits to explore new strategies to attract, hire, involve, develop, support, and empower talent. Efforts include:

- Continuing to build a diverse, equitable, inclusive, and accessible workforce that reflects our nation;
- Ensuring that every Federal employee's job is a good job with the tools, work environment, and resources they need to succeed, and respected rights to organize, bargain collectively, and have their voices heard through their unions in agency decisions that genuinely matter;
- Leveraging lessons learned through the pandemic about the resiliency and adaptability of the US workforce to make the Federal Government a more ideal and forward-thinking employer.

This work will be supported by the infrastructure and data needed to sustain the Federal Government as a model employer, and informed by consistent engagement with our public servants across Government and their unions, as well as external stakeholders.

Strategy 1.1: Attract and hire the most qualified employees, who reflect the diversity of our country, in the right roles across the Federal Government

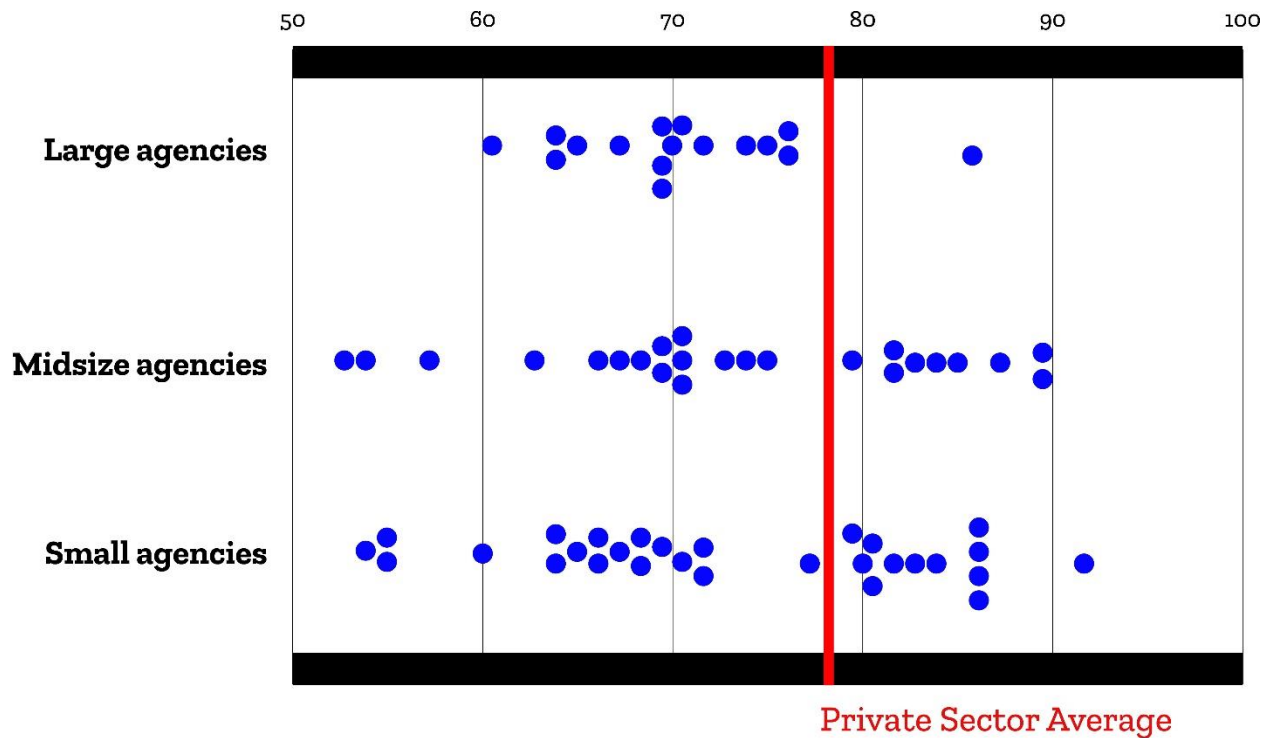
Together, agencies must focus on attracting more people to Federal service long-term, while also addressing immediate agency hiring needs to rebuild capacity. We need to marshal all resources and take an "all of the above" approach to support a talent surge, focused on bringing Government resources together to identify top talent challenges and hire the right people in a timely manner.

As the country's largest employer, the Federal Government has an extensive and complex hiring process, which can hamper efforts to recruit and onboard needed talent. Challenges including long hiring and background vetting times and low hiring manager satisfaction have kept the Federal Government from achieving its goal of being a model employer and being competitive in the labor market. Today, less than 7% of the Federal workforce is under the age of 30 and nearly 28% of Federal employees are eligible to retire in the next 5 years. Given expected retirements and the growing need for new skill sets across agencies, this is a significant risk to our mission effectiveness and the long-term health of Federal agencies. Through the PMA, the Biden-Harris administration promises to:

- Improve competitive hiring by empowering hiring managers to work with agency human resource professionals to develop hiring actions that meet mission needs;
- Adapt Federal hiring processes to meet the talent needs of tomorrow;
- Actively engage candidates, communities, schools, and organizations who have been historically underrepresented in the Federal recruitment and advancement process;
- Transform personnel vetting to better identify risk and support missions and workforce mobility, while mitigating risk.

Strategy 1.2: Make every Federal job a good job, where all employees are engaged, supported, heard, and empowered, with opportunities to learn, grow, join a union and have an effective voice in their workplaces through their union, and thrive throughout their careers

It is the responsibility of the Federal Government to cultivate the passion of federal employees and empower them to advance their missions. While Government-wide employee engagement has increased over the past several years, it still is lower than the private-sector average. Engagement is essential for high performance. Analysis of the Federal Employee Viewpoint Survey shows a strong positive correlation between the Employee Engagement Index and employee perception of agency mission success. As a mission-based enterprise, the Federal Government must explore strategies and initiatives that will improve employee engagement. Figure 1 shows the average employee engagement score per Federal agency vs. private sector averages (on a scale of 0-100)



Agencies across the Government must strive to reflect the commitment of their workforces by closely examining employee compensation packages, including rates of pay and pay equity, and identifying circumstances and policies to foster high-performance workplaces that represent all of America and create a culture of respect and belonging. These efforts will help agencies retain qualified employees, create a pipeline of qualified leaders, and provide better services to the public.

The Federal Government also must be a model employer with respect to worker organizing, collective bargaining, and labor-management partnership. Agencies should make it as easy as possible for their employees to communicate with union representatives and, if the employees choose, to join or organize a union. The Administration’s philosophy is that Federal employee organizing is a good and productive workplace practice that it should facilitate. Managers and supervisors should remain neutral in all organizing campaigns, but also engage actively with their employees’ unions on matters of consequence in the workplace. Agencies should work with their employees’ unions to establish labor-management partnerships.

Strategy 1.3: Reimagine and build a roadmap to the future of Federal work informed by lessons from the pandemic and nationwide workforce and workplace trends

The Federal Government has an opportunity to leap forward in terms of how we conduct our work, and we will be redesigning our future together. By utilizing expanded flexibilities in work arrangements, such as expanded telework and alternative work schedules, and increased adoption of technology, such as cloud computing, collaboration tools, and automation, the Government will enhance its ability to recruit and retain top talent, staying competitive with broader trends in how Americans work. Our changing

world has proven that innovation is possible in the way Federal employees work and operate, including changing needs and uses for traditional office buildings. We will plan and pilot new approaches together, toward the future of Federal work. This will include developing a new vision for how we use the Federal real estate footprint nationwide across agencies in response to shifts in both where Federal employees work and how they work in person together, to ensure both effective mission delivery and employee health, safety, and wellbeing.

Strategy 1.4: Build the personnel system and support required to sustain the Federal Government as a model employer able to effectively deliver on a broad range of agency missions

OPM manages the Federal civil service, coordinates recruiting and hiring of new Government employees, works closely with the national Federal employee unions, and manages Federal employee benefits. As our Government faces increasingly complex challenges, the need for Federal leaders, managers, and front-line staff with the right skills in the right jobs has never been greater. To meet this need, OPM will enhance its ability to effectively deliver on its mission to lead Federal human capital management, and serve as a central, strategic leader in Federal human resources. To help agencies deliver on their missions, OPM and OMB also will continue to build out tools to support agency human resource professionals in data-driven strategic workforce planning and decision-making related to employee engagement, inclusion, and organizational performance.

Priority 2: Delivering Excellent, Equitable, and Secure Federal Services and Customer Experience

In their daily lives as well as in critical moments of need, people rely on Federal services to help support them through disasters, advance their businesses, provide opportunities for their families, safeguard their rights, and aid them in rebuilding their communities. That is why the Federal Government must center its services around those who use them—delivering simple, secure, effective, equitable, and responsive solutions for all who the Government serves.

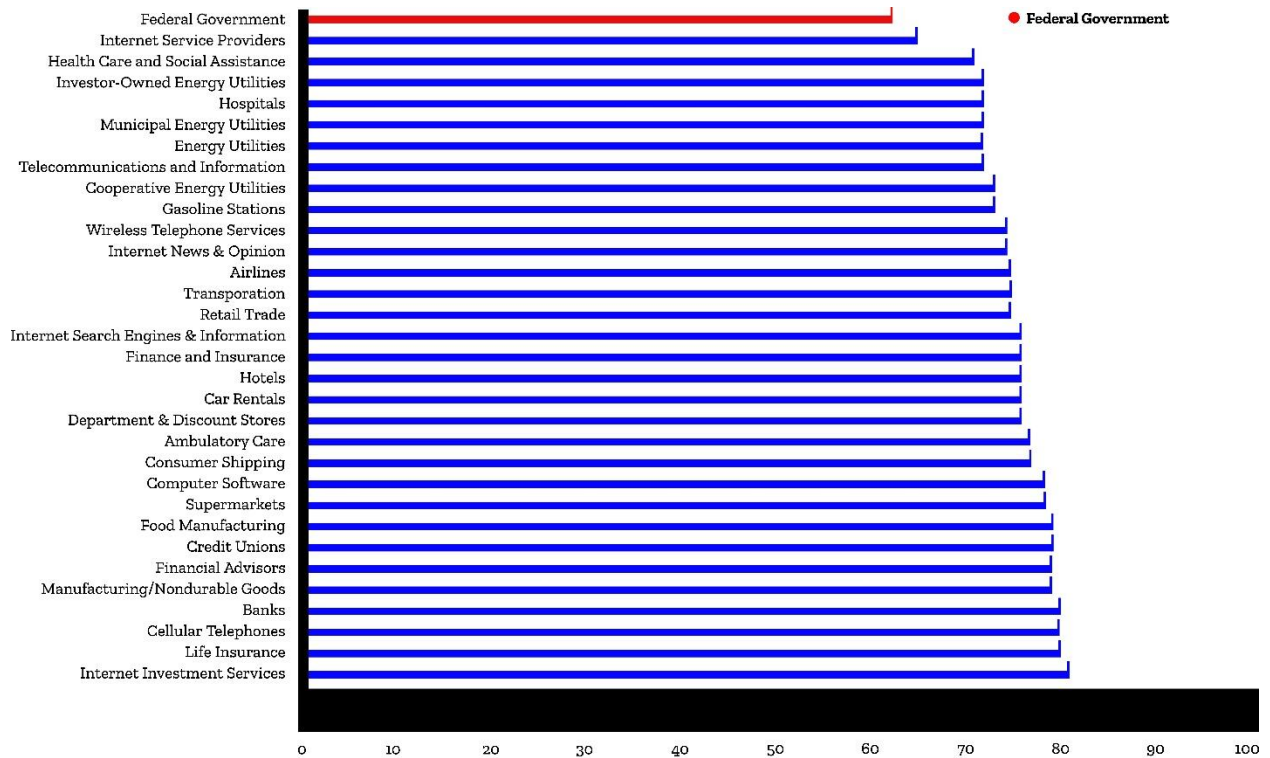
When individuals and organizations interact with any part of the Federal Government, they want that interaction to work seamlessly. Yet our current service delivery is not always designed with the public's needs and priorities in mind. Whether during a pivotal life experience or a routine service interaction, we must deliver excellent customer experience, reduce barriers, and improve understanding of an individual's situation to best help those in need of Government assistance. Honoring the commitment to our nation's founding principle of a Government "of, by, and for the people" means that Government must serve all of the public—and be held accountable for effectively delivering those services. It also means ensuring coordination across Federal Government service providers, as well as with State, Tribal, territorial, and local governments that play key roles in delivering Federally funded assistance and centering the experience of customers. Together, we aim to substantially improve how individuals and

organizations experience and interact with their Government, delivering for them when they need it most.

Strategy 2.1: Improve the service design, digital products, and customer-experience management of Federal High-Impact Service Providers by reducing customer burden, addressing inequities, and streamlining processes

Customer experience is not a new concept to the Federal Government. The Clinton Administration directed agencies to measure the performance of their service to the American public and aimed to establish customer-service standards across Government. Even as there have been areas of progress at many agencies, the fact is that service delivery from Federal service providers has not kept pace with the needs and expectations of those it serves.

We must address these shortcomings head-on and build on progress already underway, with an emphasis on ensuring that we are serving all of our customers equitably. This includes building on progress among Federal High Impact Service Providers—those services that serve the largest percentage of people, conduct the greatest volume of transactions annually, and have an outsized impact on the lives of the individuals they serve. Focusing on these high-impact services will yield capabilities, tools, and practices that will cascade to other Federal programs and services as well, improving our delivery Government-wide. Figure 2 showcases 2020 Customer Satisfaction scores across industries



Strategy 2.2: Design, build, and manage Government service delivery for key life experiences that cut across Federal agencies

People trying to access Government support and services while experiencing a major event in their lives do not see the process through the lens of an individual agency, but that is the way too many Federal Government services operate today. The result is that Government customers spend too much time filling out duplicative paperwork or navigating multiple interactions spanning multiple agencies just to receive Government services for which they are eligible. When a person experiences a disaster or loses a job, Federal Government services should meet them where they are instead of asking them to navigate Government siloes. By better coordinating service delivery based on the life experience of the customer, instead of around existing funding streams or organizational structures, Government can better serve the public's needs, improve mission delivery, and advance equitable outcomes for all communities.

Understanding existing barriers to public services is a crucial part of this work. Human-centered design research will drive the management of Federal programs to develop a comprehensive understanding of how individuals interact with Federal services. Through this process, agencies will identify barriers to service delivery and how those barriers create undue burdens on those the Government serves, in particular for underserved communities. These customer insights will help us more quickly identify and address pain points and gaps in accessibility and equity, helping to inform efforts to ensure that the services we provide are well-designed and widely available to people of all abilities. All Americans must be able to easily access the services they need when they need them.

Strategy 2.3: Identify and prioritize the development of Federal shared products, services, and standards that enable simple, seamless, and secure customer experiences across High Impact Service Providers

How the public interacts with Government programs and benefits influences their level of trust in Government as an institution. The Federal Government touches individuals, families, and business in many areas of their lives, and High Impact Service Providers have similar needs in terms of products and standards. We intend to leverage the scale of common capabilities while designing safe and secure products that better meet what the customer needs. For example, a single login credential or customer account could empower service providers to streamline customer experience; and common customer feedback tools, like platforms for online surveys, could yield business intelligence to support data-driven decisions to improve service delivery.

We will work to improve the customer's experience on the front end, and also will collaborate across Government to emphasize shared data, secure systems, and seamless interactions among agencies in back-office operations. Where we are sharing data among agencies, we will do so responsibly, in consultation with civil rights groups and other stakeholders, securely, and in a manner that protects privacy. We also will integrate customer experience measures and indicators of responsible data sharing into the Government's accountability and performance system to regularly track progress.

Priority 3: Managing the Business of Government to Build Back Better

The Federal Government—as an enterprise—influences and reshapes markets, supports key supply chains, drives progress on new technology and solution development, and provides key support into communities throughout the country. This creates an opportunity to leverage Federal systems for managing the business of Government—the goods and services we buy and the financial assistance and resources we provide and oversee—to create and sustain good quality union jobs, address persistent racial and gender wealth and wage gaps, and address other challenges our nation faces. In total, these systems manage roughly \$1.5 trillion in annual procurement and financial assistance resources—and sometimes much more in times of crisis—creating the scale needed to both lead by example and catalyze new opportunity.

The public will benefit from a Government that buys together and manages financial assistance together, devoting attention to how these systems deliver results—prosperity, security, and opportunity—for all people in this country. We can harness this collective power and make connections across these systems to strengthen our manufacturing base and support American workers, catalyze new solutions that address the climate crisis and enhance sustainability, and advance equity.

The Biden-Harris Administration has already taken bold action to leverage these systems to take on our most pressing challenges as a country. Each of the specific initiatives launched by the Administration has bold and expansive targets that collectively will require substantial attention and resources from and across agencies to implement.

Accomplishing these collective goals and activities will also require continuous improvements in our procurement, financial assistance, and financial management ecosystems, so that we move forward together to build back better. This shift will require new measures and processes, new training for the Federal workforce, and new tradeoffs that agencies will need to address going forward. Together, across the Federal Government, we will lead by example and spur follow-on action across sectors and across all levels of government, while continuing to be responsive to the changing needs and opportunities on the horizon.

Strategy 3.1: Foster lasting improvements in the Federal acquisition system to strengthen the U.S. domestic manufacturing base, support American workers, lead by example toward sustainable climate solutions, and create opportunities for underserved communities

The Federal Government procures more than \$600 billion in goods and services annually. The Biden-Harris Administration has committed to deploying the Federal acquisition system—how the Federal Government buys those products and services – to drive results that benefit all Americans. For example, Federal agencies are leveraging Federal purchasing power to strengthen our domestic manufacturing base and support American workers. By procuring goods and services that are Made in America, we will strengthen the domestic industrial base, enhance and repair critical supply chains, build resilience against future supply disruptions, and empower America’s workers by expanding opportunities.

The Administration also is leveraging the power of procurement to address the climate crisis. Government acquisition will support the goals of achieving a carbon pollution-free power sector by 2035. We are working toward leading by example by prioritizing clean energy in the Government, such as converting the Federal vehicle fleet to zero-emission vehicles and upgrading facilities to energy efficient standards.

Federal agencies also are managing Federal acquisition to tackle inequities in our society and throughout our communities. By creating more opportunities for all types of businesses and underserved entrepreneurs to compete for Federal contracts, the Federal marketplace can serve as a platform to create a more equitable economy.

Strategy 3.2: Build capacity in Federal financial management and through Federal financial assistance to catalyze American industrial strategy, address climate-related risks, and deliver equitable results

The Federal Government provides more than \$800 billion in financial assistance and grants annually—and sometimes much more in times of crisis—creating a crucial, collective opportunity to improve management of the Government’s financial resources in a manner consistent with the PMA’s values of equity, dignity, accountability, and results. Already, the Biden-Harris Administration has committed to harnessing how the Government manages and oversees its grantmaking and financial assistance to implement President Biden’s vision for building back better in specific and tangible ways.

Strategic management and oversight of Federal financial resources, including Federal financial assistance, can help build capacity and strengthen American industry, maximizing Federal funding allocated to U.S. products in critical supply chains and incentivizing strong workplace practices—such as good pay, safe workplaces, and freedom for workers to organize, bargain collectively, and have their voices heard—among financial assistance recipients.

In addition, Federal agencies are using financial management systems to track the financial risks that the climate crisis poses to the American economy, and aim to lead by example by appropriately prioritizing Federal investments and conducting prudent fiscal management. Agencies also are working to deliver more equitable results in financial assistance programs, including by centering considerations of equity within program integrity.

PMA Action Plan

Accomplishing the PMA goals and activities collectively requires both concerted efforts to appropriately execute each specific activity, while also maintaining continuous improvement in these Government-wide systems, tools, and workforces themselves. Through the PMA, the administration will be looking across these existing Administration initiatives to ensure that system-wide continuous improvement occurs. This system-wide focus can include, for example: opportunity and issue spotting, including resolution of conflicts across discrete lines of effort; training and guidance for practitioners within agencies; data-management and evidence-building strategies that advance multiple existing activities; and other capacity-building strategies that build lasting change and, further out, identify opportunities

to leverage these management systems to further enhance the Administration’s goals to build back better.

These priorities rest on the foundation of ongoing improvements in a wide range of essential Federal Government capabilities and systems. The following ongoing lines of interagency effort will support the priorities, strategies, and new workstreams that will advance the PMA Vision.

Further Develop and Support Lasting Interagency Management “Communities of Practice.”

We will come together through the PMC as a community of practice to share issues and learnings, explore data, information, and trends inside and outside of Government that affect management and performance initiatives, and manage enterprise-level risks within and across agencies. The agendas of existing interagency executive-level management councils will be better aligned to ensure that collaborative, values-driven approaches are sustainable and embedded in the work of these councils moving forward.

Continue to Enhance Federal Information Technology (IT) and Cybersecurity as Key Enablers of Mission Delivery.

Cybersecurity and IT modernization are critical tools that must be at the foundation of Government management. The COVID-19 pandemic showed us how critical IT investments are to supporting mission delivery and the essential work of Government. We will continue to bolster Federal cybersecurity and ensure that secure systems help deliver Government services. To better prepare for our future, we also must identify and address critical skills gaps across the Federal IT and cybersecurity workforce.

Apply Federal Data Management and Data Science Capabilities, Building on More than a Decade of Focus Across the Federal Government.

We will continue to strengthen Federal data management practices and infrastructure and enhance data science skills to promote efficient, equitable, and appropriate use of Federal data by Federal agencies and the public. We also will continue to identify, open to the public, and spur engagement with Federal datasets that can fuel American innovation. Taking this work further, we will develop a robust set of actionable information services—data, information, and products—that meet the needs of diverse users and help policymakers drive change grounded in the best available science. We also will advance data practices that support decisions and policymaking grounded in evidence about what works. This includes promoting data sharing and matching. In addition, we will look to expand open, timely, and secure access to administrative Federal datasets that are disaggregated by demographic and other relevant factors to better understand the distribution and impact of Federal programs and services.

Nurture a Culture of Evidence-Based Policymaking and Decision-Making in Federal Agencies.

Evidence-based policymaking is crucial to providing effective Government services. Each agency will prioritize building evidence and implementing its own Learning Agenda, while coordinating with other agencies. To support this, we will release a PMA Learning Agenda to identify cross-cutting questions about the management of the Federal Government that support the PMA priorities, informed by agency Learning Agendas and other sources. The first such effort for the Executive Branch, the Government-wide PMA Learning Agenda will address critical learning gaps and encourage research within, beyond, and in partnership with the Federal Government.

Leverage the Federal Performance Management Framework to Plan and Measure Progress. In early 2022, OMB will deploy Cross-Agency Priority (CAP) Goals to establish cross-cutting targets that cover a limited number of mission and management areas where such Government-wide direction would be helpful to drive collective action on these cross-agency issues. Agencies are also creating four-year strategic plans that define mission success as well as two-year Agency Priority Goals (APGs) reflecting the Administration’s top implementation priorities.

All progress toward the priorities and strategies laid out in this PMA Vision will be reported on Performance.gov, in addition to agency strategic plans and APGs.

Conclusion and Further Recommendations

Overall, the Biden-Harris Presidential Management is an ambitious, forward thinking, and proactive plan to foster innovation, stability, and growth across the federal government and critical infrastructure. In May 2022, ICIT Fellows and US Cyber Guild Luminaries discussed the PMA and developed the following recommendations to build upon the initial foundation of the Biden-Harris Presidential Management Agenda.

Recommendations on Implementing the 2022 Presidential Management Agenda		
Priority 1	Priority 2	Priority 3
<p>Strengthening and Empowering the Federal Workforce</p>	<p>Delivering Excellent, Equitable, and Secure Federal Services and Customer Experience</p>	<p>Managing the Business of Government to Build Back Better</p>
<p>Attract and retain young professionals into the Federal Cyber Workforce through agency and whole-of-government initiatives.</p> <ul style="list-style-type: none"> ➤ Student loan forgiveness ➤ Training and certification programs ➤ Relocation packages and remote work opportunities ➤ Outreach to disenfranchised communities ➤ Job security and benefits packages. 	<p>Ensure clear and actionable cybersecurity objectives and initiatives that are built from collaboration between the executive and legislative branches.</p> <ul style="list-style-type: none"> ➤ Stakeholder engagement will depend on how cogently and focused initiatives are written. ➤ Engagement drives information sharing, collaboration, and talent to the federal government. 	<p>Expand upon and improve system redundancy and resiliency.</p> <ul style="list-style-type: none"> ➤ Prioritize business continuity and the disaster recovery of primary systems ➤ Justify investments against estimated potential downtime losses.

<p>Require agencies to have a cyber talent recruitment and retention plan that provides specific and data-driven answers to questions like:</p> <ul style="list-style-type: none"> ➤ How will you recruit talent? ➤ How will you retain talent? ➤ What are your established private sector relationships? ➤ What outreach is initiated with higher education, technical schools, and K-12? ➤ Are the qualifications desired commensurate with that role? ➤ Which positions require certifications or degrees? ➤ Which positions require broad knowledge, and which require specific technical expertise? ➤ Can secure remote work expand your ability to attract and retain talent? ➤ What accommodations do you offer for those with special needs or neurodivergences? 	<p>Conduct due diligence on vendors and partners to assess their:</p> <ul style="list-style-type: none"> ➤ Resources and efficiency of application ➤ Rate of overworked or under-resourced staff ➤ Incident response plans, procedures, and drill consistency ➤ Security process and controls prioritization ➤ Cyber-hygiene and vigilance ➤ Compliance with best practices 	<p>Establish clear objectives and terms with international allies.</p> <ul style="list-style-type: none"> ➤ Focused collaboration against strategic competitors to achieve realistic goals. ➤ Maintain trust and positively build on international relationship foundations. ➤ Communicate with allies on public statements or new agreements with an eye on prior commitments and diverging priorities or agendas. ➤ Lead when possible but also support allies when they are leading ➤ Build support blocs and leverage momentum to effect change.
<p>Evolve national curriculum to feature cybersecurity throughout K-12.</p> <ul style="list-style-type: none"> ➤ Promote interdisciplinary approach and critical thinking, ➤ Provide state and local level resources to be able to offer curriculum. 	<p>Collaborate against nation-state advanced persistent adversaries (APTs) and other sophisticated threat actors.</p> <ul style="list-style-type: none"> ➤ Actionable strategies need to address threats from every source, including, but not limited to Russia and China or current events. 	<p>Strategize against “grey zone” warfare.</p> <ul style="list-style-type: none"> ➤ Geopolitical conflicts that leverage cyber-physical attack vectors ➤ Socio-economic warfare ➤ Cyber campaigns that weaponize lower sophistication proxies ➤ Digital false flag attacks ➤ Disruptionware and other attacks against critical systems, networks, and resources.
<p>Improve on the existing federal workforce and incorporate new talent as they are hired.</p> <ul style="list-style-type: none"> ➤ The human factors of security matter as much as the technical. ➤ Even where automated, tools are managed and configured by people. 	<p>Release regular guidance on emerging threats, proactive strategies, and actions that can be taken to improve cybersecurity vigilance and response.</p> <ul style="list-style-type: none"> ➤ Industry-focused advisories built from public-private threat intelligence and analysis. ➤ Facilitate industry stakeholder forums and information sharing 	<p>Prevent a single vendor solution from serving as a mass compromise platform by diversifying the solutions implemented across critical systems and networks.</p> <ul style="list-style-type: none"> ➤ Eliminate single points of failure and concentrated threat vectors. ➤ Tooling enterprise endpoints in balance with redundancy and rationalization.

<p>Train existing and new talent according to their roles and responsibilities.</p> <ul style="list-style-type: none"> ➤ Build clear understanding of cybersecurity and cyber-hygiene from precise terminology ➤ Provide the resources necessary to achieve actionable objectives and ensure best practices. 	<p>Develop and disseminate resources for baseline improvements of industry stakeholders.</p> <ul style="list-style-type: none"> ➤ Tools for system monitoring, analysis, and testing against emerging threats. ➤ Gamification and incident response testing exercises. 	<p>Conduct comprehensive and continuous audits and risk assessments.</p> <ul style="list-style-type: none"> ➤ Assess cost per minute of downtime of owned and vendor assets and plan against those potential losses. ➤ Investment in controls, processes, and training to prevent or mitigate an attack is more proactive than investing in mechanisms to absorb losses or insure away financial risk.
<p>Shift focus to retention instead of recruitment.</p> <ul style="list-style-type: none"> ➤ Resources sufficient to offer salaries and benefits that compete with the private sector. ➤ Build institutional trust and reputation so that personnel take pride in working for the federal government. 	<p>Identify critical assets and secure them according to their value and the value of systems and processes that depend on them.</p> <ul style="list-style-type: none"> ➤ Make decisions to drive best practices instead of business ➤ Try to consolidate and minimize the number of vendor and tool dependencies while maximizing coverage against the threat landscape. ➤ Where possible, increase the diversity of solutions. 	<p>Restructure agencies, initiatives, and critical infrastructure to be less linear and more agile, resilient, and adaptable.</p> <ul style="list-style-type: none"> ➤ Critical Infrastructure cannot continue to operate as an inefficient amalgamation of disparate vendors that are operating according to their own resources, priorities, and agendas. It cannot remain a slow, predictable, and vulnerable assembly line. ➤ Critical infrastructure should operate as it is in the Information age, not the industrial age. ➤ It needs to be secured against evolving cyber and cyber-physical threats.
<p>Fund federal cybersecurity.</p> <ul style="list-style-type: none"> ➤ Add language to the annual national defense authorization acts that address cybersecurity and the cyber workforce. ➤ Congress needs to ensure that appropriations meet authorizations so that the government can expand cybersecurity initiatives, recruit, train, and retain talent, and proactively address and prepare for mission objectives. 	<p>Innovate and collaborate.</p> <ul style="list-style-type: none"> ➤ Expand agency capabilities by recruiting talent from a wider variety of disciplines and backgrounds. ➤ If internal expertise or technology is unavailable, rely on specialized, and certified-secure managed services or federal partners. 	<p>Prioritize security over compliance.</p> <ul style="list-style-type: none"> ➤ Federal focus should be more on allocating resources towards achieving security objectives than on adhering to restrictive and cost-prohibitive paths to get to the objective.